Market freedom and the global recession

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July 27, 2010

Abstract

In this study we find that the set of policies that favor liberalization in credit markets (regulatory quality) are negatively correlated with countries resilience to the recent recession as measured by output growth in 2008 and 2009.

JEL Classification: E02, G01.

Keywords: Financial crisis, Market freedom, Credit market regulation, Recession

* We thank, for suggestions and criticism, Antonio Estache, Philippe Weil, Stefan Zeugner, the participants at the PSE, BdF, IMF Conference on "Economic Linkages, Spillovers and the Financial Crisis", our discussant Galina Hale, two anonymous referees and the editors, Pierre-Olivier Gourinchas and M. Ayhan Kose. The opinions in this paper are those of the authors and do not necessarily reflect the views of the European Central Bank and the Eurosystem.

1 Introduction

The recent recession has affected all countries around the world in an almost synchronous way. Interestingly, not only has it hit countries with bad macroeconomic fundamentals, but also those with AAA rating. The degree to which countries have been affected by the crisis, on the other hand, has differed and, quite surprisingly, countries with a higher income per capita have experienced the most severe output loss. The global nature of the recession and cross-country heterogeneity in the depth of the downturn give the researcher a unique opportunity to identify the link between the structural characteristics of economic and institutional systems before the crisis and their resilience with respect to the global recessionary shock.

One question which arises in relation to the relatively poor performance of apparently strong countries - i.e., countries with relatively high income per capita, developed capital markets and high ratings - is whether country risk assessments, as made before the crisis, were accurate and, if not, what was missing from the assessment criteria. Assessments of country risk take into account governance, political instability and quality of regulation and low 'country risk' has typically been seen as a contributor to countries' performance in the long run. Although there is a large and active literature aiming at understanding the relation between institutions and economic growth (see Acemoglu, Johnson, and Robinson (2005) for a review), not much is known about the relationship between governance and the business cycle. In principle, market orientation, a stable political system and good governance should make countries more resilient to large shocks and therefore mitigate output losses associated with recessions. Is this the case? What can we learn from the recent conjuncture?

We address this question by considering the explanatory power of indexes of country risk in cross-section regressions for over one hundred countries where the dependent variable is output growth in 2008 and 2009.

International organizations such as the World Bank and the International Monetary Fund, institutions such as the Frazer Institute and the World Economic Forum and commercial rating agencies compute indexes capturing characteristics of governance, the institutional system and economic policies that can be used to assess country risk. These indexes also consider regulatory quality in the product, labor and financial markets which generally give weight to the extent of adoption of

pro market policies ("market freedom" as defined by the Frazer Institute). They include variables measuring the degree of price liberalization, competition policies in various sectors, discriminatory taxes and tariffs, trade and exchange rate controls and access to capital markets.

Since the recession is associated with a financial crisis and the last two decades have been characterized by increasing financial liberalization, this paper focuses, in particular, on the role of "credit market freedom" within the broader indicators of country risk. Have more liberalized markets fared better in the global recession?

Credit market liberalization generally progresses with financial development and there is ample empirical evidence of the positive effect of financial development on growth (see Levine (2005)) and some evidence of its positive effect on macroeconomic stability (see, for example, Beck, Hesse, Kick, and von Westernhagen (2009)).

However, it is not clear that credit market liberalization per se helps shelter countries from cyclical shocks. Diaz-Alejandro (1985), for example, observed that financial reforms carried out in several Latin American countries during the seventies ended by 1983 in widespread bankruptcies, massive government intervention and low domestic savings. Diaz-Alejandro (1985) identifies the cause as the fact that liberalization leads to lax prudential behavior. Hellmann, Murdock, and Stiglitz (1997) stress that *financial restraint*, that is policies that limit liberalization, may be beneficial in an environment of low financial deepening while Easterly, Islam, and Stiglitz (2000) provide some empirical evidence on the relation between financial market liberalization and output volatility.

Moreover, an important aspect of liberalization is the opening to foreign banks. What is the role of global banks in sheltering economies from cyclical shocks? In a recent survey, Goldberg (2009) concludes that evidence supports the view that foreign bank entry into local banking systems is a stabilizing force for host markets. Cetorelli and Goldberg (2010), however, analyzing the recent crisis, find that both local banks and foreign-owned banks were exposed to the funding conditions in the global markets which suggests that, when shocks are global, foreign banks have little advantage over local banks in helping resilience.

Finally, liberalization of credit markets has an ambiguous effect on banks' performance and competitiveness which, in turn, may affect resilience to cyclical shocks. Caprio and Honohan (2002), for

example, find that banking systems that are subject to effective monitoring by market forces have a more pro-cyclical behavior which amplifies the effect of cyclical shocks. They conclude that those regulatory characteristics which empower the private sector by helping deepen a financial system, make it more robust to crises in the long-run but also reduce the sector's ability to provide short-term insulation to the macro-economy.

Our task is not simple. The rating indexes we focus on are likely to be correlated with many other characteristics of the economy. Financial liberalization must be correlated with financial development as discussed above, but also with financial openness, financial markets' size and with variables that have been associated to the propagation and the amplification of the recession such as the level of debt, balance sheet imbalances for financial intermediaries and trade openness. Therefore, it is difficult to identify a single mechanism of amplification of the crisis. We address this problem by using many variables as controls. In particular, together with the indexes on regulatory quality, our regressions include, one at a time, twenty one control variables in several specifications of cross-country regressions. Moreover, we also consider all the regressors jointly by averaging the outcomes of the regressions resulting from all possible combination of regressors (over one hundred and thirty million regressions) using Bayesian techniques.

Since we are considering many alternative regressors, our analysis is not only informative on the role of regulatory quality, but also leads to an assessment of the relation between several other characteristics of the economy before the crisis and relative growth performance during the recession.

In this respect the analysis is complementary to the very recent empirical literature on the global recession (Rose and Spiegel (2009a), Rose and Spiegel (2009b), Lane and Milesi-Ferretti (2010), Blanchard, Faruqee, and Das (2010) and Berglof, Korniyenko, Plekhanov, and Zettelmeyer (2009)).

However, our question is both different and more limited; it can be formulated as follows: "has financial liberalization, in the years before the crisis, helped attenuate the effect of the recession beyond what is explained by all other factors that may have had a role in propagating/amplifying the global recessionary shock?".

The paper is organized as follows. In the second section we study the effect of rating and regulatory quality in the labor, business and credit sectors. In the third, we perform the same regression but

controlling for indicators of financial and trade openness, financial development, soundness of the banking sectors and macroeconomic imbalances. In the fourth we perform the analysis of the joint significance of rating variables and all our controls by using Bayesian Model Averaging. The fifth section considers single components of the indicators and provides additional robustness checks. The sixth section concludes.

2 Rating and regulatory quality

Here we are interested in relating the cross-sectional differences in output growth associated with the recent recession to indicators of countries' risk and governance.

There are several indicators computed by public or private organizations, aimed at tracking countries' performance in terms of credit-worthiness, risks related to governance, political instability and policy imbalances.

Rating agencies compute indexes of country risk related to conditions that may adversely affect operating profits or the value of assets in a specific country. These include financial factors such as currency controls, devaluation or regulatory changes, or stability factors such as mass riots, civil war and other events that may contribute to companies' operational risks. In our analysis we consider an index computed by the Euromoney magazine on the basis of a bi-annual survey of rating agencies and market experts aimed at tracking the political and economic stability of 185 sovereign countries.

Related to rating indexes are indicators of governance and indexes that measure the degree of "market friendliness" in different sectors of the economy. The World Bank computes the Worldwide Governance Indicator (www.govindicators.org) that measures six dimensions of governance: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. The Frazer Institute, on the other hand, produces an index of market freedom aimed at measuring the degree to which markets work without the interference of government controls. The measure considers the soundness of legal institutions and the enforcement of property rights, monetary policy ("sound money") and the extent of government intervention and regulations (Gwartney and Lawson (2003a), Gwartney and Lawson (2003b)). An index combining freedom and governance as well as macroeconomic stability is computed by the

Davos World Economic Forum but covers fewer countries.

The first step of our analysis is to ask whether these indicators, as computed before the crisis, can significantly explain the cross-sectional variation of output loss during the recent crisis.

Our analysis is based on simple OLS cross-sectional regressions on 102 countries[1] where the dependent variables are the 2008-2009 rates of growth of real GDP, published by the IMF.[2] We consider several regressions including different rating indexes. All variables in the right-hand side in the regressions of this section and the next are dated earlier than 2008, in order to limit endogeneity issues. Each specification includes the log-level of income per capita, the average growth rate of GDP in the 2002-2006 period and population in 2006 as control variables. We include the income level since simple correlations show that the recession has been deeper in richer countries (see Table A2 in the data appendix). Population, as an indicator of size, is included in order to capture mechanisms which may induce a positive correlation between size and output volatility, such as openness and the relative importance of the financial sector. GDP growth before the crisis is meant to control for the cross country heterogeneity in growth rates before the crisis.

The indexes we focus on in this section are:[3]

- Euromoney index. This is a weighted average of three indicators: 1) market indicators (40%) measuring access to bond markets, trade finance and so on; 2) credit indicators (20%) which incorporate credit records and rescheduling difficulties; 3) analytical indicators (40%) including political risk, economic indicators and forecasts of economic performances. We consider the aggregate indicator measured in March 2007.

- Frazer Institute Index of Economic Freedom. The index tracks four dimensions of economic freedom: private ownership, personal choice, voluntary exchange and free entry into markets. We consider the following sub-components measured in 2006:

  - *Credit regulation quality.* This includes ownership of banks (percentage of deposits held in privately owned banks), competition (the extent to which domestic banks face competition

[1] We follow Rose and Spiegel (2009a) and examine all countries/territories with real GDP per capita of at least $10,000 in 2003, as well as those with real GDP per capita of at least 4,000 and a population of at least one million. See Table A1 in the data appendix for the list of all countries considered and their ranking in terms of regulatory quality

[2] The GDP in the fourth quarter of 2009 is an IMF forecast

[3] We have also experimented with alternative indicators for rating and results are qualitatively the same

from foreign banks), extension of credit (percentage of credit extended to the private sector) and presence of interest rate controls.

  - *Labor market regulation quality.* Variables considered are minimum wage regulation, hiring and firing practices, the share of the labor force whose wages are set by centralized collective bargaining, unemployment benefits, use of conscription to obtain military personnel.

  - *Business sector regulation quality.* This includes price controls, administrative conditions for new businesses, government bureaucracy, difficulties in starting a new business, irregular, additional payments connected with import and export permits, business licenses, exchange controls, tax assessments, police protection, or loan applications.

- Regulatory quality. This is a sub-component of the Worldwide Governance Index computed by the World Bank. Regulatory quality is a measure of "the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development" (see Kaufmann, Kraay, and Zoido-Lobaton (2002), pag.4). It is based on surveys of firms and industries and on the assessment of commercial risk rating agencies, non governmental organizations and various multilateral aid agencies and public sector organizations. For example, it includes the assessment of the World Economic Forum global competitiveness report. It considers price liberalization, competition policies in various sectors, discriminatory taxes and tariffs, trade and exchange rate controls, access to capital markets and so on. It can be considered as a broad index of market friendliness in the spirit of the Frazer Institute index of economic freedom, which is included as an input, but with a broader scope. We consider the values for 2002.

TABLE 1 ABOUT HERE

Regression (I) considers the role of countries' rating on the Euromoney index. Surprisingly, the coefficient on rating in 2007 is negative and significant. Once rating is included, income per capita, population and past average growth become not significant. This result helps to explain why the recent crisis has affected wealthier countries more severely. It is not income per se that explains the depth of the crisis, but other variables which are associated with it and which are captured by the

rating index. The fact that country rating is negatively correlated with the relative depth of the recession may also be the explanation of why the crisis took the market by surprise. Clearly, the rating index did not capture risk appropriately. In what follows we try to shed some light on this result.

To understand what characteristics of the Euromoney rating are negatively associated with output loss, in regression (II), we include regulatory quality as an additional independent variable. Results clearly indicate that the rating becomes insignificant whereas regulatory quality has a large significant negative coefficient. This suggests that countries which scored highest in terms of quality of regulation have also been the least resilient to the global recession. Also, the component of the rating index which refers to regulation is the one that drives the result.

From Chart 1, which plots correlations between income per capita, rating, regulatory quality and average growth in 2008-2009, we can see that income per capita, rating and regulatory quality are positively correlated and that they are all negatively correlated with growth during the crisis. Tables A1 and A2 report some additional descriptive statistics to provide intuition to the regression results.

CHART 1 ABOUT HERE

Notice that when income, rating and regulation are jointly included as regressors, the only one which survives significantly is regulatory quality.

In regression (III) we include the subcomponents of the economic freedom index in order to understand better the key driver of this result. As mentioned, the aggregate economic freedom index captures similar features to those measured by the World Bank regulatory quality index, although it is narrower in scope. For our purpose, the advantage of the economic freedom index is that it provides a sectoral decomposition between credit, labor and business.

Estimates clearly point to a key role for credit market regulatory quality: the crisis has been worse in countries with more market-friendly credit markets, while business sector regulations are insignificant and labor market regulations enter with a positive sign. The aggregate index of regulatory quality now becomes insignificant.

In regression (IV) we have the same specification as (III) but we drop regulatory quality. The result

on the sub-component is confirmed but the level of income per capita is now significant, reflecting its positive correlation with the now omitted regulatory quality (see Chart 1).

The effect of financial regulatory quality is not only statistically significant but also economically relevant. A simple back-of-the-envelope calculation gives an idea of the order of magnitude of the effect. If Brazil, with tightest regulation index equal to 5.74 deregulated the credit market to become like New Zealand which is the least regulated with an index equal to 9.97 in 2006, other things being equal and ignoring correlation amongst the regressors, the regression predicts that 2008-09 average growth in Brazil would have been -3.2 instead of 2.2. Credit regulation also explains a large part of the variance across countries since the R-squared falls from 0.32 to 0.22 if credit market regulation index is excluded (Table A1 in the appendix reports the country ranking).

One potential explanation of our surprising result is simply that it reflects spurious correlation due to the omission of variables that significantly affect countries' resilience to shocks and which are correlated with financial regulatory quality. To address this problem in the next sections we consider several controls. We first proceed sequentially, adding one variable at a time while later we examine all regressors jointly by Bayesian Model Averaging (BMA).

3 Controlling for other characteristics

Table A2 shows the summary statistics of all variables that are considered in the analysis of this section and the next. All regressions include average GDP growth in 2006-2009, the log of GDP per capita in 2006 and the log of population in 2006. Other variables, beside regulatory quality and rating indexes, capture various mechanisms which are potentially relevant to understand countries' resilience to the global recession: openness, macroeconomic and financial imbalances, state of the banking sector (overall we consider twenty seven variables as regressors).

3.1 Controls I: Openness

The recession has been parallelled by a global collapse in trade and a decline in net capital flows to emerging markets. Countries which are more open to trade and which have more internationally integrated financial systems may be more vulnerable to global shocks, although financial integration

should also offer risk sharing opportunities and help smooth output and consumption. Several papers have studied the role of trade in the current recession and tried to identify the importance of openness in the transmission of shocks. Imbs (2010), for example, finds that the unprecedented synchronization of the business cycle observed in the recent recession is due to both goods and assets trade. The question of whether different degrees of financial and real openness has affected the relative resilience to the global shock has been analyzed by Lane and Milesi-Ferretti (2010), Blanchard, Faruqee, and Das (2010), Rose and Spiegel (2009a), Rose and Spiegel (2009b) and Berglof, Korniyenko, Plekhanov, and Zettelmeyer (2009) on the basis of cross sectional regressions. Rose and Spiegel (2009a) and Rose and Spiegel (2009b), using a dependent variable which captures both GDP growth and asset markets volatility, fail to find any relation, but Lane and Milesi-Ferretti (2010) and Blanchard, Faruqee, and Das (2010), focusing, like us, on output growth, find a significant role for openness.

Table A2 in the appendix shows that the various indicators of openness are positively correlated with the index of credit market regulatory quality. By including both types of indicators in the regression we test the robustness of the result on market freedom as well as reassessing the literature's results on openness.

We consider four indicators of real and financial openness as controls: the current account as % of GDP in 2006, the sum of export and import as % of GDP in 2007, the sum of external assets and liabilities over GDP and the same variable for Foreign Direct Investments (FDI).

Results are reported in Table 2.

INSERT TABLE 2 ABOUT HERE

In all specifications the negative effect of credit market regulation survives. On the other hand, amongst the controls, only current account over GDP is significant with a positive sign. The result on the current account is in line with Lane and Milesi-Ferretti (2010) and Blanchard, Faruqee, and Das (2010), but, unlike them, we fail to find any significant effect of financial openness and trade openness once the indexes of regulatory quality are included.

3.2 Control II: Financial development

In this section we control for indicators of the size and depth of the financial sector as well as competitiveness of the banking sector. Here the question is whether credit market liberalization has an effect beyond that of the level of income and financial size.

In what follows we consider some proxies for size, depth and competition in the financial system using variables from the World Bank Financial Development and Structure Database. This database draws on a wide range of primary sources and covers different dimensions of the financial system (http://econ.worldbank.org/programme/finance) providing statistics on the size, activity, efficiency and stability of banks, non-banks, equity markets, and bond markets across a broad spectrum of countries and through time.

It also contains several indicators of financial globalization, including statistics on international bond issues, international loans, off-shore deposits and remittance flows (see Beck, Demirguc-Kunt, and Levine (1999) and Beck, Demirguc-Kunt, and Levine (2009) for a recent update).

We consider different indicators, measured in 2005:

- *Indicators of size of the financial system*: liquid liabilities (currency plus demand and interest bearing liabilities of banks and other financial intermediaries (OFI) divided by GDP), financial system deposits and private credit by money banks and OFI divided by GDP.
- *Indicators of different characteristics of the banking sector*
  - *Indicators of efficiency/competition.* Here we have net interest margin, overhead costs and concentration. Interest rate margin is defined as the accounting value of a bank's net interest revenue as a share of its total earning assets. Higher levels of net interest margins and overhead costs indicate lower levels of banking efficiency, as banks incur higher costs and there is a larger gap between lending and deposit interest rates. Concentration is defined as the ratio of the three largest banks' assets to total banking sector assets.
  - *Indicators of size.* Here we consider central bank assets and deposit money bank assets all as % GDP.

- *Indicators of the size of the stock market*: capitalization (value of listed shares divided by GDP), which indicates the size of the stock market relative to the size of the economy and its change; total value traded; total value traded as % of market capitalization (turnover).

Results are reported in Table 3.

TABLE 3 ABOUT HERE

The first observation on the results is that the sign and significance of credit market regulation is confirmed and remains robust to the inclusion of any of the controls.

Second, some of the other variables we consider are significant and have explanatory power with the opposite sign from that of credit market regulation. Specifically, variables capturing the size of the financial market and indicators of efficiency of the banking sector are all significant and correlate positively with resilience to the global recession. The deeper is the financial market, the better is output performance. On the other hand, the less competitive is banking, the worse is output performance. Obviously liberalization of financial market, size and banking competition are capturing different characteristics. While countries with deeper financial markets are shown to be more resilient, countries which adopted more deregulated credit markets, for a given depth, did worse.

What are the aspects of financial markets liberalization that induce cyclical volatility? One conjecture is related to ideas in Diaz-Alejandro (1985) and Easterly, Islam, and Stiglitz (2000), described in the introduction, which suggest that liberalization leads to excessive risk taking. In the next section we follow this line of argument and consider controls capturing various aspects of risk taking.

3.3 Control III: Risk taking

Financial systems that may score high in terms of the quality of regulation, according to the index we considered in our regressions, may be also prone to excessive leverage in good time and low capitalization. This, in turn, may generate weak balance sheets in the banking sector and high vulnerability leading to an amplification of the recession shock. This is exactly what is suggested by Diaz-Alejandro (1985) in observing that Latin American financial reforms in the seventies led banks to neglect prudential regulation with the consequence of extreme indebtedness in the corporate

sector. Banks, he commented, "are not like butcher shops".

Here we are interested in testing whether variables capturing the soundness of the banking sector are at least partially responsible for our result on credit market freedom or whether such effect is robust to the inclusion of the variables describing the degree of risk taking which are analyzed here.

As measures of banks' strength we consider two of the variables used in Rose and Spiegel (2009a): *share of non performing loans* and *banks' claims as share of deposits*. We also add variables capturing macroeconomic imbalances such as external debt and net external position and debt as percentage of GNP.

Results are reported in Table 4.

TABLE 4 ABOUT HERE

Again, results indicate the robustness for the role of credit regulation whose coefficient remains negative and significant no matter what is the control.

All controls have the expected sign. Banks' claims as % of deposits show a negative and significant coefficient while the net external position correlates positively with resilience. Consistently with Blanchard, Faruqee, and Das (2010) we find that the coefficient on external debt has a negative sign although it is not significant[4]. Non performing loans are also non significant, due to the fact that they are lagging indicators of the business cycle.

Clearly, liberalization of financial markets must be related to aspects of risk taking that are not captured by the controls used here. One possible explanation of the fact that the significance of credit market regulatory quality survives is that there are other relevant unobserved characteristics of risk taking that we have failed to identify.

An alternative explanation is simply that including controls sequentially, as we have done, is vulnerable to problems of omitted variables and that we should revisit our results by considering all regressors jointly. We do this in the next Section.

[4]The same is true for the coefficient of short term external debt which is the exact variable used by those authors, although we don't report it.

4 Considering all regressors jointly: Bayesian Model Averaging

In this section we consider all the potential regressors simultaneously.

Ordinary regression techniques cannot handle this task, owing to the limited number of observations relative to the number of parameters to be estimated (the 'curse of dimensionality problem'). One solution to this problem is to use Bayesian Model Averaging (BMA). In a context similar to ours, this strategy has been used by Fernandez, Ley, and Steel (2001) and Sala-I-Martin, Doppelhofer, and Miller (2004) to assess the robustness of economic growth determinants.

The rationale of the method, is to consider the results for all the models including all possible combinations of the regressors, that is 2^K models where K is the number of regressors, and average them. In our case, with $K = 27$, the number of models we consider is therefore just over 134 millions[5]. The weights in the averaging are given by the posterior model probabilities $p(M|y)$ where M is the model and y represents the data.

In order to compute the posterior model probabilities by means of the Bayes rule, two elements are needed. First, we need the posterior distribution of the parameters in each model M. Such distribution is, in turn, used to derive the marginal likelihood $p(y|M)$[6]. Second, we need to specify the prior distribution of the models $p(M)$. With marginal likelihood and model prior distributions at hand, we can finally derive the model posterior probabilities as

$$p(M|y) \propto p(y|M)p(M).$$

For each model, we compute the posterior probability distribution of the parameters by assuming an uninformative prior on the variance of the residuals and on the intercept. For the remaining regression coefficients we use the g-prior of Zellner. The shrinkage is set by using the Unit Information Prior proposed by Kass and Wasserman (1996).[7]

[5]Indeed, the regressors are 29 (see data appendix) but, in order to preserve the sample size of our underlying regressions, we drop External Debt to Gross National Income ratio and Debt to Gross National product. This allows us to run regressions with a balanced panel of 42 countries.

[6]For technical details, see Koop (2003).

[7]This amounts at setting the g-hyperparameter equal to the sample size. As a robustness check, we employ the 'hyper-g prior' by Liang, Paulo, Molina, Clyde, and Berger (2008) which has been used by Zeugner and Feldkircher

For what concerns the prior distributions of the models, we set a uniform model prior.[8]

We cast BMA outcomes in terms of posterior inclusion probabilities and the mean and standard deviation of the posterior distribution of the coefficients across models. The posterior inclusion probability of each regressor is given by the sum of the posterior model probabilities in each model in which the regressor appears. High posterior inclusion probabilities indicate that, irrespective of which other explanatory variables are included, the regressor has a strong explanatory power. The posterior probability distribution of the regression coefficients, conditional on being included in the model, is instead obtained as an average of the distributions of the coefficients in each model, using as weights the posterior probability of each model where the regressor is included. We report mean and standard deviation of that distribution in order to give a quantitative assessment of the importance of the different regressors. Table 5 shows the results for the five regressors with the largest posterior inclusion probabilities.

TABLE 5 ABOUT HERE

On the basis of the posterior inclusion probability, the indexes of regulatory quality in the credit sector and in the labor market, with negative and positive sign respectively, are among the most robust determinants of the crisis.

The mean values of the posterior distribution of the coefficients are broadly in line with the estimates obtained in the previous sections and, in absolute value, much larger than the corresponding standard deviations. This is a further indication of the importance of these variables in explaining the variation across countries in 2008-2009 growth rates.

The significant negative sign of credit market regulatory quality therefore survives also when we consider the joint effect of the twenty-seven regressors. It is also interesting that both income and private credit come out amongst the first five predictors and that the current account and labor market regulations are the most relevant variables explaining resilience.

(2009) in the context of growth regressions. Qualitative results are confirmed.

[8] We attribute an equal prior probability of 2^{-K} to each model. This means that each regressor has a prior probability .5 of being included, independently of the inclusion of any other regressor.

5 Individual components of credit market liberalization, outliers and financial centers

In what follows we consider the four disaggregated components of credit regulatory quality as individual regressors. The components are interest rate controls, banks' ownership, foreign bank competition and private sector credit.

In Table 6 we report results for regressions including these variables as additional controls in our baseline and consider various robustness checks. In column one we report OLS results. In this section we also report some robustness check to our central result on the influence of regulatory indexes on the GDP growth rates in 2008-2009. The rationale behind the robustness checks is to exclude statistical or economic outliers. Indeed, in column three, we describe results for median regressions which are more robust to extreme values. In column four we exclude financial centers, that is international banking centers or countries with a significant offshore activity which may have been hardly hit by this recession that has been accompanied by a financial crisis[9]. Our definition follows Lane and Milesi-Ferretti (2010). Finally, in the last column, we exclude the Baltic countries which, given their small size, their well known exposure to financial imbalances and the harshness with which they have been affected by the recession, maybe considered as outliers.

INSERT TABLE 6 ABOUT HERE

The table shows that our results survive the robustness checks. Most importantly, results reveal that the components of the index that explain the negative relation between credit market regulatory quality and resilience are foreign banks competition and banks' ownership. Quite surprisingly, neither private sector credit nor interest rate controls are significant and the latter has a positive sign.

If the negative relation between financial market liberalization and resilience captures, as we have suggested, unobserved risk taking behavior from the banking system, the last result then suggests that the latter must be associated with private and foreign banks. A conjecture is that these banks may affect resilience negatively not only because they are themselves vulnerable to global shocks as

[9]We exclude Bahrein, Belgium, Cyprus, Iceland, Ireland, Luxembourg, Malta, the Netherlands, Hong Kong, Singapore, Switzerland, UK, Mauritius, Panama and Seychelles.

suggested by Cetorelli and Goldberg (2010), but also because they have been more prone to risk taking behavior than local or publicly owned banks.

6 Summary and conclusions

In this study we find that the set of policies that favor liberalization in credit markets (regulatory quality) are negatively correlated with countries' resilience to the recent recession as measured by output growth in 2008 and 2009.

The negative correlation survives the inclusion of a wide range of controls, from income per capita to variables capturing the depth of the financial market, banking competition, liquidity and financial and macroeconomic imbalances and several robustness tests. Moreover, when considering a wide range of potential predictors jointly, credit market regulation emerges as one of the five more significant (with a negative sign) explanatory variable for the decline in output growth in 2008 and 2009.

Variables that are positively linked to resilience are income level, the current account but not other openness indicators, banks' claims as percentage of deposits, various indicators of financial depth as well as labor market regulations.

Beside credit market regulatory quality, variables which are estimated to be negatively correlated with resilience are net interest margins and overhead costs in the banking sector.

In the last twenty years we have seen the adoption of policies favoring financial markets liberalization and financial markets development. Our results suggest that, while development has helped countries mitigating output volatility, the reverse has been true for liberalization. It is therefore important to understand what are the mechanisms which make deregulated markets more vulnerable.

The literature has suggested mechanisms through which more deregulated markets are more prone to risk taking behavior (see, for example, Diaz-Alejandro (1985), Hellmann, Murdock, and Stiglitz (1997) and Easterly, Islam, and Stiglitz (2000)). Our paper does not identify these mechanisms, but the analysis suggests that liberalization, in particular those aspects which favor competition to foreign and private banks, may indeed capture "unobserved" risk taking leading to macroeconomic

vulnerability.

Cross country regressions are too limited as a tool to allow us to go deeper in this analysis. Our paper has uncovered a fact, but much more has to be done to understand it. Our result points to a specific direction for future research, aiming at understanding the link between financial liberalization and vulnerability to cyclical shocks. This is important for the evaluation of policies which, in the last two decades, have favored increasing financial market liberalization.

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Figure 1: Cross-country correlations.

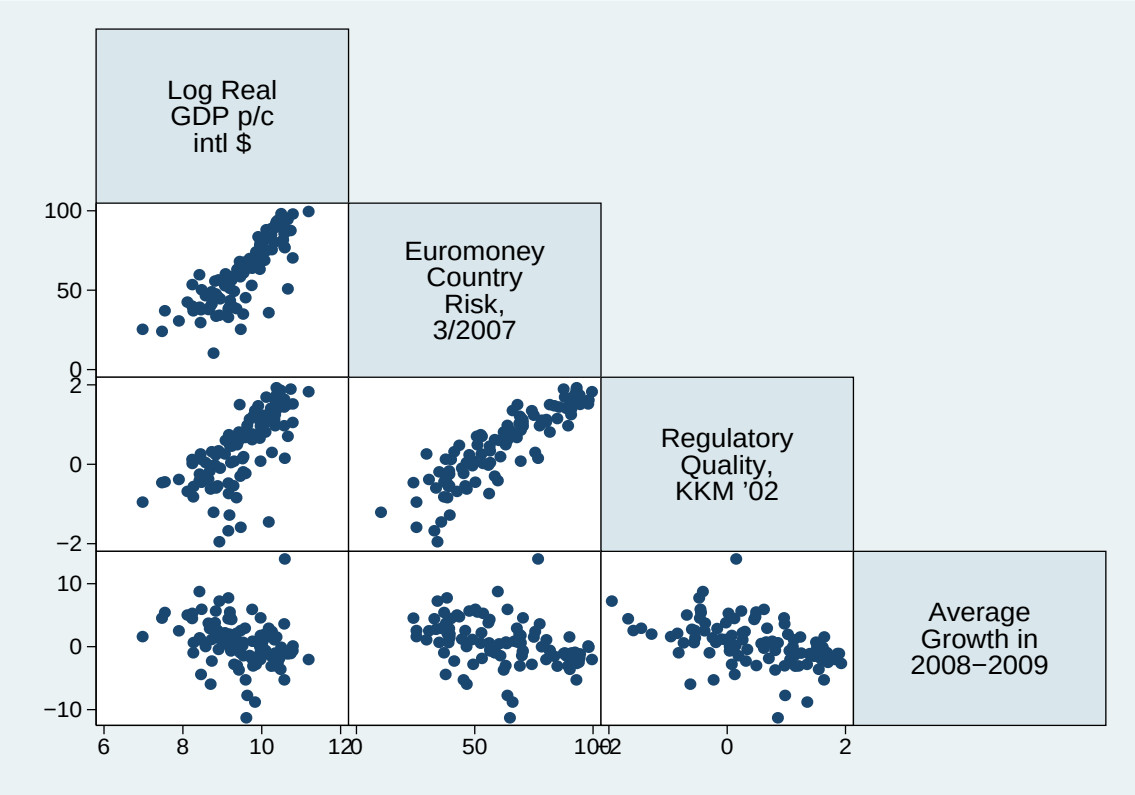

Figure 1: The figure presents a set of scatter-plots from the entire sample of countries for (log) real GDP per capita in US dollars, the Euromoney ratings, regulatory quality and average growth in 2008-2009 plotted against each other. GDP growth and GDP per capita are taken from the IMF, World Economic Outlook, October 2009. Euromoney ratings as of March 2007 are taken from the Euromoney database. KKM02: Kaufmann, Kraay, and Zoido-Lobaton (2002).

Table 1: Rating, freedom and regulatory quality

Dependent Variable: average growth in 2008-2009				
Regressors	(I)	(II)	(III)	(IV)
Euromoney rating in March 2007	-0.06*	-0.06		
	(0.03)	(0.06)		
Regulatory Quality, (KKM '02)		-2.85**	-0.85	
		(1.15)	(0.85)	
Credit Market Regulation (EFW 06)			-1.18**	-1.28**
			(0.37)	(0.37)
Labor Market regulation (EFW06)			0.51*	0.49*
			(0.28)	(0.26)
Business Regulation (EFW 06)			-0.18	-0.34
			(0.37)	(0.33)
Average growth 2002-2006	0.06	-0.07	-0.17	-0.13
	(0.21)	(0.19)	(0.20)	(0.18)
(log) population in 2006	0.27	0.00	0.06	0.07
	(0.21)	(0.23)	(0.23)	(0.22)
(log) GDP per capita in 2006	0.01	-0.53	-0.37	-0.84**
	(0.80)	(0.76)	(0.68)	(0.41)
Intercept	-0.27	3.37	12.30	17.85**
	(6.32)	(6.00)	(7.58)	(4.81)
Summary statistics				
R-squared	0.15	0.23	0.32	0.32
Number of observations	101	101	89	89

Table 1: Columns I-IV report the outcomes of four OLS regressions. The dependent variable is average growth in 2008-2009, the explanatory variables are listed in the first column. Heteroscedasticity robust standard errors are given in parenthesis under the coefficients. The individual coefficient is significant at 10%* or 5%** level. GDP growth and GDP per capita are taken from the IMF, World Economic Outlook, October 2009. Euromoney ratings as of March 2007 are taken from the Euromoney database. KKM02: Kaufmann, Kraay, and Zoido-Lobaton (2002); EFW06: Fraser Institute, Economic Freedom Network.

Table 2. Openness

Dependent Variable: average growth in 2008-2009					
			Regressors		
Control Variables	Credit Market Regulation	Labor Market Regulation	Business Business	Control Variable	Number of observations
Current Account % GDP 2006 (WDI)	-1.08** (0.36)	0.27 (0.26)	-0.21 (0.31)	0.10** (0.03)	79
Trade Openness (IMP+EXP) % GDP 2007 (PWT)	-1.27** (0.37)	0.42 (0.27)	-0.24 (0.33)	0.003 (0.003)	88
Financial Openness (ASS+LIAB) % GDP 2007 (LMF)	-1.27** (0.37)	0.47* (0.26)	-0.35 (0.33)	0.04 (0.10)	88
Financial Openness FDI (ASS+LIAB) % GDP 2007 (LMF)	-1.28** (0.37)	0.48* (0.26)	-0.36 (0.35)	0.10 (0.15)	88

Table 2: Each line reports the coefficients of the regression of average growth in 2008-2009 on the three measures of regulation and each of the listed control variables. Heteroscedasticity robust standard errors are given in parenthesis under the coefficients. The individual coefficient is significant at 10%* or 5%** level. The intercept, the log of GDP per capita in 2006, the log of population in 2006 and the average growth over the period 2002-2006 are included in every regression. Original data sources: WDI (World Development Indicators, World Bank); PWT (Penn World Tables) and LMF (Lane and Milesi-Ferretti (2002), 2004

Table 3. Credit market regulation and financial depth

Dependent Variable: average growth in 2008-2009

	Regressors				
Control Variables	Credit Market Regulation	Labor Market Regulation	Business Business	Control Variable	Number of observations
		Size of the Financial Sector			
Liquid Liabilities	-1.07**	0.33	-0.45	1.71**	66
% GDP 2005	(0.35)	(0.29)	(0.32)	(0.71)	
Financial System Deposits	-0.88**	0.29	-0.41	1.17**	79
% GDP 2005	(0.34)	(0.23)	(0.28)	(0.52)	
Private credit by Money Banks and OFI	-1.07**	0.27	-0.53*	1.62*	78
% GDP 2005	(0.35)	(0.23)	(0.29)	(0.88)	
		Banking System			
Central Bank Assets	-0.90**	0.35	-0.41	2.64	76
% GDP 2005	(0.38)	(0.25)	(0.29)	(4.04)	
Deposit Money Bank Assets	-0.97**	0.33	-0.46	1.13	79
% GDP 2005	(0.34)	(0.23)	(0.30)	(0.77)	
Net Interest Margins	-1.54**	0.66**	-0.58	-28.87*	82
	(0.40)	(0.29)	(0.37)	(15.79)	
Overhead Cost	-1.50**	0.57**	-0.42	-27.29**	83
	(0.40)	(0.28)	(0.34)	(11.82)	
Concentration	-1.46**	0.66**	-0.50	2.72	83
	(0.41)	(0.28)	(0.38)	(2.13)	
		Stock Market			
Stock Market Capitalization	-1.21**	0.28	-0.30	0.62	72
% GDP 2005	(0.39)	(0.28)	(0.34)	(0.42)	
Change in Stock Market Capitalization	-1.28**	0.49*	-0.25	.11	81
2003-2006	(0.38)	(0.27)	(0.30)	(0.37)	
Stock Market Total Value Traded	-1.23**	0.38	-0.28	0.31	77
% GDP 2005	(0.38)	(0.26)	(0.33)	(0.45)	
Stock Market Total Value Traded	-1.31**	0.53*	-0.41	0.18	75
% Market Capitalization (Turnover)	(0.42)	(0.29)	(0.35)	(0.69)	

Table 3: Each line reports the coefficients of the regression of average growth in 2008-2009 on the three measures of regulation and each of the listed control variables. Heteroscedasticity robust standard errors are given in parenthesis under the coefficients. The individual coefficient is significant at 10%* or 5%** level. The intercept, the log of GDP per capita in 2006, the log of population in 2006 and the average growth over the period 2002-2006 are included in every regression. Control variables are taken from the World Bank Financial Structure Dataset (Beck, Demirguc-Kunt, and Levine (1999))

Table 4: Macroeconomics and banks

Dependent Variable: average growth in 2008-2009

	Regressors				
Control Variables	Credit Market Regulation	Labor Market Regulation	Business Business	Control Variable	Number of observations
Bank Non-Performing Loans	-1.46**	0.68**	-0.16	0.08	70
% Loans 2006 (WDI)	(0.49)	(0.30)	(0.35)	(0.10)	
Ext Debt	-1.13**	0.39	0.01	-0.02	49
% GNI (WDI)	(0.44)	(0.37)	(0.57)	(0.02)	
M3	-1.23**	0.39	-0.31	0.01	72
% GDP 2006 (WDI)	(0.37)	(0.30)	(0.36)	(0.01)	
Debt	-1.09**	0.23	0.20	-0.01	46
% GNP 2006 (GDF)	(0.44)	(0.40)	(0.63)	(0.02)	
Bank Assets	-1.07**	0.41	-0.05	-1.35**	86
% Deposits 2006 (IFS)	(0.35)	(0.26)	(0.32)	(0.60)	
Net External Position	-1.18**	0.49*	-0.37	1.12**	86
% GDP 2004 (LMF)	(0.34)	(0.25)	(0.31)	(0.47)	

Table 4: Each line reports the coefficients of the regression of average growth in 2008-2009 on the three measures of regulation and each of the listed control variables. Heteroscedasticity robust standard errors are given in parenthesis under the coefficients. The individual coefficient is significant at 10%* or 5%** level. The intercept, the log of GDP per capita in 2006, the log of population in 2006 and the average growth over the period 2002-2006 are included in every regression. Data extracted from Rose and Spiegel (2009a). Original data sources: WDI (World Development Indicators, World Bank); IFS (International Financial Statistics, International Monetary Fund; GDF (Global Development Finance, World Bank) and LMF (Lane and Milesi-Ferretti (2002), 2004

Table 5: Bayesian Model Averaging

Dependent Variable: average growth in 2008-2009			
Regressors	Posterior Inclusion probabilities	Posterior mean	Posterior Standard Deviation
Current Account % GDP 2006 (WDI)	0.94	0.18	0.06
Average growth 2002-2006	0.85	-0.56	0.20
Credit Market Regulation (EFW 06)	0.59	-1.15	0.55
Private Credit by Money Banks and other OFI% GDP 2005	0.57	3.46	1.78
Labor Market regulation (EFW06)	0.54	0.78	0.39

Table 5: In column 1 we report the ranking of the variables according to their posterior inclusion probability. We only report the first five variables in the ranking; the full set of results is available upon request. Column 2 reports the posterior inclusion probability for each variable, columns 3 and 4, respectively, the mean and the standard deviation of the posterior distribution of the coefficients.

Table 6: Single components of the credit regulatory quality and robustness

Dependent Variable: average growth in 2008-2009				
		Type of regression		
Regressors	OLS	Median Reg.	Ex. Fin. Centers	Ex. Baltic
	(I)	(II)	(III)	(IV)
Interest rate controls/negative real interest rates (EFW 06)	0.35	0.39	0.26	0.25
	(0.34)	(0.34)	(0.33)	(0.38)
Ownership of banks (EFW 06)	-0.44**	-0.47**	-0.49**	-0.37**
	(0.16)	(0.10)	(0.16)	(0.15)
Foreign bank competition (EFW 06)	-0.69**	-0.50**	-0.78**	-0.49**
	(0.23)	(0.17)	(0.23)	(0.23)
Private sector credit (EFW 06)	-0.14	-0.27	-0.13	-0.05
	(0.27)	(0.18)	0.31	(0.25)
Labor Market regulation (EFW06)	0.69**	0.46**	0.74**	0.36
	(0.28)	(0.20)	(0.30)	(0.24)
Business Regulation (EFW 06)	-0.59	-0.26	-0.24	-0.28
	(0.37)	(0.26)	0.44	(0.34)
Average growth 2002-2006	-0.33*	-0.06	-0.32	-0.11
	(0.19)	(0.10)	(0.21)	(0.20)
(log) population in 2006	-0.06	0.00	0.23	-0.18
	(0.24)	(0.15)	(0.29)	(0.21)
(log) GDP per capita in 2006	-1.14**	-1.21**	-1.40**	-1.26**
	(0.41)	(0.36)	(0.50)	(0.38)
Intercept	20.1**	17.73**	16.85**	20.30**
	(5.79)	(4.46)	(6.13)	(5.23)
Summary statistics				
R-squared	0.41	0.27	0.49	0.36
Number of observations	83	83	69	80

Table 6: Columns I-IV report the outcomes of four regressions. The dependent variable is average growth in 2008-2009, the explanatory variables are listed in the first column. Heteroscedasticity robust standard errors are given in parenthesis under the coefficients. Column I (II) reports outcomes from a regression estimates by OLS (Median regression) on the entire sample of countries. Columns III and IV, instead, report, respectively, results from OLS regressions estimated by excluding financial centers (Bahrein, Belgium, Cyprus, Iceland, Ireland, Luxembourg, Malta, the Netherlands, Hong Kong, Singapore, Switzerland, UK, Mauritius, Panama and Seychelles) and Baltic countries (Estonia, Latvia, Lithuania). Heteroscedasticity robust standard errors are given in parenthesis under the coefficients. The individual coefficient is significant at 10%* or 5%** level. GDP growth and GDP per capita are taken from the IMF, World Economic Outlook, October 2009. EFW06: Fraser Institute, Economic Freedom Network.

Data Appendix

Table A1: Country ranking in regulatory quality

	Country	Growth 2008-2009	Regulatory Quality	Euromoney Ratings	Credit Mkt Reg.	Labor Mkt Reg.	Business Reg.
1	Albania	3.73	-0.373	37.840	7.116	4.984	5.308
2	Algeria	2.56	-0.544	45.970	5.855	4.241	5.356
3	Antigua and Barbuda	-1.86	0.704	53.040			
4	Argentina	2.12	-0.841	38.420	6.705	4.061	4.048
5	Armenia	-4.41	0.128	37.710	8.589	5.653	4.864
6	Australia	1.54	1.641	90.030	9.495	7.060	7.795
7	Austria	-0.89	1.671	92.370	9.145	4.568	7.959
8	Bahamas	-2.81	1.350	74.130	9.563		
9	Bahrain	4.58	0.961	70.380	9.112	7.349	5.400
10	Barbad os	-1.41	1.136	69.940	8.570	7.117	5.911
11	Belarus	4.43	-1.674	32.930			
12	Belgium	-1.11	1.397	90.860	8.651	5.137	7.471
13	Botswana	-3.70	0.812	62.250	9.411	6.760	6.170
14	Brazil	2.21	0.260	52.830	5.741	4.128	4.203
15	Brunei Darussalam	-0.64	1.053	70.330			
16	Bulgaria	-0.24	0.620	58.470	9.224	7.028	5.091
17	Canada	-1.03	1.632	91.380	9.316	7.219	8.123
18	Chile	0.71	1.502	68.050	9.225	7.945	7.562
19	China	8.76	-0.411	59.750	7.295	3.236	3.961
20	Colombia	1.14	-0.036	49.010	8.543	3.551	6.069
21	Costa Rica	0.55	0.745	52.520	7.673	5.819	6.271
22	Croatia	-1.44	0.192	60.860	8.802	5.569	5.550
23	Cyprus	1.54	1.236	74.980	9.186	2.903	5.329
24	Czech Rep	-0.81	1.121	70.240	8.857	6.068	5.721
25	Denmark	-1.82	1.744	94.320	9.391	7.707	8.229
26	Dominican Rep	2.88	-0.168	39.210	7.833	5.853	5.428
27	Ecuador	2.76	-0.596	33.630	7.902	3.816	5.090
28	Egypt	5.94	-0.452	50.260	6.100	3.673	5.032
29	El Salvador	0.02	0.044	46.540	9.644	5.427	6.619
30	Eq. Guinea	2.93	-1.453	35.830			
31	Estonia	-8.80	1.354	66.010	9.953	5.158	7.669
32	Finland	-2.66	1.928	93.090	9.616	4.341	8.452
33	France	-1.02	1.251	90.730	9.131	5.645	7.425
34	Gabon	0.68	-0.191	34.980	7.451	7.331	5.663
35	Georgia	-0.97	-0.820	37.010	9.400	6.558	6.695
36	Germany, West	-2.02	1.595	90.970	7.748	3.986	7.683
37	Greece	1.09	1.127	80.290	7.785	4.319	6.043
38	Guyana	2.52	-0.382	30.660	7.934	5.791	5.451
39	Haiti	1.60	-0.953	25.380	6.811	6.945	4.720
40	Hong Kong	-0.63	1.503	81.700	9.224	8.146	8.238
41	Hungary	-3.06	1.208	69.080	9.007	5.887	6.653
42	Iceland	-3.59	1.549	90.190	9.497	8.103	8.694
43	Indonesia	5.03	-0.682	42.520	7.520	4.808	5.163
44	Iran	2.00	-1.279	39.450	6.521	2.518	5.245
45	Ireland	-5.27	1.637	92.960	8.326	6.451	7.678
46	Israel	1.96	1.028	68.830	7.503	4.879	6.771
47	Italy	-3.09	1.152	84.910	8.653	5.955	5.914
48	Jamaica	-2.28	0.316	41.340	8.721	6.286	5.603
49	Japan	-3.04	0.971	89.460	8.307	7.498	7.266
50	Kazakhstan	0.60	-0.737	56.070	9.424	6.426	5.489
51	Korea	0.62	0.858	69.490	9.081	4.678	6.664
52	Kuwait	2.41	0.300	75.550	9.588	7.151	6.687
53	Kyrgyz Republic	4.53	-0.462	24.090	9.033	5.741	5.255
54	Latvia	-11.30	0.858	64.880	9.670	5.721	6.657
55	Lebanon	7.75	-0.473	38.260			
56	Libya	2.57	-1.586	25.380			
57	Lithuania	-7.74	0.980	63.820	9.570	4.931	6.843
58	Luxembourg	-2.04	1.828	99.550	8.828	6.628	7.693
59	Macedonia (FYR)	1.20	-0.098	44.570	8.927	6.064	6.426
60	Malaysia	0.50	0.576	63.480	9.359	6.959	6.661
61	Malta	-0.02	1.110	78.320	9.317	6.914	4.818
62	Mauritius	4.33	0.457	56.300	8.884	6.554	6.598
63	Mexico	-3.00	0.493	63.080	9.132	5.651	5.386
64	Morocco	5.29	0.022	53.540	6.074	5.016	5.832
65	Namibia	1.09	0.261	29.620	9.673	7.793	5.784
66	Netherlands	-1.09	1.866	92.970	9.212	6.368	7.484
67	New Zealand	-0.99	1.691	88.060	9.979	7.748	8.227
68	Norway	0.11	1.520	97.970	9.425	5.216	7.788
69	Oman	5.92	0.622	63.850	8.782	7.385	6.521
70	Panama	5.50	0.490	51.150	9.157	6.024	5.758
71	Papua New Guinea	5.43	-0.442	37.070	7.147	7.319	6.702
72	Paraguay	0.65	-0.559	38.940	7.327	2.947	5.144
73	Peru	5.66	0.239	47.700	7.288	6.470	5.572
74	Poland	2.93	0.674	67.800	8.351	5.608	5.136
75	Portugal	-1.52	1.473	83.630	7.397	4.893	6.373
76	Qatar	13.93	0.153	76.770			
77	Romania	-0.68	0.042	56.550	7.344	6.426	5.570
78	Russia	-0.97	-0.299	58.450	7.990	5.439	3.929
79	Saudi Arabia	1.78	0.078	69.430			
80	Seychelles	-5.27	-0.229	45.290			
81	Singapore	-1.09	1.894	87.570	9.244	6.993	8.423
82	Slovakia	0.86	0.762	66.700	9.290	6.690	6.342
83	Slovenia	-0.59	0.812	81.750	8.651	6.529	6.409
84	South Africa	0.45	0.604	60.290	9.315	5.808	6.330
85	Spain	-1.46	1.411	88.660	9.326	5.127	6.117
86	Sri Lanka	4.48	0.121	39.980	7.419	5.615	5.477
87	St. Kitts and Nevis	0.18	0.142				
88	Swaziland	1.40	-0.247	39.290			
89	Sweden	-2.49	1.704	94.000	9.314	4.506	7.967
90	Switzerland	-0.09	1.616	98.180	8.844	7.497	8.006
91	Taiwan	-2.04	1.064	80.180	7.850	4.903	6.532
92	Thailand	-0.43	0.340	56.490	8.722	7.204	6.170
93	Trinidad and Tobago	0.74	0.658	63.210	8.659	7.380	6.096
94	Tunisia	3.80	-0.020	55.770	8.016	5.420	7.099
95	Turkey	-2.80	0.078	49.350	6.639	3.127	6.655
96	Turkmenistan	7.24	-1.950	34.260			
97	UK	-1.82	1.746	92.200	9.756	7.416	7.569
98	Ukraine	-5.95	-0.622	46.630	8.868	4.823	4.075
99	United Arab Emirates	3.62	0.971	77.440	7.787	7.150	7.401
100	United States	-1.15	1.509	94.520	9.367	8.292	7.267
101	Uruguay	4.75	0.429	43.460	6.963	6.609	6.170
102	Venezuela	1.41	-0.541	39.290	8.311	3.064	2.885

Note: This table reports the values of the dependent variable (Growth in 2008-2009, column 3) and of the following indexes: regulatory quality (column 4), Euromoney Ratings in March 2007 (column 5), Credit Market Regulation (column 6), Labor market Regulation (column 7) and Business Regulation (column 8) for the 102 countries in the cross-section (column 2).

Table A2: Description of the database

Variables	Sample	Mean	Std. Dev.	Min	Max	C(Gr. 08-09,x)	C(C.M.Reg.,x)
Growth in 08-09	102	0.51	3.66	-11.30	13.93	1.00	-0.48
Average Growth, 02-06	102	4.79	2.86	0.14	16.49	0.15	0.05
GDP per Capita	107	18664.81	13452.76	1075.09	72345.96	-0.26	0.40
Population (in millions)	107	36.33	132.44	0.05	1310	0.21	-0.19
Regulatory Quality	106	0.49	0.92	-1.95	1.93	-0.46	0.55
Euromoney Ratings, March 07	104	62.22	21.49	10.38	99.55	-0.36	0.46
Credit Market Regulation	90	8.49	1.03	5.74	9.98	-0.48	1.00
Labor Market Regulation	89	5.84	1.39	2.52	8.29	-0.08	0.45
Business Regulation	89	6.29	1.21	2.89	8.69	-0.35	0.48
Liquid liabilities to GDP ratio, 05	70	0.60	0.43	0.13	2.64	-0.04	0.22
Financial System Deposits to GDP ratio	84	0.63	0.51	0.08	3.30	-0.11	0.19
Private credit by Money Banks and O.F.I. to GDP ratio, 05	83	0.64	0.51	0.06	2.22	-0.20	0.42
Central Bank Assets to GDP ratio, 05	80	0.06	0.09	0.00	0.48	0.30	-0.45
Deposit Money Bank Assets to GDP ratio, 05	84	0.68	0.48	0.07	1.73	-0.22	0.31
Overhead Costs	94	0.04	0.03	0.00	0.18	-0.01	-0.28
Net Interest Rate margin	93	0.04	0.03	0.01	0.15	0.06	-0.33
Concentration in the Banking Sector	94	0.71	0.20	0.28	1.00	0.07	0.19
Stock Market Capitalization to GDP ratio, 05	76	0.61	0.72	0.01	4.99	-0.12	0.21
Stock Market Total value traded to GDP ratio, 05	81	0.40	0.64	0.00	2.95	-0.14	0.21
Stock Market Total Value traded to Market Capitalization, 05	80	0.50	0.55	0.00	2.10	-0.07	0.07
Bank non-performing loans	74	4.11	4.69	0.20	24.70	0.38	-0.41
Current account to GDP ratio, 06	88	0.72	13.56	-32.13	49.95	0.24	0.01
External debt to Gross National Income ratio	55	45.61	31.68	4.11	134.81	-0.31	0.36
M3 to GDP ratio, 06	83	70.53	51.51	7.11	279.91	0.04	0.16
Net Financial Assets to GDP ratio, 04	94	0.00	1.01	-1.09	6.05	0.09	0.09
Debt to Gross National Product	51	45.88	32.56	4.11	148.72	-0.26	0.32
Banks Claims to Deposits ratio, 06	98	1.02	0.53	0.29	3.33	-0.39	0.46
Trade Openness	105	108.58	63.66	24.71	443.40	-0.12	0.26
Financial Openness (Assets+Liabilities)/GDP	100	3.51	4.57	0.51	25.73	-0.15	0.26
Financial Openness FDI (Assets+Liabilities)/GDP	100	0.78	1.15	0.03	10.57	-0.16	0.23
Bank Ownership	89	8.04	2.54	0.00	10.00	-0.37	0.84
Foreign Bank Competition	83	7.88	1.39	3.00	10.00	-0.40	0.56
Private Sector Credit	90	8.39	1.37	3.42	10.02	-0.24	0.57
Interest rate controls/negative interest rates	90	9.64	0.89	5.00	10.00	-0.20	0.48

Note: the table reports the definition of the 34 variables we use in the paper (column 1) and, for each variable, the number of observations (column 2), the sample mean (column 3), the standard deviation (column 4), the minimum (column 5) and the maximum value (column 6), the correlation with the dependent variable "Growth in 2008-2009" (column 7) and with Credit Market Regulation (column 8). The cross-section of 102 countries is described in table A1. O.F.I.: Other Financial Institutions