Financial crises, political constraints and policy responses*

Zorobabel Bicaba†, Daniel Kapp‡, Francesco Molteni§

Abstract

We analyze the political environment in the wake of financial crises and try to infer its implications on decision making and economic policies. Concretely, we investigate if a shift in the ideology of the government or changes of political constraints drive the implementation of economic policies around periods of financial stress.

To this end, we apply a simultaneous equations approach to evaluate governments' responses to financial crises, given the impact of crises on the political and social environment. This method allows us to disentangle the direct effects from financial crises on public policy from the indirect effects induced by political and social changes.

The proposed policy response model is able to take into account the possibility of a selection bias. The direct and indirect effects from financial crises on the political process are shown, where the indirect effect is defined as the impact of financial crises on the political orientation and political constraints. Furthermore, results suggest that changes in the political environment during financial crises do affect policy responses, although the effect is highly heterogeneous across different types of crises.

JEL classification: C15, G01, G17, G22, G32.

Keywords: Financial crises, political orientation, political constraints, policy responses.

*We wish to thank Fabrizio Coricelli for his support, guidance and advice. We also thank Allan Drazen, Atif Mian and the participants of the PSE & INET joint conference and of the IV Doctorissimes at the University of Paris 1 for useful comments. We are grateful for financial support from the Institute for New Economic Thinking. The views presented in the paper are those of the authors and do not necessarily represent the views of the institutions they are affiliated with.

†African Development Bank.

‡European Central Bank.

§Université Paris 1 and LabEx ReFi.

1 Introduction

In the wake of the recent financial crisis and the deep recessions experienced across most industrial countries, policy makers undertook extraordinary measures to stabilize financial markets and to foster economic recovery. Monetary authorities cut interest rates and adopted non-conventional measures on the borderline to traditional playing fields of fiscal policy. Fiscal authorities stepped in with rescue programs for financial institutions and with fiscal stimuli to reduce unemployment. As a consequence, public deficits rose and the policy stance had to be tightened through cuts in public expenditure and tax increases. Banking supervisory authorities increased banks' core capital requirements and introduced new regulatory requirements on bank liquidity and bank leverage through Basel III. Across the euro area, peripheral countries adopted structural reforms in order to receive financial support from joint European Commission, ECB and IMF programs, somewhat in line with the the IMF prescriptions for emerging countries hit by financial crises during the 1990s.

The policies adopted, as well as their impact, are subject to public debate and are a major source of disagreement between economists. Also as a result of the heightened interest in the topic, a growing strand of the economic literature studies "optimal" policies in times of financial stress.

Less attention has, however, been paid to the political process which determines policy responses during and in the aftermath of financial crises. And even if, at least from an economic point of view, optimal policies can be formulated, further questions arise. To name some, it is e.g. unclear: (i) Why countries which face similar financial market disruptions adopt different policy measures?; (ii) Do governments face political and economic constraints which *de facto* affect and limit the scope of their interventions?; (iii) Does a shift in these political constraints and the respective government's ideology during times of distress drive implementation of economic policies?; and (iv) Do the international environment and external influences push towards the adoption of certain macroeconomic and financial policies?

This study tries to address these questions. To this end, first, we analyze if the political scenario, the institutional environment and the social context vary in the wake of different kinds of crises. We then evaluate if these changes affect the reform process and the implemented polices. Following, we assess the direct effect of crises on the macroeconomic and financial environment and the indirect effect they may have through a change in the political regime and a variation of the social and political landscape within a country.

We consider a panel of industrial and emerging countries, covering a large set of political, institutional and social variables, and distinguish between currency, banking and debt crises. Concerning policy responses, we focus on fiscal policy and reforms aiming at financial liberalization. We do so since these

are the measures which are most likely affected by a government's ideology and social pressure, assuming that monetary authorities are independent.

In order to investigate how the political orientation and political constraints vary after currency, debt and banking crises, we examine the switches in political regimes due to elections that take place following the normal electoral cycles and after government crises. Moreover, we determine if the political constraints on executives change before and after crises. We employ a large definition of political constraints encompassing all the factors that may interfere with the decision-making process. We consider three sets of variables: political governability, the quality of institutions and social unrest.

We find a deterioration of the governability of a country after banking and debt crises. We do, however, not observe a reduction in the degree of democracy, as the system of checks and balances usually remains in tact after crises and electoral competitiveness increases. On the other hand, a rise in social instability can be observed, as general strikes, riots and anti-government demonstration augment in the wake of crises.

In the second step, as a result of the simultaneous equations approach, which evaluates governments' responses to financial crises, given the impact of crises on the political and social environment, we are able to disentangle the direct effects from financial crises towards public policy from the indirect effects induced by political and social changes evolving during crises times.

As a robustness test, one-step OLS regressions over a window of five years around episodes of financial crises are presented.

The remainder of this paper is organized as follows: Section 2 presents a literature review on how the reform process and economic policies are influenced by the political context, in particular in response to financial crises. Section 3 describes the data used in the analysis and Section 4 examines changes of the political regimes after different kind of crises, as well as the variation of political constraints. Section 5 studies the reaction of policymakers to financial crises. Section 6 introduces the econometric model and section 7 presents the results. Section 8 shows the results of OLS estimations, and section 9 concludes.

2 Literature review

The role of political constraints for the implementation of public policies is extensively investigated in the literature. Heinsz (2000) e.g. constructs an indicator of political constraints (the Political Constraints Index) to identify political structures that influence the ability to support credible policy commitments.

The first main strand of research however investigates the causes of deviation from optimal fiscal policy. There are several theories giving a rationale as to why policymakers favour suboptimal pro-cyclical fiscal policies. Some see pro-cyclical policies as the outcome of a political distortion in the budget process. The basic tenet of these models is that fiscal surpluses during economic booms tend to generate political pressures for additional public spending or tax cuts. Accordingly, Talvi and Vegh (2005) present a model in which a fiscal surplus raises lobbying efforts for higher public spending.[1] In order to avoid that corrupt governments distribute tax revenues to particular interest groups, voters anticipate this, and appropriate part of the additional tax revenues in economic booms by voting for increases in their preferred public good, or a tax cut. This forces the government to a pro-cyclical bias in taxation. A different theory is that governments are cut off from credit lines when an economic crisis hits. Without additional bond or tax financing, governments have no choice but to cut spending as tax revenues falter. This starving of public expenditure is a recurrent phenomenon in developing economies (Gavin and Perotti, 1997).

Empirical studies find evidence for political cycles in the surplus on a panel of EU countries (Golinelli and Momigliano, 2006; Hallerberg and Strauch, 2003). The literature on fiscal pro-cyclicality highlights that such political distortions can be mitigated by the existence of effective fiscal rules and fiscal institutions. Indeed, the empirical evidence is that fiscal pro-cyclicality is less pronounced in countries with stronger institutions (Woo 2003, Alesina et al 2008). Moreover, there is a body of evidence that indicates that fiscal rules improve the cyclical conduct of fiscal policy (European Commission 2009; Fabrizio and Mody 2006).

Fatás and Mihov (2003) find that the presence of political constraints and other political and institutional variables helps to explain the use of fiscal policy in a large panel of countries. They define a measure of discretionary fiscal policy to refer to changes in fiscal policy that do not represent the reaction to economic conditions and show that political constraints and the nature of the political system significantly affect the volatility of this indicator. Discretionary fiscal policy is shown to be more volatile under presidential systems while countries with a large number of political constraints experience less volatility. They also find that a higher number of elections reduce the pro-cycliality of fiscal policy, suggesting that elections hold politicians accountable. Ponticelli and Voth (2011) study the opposite causal direction assessing the impact of austerity measures on the social environment in Europe. In particular, they investigate whether fiscal consolidation leads to social instability under different economic conditions. They conclude that expenditure cuts increase the risk of social unrest, delaying fiscal consolidation, but this association is less strong for countries with very high levels of constraints on the executive.

[1] Two different political theories explain the distortion at the root of the increased lobbying efforts in booms. On the one hand, Lane and Tornell (1996) and Tornell and Lane (1999) argue that multiple power blocs (ministries, lobby groups, etc.) compete for a bigger share in spending. On the other hand, Alesina et al. (2008) assume that voters have imperfect information on the budget process.

Political and institutional factors also affect the conduct of other policies. Berdiev *et al.* (2012) evaluate the influence of government ideology, political institutions, and globalization on the choice of the exchange rate regime. Their main finding is that a left-wing government is more likely to choose a flexible regime, particularly in developing countries. Additionally, strong and stable governments have a higher probability of implementing a flexible exchange rate regime. Desai and Olofsgård (2006) analyze the effect of political constraints on public opinion on market oriented reform. They show that in Eastern Europe and in Latin America the creation of checks and balances and other mechanisms that limit executive-branch power increases the popularity of markets. This effect however declines as the reform process matures.

Regrettably, these studies do not differentiate between times of financial crises and periods of tranquility. More concretely, the dynamic interaction between policy responses to financial crises and the political and social environment has not been sufficiently addressed in the literature. An existing study on the topic is Alesina *et al.* (2006), who evaluate the impact of crises and political variables on economic reforms to reduce deficit and inflation. It concludes that stabilizations are more likely to occur in times of crises, if a strong government is recently elected. These results support the war-of-attrition theory, according to which the political conflict over the distribution of costs of stabilization can delay the reforms that are more likely to be undertaken in times of crises and when one political party can impose its desired policies. [2]

On the other hand, Mian *et al.* (2012) show that political polarization systematically increases around financial crises. According to the authors, the resulting political gridlock leads to a lack of reforms, contrary to the conventional wisdom that crises offer an opportunity for macroeconomic reforms, and that may explain in part why economic recessions are unusually more protracted and deeper after financial, as showed by Reinhart and Rogoff (2009) and Reinhart and Reinhart (2010).

Bénétrix and Lane (2010) examine differences in fiscal policies across countries during 2007-2009 and their causes. They find that the shifts in fiscal balances are related to changes in the unemployment rate and private credit growth in the pre-crisis period. In addition, political systems with more checks and balances experienced a smaller decline in the fiscal balance.

Keefer (2007) verifies if governments' responses to financial crises (fiscal transfers and forbearance) are affected by political variables. They find that checks and balances and competitive elections tend to influence political decision making regarding the regulatory framework prior to crises and fiscal transfers subsequent to crises. Electoral competitiveness constrains political decision makers' tendencies to cater

[2] Alesina and Drazen (1991) and Drazen and Grilli (1993) present a theoretical model of the war-of-attrition. For empirical tests, see Hamann and Prati (2002) and Drazen and Esaterly (2001)).

to special interests in the context of financial market regulation, while political checks and balances do not.

These papers abstract from the impact of crises on the political and social environment that may affect the decision-making process. Recent works of political science show that financial crises also have powerful political consequences. Chwieroth and Walter (2013) analyze the impact of banking crises on the survival prospect of political incumbents and show that after the inter-war period, the probability of governments to loose power is significantly higher with democratic and executive-dominated systems, while opening or closing capital accounts does not affect their risk of partisan spell termination. They argue that social learning and the raise in expectations regarding crisis prevention and post-crisis measures increased the propensity of citizens to punish political incumbents after banking crises, in particular in executive-dominated systems in which the policy responsibility is clearer. Pipinsky (2013) makes a survey of the literature on the political consequences of financial crises and in particular on institutional factors that affect the way countries respond to a financial crises. He concludes that there is little evidence that institutional variations (democratic accountability, decision-making autonomy and veto players) affect the content of post-crisis macroeconomic measures or reforms and that they may partially explain the occurrence of financial crises rather than their resolution.

These findings point to the presence of a complex and interactive relationship between crises, policy responses and political outcome, which makes it difficult to take into account the political causes of policy responses to financial crises without taking into account their evolution in times of crises. Financial crises may entail political changes which in turn determine policies. Studies based on a single equation approach to investigate the impact of political factors on policy responses fail to capture the possible simultaneous effect of financial crises on the political context. For this reason, the present work suggests to employ a simultaneous equation approach in order to better identify and separate the direct effects from the indirect effect of financial turmoils on public policies through the political and social scenario.

3 Data

In order to explain why governments react in different ways to financial crises, and to describe the political process leading to the specific path of reforms and macroeconomic policies undertaken, we ensemble a wide database, consisting out of a number of existing and new datasets. The data covers the period 1975 - 2010 across 128 countries and includes three groups of variables: financial crises, political institutional and social characteristics, as well as policy responses.

Financial crises include currency, banking, and debt crises as in Leaven and Valencia (2008, 2012). The political, institutional and social variables are drawn from the following databases: Political Constraint Index, the KOF Economic Globalization Index, the Quality of Governments Database, the database of Political Institutions 2010 (World Bank), the Polity IV database, The Major Episodes of Political Violence database and the Cross-National Time Series Database.[3]

Regarding policy responses, we construct indicators of fiscal policy and financial regulation. Two different procedures are used to depict the fiscal stance for OECD and for non-OECD countries. For OECD countries we construct an indicator capturing the fiscal impulse based on the cyclically-adjusted primary balance.[4] We do so in order to filter the impact of cyclical movements on the primary balance and to assess the underlying fiscal stance. Because of the lack of fiscal data for non-OECD countries before 2000, we compose a new dataset containing the primary balance-to-GDP ratio around episodes of financial crises for non-OECD countries which have received financial support from the IMF. We do so by extracting this information from the IMF Staff Reports and IMF Recent Economic Developments.[5]

The fiscal stance is identified through a threshold approach. For OECD countries, the fiscal impulse is defined as the variation of the cyclically-adjusted primary balance and the fiscal stance is considered contractionary if this indicator is more than 0.5% of GDP, expansionary if is less than -0.5% of GDP and neutral if it is between these two values. For non-OECD countries, the fiscal stance is evaluated as expansionary if the variation of the primary balance-to-GDP ratio is more than 0.5%, contractionary if it is less than 0.5% and neutral if it is between the two values.

Concerning financial regulation, two indicators are used: the Capital Stringency Index and the Prompt Corrective Action Index. There are different ways to measure the importance of capital requirements on different financial and economic outcomes. We have compiled alternative quantitative indicators of capital regulatory stringency based upon the survey information provided by the New Bank Regulation and Supervision Survey (2001, 2003, 2008, 2012). Among these measures we retain the Capital Stringency Index (CRI). The CRI measures whether there are explicit regulatory requirements regarding the amount of capital that a bank must have relative to various guidelines. [6]

Prompt Corrective Action (PCA) is a commitment device designed to minimize the risk of regulatory

[3]The data appendix provides a brief description of all the databases used in this study.

[4]Data are from the the OECD Economic Outlook No. 92.

[5]The IMF Historical Government Finance Statistics (HGFS) and Government Finance Statistics (GFS) databases include revenue components and expenditure components, classified by economic and functional classifications, for all countries. However, the large number of missing data during the decade 1990-2000 prevents us to use these databases for the analysis of fiscal interventions in the wake of several financial crises such as the ones in Latin American countries and in Asian countries (for instance from 1990 to 1999 there are only 6.67% of values of public expenditure in our sample). Similarly, the World Development Indicators (WDI) provide data on the overall balance, but only 22.5% of values are present in our sample.

[6]Notice that this particular measure of capital stringency somehow captures whether or not regulatory capital is solely an accounting concept or, at least partially, a market-value concept (Barth and Caprio, 2001).

forbearance in the face of bank sufferance. It prescribes specific actions, with little discretion for prudential authorities, when the capitalization of a bank falls below certain thresholds.[7] The Prompt Corrective Action index measures whether a law establishes pre-determined levels of bank solvency deterioration, which forces automatic enforcement actions such as intervention.[8] It should also be noted that the labeling of the latter variable may be somewhat misleading because some of the variables employed in its construction are based upon the authority to engage in an action rather than the action being mandatory.

4 Descriptive Statistics

In this section, we describe the evolution of the political landscape in the aftermath of different types of financial crises. The aim is to determine whether the occurrence of a crisis has not only deep economic and financial effects, but also political and social consequences. First, we examine how the political orientation changes in a post-crisis context. Second, we compare the political, institutional and social scenario before and after different types of crises.

4.1 Political orientation

A natural starting point towards determination of reasons for the outcome of the political process is to analyze the political orientation of the incumbent government. The variable "political orientation" used in this study indicates whether the party of the incumbent government is left oriented, right oriented, or center oriented. It stems from the "quality of government database" and is of ordinal nature[9].

The sample is dominated by center oriented executives, accounting for 54.65% of the observations, followed by right-wing executives (36.32%) and left-wing executives (9.03%), representing the smallest share.

[7] Many economists also have pointed out possible problems with using book-value capital in banking regulation, and proposed using market-value capital instead. But in most countries, bank capital regulation is based on book-value capital, and bank regulators have adopted market-value accounting only in a limited manner. Shim (2006) shows that it is optimal to base bank capital regulation on book-value capital, but is optimal for the regulator to use stochastic termination/bailout rather than deterministic termination with no bailout. He demonstrates that the optimal allocation can be implemented by the combination of a risk-based deposit insurance premium and a book-value capital regulation with stochastic termination/bailout of an undercapitalized bank. This contrasts with the deterministic termination with no bailout as is currently stipulated by PCA. In this implementation, the level of book-value capital takes the role of a record-keeping device, as the banker's continuation utility does.

[8] The specific survey question asks: "Does the Law establish pre-determined levels of solvency deterioration which forces automatic actions (like intervention)?"

[9] The variable takes the value 1, if the executive party is right oriented; 2 if it is left oriented, and 3 if it is center oriented. Parties are classified as right if, within their respective system, they are defined as conservative, Christian democratic, or right-wing; Left are parties which are defined as communist, socialist, social democratic, or left-wing; Center is a classification for parties that are defined as centrist or when a party's position can best be described as centrist (e.g. the party advocates strengthening private enterprise in a social-liberal context). The primary source of these codings is the party's name.

Table 1: Share of political orientation in the sample

Executive Party: Right Left or Center	Freq.	Percent	Cum.
1. Right	965	36.32	36.32
2. Left	240	9.03	45.35
3. Center	1,452	54.65	100.00
Total	2,657	100.00	

To study the change of governments from one political orientation towards another, we assume that two main causes are the drivers of this process: a conventional source, i.e. regular elections, and an unconventional source, i.e. a change of government occurring as a result of major political crises. These two sources are not always exclusive, since not all elections lead to a change in the political orientation of the government and a change of the executive due to a major government crisis does not automatically involves a change in the political orientation. [10] In total, 162 changes of governments' orientation are observed. This represents roughly 37.6% of the number of elections in our sample and 33.05% of major government crises. [11]

To understand the dynamics of political orientations around financial crises, it is crucial to analyze the behavior of these two sources of change over time and separately around the time of financial stress. Currency, banking and debt crises are distinguished since they have different distributional effects and, hence, different political implications as explained by Pepinsky (2013). For instance, currency crises worse off importers and foreign debt-dependent firms who will combat a currency devaluation. Table (2) shows the proportion of elections and government crises which occur in the three years following financial crises.

Out of the 423 executive elections observed in the sample, 31.6% occurred during a three-years window following a financial crisis. More precisely, 14.42% are registered after currency crises, 10.64% after banking crises, and 6.15% after debt crises. However, this proportion can be due to the higher number of currency crises in our sample (163), while banking and debt are scarcer (respectively 108 and 56).[12]

Amongst the 481 episodes of major government crises observed, 30.35% occurred in the three-year window following a financial crisis. Further decomposition shows that 16% of them took place after a currency crisis, while 9.77% and 4.58% are observed after a banking crisis or a debt crisis, respectively.

[10] For instance, in Holland in 2012 a government crisis led to elections determining a new executive, while in Italy in 2011 the government crisis has been solved via the parliamentary way without new elections.

[11] Chwieroth and Walter (2013) construct a yearly indicator of incumbent spell based on the partisan affiliation of the chief executive, measuring when incumbent government parties loose the power. For the purpose of this study, we prefer to control the variation in governments' political orientation, rather than partisan affiliation, since it is more relevant for the policy outcome.

[12] Adjusting by the number of crises, we note that elections are more frequent after debt crises, while after currency crises government crises remain the most frequent after the adjustment.

Table (3) shows that among the 162 changes observed, 8% represent a change from left to right, 9% a change from right to left. A smaller share (9.3%) of changes occur from left to center then from right to center (34%). Finally, 32.1% of the changes occur as a change from center to left and 8.6% from center to right. So small changes happen towards left-oriented governments.

Table 2: Elections and major government crises after financial crises

Specification	Currency Crisis	Banking Crisis	Debt Crisis	Total $Crisis^a$
Executive Election				
Election in t; t+1 or t+2	61 (17.43%)	45 (20.09%)	26 (21.67%)	132 (17.61%)
	61 [14.42%]	45 [10.64%]	26[6.15%]	132 [31.6%]
Total of elections	350 [423]	224 [423]	120 [423]	694 [423]
Major government crises				
Major gov. crises in [t,t+2]	77 (22.19%)	47 (21.61%)	22 (19.64%)	146(21.58%)
	77 [16%]	47 [9.77%]	22[4.58%]	146[30.35%]
Total of major government crises	347 [481]	228 [481]	112[481]	[481]

Note: (a) The last column considers the occurrence of at least one of the three types of crises. Their percentages are adjusted for twin crises and for simultaneous currency, debt and banking crises. "()" reports the percentages of elections and major government crises after different crises on the total of post-crises periods (t,t+3). "[]" reports the percentages of elections and major government crises after different crises on the overall sample of elections.

Table 3: Decomposition of changes in political orientation

Change in political orientation	Freq.	Percent
Left → Right	13	8.02
Left → Center	15	9.27
Right → Left	13	8.02
Right → Center	55	33.95
Center → Right	52	32.10
Center → Left	14	8.64
Total	162	100.00

We then decompose the political changes displayed in tables (4) and (5). First, it can be observed that changes in the political orientation of the government are more likely to occur after major government crises than after elections. There is a high persistence in political regimes when countries use legal means of changes in power. In total, governments do not seem to be punished by electors after financial crises. Second, countries most frequently switch either from right to center or from center to right in the two years following elections or government crises. Center-oriented governments succeeded right-oriented governments after elections and government crises in 37% and 33% of all cases, respectively. Conversely, in 26% and 31% of all cases, a center-oriented government is succeeded by a right-center government

after an election and a government crisis, respectively.

In order to determine whether political regime switches and government crises are linked to the occurrence of financial crises we analyze the rank correlation of different types of financial crises with the variation of political orientation and with the occurrence of government crises until three leads. Table (6) shows that the variation of political orientation is significantly correlated with banking crises, while no significant correlations emerge with currency and debt crises. Concerning government crises, they are significantly correlated with currency and banking crises, but not with debt crises. The latter results confirm the findings of tables (2).

Having observed the dynamics of political orientation during and after financial crises, a question as to reasons for these changes arises. A natural candidate factor potentially causing changes in the political orientation of governments lies in a change of the ease of governability. If financial crises lead to a lower degree of confidence in current government activities, we should observe a higher degree of fractionalization and a lower share of votes for the incumbent government. On the other hand, it is unclear what happens to the probability of governing of the opposition following social discontent. One possibility is that, as currently observed in many European countries, the opposition overall gains votes and influence. This does, however, not necessarily mean that the opposition as a whole has a higher chance of being elected if financial crises also lead to a higher degree of opposition fractionalization.

4.2 Political governability

The governability of a country is measured by the variables "total fractionalization", "polarization", and the "margin of majority". Total fractionalization measures the probability that two randomly chosen deputies in the legislature belong to different parties. Polarization is defined as the maximum

Table 4: Change in political orientation and elections

Change in Political orientation	t	t+1	t+2	Total
Left → Right	1	5	0	6
Left → Center	-	5	1	6
Right → Left	-	5	1	6
Right → Center	2	20	3	25
Center → Right	1	15	2	18
Center → Left	1	4	2	7
Total	5	54	9	68

Table 5: Change in political orientation and government crises

Change in Political orientation	t	t+1	t+2	Total
Left → Right	3	2	2	7
Left → Center	5	4	6	15
Right → Left	3	3	2	8
Right → Center	12	12	17	41
Center → Right	9	12	17	38
Center → Left	4	4	6	14
Total	36	37	50	123

Note: These tables report the number of changes in the political orientation in a two year window following an election and a major government crisis, respectively

Table 6: Rank correlation

	Currency				Banking				Debt			
	t	t+1	t+2	t+3	t	t+1	t+2	t+3	t	t+1	t+2	t+3
ΔPO												
Spearmann	0.001	-0.023	0.021	0.032	0.046**	0.055***	-0.012	0.002	-0.016	-0.001	0.012	0.040*
	(0.977)	(0.283)	(0.325)	(0.133)	(0.030)	(0.001)	(0.577)	(0.933)	(0.453)	(0.948)	(0.55)	(0.062)
Gov crises												
Spearmann	0.041***	0.013	0.029*	0.013	0.003	0.008	0.038**	0.043***	0.029	0.017	-0.023	-0.023
	(0.009)	(0.409)	(0.067)	(0.408)	(0.825)	(0.596)	(0.018)	(0.007)	(0.132)	(0.277)	(0.148)	(0.148)

difference between the left-right-center orientation of the chief executive's party and the placement of the three largest government parties and the largest opposition party. The margin of majority is calculated as the number of government occupied seats divided by total seats in parliament. A more dispersed governing coalition with a weak majority, a high number of parties and a heterogeneous orientation will probably face more difficulties in finding an agreement to promptly modify government expenditures and to implement financial reforms after a crisis.

From Figure 1 it can be observed that total fractionalization increases in the post-crises period of debt crises and slightly after banking crises.[13] In contrast, total fractionalization decreases after currency crises. This finding is in line with a decrease in the number of legal electoral parties after currency crises. While an increase in total fractionalization by itself is an important observation, it is possible that an increase (decrease) in total fractionalization does not lead to a a higher (lower) degree of difficulty for the incumbent government to pass laws, given that the fractionalization takes place on the opposition parties' side. We therefore firstly assess whether the opposition becomes more or less concentrated after financial crises.

Figure 2 shows that opposition fractionalization increases after banking crises and to a lesser extent after debt crises, while it decreases after currency crises, as shown in the kernel density diagram through a shift of the distribution towards the left.

Government fractionalization increases during debt crises, while it decreases after banking crises. As after debt crises, government fractionalization also increases in the wake of currency crises, however to a lesser extent (Figure 3).

A possibility exists that government fractionalization increases or decreases to roughly the same extent as

[13] For total fractionalization and opposition fractionalization, we consider only cases where the probability is larger than zero. We thus exclude the non democratic countries.

opposition fractionalization. A change in fractionalization might then reflect intra-governmental or intra-oppositional conflicts. In this case, even though a change in government fractionalization has a direct effect on the degree of governability, it is necessary to assess if a higher or lower degree of fractionalization goes along with a change in the margin of majority.

Figure 4 displays that the margin of majority diminishes after whatever the type of financial crisis considered, even though the decrease is most pronounced in the post-crises period of banking and currency crises. This observation per se is surprising, since government fractionalization increases in the wake of debt crises and decreases in the wake of banking crises. It is possible that in the case of shrinking margin of majorities, governments unite and fractionalization decreases to counterbalance the losses suffered in the margin of majority.

Since the margin of majority decreases in the wake of all three types of financial crises under examination, and considerable change in total-, government-, and opposition fractionalization can be observed, we suspect that these developments could go along with a increases in political polarization, represented by a change in the maximum difference between orientations among government parties.

A decrease in political polarization is observed following debt crises (figure 5), which is surprising given the increase in government fractionalization observed after debt crises. After banking crises, political polarization increases, contrary to a decrease in government fractionalization. This effect can well be observed in many European countries at the moment, where political parties try to distinguish themselves sharply from each other, while aiming to minimize intra-party conflicts. As in the wake of banking crises, political polarization increases after currency crises, which is in line with an increase in government fractionalization.

These stylized facts suggest that the political environment changes during financial crises, although the effect is highly heterogeneous according to the type of crises. From the descriptive analysis alone, the impression emerges that banking crises have major political consequences, which are also larger in magnitude than changes observed during currency and debt crises. One hypothesis is that the impact on the real economy might be more pronounced and longer lasting than after currency crises in terms of output losses and unemployment, and in some cases can be perceived as trigger events for sovereign debt crises.

As a consequence of changes in the political environment, such as increasing fractionalization, shrinking margins of majority, and the necessity to narrow down and to more clearly define one's political stance, the suspicion, that incumbent governments attempt to diminish the consequences from these developments on themselves, lies close. On the other hand, oppositional forces could attempt to increase the level of direct

participation from the population if this was in their favor. In any of these cases, a change in the degree of democracy should be observed. We further hypothesize that if the incumbent government succeeds to "decrease" the level of democracy, this could leave room for the delay of reforms and immediate responses to crises.

4.3 Degree of democracy

We consider the executive index of electoral competitiveness (EIEC) and checks and balances (CHECKS), used by Keefer (2007), as proxies for the degree of democracy.

CHECKS captures the number of veto players. A high value of this variable leads to reduced incentives to cater to special interests, offsetting the effect that checks have in delaying governments' responses to crisis.[14] The impact of debt and currency crises on CHECKS is inconclusive, while the index slightly increases after banking crises, meaning that the number of veto players increases (Figure 6). Overall, incumbent parties, in spite of shrinking support from the population, do not seem to be able, or willing, to change the legislative process and order. Since modification of these processes is typically difficult to achieve and takes time, we verify if elections can be influenced by avoiding elections all together or by at least decreasing the number of feasible candidates.

EIEC takes the values 1 if no elections occur, to 7, in which case elections take place and multiple candidates run for office. Surprisingly, EIEC increases after all three types of financial crises, meaning that elections become more competitive (Figure 7). While for some countries this is a natural result through a polarization and widening of the political spectrum, it can be assumed that in other countries, an increase in EIEC is the result of a larger and/or more expressed degree of discontent in the population.

4.4 Social unrest

In the case of strong discontent, governments are faced with social unrest, expressed through riots, contestations, and less severe, an increase in the amount of strikes.

Table 11 shows that the largest increase in the number of general strikes takes place after debt crises, with the likelihood of experiencing more than one general strike increasing by more than 5 per cent. The

[14] In presidential systems, CHECKS is the sum of 1 (if EIEC is greater than 4, in order to distinguish elected from not elected presidents), 1 (for the presidential veto power), 1 for each legislative chamber, and 1 if the first government party is closer in terms of political orientation (left, right, or center) to the first opposition party than to the party of the president. If the legislature is closed list (voters must vote for parties and cannot register candidate preferences) and the president's party has a majority in parliament, the legislature is not counted as a check. Similarly, if the legislature is not competitively elected, the presumption is that the president entirely controls policy and again the legislature is not counted as a check. The process is the same in parliamentary systems, except that CHECKS counts 1 for the prime minister and adds the number of parties in the governing coalition; the number is reduced by 1 if there is a closed list and the prime minister's party is in the coalition.

number of general strikes also increases after currency crises, yet to a smaller extent. An increase in the number of strikes is not observed in the wake of banking crises.

The probability of experiencing at least 2 riots increases by 5 per cent after debt crises, while it stays roughly constant in the wake of banking crises. The number of riots following currency crises does not exhibit a clear trend. While the percentage of countries not experiencing riots in a given year following a currency crisis increases, so does the percentage of countries experiencing at least two riots (Table 13).

In addition, internal violence, measured by the number of riots, surges after debt crises, while it does not increase after currency and banking crises. Finally, Table 15 displays the episodes of anti-government demonstrations become more frequent after debt crises, but not after currency and debt crises.

All in all, we observe an intensification of social unrest following debt crises, while we witness a relatively more stable environment after banking and currency crises. A possible explanation could be that the latter kinds of crises are perceived as driven by external factors and the measures adopted by governments are less unpopular than after debt crises. Similar results are obtained if we compare the accounts of social unrest after a financial crisis to the tranquil periods.

5 Policy responses to financial crises

In the following, we describe the reaction of policymakers to financial crises in term of fiscal policy and financial regulation. The conduct of fiscal policy in the aftermath of a crisis is very heterogeneous across countries. In particular, the fiscal stance is more contractionary in non-OECD countries and in countries having received financial support from the IMF. Moreover, fiscal policy tends to be more expansionary with left- and right-oriented governments than with center-oriented governments after a crisis. Regarding the propensity of regulators to take Prompt Corrective Action, we show by comparison of crisis and no-crisis countries that the number of discretionary regulation actions increases after crises. This trend is observed for high income and low income countries, while middle income countries do not seem to behave differently before and after financial crises.

5.1 Fiscal policy

For the analysis of the fiscal response to crises a window of five years around episodes of financial turmoil is considered. Each spell is divided in "post-crisis"(includes the two years before a crisis), "crisis" (the year of a crisis), and "pre-crisis" (comprises two years after a crisis). The ratio of primary balance-to-GDP is

used to measure the fiscal stance for all countries in our sample. This allows to have a broader view of the reaction of fiscal policy to financial crises and better compare OECD and non-OECD countries.

Table 7 displays the high heterogeneity in the conduct of fiscal policy during and after financial crises. The year of the crisis the standard deviations of the ratio of primary balance to GDP in level and in first difference are respectively 5 and 6.2 times the mean. A comparison the fiscal stance of OECD and non-OECD countries (in table 8) may help to investigate the possible sources of this dispersion. Since Iceland are Ireland register huge primary deficits the year of the crisis due to banking rescues (respectively 18.5% and 15.6% of GDP) they are excluded as outliers. On average the stance of fiscal policy is observed to be more contractionary in non-OECD countries. The primary balance is 0.40% of GDP during a crisis and 0.37% of GDP after a crisis for this group, while OECD countries register primary deficits during and after a crisis (-1.24% and -3.10% respectively). The variation of the primary balance is low for both the groups (-0.33% for OECD and 0.40% for non-OECD countries during financial crises and -0.62% and -0.02% respectively after financial). However, we observe a high value of standard deviations, in particular within the OECD countries that suggests a strong intra-group heterogeneity. This finding is confirmed by figure 1, which shows the conduct of fiscal policy in groups of countries that experienced financial crises in the same period (Nordic countries (1991-93), Latin American countries (1994-95), Asian countries (1996-1997), advanced countries (2007)). Although fiscal stance is more expansionary for OECD countries (Nordic and advanced countries), the evolution of fiscal policy differs largely within the groups of OECD and non-OECD countries.

The presence of constraints that may affect the conduct of fiscal policy may also explain the heterogeneity observed in the fiscal stance during financial crises. For this reason, we now turn to analyzing the response of fiscal policy to financial crises conditional on external and internal constraints. We consider as external constraint the presence of an IMF program. Internal constraints are the political, social and economic environment that may affect the decision-making of governments. We split the sample between countries that signed an IMF's stand-by-arrangement (SBA) and countries that did not (non-SBA). Table 10 displays the descriptive statistics. The sign of fiscal stance is opposite for the two groups. As expected, countries that have not received financial aid from IMF run expansionary fiscal policy during and after a financial crisis, while the fiscal stance of countries with an IMF SBA is more contractionary. Figure 2 plots the primary balance for the two groups of countries in the overall sample and in the OECD subsample. Overall, fiscal policy is largely expansionary in non-SBA countries. The average primary balance is 0.31% of GDP during financial crises and 0.29% in the post-crisis period. By contrast, SBA countries tend to strengthen their fiscal position in the aftermath of a crisis, with positive primary balances during and after a crisis (0.31% and 0.29% of GDP, respectively). The RHS panel displays

a similar pattern for SBA and non-SBA countries in the OECD subsample. The different behavior of fiscal authorities of the groups of countries around financial crises may partly explain the high within variability in the OECD subsample displayed in table 7.

These findings are confirmed by table 10, which reports the rank correlation between the variation of the primary balance and two dummy variables: *OECD*, which takes value one for OECD countries and zero otherwise, and *SBA*, which takes the value of one for SBA-countries and zero otherwise. The Spearman correlation coefficient is high and significant for SBA countries one year after the crisis and for OECD countries after two years. The first result implies that the sign of the fiscal stance in response to a crisis is contractionary for countries that are subject to an IMF program. The second result suggests that fiscal policy tightens two years after a crisis in OECD (see figure 2).

We now turn to the analysis of the relationship between fiscal policy and political constraint. Firstly, we investigate the sign of fiscal stance under different government's ideology. Figure 10 shows the average of primary balance-to-gdp ratio for left-, center- and right-oriented governments. The response of fiscal policy to financial crisis is more expansionary under left-wing parties. Right-wing parties also display a loose fiscal policy in the wake of a crisis. By contrast, center-oriented governments tend to adopt a tighter fiscal policy. The average primary balance is slightly negative one year after a crisis, but after two years it is larger than 2% of GDP. Furthermore, it seems that political polarization is associated to loose fiscal policy. This is apparent from figure 4 which displays the fiscal stance in political systems with either high or low polarization.

Table 7: Descriptive analysis of fiscal policy indicators during financial crises

	PB/GDP				$\Delta(PB/GDP)$			
In percent	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max
T-2	0.16	3.49	-6.65	8.18	1.00	3.35	-1.80	9.30
T-1	-0.53	4.32	-12.55	9.01	-0.55	2.04	-5.90	4.46
T	-1.25	6.23	-28.15	11.62	-0.71	4.42	-18.52	5.47
T+1	-1.61	5.13	-10.63	13.02	-0.36	4.51	-7.02	17.52
T+2	-1.03	4.41	-7.72	13.68	0.58	1.98	-3.77	5.98

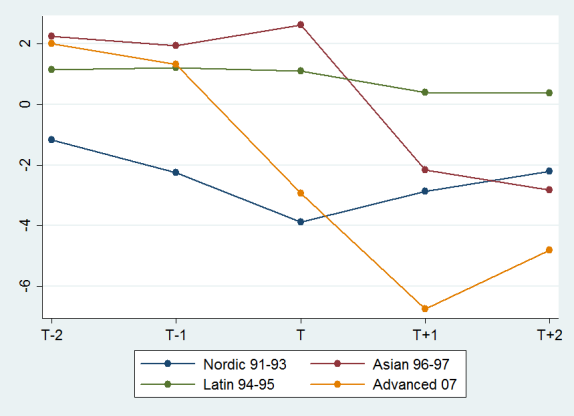
Note: PB is the primary balance.

Table 8: Fiscal indicators for OECD and non-OECD countries

		PB/GDP		$\Delta(PB/GDP)$		
In percent		Mean	St. Dev.	Mean	St. Dev.	N. obs.
OECD						
	Pre-crisis	-0.83	4.11	-0.14	2.51	32
	Crisis	-1.24	4.78	-0.33	3.04	16
	Post-crisis	-3.10	5.72	-0.62	3.25	32
non-OECD						
	Pre-crisis	0.43	3.13	-0.09	2.23	45
	Crisis	0.40	3.55	0.40	1.97	24
	Post-crisis	0.37	3.15	-0.02	2.44	48

Note: PB is the primary balance. Ireland and Iceland are excluded as outliers.

Figure 1: Average of primary balance during financial crises occured simultanously in the same regions (in percent of GDP)



Nordic includes Finland (1991), Sweden (1993), Norway (1991). Asian includes Korea (1996), Philippines (1997), Malaysia (1997). Latin includes Mexico (1994), Paraguay (1994), Argentina (1995) Brazil (1995). Advanced countries includes USA (2007) and UK (2007).

Table 9: Fiscal indicators for SBA and non-SBA countries

		PB/GDP		$\Delta(PB/GDP)$		
In percent		Mean	St. Dev.	Mean	St. Dev.	N. obs.
SBA						
	Pre-crisis	0.03	3.86	0.13	3.63	55
	Crisis	0.31	4.13	1.63	2.80	29
	Post-crisis	0.29	4.18	0.34	2.88	58
non-SBA						
	Pre-crisis	-0.39	2.89	-0.26	2.02	22
	Crisis	-1.75	3.84	-1.23	2.81	11
	Post-crisis	-4.47	4.11	-1.06	3.37	22

Note: PB is the primary balance. Ireland and Iceland are excluded as outliers.

Figure 2: Average of Primary Balance to GDP (in percent) Blue line: Countries that accessed to a stand-by-arrangement (SBA), Red line: Countries that not accessed to a stand-by-arrangement (non-SBA)

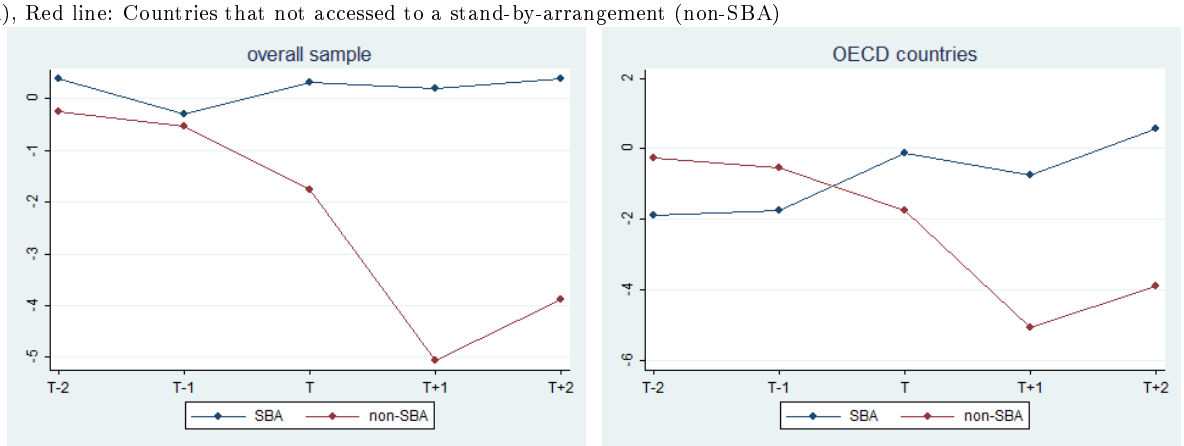


Table 10: Rank correlation

	$\Delta PB/GDP$		
	T	T+1	T+2
SBA			
Rho	0.201	0.41***	-0.178
OECD			
Rho	-0.194	-0.171	0.306**

Note: *** p<0.01, ** p<0.05, * p<0.1

Figure 3: Primary Balance during financial crises and political orientations (in percent of GDP)

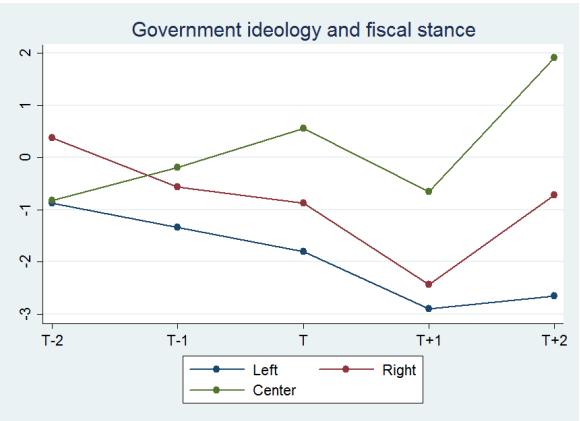
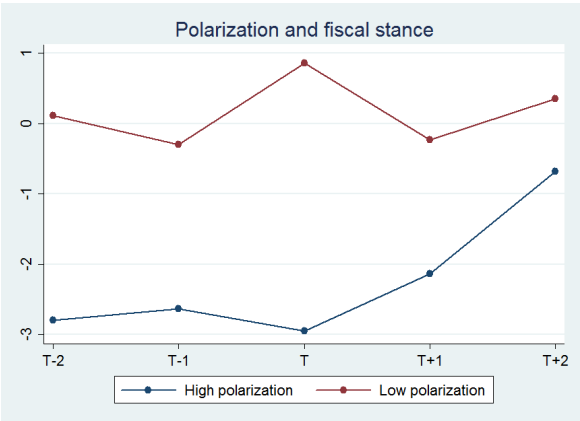


Figure 4: Primary Balance during financial crises and political polarization (in percent of GDP)



5.2 Financial regulation

The evolution of capital stringency index has been cyclical during the 2000's. Indeed, if a lower degree of CRI is observed at 2000, a peak is reached at 2003. Paradoxically, between 2003 and the 2008's financial crisis, the CRI has decreased, meaning that during this period, there have been a relaxation in the regulatory requirements in countries. It is however interesting to see that after the 2008's financial crisis, additional regulatory restrictions have been imposed (confirming the idea that financial regulation efforts are often cyclical). This general pattern is confirmed by table 14, which suggests that, on average, the CRI is higher during crisis periods than during tranquility periods.

Table 11: Average capital stringency index over time

	2000	2003	2008	2011
Capital stringency Index	0.2940647	.5354574	.4220624	.4548361

Table 12: Capital Stringency Index distribution over income groups

	Whole sample	High Income	Middle Income	Low Income
Capital Stringency Index		0.5536872	0.41987	0.3161

Table 13: Capital Stringency Index: Crisis vs. No crisis countries

	Mean(diff)=Mean(0)-Mean(1)
Whole sample	-.0451
	(0.0343**)
	[0.0687*]
High Income	-.0472
	(0.105*)
	[0.210]
Low Income	-.0358
	(0.284)
	[0.569]
Middle Income	-.0117
	(0.377)
	[0.754]

Notes : In brackets (), we have the p-values of unilateral means comparison tests for mean(diff)< 0 and in [ ], we have the p-values of bilateral means comparison tests for mean(diff)$\neq 0$.

Concerning the PCA index, it decreased between 2000-2003 in two countries: Iceland and Japan. Conversely, four countries (Romania, USA, Spain and Turkey) created a legal framework reducing the discretionary actions of supervisors i.e. their authority to engage in an action rather than the action being mandatory. Second, between 2004 and 2008, among countries which experienced a crisis, Ghana and Spain have taken steps toward a legal framework which extends the ability of regulatory authorities to engage in an action rather than in the action being mandatory, while Latvia and Nicaragua reduced

the discretionary actions of supervisors. Finally, during the period 2008-2011 .i.e after the global financial crisis of 2008, we observe a reduction of the PCA index for six countries (Spain, USA, Zimbabwe, Nicaragua, Moldova and Hungary). During the same period, six countries (Latvia, Italy, Ireland, Iceland, Greece and Argentina) have reduced the ability of regulators to take discretionary measures as showed by a higher value of the PCA index. Finally, we compare crisis-countries with no crisis-countries. In the majority of cases, the index of prompt corrective action is higher in no-crisis countries in comparison with crisis countries (see Table14).

Table 14: Prompt Corrective Action: Crisis vs. No crisis countries

	Mean(diff)=Mean(0)-Mean(1)
Whole sample	-0.313
	(0.058*)
	[0.10*]
High Income	-0.453
	(0.097*)
	[0.195]
Low Income	-1.030
	(0.022**)
	[0.044**]
Middle Income	-0.111
	(0.334)
	[0.667]

Notes : In brackets (), we have the p-values of unilateral means comparison tests for mean(diff)$<$ 0 and in [ ], we have the p-values of bilateral means comparison tests for mean(diff)$\neq$ 0.

We also take a closer look at some of the components of the PCA index. Countries which have experienced financial crises tend to establish more frequently predetermined levels of solvency in their banking legislation. The difference between the behavior of countries hit by crises and the others is statistically significant at 10%. (See table 15).

Table 15: Average capital stringency index : crisis vs. no crisis periods

	No crisis	Crisis	Diff.
Does the Banking Law establish predetermined levels of solvency? (Yes/No)	1.5946	1.75	-0.15535*

In table 16 is depicted the dynamics of laws on banking sector solvency levels around the years of financial distress. Specifically, the variable corresponding to the question "Does the Banking Law establish predetermined levels of solvency?" is coded such as that it takes on the values 1 when the response is "Yes" and 0 otherwise. We compute the variation of this variable during the three years preceding the occurrence of financial crises and its variation during the year of crisis. Therefore, there is a reversal in

the law on solvency levels when the variation is equal to -1; in case of status quo, the variation is equal to 0; and finally, when a given country has established a new law establishing predetermined levels of solvency, the variation is equal to 1.

Considering the period of 2000-2011, it seems that, for the whole sample (i.e. three years before and after each financial crisis), the rate of reversals in the law on solvency is on average equal to 7% , while countries seem to adopt law establishing pre-determined levels of in 21% of cases and finally, in 72% of cases a status quo is observed. Now when we split the sample considering crisis periods (t) and tranquility periods, some interesting regularities are found. First, during financial crisis periods countries tend to adopt since, in 38% of cases a law pre-establishing pre-determined levels of solvency is adopted (these countries are Burkina-Faso, Greece, Ireland, Latvia and Italy), while the rate of reversals and of status quo are respectively equal to 8% (spain) and 54%. Second, the percentage of countries adopting a new law on solvency is less important during tranquility than during crisis episodes and the status quo is more predominant than during financial crisis periods. (see table 16)

Table 16: Dynamics of law on solvency in banking sector

	Whole sample		Crisis period (t)		Tranquility period (t-3,t-1)	
	Freq.	Percent	Freq.	Percent	Freq.	Percent
-1 (Reversal in the law)	24	7.02	1	7.69	22	7.75
0 (status quo)	245	71.64	7	53.85	199	70.07
1 (Establishment of law on solvency)	73	21.35	5	38.46	63	22.18
Total	342	100.00	13	100.00	284	100.00

6 Methodology

We propose a simultaneous equations approach to estimate governments' responses to financial crises, taking into account the governments' political orientation and political constraints.

The estimation of this impact is subject to several methodological issues. The first one is the necessity to show that governments' responses are specific to the crisis period. In other words, we need to show that, if it is the case, governments act differently during tranquil periods than during times of crises. The second one at hand is the potential simultaneity bias. A financial crisis can be precipitated by shocks. To control for this, we use a set of "exogenous" variables. However, the effects of these shocks on governments' responses remain ambiguous because the exogenous component of these shocks, that is the component unaffected by government policy may be latent. To address these issues, we consider in this section an econometric approach that involves three steps: (1) specification of a political orientation (or a political constraint) model , which describes the conditional probability to observe a specific political orientation (or political constraint) given the characteristics of the political system; (2) specification of a model for governments' responses to financial crises (3) a simultaneous estimation of a system including both political orientation (or political constraint) and governments' response models.

6.1 Political Orientation Model

We denote z_{it} as the political orientation of the government in country i at time t. This variable can take on three values: 1 when a right oriented government is in power; 2 for a left oriented government and 3 if the government is center oriented. Consider a model in which governments i are sorted into J + 1 categories 0; 1;....; J on the basis of an ordered-probit selection rule:

$$z_{it}^{*} = \theta_0 Crisis_{it} + \alpha^{'} w_{it} + u_{it} \quad , \quad u \sim N(\mu, \sigma) \tag{1}$$

$$z_{it} = \begin{cases} 1 & if \quad -\infty < z_{it}^{*} < \mu_1 \\ 2 & if \quad \mu_1 < z_{it}^{*} < \mu_2 \\ 3 & if \quad \mu_2 < z_{it}^{*} < \mu_3 \end{cases} \tag{2}$$

Where *Crisis* includes debt, currency or banking crises and w is a set of vectors of controls consisting in real GDP growth, real GDP per capita, inflation, democracy, duration of executives.

6.2 Policy Response Model

The response to financial crisis can be immediate or delayed, according to government preferences and the set of the feasible actions.[15] Governments' responses could depend on the estimated impact of financial crises.

The policy response variable, y_{it} describes policy actions, taken by the government in country i during period t. This variable is assumed to be observed and is a linear function of some observed independent variables x_{it}, but the coefficients of x_{it} depend on the category z_i :

$$y_{it} = \begin{cases} \delta_1 Crisis_{it} + \beta_1^{'} x_{it} + \epsilon_{it}^1 & if \quad z_{it} = 1 \\ \delta_2 Crisis_{it} + \beta_2^{'} x_{it} + \epsilon_{it}^2 & if \quad z_{it} = 2 \\ \delta_3 Crisis_{it} + \beta_3^{'} x_{it} + \epsilon_{it}^3 & if \quad z_{it} = 3 \end{cases} \tag{3}$$

Where for each j$\in 0; ...; j$, ϵ_{ij} has mean 0, has variance σ_j^2.

Control variables are the same as the ones in the Political orientation model, except that we exclude one variable for the an identification purpose.

6.3 Specification of the selection bias and the estimation strategy

Our objective is to estimate the parameters $\delta_0^{'}$;...; $\delta_J^{'}$ and $\beta_0^{'}$;...; $\beta_J^{'}$. We assume that the shocks ϵ_{ij} and u_i are independently and identically distributed across observations and follow a bivariate normal distribution. However, for several reasons, each observation (country) i, ϵ_i^j can be correlated with u_i, such that: [16]

$$Cov\left(\epsilon_{it}^j, u_{it}\right) = \rho_j$$

When $\rho_j = 0$, we can estimate equations (1) and (3) separately using OLS without carrying a selection bias issue. However, when $\rho_j \neq 0$ estimating equations (1) and (3) separately leads to biased estimated parameters. According to Heckman(1979), this bias can be prevented by augmenting each equation in system (3) by the information contained in Eq.(1).

Since our dependent variable in Eq.(1) is scaled using ordinal values, the traditional Heckman two-step simultaneous equation approach with a binary choice variable in the first step equation is not suited.

[15] See Laeven and Valencia (2008) who distinguish between containment and resolution measures.

[16] For instance several authors explain the amplification mechanism of a financial crisis through the Knightian uncertainty: the switch from risk to uncertainty. This uncertainty can be a latent variable affecting at the same time the policy reactions' function and the political environment.

We propose an approach based on an ordered-probit selection model developed by Greene (2002). This method is a generalization of Heckman's (1979) estimator for the binary case.

The estimation of the political orientation equation allows us to predict the probability to observe each type of political orientation given the set of the vectors $(w_{it}, Crisis_{it})$ and then to derive the Mills ratio for each type of political orientation.

In this framework, the bias is resolved by augmenting each equation in the system (3) by the information contained in Eq.(1).

$$E\left(y_{it}|z_{it}, w_{it}, x_{it}\right) = \delta_j Crisis_{it} + \beta_j^{'} x_{it} + E\left(\epsilon_{it}^{j}|z_{it} = j, w_{it}\right) \qquad j = 1, ..., 3.$$

$$E\left(y_{it}|z_{it}, w_{it}, x_{it}\right) = \begin{cases} \delta_1 Crisis_{it} + \beta_1^{'} x_{it} + \rho_1 \sigma_1 \lambda_{it} & if \quad z_{it} = 1 \\ \delta_2 Crisis_{it} + \beta_2^{'} x_{it} + \rho_2 \sigma_2 \lambda_{it} & if \quad z_{it} = 2 \\ \delta_3 Crisis_{it} + \beta_3^{'} x_{it} + \rho_3 \sigma_3 \lambda_{it} & if \quad z_{it} = 3 \end{cases} \tag{4}$$

The Mills ratio is measured as the probability that a government, given its characteristics $(w_{it}, Crisis_{it})$, is of the political orientation $z_{it} = j$ rather than $z_{it} = j + 1$ over the cumulative probability of being of political orientation $z_{it} = j + 1$ rather than $z_{it} = j$. The expression of the Mills ratio is given by:

$$\lambda_{it} = E\left[u_{it}|z_{it}, Crisis_{it}, w_{it}\right] = \frac{\phi\left(\mu_j - \theta_0 Crisis_{it} - \alpha^{'} w_{it}\right) - \phi\left(\mu_{j+1} - \theta_0 Crisis_{it} - \alpha^{'} w_{it}\right)}{\Phi\left(\mu_{j+1} - \theta_0 Crisis_{it} - \alpha^{'} w_{it}\right) - \Phi\left(\mu_j - \theta_0 Crisis_{it} - \alpha^{'} w_{it}\right)}$$

Where $\Phi(.)$ and $\phi(.)$ are the cumulative and the density of a normal distribution respectively.

In principle, we do not need to use a different set of variables in the political orientation model and in the policy response model. The nonlinearity of the Mills ratio is sufficient to identify the effects of financial crises on policy responses. However, the inclusion of additional variables in the selection model increases the stability of the likelihood function and provides a more efficient identification of parameters (see Cameron and Trivedi, 2008; Greene, 2002). These variables should have the same properties as instrumental variables, i.e. be strongly correlated with the political orientation variable and weakly correlated with the policy response variable.

We use the executive index of political competitiveness as an identification variable for the political orientation model. Indeed, a more competitive electoral system makes the change between different executives and, as a consequence, the switch of political orientations, more likely. On the other hand, responses from governments to a financial crisis are not expected to be directly determined by this variable. For the political constraint model we consider the political orientation as identification variable.

6.4 Evaluation of the direct and indirect effect of financial crises

Two effects from financial crises on policy responses can be identified. A direct effect, which is equal to the set of parameters $(\delta_1, \delta_2, \delta_3)$, and an indirect effect through the impact of financial crises on the political orientation. This second effect is captured through the impact of the Mills ratio on the policy response variable.

To evaluate the indirect effect of crisis through its influence on political orientation, let us define the Mills ratio for crises and non-crises times for each political orientation:

- Crisis time

$$\lambda_{it}^{j}\left(Crisis_{it}=1, w_{it}\right)=E\left[u_{it}|z_{it}=j, Crisis_{it}=1, w_{it}\right] \qquad j=1,...,3.$$

- Tranquil time

$$\lambda_{it}^{j}\left(Crisis_{it}=0, w_{it}\right)=E\left[u_{it}|z_{it}=j, Crisis_{it}=0, w_{it}\right] \qquad j=1,...,3.$$

Therefore the indirect effects can be computed as :

$$\Delta_{it}^{j}=\rho_j\sigma_j * \left[\lambda_{it}^{j}\left(Crisis_{it}=1, w_{it}\right)-\lambda_{it}^{j}\left(Crisis_{it}=0, w_{it}\right)\right]$$

7 Results

This section aims at assessing the direct and indirect effects of financial crises on policy responses. Two groups of variables are considered in order to evaluate the indirect effects: the political orientation and the political constraints. As political constraints, we select polarization and manifestation as they are variables characterizing the political and social context in a country. Moreover, the empirical evidence in section 4 shows the high variability of these variables in the aftermath of financial crises. The indirect effect can pass through a change in the ideology of governments or though a modification of the degree constraints.

Regarding policy responses we distinguish three groups of variables measuring the fiscal policy, the monetary policy and the intensity of financial regulation. In all specifications is employed a dummy variable *crisis*, which takes value one for the year of the crisis and zero otherwise. We consider a set of controls to take into account the impact of the state of the economy (the gdp growth, gdp_growth, the real gdp per capita, $logpwt\_rgdpch$, and inflation, $inflation$), of democracy (p_democ) and of the duration of executives (dpi_hlio) on the policy response. We estimate the model using the maximum likelihood estimator (MLE), because is more efficient. In case that the MLE does not converge we employ a two-step estimation.

7.1 Fiscal Policy

Fiscal stance is measured by the variable fs, which takes value 0 for contractionary fiscal policy, 1 for neutral fiscal policy and 2 for expansionary fiscal policy.[17] This variable is constructed for a window of five year around forty-two episodes of financial crises in both emerging and advanced countries. Because of the limited number of observations we control for the gdp growth and the degree democracy of a political system. Table 24 displays the results. A positive coefficient of one covariate indicates that a rise in this variable leads fiscal stance to be more expansionary. It does not emerge significant direct effects and indirect effects of financial crises through the political orientation. Constants are positive and significant in the left and right equations suggesting that during financial crises the fiscal policy is more expansionary under left-oriented and right-oriented governments (columns 2 and 3).

We observe a significant indirect effect of financial crises on fiscal stance through the political polarization (column 7). A more polarized political scenario tends to be associated with tighter fiscal policy during a financial crisis. Moreover, the significant and positive constant in the low-polarized region equation suggests that countries with a political system characterized by a low degree of polarization run more expansionary fiscal policy both in the pre- and post-crises periods (column 6).

Finally, in the model for anti-government demonstration financial crises have a direct impact on fiscal stance. The coefficient of *crisis* is positive and significant in the policy response equation (column 8), so fiscal policy seems more expansionary after a financial crisis. However, there are no indirect effects of crises on fiscal stance through the social unrest.

7.2 Financial regulation

The aim of this section is to evaluate how financial crises affect, directly and indirectly, the way the policymakers manage the domestic capital account. Columns 2-4 of Table (30) show significant and negative direct effects of financial crises. These results are in line with the finding that governments often introduce capital control measures after or during financial crises. These measures take the form of controls on capital inflows or controls on capital outflows. For example, Brazilian authorities during the debt crisis in 1999 ordered local investment funds to increase their holdings of government bonds. The central bank raised the minimum amount of sovereign debt that must be held the country foreign investment fund to 80 % from 60 %. In 1992, during the European Monetary System crisis, the Bank of Spain suspended regular money market operations and introduced foreign exchange controls. Other

[17] See the Report for a detailed description of the construction of this variable.

countries such as Argentina have imposed controls on capital inflows during the 2001' debt crisis.[18] These observations are confirmed by several studies (Stiglitz, 2010; Abiad and Mody, 2005; Magud, Reinhart and Rogoff, 2011).[19] However, these studies do not identify how financial crises through their influence on political orientation dynamics could affect policymakers' capital account management.

An important contribution of this section is to show that the reactions of policymakers are heterogeneous according to their political orientation: right-wing governments and center-oriented governments are found to impose more control after crises, while left-wing governments do not behave differently during pre- and post- crisis periods. The heterogeneity within this traditional effect is not observed in the established literature on the topic. A further contribution is the finding that financial crises indirectly affect capital account policies through their impacts on political orientation. Indeed, the coefficient of $Post\_financial\_crises$ significantly explains the dynamics of political orientation. We find that financial crises reduce the probability of right-wing governments and left wing-governments to be in power by -0.016% and -0.01% respectively and subsequently increase the probability of a center-oriented government to be in power by 0.026% .

Table 17: Financial markets Reforms, crises and political orientation

	Pol_Orientation		
	Right	Left	Center
direct effect	-0.06822	0	-0.07617
indirect effect	-0.00003	-0.00001	0.00008
total effect	-0.06825	-0.00001	-0.07609

Taking into account the direct and indirect effects, Table (29) shows that on average governments impose a higher level of capital control measures after financial crises. More interestingly, we find that restrictions on capital mobility are tighter for center and right oriented policymakers during and in the aftermath of financial crises.

8 Robustness of results: OLS estimations

In this section we further report on alternative specifications and alternative estimation methods. The methodology employed in section 6 faces problems of proliferation of parameters that do not allow to include more variables in the model. For this reason, we estimate a one-step OLS model for the three groups of policy variables describing the fiscal policy, the monetary policy and the intensity of financial regulation. The advantage of this estimation strategy is that limits the number of estimated parameters

[18] Argentina puts in force prohibition against investors transferring funds abroad.

[19] Stiglitz (2010) argues that an increase in capital controls after a financial crisis can be a circuit breaker that prevents the domestic economy from being contaminated by external financial crises.

and thus increases the degree of freedom. In order to capture the impact of the political orientation during and after a crisis we consider the interaction variables $crisis\_left$, $crisis\_center$ and $crisis\_right$ and $postcrisis\_left$, $postcrisis\_center$ and $postcrisis\_right$. In this way we cannot estimate the indirect effects of a crisis on the policy indicator through the political and social variables, but we assess whether different political scenarios may explain different policy responses to financial crises. Moreover, we verify if a switch in the political orientation have an impact on the economic policies through the variables $switch\_left$, $switch\_center$ and $switch\_right$ and $crisis\_switch\_left$, $crisis\_switch\_center$ and $crisis\_switch\_right$ that take on the value 1 in case of a variation in the political orientation of a government in the whole period around a crisis or in the year of a crisis. We also include in all the specifications for the different policy indicators a set of independent variables: the log of GDP per capita in constant US$ ($loggdp\_caapconsUS$), the rate of growth of GDP (gdp_growth), inflation ($inflation$), the degree of democracy (p_democ) and the duration of executives (dpi_hlio).

8.1 Fiscal policy

Tables (25) - (28) report the results of estimations for fiscal policy. We consider as fiscal indicator the primary balance-to-GDP ratio (pb_gdp). Because of the lack of fiscal data for emerging countries during the 1990s, we constructed a novel database of this indicator by reading the IMF Staff Reports, in which IMF authorities monitor the conduct of economic policies of countries that received a stand by arrangement from the IMF. This variable is constructed for a window of five years around a financial crisis. With respect to the specifications for monetary policy and financial regulation, two more dummy variables are included: $oecd$ which takes one in the postcrisis period for OECD countries and zero otherwise and $stand\_by\_arr$ which takes one in the postcrisis period if a country accessed to an IMF stand by arrangement program and zero otherwise. The descriptive analysis of this fiscal indicator in the Report shows that in the wake of a financial crisis fiscal policy is more expansionary for OECD countries than for non-OECD countries and that is tighter for countries that received a financial support from the IMF. In the last column of each table $inflation$ is replaced by $externdebt\_gdp(t-1)$, the ratio of external debt-to-GDP at one lag Tables (25) and (26) report estimates for left- and right-oriented governments and tables (27) and (28) for left- and center-oriented governments.

Specifications 3, 4, 5 and 6 in table (25) and 8, 9 in table (26) show that left-wing governments conduct an expansionary fiscal policy as the coefficients are negative and significant. The signs of coefficients are negative also for $right$, but they are significant only in the specification 4 of table (25). These results confirm the findings in table (24) that left- and right-oriented governments tend to run expansionary fiscal policy around periods of financial crises. Focusing on the postcrisis spell, only the interaction

variable *postcrisis_right* is significant (specification 9 table (25)), suggesting that right-oriented government react to a financial crisis with an expansionary fiscal policy. *postcrisis_left* is negative but not significant. Interestingly, the coefficients of *switch_right* (specifications 10 and 11 in table (26)) and *postcrisis_switch_righ* (specifications 12 and 13 in table (26)) are positive and significant. When a right-wing party takes the power it tightens the fiscal policy, in particular in the aftermath of financial crisis as the coefficient of *postcrisis_switch_righ* is higher.

Tables (27) and (28) confirm that fiscal policy is more expansionary under left-wing governments during a financial crisis. By contrast, it is more contractionary under center-oriented governments. The coefficient of *center* is positive and significant in specifications 3, 4, 5 and 6 in table (27). Moreover, the interaction variable *postcrisis_center* is positive and significant in specifications 8 and 9 in table (28), suggesting that center-oriented governments tighten the fiscal policy after a crisis.

Concerning the economic controls, *pb_gdp* turns out to be positive and significant in most of the specifications. This is because some government expenditures and tax revenues act as automatic stabilizers. However, the size of the coefficient is relatively low, suggesting that this indicator of fiscal policy does not react too much to the state of the economy. The automatic variation of the primary balance to the business cycle is compensated by a variation of GDP in the same direction. The coefficient of $extdebt\_gdp(t-1)$ is negative and significant in all the specification in which they are included (7 and 14 in tables (25), (26), (27) and (28)). One could expect that a higher level of external debt would constraint fiscal authorities from running expansionary policies because international investors would ask higher interest rates on government bonds. However, we find the opposite sign. A possible explanation is that fiscal policy is highly persistent, so countries that have increased the amount of external debt by accumulating primary deficit in the past periods tend to continue to register primary deficits also in the wake of financial crises.

From the estimations it emerges that after a crisis OECD countries loosen the fiscal policy as suggested by the coefficient of *oecd* which is significant and positive in all the specifications. This is in line with the descriptive analysis of this fiscal indicator in the Report, which shows that the ratio of primary balance-to-GDP fall for OECD countries while it slightly decreases for non-OECD countries. The descriptive analysis also finds that countries that have received a financial support from the IMF run a more contractionary fiscal policy than countries that have not. However, this is not confirmed by the estimations of regressions. The sign of *stand_by_arr* change in the different specifications and is not significant.

8.2 Financial regulation

The prompt correction action indicator is significantly affected by the occurrence of financial crises. In addition, the type of actions taken by government seems depend upon their political orientation (see Table 30). Specifically, compared to the other types of governments, the propensity of center orientated governments to engage discretionary actions is low. On the other side, right swing governments are more prompt to implement discretionary regulatory actions, in particular during financial crisis episodes. Even if crisis episodes affect the propensity to take discretionary regulatory actions, it seems that most of corrective actions are taken during tranquility periods, since the constant term is significant in most of specifications.

Finally, the economic performance indicators, such as GDP per capita growth, inflation or some structure variables such the income per capita or the degree of democracy do not significantly explain the propensity of governments to implement prompt corrective actions (see Table 30).

Concerning the second indicator of financial regulation, namely, the Capital stringency index (CRI), we find that, everything else equal, the restrictions on the financial sector are most of time lower during tranquility periods, since the constant term is negative and significant. The political orientation of governments does not really matter. According to our estimations, the macroeconomic conditions are more important. For example, GDP per capita growth and inflation are found to significantly affect the capital stringency index. Growth performance increases the propensity to impose some restrictions on capital (this result is in line with the results of Costinot et al., 2011).[20] Conversely, a high degree of inflation reduces the strength of capital control. This result is interesting, since high inflation tends to discourage foreign investors, therefore governments in countries with high inflation reduce the control on capital flows in order to make their economy much more attractive for foreign investments (see Table 29).

9 Conclusion

This paper investigated the political dimension of policy responses to financial crises. By creating a new dataset, which contains information on fiscal policy, as well as measures on financial regulation for industrial and emerging countries, we examined how the political and social landscape changed after different kinds of crises. The main findings are: (i) Elections in the aftermath of a crisis do not punish

[20] The theory of capital controls developed by these authors, emphasizes interest rate manipulation. It is suggested that the sign of taxes on capital flows only depends on the growth rate of the economy relative to the rest of the world. If Home grows faster than the rest of the world, it has incentives to promote domestic savings by taxing capital inflows or subsidizing capital outflows.

the incumbent governments and most political switches are from center- to right-oriented parties and vice versa; (ii) Left-wing parties do not seem to be advantaged by the rise of social unrest (increase in riots, strikes and anti-government demonstrations) during post-crisis periods; and (iii) Financial crises tend to weaken the governability of a country since the political fractionalization and polarization rise and the margin of majority reduces.

Since financial crises entail strong political and social consequences, we also assessed if these shifts in political constraints and the respective government's ideology during times of distress can drive implementation of economic policies. To this end, we used a simultaneous equations approach to evaluate governments' responses to financial crises, given the impact of crises on the political and social environment. This method allowed us to disentangle the direct effects from financial crises towards public policy from the indirect effects induced by political and social changes.

We find that fiscal policy in the wake of a crisis is more expansionary under left- and right-, than under center-oriented governments. Moreover, financial crises have an indirect effect on the fiscal stance, since higher political polarization following a crisis tends to be associated with tighter fiscal policy.

Concerning financial regulation, right-wing and center-oriented governments are found to introduce more capital controls after crises than left-wing governments. Moreover, financial crises indirectly affect capital account policies through their impacts on political orientation, by reducing the probability of right- and left-wing parties to be in power.

Overall, the analysis demonstrates the importance of politics in explaining heterogeneous responses to crises. On the basis of these results, theoretical modeling would help to shed more light on the way crises affect the ideological composition of governments and on how political effects affect the way governments can respond to crises.

References

[1] Abiad, A. and Mody, A. 2005. " Financial Reform: What Shakes It? What Shapes It?", *The American Economic Review*, Vol. 95, No. 1 (Mar., 2005), pp. 66-88.

[2] Afonso, A., Claeys, P. and Sousa, R. 2011. "Fiscal Regime Shifts in Portugal ", *Portuguese Economic Journal*, 10(2), 83-108.

[3] Alesina, Alberto, Silvia Ardagna, and Francesco Trebbi. 2006. " Who Adjusts and When? On the Political Economy of Reforms", *IMF Staff Papers*, 53, 1-29.

[4] Alesina, A., Campante, F., and Tabellini, G. 2008. "Why is Fiscal Policy Often Procyclical?", *Journal of the European Economic Association*, 6(5), 1006-1036.

[5] Alesina, A. and A. Drazen. 1991. "Why Are Stabilizations Delayed?", *American Economic Review*, 81: 1170-88.

[6] Bénétrix A. S., & Lane P.R. 2010. "International Differences in Fiscal Policy During the Global Crisis", NBER Working Papers 16346, National Bureau of Economic Research, Inc.

[7] Berdiev A. N., Kim Y. and Chang C. P. 2012."The political economy of exchange rate regimes in developed and developing countries", *European Journal of Political Economy*, 28 38-ÂĂ5.

[8] Chiburis Richard and Lokshin Michael. 2007. "Maximum likelihood and two-step estimation of an ordered-probit selection model", *The Stata Journal* (2007) 7, Number 2, pp. 167-182.

[9] Chwieroth, J.M. and Walter, A. 2013. "From Low to Great Expectations: Banking Crises and Partisan Survival Over the Long Run", Available at SSRN: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2258980.

[10] Desai Raj M. and Olofsgård Anders. 2006. "Political Constraints and Public Support for Market Reform", *IMF Staff Papers*, Palgrave Macmillan, vol. 53(si), pages 5.

[11] Drazen, A. and V. Grilli. 1993. "The benefits of crisis for economic reform", *American Economic Review*, 83(3), 598-607.

[12] Drazen, A. and William Easterly. 2001. "Do Crises Induce Reform? Simple Empirical Tests of Conventional Wisdom", *Economics and Politics*, Vol. 13 (July), pp. 129-58.

[13] Dreher, Axel. 2006. "Does Globalization Affect Growth? Evidence from a new Index of Globalization", *Applied Economics* 38, 10: 1091-1110.

[14] Fabrizio, S. and Mody A. 2006. "Can Budget Institutions Counteract Political Indiscipline?", *Economic Policy* 21, 689-739.

[15] Fatás A. and Mihov I. 2003. "The Case For Restricting Fiscal Policy Discretion", *The Quarterly Journal of Economics*, MIT Press, vol. 118(4), pages 1419-1447, November.

[16] Gavin, M. and Perotti, R. 1997. "Fiscal Policy in Latin America", In Bernanke, B. and Rotemberg, J. (eds.). *NBER Macroeconomics Annual 1997*. Cambridge: MIT Press.

[17] Greene, W. H. 2002. "LIMDEP Version 8.0 Econometric Modeling Guide", vol. 2. Plainview, NY: Econometric Software.

[18] Golinelli, R. and Momigliano, S. 2006. "Real-time determinants of fiscal policies in the euro area", *Journal of Policy Modeling*, 28 (9), 943-964.

[19] European Commission. 2009. "Fiscal Rules, Independent Institutions and Medium-Term Budgetary Frameworks", *Public Finances in EMU - 2009*, Chapter 4.

[20] Hallerberg, M., Von Hagen, J. 1997. "Sequencing and the size of the budget: A reconsideration", CEPR working paper No. 1589.

[21] Heckman, J. 1979. "Sample selection bias as a specification error", *Econometrica* 47:153-162.

[22] Henisz, W. J. 2000. "The Institutional Environment for Economic Growth", *Economics and Politics*, 12(1): 1-31.

[23] Keefer, Philip. 2007. "Elections, Special Interests, and Financial Crisis", *International Organization*, Cambridge University Press, vol. 61(03), pages 607-641, July.

[24] Lane, P. and Tornell, A. 1996. "Power, growth, and the voracity effect", *Journal of Economic Growth*, 1, 213-241.

[25] Valencia, F. and Laeven, L. 2008. "Systemic Banking Crises: A New Database", IMF Working Papers 08/224, International Monetary Fund.

[26] Valencia, F. and Laeven, L. 2012. "Systemic Banking Crises Database: An Update", IMF Working Papers 12/163, International Monetary Fund.

[27] Magud Nicolas E., Reinhart Carmen M., and Rogoff Kenneth S. 2011. "Capital controls: Myth and reality. A Portfolio Balance Approach", *Peterson Institute Working Paper 11-7*(Washington: Peter G. Peterson Institute for International Economics, February).

[28] Mian, A. R., A. Sufi, and F. Trebbi. 2012. "Resolving Debt Overhang: Political Constraints in the Aftermath of Financial Crises", *NBER Working Paper* 16334.

[29] Ponticelli, J. and Voth, H.-J. 2011. "Austerity and Anarchy: Budget Cuts and Social Unrest in Europe, 1919-2008", CEPR Discussion Papers 8513, C.E.P.R. Discussion Papers.

[30] Reinhart, Carmen M. and Vincent Reinhart. 2010. "After the Fall", *NBER WP* 16334.

[31] Reinhart, Carmen M. and Ken Rogoff. 2009."The Aftermath of Financial Crises" *American Economic Review*, 99, 466-472.

[32] Stiglitz, Joseph E. 2010. "Contagion, Liberalization, and the Optimal Structure of Globalization", *Journal of Globalization and Development* 1, Article 2.

[33] Talvi, E. and Vegh, C. 2000. "Tax base variability and procyclical fiscal policy", NBER Working Paper No. 7499.

[34] Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh. 2001. "New tools in comparative political economy: The Database of Political Institutions", *World Bank Economic Review*15:1, 165-176 (September).

[35] Tommasi, Mariano, and Andres Velasco. 1996. "Where Are We in the Political Economy of Reforms?", *Journal of Policy Reforms*, Vol. 1, pp. 187-238.

[36] Tornell, A. and Lane, P. 1999. "The voracity effect", *The American Economic Review*, 89(1), 22-46.

[37] Woo, J. 2003. "Economic, political, and institutional determinants of public deficits", *Journal of Public Economics* 87(3-4), 387-426.

A Databases for political, institutional and social variables

1. Political constraint Index

Source: Witold J. Henisz (2010)

Period covered: from 1974 - 2007

Number of countries: 191

Description: The index uses quantitative data on the number of independent branches of administrative government with veto power, over policy change, and the distribution of preferences within those veto players. These data are analyzed in a simple spatial model of political interaction to assess the feasibility with which any one actor can secure a change in the status quo.

2. KOF Economic Globalization Index

Source: Dreher, Axel, Noel Gaston and Pim Martens (2008)

Period covered: 1970 - 2009

Number of countries: 208

Descrpition: The database presents an index of globalization covering its three main dimensions: economic integration, social integration, and political integration.

3. Quality of Government Database

Source: Michael Alvarez, Jos Antonio Cheibub, Fernando Limongi and Adam Przeworski (2011)

Period covered: 1970 - 2009

Number of countries: 208

Description: The core of the dataset is constituted by the regime variables, which classify political regimes according to several criteria. The most important variable is a dichotomous measure of democracy.

4. Database of Political Institutions

Source: World Bank (2010)

Period covered: 1975 - 2010

Number of countries: 177

Description: The core of the dataset is constituted by the regime variables, which classify political regimes according to several criteria. The most important variable is a dichotomous measure of democracy. The variables provide details about elections, electoral rules, type of political system, party composition of the opposition and government coalitions, and the extent of military influence on governments. The DPI also contains measures of checks and balances and political stability.

5. Polity IV Database

Source: The polity IV project

Period covered: 1800 - 2010

Number of countries: 161

Description: Polity IV contains coded annual information on regime authority characteristics and transitions for all independent states with more than 500,000 total population. Polity's conclusions about a state's level of democracy are based on an evaluation of that state's elections for competitiveness, openness and level of participation.

6. The "Major Episodes of Political Violence"

Source: Monty G.Marshall(2008)

Period covered: 1946-20008

Number of countries: 160

Description: The database lists 326 episodes of armed conflicts, comprises a comprehensive accounting of all forms of major armed conflicts in the world over the period 1946-2008. According to the authors' definition, "Major episodes of political violence" refer to at least 500 "directly-related" fatalities and reach a level of intensity in which political violence is both systematic and sustained.

7. CNTS Cross-National Time Series Database

Source: Arthur S. Banks (2008)

Period covered: 1815 - 2006

Number of countries: 200

Description:The Cross-National Time-Series archive contains worldwide data on major political economic variables; government expenditure, population, per capita GDP, trade, infrastructure, conflict events, elections, legislative process, political measures and international status indicators

B Figures and tables

B.1 Political governability

Figure 5: Total fractionalization

Figure 6: Opposition fractionalization

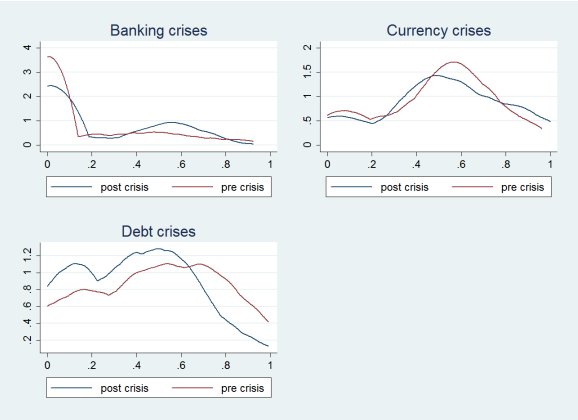
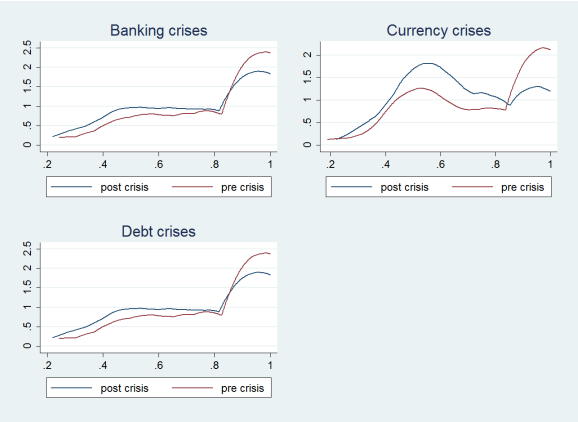


Figure 7: Government fractionalization

Figure 8: Margin of majority



This figure reports the Kernel densities of Total fractionalization from the Database of Political Institutions (World Bank 2010). Pre crisis sample: 3 years before the crisis. Post crisis sample: the year of the crisis and 3 years after the crisis. Crises definitions follow Leuven and valencia (2008)

B.2 Degree of democracy

Figure 9: Political polarization

Figure 10: Checks and balances

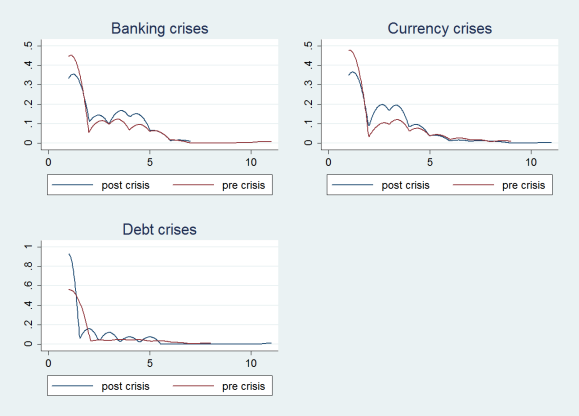
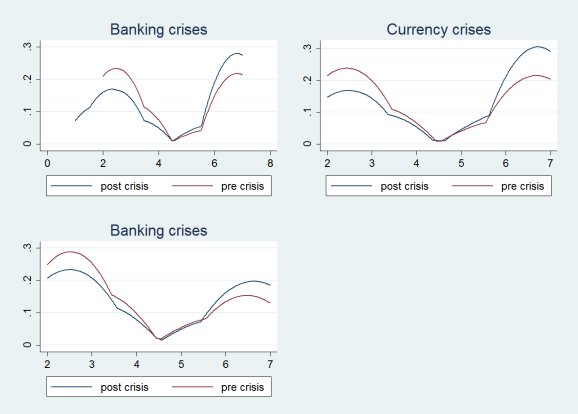


Figure 11: Executive index of political competitiveness



B.3 Social unrest

Table 18: Number of general strikes before and after financial crises

	Currency crises		Banking crises		Debt crises	
	N. Episodes	Percentage	N. Episodes	Percentage	N. Episodes	Percentage
Pre-crises						
	0	218 (89.34%)	0	201 (84.10%)	0	128 (89.51%)
	1	17 (6.97%)	1	21 (8.79%)	1	11 (7.69%)
	>1	9 (3.69%)	>1	15 (7.11%)	>1	4 (2.8%)
Total		244		239		143
Post-crises						
	0	230 (86.47%)	0	212 (86.18%)	0	123 (83.68%)
	1	20 (7.52%)	1	20 (8.13%)	1	12 (8.16%)
	>1	16 (6.02%)	>1	14 (5.64%)	>	12 (8.16%)
Total		266		246		147

Note: the percentage is calculated with respect to the total number of observations in the pre- and post-crises period

Table 19: Number of general strikes during financial crises and tranquility periods

	Currency crises	Banking crises	Debt crises
post-crises	36	34	24
tranquility	367	369	379
percentage	20.89%	27.48%	36.92%

Note : The percentage is calculated as the ratio of episodes during the post-crisis periods on the tranquility periods corrected by the proportion of the number of each kind of crisis on the total number of crises

Table 20: Number of riots before and after financial crises

	Currency crises		Banking crises		Debt crises	
	N. Episodes	Percentage	N. Episodes	Percentage	N. Episodes	Percentage
Pre-crises						
	0	191 (80.74%)	0	193 (80.75%)	0	119 (89.22%)
	1	26 (10.66%)	1	24 (10.04%)	1	12 (8.39%)
	2	12 (4.92%)	2	9 (3.77%)	2	7 (4.90%)
	>2	9 (3.69%)	>2	13 (5.44%)	>2	5 (3.50%)
Total		244		239		143
Post-crises						
	0	223 (89.93%)	0	198 (80.49%)	0	115 (78.23%)
	1	16 (6.02%)	1	21 (8.54%)	1	12 (8.16%)
	2	10 (3.76%)	2	10 (4.07%)	2	7 (4.76%)
	>2	17 (6.39%)	>2	17 (6.09%)	>2	13 (8.85%)
Total		266		246		147

Note: the percentage is calculated with respect to the total number of observations in the pre- and post-crises period

Table 21: Number of riots during financial crises and tranquility periods

	Currency crises	Banking crises	Debt crises
post-crises	43	48	32
tranquility	574	574	582
percentage	15.02%	22.68%	32.12%

Note : The percentage is calculated as the ratio of episodes during the post-crisis periods on the tranquility periods corrected by the proportion of the number of each kind of crisis on the total number of crises

Table 22: Number of Anti-government demonstrations before and after financial crises

	Currency crises		Banking crises		Debt crises	
	N. Episodes	Percentage	N. Episodes	Percentage	N. Episodes	Percentage
Pre-crises						
	0	183 (75.00%)	0	169 (70.71%)	0	112 (78.32%)
	1	23 (9.43%)	1	29 (12.13%)	1	13 (9.09%)
	2	20 (8.20%)	2	17 (7.11%)	2	8 (5.59%)
	3	9 (3.69%)	3	9 (3.77%)	3	3 (2.10%)
	>3	9 (3.69%)	>3	15 (6.28%)	>3	7 (4.90%)
Total		244		239		143
Post-crises						
	0	202 (76.23%)	0	170 (69.11%)	0	109 (74.15%)
	1	22 (8.30%)	1	23 (9.35%)	1	11 (7.48%)
	2	13 (4.91%)	2	21 (8.54%)	2	7 (4.76%)
	3	10 (3.77%)	3	13 (5.28%)	3	3 (2.04%)
	>3	18 (3.79%)	>3	19 (7.72%)	>3	17 (11.57%)
Total		266		246		147

Note: the percentage is calculated with respect to the total number of observations in the pre- and post-crises period

Table 23: Number of Anti-government demonstrations during financial crises and tranquility periods

	Currency crises	Banking crises	Debt crises
post-crises	63	76	38
tranquility	903	891	923
percentage	13.98%	25.83%	24.05%

Note : The percentage is calculated as the ratio of episodes during the post-crisis periods on the tranquility periods corrected by the proportion of the number of each kind of crisis on the total number of crises

Table 24: Fiscal stance

Specification	POL_O	Response Model			Polariz	Response Model			Manif	Response Model		
		Right	Left	Center		0	1	2		0	1	2
crisis	0.0355	-0.281	0.391	-0.0491	-0.218	0.270	0.464	-1.006***	0.734**	1.609	2.283	-0.243
	(0.268)	(0.340)	(0.460)	(0.407)	(0.287)	(0.354)	(0.501)	(0.371)	(0.286)	(3.300)	(4.881)	(1.429)
gdp_growth	-0.00239	0.00537	0.0422	-0.0171	0.0347	-0.0317	0.0286	0.0860*	0.000323	0.0391	0.00963	-0.0215
	(0.0258)	(0.0320)	(0.0496)	(0.0409)	(0.0266)	(0.0372)	(0.0472)	(0.0470)	(0.0278)	(0.0688)	(0.109)	(0.0378)
p_democ	-0.0451											
	(0.0770)											
dpi_erlc					0.391***				-0.0816			
					(0.134)				(0.133)			
cutoff1	-0.558				0.499				0.499			
	(-0.679)				(0.292)				(0.291)			
cutoff2	-0.332				1.198***				0.368			
	(-0.676)				(0.302)				(0.292)			
lambda						-0.948	0.446	0.164		3.645	3.396	-0.880
						(0.603)	(0.930)	(0.507)		(6.538)	(6.582)	(2.850)
Constant		1.091***	0.768*	0.656		-0.00945	0.819***	0.879		3.698	-0.131	1.667
		(0.317)	(0.420)	(0.537)		(0.587)	(0.219)	(0.557)		(4.661)	(2.232)	(3.299)
Observations	102	102	102	102	102	102	102	102	105	105	105	105

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 25: Fiscal policy and political orientation after financial crises (left vs right)

Specification	*pb_gdp*						
	1	2	3	4	5	6	7
crisis	1.031	0.827	1.140	1.008	1.262	1.153	0.012
	(0.90)	(0.91)	(0.83)	(0.84)	(1.36)	(1.36)	(1.63)
stand_by_arr	0.561	-1.216	0.360	-0.689	0.294	-0.690	
	(0.75)	(1.40)	(0.73)	(1.11)	(0.74)	(1.07)	
left			-3.311***	-3.176***	-3.575***	-3.421***	-3.030
			(0.84)	(0.82)	(0.93)	(0.90)	(1.99)
right			-1.175	-1.195*	-1.018	-1.039	-1.018
			(0.71)	(0.71)	(0.83)	(0.83)	(1.51)
crisis_left					0.817	0.722	-0.326
					(1.91)	(1.92)	(2.28
crisis_right					-0.881	-0.864	0.861
					(1.65)	(1.65)	(2.01)
loggdp_capconsUS	-0.277	-0.197	-0.375	-0.319	-0.391	-0.337	-0.374
	(0.37)	(0.37)	(0.38)	(0.38)	(0.38)	(0.38)	(0.59)
gdp_growth	0.148**	0.151**	0.095	0.099	0.092	0.096	0.149*
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)
inflation	0.124	0.137	0.021	0.033	0.016	0.028	
	(0.14)	(0.14)	(0.16)	(0.16)	(0.16)	(0.16)	
p_democ	0.257	0.233	0.278	0.268	0.286	0.276	0.169
	(0.28)	(0.29)	(0.30)	(0.30)	(0.30)	(0.30)	(0.68)
dpi_hlio	0.019	0.015	0.011	0.009	0.012	0.010	-0.026
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)
oecd	-3.342***	-5.038***	-3.052***	-4.090***	-2.994***	-3.972***	
	(1.02)	(1.18)	(0.91)	(0.96)	(0.93)	(0.92)	
postcrisis		2.389		1.435		1.351	
		(1.59)		(1.31)		(1.27)	
externdebt_gdp(t-1)							-1.216**
							(0.47)
Constant	-0.568	-1.260	1.371	0.820	1.435	0.909	3.476
	(3.06)	(3.04)	(3.54)	(3.55)	(3.57)	(3.58)	(7.73)
Observations	112	112	112	112	112	112	39
R-squared	0.199	0.214	0.299	0.304	0.304	0.309	0.312

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 26: Fiscal policy and political orientation after financial crises (left vs right)

Specification	*pb_gdp*						
	8	9	10	11	12	13	14
crisis	1.179	0.971	0.891	0.711	0.850	0.686	-0.292
	(0.85)	(0.84)	(0.89)	(0.90)	(0.88)	(0.89)	(1.00)
stand_by_arr	0.851	-0.781	0.355	-1.256	0.324	-1.203	1.195
	(0.91)	(1.05)	(0.76)	(1.37)	(0.75)	(1.36)	(1.46)
left	-2.993***	-2.544**					
	(1.10)	(1.17)					
right	-0.188	0.210					
	(0.96)	(1.04)					
loggdp_capconsUS	-0.457	-0.393	-0.386	-0.311	-0.358	-0.283	-0.130
	(0.39)	(0.38)	(0.37)	(0.37)	(0.37)	(0.37)	(0.58)
gdp_growth	0.094	0.101	0.151**	0.154**	0.155**	0.157**	0.172**
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
inflation	0.035	0.065	0.119	0.132	0.123	0.134	
	(0.17)	(0.17)	(0.15)	(0.14)	(0.15)	(0.14)	
p_democ	0.287	0.272	0.256	0.236	0.293	0.269	0.144
	(0.30)	(0.30)	(0.29)	(0.29)	(0.28)	(0.29)	(0.65)
dpi_hlio	0.012	0.009	0.026	0.022	0.029	0.024	-0.014
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)
oecd	-2.385**	-3.912***	-3.305***	-4.849***	-3.499***	-4.960***	
	(1.02)	(0.92)	(0.99)	(1.17)	(0.99)	(1.16)	
postcrisis		2.550*		2.181		2.074	
		(1.51)		(1.59)		(1.59)	
postcrisis_left	-0.690	-1.125					
	(1.44)	(1.52)					
postcrisis_right	-1.662	-2.391*					
	(1.20)	(1.38)					
switch_left			-1.164	-1.018			
			(1.48)	(1.50)			
switch_right			1.888**	1.819**			
			(0.88)	(0.86)			
postcrisis_switch_right					2.450**	2.283**	0.579
					(0.98)	(0.97)	(1.41)
externdebt_gdp(t-1)							-0.996**
							(0.44)
Constant	1.651	0.787	0.281	-0.384	-0.243	-0.866	0.600
	(3.59)	(3.54)	(3.14)	(3.12)	(3.03)	(3.01)	(7.60)
Observations	112	112	112	112	112	112	39
R-squared	0.310	0.325	0.226	0.239	0.226	0.238	0.197

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 27: Fiscal policy and political orientation after financial crises (left vs center)

Specification	*pb_gdp*						
	1	2	3	4	5	6	7
crisis	1.031	0.827	1.238	1.110	0.647	0.522	1.805
	(0.90)	(0.91)	(0.80)	(0.81)	(1.25)	(1.28)	(1.64)
stand_by_arr	0.561	-1.216	0.156	-0.879	0.128	-0.882	
	(0.75)	(1.40)	(0.74)	(1.04)	(0.74)	(1.00)	
left			-2.123***	-1.976***	-2.502***	-2.336***	-2.262
			(0.75)	(0.74)	(0.84)	(0.82)	(1.89)
center			1.748**	1.759**	1.573*	1.572*	1.294
			(0.71)	(0.71)	(0.84)	(0.84)	(1.48)
crisis_left					1.440	1.357	-1.662
					(1.85)	(1.86)	(2.39
crisis_center					0.866	0.926	-2.702
					(1.70)	(1.70)	(2.36)
loggdp_capconsUS	-0.277	-0.197	-0.355	-0.300	-0.348	-0.292	-0.411
	(0.37)	(0.37)	(0.38)	(0.39)	(0.39)	(0.39)	(0.57)
gdp_growth	0.148**	0.151**	0.102	0.105*	0.093	0.096	0.179**
	(0.07)	(0.07)	(0.06)	(0.06)	(0.07)	(0.07)	(0.08)
inflation	0.124	0.137	-0.016	-0.004	-0.020	-0.008	
	(0.14)	(0.14)	(0.17)	(0.17)	(0.17)	(0.17)	
p_democ	0.257	0.233	0.070	0.058	0.065	0.051	0.212
	(0.28)	(0.29)	(0.30)	(0.30)	(0.31)	(0.30)	(0.60)
dpi_hlio	0.019	0.015	-0.005	-0.007	-0.005	-0.007	-0.025
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
oecd	-3.342***	-5.038***	-3.021***	-4.042***	-3.003***	-4.000***	
	(1.02)	(1.18)	(0.88)	(0.93)	(0.89)	(0.90)	
postcrisis		2.389		1.413		1.381	
		(1.59)		(1.26)		(1.23)	
externdebt_gdp(t-1)							-1.018**
							(0.46)
Constant	-0.568	-1.260	1.880	1.346	2.001	1.473	2.841
	(3.06)	(3.04)	(3.54)	(3.58)	(3.58)	(3.62)	(7.36)
Observations	112	112	112	112	112	112	39
R-squared	0.199	0.214	0.322	0.327	0.326	0.331	0.328

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 28: Fiscal policy and political orientation after financial crises (left vs center)

Specification	*pb_gdp*						
	8	9	10	11	12	13	14
crisis	1.140	1.152	1.020	0.823	1.031	0.827	-0.246
	(0.79)	(0.80)	(0.91)	(0.91)	(0.90)	(0.91)	(0.99)
stand_by_arr	-0.942	-0.846	0.503	-1.220	0.561	-1.216	1.270
	(0.79)	(1.01)	(0.76)	(1.41)	(0.75)	(1.40)	(1.41)
left	-2.915***	-2.939***					
	(0.98)	(1.02)					
center	-0.857	-0.879					
	(1.05)	(1.08)					
loggdp_capconsUS	-0.265	-0.269	-0.247	-0.172	-0.277	-0.197	-0.091
	(0.36)	(0.36)	(0.37)	(0.38)	(0.37)	(0.37)	(0.58)
gdp_growth	0.102*	0.102	0.143*	0.146**	0.148**	0.151**	0.169**
	(0.06)	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
inflation	0.096	0.096	0.117	0.131	0.124	0.137	
	(0.17)	(0.17)	(0.15)	(0.14)	(0.14)	(0.14)	(
p_democ	0.142	0.144	0.232	0.212	0.257	0.233	0.145
	(0.30)	(0.30)	(0.29)	(0.29)	(0.28)	(0.29)	(0.63)
dpi_hlio	-0.003	-0.003	0.017	0.012	0.019	0.015	-0.016
	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
oecd	-4.457***	-4.365***	-3.411***	-5.052***	-3.342***	-5.038***	
	(0.89)	(0.93)	(1.03)	(1.20)	(1.02)	(1.18)	
postcrisis		-0.144		2.325		2.389	
		(1.31)		(1.61)		(1.59)	
postcrisis_left	1.767	1.786					
	(1.33)	(1.38)					
postcrisis_center	4.351***	4.386***					
	(1.28)	(1.38)					
switch_left			-1.440	-1.275			
			(1.46)	(1.48)			
externdebt_gdp(t-1)							-1.007**
							(0.43)
Constant	1.193	1.242	-0.525	-1.203	-0.568	-1.260	0.305
	(3.40)	(3.49)	(3.11)	(3.07)	(3.06)	(3.04)	(7.38)
Observations	112	112	112	112	112	112	39
R-squared	0.392	0.392	0.203	0.217	0.199	0.214	0.194

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 29: Capital regulation stringency index and political orientation after financial crises (left vs center)

Specification	Capital Regulation Stringency index (CRI)									
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
crisis	0.119	0.133	0.110	0.116	0.126	0.131	0.273**	0.114	0.317***	0.081
	(0.17)	(0.18)	(0.16)	(0.17)	(0.17)	(0.18)	(0.12)	(0.26)	(0.08)	(0.26)
left			-0.059	-0.013	-0.051	-0.006	-0.046	-0.013	-0.034	-0.005
			(0.12)	(0.13)	(0.12)	(0.12)	(0.12)	(0.13)	(0.12)	(0.12)
right			-0.072		-0.072		-0.047		-0.045	
			(0.07)		(0.07)		(0.07)		(0.07)	
loggdp_capconsUS	0.075***	0.072**	0.071**	0.073**	0.068**	0.070**	0.067**	0.073**	0.062*	0.067**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
gdp_growth	0.012	0.011	0.012	0.012	0.011	0.011	0.011	0.012	0.009	0.011
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inflation	-0.042**	-0.044***	-0.045**	-0.048**	-0.046***	-0.049**	-0.047**	-0.048**	-0.049***	-0.051**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
p_democ	0.014	0.013	0.018	0.014	0.016	0.012	0.020	0.014	0.018	0.012
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
dpi_hlio	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
pcrisis		-0.103			-0.102	-0.100			-0.135*	-0.122
		(0.08)			(0.08)	(0.08)			(0.07)	(0.09)
center				0.038		0.037		0.038		0.029
				(0.07)		(0.07)		(0.07)		(0.07)
crisis_right							-0.484***		-0.554***	
							(0.14)		(0.10)	
crisis_center								0.004		0.155
								(0.26)		(0.29)
Constant	-0.443**	-0.383**	-0.406**	-0.437**	-0.345*	-0.378*	-0.401**	-0.436**	-0.320	-0.349*
	(0.17)	(0.18)	(0.19)	(0.18)	(0.20)	(0.19)	(0.19)	(0.18)	(0.20)	(0.20)
Observations	58	58	58	58	58	58	58	58	58	58
R-squared	0.365	0.381	0.382	0.371	0.397	0.386	0.421	0.371	0.448	0.389

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 30: Prompt Corrective Action and political orientation after financial crises (left vs center)

Specification	Prompt Corrective Action (PCA)									
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
crisis	1.277	1.719*	1.327	1.371	1.790*	1.869*	0.155	2.503***	0.649	2.800***
	(1.07)	(1.02)	(1.04)	(0.99)	(1.01)	(0.98)	(1.37)	(0.69)	(1.29)	(0.89)
left			0.319	-0.267	0.280	-0.323	0.310	-0.225	0.263	-0.273
			(0.45)	(0.47)	(0.46)	(0.48)	(0.45)	(0.47)	(0.46)	(0.48)
right			0.442		0.456		0.324		0.335	
			(0.36)		(0.36)		(0.36)		(0.36)	
loggdp_capconsUS	-0.173	-0.170	-0.172	-0.154	-0.167	-0.149	-0.189	-0.153	-0.184	-0.149
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
gdp_growth	0.079	0.073	0.087*	0.084*	0.080	0.077	0.090*	0.087*	0.082	0.081
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
inflation	2.875	2.942	3.028	3.017	3.095	3.087	3.764	3.342	3.880	3.369
	(2.53)	(2.51)	(2.54)	(2.32)	(2.53)	(2.30)	(2.36)	(2.13)	(2.35)	(2.13)
p_democ	0.027	0.028	0.004	0.043	0.004	0.045	0.011	0.046	0.012	0.047
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
dpi_hlio	0.009	0.008	0.008	0.008	0.007	0.006	0.007	0.007	0.006	0.006
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
pcrisis		-0.595			-0.625	-0.673			-0.744	-0.532
		(0.45)			(0.48)	(0.51)			(0.48)	(0.53)
center				-0.902***		-0.917***		-0.806**		-0.826**
				(0.33)		(0.34)		(0.34)		(0.34)
crisis_right							3.383**		3.547**	
							(1.46)		(1.49)	
crisis_center								-2.331		-2.131
								(1.88)		(1.94)
Constant	2.441**	2.469**	2.413**	2.481**	2.432**	2.504**	2.480**	2.377**	2.507**	2.404**
	(1.17)	(1.16)	(1.20)	(1.13)	(1.20)	(1.13)	(1.19)	(1.13)	(1.18)	(1.12)
Observations	163	163	163	163	163	163	163	163	163	163
R-squared	0.075	0.079	0.084	0.117	0.089	0.122	0.105	0.128	0.111	0.132

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

C The construction of financial regulation indicators

Computation of Capital Regulation Stringency Index

Step 1 : We assign a value of 1 to each of the above questions if the answer is yes and a 0 otherwise. In addition, we assign a value of 1 if the fraction of revaluation gains that is allowed to count as regulatory capital is less than 0.75. Otherwise, we assign a value of 0.

Step 2: By adding together these variables we create the variable Overall Capital Stringency. It ranges in value from 0 to 6, with higher values indicating greater stringency.

$$CRI_i = \frac{1}{R^i} \sum_{r=1}^{r=R^i} Area_r \tag{5}$$

The areas are :

1. Does the minimum required capital-to-asset ratio conform to the Basle guidelines?
2. Does the minimum ratio vary with market risk?
3. Is the market value of loan losses deducted from reported accounting capital?
4. Are unrealized losses in the securities portfolio deducted from reported accounting capital?
5. Are unrealized foreign exchange losses deducted from reported accounting capital?

Prompt Corrective Action Index

This index is computed using the following six (6) regulation areas:

1. Does the Law establish pre-determined levels of solvency deterioration which forces automatic actions (like intervention)?
2. Are there any mechanisms of cease and desist-type orders, whose infraction leads to the automatic imposition of civil and penal sanctions on the bank's directors and managers?
3. Can the supervisory agency order the bank's directors or management to constitute provisions to cover actual or potential losses?
4. Can the supervisory agency suspend the directors' decision to distribute?
    - Dividends?
    - Bonuses?
    - Management fees?
5. Can the supervisory authority force a bank to change its internal organizational structure?

Principal component of the assigned values for the items in parenthesis multiplied by 1 if there is a legally predetermined level of solvency deterioration forcing automatic actions and by 0 if not.

$$PCA_{it} = Law_{it} \times \left(\sum_{r=1}^{r=R^i} Area_{r,it} \right) \tag{6}$$

Law_{it} is equal to 1 if there is a legally predetermined level of solvency deterioration forcing automatic actions and by 0 if not.