

Market freedom and the global recession

Preliminary Draft

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January 20, 2010

1 Introduction

The recent crisis has affected all countries around the world in an almost synchronous way. Interestingly, not only has it hit countries with bad macro fundamentals, but also those with AAA rating. The degree to which countries have been affected by the crisis, on the other hand, has differed. Commonality of the recession and differences in relative performance give the researcher a unique opportunity to identify the link between the structural characteristics of economic and institutional systems and their resilience with respect to the global recessionary shock.

Studies relating institutional features and business cycle characteristics are rare, partly because models of the business cycle mostly disregard these features and partly because of lack of data. In the post second war period we have seen clusters of recessionary episodes affecting either specific regions of the developing world or developed economies only, which in part explains why business cycle studies have been typically based on one or a few countries and have mostly relied on time series information, that is on the evidence of several recessions for one or a few similar countries (see Blanchard and Watson (1986) and Giannone and Reichlin (2005) as typical examples). Some studies have looked at both the time series and cross-sectional dimension and have estimated the degree of geographical commonality between cycles while linking it with different features of the economy (for example, Kose, Otrok, and Whiteman (2003)), but they are limited to the G7.

Cross-sectional information has not been fully exploited to study recessions while it has been used in order to explain countries' relative performance in the long run, a topic on which the literature is indeed very large or, to a lesser extent, to study differences in output volatility.

Here we focus on a single recession and study cross-country differences in output loss between 2009 and 2008, that is: different degrees of resilience to the global shock. Since we don't yet have data on the recovery, resilience refers to the output loss during the recession rather than output loss during the full cycle. In particular, we are interested in studying the role of governance and general regulatory policies as well as that of financial market characteristics. Very recent studies on the same issue are Berkmen, Gelos, Rennhack, and Walsh (2009), Berglof, Korniyenko, Plekhanov, and Zettelmeyer (2009) and Rose and Spiegel (2009). Only Rose and Spiegel (2009) use data on

all countries in the world while the other studies focus, respectively, on developing countries and emerging Europe.

Numerous papers have analyzed the effect of governance and the degree of “market friendliness” on growth and there are many available indicators aimed at tracking several aspects of institutional, macroeconomic, legal and other features of the economy. These are constructed by agencies such as the World Bank, by organizations like the World Economic Forum and the Frazer Institute or again by commercial rating agencies.

Governance is typically associated with countries’ performance in the long run and therefore is considered in relation to the ability of a country to grow rather than to its ability to smooth business cycle shocks. However, 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. If this were to be true in general, we should also find that the same variables would help in dampening output volatility. The evidence there, however, is more mixed. First, there is no consensus on the relation between growth and volatility. For example, while Shumpeterian views of the business cycle suggest a positive relation (eg Caballero and Hammour (1994)), the empirical findings by Ramey and Ramey (1995) point to a negative one while more recent evidence remains mixed (see Badinger (2010)). For what concerns the role of institutions, Easterly, Islam, and Stiglitz (2000), for example, have suggested that, while policies that favor market liberalization and financial depth may favor growth, they may also make economies more vulnerable to risk. Similarly, Caprio and Honohan (2002), who studied the relation between financial market characteristics and output volatility, find that those regulatory characteristics which empower the private sector by helping deepen a financial system, make it more robust to crises but also reduce the sector’s ability to provide short-term insulation to the macro-economy.

Since we study a single recession and we don’t know yet whether the decline in output growth is temporary or permanent and what will be the characteristics of the recovery, our study is not directly related to the literature on volatility or that on growth. Understanding resilience in the recent conjuncture, however, is likely to provide food for thought for both literatures.

Our starting point is the link between countries’ ratings before the crisis and their performance in terms of output during the crisis. The advantage of focusing on a single recession is that it is easy to deal with endogeneity issues because the regressors we are interested in are measures of characteristics at dates which precede what we want to measure on the left hand side. Our analysis can therefore be based on simple OLS regressions.

Since rating indexes are aggregates of characteristics which are conceptually different, such as macroeconomic imbalances, political risk, market friendliness and so on, the subsequent steps of our analysis are aimed at uncovering the components of these indexes that are significantly related to resilience and at testing the robustness of the various relationships.

It has been observed that the recent recession has affected more severely those countries with higher income per capita. These are also countries that are highly rated for political stability and governance. Also, these countries score better in terms of regulatory quality, typically defined by pro market policies such as price liberalization, competition policies in various sectors, low discriminatory taxes and tariffs, absence of trade and exchange rate controls and access to capital markets. We ask the question whether governance and regulatory quality help countries’ resilience towards global shocks, even after conditioning by income per capita and other key variables. What has been the role of market freedom in helping countries facing the global shock and what are the particular aspects of regulatory quality, if any, that have helped?

Other questions relate in particular to regulation in financial markets. Regulatory quality is likely to be correlated positively with financial depth and financial development and an important question is whether it is possible to identify an independent effect of financial development on resilience and, similarly, to identify the independent effect of different characteristics such as competition, general health of the banking sector and risk taking likely to be associated with financial depth.

The paper is organized in three sections. In the first, we study the effect of rating and regulatory quality in the labor, business and credit sectors. In the second, we perform the same regression but controlling for indicators of financial and trade openness. In the third we analyze the role of financial development and in the fourth, we focus on competition and soundness of the banking sectors as well as macroeconomic imbalances.

2 Rating and regulatory quality

As mentioned in the introduction, we are interested in relating the cross-sectional differences in output loss associated to 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 and 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 will consider an index computed by 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 (2003), ?). An index combining freedom, 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. Since the indicators are measured at dates that precede the crisis, the regressions are not contaminated by endogeneity issues.

Our analysis is based on simple OLS cross-sectional regression on 107 countries¹ where the dependent

¹Albania, Algeria, Antigua & Barbuda, Argentina, Armenia, Australia, Austria, Bahamas, Bahrain, Barbados, Belarus, Belgium, Bermuda, Botswana, Brazil, Brunei Darussalam, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Eq.

variables are the 2008-2009 rates of growth of real GDP per capita, published by the IMF where latest numbers are the forecasts. We consider different regressions including different rating indexes. Each specification includes the average level and growth rate of GDP per capita and population in 2006 as controls.

The indexes we focus on in this Section are:².

- **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 incorporates credit records and rescheduling difficulties; 3) analytical indicators (40%) including political risk, economic indicators and forecasts of economic performances. We consider the aggregate indicator for 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.* Here they consider ownership of banks (percentage of deposits held in privately owned banks), competition (the extent to which domestic banks face competition from foreign banks), extension of credit (percentage of credit extended to private sector) and presence of interest rate controls.
 - *Labor market regulation quality.* They consider the impact of 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.* 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 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.

Guinea, Estonia, Finland, France, Gabon, Georgia, Germany, Greece, Guyana, Haiti, Hong Kong, Hungary, Iceland, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Kazakhstan, Korea, Kuwait, Kyrgyz Republic, Latvia, Lebanon, Libya, Lithuania, Luxembourg, Macau, Macedonia, Malaysia, Malta, Mauritius, Mexico, Morocco, Namibia, Netherlands, Netherlands Antilles, New Zealand, Norway, Oman, Panama, Papua New Guinea, Paraguay, Peru, Poland, Portugal, Puerto Rico, Qatar, Romania, Russian Federation, Saudi Arabia, Seychelles, Singapore, Slovak republic, Slovenia, South Africa, Spain, Sri Lanka, St. Kitts & Nevis, Swaziland, Sweden, Switzerland, Taiwan, Thailand, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, United Kingdom, Ukraine, United Arab Emirates, United States, Uruguay, Venezuela

²We have also experimented with alternative indicators for rating and results are qualitatively the same

We run four specifications of OLS regressions for 107 countries. All results are reported in Table 1 with each column representing an alternative specification. The specification of each regression, the definition of the variables definition and the sources are fully described in Table 1 which also report the results.

Regression (I) considers the role of countries' rating on the Euromoney index. Results show that rating in 2007 is negatively and significantly correlated with output loss during the crisis. Income per capita, population and past average growth are not significant. This result sheds some light on the fact that 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. This also supports the view that the crisis took the market by surprise. Clearly, the rating index did not captured risk appropriately.

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 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 they are all negatively correlated with growth during the crisis. 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. Not surprisingly the aggregate index of regulatory quality now becomes insignificant.

This result suggests that, in contrast with what is shown in the literature on growth, pro-market credit policies may make countries more vulnerable to shocks, a result that goes in the same direction as findings in the literature on financial markets and output volatility (see, for example, Easterly, Islam, and Stiglitz (2000)).

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, clearly reflecting its positive correlation with the now omitted regulatory quality (see Chart 1).

In the next sections we evaluate the robustness of this result by considering additional controls. We will proceed sequentially, adding one variable at the time to avoid the curse of dimensionality problem.

3 Openness

Since the global recession has been transmitted from developed countries to developing countries via trade and financial linkages, we use a number of controls capturing openness. Results, reported in Table 2, show that the negative effect of credit market regulation survives and, amongst the controls, only current account over GDP is significant with a positive sign.

4 Financial development and regulatory quality

Credit market “regulatory freedom” is likely to be positively correlated with market characteristics such as the size and depth of the financial sector or the competitiveness of the banking sector, which, in turn, may make economies more vulnerable to shocks.

In what follows we consider some proxies of 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 higher wedge 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.

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 therefore seems to have explanatory power beyond credit market regulation. Specifically, variables capturing the size of the financial market and indicators of efficiency of the banking sector are all significant. The deeper is the financial market, the better is output performance. The less competitive is banking, the worse is output performance.

Concentration and size of the banking sector and stock market characteristics are not statistically significant.

These results are intriguing. 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. This is in line with results in Caprio and Honohan (2002) who studied the relation between financial market characteristics and output volatility. The authors find that those regulatory characteristics which empower the private sector, by helping deepen a financial system, make it more robust to crises but also reduce the sector's ability to provide short-term insulation to the macro-economy.

On the other hand, the combination of *laissez-faire* in credit market regulation and lack of competition in the banking sector, makes economies vulnerable to shocks (on this point, see Wasmer and Weil (2004)).

5 Regulatory quality and 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. Here we are interested in testing whether variables capturing the soundness of the banking sector had an impact on the economy's vulnerability during the crisis beyond what is captured by the index of regulatory quality. In other words, we want to check whether the negative effect on output of credit regulatory quality is simply explained by the fact that quality is likely to be correlated with risk taking or whether its significance survives when we add variables capturing risk taking as control.

For banks' strength we consider two of the variables used in Rose and Spiegel (2009): *share of non performing loans* and *bank assets as share of deposits*. We also add variables capturing macroeconomic imbalances such as external account and private and public debt variables.

Results are reported in Table 4.

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

Amongst the two variables indicating the health of the banking sector, bank assets as % of deposits, which is an indicator of leverage, significantly affect resilience with a negative sign while non performing loans are not significant. The latter result is not surprising since non performing loans are lagging indicators of the business cycle and are not likely to show up in a boom period such as that preceding the crisis. This suggests that, beside market friendly regulation, vulnerability is also linked to weak external position and leverage.

The point we would like to emphasize here is that, even after including control variables capturing risk in the regression, the significance of credit market regulatory quality survives. This suggests that there aspects that are not well captured by our data on risk taking and that are likely to be

related to incentives in high quality (market friendly) credit markets.

To explore this conjecture, we now consider the components of credit regulatory quality separately. The results are in Table 5.

Bank ownership and foreign bank competition are the two variables driving the result while interest rate control and private sector credit are not significant. Clearly, lightly regulated markets favor private versus public ownership of banks as well as international banking competition. However, while indicators of banks competition have a positive sign, they are negatively related to the depth of the recession. Our interpretation is that these variables are proxies for other aspects of the financial system which favor excessive risk taking behavior, as, for example, recourse to off balance-sheets activities. Remember that the negative relation with output loss survives even after conditioning on leverage. This is clearly a point that needs to be investigated further by constructing more meaningful indicators of regulatory quality.

6 Summary and conclusions

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

The negative effect survives the inclusion of a wide range of controls, from income per capita to variables capturing the depth of the financial market, banking competition, leverage and macroeconomic imbalances. We interpret this finding as showing that liberalization may have induced risk taking behavior which is not fully captured by the standard variables on leverage and financial structure used in this paper.

Although depth of the financial sector and competition in banking affects performance positively while leverage and external imbalances affect it negatively, the effect of credit market regulatory quality remains negative and significant. This leads us to two conjectures. First, market friendly regulatory characteristics, by helping deepen a financial system, make it more robust to crises but also reduce the sector's ability to provide short-term insulation to the macro-economy (see Easterly, Islam, and Stiglitz (2000) and Caprio and Honohan (2002)). Second, the combination of *laissez-faire* in credit market regulation and lack of competition in the banking sector makes economies vulnerable to shocks (see Wasmer and Weil (2004)).

This study has focused on the recession, not on the full cycle including the recovery for obvious lack of data on the next few years. We don't know whether countries which have been hit worst are also going to be the ones which will recover faster and we don't know whether or not the recessionary shock will leave a permanent effect on output. In the first case our findings provide also an input to the literature on growth and institutions.

This brings us to another point of reflection. The principles of governance that have guided policy advice were developed on the basis of the experience of past crises while the adoption of market friendly policies was a slow process since the 1950s. With this crisis something clearly went wrong and this is likely to set in motion a reversal of the process of adoption of pro-market policies (on the role of learning for the evolution of institutions, policies and ideas, see Buera, Monge-Naranjo, and Primiceri (2008)). Because of the slow process of learning, a miss-interpretation of the mechanisms leading to the amplification effects of the global shock in the recent crisis may turn out to lead to the design of policies which will be inadequate next time.

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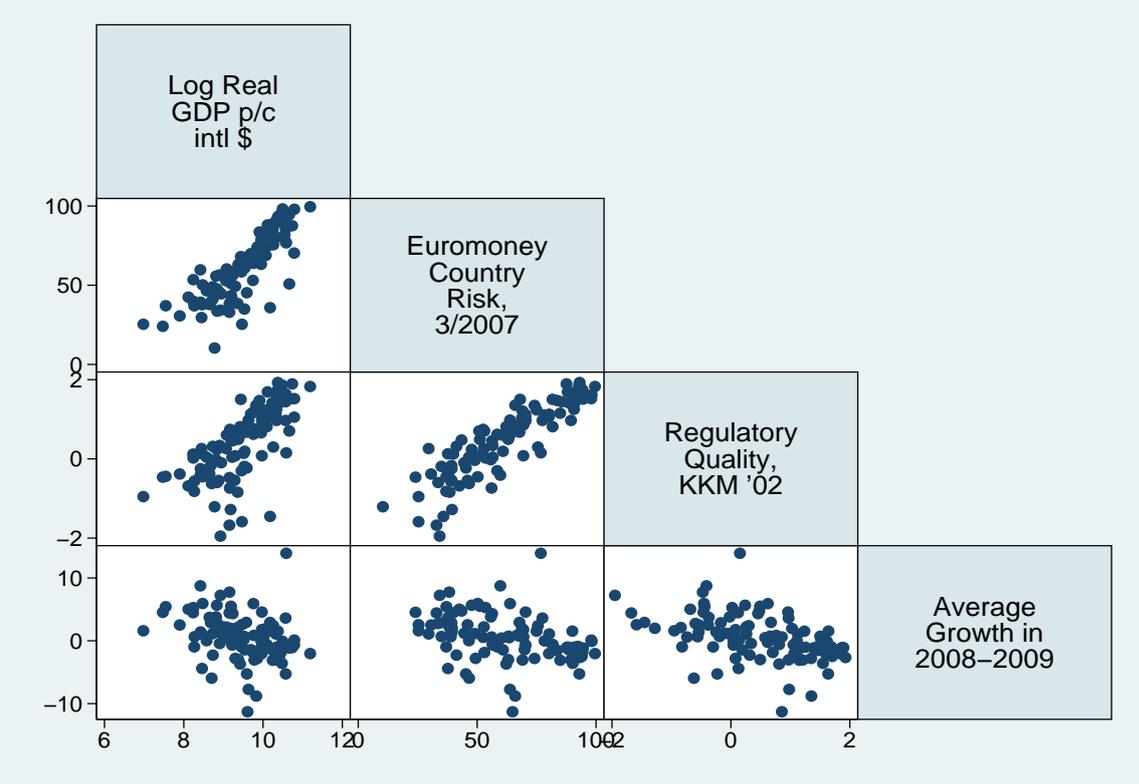


Figure 1: Cross-country correlations

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* (0.03)	-0.06 (0.06)		
Regulatory Quality, (KKM '02)		-2.85** (1.15)	-0.85 (0.85)	
Credit Market Regulation (EFW 06)			-1.18** (0.37)	-1.28** (0.37)
Labor Market regulation (EFW06)			0.51* (0.28)	0.49* (0.26)
Business Regulation (EFW 06)			-0.18 (0.37)	-0.34 (0.33)
Average growth 2002-2006	0.06 (0.21)	-0.07 (0.19)	-0.17 (0.20)	-0.13 (0.18)
(log) population in 2006	0.27 (0.21)	0.00 (0.23)	0.06 (0.23)	0.07 (0.22)
(log) GDP per capita in 2006	0.01 (0.80)	-0.53 (0.76)	-0.37 (0.68)	-0.84** (0.41)
Intercept	-0.27 (6.32)	3.37 (6.00)	12.30 (7.58)	17.85** (4.81)
Summary statistics				
R-squared	0.15	0.23	0.32	0.32

Table 1: Each Column reports the regression coefficients estimated by OLS. 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				
Control Variables	Regressors			
	Credit Market Regulation	Labor Market Regulation	Business Business	Control Variable
Current Account % GDP 2006 (WDI)	-1.08** (0.36)	0.27 (0.26)	-0.21 (0.31)	0.10** (0.03)
Trade Openness (IMP+EXP) % GDP 2007 (PWT)	-1.27** (0.37)	0.42 (0.27)	-0.24 (0.33)	0.003 (0.003)
Financial Openness (ASS+LIAB) % GDP 2007 (LMF)	-1.27** (0.37)	0.47* (0.26)	-0.35 (0.33)	0.04 (0.10)
Financial Openness 2 (Assets) % GDP 2007 (LMF)	-1.28** (0.37)	0.46* (0.26)	-0.35 (0.33)	0.12 (0.18)
Financial Openness 3 (Liabilities) % GDP 2007 (LMF)	-1.28** (0.37)	0.49* (0.27)	-0.35 (0.34)	-0.02 (0.21)
Financial Openness FDI (ASS+LIAB) % GDP 2007 (LMF)	-1.28** (0.37)	0.48* (0.26)	-0.36 (0.35)	0.10 (0.15)
Financial Openness FDI 2 (Assets) % GDP 2007 (LMF)	-1.28** (0.37)	0.48* (0.27)	-0.36 (0.34)	0.23 (0.28)
Financial Openness FDI 3 (Liabilities) % GDP 2007 (LMF)	-1.28** (0.38)	0.48* (0.26)	-0.36 (0.36)	0.12 (0.32)

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 1006 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				
Control Variables	Regressors			
	Credit Market Regulation	Labor Market Regulation	Business Business	Control Variable
Size of the Financial Sector				
Liquid Liabilities % GDP 2005	-1.07** (0.35)	0.33 (0.29)	-0.45 (0.32)	1.71** (0.71)
Financial System Deposits % GDP 2005	-0.88** (0.34)	0.29 (0.23)	-0.41 (0.28)	1.17** (0.52)
Private credit by Money Banks and OFI % GDP 2005	-1.07** (0.35)	0.27 (0.23)	-0.53* (0.29)	1.62* (0.88)
Banking System				
Central Bank Assets % GDP 2005	-0.90** (0.38)	0.35 (0.25)	-0.41 (0.29)	2.64 (4.04)
Deposit Money Bank Assets % GDP 2005	-0.97** (0.34)	0.33 (0.23)	-0.46 (0.30)	1.13 (0.77)
Net Interest Margins	-1.54** (0.40)	0.66** (0.29)	-0.58 (0.37)	-28.87* (15.79)
Overhead Cost	-1.50** (0.40)	0.57** (0.28)	-0.42 (0.34)	-27.29** (11.82)
Concentration	-1.46** (0.41)	0.66** (0.28)	-0.50 (0.38)	2.72 (2.13)
Stock Market				
Stock Market Capitalization % GDP 2005	-1.21** (0.39)	0.28 (0.28)	-0.30 (0.34)	0.62 (0.42)
Change in Stock Market Capitalization 2003-2006	-1.28** (0.38)	0.49* (0.27)	-0.25 (0.30)	.11 (0.37)
Stock Market Total Value Traded % GDP 2005	-1.23** (0.38)	0.38 (0.26)	-0.28 (0.33)	0.31 (0.45)
Stock Market Total Value Traded % Market Capitalization (Turnover)	-1.31** (0.42)	0.53* (0.29)	-0.41 (0.35)	0.18 (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 1006 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				
Control Variables	Regressors			
	Credit Market Regulation	Labor Market Regulation	Business Business	Control Variable
Bank Non-Performing Loans % Loans 2006 (WDI)	-1.46** (0.49)	0.68** (0.30)	-0.16 (0.35)	0.08 (0.10)
Ext Debt % GNI (WDI)	-1.13** (0.44)	0.39 (0.37)	0.01 (0.57)	-0.02 (0.02)
M3 % GDP 2006 (WDI)	-1.23** (0.37)	0.39 (0.30)	-0.31 (0.36)	0.01 (0.01)
Debt % GNP 2006 (GDF)	-1.09** (0.44)	0.23 (0.40)	0.20 (0.63)	-0.01 (0.02)
Bank Assets % Deposits 2006 (IFS)	-1.07** (0.35)	0.41 (0.26)	-0.05 (0.32)	-1.35** (0.60)
Net External Position % GDP 2004 (LMF)	-1.18** (0.34)	0.49* (0.25)	-0.37 (0.31)	1.12** (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 1006 and the average growth over the period 2002-2006 are included in every regression. Data extracted from Rose and Spiegel (2009). 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: Single components of the credit regulatory quality

Dependent Variable: average growth in 2008-2009	
Regressors	
Interest rate controls/negative real interest rates (EFW 06)	0.35 (0.34)
Ownership of banks (EFW 06)	-0.44** (0.16)
Foreign bank competition (EFW 06)	-0.69** (0.23)
Private sector credit (EFW 06)	-0.14 (0.27)
Labor Market regulation (EFW06)	0.69** (0.28)
Business Regulation (EFW 06)	-0.59 (0.37)
Average growth 2002-2006	-0.33* (0.19)
(log) population in 2006	-0.06 (0.24)
(log) GDP per capita in 2006	-1.14** (0.41)
Intercept	20.1 (5.79)
Summary statistics	
R-squared	0.41

Table 5: Each Column reports the regression coefficients estimated by OLS. 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.