Political and institutional determinants of credit booms*

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Abstract

The literature that investigates credit booms has essentially focused on their economic determinants. This paper explores the importance of political conditionings and central bank independence and provides some striking findings on this matter. Estimating a fixed effects logit model over a panel of developed and developing countries for the period 1975q1-2016q4, we find that credit booms are less likely when right-wing parties are in office, especially in developing countries, and when there is political instability. However, they have not proven to depend on the electoral cycle. More independent Central Banks are also found to reduce the probability of credit booms. Moreover, they seem to be more likely to occur and spread within a monetary union.

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1. Introduction

The 2008/09 financial crisis renewed the interest of economists and politicians in understanding the role that credit surges play in the formation, dissemination, and intensification of economic shocks. This event and the economic recession that followed reminded us, once again, that sometimes the credit system is not merely a spreader of shocks that hit the economy – as the traditional financial accelerator mechanism suggests – but it can be the source of the shock. In the previous decades, most economies experienced moments of rapid credit growth (or credit booms), some of them followed by financial crisis (Jordà *et al.*, 2011). These events are far from being rare and since they have the potential to both harm and benefit the economy, it is of great importance for policymakers to better understand the forces behind them.

A significant body of research has tried to comprehend the economic determinants of abnormal credit growth and has successfully identified some relevant macroeconomic factors that are associated with the credit dynamics (Gourinchas *et al.* 2001; Barajas, *et al.*, 2009; Arena *et al.*, 2015; Dell'Ariccia *et al.*, 2016; Meng and Gonzalez, 2017; Avdjiev *et al.*, 2018). However, the strict focus on economic determinants, neglecting other potential drivers, is a shortcoming found in the literature. This paper contributes to the extant literature by establishing a theoretical framework for the linkage between political and institutional factors and credit dynamics and by empirically testing this connection. It investigates if an electoral cycle is present; if government ideology and overall political instability alter the ability of an economy to generate credit booms; and tackles the relationship between monetary policy and credit booms in a new perspective by analyzing the role of Central Bank independence and monetary unions. There are arguments to reasonably assume that all these aspects can actually be relevant and contribute to a better understanding of credit booms – we return to this subject in section 3.

Regarding the economic factors, our results suggest that if policymakers want to regulate credit surges they should pay close attention to the relative price of credit, economic growth and economic openness and exert control over the liquidity in the system. Results also show that some of the political and institutional factors are empirically relevant and robust to changes in the definition of credit booms. Although no evidence of an electoral cycle in credit booms is found, they have proven to be less likely in the presence of some types of political instability (higher government turnover and decreased government's ability to stay in office) and when right-wing parties are in office, especially in developing countries. Regarding the institutional framework for monetary authorities, we find that when a country's monetary policy is in the hands of a single regional monetary union this seems to constitute a big challenge for the monetary authority: credit booms have proven to be more likely in those economies and when the level of Central Bank independence is low. The economic conditionings and central bank independence matter significantly for both industrial and developing countries. However, the political factors seem to matter most for the group of developing countries.

The rest of the paper is organized as follows. Section 2 reviews the existing literature on credit booms. Section 3 discusses the role of the political environment and of Central bank independence. Section 4 describes the data and methodology. The empirical analysis and the discussion of the results are presented in Section 5. Finally, Section 6 concludes.

2. Literature Review

Banking crisis are often associated with excessive credit expansions (Jordà *et al.*, 2011). As such, credit plays, not just the traditional positive role of supporting investment and economic growth, but also exhibits, under certain conditions, a malignant effect on the economy. What these conditions are and what drives credit expansions have been important topics of research in

recent years. The literature has mainly tackled them from an empirical perspective[1] and identified some key explanatory factors (see Mendoza and Terrones, 2008, 2012; Dell'Ariccia *et al.*, 2016).

First, credit booms have been consistently linked to sharp increases in capital inflows triggered by periods of disinflation or by low interest rates in developed economies, factors that consequently raise the supply of loanable funds (Gourinchas *et al.et al.*, 2001; Calderón and Kubota, 2012; Gourinchas and Obstfeld, 2012; Blanchard *et al.*, 2017). These surges are usually associated with a rapid build-up of leverage or to a higher ratio of private credit to bank deposits which, in turn, may lead to financial fragility (Borio and Disyatat 2011; Gourinchas and Obstfeld, 2012). In particular, rising inflows of foreign capital may lead to excessive monetary and credit expansions (Sidaoui *et al.*, 2011), increase the vulnerabilities associated with currency and maturity mismatches (Akyuz, 2009), and create distortions in asset prices (Agnello and Sousa, 2013; Agnello *et al.*, 2012). Some strong evidence of the role played by capital inflows is particularly found in housing market studies: Sá *et al.* (2014) report that capital inflows shocks generate housing booms, while Sá and Wieladek (2015) show a positive connection between these influxes and house price growth.

Second, productivity shocks are also identified as a phenomenon that can pressure capital stock to increase at a higher rate than GDP, thus strongly raising the credit-to-GDP ratio. In addition, a better economic environment can also promote the build-up of credit (Mendoza and Terrones, 2008, 2012; Meng and Gonzales, 2017; Mimir, 2016).

Finally, researchers point out that financial reforms associated with financial liberalization, the reduction in banks' reserve requirements and increases in the provision of financial services may also contribute to more liquidity and to abnormal lending growth.[2] In this context, Agnello *et al.* (2012) show that the removal of policies towards directed credit and

[1] For some recent theoretical papers on the subject, see Boissay *et al.* (2016) and Burnside *et al.* (2016).

[2] Mendoza and Terrones (2012) point that productivity surges, financial reforms, and massive capital inflow episodes appear before 20% to 50% of the peak of credit booms in industrial and emerging market economies.

excessively high reserve requirements and improvements in the securities market reduces inequality. As a result, middle class stagnant incomes press politicians to expand credit and to ease housing affordability (Rajan, 2010).

In addition, some studies also suggest that some domestic differences may account for the uneven incidence of booms across countries: expansionary monetary and fiscal policies; less flexible exchange rate regimes; weak supervision of the banking system; and debt composition (Elekdag and Wu 2013; Arena *et al.*, 2015; Dell'Ariccia *et al.*, 2016; Avdjiev *et al.*, 2018).

3. The role of the political environment and of Central Bank independence

In this paper, we explore the importance of the political environment and central bank independence in explaining the likelihood of credit booms. Although unexplored from the econometric point of view, the relationship between politics and credit booms or financial crises has been debated in the related literature. For example, McCarty *et al.* (2013) discuss how political decisions and policy subtleties in the US contributed to the housing and credit bubble that occurred in the first decade of this century; Calomiris and Haber (2014) present historical evidence and discuss the political background of banking crises; and Fernandez-Villaverde *et al.* (2013) debate the political dynamics of credit cycles in the Eurozone and its consequences.

There are arguments to assume that the length of credit booms might be influenced by the electoral agenda, political orientation, government support, and even political stability. Since the 1970s numerous papers have studied the connection between politics and the economy either by highlighting the relationship between economic performance and governments' electoral success or by identifying politically driven policies affecting several macroeconomic variables.[3]

Of particular interest are the theories of "opportunistic" political business cycles, which suggest that governments try to induce short-term economic expansions before elections with the

[3] For encompassing surveys, see Franzese (2002) and Paldam (2004).

expectation that this may improve their chances of reelection (Nordhaus, 1975; Rogoff and Sibert, 1988; Rogoff, 1990). Conflicting with this theory, we find a different strand of literature, known as "partisan", arguing that governments are heterogeneous in the sense that they tend to exhibit different priorities when it comes to the economy. The most highlighted difference is that left-wing governments pursue low unemployment at the cost of higher inflation, while right-wing governments prioritize low inflation at the expense of higher unemployment. Tendencies to increase taxation, to reinforce the state's intervention in the economy or to increase expenditures are considered traits also more associated with left parties than with other parties (Hibbs, 1977; Alesina, 1987; Alesina and Sachs, 1988). When linking political ideology to credit expansions, we believe that one of two opposing scenarios can occur. First, since right-wing governments are traditionally more prone to reduce state intervention, foster liberalization and to exert less control over the markets, one should expect them to contribute to an increase in the likelihood of a credit boom and the inverse should happen with left-wing governments. Broz (2010) shows that the expansion period of financial cycles is normally accompanied by the election of right-wing governments. Second, there are some traits generally associated with right-wing parties like a higher propensity for inflation control, smaller deficits and a lower inclination to implement income redistribution that may legitimize the opposite effect. The fact that the redistribution of income should be greater when left-wing governments are in power (see Bradley *et al.*, 2003 and Iversen and Soskice, 2006) means that, under the left's rule, more people are expected to access credit or get involved in the financial markets.[4] This will contribute to an increase in the rate of credit expansion. The reverse should happen when right-wing parties are in office.

Another environmental aspect to consider is that higher degrees of government neutrality and also overall political stability - like the presence of majority governments and reduced government turnover (ideological changes) - normally produce a more stable economic

[4] In fact, Popa (2013) shows that the size of the house price bubbles across countries is mainly related to the percentage of homeowners, with more homeowners linked to larger bubbles.

environment. More stability means that less uncertainty and an increase in the overall confidence is felt across most markets, creating favorable conditions for consumption and investment to thrive, thus pressuring credit to grow faster. For instance, Agnello and Sousa (2013) show that higher public deficit volatility is typically linked to more political instability and less democracy .

Regarding the linkage between lending growth and the electoral agenda, ample evidence is found relating policy uncertainty generated by elections with delayed investments, more so when the electoral race is tight (see Jens, 2017; Canes-Wrone and Park, 2014). The disruption and uncertainty caused by elections can have a negative effect on credit expansion. Alternatively, one could also argue that if opportunistic governments are successful in giving a significant boost to the economy prior to elections then these temporary positive shocks can eventually fuel credit booms. However, the theory predicts that after the elections governments are forced to contract the economy to correct the artificial unbalances generated previously, meaning that the positive pre-electoral effect may be mitigate or even canceled in the aftermath of the full political cycle.

Monetary policy is also an important theoretical factor to the understanding of why in some periods credit growth exhibits an excessive pace while in others it does not. Central Banks are the institutions that regulate the quantity of money present in the system. During a credit expansion, Central Banks typically exhibit a loose monetary policy of low interest rates that makes it easier for economic agents to obtain credit which eventually leads to more and cheaper investments, thus helping to place credit growth above normal standards. They also play an important role in the monitoring of the financial system and in preventing markets – and the overall economy – from overheating. However, political pressures can constrain the work of Central Banks, reducing the desired independence of these institutions. Indirectly, governments can influence Central Banks via three main sources. First, the board of the Central Bank is typically selected by parliament or by the government directly. Chappell *et al.* (1993) found that this appointment process is the primary channel through which political parties can influence

Central Banks. Second, governments have the ability to send monetary policy signals to the Central Bank, using, for instance, media appearances to convey their preferences for a looser or tighter monetary policy (Havrilesky, 1988, 1991). Third, governments can threaten Central Bank officials, their jobs or question the very existence of the institution (Lohmann, 1998). These and other aggressive moves may be used to force the Central Bank's policy into a particular direction.

From the governments' perspective the policy of credit expansion is definitively a good thing. More investment and higher consumption makes people happier, and happier people tend to reward the incumbent electorally. Hence, it is reasonable to assume that governments are particularly fond of periods of abnormal credit expansion and they have no desire to have on their hands a credit crunch. They also know that monetary policy is an important tool to help creating, fuelling or delaying the crunch of a particular credit boom. As such, it is expected that less independent Central Banks increase the frequency and intensity of credit booms and that they are less prone and free to intervene when the economy displays strong signs of overinvestment, excessive risk and/or overinflated market bubbles.

4. Data and methodology

To assess the role of the economic conditionings, political environment and central bank independence on the likelihood of credit booms, we collected quarterly data for 67 countries (36 developed/industrial economies and 31 developing/emerging market economies)[5] from 1975q1 to 2016q4 on real credit. These countries were selected according to the availability of economic and political data. This means that we consider only those countries for which there are: (i) data on deposit money bank claims on the private sector; (ii) reasonably long series for the main economic conditionings; (iii) and regular/frequent and competitive elections and changes in the political orientation of the government over the time period considered in this study.

[5] This distinction between developed and developing/emerging countries is based on the United Nations (UN) definition (see UN, 2016 and several previous issues). The list of countries is presented in Table A1 in Annex.

4.1 Identification of credit booms

We use quarterly data on deposit money bank claims on the private sector to identify credit booms because it is more appropriate to assess cyclical movements and volatility associated with crisis episodes. This measure of credit is taken from the line 22d of the IMF's International Financial Statistics (IFS). The amount of credit is then expressed in real terms by dividing the nominal credit by the CPI index (at the end of the quarter).

The definition/identification of credit boom episodes is not an easy task. The literature offers some approaches but no clear consensus on the best methodology to identify them. There seems to be no right or wrong way to identify credit boom events; each approach comes with its advantages and drawbacks (Gourinchas, *et al.*, 2001; Tornell and Westermann, 2002; Mendoza and Terrones, 2008, 2012; Barajas, *et al.*, 2009; Calderón and Kubota, 2012; Dell'Ariccia *et al.*, 2016). Most of them compare a country's real credit per capita or the credit-to-GDP ratio to their non-linear trend. However, they diverge in some features, being some of the most important features: (i) the filtering of credit and GDP series independently or directly as a ratio; (ii) and whether the trend, the thresholds or both are specific to each country.

The analysis provided in this study uses the criteria developed by Gourinchas, *et al.* (2001) – and later fine-tuned by Barajas *et al.* (2009) – to identify credit booms. Hence, a credit boom (*CreditBoom*) is defined as an episode where the deviation of the real bank credit to the private sector, as a percentage of real GDP, from a country-specific trend in country *i* at period *t* (with the trend being calculated up to that period *t*) exceeds a determined threshold.[6] In particular,

[6] The advantage of the ratio of private credit-to-GDP is that it relates private credit to the size of the economy and corrects for the pro-cyclicality in bank lending. For other procedures see, for example, Mendoza and Terrones (2008, 2012), Dell'Ariccia *et al.* (2016) and Avdjiev *et al.* (2017). While Dell'Ariccia *et al.* (2016) identify boom episodes by comparing the credit-to-GDP ratio in each year *t* and country *i* to a backward-looking, rolling, country-specific, cubic trend estimated over the period between years *t*-10 and *t*, Mendoza and Terrones (2008, 2012) use the

a credit boom takes place if the ratio of private credit to GDP meets the following condition: the deviation of this ratio from its estimated trend is greater than 1.5 times its standard deviation or the year-on-year growth rate of private credit to GDP exceeds 20 percent.[7] According to this definition, we identify 220 episodes of credit boom episodes over our entire sample: 67 countries; 1975q1-2016q4. On average, they last around 8 quarters are longer in developing countries and more than a half of those episodes took place in developing or emerging economies.[8]

4.2 Macroeconomic determinants

In the right-hand-side of the equation we start by introducing the potential economic drivers of credit booms. The variables considered are among those most commonly used in the existing literature, namely:

- Total gross capital inflows as percentage of GDP (*CapInflows*). This is the main proxy for capital inflows and includes information from three main components: foreign direct investment, portfolio investment and other investment liability inflows. The data for this variable (and respective components) comes from the IMF's Balance of Payments Statistics (BOP), while data for GDP is gathered from the World Bank's World Development Indicators (WDI). The respective components will be considered later as a sensitivity

deviation of the real credit per capita from its long-run trend to identify those booms. More rencently, Avdjiev *et al.* (2018) use the methodology applied by Agnello *et al.* (2015) and Burnside *et al.* (2016) to the housing market cycle. Their method consists of the following steps: (i) smooth the series of the quarterly (real) credit to the private non-financial sector using a (centred) moving average; (ii) detect periods of consecutive upturns (i.e. positive growth) and downturns (i.e. negative growth) in the smoothed series, thus, dating its turning points (i.e. peaks and troughs); (iii) build on historical variation to set (average) thresholds of (cumulative) (real) growth; and (iv) if cumulative growth over a period of consecutive upturns (downturns) exceeds (falls below) a minimum (maximum) bound, then it is labelled as a boom (bust).

[7] The HP-filter is used to compute the trend, where the value of Lagrange Multiplier employed in the maximization problem is λ=1600 (for quarterly data). For robustness, we also consider later other more restrictive thresholds (1.75 and 2.0) and Mendoza and Terrones (2008, 2012) approach.

[8] For details, see Table A1 in Annex.

analysis. In line with the literature (Gourinchas *et al.*, 2001; Calderón and Kubota, 2012; Gourinchas and Obstfeld, 2012; Blanchard *et al.*, 2017; among others), we conjecture that total capital inflows are positively related to the likelihood of credit booms.

- Ratio of private credit to bank deposits (*Credit/Deposits*). This is a proxy for liquidity in the banking system, where deposits are measured as the sum of demand and time deposits (IFS lines 24 and 25, respectively). We anticipate that credit booms are more likely when liquidity is lower (Borio and Disyatat 2011; Gourinchas and Obstfeld, 2012; among others). Hence, we expect that credit booms will build up with credit growing faster than deposits.[9]
- Interest rate spread (*IRspread*). This is a measure for the banking margin which accounts for the relative price of credit. It is computed as the difference between the average lending rate and the deposit rate, in percentage. These data are collected from the IMF's IFS. Even though the cost of credit is neglected to be directly addressed by most of the studies (with the exception of Barajas *et al.*, 2007), this is an important conditioning to be accounted for (see, for instance, Benbouzid *et al.* 2017a, 2017b). We expect that credit booms are less likely when the relative cost of credit is high.
- Growth rate of real GDP (*RGDPgr*). Quarterly data of real GDP (in local currency at constant prices) is obtained from Datastream and national sources to compute the year-over-year GDP growth rate. According to the literature (Mendoza and Terrones, 2008, 2012; Gourinchas and Obstfeld, 2012; Dell'Ariccia *et al.*, 2016; Mimir, 2016; Meng and Gonzales, 2017; among others), we conjecture that a better economic environment favours the build-up of credit booms, making them more likely.
- Inflation rate (*Inflation*). It is measured by the (year-over-year) percentage change of the consumer price index (CPI) and the data is from the IMF's IFS. In this case it is not easy to

[9] Other measures of credit are also considered later in this study to assess their impact on the building up of a credit boom: ratio of real credit to GDP and to population.

conjecture a sign for its impact: on one hand, price instability may generate uncertainty and less willingness for economic agents to invest; but, on the other hand, it may promote credit booms if the monetary policy is loose, i.e. if the monetary authorities do not intervene by rising the interest rate accordingly to adjust the cost of borrowing.

- Current account balance as percentage of GDP (*CurrAccount*). Gourinchas *et al.* (2001) show that credit booms are associated with a worsening of the current account, so we expect to confirm this finding. Data for this variable are obtained from the WDI.
- Trade openness (*Openness*). This is equal to exports plus imports over GDP (source: IMF-IFS). Even though there is no clear evidence of its impact on credit booms (see, for example, Dell'Ariccia *et al.*, 2016), we conjecture that more opened economies may need to rely more on credit to finance their external commitments at some points in time, which may generate a temporary surge in credit.
- Overvaluation of the real effective exchange rate (*ApprecREER*) as a proxy for asset prices. This variable is obtained using quarterly data from the IMF's IFS. An increase in the REER index means a real appreciation; An overvaluation is measured as the deviation of the REER index from its HP-filtered trend. As an increase in this variable translates into a rise in asset prices, this might lead to an increase in credit to keep up with the rise in asset prices. Hence, according to Calderon and Kubota (2012), we anticipate that a real exchange rate overvaluation will raise the likelihood of a credit boom.
- Exchange rate flexibility (*ExchRateFlex*). This variable is proxied by the coarse classification of the exchange rate regime developed by Reinhart and Rogoff (2004), and updated by Ilzetzky, Reinhart and Rogoff (2009) and similar sources mentioned in that paper for more recent years. The coarse index varies between 1 and 6: higher values indicate a more flexible exchange rate arrangement. According to Dell'Ariccia *et al.* (2016, p.16): "In economies with fixed exchange rate regimes, monetary policy is directed towards

maintaining a fixed exchange rate and is, therefore, unable to respond effectively to the build-up of a credit boom." So, we expect that more flexible exchange rate arrangements are negatively related to the likelihood of credit booms.

4.3 Political environment and central bank independence

To account for the yet unexplored influence of the political environment on the likelihood of credit booms, we employ the following political variables borrowed from the political business cycles and partisan literature:[10]

- Year before election (*YrBefElection*). This dummy variable takes the value of 1 in the 4 quarters before the election, and 0 otherwise. Later, in the sensitivity analysis, it will be replaced by the election quarter dummy (*ElectionQtr*), election year dummy (*ElectionYr*) and year after the election dummy (*YrAftElection*). It is expected that the uncertainty in the months leading to elections might not be beneficial for credit booms; as discussed in the previous section, the opposite effect can also be admissible, although less likely to occur.
- Political orientation dummies: *Right*, *Centre*, and *Left*. These dummies take the value of 1 when the government if formed by a right-wing, centre, or left-wing party, respectively, and 0 otherwise.[11] As discussed in the previous section, there is no clear theoretical

[10] The data for all political variables used in this study were collected from the Database of Political Institutions 2015. The DPI is in an annual database, so we had to construct a quarterly version of the data. Since we had quarterly information on the date of all elections, we use this information to change the annual nature of the data for all political variables used in this study to quarterly data at election points. For those changes found in the annual data that were not accounted by elections we opted by leaving them annually-based. As such, our quarterly variables (excluding *YrBefElection*, *ElectionQtr* and *YrAftElection*) are only partially quarterly variables. Nevertheless, they are clearly more accurate than their annual counterparts.

[11] The DPI divides parties into three groups based on an evaluation of a party's orientation with respect to economic policy. For single party majority governments, the indictor variable corresponding to its ideology takes the value one in years during which the party rules a given country. For coalition governments, the DPI classifies a coalition government as having the ideology of the largest coalition partner. The group of right-wing parties includes

prediction for how government ideology affects credit booms; as such; this dimension is open to the empirical debate.

- Majority government dummy (*MajorityGov*), which takes the value of 1 when the government formed by a governing party that has an absolute majority of seats in the legislature or parliament. Majority governments may help to promote a more stable economic environment, therefore, creating conditions for credit booms to thrive.
- Number of government changes (*NGovChanges*). This variable records the number of government changes (due to elections or not) over the previous five years. Overall, political stability delivered by the presence of majority governments and reduced government turnover (and, hence, ideological changes) are expected to promote credit booms.

Additionally, our baseline specification also accounts for the role of the following institutional factors:

- Central Bank independence (*CBI*). This is the Cukierman-Webb-Neyapti weighted Central Bank independence index updated by Garriga (2016) to measure the respective degree of independence. It varies between 0 and 1: the closer it is from 1, the more independent the Central Bank is. It is expected that the more independent Central Banks are, the more prone and free to intervene they are when the economy displays strong signs of overinvestment, excessive risk and/or inflated market bubbles. Hence, credit booms might be less likely the more independent the Central bank is.
- Monetary Union (*MU*). This is a dummy variable that takes the value of 1 when the country's monetary policy is in the hands of a regional monetary union (for example, the members of the Eurozone or Central Bank of West African States). With this variable, we intend to capture spillover and/or contagion effects over the members of a monetary union.

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conservative, Christian democratic, and other right-wing parties; the group of left-wing parties includes communist, socialist, social democratic, and other left-wing parties; and the group of Centre includes parties defined as centrists or which party position can best be described as centrist.

Other economic and political variables are also considered later in the sensitivity analysis.[12]

4.4 Empirical framework

As the dependent variable used in this analysis is a dummy, we rely on a binary choice model to estimate the coefficients of interest. A logit model is employed to explain the probability of a credit boom occurring in country *i* at quarter *t*, given the economic (*Econ*), political (*Pol*) and institutional (*Inst*) conditionings described above. Hence:

$$\text{Prob}\left(CreditBoom_{it}=1 \mid Econ_{it-1}, Pol_{it}, Inst_{it}\right)=\Lambda\left(\boldsymbol{\alpha}' Econ_{it-1}+\boldsymbol{\beta}' Pol_{it}+\boldsymbol{\gamma}' Inst_{it}\right), \quad (1)$$

where $\boldsymbol{\alpha}$, $\boldsymbol{\beta}$ and $\boldsymbol{\gamma}$ are the vectors of the parameters to be estimated and $\Lambda(\cdot)$ is the logistic cumulative distribution function. As the logit model is to be estimated over a panel of 67 countries over the period 1975q1-2016q4, a panel data analysis is considered. The application of binary models to panel data analysis is straightforward (see Greene, 2012, Ch.17). The structural model for the panel data to be estimated in this study can be written as follows:

$$\begin{aligned} & y_{it}^{*}=\boldsymbol{\alpha}' Econ_{it-1}+\boldsymbol{\beta}' Pol_{it}+\boldsymbol{\gamma}' Inst_{it}+\varepsilon_{it}, \qquad i=1,...,67; \qquad t=1975q1,...,2016q4 \\ & CreditBoom_{it}=\begin{cases}1 & \text{if} \quad y_{it}^{*}>0 \\ 0 & \text{otherwise}\end{cases} \end{aligned} \quad (2)$$

where y_{it}^{*} is the usual unobserved latent variable and ε_{it} is the error term which may include country specific effects v_i (random or fixed) and time effects τ_t. To begin with, we account for all these effects and then select the best estimation procedure (pooled, fixed-effects or random-effects) according to the usual panel-data tests. The respective empirical results are analysed next.

[12] See Table A2 in Annex for the descriptive statistics of all variables used in this study concerning the maximum number of countries that could be used in the estimations.

5. Empirical analysis

This section starts with the discussion of the main results from the estimation of the logit model. Then some sensitivity analyses and robustness checks are provided.

5.1 Main findings

The results from our baseline specification are presented in Table 1. First, only the main economic factors that are identified in the literature as the main conditionings of credit booms are considered. Then, the new explanatory dimensions proposed in this paper are added, hence assessing the impact of political and institutional factors in the build-up of credit booms. For each variable we report the estimated marginal effects, the respective standard-errors and degree of statistical significance (signalled with asterisks). The number of observations, countries used in each estimation, the respective number of credit boom episodes,[13] log-likelihood (LogL), Schwarz Bayesian Information Criterion (SBIC) and McFadden's pseudo-R^2 are reported at the bottom of the table. There we also show the results of panel data and endogeneity tests.

The panel data tests favour the FE Logit estimator relatively to both the ordinary Logit and RE Logit. This means that country effects must be accounted for. Decade-dummies have also proved to be relevant; hence, they are included in all estimations to control for time effects (one for each decade since the 1970s: *Dec70*, *Dec80*, *Dec90*, *Dec00*, *Dec10*; *Dec70* is the base-category. Their estimates are not reported here to save space).[14]

[Insert Table 1 around here]

All economic variables are lagged one period to avoid simultaneity problems and to account for the usual delays in the reporting of economic data. Looking first at the results with

[13] Table A3 in Annex reports the list of countries and events that are used in the estimations. Due to the lack of variability or lack of data for some variables/countries, a few countries were excluded from the estimations. This means that we end up with a maximum of 51 countries and 96 boom episodes in our regressions.

[14] We should note that as probit models do not render themselves well to the fixed effects treatment, due to the incidental parameters problem (Wooldridge 2002, Ch. 15, p. 484), a (fixed effects) logit is used instead.

only those variables (columns 1-3), we confirm the main findings in the literature. In particular, considering our preferred estimation procedure (FE Logit), we show that credit booms are more likely when: (i) capital inflows are boosted; (ii) liquidity is lower (i.e. credit is growing faster than deposits); (iii) credit is relatively cheap; (iv) the economy is growing faster; (v) inflationary pressures are not suitably accommodated by monetary authorities; the current account balance improves (which means more cash/liquidity available and less need for further credit); and when the economy is more open to trade. In sum, we conclude that credit booms depend not only on the quantity of credit (*TotCapInflows* and *Credit/Deposits*), but also its relative price (*IRspread*).[15] At the same time, higher levels of economic growth (*RealGDPgr*) and trade openness (*Openness*) also contribute to build-up the conditions for them to become more likely. On the contrary, economies that can generate more liquidity (better *CurrAccount* position and higher level of deposits) are less prone to be affected by credit booms.

Most of these results remain valid when political and institutional factors are added (see columns 4-6). The exceptions are the inflation rate, which is no longer relevant, and the overvaluation of the REER, which shows the expected positive effect. Nevertheless, the main novelties of this paper come from the results for the political and institutional conditionings. Despite no evidence of an electoral cycle is found in the build-up of credit booms (*YrBefElection*), they have proven to be less likely when right-wing parties (*Right*) are in office: the probability of a credit boom is 6.4 percentage points lower with right-wing governments than with centre or left-wing ones. This result is at odds with the idea that right-wing governments should foster credit boom episodes because they are traditionally more liberal and tend to exert less control over the economy. Perhaps the resistance they exhibit towards the policy of income redistribution, their tendency for smaller deficits and tighter inflation control may be retracting the occurrence of credit booms. This effect is examined more closely further ahead.

[15] In particular, when *TotCapInflows* or *Credit/Deposits* (*IRspread*) increases by 1 percentage point, the likelihood of a credit boom increases (decreases), respectively, by around 1.51 or 0.77 (0.24) percentage points, *ceteris paribus*.

The idea that political instability could reduce the likelihood of credit booms is only supported by the negative effect found for the variable *NGovChanges*. More frequent government turnovers are probably increasing economic uncertainty, hence reducing investment and the demand for credit. However, the extra stability that majority governments are expected to provide does not seem to be relevant. We return to this subject in the sensitivity analysis (see Table 3) where we introduce the International Country Risk Guide (ICRG) index of government stability.

Regarding the institutional controllers we also get some striking findings. Variations in Central Banks' independence (*CBI*) affects credit surges and, as expected, the more independent they are, the lower the propensity for credit booms will be. Their greater independence to intervene with the adequate monetary policy measures when the economy is showing signs of overinvestment, stock and housing market bubbles, excessive risk and too much credit is detrimental to mitigate the accrual of credit booms.

Additionally, we find that when the country's monetary policy is in the hands of a regional monetary union (*MU*), credit booms are more likely to occur. This is a surprising result as the only countries belonging to a Monetary Union in our estimations are Eurozone members. Due to missing values and lack of variability of some variables, the Central Bank of West African States end up being excluded from the estimations. Nevertheless, this result might be indicating the presence of credit spillovers or contagion effects over the members of this monetary union. Given countries asymmetries it may not be easy for the monetary authority to tackle potential credit booms with a policy that fits them all and without hurting some states.

Even though we use lags of the economic variables to account for simultaneity problems, the endogeneity issue is directly addressed in regressions 7 and 8 by employing two instrumental variables approaches: an IV-Probit and a two-stage FE IV-Logit. The first estimator is a standard IV-Probit where fixed-effects are not accounted for. As this estimator does not provide consistent estimates with fixed-effects – and they are present – we rely on an alternative fixed-effects IV-

Logit estimator, where we follow the traditional two-stage instrumental variables approach. In the first-step, as in the IV-Probit, potential endogenous economic variables like *TotCapInflows*, *Credit/Deposits*, *IRspread* and *RealGDPgr* are assumed to be endogenous and they are instrumented using their respective four lags and a dummy that takes the value of one when a country is hit by a banking crisis (*BankCrisis*). It is expected that such crises may affect the inflows of capital, the credit-to-deposits ratio, relative price of credit and growth. All instruments have proven not to be weak in the first-step OLS estimations (with both estimators). In the second-step, the fitted values for those four potentially endogenous regressors are used in the estimation of a fixed-effects logit (in the same fashion as in the IV-Probit). The previous results and conclusions remain unchanged and we also conclude that endogeneity is not an issue in our analysis as the Wald exogeneity test in the IV-Probit and the Durbin-Wu-Hausman test in the FE IV-Logit do not reject the exogeneity hypothesis.[16]

Overall, we conclude that not only the economic but also the political environment, the degree of Central Bank independence and monetary unions matter for the understanding of the likelihood of credit booms.

5.2 Sensitivity analysis

To check for the sensitivity of these results to changes in the controllers, we provide next an analysis where different proxies are used to account for the economic, political and central bank independence measures (Tables 2-4).

Table 2 presents the results of some sensitivity tests to the economic variables. First, we start by replacing *TotCapInflows* by its components: foreign direct investment inflows (*CapInflowsFDI*), portfolio investment inflows (*CapInflowsPI*), and other investment inflows (*CapInflowsOI*), respectively. The results show that the total positive effect of capital inflows on

[16] We also considered other variables as potentially endogenous and other instruments but, in general, the conclusions were similar. The results of those experiments are not reported here, but they are available upon request.

the likelihood of credit booms is mainly driven by portfolio and other investment inflows. This confirms the growingly complex flow and stock dynamics in financial markets. In particular, the dynamics of FDI debt flows – which include (increasing) intra-group flows, such as offshore debt issuance – are becoming closer to the dynamics of (volatile and more vulnerable) portfolio debt flows than to those of (resilient and more stable) FDI equity flows. The complexity of large multinational companies is also contributing to the rise in other non-bank investments (BIS, 2017). For instance, the majority of FDI claims and liabilities in large financial centres refers to Special Purpose Entities – i.e. entities that raise capital or hold assets/liabilities that typically perform no production – whose importance is also growing (Lane and Milesi-Ferretti, 2017).[17]

[Insert Table 2 around here]

Next, we used the credit to GDP ratio (*Credit/GDP*) and the real credit per capita (*RealCredit/Pop*) instead of *Credit/Deposits* as alternative proxies for liquidity. Despite the marginal effect on the first is not significant, *RealCredit/Pop* confirms the quantity of credit as an important driver of credit booms. The results in column 6 also corroborate the conclusion that not only the quantity, but also the price matters. Replacing *IRspread* by its components, we show that higher lending rates (*LendRate*) deter the economy from credit booms, while higher deposit rates (*DepositsRate*) seem to have an opposite effect. In the end, it is their spread (i.e. relative price or banking margin) that defines the direction of the overall effect, which has proved to be significantly negative, as expected. This is an important finding regarding the price-effect to which the literature on credit booms has not given a proper attention so far.

The sensitivity of the exchange rate flexibility indicator was also checked by using the fine measure (*ExchRateFlexF*) proposed by Reinhart and Rogoff (2004), but no relevant change is found relatively to the coarse measure. Despite all these experiments, the results for the other conditionings remain qualitatively and quantitatively unchanged.

[17] We are grateful to one of the referees for bringing this to our attention.

Recently, Avdjiev *et al.* (2018) highlight the role played by external debt composition in shaping the dynamics of credit cycles. As our study is concerned with the political environment, public debt and/or government deficit may also matter. Although this paper uses deposit money bank claims on the private sector to identify credit booms, an increase in public debt or government deficit may also affect the likelihood of credit booms. Therefore, as an additional experiment with the economic controllers, we test their impact on the likelihood of credit booms by adding the variables gross general government public debt (*Debt*) and government budget surplus (*GovBS*), both as a percentage of GDP, to the baseline specification. The results provide some evidence (even though weak) that credit booms are more likely when public debt and deficit increase.[18] As right-wing governments have a higher propensity for lower deficits and debt, this may help to justify why credit booms are less likely when they are in office.

Table 3 reports the results for the sensitivity analysis regarding the political variables. The dummy *YrBefElection* is successively replaced by *ElectionQtr*, *ElectionYr* and *YrAftElection*. These alternative dummies for the political cycle are equal to 1, respectively, in the election quarter, election year and in the year after the election (and 0 otherwise). None of the respective marginal effects is statistically significant, which confirms our initial findings that no electoral cycle is present in the credit booms' dynamics.

[Insert Table 3 around here]

Regarding partisan effects, we confirm that credit booms are indeed more likely with both centre and left-wing governments, but they seem to thrive more when centre parties (*Centre*) are in office as the magnitude of its marginal effect is substantially higher than the one associated to *Left* (see column 4). Even though the propensity of credit booms is not affected by the presence of majority governments, we find that when they are split into single party majority governments (*SPMajGov*) and coalition majority governments (*CoalMajGov*), this second type has a marginal

[18] However, these results are not robust to the changes in the other regressors and, therefore, they should be analysed with a grain of salt.

positive influence on the propensity for credit booms to arise. As alternative proxies for political stability we tried, in regressions 6 and 7, the number of quarters a party is in office (*PartyTenure*) and a risk rating indicator for government's ability to carry out its declared program(s) and to stay in office (*GovStability*).[19] The higher this indicator is, the lower the government stability risk. With this indicator we corroborate the idea that government stability is favourable for credit booms to flourish. Despite these experiments, results for the other variables remain unaffected.

The last set of sensitivity tests reported in Table 4 has to do with the role of the Central Bank and monetary unions. Different measures for the degree of Central Bank independence provide essentially the same results. In column 1 the unweighted Central Bank independence index computed by Garriga (2016), *CBI_unwgted*, is used instead *CBI*; in regressions 2 and 3, *CBI* is replaced by and two alternative indices: *CBI_H&B_wgted* and *CBI_H&B_unwgted*. These are, respectively, the weighted and unweighted Central Bank indices developed by Hicks and Bodea (see http://www.princeton.edu/~rhicks/data.html). Despite the number of observations and countries is lower, we are still finding that more independence is hostile to credit booms.

[Insert Table 4 around here]

One of the instruments that Central Banks can rely on to stabilise any inflationary pressures, market bubbles or misalignments from the economic fundamentals is the Central Bank monetary policy-related interest rate (*CBankRate*). However, it does not seem to be as effective as the actual market lending rate or interest rate spread charged by commercial banks. Even though the Central Bank is not successful in controlling the occurrence of credit booms by managing the price of money, it is more prolific in mitigating them when acts over the supply of money: a decrease in the growth rate of M2 (*M2gr*) contributes to a decrease in the likelihood of a credit boom. Even though the number of observations is slashed to half, the findings for the other variables remain unchanged. Additionally, we also try to uncover interaction effects

[19] Data for this indicator comes from the International Country Risk Guide (ICRG).

between CBI and political orientation (*CBI*Right*, *CBI*Centre*, *CBI*Left*) and monetary union (*CBI*MU*) but no statistically significant effects were found for the coefficients on those interactions (see columns 6-8). However, regarding the political orientation, the ideological effect becomes weaker when interaction effects are considered, while the coefficient on *CBI* remains highly significant. This might indicate that more independent central banks can overrule the propensity for left-wing governments to promote credit booms and help right-wing governments to relax their concerns on this matter.

Additional experiments were made considering other interactions between the political and institutional variables and using different definitions of credit booms and different thresholds but the main results and conclusions of this study remained unchanged.[20]

5.3 Robustness checks

As a robustness check, we split our sample in two groups: developed and developing/emerging countries.[21] The idea is to assess whether these heterogeneous groups are differently affected by the economic, political and institutional determinants or not.

[Insert Table 5 around here]

We begin this analysis by adding to our baseline specification a dummy variable that takes the value of one for developed countries and zero otherwise (*Developed*). The results presented in Table 5 (column 1) show that, on average, credit booms are (slightly) more likely in developed countries. This result is in line with the work by Martinez (2015) who argues that advanced economies are more prone to credit booms and which might be due to the moral hazard problem generated by asymmetric information in financial transactions.

[20] We tested for Gourinchas et al.et al. (2001) and Mendoza and Terrones (2008) criteria using three different thresholds for their computation: 1.5, 1.75 and 2.0. All these results are available upon request.

[21] This distinction is based on the United Nations definition (UN, 2016 and several previous issues). For the list of countries in each group, see Table A1 in Annex.

In a second stage, we separate the analysis between the two groups (columns 2 and 3). We observe that, in both groups of countries credit booms are driven by a higher level of economic growth, worse current account stance, trade openness, and less independent Central Bank. Interestingly, no evidence of a political cycle is found in both cases. However, there are some noteworthy differences. Credit booms in developed countries are more likely when: capital inflows increase, the REER is overvalued,[22] and with minority governments. This is not the case for developing countries. Instead these are more prone to face credit booms when the quantity of credit to deposits is higher and the interest rate spread is lower and with majority governments. This later effect may relate to the fact that developing countries exhibit less established democracies, therefore majority governments might be more critical for government stability.

One noteworthy result found is that the enduring negative impact of right-wing governments on the likelihood of credit booms reported in the previous estimations seems to be restricted to developing countries and it is a characteristic of the 1990s and especially of the first decade of this century (see column 7). Overall, some traits generally associated with right-wing parties like a higher propensity for inflation control, smaller deficits and a lower inclination to implement income redistribution may help understand this negative effect. Additionally, developing/emerging countries have more fragile economies, a characteristic that may reinforce the need for such policies. Nevertheless, to further understand this effect we check for differences between right wing governments and other incumbents in developing countries regarding the economic determinants of credit booms. All economic variables were tested, but only the results that were found to be statistically significant are reported (see columns 4-6). The negative effect of the relative price of credit reported in column 3 only happens during the right's ruling (see column 4). This can also be linked to their greater willingness to control inflation. Additionally,

[22] In this context, some of recent studies have highlighted the particular role that the US dollar plays as the premier global funding currency in the international financial system (Rey, 2015; Bruno and Shin, 2015a, 2015b).

when centre or left-wing parties are in office in developing countries, inflation has a significant positive impact on the likelihood of a credit boom; however, that impact is significantly reduced with right-wing governments (see column 5). Similarly, the negative effect of a better current account stance on the likelihood of credit booms is counteracted by governments ideologically leant to the right. As for the other economic variables no significant differences were found.

As those developing/emerging countries that belong to the Central Bank of West African States monetary union are excluded from our estimations – for the reasons given above – the dummy *MU* is omitted in the regressions with developing countries only. To assess whether the results might be influenced by the Eurozone monetary union, Table 6 provides separate regressions for the sub-samples of Eurozone monetary union countries and all the others that do not belong to a monetary union. The results do not show significant differences between the sample of non-MU countries and the estimations reported above for the whole sample. The only exception is that the impact of total capital inflows becomes irrelevant in this sub-sample. However, it remains highly significant for the Eurozone MU countries. Inflation also plays a significant role in this group of countries. Hence, promoting price stability is an important task for the European Central Bank as it also has the benefit of preventing credit booms. Regarding the political factors, while the political orientation and the number of government changes are irrelevant, majority governments are more prone to avoid credit booms in this MU. Central Bank independence has also proven to be detrimental on that matter.

[Insert Table 6 around here]

As a final exercise, we test the robustness of our findings restricting the sample to the period before the recent Global Financial Crisis (GFC), i.e. to the period before 2007q4. The results reported in Table 6, columns 3-5, show no significant differences for both the entire sample of countries and the sub-sample of developed countries, even though they are weaker for the sub-sample of developing countries. As the estimator does not converge when restricting the

analysis to the period after the crisis, a dummy variable (*GFC*) that takes the value of one in the period after the beginning of GFC (i.e. 2007q4-2016q4), and 0 otherwise, was added the baseline specification. The results presented in column 6 are similar to the ones reported before and show no significant difference for the period after the recent financial crisis.

6. Conclusion

Previous studies on credit booms have focused on their economic determinants. This paper provides valuable new insights into the dynamics of credit cycles by exploring the role of the political and institutional environment.

Estimating a fixed effects logit model over a panel of developed and developing countries for the period 1975q1-2016q4, we confirm many of the important economic drivers identified in previous studies. In particular, we show that credit booms depend not only on the quantity of credit (capital inflows and the ratio of credit to deposits), but are also influence by its relative price. At the same time, economic growth and economic openness also build-up the conditions for the appearance of lending booms. In contrast, economies that can generate more liquidity are less likely to be affected by credit booms.

As to other aspects of lending booms, we find that they appear to be immune to the electoral cycle, meaning that the uncertainty and/or political opportunism usually associated with electoral periods seem to be irrelevant to their dynamics. However, our evidence suggests that a stable political environment improves the likelihood of having a credit boom, although the extra stability majoritarian governments are expected to provide does not seem to be relevant. Additionally, boom episodes have proven to be substantially less likely when right-wing parties are in office. Some characteristics generally associated with right-wing parties like a higher propensity for inflation control, smaller deficits and a lower inclination to implement income redistribution may be fuelling this outcome. Upon further examination, we find that this effect

was restricted to developing countries and, by the most part, specific to first decade of this century. A closer inspection on how the economy impacts credit episodes in these countries under the right's ruling revealed some additional insights. Overall, the relative price of credit, inflation and the current account balance all exhibited quite different relationships with credit booms when right-wing parties were in office.

Our analysis also shows that the more independent a Central Bank is, the lower the propensity for credit booms will be. More independence increases the capacity to efficiently intervene with the adequate monetary policy measures when the economy is showing signs of overinvestment, stock and housing market bubbles, excessive risk taking and too much credit. Hence, Central Bank independence is detrimental to mitigate the accrual of credit booms. Finally, our results suggest that when a country's monetary policy is in the hands of a regional monetary union credit booms are more likely to occur.

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Table 1. Likelihood of Credit Booms: Economic, Political and Institutional determinants

MgEffects	Logit (1)	FE Logit (2)	RE Logit (3)	Logit (4)	FE Logit (5)	RE Logit (6)	IV-Probit (7)	FE IV-Logit (8)
TotCapInflows	0.0146**	0.0151**	0.0157*	0.0116*	0.0219**	0.0134*	0.0190**	0.0285*
	(0.0061)	(0.0072)	(0.0083)	(0.0059)	(0.0110)	(0.0080)	(0.0081)	(0.0157)
Credit/Deposits	0.0018**	0.0077***	0.0086***	0.0034***	0.0141***	0.0087***	0.0037***	0.0153***
	(0.0008)	(0.0014)	(0.0015)	(0.0009)	(0.0029)	(0.0018)	(0.0009)	(0.0030)
IRspread	-0.0017**	-0.0024**	-0.0025**	0.0030*	-0.0043**	-0.0029*	-0.0107***	-0.0057**
	(0.0007)	(0.0011)	(0.0012)	(0.0018)	(0.0021)	(0.0015)	(0.0010)	(0.0028)
RealGDPgr	0.0198***	0.0154***	0.0213***	0.0130***	0.0154***	0.0136***	0.0108***	0.0157***
	(0.0023)	(0.0026)	(0.0028)	(0.0028)	(0.0038)	(0.0033)	(0.0029)	(0.0041)
Inflation	0.0039***	0.0017**	0.0023**	0.0014	0.0004	0.0006	0.0013	0.0002
	(0.0009)	(0.0008)	(0.0010)	(0.0010)	(0.0016)	(0.0013)	(0.0011)	(0.0017)
CurrAccount	-0.0150***	-0.0192***	-0.0250***	-0.0194***	-0.0339***	-0.0280***	-0.0190***	-0.0348***
	(0.0012)	(0.0032)	(0.0023)	(0.0015)	(0.0048)	(0.0030)	(0.0015)	(0.0049)
Openness	0.0656***	0.2078***	0.1891***	0.0901***	0.3322***	0.1767***	0.1122***	0.3407***
	(0.0182)	(0.0253)	(0.0350)	(0.0192)	(0.0509)	(0.0404)	(0.0212)	(0.0518)
ApprecREER	0.0283	-0.0065	-0.0319	0.2570*	0.3109**	0.2606**	0.2496*	0.2917*
	(0.1117)	(0.0723)	(0.1029)	(0.1322)	(0.1455)	(0.1284)	(0.1341)	(0.1496)
ExchRateFlex	0.0003	-0.0031	-0.0002	0.0126	-0.0088	0.0014	0.0173	-0.0088
	(0.0064)	(0.0071)	(0.0091)	(0.0081)	(0.0150)	(0.0119)	(0.0182)	(0.0158)
YrBefElection				-0.0047	-0.0163	-0.0139	-0.0022	-0.0101
				(0.0158)	(0.0175)	(0.0151)	(0.0161)	(0.0180)
RightGov				-0.0597***	-0.0638***	-0.0583***	-0.0593***	-0.0651***
				(0.0142)	(0.0201)	(0.0165)	(0.0145)	(0.0208)
MajorityGov				0.0048	0.0142	0.0042	0.0179	0.0104
				(0.0154)	(0.0194)	(0.0171)	(0.0159)	(0.0205)
NGovChanges				-0.0159	-0.0281**	-0.0206*	-0.0100	-0.0229*
				(0.0101)	(0.0139)	(0.0111)	(0.0104)	(0.0134)
CBI				-0.0651*	-0.1900**	-0.1005*	-0.2460***	-0.2328**
				(0.0391)	(0.0884)	(0.0605)	(0.0900)	(0.0936)
MU				0.0619**	0.1946***	0.1442***	0.0788***	0.2062***
				(0.0247)	(0.0556)	(0.0396)	(0.0259)	(0.0572)
#Observations	3935	3935	3935	3157	3157	3157	3033	2976
#Countries	51	51	51	47	47	47	47	45
#Episodes	96	96	96	88	88	88	88	85
LogL	-1893.6	-1520.6	-1730.3	-1446.5	-1155.0	-1342.1	-16322.0	-1103.7
SBIC	3903.1	3148.8	3584.8	3054.2	2463.1	2853.4	33974.9	2359.3
McFadden-R^2	0.126	0.156	0.132	0.127	0.163	0.131		0.161
FE-test		169.2			134.9			
		[0.000]			[0.000]			
RE-test			326.6			57.1		
			[0.000]			[0.000]		
RE*vs*FE-test			153.4			208.8		
			[0.000]			[0.000]		
Endog.-test							8.58	3.85
							[0.072]	[0.427]

Notes: See Tables A1 and A2 in Annex. Logit estimations considering the Gourinchas *et al.* (2001) criteria with threshold equal to 1.5. Standard errors are reported in parentheses for each marginal effect; ***, **, * - statistically significant at 1%, 5% and 10% level, respectively. #Episodes indicates the number of episodes of booms. The Schwartz Bayesian Information Criterion (SBIC) is computed as follows: SBIC=-2LogL+kLog(N), where k is the number of regressors and N is the number of observations. The McFadden-R^2 is the pseudo-R^2=1−LogL/LogL_0, where LogL_0 is the log-likelihood of the model with only a constant term. The FE-test reports the Hausman test statistic and respective p-value (in square brackets) for the comparison between the ordinary and the fixed effects logit (for details, see Greene, 2012, pp. 763-764); the RE-test reports the LR-test statistic and respective p-value (in square brackets) for the comparison between the ordinary and the random effects logit; and the RE*vs*FE-test reports the Hausman test statistic and respective p-value (in square brackets) for the comparison between the random and the fixed effects logit. Decade-dummies are included in all estimations to account for time effects. All economic variables are lagged one period to avoid simultaneity problems. In columns 7 and 8 are reported the results from instrumental variables estimations, where *TotCapInflows*, *Cred/Deposits*, *IRspread* and *RealGDPgr* are instrumented with their respective 4 lags and a dummy for periods of banking crises. The results from the respective endogeneity tests (Wald exogeneity test for the IV-Probit and Durbin-Wu-Hausman for the FE IV-Logit) are reported at the bottom of the table (respective p-value in square-brackets).

Table 2. Sensitivity analysis I: Economic determinants

MgEffects	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
TotCapInflows				0.0239**	0.0233**	0.0215**	0.0220**	0.0209**	0.0210**
				(0.0117)	(0.0119)	(0.0108)	(0.0110)	(0.0104)	(0.0106)
CapInflowsFDI	-0.0039								
	(0.0216)								
CapInflowsPI		0.0267*							
		(0.0156)							
CapInflowsOI			0.0549**						
			(0.0255)						
Credit/Deposits	0.0142***	0.0140***	0.0145***			0.0140***	0.0142***	0.0144***	0.0148***
	(0.0029)	(0.0029)	(0.0029)			(0.0029)	(0.0029)	(0.0031)	(0.0030)
Credit/GDP				0.0005					
				(0.0007)					
RealCredit/Pop					0.0033***				
					(0.0007)				
IRspread	-0.0042*	-0.0042*	-0.0043**	-0.0058**	-0.0073***		-0.0043**	-0.0036*	-0.0038*
	(0.0022)	(0.0022)	(0.0021)	(0.0024)	(0.0026)		(0.0021)	(0.0020)	(0.0021)
LendRate						-0.0042**			
						(0.0021)			
DepositsRate						0.0064**			
						(0.0030)			
RealGDPgr	0.0161***	0.0157***	0.0157***	0.0114***	0.0160***	0.0157***	0.0156***	0.0146***	0.0130***
	(0.0038)	(0.0038)	(0.0039)	(0.0038)	(0.0041)	(0.0038)	(0.0039)	(0.0038)	(0.0040)
Inflation	0.0004	0.0004	0.0004	-0.0002	0.0002	-0.0005	0.0004	0.0005	0.0005
	(0.0016)	(0.0016)	(0.0016)	(0.0017)	(0.0018)	(0.0018)	(0.0016)	(0.0015)	(0.0015)
CurrAccount	-0.0338***	-0.0338***	-0.0344***	-0.0399***	-0.0428***	-0.0331***	-0.0340***	-0.0319***	-0.0332***
	(0.0048)	(0.0048)	(0.0047)	(0.0046)	(0.0037)	(0.0049)	(0.0048)	(0.0055)	(0.0051)
Openness	0.3275***	0.3311***	0.3248***	0.3551***	0.3065***	0.3310***	0.3335***	0.3132***	0.3309***
	(0.0505)	(0.0507)	(0.0514)	(0.0532)	(0.0581)	(0.0507)	(0.0516)	(0.0539)	(0.0510)
ApprecREER	0.3172**	0.3135**	0.3106**	0.3658**	0.4018**	0.2939**	0.3104**	0.3202**	0.3386**
	(0.1458)	(0.1451)	(0.1480)	(0.1571)	(0.1669)	(0.1441)	(0.1458)	(0.1393)	(0.1438)
ExchRateFlex	-0.0081	-0.0086	-0.0086	0.0058	-0.0092	-0.0104		-0.0125	-0.0095
	(0.0150)	(0.0150)	(0.0152)	(0.0147)	(0.0163)	(0.0151)		(0.0146)	(0.0148)
ExchRateFlexF							-0.0027		
							(0.0045)		
Debt								0.0056*	
								(0.0032)	
GovBS									-0.0082*
									(0.0042)
YrBefElection	-0.0193	-0.0169	-0.0183	-0.0147	-0.0160	-0.0168	-0.0163	-0.0118	-0.0119
	(0.0176)	(0.0175)	(0.0178)	(0.0188)	(0.0198)	(0.0173)	(0.0176)	(0.0166)	(0.0172)
RightGov	-0.0637***	-0.0634***	-0.0655***	-0.0566***	-0.0458**	-0.0628***	-0.0648***	-0.0636***	-0.0698***
	(0.0201)	(0.0200)	(0.0204)	(0.0207)	(0.0209)	(0.0199)	(0.0205)	(0.0208)	(0.0206)
MajorityGov	0.0145	0.0145	0.0142	0.0223	0.0030	0.0134	0.0144	0.0140	0.0180
	(0.0194)	(0.0193)	(0.0198)	(0.0213)	(0.0230)	(0.0191)	(0.0195)	(0.0189)	(0.0192)
NGovChanges	-0.0292**	-0.0282**	-0.0292**	-0.0270*	-0.0292*	-0.0290**	-0.0281**	-0.0250*	-0.0230*
	(0.0140)	(0.0139)	(0.0142)	(0.0147)	(0.0152)	(0.0139)	(0.0140)	(0.0136)	(0.0138)
CBI	-0.1897**	-0.1885**	-0.1933**	-0.1574**	-0.1762**	-0.1867**	-0.1920**	-0.1898**	-0.1905**
	(0.0884)	(0.0881)	(0.0895)	(0.0818)	(0.0874)	(0.0877)	(0.0889)	(0.0869)	(0.0873)
MU	0.1985***	0.1947***	0.2012***	0.1589***	0.1873***	0.1914***	0.1884***	0.1835***	0.1893***
	(0.0559)	(0.0555)	(0.0564)	(0.0528)	(0.0546)	(0.0553)	(0.0570)	(0.0558)	(0.0551)
#Observations	3161	3161	3157	3204	3204	3157	3157	3072	3061
#Countries	47	47	47	47	47	47	47	46	46
LogL	-1157.5	-1156.0	-1154.3	-1193.1	-1170.9	-1154.4	-1155.0	-1112.0	-1115.8
SBIC	2468.1	2465.1	2461.7	2539.6	2495.2	2470.0	2463.1	2400.6	2392.1
McFadden-R^2	0.162	0.163	0.163	0.150	0.166	0.163	0.163	0.174	0.168

Notes: See Table 1. Fixed effects logit estimations for the likelihood of credit booms considering the Gourinchas *et al.* (2001) criteria with standard deviation threshold equal to 1.5. Standard errors are reported in parentheses for each marginal effect; ***, **, * - statistically significant at 1%, 5% and 10% level, respectively. Decade-dummies are included in all estimations to account for time effects. All economic variables are lagged one period to avoid simultaneity problems. *CapInflowsFDI*, *CapInflowsPI* and *CapInflowsOI* represent, respectively, foreign direct investment, portfolio investment and other investment liability flows as percentage of GDP; *Credit/GDP* is the ratio of private credit to GDP; *RealCredit/Pop* is the ratio of private credit to the population; *LendRate* and *DepositsRate* are the average interest rates on loans (lending) and deposits, respectively; *ExchRateFlexF* is an alternative fine classification for the exchange rate flexibility ranging from 0 to 15 (see Reinhart and Rogoff, 2004; and Ilzetzky *et al.*, 2009). *Debt* and *GovBS* correspond to gross general government public debt and government budget surplus (deficit) as a percentage of GDP, respectively, obtained from the WDI.

Table 3. Sensitivity analysis II: Political determinants

MgEffects	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
TotCapInflows	0.0223**	0.0223**	0.0221**	0.0195**	0.0221**	0.0220**	0.0174**
	(0.0109)	(0.0109)	(0.0108)	(0.0099)	(0.0109)	(0.0108)	(0.0088)
Credit/Deposits	0.0138***	0.0138***	0.0137***	0.0132***	0.0144***	0.0125***	0.0090***
	(0.0029)	(0.0029)	(0.0029)	(0.0029)	(0.0029)	(0.0028)	(0.0029)
IRspread	-0.0042**	-0.0042**	-0.0041*	-0.0041**	-0.0047**	-0.0045**	-0.0029*
	(0.0021)	(0.0021)	(0.0021)	(0.0021)	(0.0022)	(0.0022)	(0.0017)
RealGDPgr	0.0150***	0.0150***	0.0150***	0.0156***	0.0144***	0.0151***	0.0096***
	(0.0038)	(0.0038)	(0.0038)	(0.0039)	(0.0038)	(0.0037)	(0.0036)
Inflation	0.0004	0.0004	0.0003	0.0005	0.0003	0.0006	0.0001
	(0.0015)	(0.0016)	(0.0015)	(0.0014)	(0.0016)	(0.0015)	(0.0012)
CurrAccount	-0.0332***	-0.0333***	-0.0330***	-0.0308***	-0.0334***	-0.0306***	-0.0258***
	(0.0049)	(0.0049)	(0.0049)	(0.0053)	(0.0047)	(0.0049)	(0.0065)
Openness	0.3277***	0.3285***	0.3254***	0.2916***	0.3465***	0.3144***	0.2709***
	(0.0507)	(0.0506)	(0.0506)	(0.0501)	(0.0509)	(0.0498)	(0.0605)
ApprecREER	0.3042**	0.3041**	0.3084**	0.2467*	0.3012**	0.2646*	0.2407**
	(0.1433)	(0.1438)	(0.1426)	(0.1319)	(0.1441)	(0.1392)	(0.1192)
ExchRateFlex	-0.0097	-0.0096	-0.0096	-0.0087	-0.0080	-0.0080	-0.0070
	(0.0148)	(0.0148)	(0.0147)	(0.0138)	(0.0149)	(0.0142)	(0.0116)
YrBefElection				-0.0140	-0.0155	-0.0050	0.0030
				(0.0159)	(0.0173)	(0.0154)	(0.0118)
ElectionQtr	-0.0086						
	(0.0285)						
ElectionYr		-0.0007					
		(0.0158)					
YrAftElection			-0.0140				
			(0.0179)				
RightGov	-0.0625***	-0.0627***	-0.0620***		-0.0616***	-0.0585***	-0.0463**
	(0.0199)	(0.0199)	(0.0199)		(0.0199)	(0.0196)	(0.0181)
CentreGov				0.1338***			
				(0.0345)			
LeftGov				0.0372**			
				(0.0172)			
MajorityGov	0.0150	0.0149	0.0155	0.0152		0.0211	
	(0.0190)	(0.0191)	(0.0189)	(0.0175)		(0.0186)	
SPMajGov					-0.0353		
					(0.0290)		
CoalMajGov					0.0355*		
					(0.0210)		
NGovChanges	-0.0222*	-0.0231*	-0.0179*	-0.0257**	-0.0276**		
	(0.0129)	(0.0126)	(0.0103)	(0.0130)	(0.0138)		
PartyTenure						0.0001	
						(0.0003)	
GovStability							0.0060*
							(0.0032)
CBI	-0.1879**	-0.1883**	-0.1870**	-0.1912**	-0.2049**	-0.2048**	-0.1424**
	(0.0878)	(0.0879)	(0.0875)	(0.0867)	(0.0889)	(0.0896)	(0.0719)
MU	0.1901***	0.1905***	0.1889***	0.1883***	0.2032***	0.1837***	0.1216**
	(0.0551)	(0.0551)	(0.0550)	(0.0558)	(0.0559)	(0.0550)	(0.0507)
#Observations	3157	3157	3157	3157	3157	3189	2981
#Countries	47	47	47	47	47	47	46
LogL	-1155.4	-1155.5	-1155.2	-1149.5	-1152.1	-1190.3	-1117.5
SBIC	2464.0	2464.1	2463.4	2460.2	2465.3	2534.0	2378.9
McFadden-R^2	0.162	0.162	0.162	0.166	0.165	0.149	0.162

Notes: See Tables 1 and 2. *ElectionQtr*, *ElectionYr* and *YrAftElection* are equal to 1, respectively, in the election quarter, election year and in the year after the election, and 0 otherwise; *Centre* and *LefGov* are dummies for centre and left-wing governments, respectively; *SPMajGov* and *CoalMajGov* are dummies for single party majority governments and majority governments formed by a coalition, respectively; *PartyTenure* measures the number of quarters that the current party has been in office; *GovStability* is a risk rating indicator for government's ability to carry out its declared program(s), and its ability to stay in office (the higher this indicator is, the lower the government stability risk).

Table 4. Sensitivity analysis III: Central Bank independence

MgEffects	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
TotCapInflows	0.0226**	0.0370	0.0375	0.0214**	0.0770	0.0219**	0.0213**	0.0220**
	(0.0113)	(0.0540)	(0.0539)	(0.0102)	(0.0540)	(0.0110)	(0.0105)	(0.0110)
Credit/Deposits	0.0145***	0.0124***	0.0125***	0.0146***	0.0087***	0.0140***	0.0138***	0.0141***
	(0.0029)	(0.0033)	(0.0033)	(0.0027)	(0.0027)	(0.0029)	(0.0034)	(0.0029)
IRspread	-0.0043*	-0.0037*	-0.0037*			-0.0042*	-0.0036*	-0.0042*
	(0.0022)	(0.0020)	(0.0020)			(0.0022)	(0.0019)	(0.0022)
RealGDPgr	0.0160***	0.0119***	0.0119***	0.0158***	0.0254***	0.0153***	0.0202***	0.0155***
	(0.0039)	(0.0039)	(0.0039)	(0.0035)	(0.0053)	(0.0039)	(0.0045)	(0.0038)
Inflation	0.0003	-0.0018	-0.0018	0.0027**	0.0019***	0.0004	0.0008	0.0004
	(0.0016)	(0.0017)	(0.0016)	(0.0012)	(0.0006)	(0.0016)	(0.0013)	(0.0016)
CurrAccount	-0.0350***	-0.0333***	-0.0332***	-0.0307***	-0.0231***	-0.0338***	-0.0283***	-0.0339***
	(0.0048)	(0.0070)	(0.0068)	(0.0044)	(0.0046)	(0.0050)	(0.0060)	(0.0048)
Openness	0.3426***	0.3552***	0.3567***	0.3234***	0.5533***	0.3318***	0.2087***	0.3326***
	(0.0530)	(0.0690)	(0.0678)	(0.0477)	(0.0774)	(0.0513)	(0.0493)	(0.0509)
ApprecREER	0.3233**	0.1490	0.1492	0.1147	-0.0548	0.3098**	0.3175**	0.3116**
	(0.1504)	(0.1307)	(0.1301)	(0.1207)	(0.1608)	(0.1460)	(0.1382)	(0.1459)
ExchRateFlex	-0.0080	0.0066	0.0063	-0.0230*	-0.0195	-0.0088	-0.0054	-0.0086
	(0.0154)	(0.0136)	(0.0136)	(0.0136)	(0.0210)	(0.0150)	(0.0135)	(0.0151)
YrBefElection	-0.0168	-0.0128	-0.0127	-0.0094	0.0133	-0.0162	-0.0191	-0.0162
	(0.0180)	(0.0158)	(0.0157)	(0.0157)	(0.0224)	(0.0175)	(0.0161)	(0.0175)
RightGov	-0.0640***	-0.0585***	-0.0577***	-0.0650***	-0.1150***	-0.0606		-0.0640***
	(0.0203)	(0.0201)	(0.0199)	(0.0185)	(0.0290)	(0.0491)		(0.0202)
CentreGov							0.2186***	
							(0.0725)	
LeftGov							0.0654	
							(0.0403)	
MajorityGov	0.0135	0.0077	0.0072	0.0113	0.0502**	0.0143	0.0068	0.0144
	(0.0200)	(0.0171)	(0.0170)	(0.0173)	(0.0244)	(0.0194)	(0.0173)	(0.0195)
NGovChanges	-0.0286**	-0.0336**	-0.0335**	-0.0198	-0.0212	-0.0279**	-0.0312**	-0.0282**
	(0.0142)	(0.0150)	(0.0148)	(0.0125)	(0.0206)	(0.0141)	(0.0140)	(0.0140)
CBI				-0.1977**	-0.5211***	-0.1875**	-0.2183**	-0.1947**
				(0.0835)	(0.1458)	(0.0954)	(0.0919)	(0.0916)
CBI_unwgted	-0.2370**							
	(0.1100)							
CBI_H&B_wgted		-0.1076*						
		(0.0612)						
CBI_H&B_unwgted			-0.1087*					
			(0.0655)					
CBankRate				0.0010				
				(0.0009)				
M2gr					0.0017*			
					(0.0010)			
MU	0.2002***	0.1495***	0.1502***	0.1839***	0.2588**	0.1938***	0.2004***	0.1442
	(0.0574)	(0.0524)	(0.0508)	(0.0512)	(0.1138)	(0.0568)	(0.0631)	(0.2456)
*CBI*Right*						-0.0051		
						(0.0719)		
*CBI*Centre*							-0.1197	
							(0.1002)	
*CBI*Lef*							-0.0548	
							(0.0648)	
*CBI*MU*								0.0633
								(0.3012)
#Observations	3157	2962	2962	3349	1636	3157	3157	3157
#Countries	47	44	44	50	30	47	47	47
LogL	-1154.9	-1054.3	-1054.0	-1232.9	-559.8	-1155.1	1187.6	-1155.0
SBIC	2463.0	2260.4	2260.0	2620.1	1260.1	2471.2	2520.3	2471.1
McFadden-R^2	0.163	0.169	0.169	0.173	0.231	0.163	0.139	0.163

Notes: See Tables 1-3. *CBI_unwgted* is the unweighted CBI index computed by Garriga (2016); *CBI_H&B_wgted* and *CBI_H&B_unwgted* are, respectively, the weighted and unweighted CBI indices developed by Hicks and Bodea (available at http://www.princeton.edu/~rhicks/data.html); *CBankRate* is the central bank monetary policy-related interest rate; *M2gr* measure the growth rate of M2; *CBI*Right, CBI*Centre, CBI*Left* and *CBI*MU* to account for the interactions between *CBI* with *RightGov*, *CentreGov*, and *LeftGov* and *CBI* and *MU*, respectively.

Table 5. Robustness checks I: Developed versus Developing countries

	All	Developed	Developing				
MgEffects	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
TotCapInflows	0.0184*	0.0231**	0.2166	0.2265	0.2379	0.2224	0.1628
	(0.0099)	(0.0112)	(0.1617)	(0.1563)	(0.1547)	(0.1642)	(0.1409)
Credit/Deposits	0.0135***	0.0014	0.0219***	0.0230***	0.0220***	0.0218***	0.0198***
	(0.0030)	(0.0054)	(0.0028)	(0.0030)	(0.0028)	(0.0028)	(0.0026)
IRspread	-0.0037*	-0.0079	-0.0066***	-0.0027	-0.0043**	-0.0066***	-0.0058***
	(0.0020)	(0.0073)	(0.0016)	(0.0024)	(0.0020)	(0.0016)	(0.0016)
RealGDPgr	0.0147***	0.0192***	0.0107**	0.0126**	0.0120**	0.0114**	0.0080*
	(0.0038)	(0.0057)	(0.0052)	(0.0052)	(0.0053)	(0.0053)	(0.0046)
Inflation	0.0008	0.0063	0.0080***	0.0087***	0.0104***	0.0081***	0.0064***
	(0.0014)	(0.0043)	(0.0020)	(0.0020)	(0.0022)	(0.0020)	(0.0018)
CurrAccount	-0.0303***	-0.0446***	-0.0197***	-0.0200***	-0.0177***	-0.0215***	-0.0196***
	(0.0054)	(0.0038)	(0.0045)	(0.0046)	(0.0045)	(0.0054)	(0.0041)
Openness	0.2421***	0.3111***	0.5027***	0.4393***	0.4746***	0.5042***	0.3953***
	(0.0567)	(0.0798)	(0.1425)	(0.1303)	(0.1457)	(0.1412)	(0.1337)
ApprecREER	0.2585*	0.6544**	0.2303	0.2146	0.2922*	0.2261	0.1675
	(0.1344)	(0.2618)	(0.1673)	(0.1654)	(0.1711)	(0.1691)	(0.1521)
ExchRateFlex	-0.0091	-0.0222	-0.0166	-0.0165	-0.0104	-0.0188	-0.0096
	(0.0138)	(0.0226)	(0.0168)	(0.0164)	(0.0170)	(0.0174)	(0.0148)
YrBefElection	-0.0154	-0.0276	-0.0018	-0.0077	-0.0040	-0.0049	0.0090
	(0.0160)	(0.0240)	(0.0259)	(0.0254)	(0.0259)	(0.0266)	(0.0235)
RightGov	-0.0594***	-0.0373	-0.1075***	-0.0303	-0.0046	-0.0969***	0.0741
	(0.0195)	(0.0251)	(0.0289)	(0.0421)	(0.0497)	(0.0334)	(0.0585)
MajorityGov	0.0090	-0.0895***	0.1206***	0.1263***	0.1198***	0.1217***	0.1008***
	(0.0177)	(0.0285)	(0.0274)	(0.0263)	(0.0276)	(0.0274)	(0.0254)
NGovChanges	-0.0256*	-0.0454*	-0.0261	-0.0317	-0.0360*	-0.0290	-0.0179
	(0.0131)	(0.0269)	(0.0205)	(0.0203)	(0.0212)	(0.0211)	(0.0189)
CBI	-0.1754**	-0.1456**	-0.7376***	-0.7006***	-0.7986***	-0.7154***	-0.6884***
	(0.0848)	(0.0646)	(0.1040)	(0.1312)	(0.1069)	(0.1126)	(0.1078)
MU	0.1661***	0.1905***					
	(0.0542)	(0.0609)					
Developed	0.1135*						
	(0.0619)						
*Right*IRspread*				-0.0060**			
				(0.0024)			
*Right*Inflation*					-0.0136**		
					(0.0054)		
*Right*CurrAcc*						0.0148**	
						(0.0067)	
*Right*Dec80*							-1.3144
							(2.3026)
*Right*Dec90*							-0.1289*
							(0.0670)
*Right*Dec00*							-0.2994***
							(0.0725)
*Right*Dec10*							-1.2194
							(1.0100)
#Observations	3157	2296	856	856	856	856	856
#Countries	47	31	16	16	16	16	16
#Episodes	88	61	27	27	27	27	27
LogL	1155.0	-821.6	-267.8	-264.7	-264.1	-267.6	-259.1
SBIC	2471.1	1790.2	657.1	657.8	656.4	663.4	659.9
McFadden-R^2	0.163	0.158	0.334	0.342	0.344	0.335	0.356

Notes: See Tables 1-4. Estimations considering Gourinchas *et al.* (2001) criteria with standard deviation threshold equal to 1.5. The number of credit boom episodes is reported at the bottom of the table for each group of countries. A fixed effects logit is estimated for the entire sample with the dummy *Developed* and the sub-samples of developed and developing countries.

Table 6. Robustness checks II: Monetary Union and Global Financial Crisis

	MU	Non-MU	Before GFC			Dummy GFC
			All	Developed	Developing	
MgEffects	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
TotCapInflows	0.0189***	0.0882	0.0611**	0.0426**	0.1607	0.0286**
	(0.0063)	(0.0604)	(0.0248)	(0.0201)	(0.1173)	(0.0125)
Credit/Deposits	0.0273**	0.0151***	0.0157***	-0.0060	0.0098*	0.0164***
	(0.0124)	(0.0037)	(0.0032)	(0.0057)	(0.0059)	(0.0033)
IRspread	0.0037	-0.0027	-0.0045	-0.0119*	-0.0016*	-0.0023
	(0.0065)	(0.0022)	(0.0029)	(0.0072)	(0.0009)	(0.0021)
RealGDPgr	0.0059*	0.0205***	0.0166***	0.0142*	0.0059*	0.0244***
	(0.0032)	(0.0048)	(0.0062)	(0.0075)	(0.0032)	(0.0045)
Inflation	0.0571***	-0.0011	-0.0032	0.0106	0.0015*	0.0009
	(0.0120)	(0.0018)	(0.0023)	(0.0140)	(0.0009)	(0.0016)
CurrAccount	-0.0305***	-0.0309***	-0.0448***	-0.0444***	-0.0062*	-0.0341***
	(0.0032)	(0.0057)	(0.0049)	(0.0088)	(0.0034)	(0.0050)
Openness	0.2646***	0.1448**	0.0930	0.1467	0.0346	0.2405***
	(0.0941)	(0.0738)	(0.1163)	(0.1239)	(0.0462)	(0.0546)
ApprecREER	0.3186	0.4231**	0.1814	0.5213*	-0.0328	0.4347***
	(0.4025)	(0.1703)	(0.2252)	(0.3033)	(0.0625)	(0.1641)
ExchRateFlex		0.0251	-0.0170	-0.0239	-0.0056	-0.0082
		(0.0161)	(0.0217)	(0.0237)	(0.0057)	(0.0164)
YrBefElection	-0.0071	-0.0256	-0.0098	-0.0021	-0.0033	-0.0233
	(0.0195)	(0.0214)	(0.0249)	(0.0245)	(0.0097)	(0.0192)
RightGov	0.0272	-0.0803***	-0.0924***	-0.0382	-0.0357	-0.0680***
	(0.0211)	(0.0275)	(0.0267)	(0.0264)	(0.0218)	(0.0219)
MajorityGov	-0.1614***	0.0521	-0.0248	-0.1080***	0.0313*	0.0058
	(0.0329)	(0.0328)	(0.0283)	(0.0318)	(0.0166)	(0.0210)
NGovChanges	-0.0182	-0.0334**	-0.0497***	-0.0502***	-0.0174	-0.0363**
	(0.0189)	(0.0168)	(0.0173)	(0.0170)	(0.0115)	(0.0156)
CBI	-0.2829**	-0.1544*	-0.2491**	-0.1513**	-0.4946**	-0.1586**
	(0.1323)	(0.0862)	(0.1065)	(0.0713)	(0.2411)	(0.0718)
MU			0.2432***	0.1620**		0.2141***
			(0.0706)	(0.0651)		(0.0635)
GFC						0.0381
						(0.0261)
#Observations	500	2443	2651	1967	684	3157
#Countries	12	35	45	31	14	47
#Episodes	20	64	72	52	20	88
LogL	-134.8	-974.0	-935.5	-653.9	-212.3	-1195.3
SBIC	350.5	2057.2	1989.2	1421.6	516.1	2519.6
McFadden-R^2	0.387	0.111	0.112	0.139	0.300	0.133

Notes: See Tables 1-4. Estimations considering Gourinchas *et al.* (2001) criteria with standard deviation threshold equal to 1.5. The number of credit boom episodes is reported at the bottom of the table for each group of countries. A fixed effects logit is used in all estimations. Separate estimations for countries in the Eurozone monetary union (MU) and the others (non-MU) are provided in columns 1 and 2, respectively. In columns 3-5 are reported the results for the period before the recent Global Financial Crisis (GFC), i.e. before 2007q4. The estimation reported in column 6 includes a dummy variable that takes the value of one in the GFC period and after (i.e. 2007q4-2016q4); and 0 for the period before the GFC.

ANNEX

Table A1: Descriptive statistics for the episodes and duration of credit booms

	#Spells	Mean	St.Dev.	Min.	Max.
All countries (67)	220	8.04	5.82	1	32
Developed countries (36)	96	8.53	6.77	1	32
Developing countries (31)	124	7.66	4.94	1	27

Notes: This table reports the number of episodes/spells (#Spells), the mean duration (Mean), the standard deviation (St.Dev.), the minimum (Min.) and the maximum (Max.) duration for credit booms. The data are quarterly and comprises 67 countries over the period 1975q1-2016q4. Credit booms are identified using the works of Gourinchas *et al.* (2001) and Barajas *et al.* (2009). A credit boom takes place when the deviation of the ratio of credit to GDP from its trend exceeds 1.5 times of its standard deviation or the (year-on-year) growth in the credit-GDP ratio exceeds 20 percent.
Developed countries: Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Rep., Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States.
Developing/Emerging countries: Argentina, Armenia, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Rep., Ecuador, El Salvador, India, Indonesia, Israel, Kenya, Korea Republic, Malaysia, Mexico, Morocco, Panama, Paraguay, Peru, Philippines, Russian Fed., South Africa, Sri Lanka, Taiwan, Thailand, Turkey, Ukraine, Uruguay, Venezuela.

Table A2. Descriptive statistics for the variables and countries used in the estimations

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
CreditBoom	3935	0.24	0.43	0	1
TotCapInflows	3883	0.19	1.05	-7.96	19.22
CapInflowsFDI	3884	0.06	0.41	-1.11	15.45
CapInflowsPI	3884	0.06	0.53	-9.04	12.14
CapInflowsOI	3883	0.06	0.35	-5.55	8.81
Credit/Deposits	3935	5.96	7.47	0.28	105.88
Credit/GDP	3935	2.81	17.78	0.01	576.82
RealCredit/pop	3935	8.63	32.58	0.00	354.60
IRspread	3933	6.27	8.12	-17.12	121.00
LendRate	3933	13.34	12.29	0.29	176.37
DepositsRate	3933	7.07	6.69	0.03	85.23
RealGDPgr	3934	3.13	3.20	-14.81	14.04
Inflation	3935	5.90	7.43	-3.82	101.55
CurrAccount	3935	-1.26	5.31	-25.55	17.47
Openness	3935	0.73	0.41	0.16	3.58
ApprecREER	3888	0.00	0.06	-0.65	0.41
ExchRateFlex	3935	2.36	1.13	1	6
ExchRateFlexF	3935	8.06	4.11	1	15
Debt	3840	48.15	28.04	3.66	219.77
GovBS	3827	-2.51	4.11	-15.29	18.70
ElectionQtr	3935	0.07	0.25	0	1
RightGov	3237	0.45	0.50	0	1
CentreGov	3237	0.12	0.33	0	1
LeftGov	3237	0.42	0.49	0	1
MajorityGov	3760	0.69	0.46	0	1
SPMajGov	3760	0.20	0.40	0	1
CoalMajGov	3760	0.49	0.50	0	1
NGovChanges	3863	1.51	0.77	0	5
PartyTenure	3472	22.68	28.29	1	260
GovStability	3633	8.13	1.72	1	12
CBI	3932	0.59	0.24	0.13	0.90
CBI_unwgted	3932	0.58	0.22	0.08	0.89
CBI_H&B_wgted	3701	0.60	0.23	0.17	0.96
CBI_H&B_unwgted	3701	0.59	0.24	0.12	0.96
CBankRate	3935	7.56	7.21	0.10	71.10
M2gr	2329	3.34	5.29	-33.49	76.18
MU	3935	0.13	0.34	0	1
BankCrisis	3934	0.05	0.21	0	1

Notes: This table reports the number of observations for each variable, their mean (Mean), standard deviation (Std.Dev.), minimum (Min.) and maximum (Max.) for the maximum number of countries that could be used in the estimations (51 countries) over the period 1975q1-2016q4 (see Table A3 for the list of countries used in the estimations).

Table A3. List of countries used in the estimations, credit booms date and duration

Country	Begin	End	Duration	Country	Begin	End	Duration
Argentina	1997q1	1999q1	9	Japan	1998q2	2001q3	14
Armenia	1999q2	2000q4	7	Korea Republic	2002q2	2004q1	9
Armenia	2004q3	2009q1	19	Korea Republic	2008q1	2009q2	6
Australia	1989q1	1991q2	10	Latvia	1997q2	1999q1	8
Australia	2007q4	2009q2	7	Latvia	2000q3	2008q2	32
Austria	2005q2	2006q3	6	Latvia	2009q3	2010q3	5
Bolivia	1990q2	1995q1	20	Lithuania	1998q2	1999q3	6
Bolivia	1996q4	1998q4	9	Lithuania	2002q3	2008q4	26
Brazil	2006q3	2008q4	10	Luxembourg	2005q2	2006q4	7
Bulgaria	2001q4	2009q3	32	Luxembourg	2007q4	2008q4	5
Canada	1981q2	1982q3	6	Malta	2000q2	2002q1	8
Canada	2001q4	2003q2	7	Malta	2008q2	2009q2	5
Canada	2006q3	2006q4	2	Mexico	1989q1	1995q3	27
Chile	2007q3	2009q1	7	Netherlands	1996q1	1998q1	9
Colombia	1997q3	1999q2	8	Norway	1984q4	1991q2	27
Colombia	2006q3	2009q1	11	Norway	1997q3	1998q4	6
Costa Rica	1998q1	2001q1	13	Norway	2006q2	2006q4	3
Costa Rica	2007q1	2009q3	8	Paraguay	2001q2	2003q1	8
Croatia	1997q4	1998q4	5	Paraguay	2007q3	2009q2	8
Croatia	2001q1	2003q3	11	Paraguay	2010q2	2010q4	3
Cyprus	2000q1	2001q4	8	Peru	1995q3	1999q1	15
Cyprus	2007q1	2008q2	6	Philippines	1983q2	1984q3	6
Czech Republic	1996q2	1998q3	10	Philippines	1993q2	1998q3	22
Czech Republic	2005q2	2008q3	14	Poland	2006q3	2009q2	12
Denmark	1986q3	1986q4	2	Portugal	1997q1	2003q1	25
Denmark	1987q4	1990q4	13	Portugal	2007q4	2009q1	6
Denmark	2000q3	2000q4	2	Romania	1998q3	1999q1	3
Ecuador	1993q3	1995q4	10	Romania	2001q4	2009q2	31
Ecuador	1997q3	1998q4	6	Russian Federation	1998q3	2002q2	16
Ecuador	2001q1	2002q2	6	Russian Federation	2006q1	2009q2	14
Estonia	1996q2	1998q2	9	Slovak Republic	1996q2	1998q2	9
Estonia	2005q3	2009q1	15	Slovenia	2004q1	2009q2	22
Finland	1989q1	1993q1	17	South Africa	2001q2	2002q1	4
Finland	2007q4	2008q4	5	South Africa	2006q1	2009q1	13
France	1978q1	1979q4	8	Spain	2006q4	2009q2	11
France	2007q3	2008q4	6	Sweden	2001q1	2003q3	11
Germany	2000q1	2001q4	8	Switzerland	1999q3	2001q1	7
Germany	2008q4	2009q3	4	Switzerland	2006q3	2008q3	9
Greece	2007q3	2008q4	7	Thailand	1995q4	1999q2	15
Greece	2010q2	2011q1	4	Thailand	2010q2	2010q3	2
Hungary	2000q1	2001q1	5	Ukraine	1999q3	2004q3	20
Hungary	2003q2	2004q3	6	Ukraine	2005q3	2009q3	17
Hungary	2007q4	2009q1	6	United Kingdom	2007q4	2009q1	6
Iceland	1997q4	2001q2	15	United States	1978q3	1980q1	7
Iceland	2004q1	2008q3	19	United States	1988q4	1990q4	9
Indonesia	1986q4	1991q2	19	United States	2007q2	2009q1	8
Indonesia	1997q3	1998q4	6				
Italy	1991q4	1993q4	9				
Italy	1999q1	2001q4	12				
Italy	2010q2	2011q1	4	***Average duration***			***10.5***

Notes: This list only reports those countries and events of credit booms that are used in the estimations; when the political and institutional variables are added, Armenia, Indonesia, Lithuania and Switzerland are excluded from the sample due to lack of data or variability for those variables. Credit booms identified using Gourinchas *et al.* (2001) and Barajas *et al.* (2009) criterion (see notes on Tables A1 and A2).