Resolving Debt Overhang:
Political Constraints in the Aftermath of Financial Crises*

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Abstract

This paper advances the idea that countries become more politically polarized and fractionalized following financial crises, reducing the likelihood of major financial reforms precisely when they might have especially large benefits. The evidence from a large sample of countries provides strong support for the hypotheses that following a financial crisis, voters become more ideologically extreme and that, independently of whether they were initially in power, ruling coalitions become weaker. The evidence that increased polarization and weaker governments reduce the chances of financial reform and that financial crises lead to legislative gridlock and anemic reform is less clear-cut. The US debt overhang resolution is discussed as an illustration.

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I. Introduction

This paper focuses on the aftermath of financial crises. We show how political environments appear systematically different in the aftermath of a financial crisis relative to before the crisis. We find evidence that politics after a crisis are plagued by polarized interests. Using the Reinhart and Rogoff (2009, 2011) comprehensive data set on financial crises, we show that banking, currency, inflation, or debt crises lead to greater ideological polarization in society, greater fractionalization of the legislative body, and a decrease in the size of the working majority of the ruling coalition. The size of the governing coalition shrinks after almost any type of crisis (banking, currency, or inflation crises) and, at the same time, political fragmentation increases.

These stylized facts, which we discuss in Section II, have relevant implications for the study of macroeconomic response to crises. Weaker governments may mean political stalemate. Stronger opposition and more fragmented legislatures constrain the implementation of reforms of any kind. This *endogenous* response of political preferences and alliances in the face of financial crises may lead to political gridlock and make it harder to achieve compromise on macroeconomic intervention and bailouts precisely at a time where they could be useful. The post financial crisis US congressional gridlock of 2010-2011 appears the norm, not the exception.

Macroeconomic intervention may be delayed or weak at a crucial juncture due to gridlock, while political stalemate may breed political uncertainty, with spikes in risk premia in sovereign debt markets triggering debt crises. These findings can help rationalize some of the systematic features of post-crisis economies, including why financial crises are typically followed by deep and prolonged contractions in both output and employment (Reinhart and

Rogoff, 2009; Reinhart and Reinhart, 2010, RR henceforth) or by sustained waves of volatility, often resulting in secondary crises (e.g. debt crises following banking crashes[1]).

It is not theoretically obvious why individuals polarize systematically in the aftermath of a financial crisis. Typically economists have emphasized the frequent increases in income inequality that follow financial crises.[2] Ideological fragmentation may just be a direct consequence of this phenomenon. Perhaps large negative shocks change radically voters' beliefs about what good public policy is. Perhaps different constituencies might disagree about the policy response to negative shocks.

However, even abstracting from policy uncertainty, one can conjecture that creditors and debtors naturally polarize in the aftermath of a financial crisis. Debtors become insolvent precisely at the time creditors are more in need of seeing their outstanding credit is serviced. The same write-off that can be inconsequential to a creditor during an expansion may prove lethal in bad times. This drives further apart the positions of these two specific constituencies in society. Some may be hit harder than others in a financial crisis, and this is a consequential economic and political phenomenon. The post-crisis debtor-creditor polarization is not the only reason for the increase in economic inequality and political polarization, but possibly a reason. In Section III we discuss the political tug-of-war between creditors and debtors in the aftermath of a financial crisis and whether political resolution of the debt overhang problem is likely.[3]

[1] Reinhart and Rogoff (2011).
[2] World Bank (2000); Klein and Shabbir (2006, ch.1); Atkinson and Morelli (2011); Bordo and Meissner (2011).
[3] While the analysis of this paper mostly focuses on the clash between creditors and debtors in the aftermath of a financial crisis, another interesting topic is the alignment of creditors, debtors, and political facilitators (e.g. Congress) in the expansion of debt that leads to financial crises. These are recurring observations. Romer and Weingast (1991) in their analysis of the buildup to the Savings and Loans crisis discuss the role of constituent interests and Congress in facilitating S&L gambling for resurrection through sparse and ineffective legislative and regulatory effort. Mian, Sufi, and Trebbi (2010) present similar evidence for the 2000-2006 housing boom. Nunez and Rosenthal (2004) discuss bankruptcy reform in the early 2000's.

A goal of this paper is to underscore how an increase in polarization in the aftermath of financial crises is crucial in evaluating specific 'mechanism design' solutions after a financial crisis. For example, Bolton and Rosenthal (2002) argue that in the event an economy suffers collectively from a debt overhang problem, as was the case in the Great Depression and the Cotton Panic of 1819, legislatures may be relied upon to intervene and pass legislation calling for collective debt relief. Indeed, there are a number of scenarios in which an ex-post transfer of resources--in the form of debt forgiveness, debt moratoria, or inflation-- from creditors to debtors in response to a financial crisis may be welfare improving.[4] However, such transfers can only be approved and mediated by the political process.

Our empirical findings suggest that relying on a voting mechanism to renegotiate financial contracts at a national level may not be feasible. More generally, voting outcomes are not necessarily driven by what is in the national economic interest. Instead, voting and political debate are driven by a complex interaction of shifting voter preferences, strategic lobbying, and special interest politics. For instance, the strategic delay of efficient reform with the goal of shifting costs of implementation on political counterparties has been documented both theoretically (Alesina and Drazen, 1991; Drazen and Grilli, 1993) and empirically (Alesina et al., 2006). As a result, it may be better to think of alternative mechanism design arrangements to resolve collective debt overhang problems. We discuss some of these possibilities in conclusion.

[4] This of course is a strong statement. Partial justification for it comes from historical empirical evidence. Kroszner (1998) shows that large-scale debt relief related to repudiation of gold-indexation in debt contracts benefitted both equity and debt holders of firms. Countries that left the Gold Standard earlier in the Great Depression--which resulted in inflation and reduced debt burdens for nominal debt contracts--escaped the downturn more quickly (Eichengreen and Temin, 2000). A very large number of commentators have argued that debt forgiveness would give a boost to growth. See Kenneth Rogoff (http://www.mckinseyquarterly.com/Understanding_the_Second_Great_Contraction_An_interview_with_Kenneth_Rogoff_2871), the editorial board of Bloomberg (http://www.bloomberg.com/news/2011-09-06/for-the-u-s-economy-the-real-slam-dunk-answer-is-debt-forgiveness-view.html), and Nouriel Roubini (http://www.project-syndicate.org/commentary/roubini42/English). Evidence of this type of response is available. Alston (1984) studies the case of the role of farm foreclosure rates during the Depression and its importance as driver of state-wide debt moratoria. It has to be underlined, however, that, albeit possibly growth enhancing, such debtor-friendly policies may not automatically be Pareto enhancing.

Higher political polarization may also mean higher thresholds in the level of political organization to achieve policy support relative to non-crisis times. This implies that of two different constituencies struggling for government support, possibly on equal merits but with different degrees of political organization (e.g. organized big banks versus diffused mortgage holders, *à la* Olson, 1965), the politically unorganized group may obtain relatively less support in a crisis *vis-à-vis* the organized special interest[5]. From this selective intervention, additional economic inequality and political polarization may ensue, compounding and amplifying the initial political effects of the crisis.

This paper is related to recent political events in the aftermath of the global financial crisis. Many observers have commented on the heightened gridlock in politics in both Washington and Europe.[6] We investigate whether political gridlock and polarization are more common in the aftermath of financial crises. This relates directly to research advocating crisis as potential mechanism for unlocking efficient macroeconomic reform (Drazen and Grilli, 1993; Drazen and Easterly, 2001). The evidence of gridlock here is more suggestive and less clear-cut, as in specific instances the "zeros" we report are not precise.

The large distributional shifts as a consequence of a debt-induced financial crisis raise the stakes for everyone in the political process. We should not be surprised with increased polarization and conflict between the "haves" and "have-nots". Such polarization may manifest itself *within* countries, e.g., the recent wave of Occupy Wall Street and Tea Party protests in the United States. Polarization, and even conflict, can also manifest itself *across* countries, e.g., the

[5] Johnson and Kwak (2010).
[6] "[...] the 2012 election will be the most sharply ideological in at least a generation". Niall Stanage, 10/31/11 The Hill, http://thehill.com/homenews/campaign/190621-one-nation-two-camps-the-most-ideological-election-in-a-generation ; "these growing socio-economic gaps are contributing to the rising polarization of our politics and declining trust in government---developments that will make it even more difficult to forge agreements on the policies we'll need to get out of this deep hole." William A. Galston, 07/27/11 Brookings, http://www.brookings.edu/opinions/2011/0727_debt_debate_galston.aspx

polarization of positions on fiscal stance between Germany and Southern Europe in the fall of 2011 or the ideological polarization following crises in 1920s' Europe and the Great Depression that ultimately led to World War II.

II. The Political Aftermath of Financial Crises

A. Politics after the Crisis

Even to the casual observer of American politics, the sharp and continuing increase in political polarization in the aftermath of the 2008-09 financial crisis should appear evident. Both the rise of the Tea Party Movement on the right, around the 2010 midterm elections, and the rise of the Occupy Wall Street movement on the left have been defining electoral phenomena. Figure 1 reports evidence from Gallup Polls of the population shares self-identifying as economic conservative, liberal, or moderate. The share of conservatives in May 2007 was 40%, while economic liberals accounted for 18% of the surveyed sample. By May 2012 the share of economic conservatives had risen to 46% and that of liberals to 20%. In Congress the stalemate observed in the fall of 2011 debate on the national debt ceiling increase, with its exceptional political salience and persistence, appears also telling. The hollowing of the ideological center will be further marked in the fall of 2012 by the departure of Senators Dick Lugar (R, Indiana), Olympia Snowe (R, Maine), Ben Nelson (D, Nebraska), Joe Liberman (I, Connecticut), Jim Webb (D, Virginia), all historical moderates in terms of their congressional voting profiles. This section explores whether this phenomenon is specific to the post-2009 US or it is related to something more systematic about financial crises.

We begin by reviewing the historical US experience with financial crises. The US electorate appears to suffer mildly from systematic chipping-away from the moderate middle

after banking, currency, and market crashes[7]. Figure 2 graphs the self-reported Liberal-Conservative scores in the American National Election Study Cumulative Data File 1948-2008 augmented by the 2012 ANES Time Series Study[8], averaged pre and post crisis by each ideological bin on a [1,100] scale. The ANES score is arguably one of the most consistent and reliable self-reported ideological scores available. In these figures the post-crisis increase at the ideological extremes is present for banking, currency and market crash crises, but negligible. This could well be the result of the lack of depth of the 'typical' US financial crisis excluding the Great Recession.

Figure 3 reports some descriptive evidence from the US Congress. We constructed the figure by first taking the Congress-specific polarization levels from McCarthy, Poole, and Rosenthal (2006). Specifically, polarization levels are built from ideological position scores and based on individual level estimates of the spatial Congressional voting models of Poole and Rosenthal (1985, 1997). Since the Congressional polarization measure presents a massive degree of persistence we de-trended it with a standard HP Filter. Figure 3 plots the kernel densities of Congressional polarizations before and after a financial crisis (parceling out the historical trend). The kernel distribution of Congressional political polarization levels in the United States appears higher after banking crises and market crashes, while lower after currency crises.[9]

Increases in polarization of voters are a common feature across all 70 countries sampled by RR. The frequency of crises of the various types reported by RR and their distribution by year

[7] The definition of crises is derived from RR. The list of US banking crises in RR includes the years 1984 to 1991and 2007 to 2010 (the end of the sample). Currency crises (defined as a depreciation of 15% or more against a relevant anchor currency) are reported in 1975 and 2002-03. Market crashes are reported in 1977-82, 1989-91, 2000-02 and 2008.

[8] The 2012 addition constructed the Liberal-Conservative Thermometer in a consistent way and coded year 2012 as a "post" banking, currency, and market crisis observation for the US.

[9] There are almost no debt crises in the US that we can use for the analysis. A caveat in the interpretation of Figure 4 is that crises in the US are sparse and the number of congresses used to generate the graphs is very limited, typically around 10-15. We only include Congresses within five years before and after the crisis.

are reported in Appendix Tables A1 and A2. In Figure 4 we employ the official aggregate World Value Survey from 1981-2008, which includes a question on ideological self-positioning on the political scale (1 is most liberal, 10 most conservative). The aggregate WVS sample covers about 250,000 individual interviews from 60 different countries, which we match to the pre-crisis and post-crisis RR crisis indicators and then collapse based on their selected ideological bin. After a crisis, the share of centrists/moderates in a country goes down in 3 out of 4 types of crisis and the share of extremists (left or right-wing radicals) goes up in 7 out of 8 possible cases. Interestingly, while banking and currency crises are neutral (i.e. they increase extremists on both the left and the right of the political spectrum), inflation crises appear to produce more conservative extremists and debt crises produce many more left-wing radicals.

Further, we can show that financial crises move political systems toward systematically more polarized legislatures and fragmented political scenarios. After a crisis, governments have to rely on weaker coalitions, oppositions grow larger and more fragmented, and overall political disintegration becomes the norm. Figures 5, 6, and 7 report the shift in the vote share of the governing coalition, the vote share of the opposition (excluding unaligned parties, which are political forces that may align alternatively with the government or the opposition[10]), and the overall degree of fragmentation within the legislative assembly, respectively, as reported by the World Bank's Database of Political Institutions[11]. We observe in Figure 5 that ruling governments become weaker after almost any type of financial crisis. Importantly, we are considering here the size of the post-crisis government coalition independently of whether this was the government which led the country in the crisis or the one that just ousted it (an important

[10] Opposition coalitions exclude unaligned parties, which play an important role in the case of minority governments. For this reason government and opposition shares are not mechanical complements to 1. Minority governments are particularly relevant for some Northern European countries, some of which experienced financial crisis, like Sweden in the early 1990's.
[11] Beck et al. (2001) and subsequent updates.

distinction, given it would appear quite natural for voters to punish governments responsible for leading a country in a financial crisis). Conversely, we also observe that opposition coalitions grow in size (Figure 6). Finally, overall fragmentation of the political environment, i.e. the probability that two representatives picked at random from among the parties in the legislature will be of different parties, unambiguously increases (Figure 7).

Differently, form the survey evidence discussed in Figures 1, 2 and 4, DPI's cross-country and time coverage is excellent and the DPI sample's overlap with the RR sample is almost perfect, allowing for a more systematic analysis of the legislative data. In Table 1 we report summary statistics useful for the interpretation of Tables 2 and 3, where the issue of 'politics after the crisis' is explored in a regression framework.

Once again, the evidence points in a direction of systematic increased political polarization after a financial crisis. Table 2 performs pooled and country fixed effect regressions of government vote shares, opposition vote shares, and ideological polarization indexes (defined in DPI as the maximal ideological distance between the chief executive's party's value and the three main government and the main opposition parties). We consider the sample of countries which undergo a banking, currency, debt, or inflation crisis, restricting to observations to (at most) five years before and five years after the crisis for comparison and excluding the years of the crisis itself[12]. We first examine unconditional mean differences along political dimension *y* pre and post crisis $[\tau', \tau]$ in country *i* at time *t*:

$$y_{it} = \alpha + \beta * post_{it} + \varepsilon_{it}$$

$$| \; t \in \{\tau'_i - 5, \dots, \tau'_i - 1, \tau_i + 1, \dots, \tau_i + 5\} \; \& \; post_{it} = \{\tau_i + 1, \dots, \tau_i + 5\}. \qquad (1)$$

[12] More specifically, Pre and Post-crisis years are: 1. Non-crisis years within 5 years of the onset or end year of a crisis; 2. Years that are not simultaneously post and pre years of two consecutive crises of the same type.

The conditioning specifically restricts observations to fall within five years of a crisis. Relative to Reinhart and Reinhart (2010) we tighten the time window from ten to five years in order to sharpen the identification, a slightly longer interval relative to Reinhart and Rogoff's (2009) +/- 3 years[13]. We also include country and year fixed effects in order to capture country-specific unobserved heterogeneity and time effects:

$$y_{it} = \alpha + \beta * post_{it} + \mu_i + \theta_t + \varepsilon_{it}$$

$$| \; t \in \{\tau'_{\mathrm{i}} - 5, \dots, \tau'_{\mathrm{i}} - 1, \tau_{\mathrm{i}} + 1, \dots, \tau_{\mathrm{i}} + 5\} \; \& \; post_{it} = \{\tau_{\mathrm{i}} + 1, \dots, \tau_{\mathrm{i}} + 5\}. \qquad (2)$$

Notice that the inclusion of time effects is particularly demanding, as financial crises tend display cross-border contagion. It also captures any common time trend in a non-parametric fashion.

All our results point clearly in the direction of countries becoming more polarized post crisis. The magnitudes of the estimated post-crisis differences are quantitatively meaningful. For instance after a banking crisis the within-country analysis indicates a drop in government electoral support of more than 6 percentage points, a sizeable reduction relative to a sample mean of 56%. At the same time, the opposition's gain is 8 percentage points, a sizeable increment relative to a sample mean vote share of 37%. Qualitatively similar effects are observed also when considering the share of seats in the legislative body held by government or opposition, as opposed to vote shares. We do not report them for brevity.

Importantly, we also consider ideological polarization as an alternative to the political polarization that arises from having small government coalitions facing large oppositions. These

[13] For robustness purposes concerning the definition of the analysis period we also replicated all our results employing tighter windows of +/- 2 years from the last/first year of each crisis. Results are reported in Online Appendix Tables A3, A4, and A5. We did not change the definition of crisis events or their timing from the original RR classification, however, in order to avoid arbitrariness along these dimensions.

two concepts are different. Ideological polarization is a measure of ideological dispersion within the legislative (typically the distance between the median government supporter and the median opposition supporter), while political polarization focuses on the power weight distribution of the government versus opposition (where ½ vs. ½ seat shares is maximally polarized along this dimension). Generally the effect on ideological polarization appears statistically weaker, especially in the fixed effects specifications, as reported in the lower panel of Table 2.

In Table 3, we explore measures of fractionalization, defined as the probability that two representatives drawn at random within the government coalition, within the opposition coalition, or within the assembly at large belong to different parties (hence 1 indicates maximal fractionalization and 0 no fractionalization). Fractionalization increases across the board for both the government and the opposition after a financial crisis. The probability of two legislators drawn at random from the government coalition belonging to different parties increases by 2.5 percentage points, relative to a mean of 20%. For opposition the post-crisis effect is 4.3 percentage points against an average fractionalization of 48%. Governments that may be initially monolithic before a financial crisis, tend to fragment in its aftermath. Oppositions, in turn, both grow and fragment, with somewhat ambiguous effects on their relative strength vis-à-vis the ruling coalition (it may be harder to negotiate with multiple opponents, but also fragmented opponents may be easier to divide).

B. Anemic reform after the crisis?

This section explores whether weaker governments after financial crises actually translate into weak reforms. It is easy to see how smaller and more fragmented ruling coalitions and larger oppositions could lead to political stalemate. McCarthy, Poole, and Rosenthal (2006) have

carefully documented the relationship between income inequality and political polarization in the US, as well as between polarization and legislative stalemate[14]. Weak and disperse ruling coalitions are known to breed stalemate and present leadership lacking room for maneuver[15].

We begin by investigating what types of credit market interventions are more likely in the aftermath of financial crises and go in further depth in assessing how large the increase in the likelihood of financial markets reforms is and in which direction the reform typically goes. To this goal we make use of the recent IMF structural reforms database (Abiad et al., 2008; Ostry et al. 2009), which reports in a large panel of countries systematic and cross-sectionally consistent information on: i) the degree of liberalization of interest rate controls; ii) directed credit/reserve requirements; iii) entry barriers/pro-competition measures; iv) privatizations; v) capital account restrictions; vi) banking supervision; and vii) security markets liberalizations. All seven policy indexes are normalized on the unit interval, with 1 indicating the maximal degree of liberalization for a specific financial sector dimension.

In Table 4a we analyze all four types of financial crises previously discussed and consider financial reforms along the seven IMF structural reform indicators listed above. This provides a total of 28 different specifications, which we estimate according to specification (2).

We report an increased prevalence of reforms in the aftermath of financial crises. The degree of liberalization is systematically different in the five years following a financial crisis relatively to the previous five. For 16 out of 28 different specifications we detect a change in the level of structural liberalization after the crisis with a statistical significance of at least 5 percent confidence level.

[14] For strong evidence on the role of polarization on stalemate and policy gridlock in the US see also Binder (2003) and Coleman (1999).
[15] See Alesina et al. (2004) for an analysis of institutional features which produce endogenous insulation of leaders

However, financial reforms appear quantitatively small on average. Typically the estimated coefficients on the post-crisis dummy are much less that 0.1 on the scale of full liberalization. It is not necessarily straightforward how to draw quantitative comparison across the different reform indexes due to the heterogeneity of the reforms considered in the IMF database, but as a reference a substantial banking intervention such as the adoption of Basel I would induce a change of about +0.33 on the banking supervision and regulation scale. Average effects are well below such level. Another way to look at magnitudes is to employ the original classification of Abiad et al. (2008) which rescales all indexes onto [0,3] and sums up all seven indexes to values on the interval [0,21]. Abiad et al. (2008) classify as a large liberalization or a large reversal a change of +/-3 points (or more) in the aggregate policy score. Rerunning the specification for Table 4a on this rescaled measure produces coefficients on the post crisis indicator ranging from -0.13 for banking crises to 0.78 for currency crises, not only well below 3 in absolute value, but below 1, the threshold for the change to be even defined a reform in Abiad et al. (2008). These results appear in Table 4b. Further notice that these are essentially precise zeros. Confidence bands are sufficiently tight to rule out large policy changes at standard confidence levels across all four types of crisis.

Perhaps equally interestingly financial reforms, if any, do not necessarily go in the direction of higher degrees of liberalization. There is a substantial share of cases in which reforms go in the opposite direction. In the case of banking crises, for instance, credit controls and excessive reserve requirements, entry barriers, and state ownership of banks all systematically increase in the aftermath of the crisis. The reported coefficients in Table 4a Column 1 panels A, C, and D are negative, going in the direction of a lower degree of liberalization. Similarly, currency crises have repercussions on capital account restrictions,

which typically increase after the crisis (Table 4a, Column 2, panel E). This evidence appears in stark contrast with the more positive view of crises typically unlocking policy by weakening the status quo. While liberalizations can occur in the aftermath of financial crises, the majority of cases (16 specifications out of the 28 considered in Table 5a) present either statistically or economically insignificant reforms and even reversals from liberalization.

We now extend the analysis by considering the specific patterns of the reform events, irrespective of the directionality towards liberalizations. There is a sense, in fact, that financial liberalizations may not be unconditionally optimal from a policy response in the aftermath of banking or currency crises. Certain crises may trigger policy responses going against liberalization in fact. In Table 4c we replace financial reform with an indicator variable taking value of 1 whether in a year a change of 2 or more points on the Abiad et al. (2008) aggregate policy score in *any* direction and 0 otherwise. We also repeat the analysis considering very large reforms (a change of 3 or more points on the aggregate policy score in *any* direction). While our dependent variable now is a dummy, we still maintain a fixed effects specification (i.e. we assume a linear probability model to allow for our large set of fixed effects, which would become cumbersome nuisance parameters in MLE) and coefficients are to be interpreted as marginal effects.

The estimated effects appear imprecise and generally quantitatively small for banking and debt crises. For currency and inflation crises instead the estimated magnitudes are quite large relative to an unconditional baseline probability of reform in our sample of about 4 percent. While the estimates appear extremely noisy and indistinguishable from zero in most cases, sizeable increases in the likelihood of policy intervention cannot be rejected, albeit at the high end of confidence intervals. In synthesis, while the evidence of reform following crisis is noisy at

best, our "zeros" here are insufficiently precise to produce a definitive answer on complete policy gridlock after crises[16].

To conclude, we will now try to formally address the statistical relationship between political polarization (or, more precisely, the weakness of the ruling coalition relative to the set of opposition parties) and lack of reform in the aftermath of financial crises in Table 5. This is pertinent to our interpretation of gridlock as a consequence of political polarization. By focusing on conditional correlations, these results have to be interpreted with caution, as they arguably omit relevant time-varying dimensions of the politico-economic environment (country specific heterogeneity is captured by the fixed effects that we include in all regressions, instead).

Table 5 presents correlations in post-crisis periods for both types of reforms indicated in Table 4c, large (a change of 2 or more points on the aggregate policy score in *any* direction) in columns 1-4 and very large (a change of 3 or more points on the aggregate policy score in *any* direction) in columns 5-8. Weaker governments and strong oppositions have a suggestive negative correlation with the likelihood of policy reform and, with the due caveats, in the general direction of pointing at political gridlock after financial crises. Typically the size of the government coalition is the more precise correlate of lack of reform in Table 5, although opposition strength is significant at the ten percent confidence level. The first-order effect on gridlock after financial crises seems to be driven by weaker ruling coalitions and stronger oppositions (i.e. polarization in terms of political strength), not as much by ideological polarization.

III. The Case of Debt Overhang: Why It Matters and Why Political Resolutions Are Rare.

[16] For robustness purposes we also repeated the analysis in Table 4c by replacing the absolute value of changes in the Abiad 0-15 score with the sum of the absolute values of the changes for each of the underlying 0-3 liberalization scores. The results are qualitatively similar and available upon request from the authors.

In this section we discuss why the conflict of interest between debtors and creditors is central to our understanding of why financial crises lead to severe economic downturns. We show how shocks to economic conditions and asset prices are amplified by debt and we explore the mechanisms in place meant to deal with the asymmetric losses imposed on debtors when asset prices and economic conditions collapse. We argue that the existing mechanisms are often ill-suited for resolving the financial crisis and that there is a meaningful role for political intervention to impose a more even distribution of the losses among creditors and debtors. We then show that in the post-crisis climate of heightened political polarization, possibly driven by the asymmetry between the positions of debtors and creditors itself, such political interventions are not overly frequent. We view this particular instance as an exemplification of our findings in Section II.

A. The Economic Cost of Financial Crises

There is a substantial literature devoted to the question of how financial crises lead to economic disruptions. The common theme in this literature is that the distribution of shocks between debtors and creditors matters. Since a negative shock is primarily absorbed by debtors, the net worth of debtors is most severely impacted in the face of a negative aggregate shock. As a result, the distribution of net worth becomes more skewed against debtors. Such distributional shifts can lead to a negative impact on *total* output and employment by disrupting investment or aggregate demand.

The Investment Channel of Financial Crises

The influential work of Kiyotaki and Moore (1997) explains how a shock to the net worth of borrowers reduces their ability to borrow. Agency problems such as the borrowers' ability to

renege on debt payments mean that lenders require borrowers to have equity in a project. Given this equity requirement, a decline in the net worth of borrowers driven by a decline in the value of assets they hold will reduce their overall capacity to borrow. This borrowing constraint channel means that overall investment will fall even if there remain as many positive NPV projects as before the shock.

A reduction in the borrowing capacity of the entrepreneurial class with access to investment projects leads to a slowdown in investment when otherwise profitable investment projects exist. There is a large literature that discusses such borrowing constraints in the context of financial crises. A common prescription in such discussions is to transfer resources back to the debtors to boost investment. Few, however, have emphasized the political obstacles to implementing such reforms. In light of the discussion in Section II, however, one is compelled to point out how substantial such obstacle might be.

The Consumption Channel of Financial Crises

A related transmission channel of financial crises is the effect of reduced net worth on the consumption of debtors. The idea goes back to Fisher (1933) and King (1994).

The consumption channel focuses on the accumulation of debt by households followed by an event that wipes out the net worth of debtors, leading to tightened borrowing constraints and reduced liquidity. The severe shock forces debtors to cut back on consumption.

Eggertsson and Krugman (2011) points out scenarios where nominal price rigidity and a zero lower bound constraint on nominal interest rates make it difficult for aggregate demand to remain stable. For example the strong decline in the US housing market forced indebted households to cut back on consumption. The decline in debtors' consumption means that savers or creditors must increase their consumption in order to keep aggregate demand constant. But

why would creditors increase their consumption relative to earlier levels? Such an increase is possible only if creditors can be enticed to consume more through lower interest rates. Lower nominal interest rates may have limitations however. In particular, what if even at zero nominal interest rate creditors are unwilling to increase consumption significantly?

Philippon and Midrigan (2011) focus on the liquidity role of housing. In their framework, debtors are households that used their house as collateral in a cash-in-advance constraint model. The sharp reduction in house prices leads to a sharp pull-back in consumption for these households. With nominal rigidities and structural adjustment frictions in labor markets, this pull-back in consumption can lead to a severe recession.

In both of these environments, collective action may be needed to increase consumption. As in the case of investment channel, policy prescriptions in the consumption channel require a net transfer in favor of debtors to resolve the debt overhang problem (through explicit policies of debt relief or via taxation and spending on behalf of creditors).

B. Default Mechanisms for Dealing with Financial Crises

The preceding section argues that a sharp reduction in the net worth of debtors in response to a financial crisis can lead to a sharp decline in investment and consumption. The combination of high leverage and a negative asset price shock leads to a large imbalance in the net worth positions of creditors and debtors, which we have argued is at the heart of the economic malaise that follows. This is not to say that debtor friendly policies are the only way out of financial crises or the best way (as they are not necessarily Pareto improving), but clearly a tool in a set that includes financial bailouts or bail-ins, fiscal stimuli and monetary policy easing.

However, before going into the political process in more detail, it is important to understand the legal and regulatory mechanisms put in place to deal with the potential imbalance between debtors and creditors. Doing so is important for understanding the default bargaining position that debtors and creditors have in a post-financial crisis political process. For example, if the legal system gives creditors complete recourse to go after debtors' existing assets and future cash flows, then creditors will have a stronger incentive to resist changes to the status quo. On the other hand, debtors will also be more inclined to fight the political battle if they have more to lose in the status quo.

The most common arrangement for dealing with the inability of debtors to pay creditors is bankruptcy law. However, there are two main limitations of bankruptcy regimes in alleviating the debt overhang problem. First, bankruptcy becomes operative only when the debtor declares default and stops making payments on his debt. This is not necessarily the relevant margin. For example, in the Eggertsen and Krugman (2011) model, there is no default on debt and yet aggregate demand goes down as debtors desperately try to *pay down* their existing debts in the face of a negative shock to collateral and debt capacity. This is especially relevant for the US, where 25% of mortgages were underwater in the midst of the crisis[17] yet most homeowners do not default on their mortgages. The second reason bankruptcy regimes do not work very well is that in a financial crisis the economy cannot absorb a large-scale fire sale of assets disposed of in bankruptcy. For example, consider firm assets that can only be bought and run by other entrepreneurs that have the know-how of the relevant industry. As discussed above, the core problem that the entrepreneurial class does not have sufficient net worth and borrowing capacity. In such an environment, a large scale attempt to sell firm assets will lead to a sharp decline in the

[17] Wall Street Journal, November 24, 2009, *One in Four Borrowers Is Underwater*. Data sourced from CoreLogic.

value of such assets, putting further pressure on entrepreneurs struggling to raise capital (e.g., Shleifer and Vishny, 1992).

In the context of the housing collapse and US financial crisis, Mian, Sufi and Trebbi (2011) study the impact of foreclosures on the real economy. Using exogenous variation in the likelihood of foreclosures due to state laws, they show that forced sales of houses had a large effect in terms of further reducing house prices, residential investment, and consumption. On both theoretical and empirical grounds, bankruptcy regimes are unlikely to help in alleviating the macroeconomic costs associated with financial crises.

C. The Impact of Bankruptcy Regimes on Debtor-Creditor Conflict

We have argued that the typical bankruptcy regime is not adequate in addressing the potentially large imbalance between debtors and creditors created during a financial crisis. Nonetheless, on the margin, bankruptcy design does influence the extent to which financial losses are shared between debtors and creditors. This in turn may explain differential effects of financial crises across countries and within countries.

There are important differences in the design of bankruptcy regimes across countries. For example, it is typically harder and more expensive to declare bankruptcy in Europe relative to the United States. Moreover, in the event of a bankruptcy, most European countries allow full recourse to an individual's assets and future wages. European creditors can – and often do – go after a borrower's other assets and wages in case there is a deficiency in the value of collateral and outstanding principal. Recourse is significantly more limited in the United States and qualifying borrowers can discharge most debts by declaring bankruptcy.

A European Mortgage Federation study in 2007 found that recourse was allowed in Belgium, Germany, Greece, the Netherlands, Spain, France, Ireland, Portugal, and the United Kingdom. Borrowers in these countries cannot simply default on their mortgage and be cleared of all their mortgage debts. The higher level of recourse and tougher rules for declaring bankruptcy are likely to prevent borrowers from declaring default. As a result, debtors in European countries are more likely to absorb financial shocks internally than declare default.

D. Financial Crises, Resolution of Debt Overhang, and Change in Creditor Rights.

The extent to which policies are implemented to address debt overhang after a financial crisis becomes a matter of political and legislative debate. For example, Bolton and Rosenthal (2002) present a political economy model where it is possible to "certify" debt overhang states of the world through the political voting mechanism and renegotiate financial contracts. However, in practice, creditors are likely to push back as it is not in their individual self-interest to provide debtor relief at their expense. As a result, political battle lines are likely to be drawn between debtors and creditors. We now ask how does the political process resolve this conflict between debtors and creditors after a financial crisis? Is this a type of reform that differs from our findings in section II.B?

Our findings suggest a very similar pattern to what found in Section II with respect to the IMF structural financial reforms.

The seminal work of La Porta et al (1998), followed by Djankov et al. (2007), introduced cross-country index of "creditor rights" from 1978 to 2002. The index captures the rights of secured lenders under a country's legal system. A country has stronger creditor rights if: (i) there are restrictions for a debtor to file for reorganization; (ii) creditors are able to seize collateral in

bankruptcy automatically without any "asset freeze"; (iii) secured creditors are paid first; and (iv) control shifts away from management as soon as bankruptcy is declared.

Stronger creditor rights favor creditors in bargaining situation vis-à-vis debtors. Djankov et al. (2007) show that creditor rights, which are partly determined by a country's history such as legal origins, lead to stronger growth in credit. This result is to be expected, since stronger creditor rights will make creditors more likely to extend credit and offer it at cheaper prices. However, such rights may not be helpful ex-post in the event of a financial crisis. There is likely to be a tension between creditor rights and the push to introduce reforms in the aftermath of a financial crisis[18].

There is evidence in the Djankov et al. (2007) data on creditor rights that suggests this tension is real. While the creditor rights index is remarkably stable, it does occasionally change for a given country. Table 7 shows that there are twelve instances between 1978 and 2002 when creditor rights deteriorate in a country, and eight instances when creditor rights are strengthened. Six of the eight instances when creditor rights are strengthened involve transition economies such as Romania, Lithuania, and Bulgaria. These countries had very low creditor rights to begin with and were in the process of broadly changing their legal code in conjunction with western norms.

What is more interesting is that most of the instances of a relaxation in creditor rights involve established democracies. Moreover, the timing of these changes in creditor rights often comes after a severe financial crisis. The Nordic banking crisis of the early 1990s led to a relaxation in creditor rights in both Sweden and Finland. Concerning emerging democracies, Indonesia and Thailand actively reduced creditor rights in the aftermath of the East Asian financial crisis of 1997-98.

[18] See Sevcik (2012) for a model endogenizing both investor protection and economic performance.

A more formal analysis of the likelihood of reduction in creditor rights in the face of financial crises supports the anecdotal evidence above. Employing RR, information on banking, debt (external or otherwise), currency, and inflation crises, it is possible to focus on within-country variation in creditor rights. Table 7 performs simple country fixed effect regressions of creditor rights in the sample of countries which undergo a crisis, restricting to observations at most five years before and five years after the crisis for comparison, as in specification (2). The inclusion of country and year fixed effects allows to formally test whether the reduction of creditor rights is systematic around financial crises.

Notwithstanding the limited numbers of changers in the sample and the different coverage of RR relative to Djankov et al. (2007), the evidence appears to go in this direction. Across all four types of crises, the evidence points toward a relaxation of creditor rights after a financial crisis (negative sign on the post-crisis indicator variable). In the case of banking and currency crises the reduction is also highly statistically significant.

However, once again, magnitudes are not large at all, around 7 percent of a one-point decrease in creditor rights index. A change of 1 is the modal size of a change in the creditor rights score in our sample though, suggesting that creditor rights get relaxed around crises, but that this type of policy change is not the norm after a financial crisis. To be more explicit, one would expect a coefficient around -1 (the modal change) on the post-crisis dummy in the case all crises were systematically followed by reductions in creditor rights. The estimated coefficient in Table 7 is much lower, a frequency of -0.07, indicating that less than 1 in 10 crises are followed by creditor rights decreases. The previous section has investigated a plausible culprit for the sparseness of this type of reform: political polarization.

IV. Other Types of Crises

This section offers additional evidence useful for interpreting the generality of some of the evidence we report in the paper. Let us stress here our belief that financial crises present specific political peculiarities relative to other types of crises.

Consider for instance the case of terrorist crises. A substantially different critical juncture for a country arises in presence of deadly terrorist attacks. Examples of such critical junctures include September 11th 2001 in the United States or March 11th 2004 in Spain. We employ the RAND Database of Worldwide Terrorism Incidents data from 1972 through 2009 to recover information of instances of terrorism crises in a large sample of countries and implement the same econometric methodology of Tables 2 and 3.

The sample covers 181 total geographic units (either countries or specific sub-regions, such as the West Bank, Kashmir or Corsica). We focus on incidents with at least 50 reported fatalities (116 such instances out of 15532 total available incident records in the database) and incidents with at least 100 reported fatalities (35 incidents)[19]. We do not restrict the data by any type of tactic, weapon, or target, not having any precise prior on which of these dimensions may have the largest politico-economic impact. We define a year of terrorism crisis in a country if any of its regions have been hit by an attack.

The results reported in Table 8 present distinctive differences relative to the case of financial crises. First of all, the statistical precision is much lower, mostly due to the rare incidence of these events. In addition, the point estimates indicate very different effects. Government coalitions appear to gain political support and oppositions to decrease in size in the

[19] Results using as threshold 100 fatalities are similar to what reported in this section for 50 fatalities, albeit more noisy, and available from the authors upon request. One faces a trade off in reducing the number of fatalities towards lower figures with the goal of increasing the number of episodes considered, as less salient incidents may fit less accurately the definition of "crisis".

aftermath of terrorist attacks. Polarization decreases and fractionalization in the legislative branch increases, but mostly because of an increase in the fractionalization of the opposition coalition.

If anything, the evidence points towards a reverse picture relative to financial crises. Focusing on the point estimates alone and with the strong caveat of the wide confidence intervals reported, governments appear stronger and relatively more cohesive after a terrorist attack. A country appears to come together politically after such events. Were the evidence systematic (which does not appear to be the case here unfortunately), it would suggest a higher likelihood of an organized and timely response to this type of crisis, quite the opposite from what one would predict based on the evidence in banking, debt, or currency crises. While one can only speculate about the reason behind such difference, it appears quite clear that terrorist crisis do not carry the same degree of heterogeneity in terms of their incidence on the population as much as financial crises do. The deadly effects of a terrorist attack are likely perceived homogeneously across society, without much differentiation or division.

V. Concluding Remarks and Discussion

This paper discusses how financial crises put pressure on debtors and how the following debt-overhang problem deepens economic downturn. A potential solution discussed in the macroeconomic and finance literature involves relaxing creditor rights and bailing out (partially or totally) debtors.

However, such policy interventions are rare. Why? Based on within US and cross-country evidence we conjecture that bailouts and pro-debtor reforms may be stifled by ideological polarization. Politics after the crisis appears characterized by factors typically

associated with legislative stalemate, such as more polarized voters, weaker governments, and more fragmented oppositions. While the evidence on post-crisis reforms is not as clear cut as the one on pre- and post-crisis changes in the political spectrum, policy intervention (in terms of liberalizations or reforms more in general) is far from the norm. Our results offer a possible political economy explanation for why financial crises often lead to prolonged economic slumps and why it becomes hard to reach a policy consensus in the aftermath of a financial crisis. Crises likely bring gridlock through polarization. Gridlock may delay reform and possibly make recovery slower, explaining long post-crisis slumps (see Reinhart and Rogoff, 2009; Reinhart and Reinhart, 2010).

The inability to reach a political consensus can lead to further losses. Gridlock breeds political uncertainty and markets for sovereign debt often respond heavily to such conditions. Debt crises may be a natural consequence of gridlock. Recent U.S. and European events highlight the cost that political indecisiveness imposes on the economy. Future research should consolidate and expand on our evidence of legislative stalemate in a more systematic fashion, possibly using the European 2011-13 debt crisis as a starting point.

Overall our aim in this paper is to highlight the shifting political landscape in the aftermath of a financial crisis. It is a question that has not been extensively addressed in the literature[20] but has important economic consequences. Any model of post-crisis macro intervention leaving this political feature aside forgoes what we believe is an important dimension. Indeed, any type of post-crisis reform may become harder, including bailouts. Crises are occasionally thought of as critical junctures where macroeconomic reform unlocks by shattering entrenched conditions. The opposite seems true.

[20] With some exceptions, such as Alesina et al. (2011) who study electoral consequences of large fiscal adjustments. Brender and Drazen (2008) look at electoral consequences of fiscal and inflation performance, but with no emphasis given to post-crisis recovery.

Since post-crisis politics may make it difficult to politically resolve the debt-overhang problem ex-post, what other alternatives are there? One possibility is to explicitly put in place a contingency in traditional non-contingent debt contracts. The contingency only needs to be written on the aggregate state of the economy. For example, in mortgage contracts the contingency could be the level of aggregate (or regional) price index. If the state of the economy, or the housing index in this example, performs too poorly then the contingency could automatically kick in and restructure the debt.

The typical benefit of non-contingent debt is that it protects the lender from moral hazard issues related to the borrower deliberately mis-utilizing the loan. However, if the contingency for debt reduction is written on the aggregate state of the economy, such moral hazards continue to be avoided. More generally, we believe that the mechanism design problem of contracting around the debt-overhang problem for the overall economy is an important and practical issue to investigate.

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Figure 1: United States Ideological Groups Time Series.

This figure reports shares of respondents in Gallup polls self-identifying in each ideological category with respect to economic values. Coverage: United States, years 1999-2012.

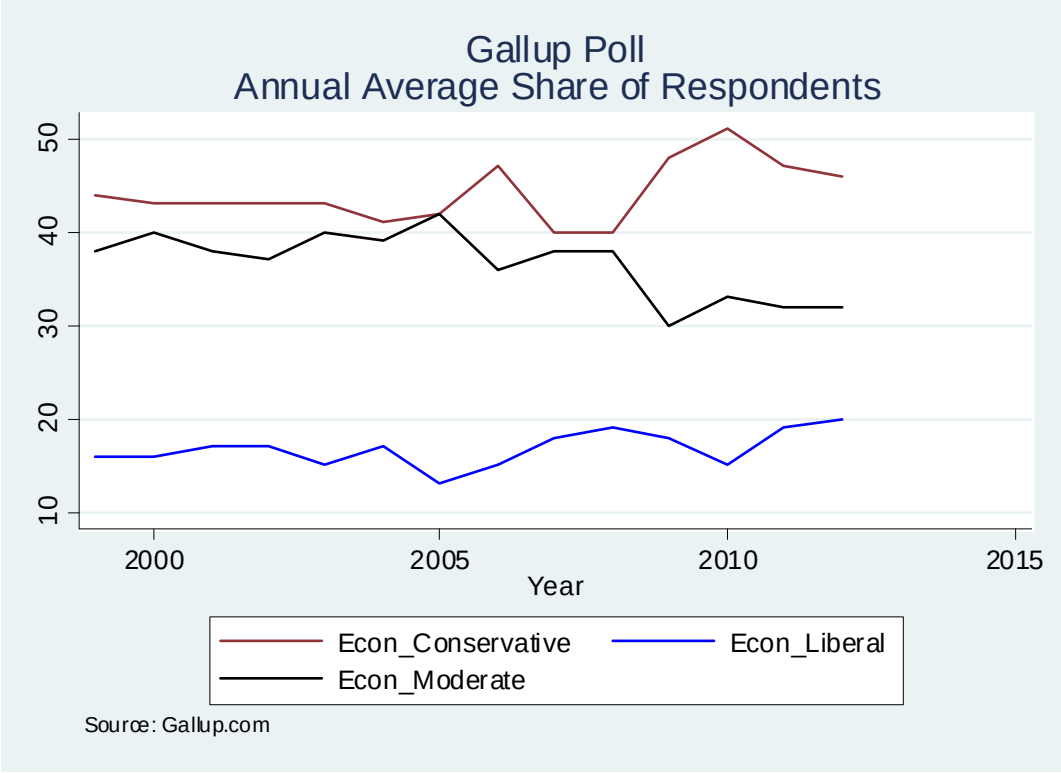

Figure 2: Post-Crisis Decreases Mass at Ideological Center.

This figure reports the average shares of the population in each ideological bin of the Thermometer Index: Liberal-Conservative, American National Election Study Cumulative Data File 1948-2008 (VCF0801, 2011). We include all United States banking crises 1948-2010 as identified by Reinhart and Rogoff (2011).Pre-Crisis Sample: 5 years before first year of crisis. Post-Crisis Sample: 5 years after last year of crisis.

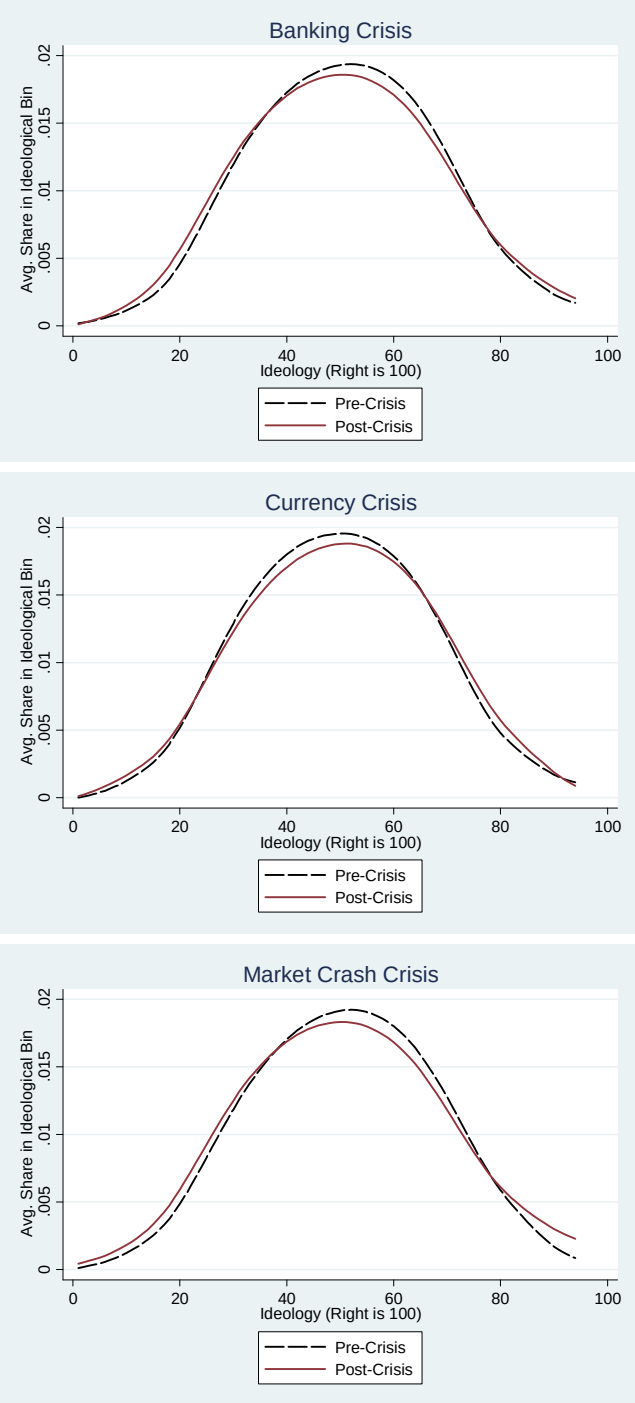

Figure 3: Post-Crisis Increases in Congressional Polarization.

This figure reports the kernel densities of HP Filtered Difference in DW Nominate Scores Party Means, Chambers Average, United States Congress, 1879-2010 as obtained from Keith Poole and Howard Rosenthal voteview.com. Pre-Crisis Sample: 5 years before first year of crisis. Post-Crisis Sample: 5 years after last year of crisis. Crises definitions follow Reinhart and Rogoff (2011).

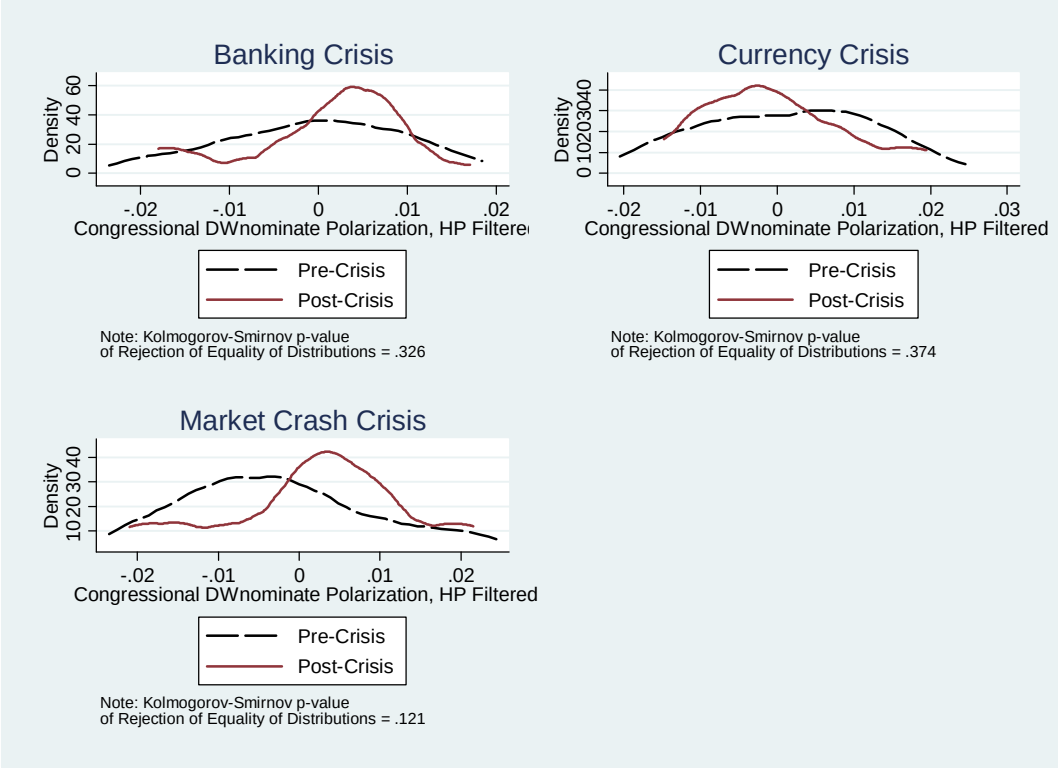

Figure 4: Post-Crisis Decreases Mass at Ideological Center.

This figure reports the average shares of the population in each ideological bin of the Self Positioning in Political Scale, World Values Survey 1981-2008 Official Aggregate (e033, 2009). Pre-Crisis Sample: 5 years before first year of crisis. Post-Crisis Sample: 5 years after last year of crisis. Crises definitions follow Reinhart and Rogoff (2011). All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010.

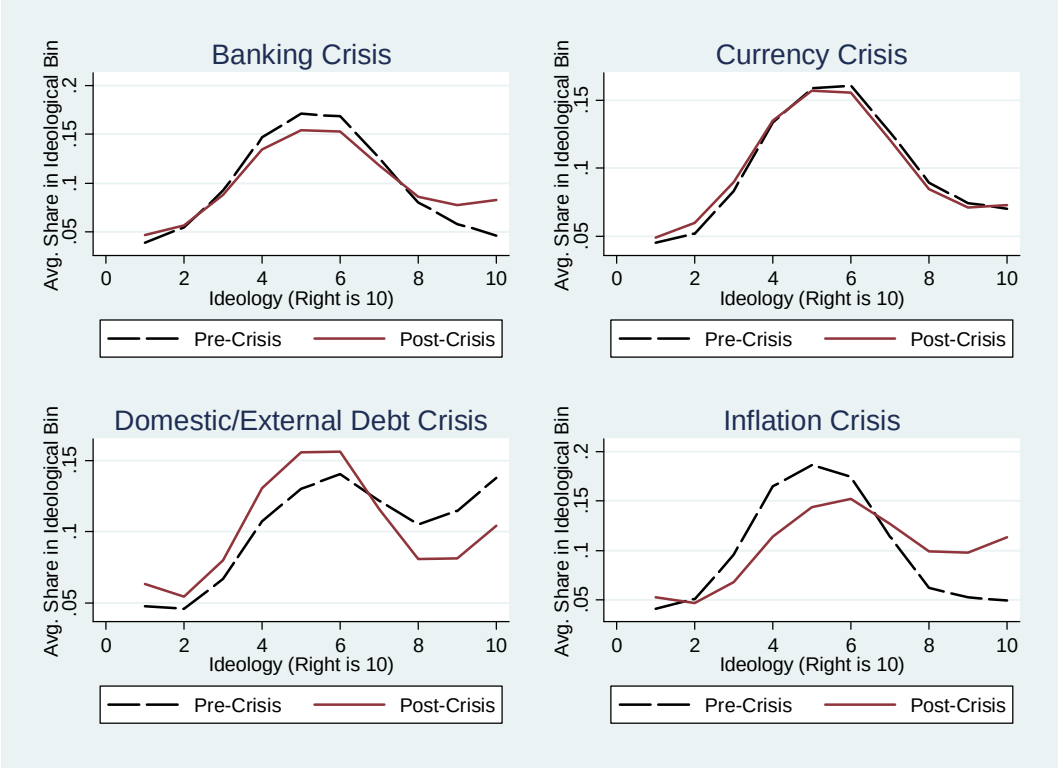

Figure 5: Post-Crisis Decrease in Majority Margins for Government.

This figure reports the kernel densities of the vote share of government parties from the Database of Political Institutions (World Bank, 2010). Pre-Crisis Sample: 5 years before first year of crisis. Post-Crisis Sample: 5 years after last year of crisis. Crises definitions follow Reinhart and Rogoff (2011). All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010. The null of equality of distributions is rejected in all panels according to a Kolmogorov-Smirnov test.

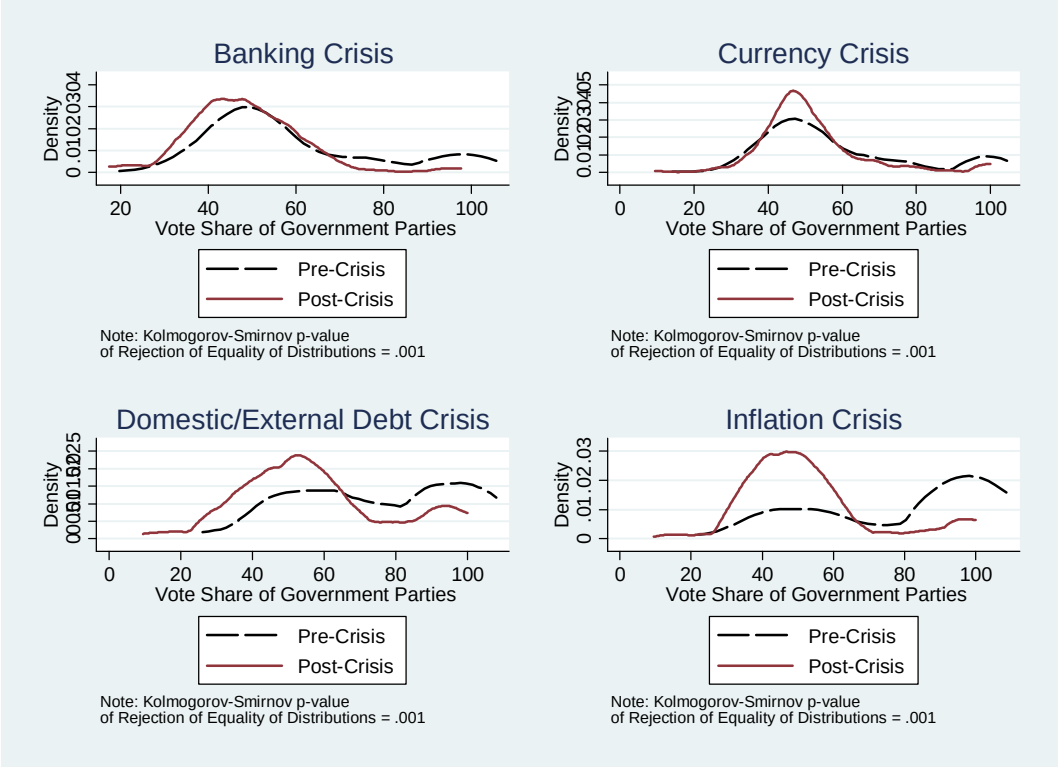

Figure 6: Post-Crisis Increase in Opposition Share.

This figure reports the kernel densities of the vote share of opposition parties, excluding unaligned parties (of relevance for minority governments only) from the Database of Political Institutions (World Bank, 2010). Pre-Crisis Sample: 5 years before first year of crisis. Post-Crisis Sample: 5 years after last year of crisis. Crises definitions follow Reinhart and Rogoff (2011). All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010. The null of equality of distributions is rejected in all panels according to a Kolmogorov-Smirnov test.

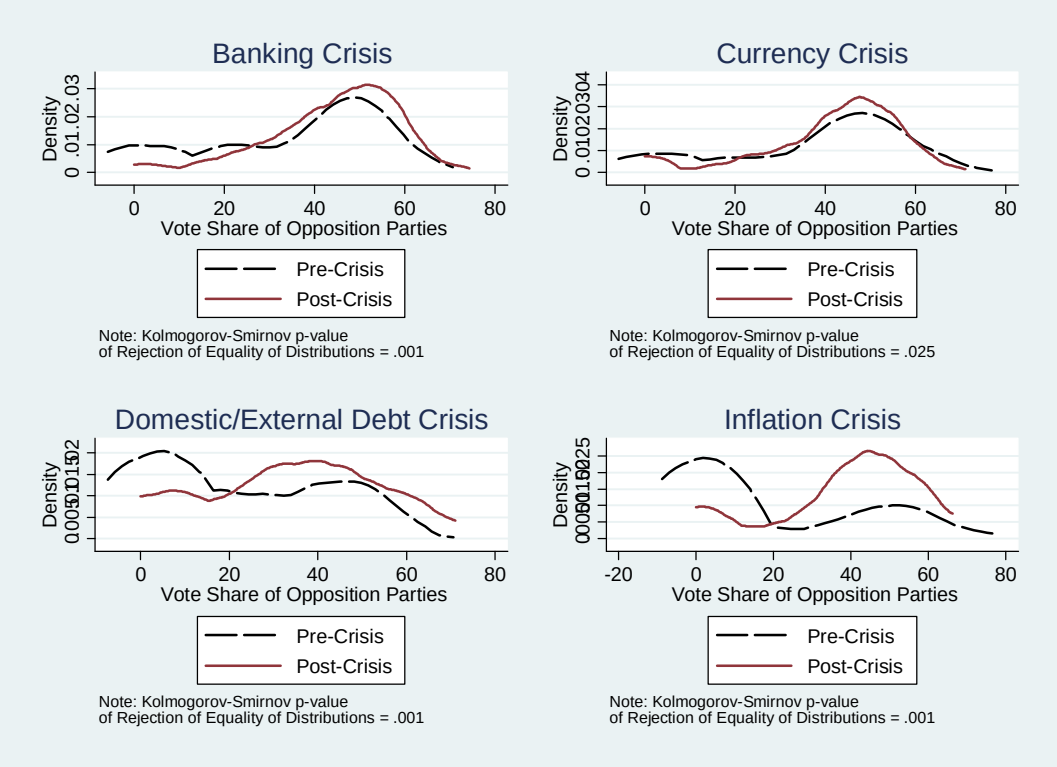

Figure 7: Post-Crisis Increase in Party Fractionalization in Legislative.

This figure reports the kernel densities of party fractionalization indexes from the Database of Political Institutions (World Bank, 2010). Pre-Crisis Sample: 5 years before first year of crisis. Post-Crisis Sample: 5 years after last year of crisis. Crises definitions follow Reinhart and Rogoff (2011). All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010. The null of equality of distributions is rejected in all panels according to a Kolmogorov-Smirnov test.

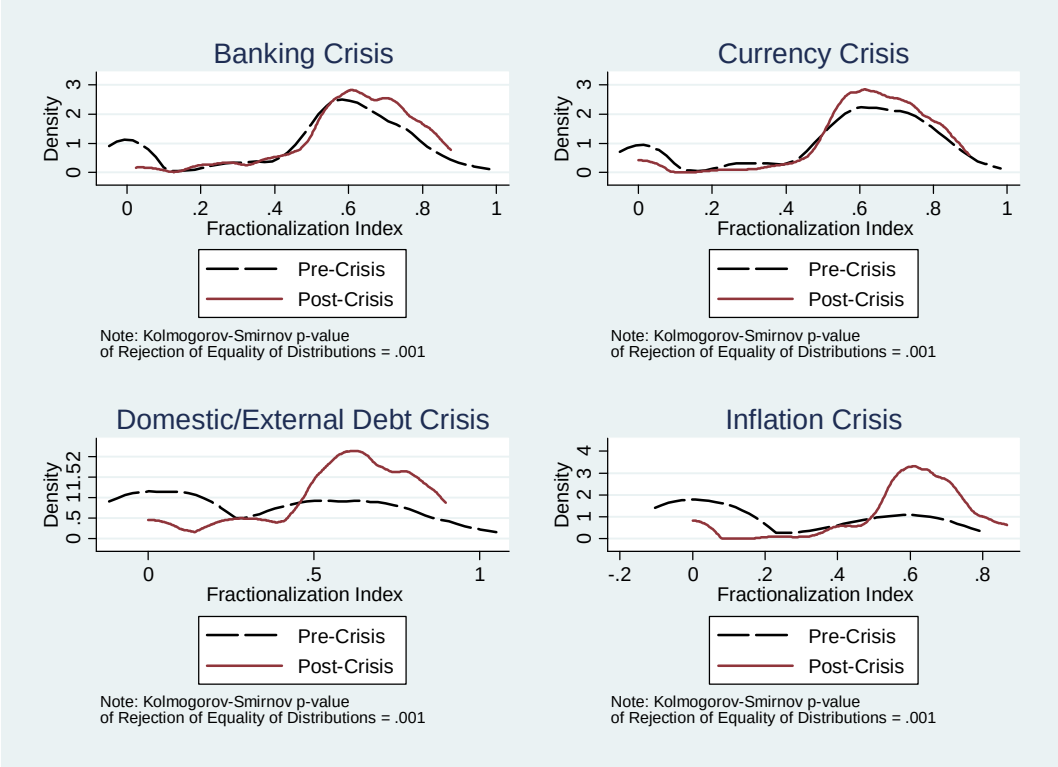

Table 1: Summary Statistics for Political Regressions

Variable	Obs.	Mean	Std. Dev.	Min	Max
Government Vote Share	1698	56.03	19.49	9.47	100
Opposition Vote Share (Excluding Unaligned Parties)	1698	37.40	19.25	0	90.20
Polarization	2308	.61	.87	0	2
Party Fractionalization	1670	.56	.24	0	.93
Government Fractionalization	1687	.20	.26	0	.92
Opposition Fractionalization	2004	.48	.26	0	1
Banking crisis	2520	.17	.38	0	1
Currency crisis	2515	.21	.40	0	1
Debt crisis	2520	.19	.39	0	1
Inflation crisis	2520	.18	.38	0	1

Table 2

	Banking Crisis		Currency Crisis		Dom./External Debt Crisis		Inflation Crisis	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable: Government Vote Share								
Post-Crisis	-10.6029	-6.8459	-5.6889	-2.9830	-17.0451	-3.3900	-26.6331	-10.2615
	[1.4469]**	[1.4906]**	[1.4648]**	[1.0052]**	[2.8974]**	[2.3458]	[2.9077]**	[1.6419]**
R^2	0.09	0.67	0.03	0.77	0.13	0.84	0.27	0.92
N	534	534	599	599	236	236	279	279
Dependent Variable: Opposition Vote Share (Excluding Unaligned Parties)								
Post-Crisis	8.6544	7.7531	2.8580	0.5635	10.9867	2.5713	20.4801	6.3344
	[1.5059]**	[1.3673]**	[1.5110]	[1.0068]	[2.7145]**	[2.6374]	[2.8892]**	[2.1033]**
R^2	0.06	0.71	0.01	0.75	0.07	0.74	0.17	0.86
N	534	534	599	599	236	236	279	279
Dependent Variable: Polarization								
Post-Crisis	0.1761	0.1002	0.0971	0.0605	0.2732	0.1126	0.4836	0.1099
	[0.0625]**	[0.0637]	[0.0646]	[0.0489]	[0.0753]**	[0.0840]	[0.0616]**	[0.0727]
R^2	0.01	0.64	0.00	0.63	0.03	0.57	0.09	0.67
N	752	752	753	753	366	366	411	411

Note: This table estimates pre and post crisis levels of three different dependent variables. Independent variable is a post-crisis indicator variable. Columns (2), (4), (6), and (8) include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010.

Table 3

	Banking Crisis		Currency Crisis		Dom./External Debt Crisis		Inflation Crisis	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable: Party Fractionalization								
Post-Crisis	0.1059	0.0656	0.0733	0.0466	0.2250	0.1859	0.3346	0.1269
	[0.0189]**	[0.0110]**	[0.0193]**	[0.0115]**	[0.0397]**	[0.0280]**	[0.0338]**	[0.0193]**
R^2	0.05	0.82	0.03	0.85	0.14	0.91	0.31	0.92
N	523	523	585	585	230	230	269	269
Dependent Variable: Government Fractionalization								
Post-Crisis	0.0195	0.0248	0.0179	0.0444	0.0680	0.1006	0.1210	0.0296
	[0.0219]	[0.0188]	[0.0221]	[0.0177]*	[0.0379]	[0.0359]**	[0.0241]**	[0.0296]
R^2	0.00	0.68	0.00	0.73	0.01	0.74	0.06	0.74
N	534	534	591	591	232	232	275	275
Dependent Variable: Opposition Fractionalization								
Post-Crisis	0.0481	0.0434	0.0125	0.0178	0.0678	0.0161	0.0999	0.0561
	[0.0207]*	[0.0192]*	[0.0198]	[0.0171]	[0.0349]	[0.0455]	[0.0345]**	[0.0312]
R^2	0.01	0.56	0.00	0.61	0.01	0.51	0.02	0.77
N	652	652	723	723	258	258	310	310

Note: This table estimates pre and post crisis levels of three different dependent variables. Independent variable is a post-crisis indicator variable. Dependent variable is a post-crisis indicator. Columns (2), (4), (6), and (8) include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010.

Table 4a: Financial Reforms After Financial Crises

	Banking Crisis	Currency Crisis	Dom./External Debt Crisis	Inflation Crisis
	(1)	(2)	(3)	(4)
Panel A. Dependent Variable: Credit Controls and Excessive Reserve Requirements				
Post-Crisis	-0.0523	0.0157	-0.0150	0.0945
	[0.0225]*	[0.0184]	[0.0248]	[0.0288]**
R^2	0.72	0.79	0.86	0.83
N	662	624	341	294
Panel B. Dependent Variable: Interest Rate Controls				
Post-Crisis	-0.0258	0.0451	0.0676	0.1126
	[0.0241]	[0.0175]*	[0.0306]*	[0.0422]**
R^2	0.74	0.82	0.89	0.83
N	662	624	341	294
Panel C. Dependent Variable: Entry Barriers				
Post-Crisis	-0.0458	-0.0041	0.0548	0.0561
	[0.0177]**	[0.0147]	[0.0267]*	[0.0260]*
R^2	0.86	0.86	0.88	0.88
N	662	624	341	294
Panel D. Dependent Variable: State Ownership in the Banking Sector				
Post-Crisis	-0.0392	-0.0113	0.0006	0.0388
	[0.0192]*	[0.0147]	[0.0197]	[0.0284]
R^2	0.79	0.84	0.88	0.83
N	662	624	341	294
Panel E. Dependent Variable: Capital Account Restrictions				
Post-Crisis	0.0032	-0.0341	0.1028	-0.0869
	[0.0200]	[0.0167]*	[0.0274]**	[0.0337]*
R^2	0.75	0.80	0.80	0.74
N	662	624	341	294
Panel F. Dependent Variable: Prudential Regulations and Supervision				
Post-Crisis	0.0726	-0.0167	0.0356	0.0558
	[0.0166]**	[0.0131]	[0.0168]*	[0.0207]**
R^2	0.85	0.85	0.88	0.83
N	662	624	341	294
Panel G. Dependent Variable: Securities Market Policies				
Post-Crisis	0.0443	0.0149	0.0141	-0.0144
	[0.0159]**	[0.0117]	[0.0209]	[0.0195]
R^2	0.86	0.90	0.89	0.89
N	662	624	341	294

Notes: Independent variable is a post-crisis dummy. All columns include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries, all crises 1975-2010 included. The degree of liberalization indexes of directed credit/reserves, interest rate controls, entry barriers, privatizations, capital accounts, banking supervision, and security markets degree of liberalization are from Abiad et al. (2008). All liberalization scores are defined on [0,1], where higher score is more liberalized.

Table 4b: Liberalizations After Financial Crises

	Banking Crisis	Currency Crisis	Dom./External Debt Crisis	Inflation Crisis
	(1)	(2)	(3)	(4)
Dependent Variable: IMF Aggregate Index of Degree of Financial Liberalization				
Post-Crisis	-0.1288	0.0286	0.7816	0.7699
	[0.2181]	[0.1607]	[0.2247]**	[0.2588]**
R^2	0.91	0.94	0.95	0.94
N	662	624	341	294

Notes: Independent variable is a post-crisis dummy. All columns include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries, all crises 1975-2010 included. The degree of liberalization indexes of directed credit/reserves, interest rate controls, entry barriers, privatizations, capital accounts, banking supervision, and security markets degree of liberalization are from Abiad et al. (2008). All liberalization scores are defined on [0,3], where higher score is more liberalized, and summed up for each country.

Table 4c: Reforms After Financial Crises

	Banking Crisis	Currency Crisis	Dom./External Debt Crisis	Inflation Crisis
	(1)	(2)	(3)	(4)
Dependent Variable: Indicator for Absolute Change of 2 points or higher in IMF Aggregate Index of Degree of Financial Liberalization.				
Post-Crisis	0.0020	0.0317	-0.0009	0.0339
	[0.0238]	[0.0148]*	[0.0491]	[0.0273]
R^2	0.16	0.18	0.19	0.21
N	651	598	285	323
Dependent Variable: Indicator for Absolute Change of 3 points or higher in IMF Aggregate Index of Degree of Financial Liberalization.				
Post-Crisis	-0.0045	0.0184	0.0001	0.0346
	[0.0175]	[0.0097]	[0.0140]	[0.0216]
R^2	0.13	0.14	0.29	0.18
N	651	598	285	323

Notes: Independent variable is a post-crisis dummy. All columns include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries, all crises 1975-2010 included. The degree of liberalization indexes of directed credit/reserves, interest rate controls, entry barriers, privatizations, capital accounts, banking supervision, and security markets degree of liberalization are from Abiad et al. (2008). All liberalization scores are defined on [0,3], where higher score is more liberalized, and summed up for each country. All changes are considered relative to previous year and the indicator function is 1 if absolute change of the IMF Aggregate Index of degree of financial liberalization is above the indicated threshold and 0 otherwise.

Table 5: Political Weakness and Reforms After Financial Crises

	Dependent Variable: Indicator for Absolute Change of 2 points or higher in IMF Aggregate Index of Degree of Financial Liberalization.				Dependent Variable: Indicator for Absolute Change of 3 points or higher in IMF Aggregate Index of Degree of Financial Liberalization.			
Government Vote Share	0.0024		0.0033		0.0019		0.0023	
	[0.0012]*		[0.0013]*		[0.0009]*		[0.0010]*	
Opposition Vote Share (Excluding Unaligned Parties)		-0.0018		-0.0026		-0.0013		-0.0015
		[0.0010]		[0.0013]*		[0.0008]		[0.0010]
Party Fractionalization			0.0866	0.1309			0.0696	0.0884
			[0.1885]	[0.2023]			[0.1025]	[0.1231]
Some Polarization (Polariz=1)			-0.0109	-0.0314			-0.0132	-0.0273
			[0.0551]	[0.0548]			[0.0374]	[0.0373]
High Polarization (Polariz=2)			0.0235	0.0172			-0.0090	-0.0131
			[0.0483]	[0.0492]			[0.0326]	[0.0334]
R^2	0.20	0.19	0.20	0.20	0.24	0.24	0.22	0.21
N	572	572	521	521	572	572	521	521

Notes: All columns include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years after a banking, debt, currency, inflation or market crash crisis. All 70 Reinhart and Rogoff (2011) countries, all crises 1975-2010 included. The degree of liberalization indexes of directed credit/reserves, interest rate controls, entry barriers, privatizations, capital accounts, banking supervision, and security markets degree of liberalization are from Abiad et al. (2008). All liberalization scores are defined on [0,3], where higher score is more liberalized, and summed up for each country. All changes are considered relative to previous year and the indicator function is 1 if absolute change of the IMF Aggregate Index of degree of financial liberalization is above the indicated threshold and 0 otherwise. Variable Polariz in the DPI gives the maximum polarization between the executive party and the four principle parties of the legislature takes values 0, 1, 2 in terms of increasing polarization. Polariz = 0 is the baseline.

Table 6: Changes in Creditor Rights

The table reports the timing of *changes* in the credit rights index introduced by Djankov et al (2007). The last column reports the most recent major financial crisis prior to the change in creditor rights index.

Country	Credit Rights	Creditor Rights Changed In	Most Recent Financial Crisis Prior To Change
Canada	Relaxed	1992	1985 (Banking)
Finland	Relaxed	1993	1993 (Banking and Currency)
India	Relaxed	1993	1993 (Banking and Currency)
Indonesia	Relaxed	1998	1998 (All types)
Ireland	Relaxed	1990	1977 (Currency)
Israel	Relaxed	1996	NA
Japan	Relaxed	2000	2000 (Banking)
Malawi	Relaxed	2000	NA
Niger	Relaxed	1998	NA
Sweden	Relaxed	1995	1994 (Banking)
Thailand	Relaxed	1999	1999 (Banking)
Ukraine	Relaxed	1999	NA
Azerbaijan	Toughened	1997	NA
Bulgaria	Toughened	2000	NA
Denmark	Toughened	1984	1980 (Market Crash)
Kazakhstan	Toughened	1997	NA
Lithuania	Toughened	1995	NA
Mongolia	Toughened	1997	NA
Romania	Toughened	1994	1994 (Banking, Currency and Inflation)
United Kingdom	Toughened	1985	1984 (Banking)

Table 7: Creditor Rights

	Banking Crisis	Currency Crisis	Dom./External Debt Crisis	Inflation Crisis
	(1)	(2)	(3)	(4)
	Dependent Variable: Creditor Rights			
Post-Crisis	-0.0771	-0.0630	-0.0075	-0.0163
	[0.0203]**	[0.0227]**	[0.0221]	[0.0153]
R^2	0.98	0.97	0.99	1.00
N	573	521	305	275

Notes: Independent variable is a post-crisis indicator variable. All columns include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010. Creditor rights are defined in Djankov et al. (2007).

Table 8

	Terrorism Crisis	
	(1)	(2)
Dependent Variable: Government Vote Share		
Post-Crisis	0.6154	10.3411
	[2.3822]	[3.1240]**
R^2	0.00	0.62
N	125	125
Dependent Variable: Opposition Vote Share (Excluding Unaligned Parties)		
Post-Crisis	-0.3650	-4.5462
	[3.1410]	[3.2945]
R^2	0.00	0.80
N	125	125
Dependent Variable: Polarization		
Post-Crisis	-0.0944	-0.2644
	[0.1072]	[0.1735]
R^2	0.00	0.51
N	164	164
Dependent Variable: Party Fractionalization		
Post-Crisis	0.0735	0.0127
	[0.0238]**	[0.0297]
R^2	0.08	0.73
N	119	119
Dependent Variable: Government Fractionalization		
Post-Crisis	0.0892	0.0384
	[0.0480]	[0.0485]
R^2	0.03	0.79
N	125	125
Dependent Variable: Opposition Fractionalization		
Post-Crisis	0.0159	0.0596
	[0.0453]	[0.0277]*
R^2	0.00	0.86
N	176	176

Note: This table estimates pre and post crisis levels of three different dependent variables. Independent variable is a post-crisis indicator variable. Columns (2) includes country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010.

Online Appendix Material to

"Resolving Debt Overhang:

Political Constraints in the Aftermath of Financial Crises"

Table A1: Frequency of Crises 1975-2010 by Country. Source: Reinhart and Rogoff (2011)

Country Name	Years of Banking Crisis	Years of Currency Crisis	Years of Debt Crisis	Years of Inflation Crisis
Algeria	3	6	6	5
Angola	7	17	20	21
Argentina	10	19	21	21
Australia	4	6	0	1
Austria	3	1	0	0
Belgium	3	2	0	0
Bolivia	7	7	17	10
Brazil	6	24	13	21
Canada	3	1	0	0
Central African Republic	19	1	29	1
Chile	5	12	9	10
China	8	4	0	1
Colombia	8	19	0	18
Costa Rica	4	4	9	7
Cote d'Ivoire	4	1	27	3
Denmark	9	1	0	0
Dominican Republic	2	6	28	9
Ecuador	6	17	17	19
Egypt	9	6	1	6
El Salvador	1	1	16	5
Finland	4	1	0	0
France	5	2	0	0
Germany	6	4	0	0
Ghana	9	19	3	22
Greece	8	10	0	2
Guatemala	3	3	2	3
Honduras	3	4	30	6
Hungary	8	8	0	6
Iceland	7	15	0	14
India	6	5	2	0
Indonesia	8	6	5	3
Ireland	4	5	0	2
Italy	6	3	0	1
Japan	10	1	0	0
Kenya	9	9	10	4
Korea	11	5	0	2
Malaysia	9	1	0	0
Mauritius	0	5	0	3
Mexico	9	12	9	17
Morocco	2	1	6	0
Myanmar	8	1	10	19
Netherlands	3	1	0	0
New Zealand	4	5	0	0
Nicaragua	13	8	32	15
Nigeria	5	9	14	12
Norway	7	3	0	0
Panama	2	0	14	0
Paraguay	6	10	9	11
Peru	9	18	17	20
Philippines	12	5	12	2
Poland	5	19	14	13
Portugal	3	7	0	3
Romania	10	15	4	13
Russia	4	16	22	8
Singapore	2	1	0	0
South Africa	3	9	5	0
Spain	12	4	0	1
Sri Lanka	5	4	5	3
Sweden	4	5	0	0
Switzerland	2	2	0	0
Taiwan	4	1	0	0
Thailand	14	3	0	0
Tunisia	5	2	4	0
Turkey	7	26	4	27
UK	8	7	0	1
USA	12	3	0	0
Uruguay	5	25	7	21
Venezuela	11	13	13	20
Zambia	1	17	12	20
Zimbabwe	14	20	10	19

Table A2: Frequency of Crises 1975-2010 by Year. Source: Reinhart and Rogoff (2011)

Year	Countries in Banking Crisis	Countries in Currency Crisis	Countries in Debt Crisis	Countries in Inflation Crisis	Number of Countries
1975	1	10	4	14	70
1976	3	16	5	11	70
1977	5	14	2	14	70
1978	5	10	4	9	70
1979	4	14	7	16	70
1980	5	11	6	21	70
1981	10	17	13	17	70
1982	14	22	17	13	70
1983	16	23	24	17	70
1984	15	27	24	20	70
1985	15	22	23	17	70
1986	12	20	27	17	70
1987	15	16	26	16	70
1988	13	20	23	19	70
1989	16	27	24	19	70
1990	17	22	24	25	70
1991	20	21	21	25	70
1992	22	19	20	21	70
1993	21	21	18	20	70
1994	25	16	17	23	70
1995	27	16	15	20	70
1996	17	14	15	16	70
1997	20	21	12	10	70
1998	18	14	10	10	70
1999	18	16	9	9	70
2000	12	14	11	8	70
2001	13	9	11	9	70
2002	10	10	11	8	70
2003	4	5	11	8	70
2004	1	3	10	4	70
2005	1	13	10	2	70
2006	2	1	6	3	70
2007	5	1	7	3	70
2008	17	22	8	5	70
2009	16	2	7	1	70
2010	13	4	6	1	70

Table A3: Constraining to +/-2 years around crises.

	Banking Crisis		Currency Crisis		Dom./External Debt Crisis		Inflation Crisis	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable: Government Vote Share								
Post-Crisis	-7.3835	-5.1613	-5.9354	1.3797	-15.5019	-0.0512	-26.8005	-7.3741
	[2.0654]**	[2.2154]*	[2.2015]**	[1.7517]	[4.2957]**	[6.0147]	[4.3116]**	[3.8770]
R^2	0.05	0.73	0.03	0.79	0.11	0.92	0.27	0.98
N	232	232	292	292	103	103	119	119
Dependent Variable: Opposition Vote Share (Excluding Unaligned Parties)								
Post-Crisis	5.6020	5.8209	2.7971	-3.8728	9.9647	1.4343	19.4959	5.5676
	[2.1510]**	[2.1767]**	[2.2255]	[1.9740]	[4.0064]*	[6.3068]	[4.2262]**	[3.9883]
R^2	0.03	0.79	0.01	0.76	0.06	0.88	0.17	0.94
N	232	232	292	292	103	103	119	119
Dependent Variable: Polarization								
Post-Crisis	0.2319	0.1014	0.1416	0.0209	0.2405	0.0507	0.4120	0.2124
	[0.0953]*	[0.0959]	[0.0918]	[0.0738]	[0.1211]*	[0.1362]	[0.0966]**	[0.1289]
R^2	0.02	0.69	0.01	0.70	0.02	0.71	0.08	0.75
N	327	327	362	362	158	158	174	174

Note: This table estimates pre and post crisis levels of three different dependent variables. Independent variable is a post-crisis indicator variable. Columns (2), (4), (6), and (8) include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010.

Table A4: Constraining to +/-2 years around crises (Cont.d)

	Banking Crisis		Currency Crisis		Dom./External Debt Crisis		Inflation Crisis	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable: Party Fractionalization								
Post-Crisis	0.0851	0.0616	0.0866	0.0093	0.1943	0.1664	0.3192	0.0843
	[0.0272]**	[0.0211]**	[0.0279]**	[0.0163]	[0.0621]**	[0.0333]**	[0.0537]**	[0.0505]
R^2	0.04	0.85	0.04	0.87	0.10	0.98	0.27	0.97
N	227	227	285	285	99	99	115	115
Dependent Variable: Government Fractionalization								
Post-Crisis	0.0518	0.0197	0.0405	0.0424	0.0275	0.2060	0.1181	0.0223
	[0.0328]	[0.0364]	[0.0306]	[0.0293]	[0.0582]	[0.0843]*	[0.0402]**	[0.0664]
R^2	0.01	0.78	0.01	0.76	0.00	0.88	0.05	0.90
N	232	232	287	287	101	101	117	117
Dependent Variable: Opposition Fractionalization								
Post-Crisis	0.0057	0.0306	-0.0014	0.0057	0.0473	0.0775	0.1126	0.0415
	[0.0303]	[0.0325]	[0.0284]	[0.0260]	[0.0511]	[0.0717]	[0.0523]*	[0.0581]
R^2	0.00	0.64	0.00	0.67	0.01	0.70	0.03	0.87
N	294	294	355	355	115	115	139	139

Note: This table estimates pre and post crisis levels of three different dependent variables. Independent variable is a post-crisis indicator variable. Dependent variable is a post-crisis indicator. Columns (2), (4), (6), and (8) include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries. All crises 1975-2010.

Table A5: Liberalizations After Financial Crises. Constraining to +/-2 years around crises.

	Banking Crisis	Currency Crisis	Dom./External Debt Crisis	Inflation Crisis
	(1)	(2)	(3)	(4)
Dependent Variable: IMF Aggregate Index of Degree of Financial Liberalization				
Post-Crisis	-0.5278	0.0791	1.6650	0.4436
	[0.3410]	[0.2691]	[0.5364]**	[0.3842]
R^2	0.91	0.95	0.94	0.97
N	286	284	134	154

Notes: Independent variable is a post-crisis dummy. All columns include country and year fixed effects. Robust standard errors in brackets. ** Significant at .01 * significant at .05. Includes only country and year observations within 5 years before or after a crisis. All 70 Reinhart and Rogoff (2011) countries, all crises 1975-2010 included. The degree of liberalization indexes of directed credit/reserves, interest rate controls, entry barriers, privatizations, capital accounts, banking supervision, and security markets degree of liberalization are from Abiad et al. (2008). All liberalization scores are defined on [0,3], where higher score is more liberalized, and summed up for each country.