Sovereign Default and Crisis Resolution

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Für meine Eltern

Table of Contents

1. Introduction 1

2. Sovereign Debt Disputes 11

   2.1. Introduction 12
   2.2. Analyzing Debt Crises: Previous Approaches 14
   2.3. The Index of Government Coerciveness 15
   2.4. Coding and Resulting Datasets 22
   2.5. Results and Stylised Facts 26
   2.6. Explaining Government Coerciveness 30
   2.7. Conclusion 33

   References 35
   Appendix to Chapter 2 41

3. Delays in Sovereign Debt Restructurings:
   The Role of Politics and Institutions 47

   3.1. Introduction 48
   3.2. Theoretical Considerations 50
   3.3. The Database: Stylized Facts and Case Study Evidence 53
   3.4. Empirical Strategy 59
   3.5. Estimation Results 64
   3.6. Conclusion 70

   References 80
   Appendix 3A: The Database on Restructuring Delays 86
   Appendix 3B: Narratives on Pre-restructuring Litigation 90
   Appendix 3C: Narratives on Creditor Holdouts 93
   Appendix 3D: Narratives on Political Delay 99

4. Inexcusable Sovereign Default 110

   4.1. Introduction 111
   4.2. Measuring Debtor Coerciveness 114
   4.3. Identification and Estimation 116
   4.4. Data and Variables 121
   4.5. Results 125
   4.6. Conclusion 134

   References 144

5. Haircuts and Sovereign Borrowing 149

5.1. Introduction 150
5.3. Haircut Estimates: Results and Stylized Facts 157
5.4. Theoretical Considerations 160
5.5. Haircuts and Post-Restructuring Spreads: Data and Results 161
5.6. Haircuts and Duration of Exclusion: Data and Results 167
5.7. Conclusion 172

References 185

Appendix 5.A1: Case Selection and Sample 190
Appendix 5.A2: Data Sources and Data Quality 192
Appendix 5.A3: Computation Methodology 197
Appendix 5.A4: Complete List of Cases 220

References Cited in the Appendix 225

6. Deutsche Zusammenfassung 229

List of Figures

Chapter 2

Figure 2.1: Index Design 16
Figure 2.2: The Coerciveness-Index over Time 27

Chapter 3

Figure 3.1: Restructurings Duration by Type of Creditor (Bank vs. Bond Debt) 54
Figure 3.2: Restructuring Processes over Time 55
Figure 3.3: Summary of the Case Study Evidence 57
Figure 3.4: Restructuring Delay and the Number of Creditors Involved 72

Chapter 4

Figure 4.1: Coercive Debt Policies and Credit to the Private Sector 127

Chapter 5

Figure 5.1: Haircuts and Deal Volumes over Time 174
Figure 5.2: Restructurings with and without Debt Reduction 174
Figure 5.3: Haircut Size and Post-Restructuring Spreads 175
Figure 5.4: Haircut Size and the Duration of Exclusion 176
Figure 5.5: Kaplan-Meier Survival Functions for Duration of Reaccess 176
Figure 5.A1: Sovereign Debt Restructurings with Private Creditors, 1950-2010 191
Figure 5.A2: Case Coverage across Main Sources 192
Figure 5.A3: Yield to Maturity on US Low-Grade Corporate Bonds 203
Figure 5.A4: Imputed Sovereign Discount Rates by Issuer Credit Ratings 206
Figure 5.A5: Imputed Discount Rates for Selected Countries 210
Figure 5.A6: Discount Rates Actually Used Each Year in Computing Haircuts 211
Figure 5.A7: Benchmarking Imputed Rates against Actual Exit Yields 212
Figure 5.A8: Benchmarking Imputed Rates against Secondary Mkt Yields: 1980s 213
Figure 5.A9: Sovereign Restructurings by Country 1970 - 2010 224

List of Tables

Chapter 2

Table 2.1: Descriptive Statistics for each Sub-Indicator during Debt Crises 26
Table 2.2: Ranking Coerciveness by Country 28
Table 2.3: Particularly Coercive Cases 29
Table 2.4: Results on the Determinants of Coerciveness 32
Table 2.A1: Countries and Periods Covered (Year-by-Year Dataset) 41
Table 2.A2: Restructuring Deals Covered (Agreement-Based Dataset 42
Table 2.A3: Data and Information Sources for each Sub-Indicator 43
Table 2.A4: Correlation Matrix for the 9 Sub-Indicators 44
Table 2.A5: Recent Debt Restructuring Cases (agreement-based dataset) 45
Table 2.A6: Robustness Checks: Including Year / Region Fixed Effects 46

Chapter 3

Table 3.1: Sovereign Debt Restructuring Processes Covered in the Dataset 73
Table 3.2: Overview of the Case Study Evidence (Delay Narratives) 74
Table 3.3: Summary Statistics (Duration Analysis) 75
Table 3.4: Summary of Main Results 65
Table 3.5: Restructuring Duration - Macroeconomic Factors 76
Table 3.6: Restructuring Duration – Political Risk and Institutions 77
Table 3.7: Restructuring Duration – Creditor Characteristics 78
Table 3.8: Restructuring Duration - Robustness Checks 79

Chapter 4

Table 4.1: Emerging Market Countries Included in the Analysis 135
Table 4.2: List of Control Variables 136
Table 4.3: Main Results: Coercive Debt Policies and Foreign Credit 137
Table 4.4: Crisis-Subsample & Horserace of Default vs. Coerciveness 138
Table 4.5: Results for Individual Coercive Actions (9 Sub-Indicators) 139
Table 4.6: Instrumental Variable Estimations 140
Table 4.7: Results by Sector and Type of Debt 141
Table 4.8: Robustness Checks 142
Table 4.9: Results for Borrowing Costs (Loan by Loan) 143

Chapter 5

Table 5.1: Haircut Estimates by Type of Restructuring and Era 177
Table 5.2: Haircuts in Selected Recent Restructurings (1999-2007) 178
Table 5.3: Description of Data and Variables used in Estimations 179
Table 5.4: Main Results for Haircuts and Bond Spreads 180
Table 5.5: Robustness Checks for Haircuts and Bond Spreads 181

Table 5.6: Overview on Restructuring Cases and Reaccess Years 182
Table 5.7: Main Results for Haircuts and Years of Exclusion 183
Table 5.8: Robustness Analysis of Exclusion Duration 184
Table 5.A1: Overview of Sources as used in the Calculations 193
Table 5.A2: Data Quality Across Time 196
Table 5.A3: Regression of US Corporate Market Yields on the High-Yield Index 202
Table 5.A4: Statistics of the Sovereign minus Corporate Bond Yield Differential 205
Table 5.A5: Linear Projection of Moody's on Institutional Investor Ratings 207
Table 5.A6: Sovereign Debt Restructurings 1970-2010 221

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Berlin, June 2011 *Christoph Trebesch*

Chapter 1

"When national debts have once been accumulated to a certain degree, there is scarce, I believe, a single instance of their having being fairly and completely paid."

Adam Smith in "The Wealth of Nations", 1776[1]

Introduction

The history of sovereign borrowing is a history of crises and default. From Argentina to the Philippines to France or Germany, countries have been reneging on their debt to banks and bondholders with surprising regularity in the last centuries (Reinhart and Rogoff 2009). But although debt crises have been with us for such a long time, their resolution remains a difficult challenge. The international legal system lacks a statutory insolvency framework that regulates the relationship between a distressed government and its foreign creditors. Unlike in the case of corporate defaults, creditors have only limited abilities to enforce their claims; and there is not even a standardized arbitration code for sovereign debt workouts. As a consequence, debt crises continue to be solved on a case by case basis, often resulting in disorderly debt renegotiations that can be very costly to creditors and debtors alike.

One side effect of the ad hoc nature of dealing with debt distress is that there is only limited systematic knowledge on sovereign debt restructurings and related negotiations. No institution has been responsible for collecting coherent data and related research is scarce, as shown by Panizza, Sturzenegger and Zettelmeyer (2009). There is barely any quantitative evidence on *how* governments negotiate with their creditors during crises and on *how* they restructure their debt. The aim of this dissertation is to fill this gap.

[1] Smith (1966, p. 481)

The thesis analyzes debt crisis resolution processes, as well as their implications for debtor countries and their creditors. My co-authors and I assembled a new, comprehensive dataset on more than 180 sovereign debt restructurings since the 1970s (the "Sovereign Default Archive"). This new data is then used to reassess established theoretical predictions and stylized facts on debt crises and the cost of default. Throughout the analysis, two hypotheses dominate. The first hypothesis relates to the role of politics and institutions. I will argue that weak institutions, government instability and political economy constraints can explain much of the variation in debt restructuring processes. The second key hypothesis is linked to the classic reputational theories of sovereign borrowing. Simply put, I argue that "bad" behavior as a sovereign debtor is costly - for the government itself as for other agents in the economy.

The main results can be summarized as follows: Debt crises differ substantially in their duration, in government negotiation patterns vis-à-vis banks and bondholders, and in the scope of creditor losses implied in the restructuring (size of "haircuts"). The first part of the thesis presents and analyses the large variation in crisis characteristics, and finds that politics and institutions play a dominant role in how debt crises are resolved. The second part then shows that crisis resolution patterns have important consequences for the government and the domestic economy alike. When sovereigns impose high haircuts and adopt unilateral debt policies, this is followed by a drop in capital flows to the country. Governments and private firms find it harder to borrow from abroad, with significantly higher spreads and lower volumes of loans and bonds issued. These findings lend support to reputational mechanisms in sovereign debt markets and beyond, and are much more in line with key theoretical propositions as compared to those found in previous empirical research. Simply put, there seems to be a value to pleasing your banker.

Contributions and Main Findings

The dissertation contributes to the literature in two main ways. The first contribution is to develop a new typology of sovereign debt crises, thus addressing unsolved measurement problems in the literature. While theory papers and qualitative contributions recognize the large differences in crisis resolution, the econometric research has lagged behind. Early theoretical proposals include Bulow and Rogoff (1989) who differentiate between negotiated defaults and outright debt repudiation, Eichengreen (1991) who refers to "light" versus "heavy" defaulters, and Grossman and van Huyck (1988) who distinguish between "excusable" and "inexcusable" defaults. More recently, Obstfeld and Taylor (2003) suggest a categorization between "partial" and "full" defaulters, while Bi (2008), Benjamin and Wright (2009) or Yue

(2010) propose models that endogenize the variation in debt renegotiations and their outcome.

Despite these advances, much of the related empirical literature continues to code debt crises as binary events: Countries are either in default or they are not. This means that a case like Uruguay 2003, whose government arranged a negotiated and preemptive debt restructuring in only three months, is coded equally as the crisis in Argentina 2001-2005, which enacted a full moratorium on all of its debt, refused to negotiate with bondholder representatives and eventually imposed a debt exchange with a large cut in face value. A binary categorization of crises hides these large differences and can thereby introduce severe measurement error, resulting in biased estimates.

To address this problem and to gain a more systematic understanding, the dissertation proposes a classification of debt crises along three dimensions: (i) by the duration of default and debt renegotiations (ii) by type of crisis resolution policies adopted by debtor governments and (iii) by the outcome of restructurings in terms of creditor losses ("haircuts"). The newly coded data show a stunning variation in all three of these measures: Restructuring processes can take one month or up to 15 years; debtor policies in distress range from creditor friendly to outright confrontational; and creditor losses in restructurings range from 5% to 97%. In a first attempt to examine this large heterogeneity across restructurings, chapters 2 and 3 apply standard econometric models, building on theoretical work on default and debt renegotiations. The results suggest that political instability and weak institutions can best explain whether debt crises are resolved quickly and whether governments embark into confrontational policies or not. These findings are in line with a small but growing literature on the role of political factors for sovereign risk and default (Amador 2010, D'Erasmo 2010, Hatchondo, Martinez and Sapriza 2009, Moser 2006, Kohlscheen 2007 or van Rijckeghem and Weder 2009) and motivate further research on the political economy of resolving crises.

The second key contribution of this thesis is to test for reputational theories of sovereign borrowing in a new way. Reputation is perhaps the oldest explanation why countries ever repay their debt to creditors that have limited enforcement ability. The seminal model by Eaton and Gersovitz (1981) shows that sovereign defaults can lead to permanent exclusion from capital markets. Governments have strong incentives to maintain a good reputation as a debtor, if they want to gain access to borrowing and smooth consumption in the future. While this rationale was famously criticized by Bulow and Rogoff (1989) and follow-up papers, there has been a notable revival of reputational models since the late 1990s. Cole and Kehoe (1997, 1998), for example, develop a model of "general reputations", which shows that defaults can trigger reputational spillovers to other fields. Government misbehavior in sovereign debt

markets will affect trust relationships throughout the economy and therefore curb foreign investments or non-economic relationships, e.g. in the diplomatic arena. Similar arguments are also used in the newest generation of sovereign debt models, which has partly gone back to the classic Eaton and Gersovitz framework (Amador 2010, Arellano 2008, D'Erasmo 2010, Sandleris 2008, Wright 2002 or Yue 2010).

Building on this literature, chapters 4 and 5 provide new evidence in favor of reputational effects of two types: (i) in the form of "top down" risk spillovers from the sovereign to private agents and (ii) with regard to exclusion from capital markets of the sovereign itself. While chapter 4 focuses on reputational spillovers *during* debt crises (in the spirit of Cole and Kehoe), chapter 5 examines the government's own borrowing conditions *after* restructurings (in the spirit of Eaton and Gersovitz). Overall, our results suggest that debtor behavior matters importantly, for the domestic economy and the country's external borrowing conditions, and not only in the short-term. Most interestingly, our results differ from previous empirical literature that disregards the large heterogeneity in crisis processes and finds little or no evidence for reputation or punishment effects (see the survey by Panizza et al. 2009). Given the prominence of reputational arguments in the theoretical literature until this day, our findings can therefore be seen as bridging theory and empirics to a certain extent.

By providing a better understanding of past debt crises, this thesis aims to contribute to future empirical and theoretical research in the field. The findings and data may also be of use for policymakers and practitioners facing debt distress situations. They are particularly relevant for the newly revived debate on a sovereign debt restructuring procedure, be it in statutory form or via arbitration mechanisms.

Summary of Each Chapter

The dissertation consists of four self-contained chapters, which are structured along the two central themes of this dissertation. Chapters 2 and 3 examine debt crisis resolution processes and their determinants, with a special focus on politics and institutions. Chapters 4 and 5 are concerned with the cost of default and reputational effects.

Review of Chapter 2: *Sovereign Debt Disputes*

with Henrik Enderlein and Laura von Daniels, Hertie School

"These negotiations with the banks are realistically a kind of war, of financial war, economic war."[2] This quote by Venezuelan President Perez of 1989 contains an essence of truth. Since centuries, sovereign debt workouts have been a conflictive process, involving tedious negotiations, harsh rhetoric and, more often than not, disgruntled creditors. This chapter presents a new approach to measure "debt disputes" between distressed debtor governments and private international banks and bondholders. Its central aim is to catalog the large differences in government negotiation and payment patterns during default and debt renegotiations.

Our idea, of measuring debtor policies in distress, is certainly not new. Already the Corporation of Foreign Bondholders, founded in 1868, proposed a set of criteria for "faithful" debtor behavior in distress. More recently, policy reports and scholars such as Andritzky (2010), Cline (2004) or Frankel and Roubini (2001) propose to categorize government debt policies on a spectrum from "soft" to "hard" or from "cooperative" to "coercive". But despite the apparent consensus, no research has developed a systematic coding approach, nor is there a comparable dataset for a large number of countries and crisis cases.

To improve the procedural knowledge on crisis resolution, this chapter proposes an "index of government coerciveness", consisting of 9 objective sub-indicators. Each of these sub-indicators captures unilateral government actions that governments impose on their foreign private creditors during default and debt renegotiation episodes. The choice of indicators is motivated by theory, as well as key policy guidelines such as the IMF's "good faith" criteria for debt crisis resolution and the "Principles of Fair Debt Restructuring" by the Institute of International Finance. We start in 1980 and code debtor behavior during all main emerging market debt crises from a large array of sources. Specifically, we evaluate more than 20.000 pages of articles from the financial press, all main reference books and data sources on debt crises, and numerous case studies.

The resulting datasets reveal very large differences in how governments negotiate with their creditors. A first analysis on the determinants of coercive debtor behavior shows political institutions to play a significant role. Countries with presidential regimes and democratic institutions adopt significantly more coercive policies during debt crises, which is in line with previous findings on institutions and default by Kohlscheen

[2] Cited by Reuters, 22 September 1989.

(2007) and Tomz (2003). In contrast, we find that most of the "rules of thumb" explaining sovereign risk and default (Manasse and Roubini 2009), such as high levels of inflation, the size of short-term debt, or GDP deviation from trend are not correlated with debtor coerciveness.

Review of Chapter 3: *Delays in Sovereign Debt Restructurings*

Why are some debt renegotiations settled in a few months, while others take many years? This chapter analyses delays in sovereign debt restructurings by estimating semi-parametric survival models and providing complementary case study evidence. The analysis is rooted in a growing body of theoretical literature on debt restructurings and negotiation delays. In this literature, researchers agree that debt renegotiations are plagued with inefficiencies, but there is disagreement on the reasons for delays. Most papers point to creditor coordination problems as driving inefficiencies and protracted restructurings. Others, instead, suggest that debtor attributes or political instability play the dominant role (see the discussion by Rogoff and Zettelmeyer 2002).

This chapter tests the divergent explanations for negotiation delays with new data. Specifically, I estimate Cox proportional hazard models using restructuring duration as dependent variable. The results are surprising. Debtor attributes, including measures of political risk, weak institutions and economic and financial characteristics, turn out as the main predictors of restructuring delay. In contrast, I find no significant correlation between restructuring duration and the number of banks or with the occurrence of holdouts and litigation.

The case studies and descriptive statistics provide further unexpected insights. First, I find that restructuring duration has become shorter over time, not longer. Defaults were particularly protracted during the 1990s, while recent debt exchanges could be arranged relatively quickly. I also find that bond debt, which his typically held by thousands of heterogeneous creditors, can be restructured easier than bank debt, which is usually held by a smaller group of well-known banks. Bond exchanges took 13 months on average, while bank debt restructurings were much "messier" with an average duration of 30 months. This is surprising, as theoretical paper predicted negotiation delays to increase with the shift from bank to bond financing and the corresponding increase in the number of creditors. Additionally, the data show only few instances of creditor holdouts and pre-restructuring litigation, despite the fact that these creditor actions have received much attention in the literature. Like in the econometric analysis, the case narratives point to political factors as a much more important cause of negotiation delays.

Review of Chapter 4: *Inexcusable Sovereign Default*

This chapter assesses the real effect of debt crisis resolution policies. Its key idea is to exploit the variation of debtor coerciveness for identification purposes and as a proxy for reputational effects and "inexcusable" default behavior. Departing from the theoretical predictions of Cole and Kehoe (1997, 1998), Grossman and van Huyck (1988) and Sandleris (2008), the chapter's main hypothesis is that confrontational debtor policies will have negative repercussions for the private sector in the debtor country. To test for this, I focus on the credit channel and the private sector's borrowing conditions in international capital markets, which have become crucial for large and medium sized firms in emerging markets. Specifically, I use micro data and construct dependent variables on the volume and spread of corporate syndicated loans and foreign corporate bond issuances.

The main result is straightforward: When governments are confrontational during debt negotiations, the private sector finds it harder to borrow from abroad. Years with particularly coercive policies see a drop of more than 40% in the volume of corporate external credit, over and above the default effects per se. I also find a notable increase in launch spreads, i.e. borrowing cost in primary markets. In order to assess the validity of these results, I differentiate by sector and type of debt, apply an instrumental variable strategy and implement a series of robustness checks. I find the effects to be particularly pronounced for firms in the non-financial sector and with regard to trade credits, as well as for loans issued for the import of intermediate inputs. These latter findings indicate reputational spillovers as suggested by Cole and Kehoe (1998), but are also in line with the model by Mendoza and Yue (2008), which links business cycle theories with theories of sovereign default. I conclude that debt crisis resolution strategies indeed have real effects. "Good faith" crisis resolution may help to significantly reduce the collateral damage of default.

Review of Chapter 5: *Haircuts and Sovereign Borrowing*

with Juan Cruces, Universidad Torcuato di Tella

Despite 30 years of research, the empirical evidence in favor of Eaton and Gersovitz's (1981) seminal reputation model remains weak. Lindert and Morton (1989, p. 12), for example, conclude that "investors seem to pay little attention to the past repayment record of borrowing governments. […] They do not punish governments with a prior default history, undercutting the belief in a penalty that compels faithful repayment." Since their influential study, the literature has essentially come to the same conclusion over and over again: sovereign default penalties are small or short lived, a finding that stands in sharp contrast to the theoretical prediction of exclusion from credit markets.

This chapter reassesses the effect of default on subsequent borrowing conditions of sovereigns. Our main contribution is that, instead of using a binary default variable, we use restructuring outcomes (haircuts) as a more refined proxy for country credit history. In principle, the paper can be seen as a test of the classic credit exclusion argument. More specifically, we derive our empirical setup from two recent dynamic general equilibrium models by Asonuma (2010) and Yue (2010), which predict that higher haircuts in debt restructurings imply (i) an increase in post-restructuring spreads (borrowing costs) and (ii) longer duration of exclusion from capital markets, respectively.

To test these two propositions, we construct the first complete set of haircut estimates, covering all sovereign debt restructurings with private foreign creditors between 1970 and 2010. Our haircut dataset builds on newly compiled data on restructuring terms and applies a new discounting approach, which takes into account both the global price of credit risk and country conditions at each point in time. As dependent variables, we use emerging market bond spreads (cost of credit) and various measures of exclusion from credit markets (volumes).

The estimations provide strong evidence in favor of both Asonuma's (2010) and Yue's (2010) model. The higher the haircut implied in a restructuring, the higher post-crisis borrowing costs and the longer the period of credit market exclusion. Most importantly, we find larger and longer lived effects than previous research that used "past default" as key explanatory variable. Overall, the findings are therefore more consistent with theoretical predictions and cast doubt on the widely held view that sovereign credit markets "have short memories" (The Economist, March 31st 2010).

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Chapter 2

Sovereign Debt Disputes

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Abstract[§]

This paper measures "debt disputes" between governments and foreign private creditors in periods of sovereign debt crises. We construct an index of government coerciveness, consisting of 9 objective sub-indicators. Each of these sub-indicators captures unilateral government actions imposed on foreign banks and bondholders. The results provide the first systematic account of debt crises that goes beyond a binary categorization of default versus non-default. Overall, government behavior and rhetoric show a strong variability, ranging from highly confrontational to very smooth crisis resolution processes. In a first analysis on the determinants of coercive behavior, we find political institutions to play a significant role, while economic and financial factors do much less so. These results open up an agenda for future research.

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2.1. Introduction

Sovereign debt crises are usually regarded as binary events: A government is either in default or it is not. This paper develops a more sophisticated approach to analyze debt crises and debt renegotiations. We argue that the binary categorization for default versus non-default is overly simplistic, as it ignores the large variation in crisis resolution policies and related negotiation patterns. Our aim is to measure the wide range of debtor policies once a country has entered a default or debt restructuring process.

A comparison of the recent crises cases in Uruguay 2003 and Argentina 2001-2005 illustrates our main point. Argentina's government halted all of its debt payments for several years, refused to negotiate with creditors and enforced a unilateral debt exchange in 2005. In contrast, Uruguay avoided any missed payments, engaged in close creditor talks and arranged a voluntary debt exchange within just three months. We argue that these cases are not the same and, in principle, should not be treated as the same in empirical research.

To overcome the missing procedural knowledge on debt crises, we develop an index of government coerciveness, capturing confrontational debtor policies vis-à-vis private external creditors in times of debt distress. To construct this index we draw partly on criteria suggested by the IMF (1999, 2002) and the Institute of International Finance (IIF 2006). Specifically, we draw on the IMF's "Policy of Lending into Arrears", which made any emergency financing conditional on "good faith" efforts in resolving a debt crisis. Good faith debtor behavior, according to the IMF, includes a transparent debt workout process, early and continuous dialogues with creditors, and data sharing. A similar code of conduct was set up in the IIF's "Principles of fair debt restructuring", signed by over 30 countries and supported by the G7, the G20, the World Bank and the IMF. The IIF defines restructuring processes as fair, if debtor governments closely cooperate with creditors, if they adhere to information sharing, avoid unjustified capital controls, and if they resume partial or full debt service payments as soon as conditions allow.

Building on theses and further contributions we develop an index with 9 objective sub-indicators. Each sub-indicator captures unilateral government actions that governments impose on foreign banks and bondholders. They can be categorized into measures of "payment behavior" (4 sub-indicators) and measures of "negotiation behavior" (5 sub-indicators). The final index is additive, with a minimum value of 1 (low coerciveness) and a maximum value of 10 (very high coerciveness) and is measured for each debt crisis year.

With the index of coerciveness we provide the first quantitative account on debt crises beyond a simple default dummy. More generally, we are the first to code debt renegotiation processes and related disputes between governments and private international creditors for a large sample of financial crises. The index also improves on earlier attempts to categorize debt crises or debtor coerciveness, by Cline (2004) or Roubini (2004) among others. A main advantage is that our coding approach is reproducible and comprehensive in scope. We conducted a systematic evaluation of more than 20,000 pages of articles from the financial press, of all main reference books and data sources on debt crises, and of numerous policy reports. Furthermore, the measurement approach can be applied to different eras of debt restructurings. The criteria chosen are general enough to compare debtor coerciveness across debt crises and restructurings of the last three decades, despite the shift from bank to bond financing and a changing role of actors such as the IMF. The resulting yearly database starts in 1980 and covers 251 crisis-year episodes in 31 developing countries that defaulted on sovereign debt.

In this paper we provide a detailed account of our measurement approach. Overall, the results show an impressive variance in government negotiation behavior and rhetoric towards private creditors, ranging from very confrontational behavior to very smooth crisis resolution processes. We portray main stylized facts and discuss what can be learnt from the categorization of government behavior. We also conduct a first explorative analysis on the determinants of debtor coerciveness. The regression results indicate that political and institutional factors are important for the degree of debt disputes, while many economic or financial factors are not. More specifically, we find most of the "rules of thumb" driving sovereign risk (Manasse and Roubini 2009) to be insignificant predictors of coerciveness. This opens up an agenda for future research.

The structure of the paper is as follows: Section 2.2 discusses the related literature and previous attempts to categorize debt crises. Section 2.3 presents the "Index of Government Coerciveness" and each of its 9 sub-indicators from a conceptual point of view. Section 2.4 outlines the coding procedure and the datasets that resulted from it. Section 2.5 briefly presents some descriptive statistics and the main stylized facts revealed by the data. Section 2.6 provides first evidence on the determinants of coercive behavior. Finally, section 2.7 concludes and gives an overview on research questions that could be tackled with the new datasets.

2.2. Analyzing Debt Crises: Previous Approaches

A large body of quantitative research analyses the causes and consequences of sovereign debt crises (see the recent review by Panizza et al. 2009). Most of this literature categorizes debt crises as binary events, often using a default or restructuring dummy based on data of Standard and Poor's (S&P) or from the World Bank.

S&P codes a government in default in case of (i) missed payments (default) on interest or principal of bonds or bank loans, (ii) and/or in case of a distressed debt exchange with terms less favourable than those in the original contracts (Standard & Poor's, 2007).[1] The second main list, compiled by the World Bank's Global Development Finance (GDF) team, provides dates and terms of sovereign debt restructurings since the early 1980s.[2] Some researchers have also combined these two key sources with additional data and definitions. Detragiache and Spilimbergo (2001), for example, look at the level of arrears to define default, while Reinhart, Rogoff, Savastano (2003) supplemented S&P data with information of Beim and Calomiris' (2001, pp. 32-36) qualitative list of debt crises events.[3]

Beyond these quantitative papers, there is an extensive body of more qualitative work on sovereign debt crises of the last decades.[4] Some related contributions also contain important proposals to categorize different types of debt crises and crisis resolution policies. Cline (2004), for example, suggests categorizing crises depending on the degree of private sector involvement (PSI), referring to the degree of burden sharing by private investors. He defines three categories of PSI, spontaneous, quasi-voluntary and involuntary PSI and links these categories to past crisis events and restructuring instruments. Frankel and Roubini (2001), Roubini (2004) and Roubini and Setser (2004) share Cline's approach to categorize crises and PSI on a spectrum of voluntary and more involuntary types. Roubini (2004) states that defaults such as in Argentina, Russia or Ecuador should be regarded as very coercive, while cases with large bail-outs or semi-voluntary debt rollovers were "softer". In a similar vein, Andritzky (2006, p. 69) proposes a categorization of bond restructurings into (i) debt swaps (ii)

[1] The annual list of S&P has been used by many researchers, including Borensztein and Panizza (2009), Gelos, Sahay and Sandleris (2004), Manasse and Roubini and Schimmelpfennig (2003), Kohlscheen (2007), Reinhart, Rogoff and Savastano (2003) and Van Rijckeghem and Weder, (2009).

[2] Authors relying on this list in recent work include Arteta and Hale (2008), Marchesi (2003) or Saiegh (2005).

[3] Another approach, by Pescatori and Sy (2007) uses bond spreads to define debt crises. A sovereign is defined as distressed, whenever the sovereign bond spread surpasses a critical threshold, such as 1000 basis points above U.S. Treasuries.

[4] Main contributions on the 1980s debt crisis are Cline (1995), Aggarwal (1996) and Rieffel (2003). Regarding the more recent cases, Roubini and Setser (2004), Andritzky (2006) and Sturzenegger and Zettelmeyer (2006) provide the most comprehensive accounts, including case studies. Historical analyzes on the past centuries of sovereign lending and default include Suter and Stamm (1992), Eichengreen and Lindert (1992), Stasavage (2003) or Tomz (2007).

soft restructurings and (iii) hard restructurings. All of these are important steps towards classifying crises and related government policies vis-à-vis private creditors. However, many of the proposed categories are not fully suitable for a consistent and replicable coding. The criteria and categorizations often lack precision and rest on researchers' own judgement of past debt crises. Many classification criteria are also tied to the instruments and restructuring mechanics prevailing at the time, making them difficult to generalize.

Taken together, the empirical literature on debt restructuring and crisis resolution is still developing. Most quantitative studies on debt crises limit the scope of government behavior to the question of whether there are missed payments or not. In contrast, very little is known on *how* countries resolve distress episodes and on *how* they restructure their debt with private creditors (see also Panizza et al. 2009). The qualitative work provides interesting insights in crisis mechanics, but the proposed categorisation of debtor policies is not systematic enough and has not been applied to a large number of cases. The aim here is therefore to develop a set of indicators of government behavior that are as objective and generalizable as possible and to code them for a large sample of cases. The result is the first systematic account of debt crisis resolution since the early 1980s.

2.3. The Index of Government Coerciveness

This section discusses the construction of the index of government coerciveness from a conceptual point of view. The index consists of 9 sub-indicators. These are grouped in two broad categories: (i) Four "Indicators of Payment Behavior" which capture government actions that have a direct impact on financial flows towards international banks or bondholders, and (ii) Five "Indicators of Negotiation Behavior" which capture government negotiation patterns and rhetoric.

Each sub-indicator is a dummy, which is coded 1 if the respective action by the government is observed and zero otherwise. In line with the related criteria by the IMF and the IIF, each indicator is measured for debt crisis years only (as defined below), so that we disregard episodes with no default or debt renegotiations. The 9 sub-indicators of coerciveness are the following:

Payment Behavior during Crises:

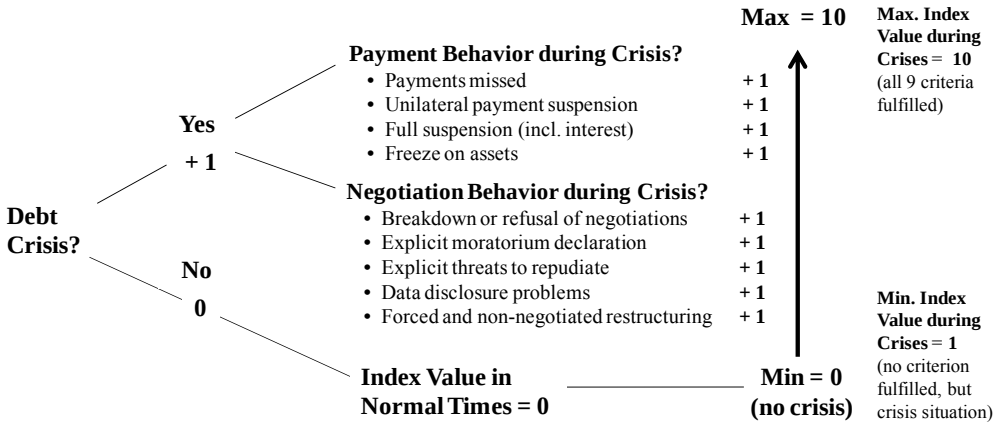
1) Payments missed (yes/no)
2) Unilateral payment suspension (yes/no)
3) Full payment suspension (incl. interest) (yes/no)
4) Freeze on assets of non-residents (yes/no)

Negotiation Behavior during Crises:

5) Explicit moratorium or default declaration (yes/no)
6) Explicit threats to repudiate on debt (yes/no)
7) Breakdown or refusal of negotiations (yes/no)
8) Data disclosure problems (yes/no)
9) Forced and non-negotiated restructuring (yes/no)

The final index is additive, meaning that all 9 dummy indicators are summed up. This results is an aggregate index ranging from 1 (very low coerciveness) to 10 (very high coerciveness) for each debt crisis year. As we are only concerned with government behavior during crises, we always code the index as 0 in "normal times". Figure 2.1 illustrates our index design graphically:

Figure 2.1: Index Design



Note: The figure illustrates the design of the Index of Government Coerciveness, which ranges from a min. of 1 to a max. of 10 during default and debt negotiation periods, and is 0 otherwise.

To define what constitutes a "debt crisis" for our index and coding, we rely on the most widely used annual default list by Standard & Poor's (2007). We also extend their data in a few cases, because S&P does not account for debt renegotiation periods *without* missed payments (see the discussion in Arteta and Hale 2008). Formally, we thus define a year as a crisis episode (i) in case of a technical default as of S&P and/or (ii) when governments openly adopt debt restructuring efforts. For illustration, take the example of Uruguay in the late 1980s. S&P codes a default in 1985, 1987 and 1990 only, because the government was not technically in default in the years in between (1986, 1988, 1989). However, we know that, despite no missed payments, the country was in severe debt distress throughout the whole period and engaged in ongoing restructuring talks with creditors. We therefore also code debtor behavior in these intermediate years, with no missed payments but ongoing negotiations.

In the following paragraphs, we present each sub-indicator in detail. The data sources and coding procedure are discussed in section 2.4. It should be underlined that we are concerned with government behavior towards private international creditors only. Coercive actions that solely affect official creditors, IFIs or domestic banks or investments funds are not taken into account.

2.3.1. Indicators of Payment Behavior

Payments missed

The first sub-indicator of payment behavior captures missed payments and, hence, the breach of debt contracts with private creditors. It is coded 1 whenever a government misses an interest or principal payment on its bonds or commercial loans. This includes cases in which governments arrange a temporary suspension or roll-over of debt payments, but it does not include missed payments that occur within the grace period foreseen in the respective debt contracts. Accordingly, it takes the value of 0 whenever the sovereign manages to restructure its debt before running into arrears. The indicator is a natural starting point to code default patterns, as it differentiates between pre-emptive restructurings, which tend to be well-received by creditors, and post-default restructuring cases, which are usually accompanied by strong creditor reaction and can involve substantial amounts of arrears (see also Bedford et al. 2005, ECB 2005, Finger and Mecagni 2007). Empirically, there are quite a few cases of pre-emptive restructurings, for example Chile in 1984, Algeria in 1992, Uruguay in 1988 and 2003 or Ukraine in 2000.

Unilateral payment suspension

The sub-indicator "unilateral payment suspension" is included to differentiate between outright defaults and "negotiated defaults" (Bulow and Rogoff 1989). Even in severe crises, officials can negotiate ex-ante by seeking preventive interim agreements, such as temporary debt roll-overs or other forms of bridge financing. Despite this, many payment suspensions occur fully unilaterally and without prior notice. Such non-negotiated defaults reveal coercive behavior and unwillingness to resolve the distress situation pre-emptively and in coordination with creditors. The sub-indicator "unilateral payment suspension" is coded 1, whenever the government misses payments without prior agreement and/or if creditors are not notified of payment delays ahead of time. Although many payment suspensions are unilateral, there are a large number of exceptions: Roughly one third of debt suspensions were actually agreed on.

Full payment suspension (including interest)

The full suspension of interest payments has to be regarded as a separate indicator of payment behavior. A government that fully suspends all payments, including interests, sends a strong signal of its unwillingness to pay (see the argument by Cole, Dow and English, 1995). Note that partial or symbolic debt servicing was a key demand of creditors in crises of the 1980s, and even further back in history (Conklin 1998, IIF 2006, Sachs and Huizinga 1987, Sturzenegger and Zettelmeyer 2006).[5] Also the IIF Principles, require that "debtors should resume, to the extent feasible, partial debt service as a sign of good faith" (IIF 2006, p. 17). Despite these calls, some debtor governments openly reject to make any payments, including symbolic token amounts, thus signalling a particularly coercive stance towards creditors. The resulting sub-indicator is coded 1 in case the government suspends all payments (including interest/coupons) on sovereign bonds or public syndicated bank loans for more than 90 days in a given year.[6] Exemplary cases include Argentina from 2002 to 2005, Brazil in 1987, Bolivia in 1984 or Jordan in 1990.

Freeze on assets of non-residents

Debt crises and payment standstills may or may not be accompanied by additional capital or foreign exchange controls. Often, crisis related capital controls lead to an effective freeze of creditor assets in the country and should thus be regarded as a coercive government policy (see Cline 2004 or the related criteria in IIF 2006, p. 17). The sub-indicator is coded 1 for any kind of *additional* capital or exchange controls that are enacted during crisis years and that directly affect debt flows to foreign private creditors. Examples include capital controls that prohibit private domestic firms in the debtor country to make debt repayments to foreign creditors (implemented e.g. by Argentina in 1982 or 2002, by Russia in 1998 or by Brazil in 1989). In other cases, governments enacted harsh exchange controls that led to a notable reduction of private sector debt repayments to foreign banks or bondholders (e.g. in the Philippines and Venezuela in 1983, or Ukraine and Pakistan in 1998).

[5] Partial interest payments were of concern to commercial banks during the 1980s, who aimed to avoid that their loans would be classified as "value-impaired,". Full moratoria obliged them to write off their positions and, thus, to take a loss on their books (Sachs and Huizinga, 1987).

[6] Note that the criterion is not fulfilled if debtors impose a mere ceiling of interest payments such as in Peru from 1986 to 1989 and Nigeria in 1986, or if payments are suspended on a fraction of debt only, such as in Russia in 1998. The Russian government drew a sharp distinction between the foreign debts it had inherited from the Soviet Union and those borrowings it had assumed since becoming an independent sovereign country. While the government continued to service its post-1992 Eurobonds throughout the crisis, it fully suspended payments on its restructured Soviet-era debt.

2.3.2. Indicators of Negotiation Behavior

Breakdown or refusal of negotiations

A natural starting point for coding a government's negotiation behavior is to focus on delayed and failed restructuring talks. Close dialogue with creditors and continuous negotiations are generally seen as crucial elements of "fair" debt restructurings (IIF 2006, IMF 1999, 2002). In line with theoretical work on debt renegotiations and wars of attrition (e.g. Benjamin and Wright 2009), we measure government induced negotiation delays directly. The indicator is coded 1 in cases where (i) defaulting governments refuse to enter into negotiations with creditors, *or* (ii) government actions cause a breakdown in debt negotiations for more than three months in a given year. Lengthy negotiations delays are common and have occurred in the context of elections (e.g. Philippines 1992, Dominican Rep. 1994 and 2004), when governments refuse to adopt an IMF adjustment program (Nigeria 1984, Venezuela 1983) or when governments rejected to assume a formal guarantee on its sovereign debt stocks (Morocco 1983-85, Russia 1993-95, Bulgaria 1990-92). In all such circumstances, the delay in the negotiation process is a clear sign of unilateral government behavior vis-à-vis creditors. Note that delays caused by holdout creditors or inter-creditor disputes are not taken into account, but were coded separately (see Trebesch 2008).

Explicit moratorium or default declaration

Most sovereign defaults and de facto moratoria occur "silently", without public announcement or strong rhetoric. However, there have been a number of instances in which moratoria where proclaimed publicly, shrugging off international creditor demands, underlining a government's national sovereignty or highlighting domestic expenditure priorities. Official default declarations usually take place in an already conflictive situation and can be seen as analogous to a declaration of war. Drawing on an extensive literature on international conflicts (e.g. Jones et al. 1996, Guisinger and Smith 2002), such official declarations are thus coded as coercive government behavior. The sub-indicator takes the value of 1 whenever a key government actor publicly proclaims the decision to default. The most famous example of a recent "war" declaration towards foreign creditors was the moratorium announcement of Argentine interim President Adolfo Rodriguez Saá on 24 December 2001, which was "celebrated in Congress as a victory" (Sturzenegger and Zettelmeyer, 2006, p. 182). Unilateral declarations of this type have also been made in a number of earlier cases, for example in Ecuador in 1987 and 1999, Bolivia in 1984, Peru in 1985 or Russia in 1998. An interesting case is Brazil, which first declared an official moratorium in 1987 (coded as 1), which resulted in a drastic drop of international capital flows to the country. After the government returned to the negotiation table and resumed payments in 1988,

it again fully suspended payments in 1989. This time, however, the government was keen to avoid some of the drastic consequences of its first moratorium and repeatedly assured that it had not officially declared a moratorium and that all debt would eventually be paid back. The press at the time termed Brazil's silent payment suspension as a "white moratorium" (coded as 0 here).

Explicit threats to repudiate on debt

A further indicator of negotiation behavior captures open threats, which can be an important strategic element in debt renegotiations (Bulow and Rogoff 1989). The indicator included here is coded 1 whenever a key government actor[7] publicly threatens to repudiate on debt, e.g. via an indefinite moratorium. In the spirit of related theoretical models, such public statements can be seen as a threat of shifting into "autarky", with a full cancellation of outstanding debt (e.g. Kletzer and Wright 2000, Yue 2010). Threats to repudiate can be regarded as a clear signal of non-cooperative debt policies. They are often issued by populist governments, and tend to be widely reported in the press and public debate. One interesting example is Chile in 1986, where Pinochet responded to US human rights pressure with a threat to permanently repudiate on US bank loans. Other examples of threats to repudiate on debt include Jordan in the wake of the first Iraq war or Bolivia in 1983/84.

Data disclosure problems

Eaton (2004), Gai et al. (2006) and Ghosal and Miller (2003) underline the crucial role of information asymmetries in debt crisis resolution. Private creditors need accurate macroeconomic and financial data to evaluate restructuring offers and a government's capacity to pay. Accordingly, information sharing is regarded as an important element of faithful crisis resolution (IMF 1999, 2002, IIF 2006). Despite this, there have been frequent disputes on data disclosure in past crises, often about reserve and debt related data. The sub-indicator "data disclosure problems" is coded 1 (i) whenever governments explicitly refuse to provide information on crucial negotiation related issues, or (ii) if there is an open dispute with creditors due to grossly inaccurate data. Data disclosure disputes occurred during the 1980s e.g. in Brazil in 1987, Nigeria 1983, or the Philippines in 1983, as governments rejected to disclose the true amount of exchange reserves or debt arrears. There are also cases like Peru in 1996, where President Fujimori refused to reveal the government's unofficial debt buy back operations, calling it a matter of "state security". More recently, the government of Russia clashed with bondholders in 1999 for rejecting to share key details of the restructuring offer, even after it was launched.

[7] Namely the President, the Prime Minister, the chief debt negotiator or Ministers of Finance, Economy or Planning.

Forced and non-negotiated restructuring

The last sub-indicator differentiates between unilateral debt restructurings and restructuring agreements that are the result of bargaining and negotiation. In the run-up to a debt exchange deal, governments can involve creditors ex ante by engaging in consultations and trying to gain their acceptance before launching an offer.[8] The last decades, however, have shown that restructurings can also be enforced unilaterally or launched without any prior consultations on terms and conditions. Such debt exchanges without preceding negotiations are an obviously coercive government strategy. The indicator included here captures instances (i) where the government enforced a restructuring or (ii) where the government issued a non-negotiated offer on a final agreement. Examples of forced restructurings include Peru 1986 and Nigeria 1990/91, where governments unilaterally decided to lower the interest rate on debt, or a case such as Argentina in 1982, where the government unilaterally restructured debt owed by the private sector without any prior consultations. Similarly, one can regard the debt exchange of Argentina in 2005 as unilateral, as the government refused to consult creditors on the terms of the exchange and ultimately launched a take-it-or-leave-it offer.

2.3.3. Accounting for the Change from Bank to Bond Restructurings

There are many differences between debt crises in the 1980s and more recent ones. Sovereign lending during the 1970s and 1980s was dominated by syndicated bank loans, while the 1990s saw a rise of bond financing, leading to substantial changes in crisis resolution and restructuring techniques. Despite these differences, we share the view of William Cline and others that a general categorization of debt crises over time is both possible and desirable.

The above criteria were explicitly designed so as to accommodate the well-known changes in debt restructuring characteristics. The exact type of data disclosure problems, asset freezes or threats might have changed over time, but the general idea to capture such events is the same for both 1980s and more recent cases. Also other indicators such as that on payment behavior, on negotiation breakdowns or on non-negotiated restructurings should not be seriously distorted by changes in debt instruments or creditor characteristics.

[8] The IMF (2002, p. 10) states that a debtor government "should provide creditors with an early opportunity to give input on the design of restructuring strategies and the design of individual instruments". Similarly, the IIF (2006, p. 17), demands that "restructuring terms should be subject to a constructive dialogue focused on achieving a critical mass of market support before final terms are announced."

2.4. Coding and Resulting Datasets

This section describes the information sources and the procedure for coding the above 9 variables, as well as the datasets that result from it.

2.4.1. Case Coverage

Our sample covers 31 developing and emerging market countries that defaulted since 1980, resulting in 251 yearly debt crisis events. Table 2.A1 in the Appendix provides an overview on the crisis periods included.

We arrive at our sample in the following way: We first identify all defaults and restructurings between sovereign states and private external creditors in the period 1980 to 2007, using the comprehensive lists by IIF (2001), S&P (2007) and in the World Bank's GDF reports (World Bank 2003, 2004 and 2006). Due to our focus on private creditors, we exclude the poorest, least developed countries who had only limited access to credit from private creditors. Specifically, we exclude those highly indebted poor countries (HIPCs) that are eligible for large-scale support within the IMF's and the World Bank's HIPC debt relief initiative. Since the early 1980s, debt renegotiations in these poorest countries have been dominated by talks with donors and multilateral creditors including the Paris Club, while commercial creditors play no, or only a marginal role. This makes it extremely difficult to draw any meaningful conclusions about public-private debt negotiations. Beyond HIPC cases, we also leave out restructurings that took place under highly exceptional circumstances, namely Iraq's 2005/2006 debt exchange and restructurings following the dissolution of the Socialist Republic of Yugoslavia (agreements reallocating Yugoslavia's debt to the follow-up republics of Bosnia and Herzegovina, Croatia, Macedonia, Slovenia, Serbia and Montenegro). These restructurings were linked to state succession processes and not directly associated to a financial crisis or debt distress. Lastly, we also had to drop the cases of Cote D'Ivoire, Cuba, Gabon, Iran, Jamaica, Kenya, Paraguay, Trinidad and Tobago and Vietnam, due to missing information on the debt restructuring process with private creditors. In these cases, official creditors (i.e. multilateral creditors or Paris Club creditors), played the dominant role in crisis resolution, with amounts owed to private creditors being comparatively small.

Overall, our sample covers almost the entire universe of sovereign default and restructuring relevant to financial market participants. The cases make up for more than 96% of all sovereign debt restructured with banks and bondholders between 1980 and 2007 (using USD figures from IIF, 2001 and further source for deals after 2000). Put differently, we cover more countries and go further back in time than most

existing datasets on emerging market debt and default used in related research. This includes JP Morgan's Emerging Market Bond Index (EMBI) which started only in 1993 (covering 14 countries), as well as sovereign ratings data by Moody's and S&P, which have broad country-coverage only since the early 2000s.[9]

2.4.2. Sources and Coding Procedure

The coding of the 9 sub-indicators in each crisis year was systematic, and based on a wide array of sources. The most rewarding source turned out to be the print media. Financial crises are highly publicized events and the financial press provides extensive and detailed day-to-day coverage on debt renegotiations, missed payments and restructuring processes, including coverage on government rhetoric and considerable behind-the-scenes information. We therefore followed the example of other researchers in the debt crisis literature, notably Ozler (1993), Aggarwal (1996) and Arteta and Hale (2008), and relied on newspapers to collect much of the desired information.

More precisely, we used the online news database *factiva* and restricted our standardized search to six flagship media sources: The Financial Times, Reuters, the Wall Street Journal, Dow Jones News Service, the New York Times and Associated Press. [10] The search algorithm applied is "countryname w/10 debt". It identified all articles in which the respective country name appears a maximum of ten words away from to the word "debt". Based on this search algorithm, we then extracted all relevant articles into backup-documents for each crisis episode in order to analyze them. Altogether, we gathered and systematically evaluated more than 20,000 pages of articles from the financial press.

We cross-checked and complemented the press coding with crisis information contained in all standard reference books in the field (Cline, 1995; Aggarwal, 1996; Boughton, 2001; Roubini and Setser, 2004; Rieffel, 2003; Andritzky, 2006; Sturzenegger and Zettelmeyer, 2006). Much of the case insights in these important book publications are based on expert knowledge and detailed policy documents, thus complementing the newspaper sources with hands-on information. We also took into account a series of reports and papers by international financial institutions on the

[9] In 1990, Moody's provided ratings for 13 emerging market sovereigns, while S&P covered 8.

[10] Factiva covers the following sources in full text: *Associated Press* Jan. 1985 - Sept. 2003, *Dow Jones News Service* June 1979 - today, *Reuters News* 1987 - today, *Financial Times* Jan. 1982-today, *New York Times* 1980 - today, *Wall Street Journal* Jan. 1984 - today. For the early 1980s we also retrieved some articles of the NYT and abstracts of the WSJ from LexisNexis. In a few cases where information was less complete, we verified our coding based on additional articles from other renowned sources such as the Washington Post, the BBC, the LDC Debt Report or publications like Latin American Weekly.

issue (Williams et al. 1983 ; Kincaid et al., 1985 ; Laursen and Fernandez-Ansola, 1995; Piñón-Farah, 1996 ; IMF 2001, 2003, 2006, ECB 2005), as well as some country-related publications such as Buchheit and Karpinski (2007), IMF and World Bank Country Reports or IMF Poverty Reduction Strategy Papers. Further valuable sources were the comprehensive lists of debt restructurings by Stamm (1987) and the IIF (2001) and the list of major policy events in developing countries by Henry (1999).[11] The sources for each coding decision are cited in detail in the datasets.

For the sub-indicator "payments missed" and the sub-indicator "suspension of interest payments" we also relied on data on interest payments and arrears from the GDF 2007 database. For the indicator on asset freezes we drew on the IMF's "Report on Exchange Arrangements and Exchange Restrictions" by systematically evaluating the annual volumes from 1980 to 2007. Table 2.A3 in the Appendix gives an overview on sources used for each sub-indicator.

The entire evaluation was completed over a period of 12 months by a team of researchers and student research assistants. To minimize errors, each case was coded independently by at least two people on the basis of the same sources and procedures. The coding results for each sub-indicator were discussed with the entire team only at a final stage. Generally, the very rich press coverage on the crises allowed evaluating government actions and related facts and events based on more than 3 and in some cases up to 20 or 30 news sources. To guarantee transparent and replicable coding, we justify each coding decision by summarizing the underlying facts in one or two sentences. The explanatory sentences are then backed with precise quotes from the original press articles, books or papers.

The coding resulted in two datasets, which were generated in the same coding process. Subsection 2.4.3. describes our year-by-year dataset, which covers the 9 indicators for every debt crisis year (year-by-year dataset). As an alternative, we provide a second dataset, described in Section 2.4.4., which codes the 9 indicators with regard to each finalized restructuring agreement (agreement-based dataset).

2.4.3. Year-by-Year Dataset

The year-by-year dataset is our primary dataset. It codes the 9 sub-indicators of government coerciveness for each crisis year in our sample (see Table 2.A1 in the Appendix). The sub-indicators are coded as 1 if the respective action could be

[11] Stamm (1987) provides a very detailed list of restructurings between 1956 and 1987 including information on the negotiation process with official and private creditors. Henry (1999) provides a list of major policy events in developing countries from the mid 1970s to the mid 1990s (see also Henry 2000).

observed towards foreign private creditors (banks and/or bondholders) and 0 if not. The resulting index value thus indicates the stance of a government towards all of its foreign private creditors in debt crises years since 1980.

The main advantage of this dataset is that it captures year-by-year fluctuations in government behavior. The data allow analyzing the dynamics at play, possibly in a cross-country panel on an annual level. Note that we explicitly consider coercive actions that are ongoing or not revoked. This is relevant for the case of a moratorium declarations or newly enacted capital controls. We continue to code these as 1, as long as they are not withdrawn or phased out. In contrast, variables such as forced restructurings or explicit threats will only be coded for those years in which a restructuring or a threat actually took place.

2.4.4. Agreement-based Dataset

The agreement-based dataset measures government behavior with regard to individual restructuring agreements. We cover 101 sovereign debt restructurings in 31 defaulting countries since 1980 (see Table 2.A2 in the Appendix). Because of the focus on individual agreements, we explicitly disentangle government behavior towards types of creditors (banks, bondholders, others) affected by the respective agreements. We thus code which coercive actions were imposed on a group of creditors prior to a restructuring with that group. The sub-indicators take the value of 1 if the coercive action could be observed in any year in the run-up to an agreement. With a view to the above, the relevant time span for this coding process starts with the default event (or, in case of a pre-emptive restructuring, with the beginning of debt negotiations) and ends with the successful debt exchange. Note that, for descriptive purposes, we only include deals that are ultimately implemented, but exclude interim or principal agreements. This makes the index values comparable across restructurings.

To better understand the difference between the first and second dataset, take the example of the Argentinean debt crisis from 2001 to 2005. The year-by-year dataset provides one index value for each year between 2001 and 2005, thus aggregating coercive actions towards all of Argentina's foreign private creditors. The agreement database, instead, provides an index value for each restructuring deal and creditor group in this period, namely the Megaswap of June 2001, the domestic bond restructuring in Oct. 2001 and the global bond restructuring completed in 2005.

The main advantage of the agreement-based dataset is that it allows to differentiate between various agreements in a given crisis period, even if they occurred in the same year. This is particularly relevant for recent debt crises, which often featured several restructurings in one year, with separate deals for different creditor groups (domestic bondholders, international bondholders or commercial banks). A second main

advantage is that one can now relate the degree of coerciveness to deal-specific characteristics such as the number and composition of creditors, the size of creditor losses ("haircuts") or post-restructuring events such as creditor litigation or holdouts. Furthermore, the differentiation by creditor and restructuring type also reveals a number of novel stylized facts, as will be seen in the next section. [12]

2.5. Results and Stylised Facts

When comparing our results to insights and analysis in the existing literature, our index appears to be a valid proxy for government behavior; "Tough" negotiatons, "hard" restructuring cases and non-cooperative behavior as reported for specific crises by Aggarwal (1996), Cline (1995 and 2004), Boughton (2001), Roubini and Setser (2004) or Andritzky (2006) have a high index value (of at least 5) according to our coding results. Additionally, our categorization of prominent cases corresponds to casuistic evidence in the press and to the judgements of a number of experienced Wall Street and policy experts in New York and Washington D.C. (related interviews were carried out in early 2007).

The following figures and tables provide some descriptive statistics and stylized facts derived from the country-year dataset of 251 debt crisis years. First of all, we find that each sub-indicator displays a high degree of variability (see Table 2.1). The sub-indicators can also be seen as sufficiently independent from each other, given that their pair wise correlation is relatively low in most cases (see Table 2.A4 in the Appendix).

Table 2.1: Descriptive Statistics for each Sub-Indicator during Debt Crises

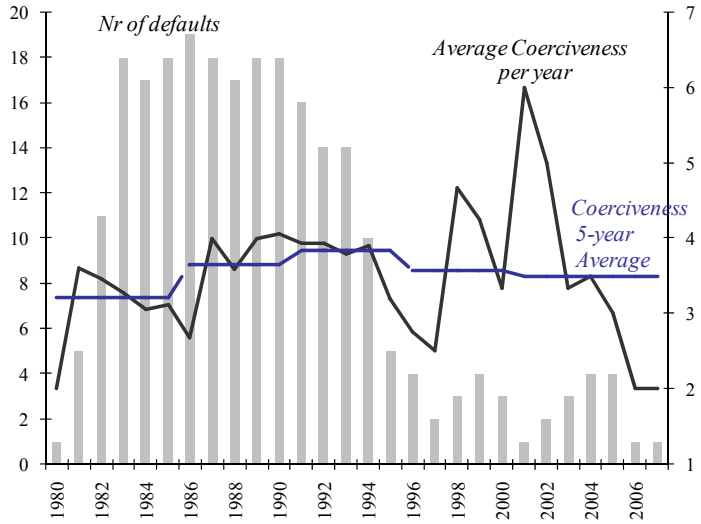
Variable	Observations	Frequency of value 1	Mean	Std. Dev.
Payments Missed	251	191	0.76	0.43
Unilateral Suspension	251	145	0.58	0.49
Full Suspension	251	66	0.26	0.44
Freeze on Assets	251	27	0.11	0.31
Negotiation Breakdown	251	107	0.43	0.50
Explicit Declaration	251	30	0.12	0.33
Threats to Repudiate	251	41	0.16	0.37
Data Disputes	251	20	0.08	0.27
Forced Restruct.	251	14	0.06	0.23

Over half of our yearly sample consists of default events from the 1980s. This reflects the fact that the 1980s saw a global wave of debt defaults in developing countries and

[12] Note that the coerciveness data, differentiated by creditor group, can also be provided on a yearly level. Similarly, we can also provide index values for restructurings that have not been finalized.

that debt crises of the 1980s and 1990s were particularly protracted (See Chuhan and Sturzenegger, 2005). Contrarily, the debt crises episodes in recent years were usually quite short, spanning a period of one or two years only.

Figure 2.2: The Coerciveness-Index over Time



Note: The left axis plots the number of defaults per year, while the right axis plots the index average per year and as five-year average, respectively.

As can be seen in Figure 2.2, the average degree of coerciveness is fairly stable, with *no clear trend over time*. The average index value, plotted in five-year intervals, is almost flat and ranges between 3 and 4. When looking at the past three decades in more detail, it is evident that sovereign defaulters behaved somewhat less coercively during the 1980s (average of 3.38) compared to the era of Brady deals from 1990 to 1997 (average of 3.79) and the post-Brady era of bond restructurings from 1998 to 2006 (average of 3.73). Specifically, there is a kink in average coerciveness in 1987, a point in time when many debtor countries in the sample were already in default for several consecutive years. It is apparent that the average index value shows a much more volatile pattern after 1998. As argued by Panizza et al. (2009), the higher index volatility in recent times might be due to changes in creditor composition or in the international legal environment. An alternative explanation is that outlier cases, such as Argentina 2002-2005, had a more pronounced impact on the index average in recent years, simply because the frequency of debt crises has decreased.

Regarding the *regional distribution*, crises in Latin America and the Caribbean clearly dominate our sample. We coded 15 defaulting countries in Latin America and the Caribbean and 16 countries in the rest of the world. Keeping in mind the large difference in the number of observations, governments in Latin America showed a

somewhat more coercive negotiation stance (with an average index value of 3.73), compared to all other defaulting countries (3.27).

We also calculated the *index averages for each country* separately. This yields some additional insights, as can be seen in Table 2.2. Countries like Chile, Mexico, Morocco or Uruguay showed a cooperative stance throughout extended periods of sovereign debt distress. In contrast, governments of countries like Russia, Nigeria or Peru displayed a much higher average degree of coercive behavior. An interesting stylized fact is that countries that opted for unilateral behavior during the commercial bank restructurings of the 1980s, also tended to behave non-cooperatively during debt renegotiation periods of the 1990s and in more recent cases of sovereign bond restructurings (e.g. Ecuador, Argentina). We thus find serial patterns of coercive behavior, which can be seen as a complement to the prominent concept of "serial defaults" by Reinhart, Rogoff and Savastano (2003).

Table 2.2: Ranking Coerciveness by Country

Most Coercive (Average for all Crisis Years since 1980)

	Average Index Value	Years in Default (between 1980 and 2007)
Peru	5.40	15
Argentina	5.24	17
Nigeria	4.90	10
Bolivia	4.50	14
Jordan	4.40	5
Russia	4.39	10

Least Coercive (Average for all Crisis Years since 1980)

	Average Index Value	Years in Default (between 1980 and 2007)
Uruguay	1.20	10
Chile	1.5	8
Morocco	1.88	8
Algeria	1.83	6
South Africa	2.00	5
Mexico	2.44	9

Note: Index averages across all years that the countries were in default since1980.
Countries with less than 4 years in default (e.g. Belize, Dominica) are excluded.

It is also worth to highlight a number of *particularly coercive crisis cases* listed in Table 2.3. The well known case of Argentina from 2001 to 2005 displays an exceptional degree of coerciveness, as the government officially declares a default, sticks to the proclaimed moratorium by stopping all payments to its bondholders for 4 years, freezes foreign assets and rejects any meaningful negotiations. In the case of Brazil of 1987, President Sarney decides to declare a unilateral moratorium and breaks

off any negotiations with banks amid a serious political and economic crisis. The moratorium is accurately prepared, to a degree that Brazilian oil tankers were ordered to leave foreign ports so as to prevent their seizure.[13] After massive capital flight, a sharp drop in foreign investments and heavy political intervention by the United States, President Sarney agrees to a series of cooperative interim agreements with official and private creditors in 1988, and publicly admits that his unilateral debt policy had been a mistake ("the worst the government had ever committed").[14] Nevertheless, after a devastating result for his party in municipal elections, Sarney again adopts a largely unilateral stance towards international creditors in 1989.

Table 2.3: Particularly Coercive Cases

Country	Years
Argentina	2002 - 2005
Brazil	1987 and 1989
Dominican Rep.	1989 - 1990
Nigeria	1990 - 1991
Peru	1985 – 1989
Russia	1998

Note: The table shows episodes with particularly coercive debt policies, i.e. crisis years events in which the index value was 7 or higher.

Peru from 1985 to 1989 is a further prominent case of coercive government behavior. Already in his inauguration speech as President in 1985, Alan Garcia declares his intention to impose a ceiling on debt payments and to abort negotiations with the IMF and private creditors. Until the end of his term in 1989, Garcia remains "the bad boy of the international debt problem"[15] and adopts an entire range of coercive actions.

Also the agreement-based dataset offers a number of novel insights, especially with regard to *restructurings since 1998*. Table 2.A5 in the Appendix lists 13 sovereign restructurings of foreign currency bonds and 6 restructurings involving domestic currency bonds. Note that these latter domestic restructurings were coded, despite our general focus on foreign creditors. The reason is that, in these cases, a large share of the domestic bonds was actually held by foreign investors, which were thus directly exposed to the domestic restructuring process. The coding results show foreign bond restructurings to have very low index values, besides three highly coercive outlier cases: Argentina (2005), Ecuador (2000) and Russia (2000). In comparison, we find the negotiations with domestic creditors and banks to show significantly higher degree

[13] Financial Times, 23 February 1987.
[14] Financial Times, 4 February 1988.
[15] Wall Street Journal, 24 March 1986.

of coerciveness. Even in those cases where negotiations with different creditor groups ran in parallel, we find governments to impose less coercive actions on foreign bondholders (Dominican Republic, Moldova, Pakistan and Russia). Overall, it appears that governments have been more conciliatory to foreign bondholders than they were to foreign banks in recent years.

2.6. Explaining Government Coerciveness

To go beyond mere stylized facts, this section conducts an exploratory analysis on the determinants of debtor coerciveness. Our aim is to provide first indicative insights to the following two questions: (i) What is the role of economic and financial factors for a government's negotiation stance? (ii) Which institutional or political variables are associated with more or less coercive behavior? For brevity, we do not conduct an in-depth investigation, nor do we embark on a detailed discussion on underlying theories or the mechanisms at work. Instead, we see our first results as an important basis for future research on financial crisis resolution.

To estimate the determinants of coercive government behavior in debt crises, we use the annual index values as dependent variable (year-by-year dataset). Given the ordinal character of the index (ranging from 1 to 10) we employ standard ordered probit models. The set of explanatory variables is derived from a large theoretical and empirical literature. Regarding financial and economic variables, we build on Manasse and Roubini's (2009) widely cited paper on "Rules of Thumb" of sovereign debt distress. Using regression tree analysis, the authors identify a ranking of key predictors of sovereign default and debt distress. We fully rely on this ranking to set up a baseline specification in our analysis of debtor coerciveness. Specifically, we use annual data on the ratio of total external debt to GNI, the ratio of external short term debt to reserves, the log of annual inflation (CPI, in %) and annual growth of real GDP (in %). The data on external debt figures is taken from the Word Bank's 2008 Global Development Finance database, while growth and inflation data comes from the 2008 version of the World Development Indicators. We also use previously unavailable data on the onset of a banking crisis from Leaven and Valencia (2008). We predict a higher debt to GDP ratio, liquidity constraints of servicing short-term debt, high inflation and lower growth to be associated with higher debtor coerciveness. Similarly, we expect banking crises to increase the likelihood of coercive government behavior. Following standard practice in the literature on default determinants, all economic variables are lagged by one year, as this reduced potential endogeneity bias.

In a second step, we focus on those political and institutional variables that have been shown to influence economic policymaking, and the occurrence of financial crises and

default. Specifically, we analyze the role of presidential versus parliamentary regimes (Kohlscheen 2007, Persson and Tabellini 2003), regime type (democratic versus autocratic) (Persson 2002, Tomz 2002), constraints on the executive (Acemoglu et al. 2003, Van Rijckeghem and Weder 2009), and government orientation (left versus right) (Stasavage 2007). In line with Kohlscheen, who shows that presidential regimes are five times more likely to default, we expect debtors with presidential regimes to behave more coercively. As to the regime type and executive constraints, the existing literature does not give much ground for strong theoretical priors. Some authors have shown democratic institutions to increase sovereign risk and the likelihood of default (e.g. Saiegh 2005), while others find the opposite effect (e.g. Van Rijckeghem and Weder 2009). Regarding government polarization, we expect left governments to act more coercively, in line with much of the related literature (see e.g. the discussion in Rijckeghem and Weder 2009). We draw on widely used datasets to proxy the set of political institutions we want to include. To construct a dummy for (strictly) presidential regimes we use the SYSTEM variable from the 2008 update of the Database of Political Institutions (DPI) by Beck et al. (2001). The DPI is also the source for the dummy of "left governments", which takes the value of 1 in case a government's economic policy is coded as left-wing in the EXECRLC variable. The dummy for democratic regimes comes from Cheibub et al. (2010), while the variable of constraints on the executive (XCONST) is taken from the 2008 release of the Polity IV dataset.

Table 2.4 shows the results of regressing the coerciveness index on the lagged economic and political variables using ordered probit regression. We find economic variables to matter surprisingly little (column 1). While all variables have the expected sign, only the ratio of external debt to GNI is a robustly significant predictor of coerciveness. Other "usual suspects" of debt distress are insignificant or not robust to specification changes. Not even the banking crisis dummy, a reliable indicator for the severity of a crisis, shows a significant sign. This overall result remains even if we substitute or complement variables in specification 1 with other proxies of debt distress, e.g. the ratio of short term to long term debt, a measure on global interest rates fluctuations (LIBOR), or debtor country terms of trade. Note also that a much more detailed set of related regressions is shown in a complementary paper, which confirms the finding that most economic and financial variables are not correlated for the degree of coercivceness in debt crises (see Enderlein et al. 2009).

Another surprise is the low level of R^2. The set of (time-varying) economic and financial variables can explain only a small fraction of the variation in our dependent variable. Running the specification of column 1 in a standard probit model with "sovereign default" as a binary dependent variable (using S&P data), yields a R^2 more than ten times as large. All of this indicates that the determinants of coerciveness

during default differ substantially from the determinants of sovereign default per se (compare also Ciarlone and Trebeschi 2005, Detragiache and Spilimbergo 2001).

Table 2.4: Results on the Determinants of Coerciveness

	(1)	(2)	(3)	(4)	(5)
	Economic Factors	**Presidential Regime**	**Regime Type**	**Executive Constraints**	**Government Polarisation**
	coef/se	**coef/se**	**coef/se**	**coef/se**	**coef/se**
Ext. Debt / GNI	0.357**	0.611***	0.398**	0.423**	0.377**
	(0.163)	(0.214)	(0.162)	(0.170)	(0.165)
Short term Debt/ Reserves	0.030	0.028	0.042**	0.017	0.026
	(0.019)	(0.022)	(0.019)	(0.019)	(0.019)
Inflation (annual, in %)	0.000**	0.000	0.000*	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Growth (annual, in %)	-0.004	0.011	-0.007	-0.022	-0.004
	(0.012)	(0.017)	(0.012)	(0.014)	(0.012)
Banking Crisis	0.171	0.042	0.185	0.145	0.153
	(0.252)	(0.363)	(0.267)	(0.256)	(0.247)
Presidential Regime		0.567**			
		(0.246)			
Democracy			0.534***		
			(0.148)		
Executive Constraints				0.190***	
				(0.045)	
Left Government Dummy					-0.129
					(0.159)
/cut1	-0.527***	0.057	-0.171	0.100	-0.540***
	(0.170)	(0.291)	(0.194)	(0.274)	(0.177)
/cut2	-0.087	0.389	0.283	0.470*	-0.151
	(0.164)	(0.295)	(0.191)	(0.280)	(0.170)
/cut3	0.353**	0.884***	0.740***	1.070***	0.302*
	(0.162)	(0.302)	(0.194)	(0.293)	(0.168)
/cut4	0.780***	1.346***	1.183***	1.542***	0.737***
	(0.165)	(0.316)	(0.200)	(0.303)	(0.172)
/cut5	1.379***	2.005***	1.799***	2.222***	1.342***
	(0.184)	(0.333)	(0.215)	(0.326)	(0.190)
/cut6	1.859***	2.452***	2.291***	2.722***	1.825***
	(0.205)	(0.344)	(0.238)	(0.351)	(0.210)
/cut7	2.193***	2.781***	2.634***	3.079***	2.162***
	(0.228)	(0.369)	(0.254)	(0.359)	(0.233)
/cut8	2.744***	3.320***	3.200***	3.599***	2.716***
	(0.331)	(0.452)	(0.347)	(0.446)	(0.337)
Pseudo R2	0.011	0.020	0.026	0.041	0.012
Number of observations	213	131	213	152	209

Results ordered probit estimation. The dependent variable is the index of government coerciveness on a scale of 1 (very low) to 10 (very high). ***/**/* denote significance at a 1/5/10 per cent level respectively. Standard errors in parentheses. The specification of column (2) is estimated in a subsample of democracies.

Turning to political variables, we find presidential regimes to show a significantly higher degree of coerciveness (column 2, estimated in a subsample of democracies). Our finding on presidential regimes is in line with Kohlscheen (2007), but not fully robust to specification changes. In particular, we find the presidentialism dummy to turn insignificant once we include a dummy for Latin America (see Table 2.A6 in the Appendix). Regarding government polarization, we find no significant effects. Contrary to expectation, left governments do not to behave more coercively than right or center governments. The dummy has a negative sign and is clearly insignificant. However, we find clear-cut evidence that democracies act more aggressively towards their creditors during crisis periods. We also find executive constraints to be positively correlated with the degree of coerciveness. Both of these results are robust to specification changes, the inclusion of year fixed effects or when adding dummies for world regions. One interpretation is that democratic institutions and executive constraints do not restrain governments to act confrontationally vis-à-vis foreign creditors. On the contrary, it appears that democratically elected politicians respond with more aggressive policies towards foreign financial market participants, once a crisis breaks out (see also the discussion in Tomz 2002).

Future research should devote more attention to the mechanisms at work. Are there interaction effects between economic variables (the severity of the crisis) and political or institutional factors? *Why* do democracies behave significantly more aggressively than authoritarian regimes? And what role do elections, socioeconomic pressure and political instability play in crisis countries, be they democracies or autocracies? A thorough analysis of these questions could yield important new insights on the political economy of financial crises and crisis resolution.

2.7. Conclusion

This article provides the first comprehensive and systematic account of government behavior during debt crises that goes beyond a binary measure of default versus non-default. We assess *how* sovereigns resolve debt crises and which coercive actions they impose on their private international creditors during debt renegotiations. Overall, we find a strong variability in crisis resolution patterns across space and time. The sub-indicators are general enough to accommodate changes in restructuring mechanisms, instruments, actors and third party policies such as those of the IMF. They may also be suitable to systematize historical debt crises of the 19th and early 20th century and to evaluate future instances of sovereign default.

A number of key insights emerge from the data: First, on average, governments behaved somewhat more cooperatively during the 1980s debt crises than during the

Brady and Post-Brady era. The volatility of the index has increased since 1998, with the Argentinean bond restructuring of 2001-2005 as a notable outlier of particularly coercive behavior. Second, there seem to be serial patterns of coerciveness. Countries with governments that adapted a conflictive stance in debt crises of the 1980s also tended to show unilateral government behavior in the 1990s and in more recent restructuring cases. Third, there are important differences regarding the type of debt restructured. On average, recent negotiations to restructure bank debt and domestic bonds were of more conflictive nature than foreign bond restructuring processes. In a last step, we also conduct a first analysis on the determinants of government coerciveness. We find most economic and financial variables to matter little, while political and institutional variables play a significant role. These results motivate future research on the political economy of debt crises and crisis resolution.

More generally, the dataset may be used to tackle a whole set of unanswered research questions, even beyond the arena of sovereign debt. Why are financial distress situations resolved in so different ways? What determines debtor-creditor relations in times of crises? What are the consequences of confrontational debtor behaviour? And which political and economic factors drive government policies and rhetoric towards financial market participants? Lastly, policymakers and practitioners may use the index and data as a benchmark to assess future instances of default and debt renegotiations.

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Appendix to Chapter 2

Table 2.A1: Countries and Periods Covered (Year-by-Year Dataset)

Albania	1991-1995	Nigeria	1982-1991
Algeria	1991-1996	Panama	1983-1996
Argentina	1982-1993	Pakistan	1998-1999
	2001-2005	Peru	1983-1997
Belize	2006-2007	Philippines	1983-1992
Bolivia	1980-1993	Poland	1981-1994
Brazil	1983-1994	Romania	1981-1983
Bulgaria	1990-1994		1986
Chile	1983-1990	Russia	1991-2000
Costa Rica	1981-1990	South Africa	1985-1987
Dominica	2003-2005		1989
Dom. Rep.	1982-1994		1993
	2004-2005	Turkey	1981-1982
Ecuador	1982-1994	Ukraine	1998-2000
	1999-2000	Uruguay	1983-1991
Grenada	2004-2005		2003
Jordan	1989-1993	Yugoslavia	1983-1988
Mexico	1982-1990	Venezuela	1982-1990
Moldova	2002		
Morocco	1983-1990		

Note: Altogether, the year-by-year dataset covers 251 country-year events.

Defaulting Countries NOT included

HIPC countries (no or little debt owed to foreign banks/bondholders):
Cameroon, Congo, Rep. (Brazzaville), Congo, Dem. Rep. (Kinshasa, formerly Zaire), Cote d'Ivoire, Ethiopia, Gambia, Guinea, Guyana, Honduras, Jamaica, Liberia, Madagascar, Malawi, Mauritania, Mozambique, Nicaragua, Niger, Paraguay, Sao Tome and Principe, Senegal, Sierra Leone, Sudan, Togo, Uganda, Togo, Yemen, Zambia

Special cases: (i) Iraq 2005 and (ii) the Yugoslav debt succession agreements (Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro, Slovenia)

Dropped due to insufficient information on negotiation process: Cuba, Gabon, Jamaica, Kenya, Paraguay, Trinidad and Tobago, Vietnam.

Table 2.A2: Restructuring Deals Covered (Agreement-based Dataset)

	Agreement	Restructuring Type
Albania	1995	Bank Debt Reduction
Algeria	1992	Bank Debt Rescheduling
Algeria	1996	Bank Debt Rescheduling
Argentina	1982	Concerted Lending
Argentina	1983	Concerted Lending
Argentina	1985	Bank Debt Rescheduling
Argentina	1987	Bank Debt Rescheduling
Argentina	1993	Brady Deal
Argentina	2001 (June)	Bond Restructuring ("Megaswap")
Argentina	2001 (Oct.)	Domestic Bond Restructuring
Argentina	2005	Foreign Bond Restructuring (Global)
Belize	2007	Foreign Bond Restructuring
Bolivia	1988	Bank Debt Reduction
Bolivia	1993	Bank Debt Reduction
Bosnia	1997	Bank Debt Reduction
Brazil	1983	Bank Debt Rescheduling
Brazil	1984	Bank Debt Rescheduling
Brazil	1986	Bank Debt Rescheduling
Brazil	1988	Bank Debt Rescheduling
Brazil	1992	Restructuring of Interest Arrears
Brazil	1994	Brady Deal
Bulgaria	1994	Brady Deal
Chile	1983	Bank Debt Rescheduling
Chile	1986	Bank Debt Rescheduling
Chile	1987	Bank Debt Rescheduling
Chile	1988	Bank Debt Rescheduling
Chile	1990	Bank Debt Rescheduling
Costa Rica	1983	Bank Debt Rescheduling
Costa Rica	1985	Bank Debt Rescheduling
Costa Rica	1990	Brady Deal
Dominica	2004	Foreign Bond Restructuring
Dominican R	1983	Bank Debt Rescheduling
Dominican R	1986	Bank Debt Rescheduling
Dominican R	1994	Brady Deal
Dominican R	2005 (July)	Foreign Bond Restructuring
Dominican R	2005 (Oct.)	Bank Debt Rescheduling
Ecuador	1983	Bank Debt Rescheduling
Ecuador	1984	Bank Debt Rescheduling
Ecuador	1985	Bank Debt Rescheduling
Ecuador	1994	Brady Deal
Ecuador	2000	Foreign Bond Restructuring
Grenada	2005	Foreign Bond Restructuring
Jordan	1993	Bank Debt Rescheduling
Mexico	1983	Bank Debt Rescheduling
Mexico	1985	Bank Debt Rescheduling
Mexico	1987	Bank Debt Rescheduling
Mexico	1988	Bank Debt Reduction
Mexico	1990	Brady Deal
Moldova	2002	Foreign Bond Restructuring
Moldova	2004	Conversion of Gazprom Notes

	Agreement	Restructuring Type
Morocco	1986	Bank Debt Rescheduling
Morocco	1987	Bank Debt Rescheduling
Morocco	1990	Bank Debt Rescheduling
Nigeria	1983	Restructuring of Letters of Credit
Nigeria	1984	Rescheduling of Bank Debt and Letters of Cre
Nigeria	1987	Bank Debt Rescheduling
Nigeria	1989	Bank Debt Rescheduling
Nigeria	1991	Brady Deal
Pakistan	1999 (July)	Bank Debt Restructuring
Pakistan	1999 (Dec.)	Foreign Bond Restructuring
Panama	1985	Bank Debt Rescheduling
Panama	1994	Foreign Bond Restructuring
Panama	1996	Brady Deal
Peru	1983	Bank Debt Rescheduling
Peru	1997	Brady Deal
Philippines	1986	Bank Debt Rescheduling
Philippines	1987	Bank Debt Rescheduling
Philippines	1990	Brady Deal
Philippines	1992	Bank Debt Rescheduling
Poland	1982 (April)	Bank Debt Rescheduling
Poland	1982 (Nov.)	Bank Debt Rescheduling
Poland	1983	Bank Debt Rescheduling
Poland	1984	Bank Debt Rescheduling
Poland	1986	Bank Debt Rescheduling
Poland	1988	Bank Debt Rescheduling
Poland	1989	Bank Debt Rescheduling
Poland	1994	Brady Deal
Romania	1982	Bank Debt Rescheduling
Romania	1983	Bank Debt Rescheduling
Romania	1986	Bank Debt Rescheduling
Russia	1997	Bank Debt Reduction (Soviet-era debt)
Russia	1999	Domestic Bond Restructuring
Russia	2000	Restructring of PRINs, IANs
South Africa	1986	Bank Debt Rescheduling
South Africa	1987	Bank Debt Rescheduling
South Africa	1989	Bank Debt Rescheduling
South Africa	1993	Bank Debt Rescheduling
Turkey	1982	Bank Debt Rescheduling
Ukraine	1998	Domestic Bond Restructuring
Ukraine	1999	Foreign Bond Restr. (ING, Merrill Lynch loan
Ukraine	2000	Foreign Bond Restr. (Global)
Uruguay	1983	Bank Debt Rescheduling
Uruguay	1986	Bank Debt Rescheduling
Uruguay	1988	Bank Debt Rescheduling
Uruguay	1991	Brady Deal
Uruguay	2003	Foreign Bond Restructuring
Venezuela	1990	Brady Deal
Yugoslavia	1983	Bank Debt Rescheduling
Yugoslavia	1984	Bank Debt Rescheduling
Yugoslavia	1985	Bank Debt Rescheduling
Yugoslavia	1988	Bank Debt Rescheduling

Note: All "Bank Debt Reschedulings" are reschedulings with foreign commercial banks.

Table 2.A3: Data and Information Sources for each Sub-Indicator

Sub-Indicator	Sources for Coding
Payments missed	Main Source: Arrears data from the GDF (2007) database. Supplementary information from the financial press, Stamm (1987), policy reports, book sources.
Unilateral payment suspension	Main Source: Financial press. Supplementary information from Stamm (1987), policy reports, book sources.
Full Payment Suspension	Main Source: Data on Interest Arrears and Interest Payments from the GDF (2007) database. Supplementary information from the financial press, Stamm (1987), policy reports, book sources.
Freeze on assets (capital and exchange controls)	Main Source: The IMF's "Annual Report on Exchange Arrangements and Exchange Restrictions" (1980-2006). Supplementary information from the financial press, Stamm (1987), policy reports, book sources.
Breakdown or refusal of negotiations	Main Source: Financial press. Supplementary information from Stamm (1987), policy reports, book sources.
Explicit moratorium or default declaration	Main Source: Financial press. Supplementary information from Henry (1999), Stamm (1987), policy reports, book sources.
Explicit threats to repudiate on debt	Main Source: Financial press. Supplementary information from Henry (1999), Stamm (1987), policy reports, book sources.
Data disclosure problems	Main Source: Financial press. Supplementary information from Stamm (1987), policy reports, book sources.
Forced and non-negotiated restructuring	Main Source: Financial press. Supplementary information from Stamm (1987), policy reports, book sources.

Financial Press: Standardized search method in the *factiva* database. Evaluation of 20,000 pages of articles from the Financial Times, Reuters, the Wall Street Journal, Dow Jones News Service, the New York Times and Associated Press.
Policy Reports: ECB (2005), IMF (2001, 2003, 2006), Kincaid et al. (1985), Laursen and Fernandez-Ansola (1995), Piñón-Farah (1996) and Williams et al. (1983).
Book Sources: Aggarwal (1996), Andritzky (2006), Boughton (2001), Cline (1995), Roubini and Setser (2003), Rieffel (2003), Sturzenegger and Zettelmeyer (2006).

Table 2.A4: Correlation Matrix for the 9 Sub-Indicators

	Payments Missed	Unilateral Suspension	Full Suspension	Freeze on Assets	Negotiation Breakdown	Explicit Declaration	Threats to Repudiate	Data Disputes	Forced Restruct.
Payments Missed	1.00								
Unilateral Suspension	0.66	1.00							
Full Suspension	0.33	0.47	1.00						
Freeze on Assets	0.10	0.09	0.08	1.00					
Negotiation Breakdown	0.31	0.48	0.42	0.14	1.00				
Explicit Declaration	0.18	0.27	0.31	0.27	0.28	1.00			
Threats to Repudiate	0.05	0.05	0.13	0.19	0.12	0.24	1.00		
Data Disputes	0.13	0.22	-0.04	0.09	0.13	0.16	-0.05	1.00	
Forced Restruct.	0.10	0.17	0.09	0.14	0.18	0.39	0.17	0.06	1.00

Table 2.A5: Recent Debt Restructuring Cases (Agreement-based Dataset)

Restructurings of Foreign Currency Bonds		Restructurings of Domestic Currency Bonds and Bank Debt	
Country/Year	Comments	Country/Year	Comments
Argentina 2001	Megaswap (June)	Argentina 2001	Restructuring of Domestic Bonds
Argentina 2005	Global Bond Restructuring	Dominican Rep. 2005	Restructuring of foreign bank debt
Belize 2007	Foreign Bond Restructuring	Moldova 2004	Restructuring of Gazprom Notes
Dominica 2004	Foreign Bond Restructuring	Pakistan 1999	Restructuring of foreign bank debt
Dominican Rep. 2005	Foreign Bond Restructuring	Russia 1999	Restructuring of Domestic Bonds
Ecuador 2000	Foreign Bond Restructuring	Ukraine 1998	Restructuring of Domestic Bonds
Grenada 2005	Foreign Bond Restructuring	**Average Index Value**	**4.83**
Moldova 2002	Foreign Bond Restructuring		
Pakistan 1999	Foreign Bond Restructuring		
Russia 2000	Foreign Bond Restructuring		
Uruguay 2003	Foreign Bond Restructuring		
Ukraine 1999	Restructuring of ING and Merrill Lynch bonds		
Ukraine 2000	Global bond restructuring		
Average Index Value	**3.16**		

Table 2.A6: Robustness Checks: Including Year / Region Fixed Effects

	(1)	(2)	(3)	(4)	(5)
	Economic Factors	**Presidential Regime**	**Regime Type**	**Executive Constraints**	**Government Polarisation**
	coef/se	**coef/se**	**coef/se**	**coef/se**	**coef/se**
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Dummy for Latin America	Yes	Yes	Yes	Yes	Yes
Ext. Debt / GNI	0.464**	0.561**	0.513***	0.373*	0.485***
	(0.181)	(0.233)	(0.177)	(0.208)	(0.184)
Short term Debt/ Reserves	0.036*	0.041*	0.045**	0.015	0.031
	(0.021)	(0.025)	(0.020)	(0.018)	(0.021)
Inflation (annual, in %)	0.000***	0.000*	0.000**	0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Growth (annual, in %)	-0.015	-0.025	-0.014	-0.037**	-0.015
	(0.013)	(0.020)	(0.013)	(0.017)	(0.013)
Banking Crisis	0.050	-0.415	0.084	-0.265	-0.024
	(0.277)	(0.438)	(0.285)	(0.309)	(0.283)
Presidential Regime		0.424			
		(0.281)			
Democracy			0.448***		
			(0.163)		
Executive Constraints				0.146***	
				(0.055)	
Left Government Dummy					-0.251
					(0.181)
/cut1	-0.071	0.478	0.239	-0.230	-0.535
	(0.848)	(0.876)	(0.858)	(1.430)	(1.214)
/cut2	0.400	0.940	0.721	0.177	-0.119
	(0.855)	(0.887)	(0.866)	(1.432)	(1.215)
/cut3	0.872	1.508*	1.207	0.837	0.365
	(0.859)	(0.895)	(0.872)	(1.436)	(1.216)
/cut4	1.330	2.033**	1.673*	1.359	0.832
	(0.860)	(0.901)	(0.873)	(1.433)	(1.215)
/cut5	1.965**	2.766***	2.314***	2.104	1.481
	(0.867)	(0.913)	(0.880)	(1.434)	(1.217)
/cut6	2.461***	3.240***	2.813***	2.657*	1.992
	(0.875)	(0.924)	(0.889)	(1.437)	(1.217)
/cut7	2.800***	3.564***	3.153***	3.048**	2.343**
	(0.854)	(0.898)	(0.865)	(1.406)	(1.193)
/cut8	3.337***	4.071***	3.698***	3.563**	2.896**
	(0.892)	(0.944)	(0.900)	(1.442)	(1.228)
Pseudo R2	0.038	0.076	0.046	0.083	0.041
Number of observations	213	134	213	152	209

Results ordered probit estimation. The dependent variable is the index of government coerciveness on a scale of 1 (very low) to 10 (very high). ***/**/* denote significance at a 1/5/10 per cent level respectively. Standard errors in parentheses. The specification of column (2) is estimated in a subsample of democracies.

Chapter 3

Delays in Sovereign Debt Restructurings: The Role of Politics and Institutions

Abstract[§]

In the absence on an international bankruptcy procedure for sovereigns, the resolution of debt crises remains a difficult challenge. This paper investigates delays in sovereign debt restructurings based on a comprehensive new dataset. Why are some debt renegotiations settled in just a few months, while others take many years? To answer this question, I estimate semi-parametric survival models and provide ample case study evidence. The results show debtor attributes, in particular political instability and weak institutions, to be dominant drivers of restructuring delay. In contrast, I find no indication that creditor behavior and creditor characteristics play a significant role. The data and findings raise doubts on a number of widespread beliefs on sovereign debt restructurings.

[§] I am indebted to Christian Ambrosius, Helge Berger, Marcos Chamon, Daniel Dias, Becky Nelson, Ugo Panizza, Christine Richmond, Moritz Schularick, Julian Schumacher, Pierre-Louis Vézina, Mark Wright and Jeromin Zettelmeyer for helpful suggestions and discussion. I also thank participants at the Economia Panel Meeting in Rio de Janeiro, in particular Eduardo Fernandez-Arias, Sergio Schmukler and Ernesto Stein for excellent comments. Any remaining errors are mine.

3.1. Introduction

Sovereign debt crises can be "messy" and difficult to resolve, sometimes spanning up to 15 years from the start of default to the final resolution. One puzzling empirical fact is the large variability in the duration of defaults and debt renegotiation. In some cases, like Uruguay 2003, Pakistan 1999, Chile 1990 or Romania 1986, restructurings occurred at record speed, i.e. in only three or four months. Other restructurings, such as Argentina 2001- 2005, Jordan 1989-1993 or Peru 1983-1997, took many years.

What explains this large variability across crises? Why are some debt workouts completed in a few months, while others span more than a decade and are plagued with frequent negotiation breakdowns? Can creditor coordination problems explain restructuring delays and have they become more severe in recent years? These questions are highly relevant for distressed debtor countries and their creditors, given the potential costs of disorderly crisis resolution. The questions also stand at the core of an ongoing debate on defaults and sovereign bankruptcy procedures, which peaked in the IMF proposal of a formalized Sovereign Debt Restructuring Mechanism (SDRM).

In the debate, creditor holdouts and litigation are often regarded as main reasons for failed or delayed restructurings. Likewise, it is commonly believed that restructurings have become messier over time, mainly because of the shift from bank to bond financing. While sovereign lending during the 1980s was dominated by a group of well-known commercial banks, governments now tend to raise money from thousands of individual bondholders. This development has lead to widespread fears of creditor collective action problems (cf. Bi et al. 2009, see also IMF 2003a, Krueger 2002). Policymakers raised concerns that "rogue" holdout creditors would increasingly undermine effective crisis resolution. Theoretical papers followed this line of thought and modeled creditor holdouts, creditor litigation and creditor moral hazard as channels driving inefficiencies and delays in the restructuring process (see, amongst others, Gai et al. 2004, Ghoshal and Miller 2003, Haldane et al. 2005 or Pitchford and Wright 2007, 2008).

While creditors tend to be "blamed" for delays and failed restructurings, inefficiencies due to strategic government behavior, weak institutions or political shocks are often disregarded. Rogoff and Zettelmeyer (2002) point to the striking lack of papers modeling bad debtor incentives as a reason for disorderly crisis resolution. They emphasize that "negotiation delays and perhaps failures could in principle arise from debtor actions as much as creditor actions - either as a consequence of strategic

behavior, or because the debtor side exhibits collective action or political economy problems of its own" (p. 49).

This paper adds to the discussion with new data and systematic evidence. The first part introduces a new, comprehensive database on sovereign debt restructuring processes in emerging market debt crises since 1980 (90 restructuring cases in 35 countries). The database was coded from a wide array of qualitative sources, including books, policy reports and more than 20,000 pages of press articles on the day-to-day debt negotiation process, including much "behind the scenes"-information. To the best of my knowledge, it is the first major data collection on sovereign debt renegotiations and creditor behavior including holdouts, inter-creditor disputes and litigation. Furthermore, I provide new information on the duration and sub-periods of restructurings and on exceptional events leading to delays.

The second part of the paper expands the econometric evidence on debt crisis resolution and debt renegotiation processes. Despite a wealth of theoretical work in the field, there are only few related empirical contributions. The recent surveys by Panizza et al. (2009) and Hatchondo et al. (2007) show that little is known on the duration of debt crises and on the reasons for restructuring delays.[1] This paper aims to fill this gap. I analyze the duration of sovereign debt crises or, more precisely, the length of debt restructuring processes between distressed sovereigns and private external creditors (banks and bondholders). Following the argument by Rogoff and Zettelmeyer, I explicitly test for the two main opposing explanations of negotiation delay, namely creditor *and* debtor attributes. On the debtor side, I focus on political dysfunctionalities, e.g. due to social unrest or weak institutions on economic variables and the government's ability and willingness to pay. On the creditor side, I account for the creditor numbers but also creditor strategies such as litigation and holdouts.

The semi-parametric estimations yield a number of unexpected findings. The main result is that political risk, the quality of institutions and government behavior are dominant drivers of restructuring delay. Debtor country characteristics and a government's negotiation stance play a crucial role, while I cannot find strong evidence that creditor characteristics matter. Based on the new data collected, neither the number of creditors involved nor creditor litigation and holdouts significantly determine restructuring duration. The main results are robust to different model specifications, different measures of political stability and institutions, and also to combining consecutive restructurings into joint crisis episodes, e.g. for the 1980s. The findings are also little affected when estimating standard parametric duration models.

[1] Hatchondo et al. (2007, p. 181) underline the need for more research on these questions: "it is not clear what explains (…) differences in the duration of a default episode. Answering these questions, and thus advancing our understanding of the economics of sovereign default, seems a necessary step in order to completely comprehend the distinctive economic features of emerging economies."

Beyond this, the data puts into question the widespread belief that debt workouts were quicker and easier in the era of bank finance of the 1980s and 1990s. Instead, I find that most recent bond restructurings took less than a year to arrange.

The remainder of the paper is structured as follows. Section 3.2 sketches theoretical considerations on the causes and costs of debt restructuring delays. Section 3.3 summarizes the dataset and presents new stylized facts. Section 3.4 describes the estimation strategy, while section 3.5 discusses the empirical results and a series of robustness checks. Section 3.6 concludes.

3.2. Theoretical Considerations

This section builds on existing literature to address three questions that are crucial to the setup of my empirical analysis: What factors cause delays in crisis resolution and restructuring negotiations? What are the costs of delay? And are these delays always inefficient?

3.2.1. What Causes Negotiation Delays?

There is a growing body of related theoretical work on sovereign default, restructuring and negotiations. The contributions predict delays to occur for a number of different possible reasons, often linked to creditor characteristics. In a paper on the SDRM, Pitchford and Wright (2007) model negotiation delays as a result of creditor behavior and creditor composition. In their model, creditors may hold out for better settlements or they may free ride on the negotiation effort of others. Pitchford and Wright (2008) develop a different setup but also focus on creditor induced delay. They find that a larger number of creditors and the presence of vulture funds increase the likelihood of strategic holdups. Their finding, that an increase in creditor numbers can cause inefficiencies, is in line with a larger body of literature emphasizing the problem of "too many cooks" in negotiations, e.g. with regard to monetary policy decisions (Berger and Nitsch 2009).[2] Beyond this, also Gai et al. (2004), Ghoshal and Miller (2003), Haldane et al. (2005) highlight creditor coordination problems or moral hazard as channels driving inefficiencies and delays in crisis resolution.

Other theory papers focus on debtor characteristics, as well as politics and institutions. Benjamin and Wright (2009) show that changes in debtor bargaining power affects the

[2] Esteves (2007) uses data from 1870 to 1913, to show that the quality of creditor representation can also explain the speed of bond restructuring. He finds that the presence of "ad hoc" creditor representation or multiple creditor bodies tended to delay negotiations. In contrast, deals coordinated via the Corporation of Foreign Bondholders could be completed much faster.

speed of debt settlement, as does the level of output and future default risk of the debtor country. Amador (2003), Cuadra and Sapriza (2008), D'Erasmo (2010) and Hatchondo et al. (2009) all stress the role of political instability and government changes for default and debt negotiations. Similarly, there are strong reasons to expect institutional factors to affect the speed of crisis resolution and negotiation patterns. The seminal paper by Reinhart et al. (2003) argues that some countries may be institutionally more apt to deal with high levels of debt and financial distress situations. According to the authors, weak institutions may lay the seeds for future defaults and inappropriate crisis responses. Acemoglu et al. (2003), Kohlscheen (2007) and van Rijckeghem and Weder (2009) provide theoretical arguments along similar lines and find evidence that institutions matter for the probability of default and crises. More recently, Gennaioli et al. (2009) show that institutionally weak countries have less capacity to manage private capital flows, thus exacerbating sovereign risk.

A third branch of the literature analyzes the role of debt characteristics and secondary markets for crises and delays. Bi, Chamon and Zettelmeyer (2009) focus on the legal characteristics of distressed debt and the terms of related exchange offers. Their analysis concludes that larger implicit haircuts (creditor losses) increase the likelihood of delayed or failed restructurings.[3] A further recent contribution, by Bai and Zhang (2009), argues that liquid secondary markets have lead to shorter restructuring duration. This argument is related to Broner et al. (forthcoming) who show that functioning secondary markets will reduce sovereign risk.

Much of the econometric analysis will focus on proxies for debtor willingness to pay, political risk variables and institutional measures. With a view to the extensive theoretical literature I will also test for the role of creditor characteristics and creditor actions such as holdouts and litigation. However, other potential channels of delay such as output shocks, external conditions or the level and composition of debt outstanding will also be accounted for.

3.2.2. What Are the Costs of Delays?

It is widely accepted that the "costs of postponed and disorderly restructurings are real and substantial." (Krozsner 2003, p. 75).[4] To model the drivers of restructuring delay, it is therefore crucial to identify the associated costs (and incentives) for both creditors and debtors. From the existing contributions, one can categorize the ex-post costs of

[3] Yue (2010) does not explicitly model delay but she concludes that larger debt reductions increase the length of financial market exclusion.
[4] See also IMF (2003), Krueger (2003), Benjamin and Wright (2008), Haldane et al. (2005) or Pitchford and Wright (2007).

delay in two general types, namely (i) direct negotiation costs, both administrative and legal, and (ii) indirect costs ("collateral damage").

Direct negotiation costs may accrue due to expenses for personnel, travel or paperwork linked to the restructuring talks. But there may also be external charges. One historical example is the Corporation of Foreign Bondholders which charged bondholders a fee of 0.5 per cent of the face value of new securities (Pitchford and Wright 2007). Similar fees applied in more recent times, as creditors made periodic (or lump-sum) payments for the negotiation service of their representatives. Naturally, the longer negotiations go on, the larger such negotiation expenses will grow. The same is true for legal fees, particularly if creditors initiate court suits against debtor governments.

There may also be substantial indirect costs of delay. Dooley (2000) and Eichengreen (2003) note that disorderly crisis resolution result in large deadweight losses for both creditors and debtors. Creditors can face a suspension of debt payments and mounting arrears. Bad news on the negotiation process can also depress secondary market prices of the debt they hold. Debtor countries, in turn, may be cut off from external capital, with adverse effects for governments and corporations alike (see Arteta and Hale 2008, Richmond and Dias 2009, Eichengreen 2003). Debt crises have also been associated with declines in output, foreign investment or trade and with adverse effects on country reputation or political survival.[5] This "collateral damage" of default is likely to increase, the longer a debt distress situation persists.

3.2.3. Are Delays Inefficient?

The fact that delays can be costly does not mean that they are inefficient from an overall welfare perspective. Bi (2008) argues that delays in sovereign debt restructurings can be beneficial under certain conditions. In essence, she makes a "waiting-for-a-larger-cake" argument: When the defaulting debtor is in a severe recession, the "cake" to be allocated between creditor and debtors will be small. But as the debtor recovers, the restructuring cake will grow. Both sides can thus benefit from waiting to conclude an agreement until debtor output has increased.

Other authors, such as Dooley (2000), go one step further, as they differentiate between the *ex-ante* and *ex-post* costs of disorderly crisis resolution. They argue that the difficulties and costs of restructuring may be an efficient response to the imperfections in sovereign debt markets. Creditors owing money to sovereigns can

[5] See e.g. Panizza et al. (2009), Rose (2005), Martinez and Sandleris (2006), Fuentes and Saravia (2010), Sandleris (2008).

face severe difficulties in enforcing payment or seizing assets. As these problems are known to both sides ex ante, creditors and debtors may implicitly agree to some kind of "punishment" mechanism, possibly via high costs of default and restructuring. Following this argument, policy efforts to reduce delays may even be welfare reducing. Smoother debt workout procedures could create debtor moral hazard and increase the likelihood of opportunistic defaults. The consequence could be higher borrowing costs and lower international capital flows.[6]

With a view to these arguments, this paper takes an explicit ex-post perspective. The focus lays on situations in which severe debt distress has already materialized. I thus analyze the length of restructuring irrespective of the potential ex-ante benefits. However, I deal with Bi's (2008) argument on beneficial delay by explicitly controlling for output fluctuations.

3.3. The Database: Stylized Facts and Case Study Evidence

The dataset assembled for this paper covers 90 individual debt restructuring cases between developing country governments and foreign private creditors (banks or bondholders). The sample includes all main emerging market countries as well as a number of smaller defaulting countries for which sufficient information was available. The period under consideration is 1980 to 2007. The Appendix contains a detailed discussion on case selection, sources and the coding process, while Table 3.1 provides an overview on cases covered. It is important to underline that each restructuring was coded separately, even if there were several consecutive deals in the same country. The advantage of this approach is that negotiation dynamics and creditor actions are coded on a case-by-case basis. Most existing data collections such as that by Standard & Poor's code default episodes mainly from information on arrears and missed payments, thus disregarding negotiation processes. The data at hand code each individual restructuring process separately and therefore allow for a much more refined analysis. Despite this, I will present robustness checks combing consecutive deals together.

3.3.3. New Insights on Restructuring Duration

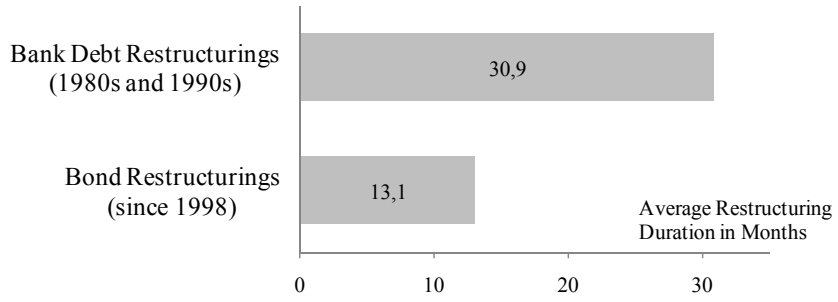
A first insight from the dataset is the very large variability in restructuring duration. Here, the total length of a restructuring is defined as the period from the start of debt

[6] As summarized by Rogoff and Zettelmeyer (2002), this line of reasoning remains a minority view, with good arguments against. Gai et al. (2004), for example, conclude that under effective official sector policies, the ex post gains of effective restructuring processes would easily compensated the potential ex ante losses.

distress (the month with first missed payments and/or restructuring announcement) until the final agreement on an exchange deal (see Appendix for details). Based on this definition, the average restructuring duration for the full sample is 28.6 months (about two and a half years) and has a large standard deviation of 32.3 months. Extended processes include the case of Vietnam, whose government defaulted in 1982 and settled its defaulted debt only in 1997, a period of more than 15 years. Further lengthy restructurings were observed in Ecuador, which was in on-and-off debt negotiations from 1986 to 1995 (8.5 years) or Panama from 1987 to 1996 (9.2 years). At the other end are cases such as Argentina in 2001 (Megaswap), Brazil in early 1983, Uruguay in 2003 or Romania in 1986, who managed to restructure in a period of only 3 months.

Figure 3.1 plots the duration of sovereign debt restructurings by type of creditor, i.e. for bank and bond debt separately. To some surprise, the average restructuring time was much shorter for sovereign bond exchanges. On average, recent bond restructurings could be completed in little more than 1 year (13.6 months). Only Argentina's "global" bond exchange of 2005 took considerably longer than 2 years (41 months). In comparison, bank debt restructurings of the 1980s and 1990s took more than twice as long, with an average duration of 30.9 months.

Figure 3.1: Restructurings Duration by Type of Creditor (Bank vs. Bond Debt)

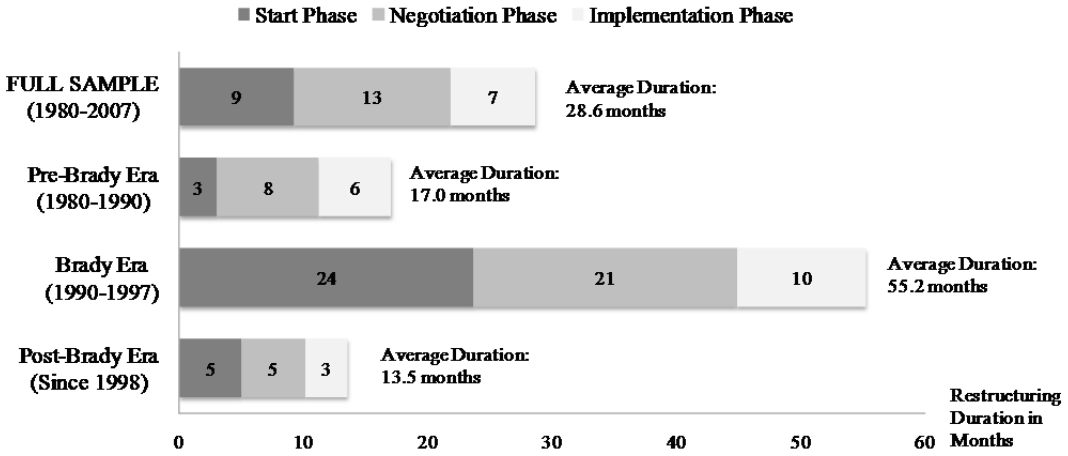


Note: The figure plots the duration of individual debt restructuring processes between debtor governments and private external creditors since 1980. The sample includes 78 bank debt restructuring deals and 12 sovereign bond restructurings. The start of debt distress is defined as either (i) default (missed payments beyond grace period) or (ii) the announcement/start of debt restructuring negotiations. A restrcturing process ends with a final debt exchange agreement.

An alternative approach is to differentiate across the different "eras" of sovereign debt restructuring since 1980. The period under consideration can be divided into the Pre-Brady era until 1990, the era of Brady deals ending with Vietnam's exchange in end 1997 and the post-Brady era starting in 1998. The data also allow to break down each restructuring episode into three sub-phases: the "starting phase" from the start of debt distress (default or restructuring announcement) until the beginning of formal negotiations or informal "market sounding"; the "negotiation phase", which ends with an exchange offer to creditors; and the "implementation phase" which ends with the final agreement and implementation of the debt exchange. This type of sequencing is

advantageous, as it can be applied to both the bank debt restructurings deals of the 1980s and most sovereign bond restructuring (see the Appendix for a detailed discussion).

Figure 3.2: Restructuring Processes over Time



The Figure summarizes the duration of individual debt restructuring processes between debtor governments and private external creditors since 1980. The sample includes 78 bank debt restructuring deals and 12 sovereign bond restructurings. The start of debt distress is defined as either (i) default (missed payments beyond grace period) or (ii) the announcement/start of debt restructuring negotiations. The process ends with a final debt exchange agreement.

As can be seen in Figure 3.2, debt restructurings in the 1980s used to be rather quick, with an average duration of only about one and a half years (17 months). One reason for this is certainly that many deals of the 1980s covered only relatively small volumes of sovereign debt and usually did not imply major maturity extensions. Moreover, they did not feature significant debt reductions or haircuts (see Chuan and Sturzenegger 2005 and Rieffel 2003). After 1989, one can observe a notable increase in restructuring duration. One explanation is certainly "restructuring fatigue" by both creditors and debtors. By the late 1980s many developing countries had witnessed a decade of economic stagnation and showed little willingness to engage in yet another round of maturity extensions and interest reductions. The Brady initiative opened the floor for a new type of deal involving significant debt write offs and financial assistance by Western governments and international financial institutions. Brady-type restructuring processes could take many years and most countries had already been negotiating for years before the start of the initiative in 1989. As a result, the restructurings finalized in the 1990s are characterized by an average run-up time of above 4 years (55.2 months), which is more than three times that of the 1980s or for restructurings since 1998.

Looking at the three sub-phases, it appears that the "negotiation phase" is the most cumbersome. This phase is mainly driven by negotiations on the terms of each deal

and spans an average of 12.6 months. The second longest phase is the "starting phase", i.e. the period from the first missed payments (or restructuring announcement) until the start of negotiations (9.2 months). There are good reasons to assume that the length of this sub-episode is mainly driven by debtor negotiation tactics. In fact, the decision on when to initiate negotiations with creditors is typically a political one. Without negotiations in place, creditors will have little say compared to later episodes. The most surprising insight is that the last sub-period of debt restructurings (the "implementation phase") is rather short, with an average duration of 6.8 months only. During this period creditor behavior is likely to matter most, as banks or bondholders are asked to accept or reject the exchange offer launched by the debtor. In most cases, a successful exchange requires a certain minimum threshold of creditors accepting. Creditor coordination problems and holdout risks are thus likely to be most acute during this period. But on average, such creditor-driven problems appear relatively short-lived.

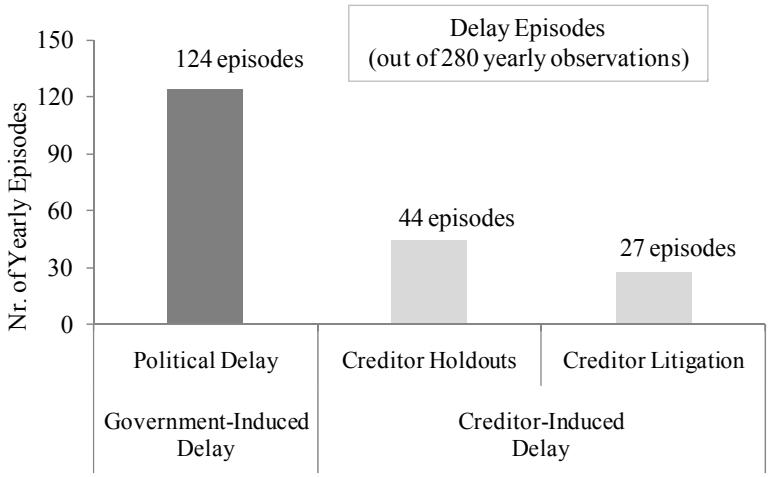
3.3.2. Summary of Delay Narratives 1980 - 2007

Why do debt restructuring talks break down? Which are prominent cases of creditor holdouts? And what role does politics play in debt renegotiations? The following paragraphs summarize main stylized facts from the delay narratives to answer these and more related questions. Although some reporting bias is unavoidable in a large-scale qualitative database, the narratives provided here are likely to depict a relatively objective and comprehensive picture on past debt restructuring processes. Thanks to a very broad information base and detailed day-to-day coverage by the financial press, it was possible to back nearly all coding decision with at least three and sometimes up to 30 sources and quotes. It is striking how much behind-the-scenes information and detailed facts could be extracted from the press. One reason is that debt crisis events and related negotiations can be of paramount importance to both policymakers and investors and tend to trigger a wave of very detailed background reporting. To better understand each of the coding decisions, the paper is accompanied by a separate Appendix summarizing all narratives collected including exact sources for each case.

In the coding process, I put particular effort to differentiate between delays due to creditor behavior on the one side and delays caused by political factors and government negotiation tactics on the other. Regarding creditor behavior, I further distinguished between (i) cases of pre-restructuring litigation towards debtor countries and (ii) cases in which disputes and coordination problems *within* the group of creditors lead to delays, with a particul Restructuring Duration ar focus on holdouts. A first step to summarize the evidence collected is to construct simple dummy variables from these cases. The first delay dummy captures years in which

government behavior and political events clearly delayed negotiations for more than 3 months. The second type of dummies capture those years in which (i) creditor holdouts and/or (ii) litigation explicitly contributed to delay.

Figure 3.3: Summary of the Case Study Evidence



The Figure summarizes the separate thirty page Appendix of Delay Narratives. It is based on yearly delay dummies capturing (i) instances in which government behavior or political events evidently lead to a delay or breakdown of negotiations of more than 3 months, (ii) instances of creditor holdouts and inter-creditor disputes leading to delay and (iii) instances of pre-restructuring litigation.

Figure 3.3 provides a summary of these delay narratives, with more details listed in Table 3.2. The database covers 280 country-year observations (from 90 restructuring episodes in 34 countries). In this panel-type sample, political delay events were observed in 124 yearly cases. In contrast, only 68 years could be identified with either litigation and/or holdouts or inter-creditor disputes. More specifically, litigation was an issue in 27 yearly cases, while inter-creditor disputes and holdouts were observable in 44 years.[7] In other words, the qualitative sources provide significantly more instances of government induced delay compared to creditor related problems. Episodes of political delay also tended to go on for several years, while most instances on creditor holdouts, inter-creditor disputes and litigation spanned only one or two years. All of this indicates in stylized form that political factors were more important in determining delays than creditor behavior.

< Table 3.2 about here >

It is surprising that instances of pre-restructuring litigation and "races to the courthouse" could be observed in so few restructurings only. Sovereign debt litigation has received much attention in academia and policy circles, but it appears to have been

[7] In two cases litigation and creditor disputes occurred simultaneously in one year.

a serious obstacle in only 7 of the 90 restructuring cases surveyed. More specifically, I found legal action to have been a major problem only in Argentina 2001-2005, for Costa Rica's restructurings of 1983 and 1985, in Dominica in 2005 to 2006, in Ecuador in 1993, in Paraguay 1990 to 1994 and in Peru from 1990 to 1995.[8]

Inter-creditor disputes and problems with holdout creditors were a more important stumbling block. In most cases, holdout problems were caused by groups of smaller banks or minor bondholder groups. However, in some cases also major creditors refused to participate in agreements arranged by a representative group (e.g. Bankers Trust in Algeria 1992, Lloyds bank in Argentina 1982, Citibank in Chile 1987 and in the Philippines 1986 as well as nearly all major foreign mutual funds in Russia of 1998). A further repeated problem during the 1980s and 1990s were disagreements over the composition and leadership of creditor committees (e.g. in Algeria 1994, Dominican Republic 1983, South Africa in 1985).

As to political delays, they were manifold. Taken together, the most frequent reason of delays appeared to be aggressive debt policies such as unilateral moratoria as well as failed negotiations with the IMF. Further reasons for political delay were elections and leadership changes (e.g. in Argentina 1988, Brazil 1985 and 89, Dominican Rep. 1994 and 2004, Ecuador 1988 and 1992, Panama 1994), political scandals (e.g. in Brazil 1992 and 93), resignations and cabinet reshuffles (Bolivia 1984, Ecuador 1992, Mexico 1986, Nigeria 1990, Poland 1988, Russia 1992-1997), wars and armed conflicts (Argentina 1982, Panama 1989, Jordan 1990), general strikes and riots (Bolivia 1984, Dominican Rep. 1984, Poland 1982), coups (Ecuador 2000) or the government's refusal to guarantee for the debt incurred by earlier governments (Bulgaria 1990-91). In other cases restructurings failed because governments unilaterally cancelled deals that had earlier already been agreed on (Jordan 1990, Peru 1984-85, Poland 1982, Russia 1995).

3.3.3. Strategic Delay by Debtor Governments?

A last question before turning to the econometric analysis is whether the case studies provide evidence on strategic negotiation delay by governments. It is a striking finding negotiations were often suspended at the same time as payments were suspended, particularly during the late 1980s and early 1990s. In quite a few cases one can observe that full payment moratoria were combined with the outright refusal by governments to engage in restructuring negotiations or, otherwise, with frequent

[8] Of course, pre-restructuring litigation is only one side of the coin. Holdout or "vulture" creditors often file suit against a sovereign only *after* the restructuring has been successfully completed (see Singh 2003 and Alfaro et al. 2007 for a list of vulture cases). However, post-restructuring litigation typically affects only minor parts of the total debt exchanged.

negotiation breakdowns. This was the case in Argentina 1988-1990 and 2002 to 2004, Bolivia 1984 to 1987, Brazil 1989 to 1991, Bulgaria 1991 to 1992, Dominican Rep. 1989 to 1993, Ecuador 1987 to 1993, Paraguay 1987 to 1992, Peru 1984 to 1994, Poland 1990 to 1992, Russia 1992 to 1994 and Vietnam 1982 to 1991.

With reference to the paper on beneficial delays by Bi (2008) it should also be noted that some governments explicitly justified negotiation delays with economic hardship. The financial press provides respective remarks for the restructuring phases of Argentina 1989 to 1991, in Bulgaria 1990 to 1991, in Panama 1990 to 1994, in Poland 1990 to 1994 and in Peru 1990 to 1993. In these cases government members publicly announced to postpone a potential restructuring until the economy improved. In some instances banks even explicitly agreed to such delays. These anecdotal observations give some support for Bi's "waiting-for-a-larger-cake" argument and indicate that both sides might mutually benefit from a lengthening of the restructuring process.

3.4. Empirical Strategy

This section discusses the empirical strategy and the construction of variables. As highlighted above, the aim is to identify individual debt restructuring and negotiation processes, which allows for a more in-depth understanding of delay drivers as compared to an analysis that merges various deals into vaguely defined "default episodes". Note also that I do not analyze delays in re-accessing capital markets after default. This has been done by others (Gelos et al. 2004, Richmond and Dias 2009) and requires a different empirical strategy. Nevertheless, I conduct robustness checks for different duration spells, e.g. by combining subsequent (or parallel) restructuring processes and by assessing the stability of results using different end dates.

3.4.3. The Cox Proportional Hazard Model

To estimate the determinants of debt restructuring delays, I choose a model of survival analysis that allows for the inclusion of time-varying covariates and that can deal with the problem of censored observations. Here, the semi-parametric Cox proportional hazard model is applied, which is frequently used in similar settings (Cox 1972).[9]

[9] Note that the Cox model is properly suited to deal with censored observations in survival data. Anyway, there is no problem of left-censoring here, as no restructuring deal is included that starts earlier than 1980. Similarly, right censoring is not an issue, as the only restructuring processes still ongoing in 2006 and 2007 were those of Dominica and Belize. These cases, however, are excluded from the analysis anyway due to lack of data for the most recent years.

For this model, the hazard rate for the *i*th individual (or *i*th restructuring) can be written as

$$h_i(t) = h_0(t)\exp(\beta' z), \qquad (1)$$

where $h_0(t)$ is the baseline hazard function, z a set of covariates and β a vector of regression coefficients. Here, the hazard rate is the likelihood that a restructuring is successfully completed at time t, conditional on the fact that restructuring efforts are still ongoing.

The key advantage of the Cox model vis-à-vis parametric models such as the Weibull model or the log logistic model, is that it is not necessary to specify a functional form of the baseline hazard rate $h_0(t)$. Instead, the shape of $h_0(t)$ is assumed to be unknown and is left unparametrized. Accordingly, I estimate reduced form models allowing the functional form of the hazard function to be explained by the data. Generally, the model is estimated via a partial likelihood function of the following form:

$$L(\beta) = \prod_{i=1}^{n} \left(\frac{\exp(\beta' z_i)}{\sum_{j \in R(t_i)} \exp(\beta' z_j)} \right)^{\delta_i}, \qquad (2)$$

where $R(t_i) = (j : t_j \geq t_i)$ denotes the risk set (i.e. the number of cases that are at risk of failure) at time t_i. The model can be extended straightforwardly once time varying covariates are included (see Lancaster (1990) for a detailed presentation). Furthermore, it is necessary to modify the likelihood function due to the problem of ties, i.e. coterminous event occurrences. For the estimations in this paper Efron's approximation method is used.

The dataset at hand contains a number of countries that experienced several restructuring processes over the period of observation. The model will thus have to allow for the prevalence of repeatable or multiple events. The presence of such repeated events can yield a covariance matrix that is inappropriate for hypothesis testing (Struthers and Kalbfleisch 1986). To avoid misleading inference, I therefore rely on the variance correction method proposed by Lin and Wei (1989).[10]

[10] For survey on variance-correction methods for repeated events in survival analysis see e.g. Kelly and Lim (2000).

Additionally, to account for consecutive restructurings events and potential learning effects, I also include a variable on the number of years a country is in default and a variable on the number of completed restructuring deals since 1980. Before interpreting the estimation results, I verify whether crucial assumptions of the model, in particular that on proportional hazards, are violated. More specifically, I derive re-scaled Schoenfeld residuals and run Therneau and Grambsch's (2000) post-estimation test of proportionality.

3.4.4. Data and Variables

The estimation sample includes restructuring cases from 28 developing and emerging economies in the period 1980 to 2006 (see Table 3.1).[11] Due to data constraints, particularly for the 1980s, the model is estimated with yearly data. The dependent variable is thus the total duration of debt restructurings in years, as defined above i.e. from the start of debt distress until the finalization of the deal.[12]

The choice of *explanatory variables* is largely driven by the theoretical literature outlined above. The focus lays on debtor and creditor attributes that have been modeled as drivers of restructuring delay, in particular political and institutional factors, as well as creditor characteristics. Beyond this, there is no tightly knight theory dictating the choice of macroeconomic and global control variables. The strategy here is to rely on previous literature, in particular a large body of empirical work on the determinants of entry into (and exit from) from sovereign debt distress (see e.g. the paper on "Rules of Thumb" by Manasse and Roubini 2009). Table 3.3 provides an overview of all variables including summary statistics and data sources.

< Table 3.3 about here >

The first set of variables proxies for political turmoil, institutional quality and debtor willingness to pay. We start with what is arguably the most widely used proxy for political risk, namely the aggregate ICRG index, measuring political risk on a scale from 0 to 100. The advantage of this index is that it is available back to 1984 for a large number of countries. I also use the ICRG sub-indicator for government stability, ranging from 0 to 12. Both indicators are inverted so that higher values indicate higher risk. One problem with the ICRG indicators is that they are based on expert surveys and might thus be endogenous. Experts may attribute higher political risk levels because of inappropriate crisis handling and restructuring delays. As an alternative approach, I therefore follow Dreher (2006) and Dreher at al. (2007) and capture

[11] The cases of Belize, Grenada, Romania, South Africa, Trinidad and Tobago, Vietnam and Yugoslavia are generally not included due to missing data.
[12] If a restructuring is completed in less than 12 months, the duration is considered to be one year.

political instability through the first principal component of observable events from the Databanks International (2007) archive. Concretely, I use the number of general strikes, assassinations, government crises and anti-government demonstrations to construct a yearly index of political disruptions. This index will be more exogenous than survey data and may be better suited in the context of this analysis.

To proxy institutional quality, I rely on data from a growing body of research on institutions and economic outcomes, in particular from the legal origins literature surveyed in La Porta et al. (2008). I use two measures that have been widely used by other researchers, namely a variable on debt enforcement capturing (i) "time to collect on a bounced check" by Djankov et al. (2003), and (ii) a measure of domestic creditor rights originally proposed by La Porta et al. (1997, 1998) and updated by Djankov et al. (2007). I also include another standard variable used in the literature, namely the cross-country index on property rights protection by the Heritage foundation, which is made available by La Porta et al. (2008). In line with the theoretical papers discussed above, I expect weak institutions and a poor domestic credit culture to be associated with less effective crisis management by the government and longer delays in negotiations with external creditors.

In a next step I proxy government willingness to pay with a dummy on "full debt moratoria" from Enderlein, Trebesch and von Daniels (2010). This dummy captures a government's decision to fully suspend principal *and* interest payments towards private creditors. In line with others I regard full moratoria as a drastic policy option even under a situation of distress. Obstfeld and Taylor (2003), for example, distinguish between "partial" and "full" defaulters, while Eichengreen (1991) refers to "light" versus "heavy" defaulters. In the following, I regard governments that even refuse symbolic token as showing strong signs of unwillingness to pay and few incentives to come to a quick agreement with creditors. This predicts a negatively signed coefficient for the dummy on full moratoria.

The second main set of variable capture creditor attributes. It was possible to code reliable information on the number of commercial banks and on the size of Bank Advisory Committees (the bank's representative body) in most of the debt renegotiations of the 1980s and 1990s (see Appendix). However, the number of creditors could not be coded for most of the bond restructuring cases after 1998 (Argentina, Ukraine and Russia being the exceptions), due to a lack of transparency in secondary bond markets. To deal with this shortcoming, I construct a further variable on creditor characteristics, namely a dummy for bond restructurings that takes the value of 1 for all bond exchange deals as opposed to bank debt restructurings. The theoretical prior is that a larger pool of creditors will increase coordination problems,

lower creditor bargaining power and lead to longer restructuring processes. One may thus expect a negative estimated coefficient for each of these three variables.

To account for macroeconomic factors, I include proxies for a government's capacity to pay. Following the debt distress literature I use GDP per capita, the ratio of total external debt to Gross National Income (GNI), as a standard measure of solvency problems and the ratio of short-term debt to reserves as a standard measure of liquidity pressure. Large debt burdens and severe distress are likely to undermine quick negotiations and crisis resolution. One can thus expect negatively signed coefficients. Once can also expect richer countries to have a better capacity for effective crisis management. To address the apparent endogeneity problem associated with these variables, I use initial values.[13] Next, I include measures of financial openness and trade openness as well as. More open debtor countries can raise foreign exchange more easily and may also have stronger incentives to exit a default situation. Following Bi (2008) and Pitchford and Wright (2008), I also include an annual measure of real GDP as deviation from trend.[14] Theory predicts a positive coefficient of this variable, as good output states should increase the "cake" to be shared between debtor and creditors, thus facilitating a final agreement. I use lagged values of this variable to reduce potential endogeneity bias. Further variables include the number of previous restructurings since 1980 to capture potential learning effects, and the initial ratio of debt owed to private creditors (in percent of total public debt). A higher share in the latter variable is likely to result in shorter negotiations vis-à-vis private creditors. One reason is that governments borrowing heavily from private sources may be more dependent on good relations with banks or bondholders.

The role of external shocks is captured by (i) the level of the global interest rate (LIBOR), (ii) the log of total capital flows to developing and emerging economies, (iii) by changes in the debtor's net barter terms of trade and by (iv) a dummy for major natural disasters. Higher total capital inflows and improved terms of trade are likely to alleviate tight financial conditions, thus facilitating the restructuring processes. Higher capital flows might also add incentives for debtor countries to implement a quick restructuring in order to re-access liquid capital markets. It is thus reasonable to expect positive coefficients of these two measures. Data on natural disasters come from the International Emergency Disasters Database (EM-DAT). Specifically, I use a dummy whenever governments declared a state of emergency due to earthquakes, floods, storms, fires or volcano outbreaks.[15] Natural disasters are expected to delay

[13] Initial values refers to the year before the distress/negotiation starts. The Debt/GNI ratio, for example, is likely to increase with delay due to a built-up of debt arrears and a parallel decline in GDP.
[14] Calculated using the Hodrick-Prescott filter with a smoothing parameter of 6.25, as recommended for annual data.
[15] Using other measures of natural disasters, e.g. a variable capturing the total number of people affected, does not change the results.

restructuring speed, predicting a negative coefficient. As to the global interest rate, the expected sign is more difficult to predict on theoretical grounds. A higher LIBOR rate tends to increase debt servicing costs, thus lowering debtor incentives to resume payments or settle debt. But interest rates can also be regarded as an opportunity cost for creditors. Higher rates will make it more expensive for vulture funds and litigious creditors to hold out large amounts of non-exchanged debt. This could thus result in quicker restructurings. The impact of the global interest rate is therefore ultimately an empirical question.

3.5. Estimation Results

3.5.1. Main Results

Table 3.4 presents a compact overview of main findings. More detailed estimation results are presented in Table 3.5 and 3.6 below. To interpret the coefficients, it should be noted that in the proportional hazards model, higher hazard rates imply shorter duration. A positively signed coefficient means that higher values of a covariate increase the hazard rate, i.e. the likelihood of failure in a given period. Here, a positive coefficient indicates that higher values of that variable are associated with shorter restructuring times. In turn, a negative coefficient is associated with a longer duration relative to the baseline.

To strike a balance between parsimony and performance of the model, a baseline specification with main explanatory variables is estimated. With a view to sample size and missing data for some variables, this specification of 214 annual observations is then expanded stepwise to include further key variables of interest. Note that all specifications where tested for model fit following standard practice in survival analysis (see e.g. Cleves et al. 2008). The suggested link test does not provide indication of misspecification in any of the estimations, as the squared linear predictor is clearly insignificant in each case. More importantly, diagnostic tests based on Schoenfeld residuals provide comfort that the crucial assumption of proportional hazards is not violated for any of the explanatory variables.

We start with a baseline specification of economic variables that is expanded to include measures of output fluctuations, openness and external shocks. A first suspiring insight from is that only few financial and macroeconomic variables seem to play a role for the speed of debt restructurings. The initial degree of indebtedness (external debt to GNI), country wealth (GDP per capita) and financial and trade openness all turned out to be statistically insignificant. Even output fluctuations (GDP deviation from trend) are not systematically related to negotiation delays, despite the strong theoretical priors. The only debt related variable with a significant correlation is

the ratio of short-term debt to reserves. The results indicate that countries with a more severe liquidity problem take longer to restructure on average.

Table 3.4: Summary of Main Results

Explanatory Variables	Expected Sign	Est. Coefficient
Baseline Regression		
External Debt / GNI (initial)	-	0.13
Short-term Debt / Reserves (initial)	-	-0.06***
Share of Debt to Private Creditors (initial)	+	1.01**
Nr. of Previous Restructurings	+	-0.04
Adding Additional Variables:		
Output, Openness and External Shocks		
GDP per capita (in logs, at PPP) (initial)	+	0.06
GDP Deviation from Trend (in %)	+	2.56
Financial Openness (initial)	+	-0.04
Trade Openness (initial)	+	0.01
Terms of Trade (Change in %)	+	0.01
Total Capital Flows to Dev. Countries (log)	+	0.05
Natural Disasters	-	0.62
Global Interest Rate (LIBOR)	+/-	-0.10*
Politics and Institutions		
Political Risk (ICRG Index)	-	-0.05**
Government Instability	-	-0.23***
Political Disruptions	-	-0.31**
Willingness to Pay (Full Debt Moratorium)	-	-2.50***
Property Rights Index (Heritage)	+	0.63***
Creditor Rights Index (Djankov et al. 2003)	+	0.29***
Time to Collect Bounced Check (log)	-	-0.73*
Creditor Characteristics		
Number of Creditors (log)	-	0.00
Size of Bank Advisory Committee	-	-0.00
Bond restructurings (Dummy)	-	0.61*
Delay Dummies		
Political Delay	-	-1.88***
Creditor Holdouts	-	0.18
Creditor Litigation	-	-0.60

Note: Survival time regressions using the total restructuring duration in years as dependent variable. Tables 3.5, 3.6 and 3.7 below provide the detailed regression outputs. The results are shown as coefficients, not hazard rates. Negative coefficients indicate longer durations relative to the baseline. ***/**/* denotes significance at a 1/5/10 % respectively.

Beyond this, I find that the debt composition matters: the higher the share of public debt owed to private creditors, the shorter restructuring duration. This provides some indication that countries with better access to private capital markets are quicker at resolving distress than countries that mostly rely on official sources of financing. The reason behind might be the incentive to re-access commercial sources of financing after a speedy settlement. But higher shares of private debt could also indicate stronger

institutions (Gennaioli et al. 2009) and, thus, better crisis resolution policies. A further result is that we find no evidence for learning effects in repeated negotiations with private creditors. The coefficient for the variable on previous restructurings is negative and insignificant. We also find no evidence that external shocks play a dominant role. The coefficients for overall capital flows to developing country, for terms of trade movements and for the dummy on natural disasters are all insignificant. Only the LIBOR rate is found to be significant, albeit only at the 10% significance level. The negative coefficient indicates that interest rate increases tend to delay the completion of sovereign debt restructurings.

The results are more clear-cut with regard to political and institutional variables. Institutional quality and government stability turn out to be highly significant predictors for the duration of restructurings. The coefficient for government instability of -0.05 indicates that a one unit increase of the political risk index lowers the likelihood of coming to a final agreement in a given year by $100*(e^{-0.05}-1) = -4.64\%$. Accordingly, we can associate a one standard deviation increase in political risk (10 index points) with a 38% lower hazard rate (here: the likelihood of concluding the restructuring) in any given year.[16] The more exogenous index of political disruptions has a significant and sizable coefficient as well. Even more notably, I find a very large coefficient for the proxy of debtor willingness to pay. The government's decision for a full debt moratorium is associated with a 92% lower hazard rate in any year. This strengthens the anecdotal evidence that payment suspensions tend to go hand-in-hand with negotiation deadlocks. One reason may be that full debt moratoria are difficult to reverse for political reasons. As pointed out by William Rhodes, senior executive of Citibank during the 1980s and 1990s: "It's easy to get into a moratorium. It's tough to get out."[17]

The proxies for institutional quality show significant and quantitatively important coefficients as well. A one standard deviation increase in the property rights and creditor rights indicators are associated with 63% and 52% higher hazard rates, respectively. This shows that restructurings in countries with stronger institutions tend to be significantly quicker, which is in line with theoretical predictions.[18] Also the credit enforcement indicator on "time to collect a bounced check" is significant, although only at the 10% significance level and with a less pronounced quantitative effect. Altogether, these findings underline the dominant role of politics and institutions for debt renegotiations.

[16] The calculation is $100*(e^{[10*-0.05]}-1) = -37.85$.
[17] Cited in a Reuters article, 10th of May 1988.
[18] Note that the creditor rights index is measured in 2003, while the property right index is from 2004. However, the results are very similar when using alternative measures, such as the creditor rights measure of 1979 as coded by Djankov et al. (2007) or "historical" property rights indicator data, e.g. by ICRG.

Turning to creditor characteristics, the results are unexpected. The number of creditors involved and the dummy for bond restructurings are insignificant throughout.[19] These findings stand in contrast to the theoretical prior that more creditors lead to more trouble and that bond debt takes longer to restructure due to difficulties in creditor coordination. Simple descriptive statistics for the 1980s and 1990s support this finding. As shown in Figure 3.4 below, there is no strong link between the length of negotiations and the total number of banks involved in London Club type restructurings. If at all, the relationship is negative, indicating that more creditors are associated with quicker restructuring. Even the size of the bank advisory committees has no significant influence on duration (see column 2 of Table 3.7).

< Table 3.5 about here >
< Table 3.6 about here >
< Table 3.7 about here >

Summarizing, I find no explicit evidence that creditor characteristics were a dominant reason of restructuring delays, while proxies for political factors and government negotiation behavior show large and significant coefficients. This conclusion is strengthened in a more formal test of the case study evaluation above. Specifically, I estimate the baseline model and add the newly constructed dummies on creditor and debtor induced delay from the delay narratives (see Table 3.2). This exercise shows the dummy on "political delays" to be highly significant. In contrast, creditor litigation only has a weakly significant coefficient, and turns insignificant in a number of other model specifications. The dummy for creditor holdouts is insignificant throughout.

The lack of evidence for creditor induced delay should however not be misinterpreted. First, I lack systematic data on creditor composition, which might be a more important attribute than creditor numbers or the type of instruments involved (bank vs. bank debt). Second, one cannot negate anecdotal evidence that creditor incentives have been a major stumbling block role in past restructurings.[20] Many attribute delays in resolving the 1980s debt crisis to the refusal (or inability) of Western banks to agree to generous debt reduction to developing country debtors early on.[21] Also more recent cases have shown that the issue of holdout creditors remains problematic to this date,

[19] This result is stable for many different specifications and sub-samples, and the coefficient for the number of creditors even turns positive for some specifications.
[20] Debt crises may even be triggered by creditor coordination problems from the outset. Among the debt crises that were partly triggered by massive capital outflows are the cases of the Philippines 1983, in South Africa 1985 and in Uruguay 2002/2003.
[21] Rieffel (2003, p. 155) underlines that "the exposure of all US bank […] was so great that writing off 20 percent of the developing country debt would have whipped out most of their capital."

e.g. in Dominica 2004 and Belize 2007.[22] In addition, it is hard to tell whether creditor coordination problems would have been more severe, had there not been frequent pressure and "moral suasion" by national governments and central banks (see e.g. Bluestein 2001, Boughton 2001 and Rieffel 2003).

3.5.2. Robustness Checks

To validate the above findings, I implement a series of additional estimations and robustness checks. For this purpose, I first identified a specification with superior model fit that retained as many observations and key explanatory variables as possible. Table 3.8 below provides an overview on the main related estimation results.

A first potential concern is omitted variable bias, an issue that cannot be properly addressed via diagnostic tests such as the link test. It might be that the results change once additional explanatory variables are included. To account for this, I estimated a large set of model specifications involving further variables. First, I controlled for further characteristics of the restructuring deal by including a dummy for Brady deals and a variable on the scope of the deal (See Table 3.8).[23] Surprisingly, the mere scope of the restructuring does not seem to play a role for delay. In contrast, I find the dummy for Brady deals to be highly significant and negative, which is in line with the above observation that deals finalized in the Brady era 1990 to 1997 took particularly long. In a next step, I estimated a fixed effects model including year dummies. I also included further variables on domestic financial and economic conditions (share of long-term to short-term debt, short-term debt to exports, inflation, current account balance and trade balance), proxies for the scope of IMF and World Bank involvement (net total transfers), and further political and socioeconomic variables (elections, armed conflicts, government changes, socioeconomic conditions). In most cases the inclusion of these, and other, covariates did not provide much additional insights, but often reduced the sample size.[24] However, the additional regressions identified some of the variables to be less robust than others. In particular, I find the "ratio of short-term debt to reserves" and the LIBOR rate to turn insignificant in some regressions

[22] Due to holdout creditors and in the absence of collective action clauses, the tiny state of Dominica has been struggling to complete debt exchange agreements with several holdouts creditors from 2003 to 2007. Contrarily, the government of Belize was able to take advantage of CACs in February of 2006 and finalized their bond exchange in little more than 6 months.

[23] The deal size is proxied by the amount of debt restructured to total outstanding external debt. Information on the amount restructured (in USD) is taken from the IIF (2001) survey of debt restructuring deals with private creditors. For completeness, I summed up all amounts restructured in each deal, including the amounts of restructured private debt that was guaranteed by the sovereign. For the post-2001 period I relied on the amounts cited in the GDF reports by the World Bank (2003, 2004, 2006, 2007). The variable is divided by the debtor's total amount of external debt taken from the GDF database using values of one year prior to the restructuring agreement.

[24] Results are not reported but are available upon request.

and subsamples. But the main results remain largely unaffected by different samples and specifications: Political instability, institutions and politically induced delays seem to be crucial (and robust) determinants of restructuring duration, while creditor characteristics and most macroeconomic factors much less so. Also the "share of debt owed to private creditors" is significant in almost all specifications.

< Table 3.8 about here >

A second issue is the definition of the dependent variable. First, one may want to combine subsequent spells into joint "default periods" instead of analyzing individual restructuring deals. I therefore redefine the dependent variable by merging subsequent individual restructurings into joint episodes whenever the finalization of one deal was less than 2 years away from the start of another round. With a view to Table 3.1, this resulted in a sample of 39 crisis cases instead of the larger sample of individual restructurings. Second, one might not agree with the given definition of ending dates. So far, restructurings were defined as completed whenever the debtor comes to a final exchange agreement with the large majority of creditors. In a few individual cases, however, a non-negligible share of creditors held out against a majority. This applies for example to Argentina, where over 20 percent of creditor refused to participate in the global exchange of 2005, often opting to sue for better terms (Sturzenegger and Zettelmeyer 2006). To account for this type of situations I run a robustness check that takes into account post-restructuring litigation and holdouts. Specifically, I redefined the end date of the following cases: Argentina until today, Brazil until 1996 (instead of 1994), Dominica until 2007 (instead of 2004), Ecuador until 1997 (instead of 1995), Peru 2000 (instead of 1997) and Poland 1995 (instead of 1994). As can be seen in columns 5 and 6 of Table 3.8, the results are largely robust to these alterations of the dependent variable.

Third, it could be possible that outliers or regional effects drive some of the results. To address this concern I ran the full model by excluding major individual debtor countries one by one, in particular Argentina, Brazil, Ecuador, Peru, the Philippines and Russia. I also excluded outlier cases of particular long or particular short restructurings and dropped observations from the 1980s to see whether the results hold for the more recent period only. However, neither of these steps altered my main findings significantly.[25] Table 3.8 also shows that the results are robust to the inclusion of world region dummies (following the World Bank classification). The findings indicate that restructurings in Asia where significantly quicker, while restructurings in Sub-Saharan Africa took significantly longer as compared to the reference category (Latin America).

[25] Again, the results are not reported but are available upon request.

As a final robustness check, I reassessed the results by estimating parametric survival models, instead of the more flexible semi-parametric Cox model. Given the uncertainty which of the parametric distributions best fits the underlying process, estimations were performed for all standard parametric models (Exponential, Weibull, Log-logistic, Gompertz, Lognormal). Even though these models impose very different behavior structures to their respective hazard functions, the estimated coefficients were only little affected by model choice. To provide one example, the last column of Table 3.8 shows estimation results for the widely used Weibull model.

3.6. Conclusion

The resolution of sovereign debt crises is, and has always been, a difficult process. It remains a challenge to better understand what explains effective and orderly restructurings and why some cases have become so exceptionally messy. This paper provides new evidence on the issue, by focusing on the duration of restructuring processes and on the causes of negotiation delays.

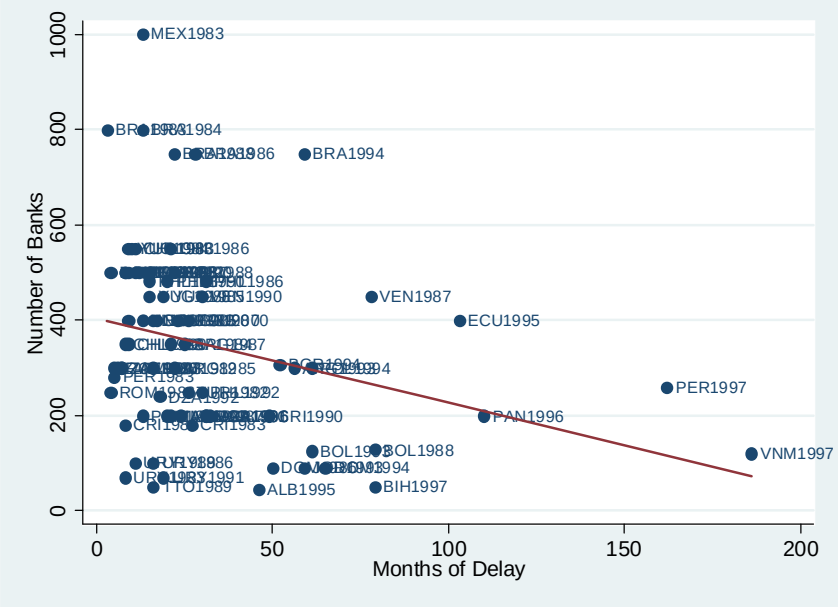
The findings raise doubts on a number of widespread beliefs on sovereign debt restructurings. First, it seems questionable that restructurings in the "good old banking times" were more orderly. Instead, the data show that restructurings in the 1980s and 1990s were plagued by protracted talks and frequent negotiation breakdowns. The data also clearly reject the assertion that restructurings have become messier in the last decade. Most bond restructurings since 1998 were implemented quickly, with only one prominent exception: Argentina, which is an outlier case in many aspects.

The duration models identify political risk, economic variables and proxies for the government's willingness to pay as highly significant predictors of delay. These results are robust to different specifications and samples and also to alterations in the dependent variable. However, I find no indication that creditor attributes were a primary reason for restructuring delay. It is particularly surprising that there is no correlation between the number of creditors involved and the length of the negotiation process. When evaluating the case study evidence, this picture is confirmed. Creditor holdouts and litigation occurred in only 68 yearly cases out of the 280 surveyed. In contrast, negotiation delays due to government behavior could be observed in 124 yearly episodes, nearly twice as many times.

Overall, this paper underlines the principal importance of debtor incentives, political risk and institutions for crisis resolution. Yet, these aspects have not received much attention in past research on debt renegotiations or in the related policy debate. More work on the political economy of financial crises, particularly on the role of domestic

political constraints in crisis resolution might provide additional insights. Furthermore, it could be rewarding to analyze the effect of creditor composition and heterogeneity more explicitly.

Figure 3.4: Restructuring Delay and the Number of Creditors Involved (in London Club Bank Debt Restructurings, 1980-1997)



Scatter plot and fitted regression line for restructuring duration and the number of commercial banks in 78 bank debt restructurings since 1980. The analysis time is months, where the start of debt distress is defined as either (i) default (missed payments beyond grace period) or (ii) the announcement of a debt restructuring or related negotiations. A deal ends with the final restructuring agreement and/or the implementation of the debt exchange.

Table 3.1: Sovereign Debt Restructuring Processes Covered in the Dataset

	Start Year	Year of Completion		Start Year	Year of Completion
Albania	1991	1995	Pakistan	1999	1999
Algeria	1990	1992	Panama	1983	1983
Algeria	1993	1996	Panama	1984	1985
Argentina	1983	1985	Panama	1987	1996
Argentina	1985	1987	Paraguay	1986	1993
Argentina	1988	1993	Peru	1983	1983
Argentina	2001	2001	Peru	1983	1997
Argentina	2001	2005	Philippines	1983	1986
Belize*	2006	2007	Philippines	1986	1987
Bolivia	1981	1988	Philippines	1988	1990
Bolivia	1988	1993	Philippines	1990	1992
Bosnia	1991	1997	Poland	1981	1982
Brazil	1982	1983	Poland	1982	1982
Brazil	1983	1984	Poland	1982	1983
Brazil	1984	1986	Poland	1983	1984
Brazil	1987	1988	Poland	1986	1986
Brazil	1989	1994	Poland	1986	1988
Bulgaria	1990	1994	Poland	1989	1989
Chile	1983	1983	Poland	1989	1994
Chile	1984	1986	Romania*	1981	1982
Chile	1986	1987	Romania*	1983	1983
Chile	1988	1988	Romania*	1986	1986
Chile	1990	1990	Russia	1991	1997
Costa Rica	1981	1983	Russia	1998	2000
Costa Rica	1984	1985	South Africa*	1985	1986
Costa Rica	1986	1990	South Africa*	1986	1987
Dominica	2003	2004	South Africa*	1989	1989
Dominican Rep.	1982	1986	South Africa*	1992	1993
Dominican Rep.	1989	1994	Tobago*	1988	1989
Dominican Rep.	2004	2005	Turkey	1980	1982
Ecuador	1982	1983	Ukraine	1999	2000
Ecuador	1984	1985	Uruguay	1983	1983
Ecuador	1986	1995	Uruguay	1985	1986
Ecuador	1998	2000	Uruguay	1987	1988
Grenada*	2004	2005	Uruguay	1989	1991
Jordan	1989	1993	Uruguay	2003	2003
Mexico	1982	1983	Venezuela	1981	1987
Mexico	1984	1985	Venezuela	1988	1990
Mexico	1986	1987	Vietnam*	1982	1997
Mexico	1988	1990	Yugoslavia*	1983	1983
Moldova	2002	2002	Yugoslavia*	1983	1984
Morocco	1983	1986	Yugoslavia*	1984	1985
Morocco	1985	1987	Yugoslavia*	1987	1988
Morocco	1989	1990			
Nigeria	1982	1984			
Nigeria	1986	1987			
Nigeria	1988	1989			
Nigeria	1989	1991			

Note: The Table lists debt restructuring processes between debtor governments and private international creditors (banks, bondholders etc.). The start of debt distress is defined as either (i) default (missed payments beyond grace period) or (ii) the announcement of a debt restructuring or related negotiations. A deal ends with the final restructuring agreements and/or its implementation.

* The cases of Belize, Grenada, Romania, South Africa, Trinidad and Tobago, Vietnam and Yugoslavia are not included in the estimations due to missing data.

Table 3.2: Overview of the Case Study Evidence (Delay Narratives)

		Government-Induced Delay		**Creditor-Induced Delay**			
Country	Total Years in Debt Distress (1980-2007)	Delays due to **Government Behavior/ Political Shocks**	Nr of Years	Episodes with **Creditor Holdouts**	Nr of Years	Episodes with pre-restructuring **Litigation**	Nr of Years
Albania	5	1992	1		0		0
Algeria	7	1994	1	1992, 1994	2		0
Argentina	16	1982-1985, 1988-1991, 2002-2003	10	1982, 1984	2	2002-2005	4
Belize	2		0		0		0
Bolivia	13	1983-1986	4	1988-1992	5		0
Bosnia and Herzegovin	7		0		0		0
Brazil	13	1985, 1987, 1989-1990, 1992-1993	6	1982-1983, 1987	1		0
Bulgaria	5	1990-1991	2		0		0
Chile	7		0	1986-1987	2		0
Costa Rica	10	1981-1982, 1986-1988	5	1985-1988	4	1981-1985	5
Dominica	2		0	2004	1		0
Dominican Republic	13	1983-1984, 1987-1992, 1994, 2004	10	1983	1	1983	1
Ecuador	17	1987-1993, 1999-2000	9	1985	1	1989-1993	5
Grenada	2		0		0		0
Jordan	5	1989-1990	2		0		0
Mexico	9	1986	1	1982-1983, 1985-1987	5		0
Moldova	1		0		0		0
Morocco	7	1983-1986	4		0		0
Nigeria	9	1987-1988, 1990-1991	4	1983, 1987, 1991	3		0
Pakistan	1		0		0		0
Panama	13	1987-1994	8		0		0
Paraguay	8	1986-1990	5		0	1991-1992	2
Peru	15	1984-1994, 1996	12	1994-1995	2	1990-1995	6
Philippines	10	1983-1984, 1987, 1991	4	1984-1985, 1986-1987	4		0
Poland	14	1982, 1987 - 1988, 1990 - 1993	7	1987-1988, 1991-1994	6		0
Romania	6	1981 - 1982	2		0		0
Russia	10	1992 - 1999	8	1998-1999	2	1999-2000	2
South Africa	6		0	1985-1986	2		0
Trinidad and Tobago	2		0		0		0
Turkey	3		0		0		0
Ukraine	2		0		0		0
Uruguay	9		0		0		0
Venezuela	10	1983-1984, 1986-1987	4		0	1985-1986	2
Vietnam	16	1982-1993, 1995-1997	15		0		0
Yugoslavia	5		0	1983	1		0
SUM	**280**		**124**		**44**		**27**

Note: The Table lists “political delays”, “creditor holdouts” and “pre-restructuring litigation” as defined in the text and the Appendix A1 above. It thus summarizes the “Delay Narratives Database” provided in a separate Appendix.

Table 3.3: Summary Statistics (Duration Analysis)

Variable	Obs	Mean	Std. Dev.	Min	Max	Source
Baseline Variables						
Total External Debt / GNI (in %)	214	0.77	0.34	0.25	1.86	GDF
Short-term Debt / Reserves (in %)	214	2.85	5.32	0.07	24.00	GDF
Public Debt to Private Creditors / Total Public Debt (in	214	0.56	0.23	0.05	0.90	GDF
Nr. of Previous Restructurings (Since 1980)	214	1.27	1.28	0	5	Own Coding
Output, Openness and External Shocks						
GDP per capita (PPP, in logs)	214	8.08	0.59	6.25	9.37	WDI
Real GDP as % Deviation from Trend (lagged)	214	-0.01	0.03	-0.11	0.11	PRS Group
Financial Openness (Chinn-Ito Index)	214	-0.60	1.25	-1.81	2.53	Chinn and Ito (2006)
Trade Openness (Imports+Exports/GDP)	214	37.85	18.31	11.46	101.21	WDI
Terms of Trade (yoy change, in %)	186	-1.57	13.60	-51.02	50.80	WDI
Total Capital Flows to Dev. Countries (logs)**	210	11.42	0.86	9.41	13.42	GDF
Natural Disasters (Dummy for State of Emergencies)	214	0.05	0.22	0	1	EM-DAT
Global Interest Rate (LIBOR, in %)	214	7.67	2.90	1.22	16.87	Datastream
Politics and Institutions						
Institutions: ICRG Index	180	45.73	9.84	27.29	67.25	ICRG, PRS Group
Government Stability	180	6.32	1.80	1.00	11.00	ICRG, PRS Group
Index of Political Disruptions*	214	-0.06	1.08	-0.98	3.69	Databanks, Own Calculations
Full Debt Moratorium (Dummy)	214	0.31	0.46	0	1	Enderlein et al. (2010)
Property Rights Index (2004)	212	2.42	0.76	2.00	5.00	Heritage Foundation
Creditor Rights Index (2003)	210	1.50	1.21	0	4.00	Djankov et al. (2003)
Time to Collect Bounced Check (in logs)	204	5.57	0.36	4.65	6.14	Djankov et al. (2007)
Creditor Attributes						
Number of Creditors (log)	200	5.84	1.48	3.91	13.12	Own Coding (See Appendix)
Size of Bank Advisory Committee (1980s and 1990s	193	11.43	4.04	2.00	30.00	Own Coding (See Appendix)
Bond Restructurings (Dummy)	214	0.07	0.26	0	1	Own Coding (See Appendix)
Delay Dummies						
Political Negotiation Delays (Dummy)	214	0.42	0.49	0	1	Own Coding (See Appendix)
Creditor Holdouts and Inter-creditor Disputes (Dummy)	214	0.19	0.39	0	1	Own Coding (See Appendix)
Pre-restructuring Litigation (Dummy)	214	0.13	0.33	0	1	Own Coding (See Appendix)

The Table shows summary statistics for the baseline sample of 214 observations. GDF and WDI stands for the World Bank's Global Development Finance and World Development Indicators database respectively, Databanks Int. stand for the Databanks International (2007) Cross-National Time-Series Data Archive. PRS Group stands for Political Risk Service who provide the ICRG indicators (International Country Risk Guide). * The Index of Political Disruptions represents the first principal component of the number of general strikes, assassinations, government crises and anti-government demonstrations. ** The log of total capital flows is constructed using net capital inflows to all 146 developing countries included in the World Bank's Global Development Finance database.

Table 3.5: Results - Macroeconomic Factors

	Debtor Attributes - Capacity to Pay, Openness, Shocks					
	Baseline	With GDP per capita	With Output Fluctuations	With Openness Indicators	With External Shocks	Full Model
External Debt / GNI (initial, in %)	-0.06***	-0.06***	-0.06***	-0.06**	-0.05***	-0.05*
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.03)
Short-term debt / Reserves (initial, in %)	0.13	0.16	0.16	-0.16	0.19	0.10
	(0.29)	(0.29)	(0.30)	(0.31)	(0.35)	(0.33)
Share of Debt to Private Creditors (initial, in %)	1.01**	0.98**	1.06**	1.14**	1.36**	1.53**
	(0.47)	(0.46)	(0.46)	(0.51)	(0.60)	(0.67)
Nr. of Previous Restructurings	-0.04	-0.04	-0.04	-0.00	-0.14	-0.13
	(0.08)	(0.08)	(0.08)	(0.09)	(0.12)	(0.13)
GDP per capita (in logs, at PPP, initial)		0.06				-0.14
		(0.21)				(0.20)
GDP Deviation from Trend (lagged, in %)			2.56			5.13
			(4.44)			(4.73)
Financial Openness (initial)				-0.04		-0.01
				(0.18)		(0.21)
Trade Openness (initial)				0.01		0.00
				(0.01)		(0.01)
Global Interest Rate (LIBOR)					-0.10*	-0.12*
					(0.06)	(0.06)
Terms of Trade (yoy change, in %)					0.01	0.02**
					(0.01)	(0.01)
Total Capital Flows to Dev. Countries (logs)					0.05	0.09
					(0.18)	(0.20)
Natural Disasters					0.62	0.69
					(0.44)	(0.43)
Observations	214	214	214	214	184	184
Log-Likelihood	-198.00	-197.97	-197.78	-197.30	-148.06	-147.20
Schwarz B.I.C.	417.46	422.77	422.40	426.80	337.85	356.99

Note: Survival time regressions using the total restructuring duration in years as dependent variable. The results are shown as coefficients, not hazard rates. Accordingly, negative coefficients indicate longer durations relative to the baseline. ***/**/* denotes significance at 1/5/10 % respectively.

Table 3.6: Results – Political Risk and Institutions

	Political Risk and Shocks			**Willingness to Pay**	**Institutional Quality**		
	With Political Risk	With Government Stability	With Political Disruptions	With Full Moratorium	With Property Rights	With Creditor Rights	With Time to Collect Bounced Check
External Debt / GNI (initial, in %)	0.33	0.08	-0.06	0.29	-0.47	-0.01	-0.18
	(0.41)	(0.36)	(0.35)	(0.27)	(0.38)	(0.28)	(0.39)
Short-term debt / Reserves (initial, in %)	-0.04***	-0.04**	-0.05***	-0.02	-0.04**	-0.08***	-0.08***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Share of Debt to Private Creditors (initial, in %)	0.49	0.95*	1.38***	0.67	0.12	1.31***	1.48***
	(0.49)	(0.52)	(0.53)	(0.54)	(0.57)	(0.49)	(0.50)
Nr. of Previous Restructurings	-0.21	-0.08	-0.14*	-0.09	-0.19**	-0.11	-0.18*
	(0.13)	(0.11)	(0.08)	(0.09)	(0.09)	(0.09)	(0.11)
Global Interest Rate (LIBOR)	-0.10*	-0.06	-0.14***	-0.14***	-0.16***	-0.13**	-0.12**
	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
Political Risk (ICRG Index)	-0.05**						
	(0.02)						
Government Instability		-0.23***					
		(0.07)					
Political Disruptions*			-0.31**				
			(0.15)				
Full Debt Moratorium				-2.50***			
				(0.42)			
Property Rights					0.63***		
					(0.12)		
Creditor Rights						0.29***	
						(0.09)	
Credit Institutions (Collect Bounced Check)							-0.73*
							(0.38)
Observations	180	180	214	214	212	210	204
Log-Likelihood	-150.57	-150.87	-192.99	-180.49	-185.63	-185.30	-177.37
Schwarz B.I.C.	332.29	332.90	418.17	393.18	403.39	402.68	386.66

Note: Survival time regressions using the total restructuring duration in years as dependent variable. The results are shown as coefficients, not hazard rates. Accordingly, negative coefficients indicate longer durations relative to the baseline. ***/**/* denotes significance at 1/5/10 % respectively.

Table 3.7: Results – Creditor Characteristics

	Creditor Characteristics			
	With Number of Creditors	With Size of Bank Committee	With Bond Restruct. Dummy	With Delay Dummies
External Debt / GNI	0.02	0.03	0.09	0.04
(initial, in %)	(0.35)	(0.36)	(0.33)	(0.37)
Short-term debt /	-0.06***	-0.06***	-0.05***	-0.02
Reserves (initial, in %)	(0.02)	(0.01)	(0.01)	(0.02)
Share of Debt to Private	1.46***	1.51***	1.14**	0.57
Creditors (initial, in %)	(0.44)	(0.50)	(0.46)	(0.51)
Nr. of Previous	-0.13	-0.08	-0.14	-0.02
Restructurings	(0.10)	(0.09)	(0.09)	(0.10)
Global Interest Rate	-0.04	-0.07	-0.08	-0.11**
(LIBOR)	(0.05)	(0.06)	(0.05)	(0.05)
Number of Creditors	0.00			
(in logs)	(0.07)			
Size of Bank Advisory		-0.00		
Committee		(0.02)		
Bond Restructuring			0.61*	
(Dummy)			(0.34)	
Political Delay				-1.88***
				(0.39)
Creditor Holdouts				0.18
				(0.26)
Creditor Litigation				-0.60
				(0.59)
	200	214	193	214
	-171.98	-194.99	-163.49	-176.26
	375.74	422.19	358.56	395.44

Note: Survival time regressions using the total restructuring duration in years as dependent variable. The results are shown as coefficients, not hazard rates. Accordingly, negative coefficients indicate longer durations relative to the baseline. ***/**/* denotes significance at 1/5/10 % respectively.

Table 3.8: Results - Robustness Checks

	Alternative Specifications				**Other Duration Definition**		**Parametric Estimation**
	With Regional Dummies	With Year Fixed Effects	With Dummy for Brady Deals	With Deal Size	With Alternative End Date (Accounting for Holdouts)	Combining Consecutive Deals (Full "Default Episodes")	Weibull Model
External Debt / GNI (initial, in %)	0.21	0.21	-0.24	0.08	-0.21	-0.23	0.23
	(0.28)	(0.24)	(0.38)	(0.24)	(0.32)	(0.47)	(0.25)
Short-term debt / Reserves (initial, in	-0.10***	-0.10***	-0.09***	-0.08***	-0.03**	-0.02	-0.09***
	(0.02)	(0.03)	(0.03)	(0.02)	(0.01)	(0.03)	(0.02)
Share of Debt to Private Creditors	2.15***	1.77***	1.78***	1.50***	-0.11	-1.45**	1.88***
	(0.54)	(0.55)	(0.55)	(0.53)	(0.56)	(0.71)	(0.67)
Global Interest Rate (LIBOR)	-0.06	-2.01***	-0.13**	-0.07	-0.10***	-0.23**	0.05
	(0.05)	(0.13)	(0.05)	(0.05)	(0.04)	(0.09)	(0.05)
Bond Restructuring (Dummy)	0.43	0.07	0.61	0.53	0.46	1.42***	1.11***
	(0.41)	(0.79)	(0.38)	(0.34)	(0.58)	(0.47)	(0.36)
Property Rights	0.45***	0.24***	0.11	0.25***	0.63***	0.84***	0.34***
	(0.11)	(0.09)	(0.10)	(0.08)	(0.11)	(0.23)	(0.10)
Political Disruptions	-0.30**	-0.45**	-0.35**	-0.26*	-0.23*	-0.69**	-0.17
	(0.15)	(0.18)	(0.16)	(0.14)	(0.14)	(0.31)	(0.14)
Europe and Central Asia	0.56						
	(0.38)						
Asia	1.24***						
	(0.37)						
Middle East and North Africa	0.08						
	(0.38)						
Subsaharan Africa	-0.82***						
	(0.30)						
Brady Deal (Dummy)			-1.62***				
			(0.35)				
Deal Size (in % of Total External Debt)				-0.12			
				(0.55)			
Constant							-4.56***
							(0.84)
Year Fixed Effects	No	Yes	No	No	No	No	No
Observations	207	210	210	210	223	213	210
Log-Likelihood	-179.02	-169.77	-173.36	-183.43	-184.09	-50.04	-55.51
Schwarz B.I.C.	416.71	457.17	389.51	409.63	406.04	137.61	159.15

Note: Survival time regressions using the total restructuring duration in years as dependent variable. The results are shown as coefficients, not hazard rates. Accordingly, negative coefficients indicate longer durations relative to the baseline. ***/**/* denotes significance at 1/5/10 % respectively.

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Appendices to Chapter 3

Appendix 3A: The Database on Restructuring Delays

(i) Why Construct a New Database?

Why construct a new dataset if there are several standardized sources on sovereign debt restructurings? Some papers have e.g. relied on the list of private debt restructuring events in the World Bank's GDF (2003, 2004, 2006, 2007) publications. Unfortunately, however, these and other similar archives such as that by the IIF (2001) contained errors or inaccuracies regarding restructuring dates that would have resulted in a serious bias in this analysis. Often, a date listed as completion date was, in effect, the month of a agreement in principle, but not the final agreement. Drawing on a much broader information base, I therefore verify and correct the available data. Moreover, the existing lists do not provide details on the beginning and length of negotiations, on creditor characteristics or on possible reasons for delays such as litigation, inter-creditors disputes, or political factors. This made an own coding effort necessary.

(ii) Case Selection

The cases were identified from existing lists on debt restructuring and default events, in particular by the World Bank (2003, 2004, 2006, 2007) the IIF (2001) and Stamm (1987). The period under consideration is 1980-2007. I coded only sovereign debt restructurings with private creditors, i.e. commercial banks or bondholders. The database covers all main emerging market economies covered in JP Morgan's emerging market bond index and a large sovereign debtors rated by either Moody's or Standard & Poor's. [43] A binding constraint for case selection was information availability, be it in the press or in other qualitative sources. Because of a lack of reliable information, most of the poorest, least developed countries (LDCs) were excluded. These countries usually have very limited access to private financing and debt restructuring processes are mostly dominated by Paris Club and IMF talks while commercial creditors play a less important role. The limited attention on private debt renegotiations makes it extremely difficult to draw any meaningful conclusions about negotiations in these countries. As to the type of restructurings, all deals and defaults on medium and long-term debt contracts are included. Restructuring and negotiation processes with domestic and external creditors are treated separately, although the econometric analysis and case study evaluation only includes debt restructurings with foreign debtors. Note also that the dataset includes only cases that were officially concluded. Preliminary agreements that were never implemented were combined with following negotiation rounds and restructurings. Hence, each case is coded from the beginning of negotiations or default until the first successful and final agreement. The final sample includes 90 debt restructuring cases from 35 developing and emerging economies in the period 1980 to 2007.

[43] Exceptions include Cote D'Ivoire, Gabon, Iran, Nicaragua and Trinidad and Tobago.

(iii) Sources and Coding Procedure

The coding process extends the information basis collected by Enderlein, Trebesch and von Daniels (2010), who construct an index of government behavior during sovereign debt crises. The coding was mainly based on the evaluation of 20,000 pages of articles from the financial press. Generally, the print-media turned out to be the most rewarding information source. Given that debt crises are highly publicised events, the financial press provides extensive and detailed day-to-day coverage on the negotiation and restructuring process. I mainly relied on articles from six flagship media sources: The Financial Times, Reuters, the Wall Street Journal, Dow Jones News Service, the New York Times and Associated Press. The articles were extracted from the online news database factiva using a standardized search algorithm ("countryname w/10 debt"). Based on this approach all relevant articles were extracted into backup-documents for each crisis episode. Further important sources were case studies by academic researchers,[44] policy reports[45] by the IMF and other international bodies, as well as the ample information provided by Arteta and Hale (2007) and Henry (1999). Each coding decision is backed by respective quotes and sources that are documented in detail in a separate background document accompanying this paper.

(iv) Variables and their Definition:

The following variables were coded for each debt restructuring event:

1. *Stating Month of Debt Distress*
The start of a distress period is coded whenever (i) the government misses first payments to private creditors beyond the grace period (default month) (ii) or whenever a key member of government[46] announced a restructuring of government debt to private creditors in public. Both events show that the government is in obvious financial distress.

2. S*taring Month of Negotiations*
The first crucial step in a government's restructuring efforts is obviously the start of negotiations. For commercial bank restructurings (particularly in the 1980s and early 1990s) the start of negotiation was captured by simply coding the first formal meeting of government officials with the London Club advisory committees. For the set of more recent bond restructurings I coded the start of negotiations based on detailed press reports and available case study evidence. Thanks to the detailed coverage, it was possible to identify the start of market sounding and negotiations in each of the cases. The coding results where also cross-checked with data provided by Arteta and Hale (2007).

3. *Month of the Exchange Offer to Private Creditors*
For bond restructuring the month of the exchange offer is obvious. It is defined by that day in which the exchange is publicly opened. For commercial bank restructurings

[44] Mainly Cline (1995), Aggarwal (1996), Boughton (2001), Roubini and Setser (2004), Rieffel (2003), Andritzky (2006), Sturzenegger and Zettelmeyer (2006).
[45] For example Williams et al. (1983), Kincaid et al. (1985), Laursen and Fernandez-Ansola (1995), Piñón-Farah (1996), IMF (2001, 2003), ECB (2005), Finger and Mecagni (2007).
[46] This refers to the President, the Prime Minister, the chief debt negotiator or Ministers of Finance, Economy or Planning (or their respective speakers).

(particularly in the 1980s and early 1990s) the month of the exchange offer is coded as that month in which an agreement in principle was reached with the bank advisory committee. After the principle agreement, the terms and respective contracts were routinely sent to all banks for them to sign/participate in the exchange deal.

4. *Month of Finalization of the Debt Restructuring*
The finalization of a deal was coded for that month in which either an official signing ceremony took place (such as with banks during the 1980s of 1990s), or for that month in which bonds where ultimately exchanged on the market.

5. *Political Delays*
Political delays are coded one in case unilateral government behavior clearly lead to a delay or even breakdown in debt negotiations of more than 3 months during any given year. Also instances where governments explicitly refuse to initiate negotiations are coded as political delays. However, delays that are caused by creditor coordination failure or outright inter-creditor disputes are explicitly excluded here. To identify restructuring delays due to political events, I mainly relied on the earlier coding results on "breakdowns of negotiations" described in Enderlein, Trebesch and von Daniels (2010). However, additional narratives were added in the coding exercise conducted for this paper.

6. *Creditor Holdouts and Inter-Creditor Disputes*
Inter-creditor disputes and holdouts were coded whenever such events reportedly lead to a delay of more than 3 months in the restructuring process. To identify inter-creditor disputes and holdouts I mainly used the keywords "oppose" "reject", "refused", "delay", "between" "among", "disagre", "haggling" , "split" and "divided".

7. *Pre-Restructuring Litigation by Creditors*
Litigation events were coded as such whenever I could identify that creditors had filed suit against a foreign sovereign and this was reported of being an obstacle in the negotiations. To identify litigation events I used the keywords "seiz" "suit" "sued" "filed" "attach" "court" and "legal".

8. *Number of Creditors*
For commercial bank restructurings (particularly in the 1980s and early 1990s) this variable is simply the number of banks that held loans of the respective sovereign, i.e. the number of banks that could participate in the exchange deal. Keywords used were "banks" "foreign banks", "commercial banks" etc. For most bank restructuring deals the information was easy to gather. It was much more challenging to gather reliable information on the number of bondholders affected by each of the bond restructuring. Nevertheless, I managed to code bondholder numbers for a small subset of cases.

9. Structure of Bank Advisory Committees (Size and Members)
Debt renegotiations of the 1980s and 1990s were usually lead by a bank advisory committee including 10 or up to 30 major creditor banks. These representative bodies negotiated on behalf of all affected creditors. The size and members of the committee could be coded for most of the bank restructuring deals. Keywords used included "committee", "steering", "advisory", "London Club" etc..

10. *Bond Restructuring*
Coded for sovereign bond restructurings. The cases included in this analysis are Argentina 2001 (megaswap) and 2005 (global exchange), Belize 2007, Dominica 2007, Dominican Republic 2005, Grenada 2005, Moldova 2002, Pakistan 1999, Russia 2000, Ukraine 2000 and Uruguay 2003.

11. *Brady Deal*
Coded for all restructurings under the terms of the Brady initiative. The cases included in this analysis are Argentina 1993, Brazil 1994, Bulgaria 1994, Costa Rica 1990, Dominican Republic 1994, Ecuador 1995, Mexico 1990, Nigeria 1991, Paraguay 1993, Peru 1997, Philippines 1990, Poland 1994, Uruguay 1991 and Vietnam 1998.

Appendix 3B: Narratives on Pre-restructuring Litigation

Country	Period	Details
Albania		Nothing reported
Algeria		Nothing reported
Argentina	**2001-2005**	There are more than 100 suits by different bondholders and creditor groupings (See e.g. Alfaro et al. 2007 or Miller and Thomas 2007) No litigation reported over the period 1982-1993
Belize		Nothing reported
Bolivia		Nothing reported
Brazil		No litigation reported over the distress period 1981-1994. The case CBIC vs. Brazil by the Dart family is filed after completion of the deal. The Dart family held some $1.4 billion of sovereign debt and refused to participate in the April 1994 deal. A settlement could be reached in mid March 1996 (Reuters, 19 March 1996) (Reuters, 14 April 1994) (Alfaro et al. 2007)
Bulgaria		Nothing reported
Chile		Nothing reported
Costa Rica	**1981**	In Sept. 1981 seven international banks, lead by Libra Bank of London, seek an attachment order on the assets of the state owned Banco Nacional de Costa Rica for a failure to meet debt service repayments on a $40m syndicated loan. The dispute delays negotiations considerably. No information on settlement or outcome. (FT, 30 Sept. 1981) (NYT, 11 Dec. 1981) (FT, 2 Nov. 1982)
	1982-1983	In Nov. 1982 Dow Banking Corporation of Zurich (on behalf of an unnamed Swiss investor) files a further suit for failed interest payments on a SwFr 20m bond issue. Dow Banking holds SwFr 6m of the issue. In early 1983 the bank loses the case because it was not brought by the actual holder of the bonds. Additionally, the case filed by Libra Bank of London (see above) continues to be an issue in the negotiations. (FT, 2 Nov. 1982) (FT, 25 Jan. 1983) (Latin American Weekly Report, 13 Nov. 1982) (FT, 25 Jan. 1983) (Latin American Weekly Report, 5 Febr. 1983) (FT, 22 Febr 1983)
	1984-1985	In the restructuring deal concluded in late 1983, Fidelity Union Trust refused to accept the agreement as the only bank of a syndicated loan of 39 banks. It instructed the agent bank, Allied Bank International, to begin legal proceedings to recover Dollars 5.2m plus interest and legal costs. The case by Allied Bank is rejected by a US court in April 1984. This ruling, however, is reversed in March of 1985. at that time, a new round of debt restructuring talks had started. However, the U.S. government coerces the bank into an out of court settlement (Alfaro et al. 2007)(WSJ, 27 April 1984), (American Banker, 17 Oct. 1989) (NYT, 27 April 1984) (FT, 30 April 1984) (NYT, 19 March 1985) (FT, 29 Aug. 1985) (American Banker, 20 March 1985)

Dominica	**2005-2007**	In 2005 the Exim Bank of Taiwan Province of China, who had refused to participate in the 2004 exchange offer, sues Dominica at a NY district court. The case is solved out-of-court in Oct. of 2006. (IMF Country Report No. 05/384, p. 12) (IMF Country Report No. 06/291, Dominica, p. 9) (IMF Country Report No. 07/1, p. 7)
Dominican Republic	**1983**	In 1983 Caisse Nationale Agricole of France, which represents 12 creditor banks files suit in New York for immediate repayment of a $60.8 m loan that was due in 1982. No info on settlement found. (WSJ, 2 Aug. 1983)
Ecuador	**1989-1993**	Two cases in 1993. In May 1989 Citibank seizes about $80m in deposits of the central bank of Ecuador to pay off an outstanding trade loan. This unusual move is widely seen as an aggressive act and leads to an unresolved 3 year dispute. Ecuador reacts by closing all accounts at Citibank and files suit. In 1992, given the ongoing tensions, Citibank is forced to resign as head of the bank steering committee. (FT, 12 May 1989) (Reuters, 6 June 1989) (Reuters, 21 June 1989) (Reuters, 18 June 1989) (LDC Debt Report, 6 May 1991) (LDC Debt Report, 20 May 1991) (LDC Debt Report, 24 June 1991) (Reuters, 26 June 1992)
	1993	In April 1993 Weston, a Swiss bank, files suit in NY. A pre-judgment order leads to a freeze of assets of the Republic of Ecuador and other state entities from Ecuador in the US. The case is settled for an undisclosed amount in August of 1993. (Reuters, 29 April 1993) (Reuters, 7 May 1993) (FT, 7 May 1993) (Reuters, 16 June 1993) (Reuters, 30 July 1993) (LDC Debt Report, 2 August 1993) (FT, 4 August 1993)
		No litigation (leading to delay) reported over the distress period 1998-2000
Grenada		Nothing reported
Jordan		Nothing reported
Mexico		Nothing reported
Moldova		Nothing reported
Morocco		Nothing reported
Nigeria		Nothing reported
Pakistan		Nothing reported
Panama	**1983-1996**	Nothing reported over the distress period 1983-1996. The case Elliot vs. Panama is filed in July 1996, i.e. after the completion of the deal in April. (Alfaro et al. 2007)
Paraguay	**1991-1992**	In Dec. of 1991 a French bank, Banque de Gestion Privee, files suit in NY because of non-payment of a $150 m loan first granted to Paraguay by Banque Worms. Shortly after, a court orders a freeze on US$24 million in Paraguayan Central Bank reserves. The case is settled in April of 1992 with Paraguay paying USD 16m. (FT, 12 Dec. 1991) (Reuters, 13 Dec. 1991) (Latin American Institute, 17 Dec. 1991) (Latin America Institute, 7 April 1992)
Peru	**1990-1994**	Several suits by banks filed in March 1990 to force Peru into negotiations and to protect their legal claims. The dispute goes on for years, delaying negotiations considerably. The suits are dropped only in December of 1994. (WSJ, 22 Oct. 1990) (Reuters, 22 Oct. 1990) (Dow Jones, 23 Nov. 1992) (WSJ, 24 Nov. 1992) (Reuters, 26 July 1993) (Reuters, 13 Sept. 1994) (Reuters, 6 Oct. 1994)

	1993-1995	In Jan 1993, Pravin Banker and his group files suit in NY. In Sept. 1995 the court rules that Banco Popular must pay 100 cents on the dollar for the loans. (The Economist, 17 Febr. 1996) (LDC Debt Report, 2 Aug. 1993) (LDC, 7 Sept. 1993) (LDC Debt Report, 28 Febr. 1994) (LDC Debt Report, 11 Sept. 1995)
Philippines		Nothing reported
Poland		Nothing reported
Romania		Nothing reported
Russia	**1998**	A series of lawsuits by international banks are filed in Russian court against private and state-owned banks. However, they have little impact and no suits are filed against the government itself. (Dow Jones, 29 Oct. 1998) (WSJ, 29 Oct. 1998) (Dow Jones, 16 Nov. 1998) (WSJ Europe, 17 Nov. 1998)
	1999-2000	In 1999 and 2000 there are a series of unsuccessful litigation attempts in Russian courts by foreign bondholders. (Dow Jones, 24 Sept. 1999) (Dow Jones, 2 Febr. 2000) (Dow Jones, 25 Oct. 1999) (WSJ Europe, 1 Febr. 2000)
South Africa		Nothing reported
Trinidad and Tobago		Nothing reported
Turkey		Nothing reported
Ukraine		Nothing reported
Uruguay		Nothing reported
Venezuela	**1985-1986**	In Oct of 1985 group of banks led by a French institution files suit in NY against state-owned Banco de Comercio. The bank aims to recover dollars 30 m owed by a subsidiary of a Venezuelan commercial bank taken over by the Government in June 1985. No information on settlement found. (FT, 30 Oct. 1986) (FT, 4 Nov. 1986)
Vietnam		Nothing reported
Yugoslavia		Nothing reported

Appendix 3C: Narratives on Creditor Holdouts

Country	Period	Details
Albania		Nothing reported.
Algeria	**1992**	The rescheduling is stalled in late 1991 and early 1992 due to several holdout creditors. Bankers Trust is the largest bank to be holding out although some Italian institutions also show reluctance to join. The disagreement is solved after Bankers trust accepts to agree in late February (Reuters, 17 February 1992) (Reuters, 22 Jan. 1992) (Reuters, 30 Jan. 1992) (Reuters, 27 Febr. 1992).
	1994	Clear delay due to creditor coordination problems. After the Paris Club deal was finalized in May 1994, the Algerian government hoped to finalize commercial debt negotiations quickly. However, many banks, especially Japanese banks holding some 65 percent of bank debt, were reluctant to follow the generous Paris Club terms and block negotiations over much of 1994. Japanese banks continue to push for a tougher negotiation stance Additionally, in late summer and fallof 1994, there is a lengthy dispute among banks over how to form the steering committee. The reason is that Japanese banks, with the lion's share of the debt, are reluctant to take a lead and want the French banks to head the negotiations, given their larger experience with debt restructuring deals. French banks, however, had sold most of their extensive loans and thus have no great economic interest any more. Finally, in end Sept. the banks agree on Societe Generale as chairman of a 6 bank steering committee. (Reuters, June 1994) (Reuters, 25 August 1994) (Reuters, 2 Sept. 1994) (FT, 13 Sept. 1994) (Reuters, 27 Sept. 1994) (Reuters, 1 Dec. 1994).
Argentina	**1982**	The banks failed to unify for a considerable length of time because of the conflict between Argentina and Britain. Generally, Argentina's creditors were deeply split over the scope of new money. Large banks with high exposure favoured a more generous package, while smaller ones refused new funds and aimed to write off their claims. Ultimately, a group of 20 small holdout banks caused a delay of several months. (Aggarwal, 1996, p. 412) (Stamm 1987, p. 175).
	1984	From February 1984 on several banks heavily opposed the new money part of the deal agreed in Dec. of 1983 (among them Lloyds Bank). Furthermore, in end 1984, some Spanish banks did not commit their shares of new money causing further delay. (NYT, 27 Aug. 1985) (Stamm, 1987, p. 176).
Belize	**2006-2007**	No serious problems as the participation rate to the restructuring offer reaches 96.8%. Note, however, that after the first deadline in Jan. 26, 2007, only 87.5 % of the debt had been offered for exchange. As a result, the government took advantage of the bond's collective action clause (CACs under NY law) to increase participation. The deadline was extended until February 20. (FT, 13 Februar 2007) (Reuters, 31 Jan. 2007).
Bolivia	**1988-1993**	The buy-back process is very slow. In the first offer of 1988 only half of the creditors participate. Many banks had been reluctant to consider the proposal for fear of setting a precedent for other countries with larger debts. The holdouts continue for several years despite repeated offers by the government. Finally, in 1993 the buy-back process is finalized as basically all debt to commercial creditors is erased. (Reuters, 27 January 1988) (Reuters, 6 June 1990) (WSJ, 11 August 1988) (WSJ, 18 March 1988) (Dow Jones, 10 Aug. 1988).

Brazil	**1982-1983**	In 1982 and 1983 there are open disagreements among creditors, particularly as regards interbank lines. More than 200 of the 455 banks which had significant interbank lines out to Brazil in 1982 refused to co-operate with the request to restore such lines to Brazilian banks. Among the least co-operative banks were several US regional banks, as well as some West German and Swiss banks (FT, 26 Aug. 1982) (FT, 17 May 1983) (WSJ; 28 Sept. 1982) (Aggarwal, 1996, p. 460).
Bulgaria		Nothing reported
Chile	**1986-1987**	In late 1986 and early 1987 disagreements between the banks, and the strong opposition by Citibank to soften terms and to new money blocks the negotiations for several months. (WSJ, 14 Jan. 1987) (WSJ, 27 Febr. 1987) (WSJ, 20 Febr. 1987).
Costa Rica	**1985**	In early 1985 the deadlines for subscriptions to the deal agreed in early 1985 had to be extended because of the slow response from creditor banks. The press attributes the holdouts to a small country bias. Costa Rica, similar to Ecuador, which had the same problems in this period, was only a minor borrower with no major credit risk threat. As a result bankers are accused to treat these deals with a lower priority. (FT, 26 Febr. 1985) (FT, 20 April 1985).
	1986-1987	Banks block negotiations with Costa Rica over much of 1986 and 87 because of fears to "spill over" beneficial terms into Brazil's negotiations. In June 87 talks are fully suspended by banks. (Reuters, 14 Oct. 1987) (FT, 27 Oct. 1986) (Reuters, 10 Nov. 1987) (Reuters, 14 Oct. 1987).
	1988	Talks are again suspended by part of the banks in February of 1988. By April of 1988 the banks still had not openly responded to the proposals put forth by Costa Rica in 1988. The fear of establishing a precedent of generous terms block negotiations over much of 1988 (Latin American Weekly Report, 28 April 1988) (Reuters, 10 June 1988) (FT, 3 May 1990).
Dominica	**2004- 2007**	The restructuring deal is closed in Sept. of 2004 with only about 70% of eligible debt participating. Holdout creditors delay the process considerably. Holdouts mainly by 3 creditor groups: Kuwait Fund for Arab Economic Development, Royal Bank of Trinidad and Tobago (RBTT) and a Exim bank from Taiwan Province of China. (IMF Country Report No. 06/291, p. 9) (IMF, 2004, Dominica: Second Review Under the Three-Year Arrangement Under the Poverty Reduction and Growth Facility, p. 13) (IMF Country Report No. 07/1, p. 7).
Dominican Republic	**1983**	Banks cannot agree on a single representative group. As a result two creditor groups were formed. One group, representing 78 banks, was lead by Royal Bank of Canada, the other, representing 12 banks, was lead by Caisse Nationale Agricole of France. In 1983, the group lead by Caisse rejects any agreement, files suit in N.Y. and delays negotiations. In the end, a preliminary agreement could only be reached with the group lead by the Royal Bank of Canada. (WSJ, 9 Aug. 1983) (WSJ, 2 Aug. 1983).
Ecuador	**1985**	After the principal agreement in Dec. of 1984, the deal is implemented with considerable delay due to the slow response of banks. Participation deadlines had to be extended several times until the deal is finally concluded in 1985. The press attributes the holdouts to a small country bias. Ecuador, similar to Costa Rica which had the same problems in this period, was only a small borrower with no major credit risk threat. As a result bankers are accused to treat these deals with a lower priority compared to those in Argentina or Brazil, which ran in parallel. (FT, 26 Febr. 1985) (FT, 20 April 1985).
		No problems reported in the 1998-2000 restructuring.

Grenada		Nothing reported.
Jordan		Nothing reported.
Mexico	**1982-1983**	In 1982 and in the first half of 1983 the opposition of smaller and European banks lead to lengthy delays. There were deep disagreements between small and large banks and between those from the US and those from Europe. Larger banks pressed for additional loans to Mexico in the hope that debt servicing on their large exposure would continue. Instead, smaller banks and those with less exposure aimed to cut their losses and rejected to participate in an new money package. Similarly, European banks opposed major new loans. One reason were greater loan-loss provisions taken by banks in Europe, but also differing foreign policy objectives were reported to matter. (Aggarwal, 1996, p. 337/338) (Stamm, 1987, p. 195) (NYT, 20 Aug. 1982) (WSJ, 17 Febr. 1983).
	1985	An agreement signed in March of 1985 could not be implemented and became technically ineffective. The reason was that one small unidentified British bank out of the almost 560 banks owed money by Mexico had refused to sign the package. (WSJ, 1 April 1985) (FT, 6 Aug. 1985) (FT, 8 August 1985).
	1986-1987	The agreement agreed in principle in Sept. 1986 got stuck due to resistance from about 90 smaller banks, among them some US regional banks and a few in Italy and Spain. Reportedly, only strong intervention by de Larosière (IMF) and Volcker (US Treasury) broke the potential collapse of negotiations. Moreover, creditor governments and large American banks were reported to have successfully coerced some large foreign banks, particularly the Swiss Bank Corporation, to participate. (FT, 4 Febr. 1987) (FT, 23 Febr. 1987) (AP, 20 March 1987) (WSJ, 21 April 1987) (Aggarwal, 1996, p. 359).
Moldova		Nothing reported
Morocco		Nothing reported
Nigeria	**1983**	In the first half of 1983 there is strong disagreement between European (mainly French and British) and US banks. American banks push for a tougher negotiating stance and demand the successful implementation of an IMF deal as a prerequisite for a trade debt restructuring. This delays the negotiations for several months despite the fact European banks aimed to resolve the problem of trade arrears as quickly as possible. The differences among creditors are attributed to the fact that the Europeans exported considerably more to Nigeria than do the Americans. In the end some US banks refuse to participate (only 11 of 16 US banks agree, against all 12 European banks) (Dow Jones, 9 June 1983) (NYT 2 May 1983) (NYT 24 May 1983) (FT, 21 April 1983) (FT, 29 April 1983) (WSJ, 26. April 1983).
	1987	After the principle agreement in Nov of 1986, holdouts delay the deal for more than 6 months. By February 87 only around 80 per cent of the total amount had been committed. Particularly Japanese banks, which were not represented in the creditor committee, refused to participate. In October, The Nigerian government publicly accuses the banks to have broken their promises and "abandoned" the country. In the end three of four recalcitrant Japanese banks agree to sign the package, which is concluded in Nov. 87 (FT, 4 Febr. 1987) (Reuters, 1 Oct. 1987) (FT, 24 Nov. 1987).

	1991	In 1991 although the deal was close to conclusion, a major dispute over the collateral bonds leads to month-long delays. In the deal, Nigeria offered an alternative type of collateral to the usual U.S. Treasury zero coupon bonds, namely bonds from the U.S. Refcorp agency which had the same AAA rating as US treasuries. These bonds, however, are opposed by French banks, who fear tax disadvantages and the fact that French banking regulations Refcorp bonds would require them to make a greater provision for bad debt than other members of the London Club. The disagreement could not be solved until September of 1991 (LDC Debt Report, 27 May 1991) (FT, 10 August 1991) (Reuters, 12 August 1991) (Reuters, 11 September 1991). Further disagreement arises in 1991 over illicit buy-back operations. In February 1991, Midland Bank Plc resigns as a member of the steering committee of Nigeria's creditor banks. after it emerged that the bank had been actively selling its Nigerian loans on the secondary market. (FT, 10 August 1991) (Reuters, 20 Dec. 1991) (Reuters, 1 February 1991).
Pakistan		Nothing reported
Panama		Nothing reported
Paraguay		Nothing reported
Peru	**1994-1995**	In the second half of 1994 banks obviously delay negotiations due to the upcoming elections. After President Alberto Fujimori wins a landslide reelection in April of 1995 talks are initiated again. (Reuters, 16 Dec. 1994) (Reuters, 19 April 1995).
Philippines	**1984-1985**	In 1984 some international banks begin to retaliate against Citibank for freezing repayment of $550 million in interbank dollar deposits held by Citibank in the Philippines. Citibank had frozen the assets after the Philippine government banned foreign exchange outflows in October of 1983. The dispute among the bamks goes on until 1985 (WSJ, 24 January 1984) (WSJ, 21 May 85) (FT, 26 April 1984) (WSJ, 21 May 1985).
	1985	Refusal of the National Commercial Bank of Saudi Arabia to sign the accord delays implementation of the deal for more than 6 months. The Philippines and banks agreed on rescheduling terms in October 1984. Yet, the Saudi Bank with major exposure holds out out until May 1985 (WSJ, 18 Oct. 84) (WSJ, 26 Febr. 1985) (NYT, 21 May 1985).
	1986	In late 1986 negotiations break down as Citibank objects any concessions to avoid a spill-over of beneficial terms to the accords in Brazil and Argentina. The strong opposition of the Citibank paralyses talks for several weeks. (NYT, 8 Nov. 1986) (WSJ, 10 Nov 86).
	1987	In 1987 some banks delay the deal agreed on within the Steering Committee in July and do not sign until October 1987 (Reuters, 5 Oct 87). Barclay's, Lloyds Bank, Societe Generale, Credit Lyonnais and Rainier National Bank reject to agree to the new money package because of a conflict over loans to a Philippine enterprise (Planters Products) for which the government took guarantees (Reuters, 27 Jul 1987, Reuters 29 Jul. 1987 and Stamm, 1987, p. 203). This led the president to a bitter outburst about foreign creditors in her state of the union speech before Congress (Reuters, 27 Jul 87). In the end only one bank did not sign the agreement. All other 482 banks did (Reuters, 22 Dec 87). The conflict over Planters Product s resolved as the Central Bank accepts a rehabilitation plan for the firm without giving formal guarantees. (Stamm, 1987, p. 203).
Poland	**1987-1988**	From late 1987, after the principal agreement, to mid 1988 banks fail to agree on a common position regarding the exact terms of the multi-year rescheduling agreement. This delays the completion of the deal for many months. (Reuters, 17 March 1988) (Reuters, 2 March 1988) (AP, 31 July 1987) (Reuters, 19 July 1988).

	1991-1994	From 1991 there is a deep disagreement between creditors on the scope of debt reduction. Yes, disagreement on the scope of debt reduction, partly due to different business interests. Some banks in France, Austria and Germany push for a large write off of Poland's 10.5 billion dollar debt to commercial banks, while those from the U.S. and Britain oppose this - arguing that Poland should not receive more favourable treatment than those of Brazil's Brady deal. The steering committee is thus split in the middle leading to long delays and frequent controversies among banks (FT, 27 Febr. 1991) (Reuters, 16 Jan. 1991) (Reuters, 16 Jan. 1991) (Reuters, 1 May 1991) (Reuters, 13 Oct. 1991) (FT, 16 July 1993) Even after the principal agreement was made there is disagreement as some U.S. investment houses say the deal is too soft on Poland and ask for a review of terms (Reuters, 23 March 1994).
Romania		Nothing reported
Russia	**1998**	A comprehensive restructuring offer orchestrated by Goldman Sachs in July of 1998 fails as too few creditors are willing to accept the exchange. Bolton (2000 p. 22) links this failure to moral hazard problems stating that too many bondholders speculated on an IMF bailout and saw no need to exchange their claims. Additionally, after the default in August, there are several open conflicts among creditor groups inside and outside the negotiating committee. Banks openly criticize the leadership of Deutsche Bank in the committee, as well as the terms negotiated by November of 1998. Divisions are particularly severe between banks with interest in doing future business with Russia and other banks and mutual funds who have less long-term interests. (Dow Jones, 29 Oct. 1998) (Reuters, 25 Nov. 1998) (Reuters, 27 Nov. 1998) (Dow Jones, 15 Dec. 1998).
	1999	As regards the domestic debt restructuring (GKOs/ OFZs) there is a complete failure of the London Club type committee. In February Deutsche Bank, Chase Manhattan and Credit Lyonnais break ranks and move unilaterally by accepting restructuring terms for part of their short-term debt held. The move by Deutsche Bank, who heads the negotiating committee since August of 1998, contributes to the split of the committee of 19 international banks. (Reuters, 10 Dec. 1999) (FT, 27 Febr. 1999) (Reuters, 1 March 1999) (FT, 2 March 1999) (Evening Standard, 5 March 1999) As to the foreign currency bond restructuring the process is delayed as the London Club committee achieves little progress in the first half of 1999. The key reason for the delay is severe pressure and criticism from a group of mutual and hedge funds who hold up to 15% of debt but are not represented in the committee. (Reuters, 27 May 1999) (Dow Jones, 9 June 1999) (Reuters, 23 June 1999) (Dow Jones, 23 June 1999).
South Africa	**1985-1986**	Yes, given the massive international pressure on banks and the Apartheid regime, there are severe tensions among banks. In early Sept. conflicts increase as US banks refuse to play a prominent role in the negotiations. In the end a neutral mediator, Fritz Leutwiler from Switzerland is appointed to lead negotiations between the government and banks. In 1986 US banks continue to press for tougher terms. There is particular disagreement over how long the deal should last. The haggling over terms delays the deal for several months in 1986. (NYT, 4 Sept. 1985) (FT, 26 Sept. 1985) (FT, 27 Sept. 1985) (FT, 4 July 1986) (FT, 5 March 1986).
Trinidad and Tobago		No problems reported over the entire distress period 1988-1989.
Turkey		No problems reported over the entire distress period 1980-1982.
Ukraine		No problems reported over the entire distress period 1998-2000.
Uruguay		No problems reported over the entire distress period 1983-1991 and 2003.

Venezuela		No problems reported over the entire distress period 1982-1990.
Vietnam		No problems reported over the entire distress period 1982-1998.
Yugoslavia	**1983**	There are more than 50 holdout creditors after the principal agreement in March of 1983. Particularly banks from the Middle East oppose the package several months. By Sept. most major banks had accepted the deal, but 10 banks (among them 3 regional US banks) continued their opposition. By October they were coerced into the deal by the bigger banks. (FT, 25 Aug. 1983) (FT, 2 Sept. 1983) (WSJ, 28 Sept. 1983).

Appendix 3D: Narratives on Political Delay

Country	Period	Details
Albania	**1992**	Debt negotiations are delayed over much of 1992 due to the failure to come to an agreement with the IMF, a precondition for a bank debt restructuring. One reason for the delay reported by the press is political pressure due to municipal elections in mid year. In late 1992 this obstacle is removed as there is a successful agreement on an economic reform plan sanctioned by the IMF. (Reuters, 10 July 1992) (Reuters, 24 April 1993).
Algeria	**1994**	There is nearly a one year delay in starting negotiations. Despite the announcement of restructuring talks as early as late 1993, despite mounting payment arrears and despite the successful IMF and Paris Club deals in May of 94, the government does not formally approach banks for a rescheduling talks until Oct of 1994. This hinders a quick restructuring (Reuters, 3 June 1994) (Reuters, 24 Aug. 1993) (Reuters, 13 Dec. 1993) (Reuters, 18 Dec. 1993) (Reuters, 13 Jan. 1994) (Reuters, 17 April 1994) (Reuters, 11 Oct. 1994) (Reuters, 27 Sept. 1994).
Argentina	**1982**	The Falkland war and the ongoing conflict with Britain is a serious obstacle to rescheduling talks. Particularly the asset freezes and financial sanctions by both sides hinder constructive talks. Until late Sept. Argentina refuses to lift sanctions, which blocks negotiations. In mid Sept., after pressure by the US did reportedly intensify considerably, both sides come to an agreement and payments to British banks are resumed (FT, 29 July 1982) (FT, 3 Sept. 1982) (FT, 3 Sept. 1982) (FT, 6 Sept. 1982) (FT, 14 Sept. 1982) (FT, 21 Sept. 1982).
	1983	Legal problems with private sector debt, the government's sluggish response to lift sanctions towards Britain and the Oct 1983 election lead to more than 6 months delay in the debt negotiations. (NYT, 13 Aug. 1983) (NYT 15 Dec. 1983) (FT, 16 Aug. 1983).
	1984	In the first half of 1984 the newly elected government rejects to sign a new IMF program demanded by creditors and adopts a tough stance towards the IMF. An agreement can only be reached in Sept. In Jan. central bank president Vazquez announces that there will be a 6 month delay in debt negotiations stating that the new government needed time to determine which borrowings by the former military regime were legitimate. In April the pressure by opposition groups and labour unions increases. As a result a further delay in negotiations is announced by the Ministry of Finance. (FT, 12 Jan. 1984) (NYT, 27 April 1984) (WSJ, 13 June 1984) (WSJ, 26 Sept. 1984).
	1985	Argentina falls out of compliance with its IMF program in March of 1985. This delays the implementation of the restructuring deal agreed in principal in Dec. 1984 until the end of August. Only after a new program with the IMF is signed in June of 1985, the deal with the banks could be implemented. (FT, 26 March 1985) (FT, 12 June 1985) (NYT, 27 Aug. 1985).

1988 The government under Alfonsin is not able to reach an agreement with the IMF over all of 1988 and stops making interest payments to banks from April 1988 on (complete moratorium). For these reasons, negotiations with banks start only in Sept. of 88, despite mounting arrears and bank pressure to initiate talks. After talks are started, they remain in deadlock, a main reason being the nearing elections of May 1989. In early 1989, after it becomes obvious that no stand-by loan agreement with the IMF would be reached, the outgoing government publicly abandons its plan to reach an agreement with banks before the end of its term. (FT, 18 June 1988) (Reuters, 30 Jan. 1989) (Reuters, 24 April 1989) (WSJ, 21 Dec. 1988) (Reuters, 17 Jan. 1988) (Reuters, 5 July 1988).

1989 - 1991 After taking office, and despite several announcements to start negotiations on a Brady deal soon, the new government under Menem unilaterally delays the start of the talks from mid 1989 to 1992 and freezes payments. In late 1990 Central Bank President Fraga announces that debt restructuring talks are premature and that it was necessary to improve the economy and reach a fiscal surplus before any new debt deal is reached. Negotiations start in Jan. 1992. (Reuters, 6 Oct. 1989) (Reuters, 15 May 1989) (Reuters, 7 June 1989) (Reuters, 17 June 1989) (WSJ, 2 Oct. 1989) (Reuters, 19 April 1991) (Reuters, 7 May 1990) (Reuters, 25 Sept. 1990) (Reuters, 1 Oct. 1990) (Reuters, 8 May 1991) (Reuters, 9 Sept. 1991) (Reuters, 18 Nov. 1991) (Reuters, 30 Jan. 1992) (FT, 1 Febr. 1992).

2002 Despite several announcements and pressure by investor groups, the government does not start debt restructuring talks in 2002. There are only some minor informal contacts. Generally, Argentina rejects to negotiate with private creditors before an IMF deal is struck. Thus, the delay in coming to an IMF agreement postpones any serious restructuring efforts. (Reuters, 6 March 2002) (Reuters, 11 April 2002) (Reuters, 14 May 2002) (Reuters 03 July 2002) (Reuters, 24 October 2002) (Reuters, 13 March 2002) (Reuters, 26 Sept. 2002).

2003 Over the entire year of 2003 Argentina refuses to engage in debt restructuring talks with creditors. In Jan. 2003 Argentine Economy Minister Roberto Lavagna announces that a restructuring will take at least two years. In July 2003 Argentina promises an offer by Sept., which is made but unilaterally and without meaningful prior consultations (Dubai proposal). The unilateral offer triggers massive protests by bondholders and a new wave of lawsuits. (Reuters, 17 Jan. 2003) (Reuters, 11 Febr. 2003) (Reuters 21 Febr. 2003) (FT, 31 July 2003) (Reuters, 7 Jan. 2004) (Reuters, 12 Jan. 2004) (Reuters, 30 Jan. 2004) (Sturzenegger and Zettelmeyer, manuscript p. 119).

Belize

Nothing reported.

Bolivia

1983 After the agreement in principle with banks in mid May 1983, the deal is not implemented due to the breakdown of negotiations with the IMF. The successful agreement of an IMF program was an explicit precondition for the finalisation of the bank debt restructuring. (Stamm, 1987, p. 177) (WSJ, 25 Febr. 1983) (WSJ, May 12 1983) (Dow Jones, 13 May 1983).

1984 In end May 1984 the government of President Siles Zuazo, who is under severe pressure by labour unions, announces the suspension of principal and interest payments on commercial debt obligations. This move blocks any serious agreement with banks. Moreover, general strikes, a strike within the central bank and increasing political instability, including the resignation of Finance Minister Oscar Bonifaz in Oct. of 1984, lead to the postponement of talks in mid and late 1984 (FT, 31 May 1984) (WSJ, 31 May 1984) (Stamm, 1987, p. 178) (Dow Jones, 28 Nov. 1984) (Dow Jones, 1 June 1984) (WSJ, 17 Oct. 1984).

	1985-1986	The continuing full payments suspension, fast growing public deficits and the severe economic crisis are major obstacles for any serious negotiations with banks. A new round of talks start in 1986 under the rule of a new president Paz Estenssoro, who had won the presidential elections in late 1985. (NYT, 20 Febr. 1985) (FT, 14 June 1985) (WSJ, 12 Aug. 1985) (FT, 11 Sept. 1985) (FT, 6 June 1986) (FT, 14 July 1987) (Latin American Weekly Report, 5 Februar 1987) (Latin American Weekly Report, 8 January 1987).
Brazil	**1985**	The elections of Jan. 1985 and the political turmoil after the death of the newly elected President Tancredo Neves in April, leads to negotiation delays in the first half of 1985. Additionally, the failure of negotiations with the International Monetary Fund leads to a breakdown of talks with creditor banks over most of the second half of 1985. In late 1985 there are serious tensions with creditors due to the government's refusal to bail out major private Brazilian banks with considerable loans to western banks. Stamm, 1987, p. 179) (FT, 11 July 1985) (FT, 27 Nov. 1985) (FT, 17 Dec. 1985) (Henry 1999, p. 6) (FT, 15 March 1985) (FT, 23 April 1985).
	1987	The government's unilateral debt policy results in a complete deadlock in talks with banks from February to Sept. 1987. Government action include a moratorium with a full suspension of payments, frequent threats towards creditors and a tightening of capital controls. (WSJ, 9 Jan. 1987) (FT, 23 Februar 1987) (WSJ, 6 Nov. 1987).
	1989	In June 1989, the government returns to a confrontational stance as payments are simply suspended and any further negotiations rejected. This leads to a breakdown in negotiations with banks. Generally, outgoing President Sarney is blamed of showing no effort to reach an accord with banks but of intending to leave any further negotiations to his successor to be elected in Nov. of 1989. (Reuters, 25 July 1989) (AP, 16 Febr. 1989) (Reuters, 22 Jan. 1990) (Reuters, 5 July 1989) (Reuters, 14 July 1989) (Reuters, 20 Jan. 1989).
	1990	The new government under President Collor de Mello, which is in office since March of 1990, initiates negotiations only in October of that year. According to press reports, his administration shows little efforts to come to a quick and sustainable agreement in 1990, despite a strong increase in arrears and pressure by banks, by the US government and by the IMF. (NYT, 10 Nov. 1990) (Reuters, 16 Nov. 1990) (Reuters, 22 Jan. 1991) (Reuters, 12 Febr. 1991) (Reuters, 27 Febr. 1991) (FT, 4 April 1991).
	1992	In the second half of 1992, political turmoil due to the impeachment of President Collor de Mello delays the deal considerably. (Reuters, 30 Sept. 1992) (Reuters, 14 Dec. 1992).
	1993	The government's failure to come to an agreement with the IMF leads to month-long delays. The key issue in IMF negotiations is the government's apparent unwillingness to fix a plan to combat soaring inflation. Furthermore, legislation aimed to reduce the large budget deficit remains blocked for months due to a massive corruption scandal in congress. As a result, the conclusion of the restructuring deal is postponed four times until April of 1994. The completion was originally scheduled for June 1993 (Aggarwal, 1996, p. 511) (Reuters, 18 Sept. 1993) (Reuters, 4 Nov. 1993) (Reuters, 26 Nov. 1993) (Reuters, 20 Sept. 1993) (AP, 5 Nov. 1993) (Reuters, 4 Nov. 1993).
Bulgaria	**1990-1991**	In 1990 and 1991 the government's refusal to guarantee the debt by the Bulgarian Foreign Trade Bank blocks negotiations with banks. The Foreign Trade Bank holds most of the public debt to western commercial banks accumulated under communist rule and is owned by the National Bank. Western banks insist that the Bulgarian government should formally guarantee for these debts, but the government rejects. Additionally, the elections in Oct. reportedly lead to a delay in negotiations in the second half of 1991 (Reuters, 20

		September 1991) (Reuters, 12 Nov. 1990) (FT, 17 May 1991) (Reuters, 14 June 1991) (Reuters, 12 Dec. 1991) (Reuters, 12 Nov. 1990).
Chile		Nothing reported.
Costa Rica	**1981**	Talks break down in late 1981 due to the government's failure to come to an agreement with the IMF (NYT, 9 Dec. 1981) (NYT, 11 Dec 1981).
	1982	Talks break down again in the first half of 1982 due to the elections in February and the ongoing problems of the government to reach an agreement with the IMF (WSJ, 15 Jan. 1982) (Latin American Weekly Report, 13 March 1982) (WSJ, 19 May 1982).
	1986-1988	The government takes a hard stance towards its creditors by partially suspending debt payments in May of 1986. The increase in arrears and the failure to come to an agreement with the IMF leads to a complete deadlock with banks. In 1987 the stalemate in negotiations with banks and the IMF continues. A major stumbling block is that a crucial package on taxes and debt restructuring is blocked by opposition groups in congress. (Reuters, 14 Oct. 1987) (Latin American Mexico and NAFTA Report, 24 Sept. 1987) (Reuters, 10 Nov. 1987)(FT, 8 May 1986) (Latin American Weekly Report, 7 Aug. 1986) (FT, 27 Oct. 1986) (FT, 27 Oct. 1986) (Latin American Mexico and NAFTA Report, 15 Jan. 1987) (FT, 6 April 1988) (Latin American Weekly Report, 28 April 1988).
Dominica		Nothing reported
Dominican Republic	**1983**	The implementation of the deal is delayed for nearly one year after the IMF program, agreed on in January 1983, breaks down. (Boughton, 2001, pp. 691) (Latin American Weekly Report, 8 March 1985) (NYT, 2 July 1984).
	1984	After major riots due to austerity measures in April of 1984, the government stops formal negotiations with the IMF, which leads to a break down in negotiations with banks over most of 1984. The deal with banks of Dec. 1983 is abandoned and never implemented. (Boughton, 2001, pp. 691) (NYT, 2 July 1984) (Latin American Weekly Report, 20 July 1984) (NYT, 12 Oct. 1984) (Latin American Weekly Report, 8 March 1985) (Latin American Caribbean and Central American Repo, 10 May 1985).
	1987-1992	From 1987 on, newly elected president Balaguer refuses any relations with the IMF. This leads to a stall in relations to private and official creditors. The rejection of an IMF program continues until 1991. From 1989 to 1992 the government suspends all payments and even refuses to make symbolic interest payments to banks. This stance blocks any serious negotiations with banks until 1993. (WSJ, 20 Aug. 1987) (NYT, 24 July 1987) (Reuters, 29 Sept. 1988) (Reuters, 17 Aug. 1990) (Reuters, 2 Aug. 1991) (Dow Jones, 25 Nov. 1991) (Latin American Weekly Report, 15 Aug. 1991) (LDC Debt Report, 18 May 1992) (LDC Debt Report, 24 August 1992) (LDC Debt Report, 18 May 1992).
	1994	The final closing of the deal is postponed several times over a period of 9 months. A main reason was the election in May of 1994 and the political turmoil following it. Moreover, the congress delays the ratification of the deal. (LDC Debt Report, 30 May 1994) (LDC Debt Report, 20 June 1994) (Reuters, 24 June 1994) (LDC Debt Report, 11 July 1994) (LDC Debt Report, 5 September 1994).

	2004	Restructuring efforts start with nearly one year delay, due to the election in May of 2004. Serious payment problems become obvious as early as Jan. 2004. However, the incumbent president opposes negotiations and a restructuring during his electoral campaign. After opposition candidate Fernandez wins in a landslide victory and takes office in August, a restructuring is finally announced in October in 2004. Intense talks with creditor groups start in Jan. 2005. (FT, 11 February 2004) (AP, 13 February 2004) (NYT, 6 August 2004) (AP, 28 April 2004) (Reuters, 11 Oct. 2004).
Ecuador	**1987-1993**	Debt restructuring talks break off after the government declares a unilateral payment standstill and suspends all payments from Jan 1987 on. The government's refusal to resume any interest payments is the key obstacle in negotiations from 1987 to 1993. The government frequently breaks off talks unilaterally over this period. In 1988 a leadership change after the election of Rodrigo Borja in May 1988 leads to a further stall in negotiations. Negotiations are unilaterally suspended by the outgoing government In July of 88. The new government reactivates preliminary talks only in Nov. A similar situation returns in early 1992 due to the upcoming presidential elections. Finance Minister Better states that due to the elections there will be only "explorations" and not formal negotiations." until August. In July 1992 the departure of Ecuador's entire economic team leads to further delay. (Reuters, 29 Jan. 1992) (AP, 8 July 1988) (Reuters, 27 Oct. 1988) (Reuters, 29 Nov. 1988) (WSJ, 16 March 1987) (Reuters, 4 Sept. 1987) (Reuters, 18 June 1989) (Reuters, 29 May 1990) (Reuters, 23 Jan. 1991) (AP, 9 May 1991) (Reuters, 15 May 1991) (Dow Jones, 5 Aug. 1991) (Reuters, 18 March 1993) (Reuters, 19 March 1993) (LDC Debt report, 19 July 1993) (Dow Jones, 23 July 1993).
	1999	The failure to come to an agreement with the IMF in 1999 delays restructuring efforts considerably. Despite severe payment problems since early 1999, the government initiates serious restructuring talks only days before the actual default occurs. Generally, very little contact with creditor groups. In end 1999 the government unilaterally cancels a meeting with a bondholder consultative group. (Reuters, 29 Sept. 1999) (Reuters, 7 Dec. 1999) (Reuters, 23 Dec. 1999) (FT, 30 Sept. 1999) (IMF, 2001, p. 7).
	2000	A new round of talks and the planned launch of the offer is delayed until mid year after democratically-elected Jamil Mahuad is overthrown in a brief, bloodless coup in January 2000. Apart of a round of talks in May, the new administration of President Noboa rejects regular consultative meetings. In June a planned meeting to discuss the forthcoming offer is unilaterally cancelled. (Reuters, 26 March 2000) (Reuters, 20 Febr. 2000) (Reuters, 9 March 2000) (Reuters, 26 March 2000) (Reuters, 21 March 2000) (Reuters, 13 June 2000) (Reuters, 2 May 2000) (Reuters, 16 May 2000) (IMF, 2001, p. 7) (Sturzengger and Zettelmeyer, manuscript, p. 99).
Grenada		Nothing reported
Jordan	**1989**	After having reached an agreement in principal relatively quickly in Sept. of 1991, the government cancels the implementation of the bank deal unilaterally and asks for a better deal. It takes more than 3 months of intense negotiations to convince creditors to accept amended terms. (Reuters, 11 Sept. 1989) (Reuters, 29 Nov. 1989) (Reuters, 30 Nov. 1989).
	1990	In 1990 the government completely cancels the 1989 deal in a unilateral move. This, and its new demand for a generous debt reduction deal leads to long delays and a series of failed meetings. Additionally, in the second half of 1990 negotiations are again suspended unilaterally due to the Iraq war (Reuters, 26 June 1990) (Reuters, 29 June 1990) (Reuters, 27 July 1990) (Reuters, 18 Febr. 1991).

Mexico	**1986**	Negotiations are delayed for many months as the government rejects the IMF's demand to reduce its budget deficit. Additional there is some delay in mid-year as Finance Minister Silvia Herzog is ousted. (WSJ, 10 June 1986) (FT, 19 June 1986).
Moldova		Nothing reported
Morocco	**1983-1985**	In 1983 negotiations are stalled due to a dispute over whether the Central Bank of Morocco should be a co-signatory on the country's rescheduling agreement and assume a guarantee on foreign exchange provision. The creditors demand a formal guarantee for the restructuring deal and wish to draw the Banque du Maroc into the agreement - either as co-signer or co-guarantor of the document - because of the fact that it holds Morocco's hard currency reserves. The US banks are particularly keen on this point, while the French banks show less concern. the dispute over the role of the Kingdom's central bank in the rescheduling remains a key stumbling block and delays the final signature. The Moroccan authorities reject any concessions on the issue. A compromise is only found in mid 1985. (FT, 14 May 1984) (FT, 29 May 1984) (FT, 15 October 1984) (FT, 16 January 1984) (FT, 15 October 1984) (FT, 15 October 1984) (FT, 18 July 1985) (FT, 18 July 1985).
	1986	The government fails to stick to its IMF program and incurs a large budget deficit. As a result, negotiations with banks were in deadlock for months. (FT, 2 October 1986) (Middle East Economic Digest, 11 October 1986) An agreement with banks is only reached in Dec. (FT, 16 Dec. 1986) (Dow Jones, 16 Dec. 1986).
Nigeria	**1987-1988**	After the agreement in principle in Nov. of 1986 the rescheduling deal on medium- and long-term debt is delayed for months. The reason is that Nigeria fails to make payments on the interest of rescheduled trade debt from Jan. 1987 on, and fails to reach an agreement on the considerable short-term debt arrears, which both leads to a serious impasse with banks Additionally, Nigeria has effectively been out of compliance with its IMF program over much of 1987, which is a condition to conclude the agreement. In 1988 the deadlock in IMF negotiations, mainly over raising the price of fuel, further delays the debt rescheduling negotiations (FT, 25 March 1988) (FT, 1 July 1988)(Reuters, 1 Oct. 1987) (FT, 6 March 1987) (Reuters, 1 Oct. 1987).
	1990	The announcement in June 1990 that Nigeria would unilaterally reduce the interest rate paid on its debt and the issue of mounting arrears lead to several months of stalemate with banks. Moreover, negotiations are suspended in autumn of 1990 due to the ousting of the Finance Minister. (Reuters, 16 July 1990) (Reuters, 27 June 1990). (FT, 12 Sept. 1990) (Reuters, 25 Jan. 1991) (Reuters, 12 February 1991).
	1991	There is a 6 months dispute on which collateral bonds to offer. The key issue is that Nigeria offers a triple-A Refcorp paper as a guarantee instead of an equally secure US government bond. However, this is rejected by the banks. The government refuses to back down from its offer for many months. Additionally, the considerable interest arrears remain main hurdle in negotiations and lead to some negotiation delay in early 1991 (Reuters, 25 Jan. 1991) (Reuters, 12 February 1991) (Reuters, 5 June 1991) (Reuters, 20 Dec. 1991) (Reuters, 27 Sept. 1991).
Pakistan		Nothing reported
Panama	**1987**	In mid 1987 negotiations break down after the government suspends principal and interest payments. (Washington Post, 31 July 1987) (Reuters, 26 Jan. 1988) (BBC Monitoring Service, 27 Oct. 1987)

	1988 - 1989	From late 1987 on the economy largely collapses. The US charges Norriega of drug trafficking and human rights abuses against. This leads to increasing political unrest in early 1988. Over the rest of 1988 the country faces harsh US sanctions, massive capital flight, a cut off in foreign aid, general strikes and a complete shutdown of the banking system for two months. In 1989 the economic and political chaos continues. The crisis reaches its climax in December of 1989 when U.S. military forces invade Panama, capture Noriega, and reinstall the democratically elected Guillermo Endara as president. (Boughton 2001, pp. 799) (Reuters, 26 January 1988) (AP, 3 February 1988) (Reuters, 24 Jan. 1992).
	1990-1993	From 1990 to 1993 the new government under Endara does not show willingness to engage in serious negotiations. Over 1990 and 1991 there are no formal negotiations with banks at all, as the government announces to give priority of paying arrears to governments and international institutions This strategy is supported by the US. In February 1992 Panama reaches a deal with multilateral agencies. Even though the promises to start serious restructuring talks shortly after, it postpones negotiations several times and cancels planned meetings. The stated reasons for delaying the negotiations are domestic troubles, the need for further economic recovery and high debt repayments to the IMF and debtor governments. In 1993 there are only two preliminary meetings in April and Sept. of 1993. Nevertheless, a partial (relatively minor) bond debt restructuring offer is launched in late 1993. (American Banker, 13 Febr. 1990) (Reuters, 26 June 1990) (Reuters, 14 Nov. 1990)(Reuters, 26 June 1990) (Latin American Mexico and NAFTA Report, 14 June 1990) (Reuters, 11 Oct. 1991) (Reuters, 12 May 1992) (LDC Debt Report, 25 May 1992) (Reuters, 16 Dec. 1992) (Reuters, 9 Sept. 1992) (Reuters, 15 Sept. 1993) (Reuters, 7 Dec. 1993) (Reuters, 16 Dec. 1992) (Reuters, 21 April 1993) (Reuters, 17 Aug. 1993) (Reuters, 10 Sept. 1993) (Reuters, 12 Jan. 1994).
	1994	Serious negotiations start in February of 1994. However, the upcoming elections in May delay the talks. The new administration of President Balladares pospones further talks for several months to Dec. of 1994 (Reuters, 16 Febr. 1994) (Reuters, 22 March 1994) (Reuters, 29 March 1994) (Reuters, 1 August 1994) (LDC Debt Report, 24 Oct. 1994) (Reuters, 14 Dec. 1994).
Paraguay	**1986-1990**	There is a three year delay in starting restructuring negotiations. Paraguay defaults in 1986 and incurs increasing arrears. However, negotiations are initiated only after the military dictator Stroessner is ousted after 34 years in a bloodless coup in February of 1989. The new government under General Andres Rodriguez immediately starts negotiations. However, it also enacts a full suspension of payments to commercial banks. Moreover, the government's initial unwillingness to negotiate an IMF standby-agreement leads to tense relations with the Paris Club member countries. As a result, negotiations with private creditors break down several times, despite the large amount of arrears. Serious negotiations start only in early 1991. (Reuters, 11 Sept. 1990) (Reuters, 29 May 1986) (Reuters, 26 Febr. 1989) (FT, 4 Febr. 1989) (Reuters, 11 Sept. 1990) (LDC Debt Report, 28 Januar 1991).
Peru	**1984**	The restructuring deal with banks agreed on in Febr. of 1984 is never signed as Peru does not stick to its IMF guided austerity program (deal breaks down) and due to the strong increase in interest arrears. (WSJ, 21 Sept. 1984) (WSJ, 6 Aug. 1984) (FT, 3 Oct. 1984)

	1985-1989	The confrontational and fully unilateral debt policy of President Garcia from 1985 to 1990 leads to a complete breakdown of negotiations with banks. In his inaugural speech Garcia announces a unilateral ceiling on debt payments leading to a strong increase in arrears in subsequent years. (FT, 29 July 1985) (NYT, 25 Dec. 1984) (NYT, 30 July 1985) (NYT, 5 Febr. 1985) (WSJ, 29 July 1986) (FT, 30 June 1987) (FT, 28 July 1987) In parallel there is an open dispute with the IMF (WSJ, 29 July 1985) (FT, 12 Febr. 1986) (FT, 1 August 1986) (FT, 16 August 1986) (FT, 20 Feb. 1987) (WSJ, 3 Juni 1987)
	1990-1993	Delay from 1990 to 1993 in starting negotiations. The newly elected Fujimori administration continues Garcias policy of full payment suspension and rejects to start debt restructuring negotiations, despite pressure by the banks. Until 1996 the government even refuses to make token payments. The government states repeatedly that it wants to wait with repayments and restructuring until the economy has improved. Serious debt restructuring talks are initiated only in late 1993 (WSJ, 22 Oct. 1990) (Reuters, 12 Oct. 1990) (WSJ, 24 Nov. 1992)(Reuters, 26 July 1993) (Reuters, 30 Oct. 1995) (WSJ, 22 Oct. 1990) (Reuters,7 April 1992) (Reuters, 8 Sept. 1993)(Reuters, 1 Dec. 1993) (Reuters, 20 Dec. 1993)
	1994	An investigation in Congress about a minor amount of debt is postponed several times. This leads to a stall of negotiations for more than 9 months. (Reuters, 29 June 1994) (Reuters, 26 August 1994) (FT, 17 Sept. 1994)
	1996	In 1996 differences between the IMF and the government delay the finalisation of the term sheet for several months (FT, 21 May 1996)
Philippines	**1983**	The debt negotiations with banks are delayed considerably as the government fails to reach a speedy agreement with the IMF. Additionally, there is considerable uncertainty about the true level of Philippine debt and foreign exchange reserves. This leads to further delays in 1983 (FT, 17 Dec. 1983) (FT, 20 Dec. 1983) (FT, 24 Dec. 1983)
	1984	The discovery that false financial figures had been published by the government and the reluctance to adopt austerity measures leads to month-long delays in IMF negotiations. This, in turn, delays an agreement with banks. (FT, 10 Febr. 1984) (Dow Jones, 31 May 1984) (WSJ, 6 June 1984) (FT, 18 June 1984)
	1987	The deal agreed on in March 87 is delayed for 3 months from April on as Finance Minister Ongpin insist to renegotiate terms after news had spread that Argentina got a better deal than the Philippines. In June a compromise is found. In Nov. 1987 there is a further 40 day delay as the Philippine government requests a 40-day extension on the Nov. 15 deadline for concluding the rescheduling package. (FT, 16 April 1987) (WSJ, 17 Apr 87) (Reuters, 11 June 1987) (NYT, 17 July 1987) (WSJ, 6 Nov. 1987)
	1991	In end 1991 implementation of the deal is delayed several months due to internal political problems and because the country does not fulfil the IMF program's monetary and fiscal targets (LDC Debt Report, 20 Jan. 1992) (Reuters, 9 Jan. 1992)
Poland	**1982**	The imposition of martial law in Dec. of 1981 leads to a 4 month delay in concluding the deal, originally agreed on in Oct of 1981. Moreover, Poland fails to pay the promissed amount of interest arrears until March, which was a precondition for the signature of the agreement. This leads to further delay. (NYT, 15 Dec. 1981) (NYT, 30 Dec. 1981) (Dow Jones, 11 Febr. 1982) (NYT, 3 March 1982) (WSJ, 15 March 1982).

	1987 - 1988	From mid. 1987 to 1988 there is nearly one year of delay in signing the agreement agreed in July 1987. The reason is that Poland aims to alter the terms agreed on in July and changes its negotiation team. (Reuters, 2 March 1988) (Reuters, 17 March 1988).
	1990 - 1993	The government's refusal to make any interest payments and the slow response to banker proposals leads to a deadlock in debt restructuring talks from 1990 to 1993. In 1991, the dismissal of the central bank president and the chief debt negotiator due to a scandal contributes to the delay. In 1992 the deal with the IMF breaks down further undermining the talks. Creditors frequently complain that Poland rejects to engage in serious debt restructuring talks. After Poland starts first interest payments talks break down as the government refuses to increase the payments. (FT, 10 March 1993) (FT, 22 July 1999) (Reuters, 11 Aug. 1993) (Reuters, 1 Sept. 1993) (Reuters, 9 Sept. 1993) (Reuters, 11 March 1992) (Reuters, 14 April 1992) (LDC Debt Report, 14 Sept. 1992) (Reuters, 10 Dec. 1992) (Financial Times May 12th, 1992) (Reuters, 1 March 1991) (Reuters, 9 July 1991) (Reuters, 31 Aug. 1991) (Dow Jones, 23 Aug. 1991)(Reuters, 28 Febr. 1990) (Reuters, 8 Oct. 1990) (Reuters, 5 Nov. 1990).
Romania	**1981 - 1982**	The government rejects to engage in debt negotiations in 1981 and does not admit its payment problems and occurring arrears until 1982. Negotiations in 1982 are further delayed due to confusing proposals and a lack of information exchange. (FT, 3 March 1982) (FT, 2 April 1982) (FT, 29 March 1982) (FT, 22 May 1982) (FT, 16 June 1982) (FT, 3 July 1982).
Russia	**1992 - 1995**	From 1992 to 1995 political turmoil and strong opposition pressure block a final agreement and delay negotiations considerably. In July 1993 Russia reaches an interim deal with banks after tedious negotiations. However, the agreement in principle is not implemented as the government refuses to accept the requirement that sovereign immunity be waived. As a result, talks break down in Oct of 1993. In 1994, Russia continues to refuse signing the 1993 deal and fails to make the promised downpayment of interest arrears. Political instability and frequent changes in the government's top economic team add to the delays. By 1995 plans to conclude the 1993 are completely abandoned b the government. Negotiations in 1995 are postponed several times due to the parliamentary elections in Dec. and due to problems in the debt negotiations with the Paris Club. (LDC Debt Report, 14 Dec. 1992) (Reuters, 27 Nov. 1992) (GDF, 2001 p. 72) (Dow Jones, 11 Oct. 1993) (Reuters, 11 Oct. 1993) (Reuters, 3 Nov. 1993) (WSJ, 12 Oct. 1993)(Dow Jones, Febr. 1994) (Reuters, 3 Nov. 1994) (LDC Debt Report, 7 Nov. 1994) (Reuters, 1 March 1995) (Reuters, 16 June 1995) (LDC Debt Report, 5 June 1995) (Reuters, 7 June 1995) (Reuters, 15 Nov. 1995).
	1996-1997	In Nov of 1996 Russia agrees to a new agreement in principal. However, the negotiation process had been considerably delayed due to problems in reaching agreement with the IMF and due to uncertainty due to the presidential elections in June of 1996. In 1997 the government unilaterally postpones the closure of the deal several times, despite the agreement in principal since Nov. 1996. The deal, negotiated since 1992, is finally concluded in Dec. of 1997. (Reuters, 14 July 1997) (Reuters, 1 Sept. 1997) (Reuters, 6 Oct. 1997). Finally (Reuters, 14 July 1997) (Reuters, 1 Sept. 1997) (Reuters, 6 Oct. 1997) (Reuters, 15 Febr. 1996) (Reuters, 10 June 1996) (Reuters, 1 Sept. 1997) (Reuters, 2 Dec. 1997)
	1998	Political instability and frequent cabinet reshuffles cause significant delays. The first round of new negotiations (from July 98 on) and an offer orchestrated by Goldman Sachs fails. The government's decision to default makes a new lengthy round of negotiations necessary. (Reuters, 28 Oct. 1998) (Reuters, 30 Oct. 1998)

	1999	Political instability remains a main hurdle for quick agreement according to the press and market observers. In the first half of 1999 talks break off after the government is blamed for its non-transparent negotiation strategy and unsatisfactry communications with creditors. (Reuters, 26 Febr. 1999) (Dow Jones, 2 March 1999)(NYT, 1 June 1999)
South Africa		Nothing reported
Trinidad and Tobago		Nothing reported
Turkey		Nothing reported
Ukraine		Nothing reported
Uruguay		Nothing reported
Venezuela	**1983**	Substantial arrears by the government and its rejection to implement an IMF guided austerity program lead to a deadlock in negotiations with banks over much of 1983. A main reason for the government's tough stance towards the IMF and private creditors was believed to be the elections in Dec. of 1983. (Stamm, 1987, p. 214). (NYT, 13 Aug. 1983) (NYT, 25 July 1983) (Dow Jones, 27 July 1983) (FT, 15 Aug. 1983) (Dow Jones, 14 Dec. 1983)
	1984	Further delay due to Venezuela's reluctance to adopt an IMF program. Finally, banks agree to a debt restructuring even without a formal IMF program in mid year. However, talks break down again in June 1984 and October as Venezuela, despite its promise to do so, refuses to foster debt repayment of the private sector, which accumulated USD 1 bn in arrears (Dow Jones, 18 April 1984) (Dow Jones, 22 June 1984) (WSJ, 27 July, 1984) (Stamm, 1987, p. 214) (FT, 25 January 1985) (Dow Jones, 8 June 1984) (NYT, 25 July 1984) (FT, 5 Febr. 1985)
	1986	Negotiations are delayed between Febr. and April due to a dispute over temporary interest arrears. A real breakdown of negotiations occurs in July 1986 as the Congress surprisingly passes a law that would limit payments on about $7 billion of external debt by private Venezuelan businesses. The law foresees to unilaterally exchange private sector debt to long-term bonds with annual interest payments limited to 5%, a rate below the creditor banks' cost of funds. After considerable pressure by bank creditors the law is not put into effect and is abolished in Sept. 1986. (FT, 24 July 1986) (WSJ, 16 July 1986) (Stamm, 1987, p. 214) (FT, 3.July 1986) (Stamm, 1987, p. 214).
	1987	A political conflict within the government leads to month-long delays in signing the agreement, which had been agreed on in February. The opponents to the deal argue in favour of a debt moratorium or, at least, a further modification of the deal. The deal is finally signed in September. (Reuters, 3 Aug. 1987) (Dow Jones, 29 July 1987) (WSJ, 7 Aug. 1987) (FT, 7 Sept. 1987) (WSJ, 8 Sept. 1987) (AP, 18 Sept. 1987).
Vietnam	**1982 - 1993**	Barely any negotiations from 1982 to 1993. After the default in 1982 the government runs into increasing arrears to private and official creditors and fails to come to an agreement with the IMF. There are some negotiations with Japanese banks only and a minor restructuring deal with them in the period 1982 to 1985. Yet the government shows no meaningful restructuring efforts regarding the commercial debt to Western commercial banks. In 1993, as the US lifts its sanctions against the country step by step, Vietnam normalises its relations to the IMF and the World Bank and repays its arrears. Additionally, deal with the Paris Club is reached. Negotiations with banks start only in 1994. (AP, 6 April 1997)(WSJ, 22 May 1985) (FT, 8 April 1982) (FT, 12 March 1985) (Reuters, 28 Sept. 1993) (Reuters, 12 Dec. 1994)

(Reuters, 12 Dec. 1994) (Reuters, 7 Aug. 1995) (LDC Debt Report, 25 March 1996).

1995-1996 Although the government announces its aim to reach a quick deal, a series of issues delay the negotiations considerably. In 1985, there are disagreements between the Ministry of Finance and the State Bank on how to lead negotiations. The eighth congress of the Vietnamese communist party in mid 1996 leads to further political tensions and delays. Moreover, there are barely any meetings with the London Club. Instead, negotiations go on mostly via fax, which hinder speedy progress. (FT, 11 Oct. 1995). (FT, 11 Oct. 1995) (LDC Debt Report, 25 March 1996) (Reuters, 12 April 1996) (Reuters, 6 May 1996) (Reuters, 20 May 1996).

1997 In 1997 technical issues delay the closure of the deal. Generally, the Central bank is slow in finishing the necessary documentation and causes a series of smaller administrative delays. Additionally, in October of 1997, central bank chief Cao Si Kiem is ousted, which makes it necessary to redo paperwork and repeat the signature process. (Reuters, 28 Aug. 1997) (FT, 15 Oct. 1997) (Reuters, 2 Dec. 1997) (Reuters, 16 Febr. 1998).

Yugoslavia

Nothing reported

Chapter 4

Inexcusable Sovereign Default

Abstract[§]

Sovereign defaults are a recurrent feature of financial markets, but there is little systematic knowledge on how they are resolved and what the implications of "messy" debt workouts are. This paper is the first to assess the real effects of debt crisis resolution policies. I exploit new data on government negotiation patterns vis-à-vis foreign creditors and analyze their impact on private firms in the debtor country. The results show that, when governments behave confrontationally during debt renegotiations, the private sector finds it harder to borrow from abroad. Periods of particularly coercive debtor behavior see a notable drop in corporate external credit volumes and an increase in risk spreads. These findings give support to Cole and Kehoe's (1998) theory of general reputations and indicate "top down" spillovers of sovereign risk.

Keywords: Sovereign Default, External Debt, Reputational Spillovers
JEL Classification: F34, G32

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4.1. Introduction

In the absence of an international sovereign insolvency framework, there are no standardized procedures guiding or binding countries that face severe debt distress. As a consequence, debt crises continue to be solved on a case by case basis, with a variety of negotiation and debt restructuring strategies. Two recent opposing examples are the unilateral default of Russia 1998-2000, whose government adopted a very confrontational stance towards its foreign creditors, and the case of Ukraine 1998-2000, which engaged in close creditor consultations and came to a preemptive restructuring agreement without missing payments. Both countries faced a deep crisis, but governments took a very different stance towards banks and bondholders during the default and debt renegotiations. This variation in debtor policies is not exceptional, but can be observed across all debt crises episodes in the last decades.

This paper is to my knowledge the first to assess the real effects of crisis resolution and debt renegotiation patterns during distress. I analyze how confrontational debtor policies affect domestic firms, in particular their borrowing conditions in international capital markets. Building on Cole and Kehoe (1997, 1998), the paper's central hypothesis is that coercive policies vis-à-vis foreign creditors will trigger reputational spillovers and adversely affect domestic agents in the debtor country. The main idea behind Cole and Kehoe's model is that governments who are deemed untrustworthy in one area will also be seen as untrustworthy in other fields. Misbehavior in the sovereign debt arena can therefore curb foreign investment, capital flows or the country's standing in international negotiation settings. This is why maintaining a good relationship with bankers can have enduring benefits outside of the government's own borrowing relationship.[47]

Theoretically, the literature has suggested two mechanisms through which "top down" reputation spillovers from the sovereign can affect domestic agents. The first is the classic argument of punishment and sanctions, as government unwillingness to pay and "inexcusable" default behavior can lead to the country's full exclusion from international capital markets (Grossman and Van Hyuck 1988, D'Erasmo 2010, Eaton and Gersovitz 1981, Wright 2002). A second potential channel is one of signaling (Sandleris 2008, 2010).[48] Sandleris argues that debtor policies send strong signals about country fundamentals and the government's willingness or ability to undertake reforms or protect property rights. Default and expropriative debt policies can thus affect agents' beliefs both at home and abroad, leading to (i) less investments and thereby less demand for credit (demand effect) and/or (ii) a decline

[47] Cole and Kehoe's (1997, 1998) contributions helped to revive reputational models of sovereign debt. They show that, even under the Bulow and Rogoff (1989) assumptions and in the absence of sanctions, reputation can support large amounts of lending to a country.
[48] Other paper on the signaling effect of sovereign defaults include Cole et al. (1995), Eaton (1996) and Catao et al. (2008).

in the supply of foreign credit and higher spreads (supply effect). Both effects will result in higher "collateral damage" of default.

Empirically, I test these theoretical priors based on a new database on crisis resolution policies of sovereigns in distress by Enderlein, Trebesch and von Daniels (2010). The "Index of Coerciveness" measures unilateral actions that governments impose on their foreign banks and bondholders in debt renegotiation and default episodes. This index is used as the key explanatory variable. As for the dependent variable I focus on the credit channel and construct measures of corporate external borrowing, which has become an essential source of private sector finance in emerging markets, especially in Latin American countries.[49] Specifically, I use firm-level data on the volume and spread of more than 20.000 foreign syndicated loan contracts and bonds issued by private firms of 32 major emerging market countries from 1980 to 2004. The analysis is conducted at monthly frequency, which allows analyzing the effects of coercive debt policies both during and after default episodes. This differs importantly from an analysis of restructuring outcomes, such as implied creditor losses (haircuts). Haircuts are only observable at the very end of a negotiation process, which can take many years, and can therefore not be used to assess within-crises effects.

My identification strategy exploits the fact that debtor negotiation patterns are not solely determined by country fundamentals and macroeconomic conditions. This allows for better identification of reputational effects in the face of aggregate shocks. Previous research has shown that debt crises are accompanied by a decline in trade, foreign investment and credit.[50] However, it is difficult to identify whether the observed effects can be attributed to the reputational cost of default or if they result from a simultaneous decline in aggregate demand or common shocks. I present evidence that political factors can best explain the variation in debtor coerciveness and that debt moratoria or refusals to negotiate are often the deliberate choice of populist governments. One can also argue that, even in the worst state of nature, governments still have the possibility to avoid coercive policies and show "good faith" towards creditors, e.g. by paying symbolic token payments or engaging in pre-emptive negotiations. The index of coerciveness can therefore be interpreted as a proxy for government unwillingness to pay or for "inexcusable" default behavior in the spirit of Grossman and Van Hyuck (1988).[51]

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[49] More than 25% of emerging markets' corporate bonds and bank credit are now external. See various issues of the IMF's Global Financial Stability report.

[50] See Arteta and Hale (2008), Levy-Yeyati and Panizza (forthcoming), Fuentes and Saravia (2010), Rose (2005).

[51] In the seminal article by Grossman and van Hyuck (1988), lenders sharply differentiate between (i) defaults that are excusable by bad states of nature and (ii) cases of outright debt repudiation, which are inexcusable and therefore punished by market participants.

The results indicate that crisis resolution policies, as measured by the coerciveness index, play a crucial role for domestic corporations in debtor countries. Episodes with particularly aggressive policies (high index values) see a drop of more than 40% in the volume of corporate external borrowing - over and above the default effect per se. This negative relationship holds during crisis years and for up to two years after the crisis is over. The second main finding relates to the cost of borrowing. During crisis years with coercive policies, corporate spreads on external loans increase between one and three percentage points compared to what they would have been otherwise. I also differentiate across sectors and type of debt. The results show effects to be concentrated on non-financial, non-exporting firms. They are particularly strong with regard to trade credits (in line with Kohlscheen and O'Connel 2006) and for loans raised for the import of intermediate production inputs (in line with Mendoza and Yue 2008).

The results prove to be robust to controlling for macroeconomic conditions, for factors affecting the supply of capital to emerging markets, natural disasters, banking or currency crises, creditor characteristics, political risk, government crises, changes in the ruling party or country credit ratings. The main results are also robust to redefining the dependent variable, and to changes in the weighting and composition of the coerciveness index. Additionally, I rely on instrumental variable estimations, because my identification strategy does not rule out the possibility of reverse causality and omitted variable bias. Specifically, I use legal origins and the timing of elections as exogenous instruments for default and the degree of debtor coerciveness. The main results hold in the IV regression framework.

The paper contributes to the literature in two main ways. First and foremost, the paper can be seen as a test of Cole and Kehoe's theory of general reputations. I am aware of only one further paper that explicitly tests for reputational spillovers a la Cole and Kehoe, namely Rose and Spiegel (2009), who show that international cooperation in the field of the environment fosters bilateral asset trade. The results can also be interpreted as first evidence that investors indeed differentiate between types of debtors and punish "inexcusable" default behavior, as suggested by Grossmann and Van Huyck (1988). Second, the paper extends a small but growing empirical literature on the cost of sovereign default (e.g. Arteta and Hale 2008, Borenzstein and Panizza 2008, Fuentes and Saravia 2010, Rose 2005).[52] A main difference to these studies is that I substitute the simple default dummy with a more continuous index of debtor behavior. Finally, the paper contributes to research on the role of policies and institutions on cross-border capital flows (e.g. Alfaro et al. 2008). The results point to a specific channel through which political risk and government behavior can affect capital flows.

[52] Theoretical contributions focusing on the domestic consequences of sovereign default include Alfaro and Kanczuk (2005), Sandleris (2008) and Mendoza and Yue (2008).

The remainder of the paper is organized as follows: Section 4.2 presents the index of coerciveness and discusses the determinants of debtor behavior. Section 4.3 presents the empirical strategy and potential identification problems. Section 4.4 describes the variables and data sources, while the results and a series of extensions and robustness checks are discussed in section 4.5. Section 4.6 concludes.

4.2. Measuring Debtor Coerciveness

This section briefly presents the index of coerciveness by Enderlein et al. (2010) and discusses its determinants. The index measures coercive actions that governments impose on their private external creditors during default and restructuring negotiations. Our idea of categorizing different types of debtor behavior towards creditors is certainly not new. Authors such as Aggarwal (1996), Andritzky (2006), Cline (2004) or Roubini (2004) all suggested that debt policies and restructuring processes vary on a spectrum from "soft" to "hard" or from "voluntary" to more "involuntary" types. However, no research has provided a comprehensive and systematic dataset suitable for econometric analysis.

The main challenge in coding debtor negotiation patterns during debt crises is to define appropriate criteria. The sub-indicators chosen should be as objective as possible. At the same time, they should mirror the views of researchers, financial market participants and policymakers on how fair debt restructuring processes should look like. Fortunately, we could draw on a rich policy discussion and previous research. Amongst other, an essential point of reference were the "good faith" criteria outlined in the IMF's lending into arrears policy (IMF 1999, 2002), as well as the catalogue of best practices in the IIF's "Principles for Stable Capital Flows and Fair Debt Restructuring in Emerging Markets" (IIF, 2006). Both are key policy documents that receive much attention by officials and investors alike.

The final index is coded for debt distress episodes only[53] and consists of nine sub-indicators, each of which captures observable government actions vis-à-vis foreign banks and bondholders. The criteria can be grouped into two broad categories of government behavior: (i) "Indicators of Payment Behavior", capturing government actions that have a direct impact on financial flows towards international banks or bondholders, and (ii) "Indicators of Negotiation Behavior", measuring negotiation patterns and aggressive rhetoric of governments. The exact definition and theoretical rationale for each indicator, as well as the detailed coding procedures, descriptive

[53] The start of debt distress is defined as either (i) the month of first missed payments beyond the grace period (the start of de facto default), *and/or* (ii) the beginning of debt talks and restructuring negotiations. The episode ends with the final agreement of a debt restructuring (see section 4.2.).

statistics and stylized facts from the data are presented in Enderlein et al. (2010).[54] Each sub-indicator is a dummy, which is coded as one if the respective action by the government can be observed in a given year - and zero otherwise.

The nine binary sub-indicators of the index are the following:

Indicators of Government Payment Behavior during Debt Crises:
1. *Payments missed?* (yes/no) - Pre-emptive or post-default restructuring?
2. *Unilateral payment suspension?* (yes/no) - Negotiated default?
3. *Full moratorium, incl. interest payments* (yes/no) - "Partial" vs "Full" defaulter?
4. *Freeze on foreign assets* (yes/no) - New capital or exchange Controls?

Indicators of Government Negotiation Behavior during Debt Crises:
5. *Breakdown or refusal of negotiations?* (yes/no) - Government induced delays?
6. *Data disclosure problems?* (yes/no) - Refusal to release essential data?
7. *Explicit threats to repudiate on debt?* (yes/no) - Public threats to creditors?
8. *Explicit moratorium or default declaration* (yes/no) - "Declaration of war"?
9. *Forced and non-negotiated restructurings* (yes/no) - Take-it-or-leave-it?

The final index is additive, meaning that the scores of the nine dummy indicators are summed up (with a lower bound of 1). While being straightforward the equal weights are arbitrary to some degree. I therefore check whether the results presented below are robust to different index weighting methods, as well as changes in index composition. With the additive index, the maximum value is 10, which represents the highest degree of coerciveness and particularly aggressive debt policies. On the lower end is the index value of 1, which indicates a fully cooperative policy stance during debt crises. All episodes without default or debt renegotiations are simply coded as 0. Figure 2.1 of chapter 2 illustrates the index design graphically. The chapter also discusses why the index is valid across time, i.e. both for debt crises of the 1980s and 1990s and for more recent cases of sovereign bond restructurings.

All in all, the coding results show a very strong variation of debtor policies vis-à-vis creditors across countries and time. Debtor policies also vary notably during the same crisis episode and often change unexpectedly.[55]

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[54] The basis of coding was a thorough and standardized evaluation of more than 20,000 pages of articles from the financial press, of numerous policy reports, case studies and main reference books on sovereign debt crises. Further information was retrieved from databases such as the GDF and from annual series such as the IMF's "Annual Report on Exchange Arrangements and Exchange Restrictions" (1980-2006). The detailed coverage in the press and academic sources, generally allowed coding of government actions and events based on more than 3, and in some cases up to 20 or 30, sources. To guarantee transparency and replicability, each individual coding decision is justified in one or two sentences. These are then backed with precise quotes from the original press articles, books or papers (see Enderlein et al. 2010).

[55] Among the many examples is Brazil's debt moratorium of 1987 which was largely unanticipated by bankers but accurately prepared by the government. Prior to the moratorium declaration, President

Turning to the determinants of debtor coerciveness, all available evidence indicates that confrontational policies are not merely the result of bad economic and financial conditions. Instead, the case study literature underlines the influence of political factors and shows that coercive policies are often adopted deliberately and in an attempt to gain voter support (See, amongst other, Aggarwal 1996, Cline 1995, Rieffel 2003 and Tomz 2007).[56] One example is President Garcia of Peru who imposed a unilateral moratorium and embarked into very confrontational policies towards foreign banks in the mid 1980s, despite taking office in a period of high economic growth. More recent examples are Ecuador's unilateral debt buy-back of 2009 (Porzecanski 2010) or the well known case of Argentina, where the government adhered to its coercive debt policies, despite a strong economic recovery after 2003.

These narratives can be backed by more systematic evidence. In a series of papers on the determinants of debtor coerciveness, Enderlein et al. (2009, 2010, forthcoming) show that macroeconomic and financial variables can only explain a surprisingly small share of the variation in our index. Instead, we show that political economy constraints and institutional dysfunctionalities seem to play a dominant role in explaining a government's negotiation stance. In Enderlerin et al. (2009) we find robust evidence that democracies in distress adopt significantly more coercive policies than autocracies, especially during times of elections and socioeconomic turmoil. Enderlein et al. (forthcoming) also show that debtor coerciveness is correlated with the quality of institutions and governance indicators.

4.3. Identification and Estimation

This section discusses my empirical strategy to test for the impact of sovereign risk and coercive debt policies on domestic firms.

4.3.1. Estimated Model

As a baseline model, I estimate a reduced-form equation of the following functional form, assuming fixed effects:

$$C_{it} = \beta_1 Coerc_{it} + \sum_{\tau=1}^{K} \beta_2 Coerclag_{\tau it} + \gamma X'_{it-1} + \alpha_i + \alpha_t + u_{it} \qquad (1)$$

Sarney even ordered oil tankers to leave foreign ports so as to prevent their seizure (FT, 23 Feb. 1987).

[56] Related theoretical contributions on the role of politics and institutions for sovereign risk and crisis resolution include Amador (2003), D'Erasmo (2010), Hatchondo, Martinez and Sapriza (2009), while Block and Vaaler (2004), Cuadra and Sapriza (2008), Moser (2006), Kohlscheen (2007) or Van Rijckeghem and Weder (2009) provide related evidence.

where C_{it} is a credit measure, α_i and α_t are country and year fixed effects, $Coerc_{it}$ is the index of government behavior, which is 0 for non-default months and ranges from a minimum of 1 to a maximum of 10 in debt distress episodes. The vector X'_{it-1} contains a set of control variables, all lagged by one period unless otherwise specified and u_{it} are robust errors clustered by country. $Coerclag_{\tau it}$ represents lagged index values of coerciveness, capturing the total degree of coerciveness of a restructuring deal that occurred more than $\tau-1$ but less than τ years ago (where K=3).[57] The coefficients of $Coerclag_{\tau it}$ therefore capture whether coercive debt policies during a crisis are related with private sector external credit in the post-crisis period, i.e. 1 to 12 months, 13 to 24 months and 25 to 36 months after the restructuring.

The theoretical priors predict β_1 and β_2 to have significant, negative coefficients. The more unilateral actions a government imposes on its foreign creditors during negotiations, the more difficult it will be for private firms in the country to tap international capital markets at favorable conditions. However, several issues arise in identifying this effect. The following sections discuss identification problems and potential biases in estimating the impact of debtor coerciveness.

4.3.2. Identifying "Inexcusable" Coerciveness

If $Coerc_{it}$ is correlated with the set of macroeconomic and financial control variables in X'_{it-1}, the estimates of β_1 may be biased. To address this concern, I apply a two-step approach.

In step one, I regress $Coerc_{it}$ on the set of key control variables contained in X'_{it}. This step is similar to the analysis on the determinants of coerciveness by Enderlein et al. (2009, 2010). I then save the residuals of this regression ($Resid\_Coerc_{it}$) and use them as explanatory variable in a second stage regression with C_{it} as dependent variable. This means that I substitute $Coerc_{it}$ in equation (1) with a variable capturing the variation in "residual coerciveness".

This two-stage estimation strategy can provide important supplementary evidence on reputational spillovers. In fact, one can interpret $Resid\_Coerc_{it}$ to capture the scope of confrontational debtor policies that are not justified by macroeconomic and financial conditions. High positive values of the first stage residuals may thus be seen as the "inexcusable" component of debtor coerciveness.

[57] The degree of coerciveness of each individual agreement measures coercive government actions imposed on external private creditors in the run-up to the respective debt restructuring agreement.

4.3.3. Reverse Causality and Unobserved Heterogeneity

The potential endogeneity of $Coerc_{it}$ (and $Resid\_Coerc_{it}$) is a concern for two reasons. First, there is the possibility of direct reverse causality or simultaneity, meaning that changes in corporate external credit affect government debt policies. One causal channel how C_{it} may impact the likelihood of default and coerciveness can be inferred from Sandleris (2008). He depicts a scenario in which a group of influential domestic entrepreneurs needs to borrow from abroad to finance investment projects. Facing a drop in access to external capital, these entrepreneurs may exert pressure on the government not to default or not to adopt coercive debt policies. If the government cares enough, the entrepreneurs may successfully influence the country's overall debt policy stance. Such an effect would bias β_1 and β_2 *upwards*, resulting in smaller negative (or larger positive) estimated coefficients.

Second, there is a possibility that changes in foreign credit and coercive debtor policies are the result of the same external shock. Military tensions, a severe political scandal or an increase in international interest rates may both curb the volume of external credit issued by corporations and also trigger more confrontational government policies towards creditors. This would result in a *downward* bias in the estimated β_1 and β_2, showing more negative (or less positive) coefficients. While I include time and country fixed effects and although I control for observable economic fundamentals and the occurrence of external shocks (see section 4), I cannot rule out the possibility that time-variant unobservable heterogeneity in economic or political conditions (captured in u_{it}) will be correlated with debtor coerciveness $Coerc_{it}$. The relationships identified below may then not be causal.

To assess the relevance of direct reverse causality, I first assess whether the lagged values of borrowed debt volumes have a significant effect on debtor coerciveness. In line with Arteta and Hale (2008, AH hereafter), who find no effect of lagged borrowing on the on-set of default, I find no significant effect of lagged credit volumes on the adoption of particularly coercive policies. The coefficients of lagged debt volumes are highly insignificant at different lag lengths, with and without control variables, with or without country and year fixed effects and both in the full sample and the sub-sample of default months only (results are available upon request).

Furthermore, in an attempt to identify causal effects, I adopt an instrumental variable estimation strategy that follows previous work on the role of policies and institutions for cross-border capital flows (see, in particular, Alfaro et al. 2008 and Wei and

Shleifer 2000). Specifically, I use legal origins as an instrument for the degree of coerciveness adopted by debtor countries. La Porta et al. (1997, 1998) argue that legal origins, especially French legal origins, have a pronounced impact on government policies and the quality of bureaucracies. A recent article by Du (2010) also shows legal origins to be a predictor for both the occurrence and intensity of economic crises. The validity of this identification strategy rests on the assumption that legal origins are an exogenous determinant of policies and institutions and will not influence changes in corporate access to capital directly, but only through their effect on policymaking and crisis resolution (coerciveness).

One problem with using legal origins as an instrument is that time variation is minimal within countries, so that the legal origins dummy cannot be combined with country fixed effects. As a second, time-varying instrument I therefore also use the timing of elections, based on annual data on parliamentary and presidential elections from the Database of Political Institutions (DPI, see Keefer 2009). Relying on the electoral cycle is partly motivated by Enderlein et al. (2009), who show that debtor coerciveness increases significantly in the year prior to an election. Elections can be seen as an exogenous source of variation and unlikely to be influenced by coercive debt policies, especially if one excludes early or extraordinary elections that may be triggered by crisis events. To assure the validity of the exclusion restriction I therefore consider regular elections only, i.e. those elections that follow the constitutionally foreseen cycle (e.g. each 4 or 5 years).[58]

4.3.4. Demand vs. Supply Effects

As discussed above, there are at least two causal channels through which sovereign debt distress and aggressive debtor policies can affect private sector external borrowing. First, there are possible *demand effects*. Default periods often coincide with output losses and lower domestic demand (Dooley 2000, Levy-Yeyati and Panizza 2010, Tomz and Wright 2007). This, and possible signaling effects a la Sandleris (2010) can lead to a drop in production, investment and profits, resulting in lower demand for external credit. But lower bond and loan issuances may also be attributed to *supply effects*. As discussed, sovereign defaults and coercive debtor policies are likely to worsen country reputation and increase risk premia for all agents in the economy. Foreign creditors might refuse to continue lending to domestic firms or demand prohibitively high interest rates.

The main focus of this analysis lies on the volume of new borrowing (capital flows), which may be influenced by both demand and supply effects. When C_{it} stands for

[58] To exclude extraordinary elections I combine DPI data on election years (variables "LEGELEC" and "EXELEC") with information from the variable "YRCURNT", coding the number of years left in current term. Regular elections are coded as those events where the election year is "on schedule", meaning that the number of years left in the current term prior to the election year is "1".

credit volumes it is difficult to explicitly distinguish between the two channels. Nevertheless, to gain additional insights, I assess the role of individual coercive policies and for different sectors of the economy and types of debt. One would expect that some debtor policies, such as the refusal to engage in any type of negotiations or the enforcement of a unilateral debt exchange will trigger reputational spillovers that are particularly strong. One would also expect that some sectors are more responsive to the changes in external credit conditions than others. Firms in the financial sector, for example, can reduce their lending and rely on domestic liabilities. During distress episodes they may thus reduce their foreign borrowing more quickly than firms in the exporting sector, which have few alternatives than to raise trade credits from international sources.

Additionally, I analyze the *cost* of corporate external borrowing. For this purpose, I use data on launch spreads of newly contracted foreign syndicated loans as dependent variable and regress them on the default and coerciveness indicators and the control variables. The advantage of this approach is that price data may be less influenced by demand effects. A potential problem of the pricing regression, however, is that the estimates may be biased due to sample selection effects. During crisis times, only well capitalized and less collateral constrained firms may be able to tap international credit markets. These firms will, however, pay lower interest rates on average, resulting in an upward bias of the estimated β_1 and β_2 coefficients. Following the argumentation by Ağca and Celasun (2009), I can address this type of sample selection bias to a certain degree by controlling for sector-fixed effects.

4.3.5. Government Changes

D'Erasmo (2010), Hatchondo et al. (2009) and others suggest that government changes can be crucial for default decisions and associated reputational effects. In a similar vein one can expect government changes to have an intervening effect on risk spillovers and the effect of coercive debt policies. New governments, especially those with an investor friendly agenda, can restore trust and thereby reduce the affect effect of past coercive policies.

To econometrically account for this possibility, I interact the index of coerciveness and its lagged values ($Coerclag_{\tau it}$) with a "new government" dummy, which takes the value of 1 in case the country saw a government change in the previous year or the two years before that (in t-1 to t-3). In addition, I construct a dummy for "new right or center government" which is similar to the new government dummy but only takes the value of 1 in case the government was leftist before and changed to center or right-wing orientation. The reason for including this variable is that right-wing or center governments are often perceived as more investor friendly. The dummy on

party orientation is based on the "EXECRLC" variable from DPI, coding the government's party platform and agendas with respect to economic policy. Government changes are identified via the "YRSOFFC" variable in the same dataset.

4.4. Data and Variables

The following sections describe the construction of the dependent variables (section 4.4.1.), the approach to measure debt crisis episodes (section 4.4.2.), and all additional variables and data sources (section 4.4.3.). The estimations cover the period 1980 to 2004 and include 32 major emerging market economies, of which 13 witnessed one or several periods of default since 1980 (Table 4.1 provides an overview).

<Table 4.1 about here>

4.4.1. Dependent Variable: Foreign Credit to the Private Sector

The dependent variable is constructed from firm-level debt issuance data as reported in the Dealogic database, which provides comprehensive coverage of emerging market debt capital markets (formerly Bondrware/Loanware). I retrieve all foreign corporate bond issues and foreign corporate syndicated loan contracts for 32 emerging economies in the period January 1980 until December of 2004. The country sample is the same as in AH, who exclude countries which had only limited access to foreign capital in the period of observations.[59] To focus on the effects on domestic private firms, I also exclude public corporations and firms that are foreign owned, e.g. by multinational corporations.

For each country, the total volume of corporate debt issuances in US Dollars is summarized on a monthly level. Issuance volumes are deflated by U.S. CPI. From there, I construct averages of real issuance volumes for the entire 25 year period. The final dependent variable measures the monthly percentage deviation from the country specific mean. Note that differences in means are captured by country fixed effects, while common trends are picked up by year fixed effects. Focusing on monthly (real) deviations from the mean has the advantage that results are easy to interpret and that it allows a direct comparison of coefficients with those estimated by AH. Nevertheless, I will show that the results are robust to redefining the dependent variable, in particular when using logged borrowing volumes per month (deflated by US CPI) or monthly borrowing volumes relative to annual GDP.

[59] AH exclude those countries for which the total amount of bonds and loans is zero for more than 24 months out of the 264 months in the sample. Note that, in addition, I exclude Ghana, as the index of coerciveness is not coded for this country due to a lack of reliable information.

To construct credit measures by sector, I distinguish between financial and non-financial firms, as well as firms in the exporting sector using information on firm characteristics in Dealogic.[60] In addition, I construct different measures by types of loans, by taking advantage of readily available information on the purpose of loans provided on syndicated loan contracts ("Deal Notes"). Specifically, I identify loans that are declared as trade credits, as well as loans which are issued with the explicit purpose to finance the import of intermediate inputs.[61]

4.4.2. Measuring Default and Negotiation Episodes

The analysis focuses on episodes of sovereign defaults towards private creditors.[62] Restructurings with official (bilateral or multilateral) creditors will only be taken into account in the robustness analysis. A further difference to AH is the measurement of crisis duration and event sequencing. The start of debt distress is defined as either (i) the month of first missed payments beyond the grace period (the start of de facto default), *and/or* (ii) the beginning of debt talks and restructuring negotiations. Moreover, I define a debt crisis as being solved with the final agreement of a debt restructuring. Contrary to AH, I do not capture renegotiation periods only, but explicitly account for default episodes in which no negotiations took place, e.g. due to the government's refusal to engage in talks. This can make a substantial difference in the data on crisis duration. In some cases, such as Peru in the 1980s, governments were in default several years before engaging in restructuring negotiations with private creditors. Finally, I also use revised data on the timing of restructuring agreements.[63] All data on crisis sequencing and restructuring dates are taken from Trebesch (2008).

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[60] To identify exporters, I follow AH's broad classification, which was originally based on Feenstra et al. (2002).

[61] A loan is coded as a trade credit, if the loan purpose description contains the words "import", "export" or "trade". Using this approach, I identify 1219 trade credit loans. A loan is coded as intended for imported inputs if the deal description contains the words "constr", "equip"; "input", "oil", "prod", or "purchas". With this algorithm, I identify 2982 production-related loans in the full sample 1980-2004 (11.156 total).

[62] I choose a narrower definition of debt crises than AH. Voluntary debt exchanges and swaps that are part of routine liability management and involving no debt reduction (Medeiros, Polan and Ramlogan 2007) are not regarded as relevant events. Given the focus on sovereign risk, I also exclude restructuring events of private-to-private debt such as in the cases of Korea and Indonesia 1997 and 1998. The analysis is thus based on a smaller set of crisis and restructuring events, which, however, might be more appropriate for the analysis at hand.

[63] AH rely on the list of restructuring events in the GDF reports (World Bank 2002, 2003), which is a comprehensive and widely used source. However, our coding process revealed that the GDF lists contain a number of errors and imprecisions. Sometimes, interim agreements are listed as final agreements. In other instances, agreements are listed as finalized, although they were postponed or never implemented.

4.4.3. Controlling for Shocks, Politics and Fundamentals

As mentioned above, omitted variable bias is an important concern, because external shocks and macroeconomic conditions can simultaneously affect private external credit and government debt policies. I capture observable external factors, domestic demand effects and a government's ability to pay by including a set of economic control variables that are theoretically relevant and which previous research has identified to matter for the volume of credit, equity and FDI flows to emerging markets (e.g. Fostel and Kaminsky 2007). Table 4.2 provides an overview on variable definition and data sources.

<Table 4.2 about here>

Regarding economic and financial variables, I start with the same set of controls used in AH.[64] The authors apply principal component analysis (PCA) to include a large set of mutually correlated variables, with the additional benefit of bridging data gaps in some of the series. For this purpose, all variables are used as percentage deviation from their 25-year country-specific averages on a monthly basis. They are grouped in 5 broad categories and constitute a set of indexes (I retain the same indices as AH):

International competitiveness
The first index captures the degree of international competitiveness, which is likely to have an effect on firm performance and, thus, corporate demand for external credit. The index is constructed using data on terms of trade changes (UNCTAD), changes in the current account (IFS), changes in the real exchange rate (IFS), price indices of each country's export commodities (GFD, IFS) and the volatility of export revenues (IFS). The index is scaled by trade openness (imports+exports/GDP, from IFS, GFD). The first two principal components are retained (Index 1.1. and 1.2. of Table 4.2).

Investment climate and monetary stability
This index accounts for foreign and domestic demand for investment and credit in the country, as well as short-run macroeconomic developments. It is composed of data on sovereign credit risk (IIR), the ratio of debt service to exports (JEDH), the ratio of investment to GDP (IFS), , the real interest rate (IFS), the ratio of lending interest rate to deposit interest rate (IFS), the inflation rate (IFS), the ratio of domestic credit to GDP (IFS), and changes in the domestic stock market index

[64] To assess whether the set of controls affects the results I re-estimated all main specifications with a different set of explanatory variables for the 1990s and 2000s. This secondary dataset at quarterly frequency contains a series of standard variables employed in the received literature on cross-border capital flow (push and pull factors) and is constructed using the GDF, EUI and IFS databases. The main results are only little affected and robust to a large number of specification changes.

(Ibbotson, GFD, Bloomberg). Three principal components are retained (Index 2.1, 2.2. and 2.3. of Table 4.2).

Financial development

The development of the domestic financial system can be an important determinant of the demand for external credit in emerging markets. The index of financial sector development is constructed based on the ratio of stock market capitalization to GDP (GFD, IFS), the ratio of commercial bank assets to GDP (IFS) and the degree of financial account openness (Glick and Hutchison, 2005). The first principal component is retained (Index 3.1. of Table 4.2).

Long-run macroeconomic prospects

Indicators on long-term macroeconomic prospects are likely to affect risk assessments of both domestic and foreign agents, and thereby the demand and supply of corporate external credit. The related index is constructed using the ratio of foreign debt to GDP (JEDH), the growth rate of real GDP (IFS), the growth rate of nominal GDP measured in US Dollars (IFS) and the unemployment rate (IFS). The first two principal components are retained (Index 4.1. and 4.2. of Table 4.2).

Global supply of capital

Corporate external credit flows to emerging markets will also be influenced by global conditions and the availability of capital in general. This last index is based on an investor confidence index (Yale SOM), the growth rate of the U.S. Stock market index (GFD), the U.S. Treasury rate (Federal Reserve), the volume of gross international capital outflows from OECD countries (Lane and Milesi Ferretti 2001), and Merrill Lynch High Yield spread (Merrill Lynch). Two principal components are retained (Index 6.1. and 6.2. of Table 4.2).

The indices of international competitiveness and long-run macroeconomic prospects may be seen as proxies for a government's ability to pay. The index on investment climate and monetary stability and that on financial development capture the corporate sector's financial and economic situation. To account for common shocks, I explicitly control for currency and banking crises as well as episodes of systemic sudden stops. Currency crisis episodes are taken from an earlier paper by Arteta and Hale (2007), while data on systemic banking crises are from Laeven and Valencia (2008). Data on systemic sudden stops are taken from Cavallo and Frankel (2008).[65] In addition, I try to capture disruptions due to natural disasters. Data on natural disasters come from the International Emergency Disasters Database. Concretely, I use a dummy whenever governments declared a state of emergency due to earthquakes, floods, storms, fires or volcano outbreaks.

[65] Results do not change when using the alternative sudden stop indicators by Calvo, Izquierdo and Talvi (2006), and Calvo, Izquierdo and Mejia (2008).

Given the focus on government policies, it is also crucial to control for political instability, which might affect both external borrowing and a government's negotiation stance. As a first measure, I include the monthly aggregate political risk indicator from ICRG. As an alternative, I construct a measure of political disruptions with observable data on general strikes, anti-government demonstrations, coups and revolutions taken from Databanks International. As these political events are highly correlated, I employ Principal Component Analysis to summarize the information in the individual series into a smaller set of variables. Only the first principal component is retained.

Finally, I include a small set of firm-level dummies. Some industries, such as gas and oil companies, or firms in the chemical or mining sector are particularly capital intensive and tend to raise much higher bond or loan volumes than most other corporations. To capture some of the noise caused by financings of major investment projects in these sectors, I include monthly dummies for debt issuances by oil & gas, chemical and mining corporations respectively.

4.5. Results

4.5.1. Main Results

Table 4.3 shows the baseline estimation results, all including country and year fixed effects and heteroskedasticity-robust standard errors clustered by country. The estimates suggest a strong negative relationship between coercive debtor policies and the volume of total external borrowing by the private sector both during and after crises. [66] The index of coerciveness has a highly significant coefficient, even after controlling for macroeconomic fundamentals, global liquidity and common shocks. The same is true for the variable on "inexcusable" coerciveness, i.e. the residual of a first stage regression of the coerciveness index on economic fundamentals (see column 4).

The main findings are robust to changes in the dependent variable, i.e. when using borrowing volumes as a share of GDP, or simply the log of total (real USD) borrowing per month (see columns 2 and 3). However, for ease of interpretation and comparison with previous literature all remaining results are displayed using credit as

[66] The R2 of our baseline specification is relatively low compared to related studies using annual data. One reason for this is that our dependent variable, the monthly percentage deviation in external credit, is highly volatile. As can be seen in column 3 of Table 4.3, the R2 is much higher when estimating the model in levels (log form).

monthly deviation from the mean. Panel unit root tests show that the dependent variable and the coerciveness index are both stationary.[67]

<Table 4.3 about here>

Column 5 illustrates the quantitative relevance of coercive policies. The specification includes a "high coerciveness" dummy, which takes the value of 1 in periods with an index value of 5 or higher and is 0 otherwise. This dummy has a high coefficient of -61, indicating that particularly aggressive debt policies are associated with a reduction in credit of more than 60 percent relative to what it would have been otherwise. The negative relationship between debt policies and corporate external credit holds for up to two years after the crisis is resolved, but vanishes thereafter. This can be seen by looking at the lagged value of the coerciveness index. They are highly significant for the first 12 months after the restructuring agreement and remain significant in months 13 to 24, albeit with a smaller coefficient. However, the lagged index values for the third year are not significant. In sum, this indicates that the coercive policies only matter during crises and in the short term thereafter, but that the drop in credit is not long-lasting.

Figure 4.1 illustrates this main finding graphically. The figure shows that foreign credit drops substantially, by more than 40 percent, at the onset of coercive debt policies and remains well below its 25-year mean for the following quarters. However, foreign credit recovers gradually after the restructuring. From year three after the restructuring, coercive policies are no longer associated with the volume of credit.

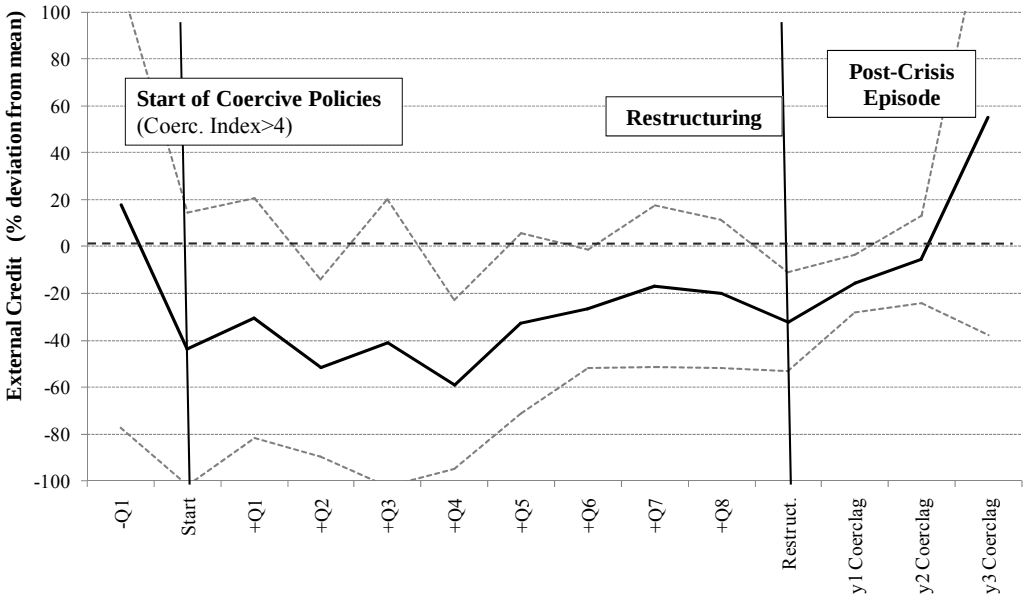
The coerciveness index remains significant even after controlling for political factors, i.e. when including the widely used political risk index by ICRG or the weighted index of observable political disruptions (columns 6 and 7). The same is true when including a measure of sovereign credit ratings (credit rating residual, see column 7).[68] Turning to the set of additional control variables, they all have the expected sign. I find episodes of currency crises to be associated with a drop in foreign credit. Also the indices on "global supply of capital" and on "macroeconomic prospects" are robustly significant predictors, which is in line with the results of AH and other literature on the push and pull factors of international capital flows. Note,

[67] To assure that the observed relationships are not spurious I ran panel-data unit root tests suitable for unbalanced panels. Specifically, I conducted the Im–Pesaran–Shin test as well as Fisher-type tests (ADF and Phillips-Perron) at different lag lengths. The variables tested were the various incarnations of the dependent variables (bond and loans volumes as percentage deviation from the mean, as log in real USD, and as percent of GDP), the index of coerciveness and the indices of control variables. The null hypothesis of a unit root was clearly rejected in each case. The test statistics are available upon request.

[68] In line with previous authors, I do not use nominal credit rating given their correlation with other macro fundamentals. The credit rating residual is the residual of a first stage regression which regresses credit ratings on the other control variables in the regression.

however, that the size and sign of their coefficients are difficult to interpret given that the principal components summarize a set of explanatory variables.

Figure 4.1: Coercive Debt Policies and Credit to the Private Sector



The figure illustrates change of the dependent variable (foreign credit as percentage deviation from the country-specific mean) for a hypothetical crisis timeline in which particularly coercive debt policies stretch over two years. Each point on the solid line plots estimated β-coefficients on quarterly leads or lags of the onset of "high coerciveness" (index values of 5 or higher). The coefficients are estimated in a specification of model (5) in Table 4.3 plus dummies for banking and currency crises and natural disasters. "Start" represents the starting quarter of particularly coercive policies; -Q1 and +Q1 to +Q8 represent quarterly leads and lags respectively; "Restructuring" represents a dummy for the month of the debt exchange (crisis resolution); "y1-y3 Coerclag" represent lagged indicators of coerciveness analogous to equation (2), thus capturing the total degree of coerciveness of a restructuring deal that occurred up to three years ago. Dashed lines represent a 95% confidence interval for each β-coefficient.

Taking into account government changes yields little additional insights. The variables interacting the index and its lagged values with the "new government" dummy or the "new right or center government" dummy turn out to be insignificant throughout. If I only pertain the interacted index variables, thus dropping the baseline measures $Coerc_{\tau it}$ and $Coerclag_{\tau it}$, the coefficients are negatively significant and of very similar size than the original, non-interacted index variables. I therefore conclude that government changes and a shift in the orientation of the ruling party appear do not affect the observed effects importantly.

<Table 4.4 about here>

The results are also very similar when estimating the model for the sub-sample of default months only (see the left panel of Table 4.4). The index of coerciveness remains significant, as does the "high coerciveness" dummy. This gives further

validity to the results. For illustration, I also include a second dummy, capturing episodes of particularly creditor-friendly policies (coded 1 for low index values of 1, 2 or 3 and 0 otherwise). This "low coerciveness" dummy has a *positive* and significant sign (column 6), indicating that access to external credit improves in crisis years with creditor-friendly debtor policies, compared to what it would have been otherwise.

4.5.2. Default Dummy vs. Coerciveness Index

To allow for a direct comparison with previous studies, I also run a horserace between the standard binary default variable and the more continuous coerciveness index. Taken alone, the coefficient of the default dummy is significant and indicates a decline of 38 percent in external credit during debt crisis periods with private creditors (column 5 of Table 4.4). This is broadly in line with the effect identified by AH, who combine default episodes with private *and* official creditors. However, the negative impact of default to private creditors appears to hold for only one year after the crisis.

Interestingly, I find that the default dummy and its lagged values turn insignificant once the more continuous index of coerciveness is included (column 6). To further investigate this finding, I include the default dummy jointly with the dummy for periods of "high coerciveness" (column 7). The coefficient for this dummy is highly significant with a large coefficient of -39, indicating a substantial negative impact on corporate external borrowing. In contrast, the default dummy is insignificant. Altogether, these results indicate that the coerciveness index has important explanatory power over and above the debt crisis effect per se.

4.5.3. Effects of Individual Coercive Policies

The above findings show that the overall debt policy stance of a government, as measured by the additive coerciveness index, is strongly associated with private sector borrowing on international capital markets. However, what about individual coercive actions? Do some policies during default have a particular large impact? To shed more light on the role of individual debtor policies, I run separate regressions including each of the nine sub-indicators separately. Table 4.5 shows the results, estimated in the sub-sample of default periods.

<Table 4.5 about here>

As can be seen, a government's payment behavior during distress episodes seems to be particular relevant. The criteria on "missed payments, "unilateral payment suspension" and "full moratorium" are individually significant and all have high,

negative coefficients. The dummy for additional capital controls, however, is clearly insignificant.

Regarding negotiation patterns, the dummies for "breakdowns or refusal of negotiations" and "explicit moratorium declarations" show negative coefficients, although they are only significant at the 10 percent level. As to the variables on "data disclosure problems" and "explicit threats to repudiate", their coefficients are clearly insignificant, indicating that these negotiation tactics have little negative spillover effects.

The single most important impact, however, can be associated with "forced and non-negotiated restructurings". The coefficient for this sub-indicator is a high -87, more than twice as large as the coefficients of the payment variables. We can therefore conclude that enforced debt exchanges, with creditors having no say at all, go hand in hand with an exceptionally drastic drop in foreign credit. One interpretation of this is that enforced restructurings have an important signaling value and may trigger particularly strong negative spillovers. This is in line with the case narratives reported in Enderlein et al (2010), as take-it-or-leave-it offers or unilateral restructurings are typically followed by extensive media coverage and widespread protests by creditor representatives.

4.5.4. Instrumental Variable Results

To examine whether the relationships identified above are causal, I run the main specification in an instrumental variable regression framework using French legal origins and elections as instruments for the index of coerciveness. With a view to the results above, I also instrument a new variable on "Negotiation Indicators", which represents the sum of three dummy sub-indicators that have been shown to matter, namely "breakdowns in negotiation", "explicit moratorium declarations" and "forced and non-negotiated restructurings".

<Table 4.6 about here>

The left panel of Table 4.6 shows results in a regression with French legal origins and the interaction of lagged elections and legal origins as instruments. The reason for including two instruments is that this allows testing for overidentifying restrictions, but results are very similar when including only legal origins as an instrument ("just identified" case). Due to the time-invariant nature of legal origins the specifications in the left panel do not include country fixed effects, but they cover the full sample, that is, both crisis and non-crisis episodes. In contrast, the right panel shows results for a fixed effects regression in the sub-sample of default months, i.e. with index values of 1 or higher. Here, specifications include both regular elections

and their 12 month lag, but results are again similar when including lagged elections only.

As can be seen, legal origins is a significant predictor of default and coercive debt policies in the full sample, while elections are only a valid instrument for the subsample of default. However, in the default subsample, the electoral dummies are highly significant and have large positive coefficients. This indicates that elections increase debtor coerciveness once the country is in distress, but cannot explain whether the country defaults in the first place. In all regressions, the first stage F-statistic for the test of the joint statistical significance of the excluded instruments is well above the critical value of 10, indicating that the instruments are not weak. Additionally, the p-value of the Sargan-Hansen test of overidentifying restrictions is very high throughout, so that the null hypothesis of instrument validity cannot be rejected.

Overall, the index of coerciveness, the variable capturing "inexcusable" (residual) coerciveness and the "negotiation indicators" remain significant and show a higher coefficient than in the baseline results. This gives support to the main findings above and indicates that coercive policies do indeed have a causal effect on private sector external borrowing. Note, however, that in the subsample of defaults, all three variables are only significant at the 10 percent level. In addition, I find the partial R^2 of the excluded instruments to be quite low in both panels. While the instruments are valid according to all main diagnostic tests, they explain only a relatively small share of the variation in debtor coerciveness. The results should therefore be taken with some care.

4.5.5. Results by Sector and Type of Debt

This section presents results for different types of borrowers and loans. In a first step, I differentiate between borrowing volumes by financial corporations (banks, insurance companies, investment holdings etc.) and by non-financial firms. In line with AH, I find effects to be concentrated in the non-financial sector only (see columns 1 and 2 of Table 4.7). According to these results, borrowing by financial firms is only weakly associated with sovereign debtor behavior.

<Table 4.7 about here>

When analyzing the subsample of trade credit loans, I do find a large and significant coefficient of the coerciveness index during default episodes but not for the *coerclag* variables (column 4). The drop in trade credit volumes during episodes of coercive debt policies is large, even after controlling for macroeconomic conditions. In principle, this may be seen as evidence for a specific channel explaining the unsolved

puzzle of *why* defaults negatively affect international trade flows (see Rose 2005 and the discussion in Panizza et al. 2009). However, this result does not hold in the instrumental variable estimation framework above, and should therefore be taken with care.

I also identify a strong correlation between debtor coerciveness and the volume of loans borrowed for the purpose to import intermediate inputs (column 5). This is in line with the model of Mendoza and Yue (2008) who show that sovereign defaults will affect the availability of foreign credit, thus inhibit the import of production equipment and thereby result in an overall efficiency loss in domestic production.

4.5.6. Robustness Checks (Credit Volume)

This section checks the robustness of the above results on borrowing volumes along three dimensions: (i) index weighting, (ii) when adding further control variables, and (iii) for changing the time period and country sample. The results are summarized in Table 4.8. In a first step, I re-estimate the model by substituting the ordinal index of coerciveness with an index that derives weights of each sub-indicator via principal component analysis (PCA). For the data at hand, the first principal component contains more than 34% of the variation of the original 9 sub-indicators.[69] Column (2) shows that the results are nearly identical when using the PCA-weighted index instead of the ordinal one. This reduces the concern that index weighting and compositions may affect the results in a substantial way. [70]

<Table 4.8 about here>

In a second step, I add additional control variables. First, I include the real exchange rate, because changes in the currency's value may have accounting effects (column 2). For example, depreciations can result in less demand for foreign credit, because domestic firms will need to borrow less hard currency to pay for the same amount of production inputs in domestic currency. Second, I add a variable capturing episodes with systemic "sudden stops" (column 3). I also include event data capturing the month of final restructurings agreement as well as the months of an interim agreement with private creditors (column 4). One might argue that agreements are particularly relevant and may thus capture much of the variation in the dependent variable. Furthermore, I explicitly account for defaults and restructurings towards

[69] The correlation between the simple additive index (from 0 to 10) and the first principal component (from -2.06 to 6.56) is a high 0.89.

[70] Additionally, I check to what extent the individual sub-indicators may affect the results. I therefore redefine the index by excluding each of the 9 sub-indicators one by one. The findings with this set of rescaled indexes, all with a maximum value of 9 instead of 10, are very similar.

official creditors and for the role of the IMF (columns 5 and 6).[71] As can be seen above, the inclusion of each of these additional variables does not affect the results in a notable way. Finally, I include dummies on "pre-restructuring litigation" and "creditor holdouts" from Trebesch (2008), as one might argue that these types of creditor actions can importantly affect country access to capital (see Pitchford and Wright 2007). However, as can be seen in column 7 of Table 4.8, litigation and holdouts are not significant while the coefficient of the coerciveness index is barely affected.

To better understand the time dimension of the results, I also ran the model for the 1980s debt crisis and the post-1990 period separately. The index is significant for both of these sub-periods, indicating the relevance of debt policies over time. However, I find that effects are much stronger for the post-1990 period of Brady deals and bond exchanges (column 9). One likely reason for this is the generally low supply of capital to emerging market firms during the second half of the 1980s. Furthermore, I look at different country sub-samples. Generally, the exclusion of any individual country from the sample did not impact the results significantly. Even when excluding all major defaulters (Argentina, Brazil, Mexico and Russia) results remained very similar (column 5). The same is true when excluding all Middle-Eastern oil exporters (Bahrain, United Arab Emirates, Qatar and Saudi Arabia) or all former communist countries (China, Croatia, Czech Republic, Poland, Romania, Hungary, Slovakia and Russia) from the sample. I conclude that the results do not seem to be driven by individual countries or country groups.

4.5.7. Results for Borrowing Cost (Loan Spreads)

This final sub-section analyses the role of debtor behavior on the *cost* of corporate external borrowing. I follow Eichengreen and Mody (2000), Eichengreen et al. (2006) and Ağca and Celasun (2009) and conduct the analysis on spreads at an individual loan level.[72] Specifically, I focus on US Dollar denominated foreign syndicated loans borrowed by private domestic corporations in the same set of country and years as above and for which spread information was readily available. This results in a subset of 6317 individual syndicated loans. The dependent variable is the loan-specific spread above LIBOR or a related fix reference rate (in basis points).

[71] To capture debt negotiations and restructuring events with Paris Club creditors I draw on the data listed in the Working Paper Version of AH's study. Data on IMF programs is taken form Dreher (2006). Specifically, I code an annual dummy for IMF programs, which take the value of 1 if a program was in effect for more than five months in any given year.

[72] Given the large volatility in spread levels across firms and because the data on interest rates are only available for a subset of relevant loans, it is not meaningful to construct country averages of borrowing costs, particularly on a monthly frequency.

Regarding explanatory variables, the main focus lies on the index of coerciveness and its lagged values. Besides the control variables used above I also include loan level variables, namely the maturity, the (logged) amount of debt issued and fixed effects for the type of borrower (sector). As an alternative to the indices used above, I also run regressions with a set of country-level controls suggested by Eichengreen and Mody (2000) and Ağca and Celasun (2009). Specifically, I include variables capturing the real growth rate (lagged by one year), the ratio of total external debt to GDP and the ratio of short-term debt to reserves. The data is taken from the World Bank's World Development Indicators and Global Development Finance databases respectively. To account for foreign supply of capital, I also include a variable measuring the spread on U.S. high-yield corporate bonds (Lehman Brothers High Yield Bond Index). While I control for the sector of the borrower, Dealogic does not provide information on additional firm-level variables, such as firm size, leverage or profitability.

<Table 4.9 about here>

Column 1 in Table 4.9 shows results including country, year and sector fixed effects. The coerciveness indicators have significant and sizable positive coefficients, indicating that unilateral debt policies increase the cost of borrowing for corporate debtors both during a crisis and for up to three years afterwards. In a next step, I draw on the ten indices used above and further control variables. The coerciveness index and the variable of "inexcusable" residual coerciveness remain a strong predictor of corporate borrowing costs (columns 2 and 3). The results also hold when including other measures of macroeconomic fundamentals (column 4) or a sovereign credit rating measure as a parsimonious variable of economic conditions (column 5). Looking at different sectors and types of debt, I find particularly large coefficients for the subset of trade credits (column 6).

Overall, the results show a significant and economically important link between coercive policies and spread levels. According to the results in column 3, an increase in the coerciveness index from 0 to 5 is associated with higher borrowing cost in the magnitude of 150 basis points during crises and of up to 300 basis points in the three years after a restructuring agreement. These effects are substantial and strengthen the assertion that coercive policies may play a crucial role for corporate external borrowing conditions. However, with a view to the potential sample selection effects mentioned above, the estimates should nevertheless be taken with some care. However, given the potential downward bias in β_1 and β_2, one should interpret the estimated coefficients as indicating higher bounds. The true effects of coercive policies may possibly be even stronger, i.e. associated with an even larger increase in spreads.

4.6. Conclusion

This paper analyzes the consequences of different types of debt crisis resolution. I find that coercive, "inexcusable" debt policies during default have strong negative effects on the private sector in the debtor country, specifically, on their access to foreign capital. When government are confrontational, domestic firms raise much lower volumes of finance abroad and face higher external borrowing costs. These findings indicate that private corporations have to bear some of the consequences when sovereigns do not "play by the rules". Correspondingly, one may expect that "good faith" crisis resolution reduce the domestic costs of sovereign default.

The results can be interpreted as evidence for risk spillovers from the sovereign to the private sector and give support to related theoretical literature on policy signals and reputation effects. As a general conclusion, it seems that is not only the default decision per se which matters for the domestic economy, but also the way in which defaults are resolved by governments.

Table 4.1: Emerging Market Countries Included in the Analysis

Defaulters	**Non-Defaulters**
Algeria	China*
Argentina	Bahrain
Brazil	Colombia
Chile	Croatia*
Mexico	Egypt
Pakistan	Hong Kong
Peru	Hungary
Philippines	India
Poland	Indonesia
Romania	Korea
Russia*	Malaysia
South Africa	Qatar
Turkey	Saudi Arabia
Venezuela	Singapore
	Slovakia*
	Taiwan, Province of China
	Thailand
	United Arab Emirates

Note: Countries with an * are included from 1993 on only. "Defaulters" are countries whose governments defaulted on foreign private debt obligations between 1980 and 2004.

Table 4.2: List of Control Variables

Variable	Index Nr	Variables	Source
International Competitiveness	Index 1.1.	Terms of Trade (scaled by trade openn.)	Artea and Hale (2008)
	Index 1.2.	Change in CA	Artea and Hale (2008)
		Chenge in real exchange rate	
		Export commodity index	
		Volatility of export revenues	
Investment Climate and Monetary Stability	Index 2.1.	Sovereign Credit Risk	Artea and Hale (2008)
	Index 2.2.	Debt services/exports	Artea and Hale (2008)
	Index 2.3.	Investment/GDP	
		Lending rate/deposir tae	Artea and Hale (2008)
		Inflation rate	
		Domestic credit/GDP	
		Change in stock market index	
Financial Development	Index 3.1.	Financial account openness	Artea and Hale (2008)
		Financial bank assets/GDP	
		Stock market cap./GDP	
Long-run Macroeconomic Prospects	Index 4.1.	Foreign debt/GDP	Artea and Hale (2008)
		Growth rate of real GDP	
		Growth rate of GDP in USD	
		Unemployment rate	
Global Supply of Capital	Index 6.1.	Gross capital outflows from OECD	Artea and Hale (2008)
	Index 6.2.	Investor Confidence level	Artea and Hale (2008)
		US Treasury rate	
		ML High Yield Spread	
		Growth rate of US stock market index	
Political Risk		ICRG Index of Political Risk	Political Risk Service
Political Turmoil (Observable Events)		Anti-government demonstrations	Databanks International
		General strikes	
		Revolutions	
		Coups d'etats	
Real Exchange Rate		Calculated with US & Foreign CPI. Increase = Depreciation	IFS, WEO
Sovereign Rating		Institutional Investor Rating Increase = Better Rating	Institutional Investor Magazine
Banking Crisis		Dummy for Systemic or Borderline Banking Crises	Laeven and Valencia (2008)
Currency Crisis		Dummy for Currency Crises Episodes	Arteta and Hale (2007)
Natural Disasters		Dummy for State of Emergency due to floods, earthquakes, storms, fires or volcano	EMDAT
Sudden Stop		Dummy for Systemic Sudden Stop Episodes	Frankel and Cavallo (2004)
French Legal Origins		Country Dummy for French Legal Origin	La Porta et al. (1997, 1998)
Regular Elections		Dummy for Years with a Parliamentary of Presidential Elections. Early elections	Database of Political Institutions (Keefer 2009)

Abbreviations for Databases: EMDAT is the Emergency Events Database, GDF is the World Bank's Global Development Finance database, GFD is Global Financial Data, ICRG is International Country Risk Guide, IFS is the IMF's International Financial Statistics, JEDH is the Joint External Debt Hub (BIS-IMF-OECD-WB), IO is the IMF's World Economic Outlook database.

Table 4.3: Main Results: Coercive Debt Policies and Foreign Credit

	Entire Sample								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline	Dep.Var.: Debt/GDP	Dep.Var.: log(debt)	Coerciven. Residual	Coerciven. Dummy	Political Risk Index	Political Turmoil	Credit Rating	Crises & Disasters
Coerciveness Index (Max=10)	-13.58***	-0.01*	-0.22***			-17.51***	-13.08***	-9.62**	-13.22***
	(3.84)	(0.01)	(0.08)			(5.43)	(4.84)	(3.84)	(4.23)
"Inexcusable" Coerciveness				-19.29***					
				(5.46)					
High Coerciveness (Dummy)					-60.73***				
					(22.14)				
Coerciveness (1 year lag)	-23.17***	-0.02**	-0.27***	-23.17***	-20.19***	-26.24***	-23.26***	-16.49*	-23.45***
	(7.86)	(0.01)	(0.06)	(7.86)	(7.75)	(9.05)	(8.18)	(8.84)	(8.11)
Coerciveness (2 year lag)	-16.67***	-0.03***	-0.12**	-16.67***	-13.95**	-19.87***	-17.45***	-11.65*	-16.63***
	(5.75)	(0.01)	(0.05)	(5.75)	(5.86)	(6.74)	(5.96)	(6.18)	(6.02)
Political Risk (ICRG Index)						-1.14			
						(0.85)			
Political Turmoil (Events)							-6.87		
							(4.67)		
Credit Rating Residual (II Rating)								2.48***	
								(0.76)	
Banking Crisis									-16.97
									(17.32)
Currency Crisis									-39.93***
									(14.40)
Natural Disasters (Dummy)									-20.53
									(16.60)
Index 1.1.	-2.70	0.00	0.01	-2.56	-2.61	-4.23	-1.65	-2.41	-2.48
	(3.37)	(0.01)	(0.06)	(3.36)	(3.20)	(5.29)	(4.89)	(3.41)	(4.06)
Index 1.2.	-3.93	0.00	0.00	-4.00	-3.48	-4.19	-3.42	-4.10*	-3.71
	(2.80)	(0.00)	(0.02)	(2.81)	(2.97)	(2.81)	(2.86)	(2.43)	(2.93)
Index 2.1.	8.21	0.01	-0.00	9.26	8.64	11.12	8.68		8.71
	(7.65)	(0.01)	(0.05)	(7.57)	(7.61)	(12.03)	(8.27)		(8.04)
Index 2.2.	4.27	-0.01	0.13*	8.58	6.09	2.17	4.05		3.87
	(5.57)	(0.01)	(0.07)	(5.42)	(5.34)	(6.29)	(6.46)		(5.54)
Index 2.3.	3.28	0.00	0.09**	2.85	3.66	2.41	0.25		3.29
	(5.75)	(0.01)	(0.04)	(5.77)	(5.62)	(6.83)	(7.02)		(6.01)
Index 3.1.	9.64	0.01	0.14**	11.12*	10.34	9.09	8.07	6.44	9.62
	(6.67)	(0.01)	(0.06)	(6.75)	(6.86)	(7.17)	(7.62)	(5.63)	(6.72)
Index 4.1.	9.23***	0.01**	0.10**	9.94***	9.47***	9.34***	8.29**	9.85***	8.66***
	(2.89)	(0.01)	(0.04)	(2.88)	(2.88)	(3.28)	(3.28)	(2.78)	(2.80)
Index 4.2.	4.88	0.01	0.04	4.80	5.28	7.56*	3.73	5.15	4.43
	(4.45)	(0.01)	(0.06)	(4.46)	(4.46)	(4.60)	(5.27)	(4.20)	(4.35)
Index 6.1.	-61.18***	-0.06***	-0.28***	-61.95***	-61.30***	-59.45***	-59.00***	-62.11***	-60.80***
	(17.38)	(0.02)	(0.07)	(17.45)	(17.35)	(19.90)	(20.50)	(17.37)	(18.09)
Index 6.2.	45.46***	0.04***	0.24***	45.46***	45.34***	46.13***	48.19***	46.04***	47.35***
	(12.70)	(0.01)	(0.06)	(12.70)	(12.71)	(15.52)	(15.12)	(12.84)	(13.21)
Constant	132.85**	0.16**	2.57***	135.20**	133.58**	55.57	-113.07**	132.06**	156.67**
	(59.46)	(0.07)	(0.47)	(59.53)	(59.11)	(82.10)	(52.89)	(62.28)	(71.30)
Observations	7,193	5,563	7,193	7,193	7,193	5,848	5,737	7,149	6,917
Adjusted R2	0.060	0.065	0.294	0.060	0.059	0.058	0.060	0.061	0.060

*** indicates significance at a 1% level, ** at a 5% level, * at a 10% level. Robust standard errors clustered on country in parentheses. The dependent variable in column 1 and columns 4-9 is the total amount borrowed in percentage deviation from the mean. In col. 2 the dependent variable is the total amount borrowed (per month) to annual GDP. The dep. variable in col. 3 is the log of total amount borrowed (in real USD). "High Coerciveness" is a dummy, which takes the value of 1 for months in which the Coerciveness Index is 5 or higher. "Inexcusable Coerciveness" refers to the residual of a first stage regression of the Coerciveness Index on the other variables in the regression (economic fundamentals). The regressions include year and country fixed effects and dummies for issuances by oil&gas, mining and chemical industries.

Table 4.4: Crisis-Subsample & Horserace of Default vs. Coerciveness

Sub-Sample of Default Months					**Default vs. Coerciveness (Entire Sample)**			
	(1)	**(2)**	**(3)**	**(4)**		**(5)**	**(6)**	**(7)**
	Coerciv. Index	Coerciven. Residual	High Coerciv.	Low Coerciv.		Default Dummy	Default vs. Coerciv.	Default vs. Coerciv.
Coerciveness Index	-8.66**				Default Dummy	-38.30*	5.45	-30.29
(Max=10)	(4.03)					(20.13)	(23.44)	(18.66)
"Inexcusable"		-15.03**			Lagged Default	-59.84**	26.55	
Coerciveness		(6.97)			(1 year lag)	(24.19)	(32.76)	
High Coerciveness			-38.96***		Lagged Default	-31.78	90.19	
(Dummy)			(11.25)		(2 year lag)	(24.15)	(102.83)	
Low Coerciveness				24.62*	Coerciveness Index		-14.47***	
(Dummy)				(13.00)	(Max=10)		(4.92)	
Banking Crisis	14.77	11.84	12.22	13.51	High Coerciveness			-44.79**
	(11.65)	(10.87)	(9.84)	(10.89)	(Dummy)			(21.36)
Currency Crisis	-12.64	-12.93	-13.10	-12.03	Coerciveness		-30.16**	-22.58***
	(11.55)	(11.61)	(11.33)	(11.51)	(1 year lag)		(13.09)	(8.14)
Natural Disasters	-10.10	-13.57	-8.53	-14.51	Coerciveness		-40.57	-16.09***
	(14.45)	(15.05)	(14.21)	(14.98)	(2 year lag)		(28.30)	(5.99)
Index 1.1.	0.81	1.81	0.38	0.36	Index 1.1.	-2.55	-2.49	-2.61
	(7.43)	(7.22)	(6.43)	(6.64)		(3.34)	(3.28)	(3.30)
Index 1.2.	4.25*	4.03*	5.42**	4.65*	Index 1.2.	-4.05	-3.87	-3.71
	(2.37)	(2.32)	(2.36)	(2.48)		(2.73)	(2.84)	(2.88)
Index 2.1.	4.02	4.44	4.18	4.27	Index 2.1.	8.62	7.99	8.46
	(2.90)	(2.85)	(2.96)	(3.20)		(7.81)	(7.58)	(7.67)
Index 2.2.	0.29	2.22	0.22	0.66	Index 2.2.	5.76	4.40	4.74
	(1.78)	(2.02)	(1.71)	(2.08)		(5.64)	(5.67)	(5.65)
Index 2.3.	-1.03	-4.01	-1.60	-2.35	Index 2.3.	2.04	3.71	2.84
	(1.71)	(2.44)	(1.74)	(1.77)		(5.95)	(5.55)	(5.73)
Index 3.1.	12.14**	13.32**	13.00**	11.81*	Index 3.1.	9.86	9.70	9.95
	(5.74)	(5.71)	(5.58)	(6.16)		(6.74)	(6.66)	(6.71)
Index 4.1.	8.34***	5.71**	8.99***	7.37***	Index 4.1.	9.68***	9.21***	9.36***
	(2.24)	(2.69)	(2.60)	(2.12)		(2.89)	(2.92)	(2.83)
Index 4.2.	5.21	3.82	10.14**	7.39	Index 4.2.	5.35	4.69	5.08
	(3.97)	(3.52)	(4.45)	(5.48)		(4.56)	(4.41)	(4.51)
Index 6.1.	-42.50	-42.11	-42.61	-43.78	Index 6.1.	-61.38***	-61.28***	-61.14***
	(35.06)	(35.00)	(34.01)	(34.69)		(17.28)	(17.40)	(17.33)
Index 6.2.	27.86	26.20	27.54	28.18	Index 6.2.	45.19***	45.51***	45.25***
	(26.08)	(25.79)	(25.35)	(25.74)		(12.67)	(12.71)	(12.69)
Constant	-171.75	-223.20	-185.91	-228.00*	Constant	133.82**	133.01**	133.18**
	(127.26)	(135.97)	(124.14)	(136.82)		(59.69)	(59.39)	(59.49)
Observations	1,029	1,029	1,029	1,029	Observations	7,193	7,193	7,193
Adjusted R2	0.087	0.087	0.087	0.085	Adjusted R2	0.060	0.061	0.061

*** indicates significance at a 1% level, ** at a 5% level, * at a 10% level. Robust standard errors clustered on country are in parentheses. Dependent variable: total amount borrowed in percentage deviation from the country specific mean. "High Coerciveness" is a dummy, which takes the value of 1 for months in which the Coerciveness Index is 5 or higher. "Inexcusable Coerciveness" refers to the residual of a first stage regression of the Coerciveness Index on the other variables in the regression (economic fundamentals). The regressions include year and country fixed effects and dummies for issuances by oil&gas, mining

Table 4.5: Results for Individual Coercive Actions (9 Sub-Indicators)

	Individual Coercive Actions (Sub-Sample of Default Months)								
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
Payments Missed Beyond Grace	-41.91**								
	(17.14)								
Unilateral Payment Suspension		-32.91*							
		(17.34)							
Full Moratorium (Incl. Interest)			-20.94*						
			(11.37)						
Freeze of Assets				-22.08					
				(13.54)					
Breakdown/Refusal of Negotiations					-20.89*				
					(10.92)				
Data Disclosure Problems						-2.30			
						(6.56)			
Explicit Threats to Repudiate Debt							6.45		
							(8.63)		
Explicit Moratorium Declaration								-14.91*	
								(8.75)	
Forced Restructurings									-87.55***
									(31.51)
Banking Crisis	23.69*	23.77**	22.27*	28.55**	24.70**	23.92*	23.77*	24.39*	28.93**
	(12.09)	(11.06)	(11.39)	(14.04)	(12.09)	(12.75)	(12.65)	(12.77)	(13.17)
Currency Crisis	-9.70	-9.02	-9.58	-10.03	-8.29	-11.73	-11.10	-11.58	-12.50*
	(7.83)	(7.35)	(7.82)	(6.92)	(6.40)	(7.40)	(7.46)	(7.51)	(6.98)
Natural Disasters	8.98	-0.52	3.07	8.44	0.93	-0.12	0.50	0.66	16.96
	(13.43)	(11.88)	(13.39)	(12.45)	(11.11)	(12.15)	(11.93)	(12.02)	(15.28)
Index 1.1.	1.27	2.19	3.20	2.01	1.86	3.26	3.02	3.48	3.09
	(7.50)	(7.79)	(7.08)	(7.03)	(6.77)	(7.16)	(6.86)	(7.20)	(7.41)
Index 1.2.	3.24	3.87	5.11*	3.46	5.02*	4.19	4.24	3.84	4.92*
	(2.34)	(2.42)	(2.94)	(2.76)	(2.64)	(2.90)	(2.90)	(2.77)	(2.76)
Index 2.1.	7.91**	7.72**	8.31**	8.71**	8.37**	8.62**	8.89**	8.43**	9.30**
	(3.72)	(3.44)	(4.01)	(4.10)	(3.94)	(4.33)	(4.49)	(4.18)	(4.15)
Index 2.2.	-0.12	0.28	0.72	0.56	0.76	1.30	1.00	0.90	3.56
	(2.13)	(1.82)	(2.19)	(2.12)	(2.24)	(2.31)	(2.55)	(2.28)	(2.25)
Index 2.3.	-3.58	-3.55*	-4.50*	-3.77	-4.50*	-4.78*	-4.81*	-4.26	-3.40
	(2.18)	(2.03)	(2.54)	(2.52)	(2.49)	(2.70)	(2.68)	(2.64)	(2.54)
Index 3.1.	18.04***	18.04***	18.93***	20.52***	20.59***	19.84**	20.46**	19.86**	22.08***
	(6.89)	(5.59)	(7.20)	(7.86)	(7.31)	(8.06)	(7.96)	(7.84)	(8.02)
Index 4.1.	8.80***	10.91***	8.51***	9.26***	6.52*	8.98***	8.94***	9.59***	10.10***
	(2.43)	(2.21)	(2.87)	(2.54)	(3.33)	(2.78)	(2.74)	(2.62)	(2.81)
Index 4.2.	2.62	6.22	7.55	7.85	8.11	8.14	8.43	7.01	5.19
	(5.14)	(4.63)	(4.60)	(5.43)	(5.15)	(5.51)	(5.72)	(5.29)	(5.76)
Index 6.1.	-42.77	-41.35	-42.57	-41.81	-43.96	-42.61	-42.71	-41.76	-40.96
	(33.61)	(33.68)	(32.89)	(33.47)	(33.48)	(33.22)	(33.20)	(33.44)	(34.13)
Index 6.2.	27.26	25.94	26.05	26.12	27.49	26.06	26.08	25.70	25.87
	(23.85)	(23.82)	(23.30)	(23.74)	(23.61)	(23.49)	(23.48)	(23.62)	(24.16)
Constant	237.21	214.28	218.91	228.91	227.60	212.49	212.94	211.48	237.60
	(158.19)	(153.51)	(156.90)	(157.70)	(153.73)	(156.77)	(156.49)	(157.10)	(159.31)
Observations	1,041	1,041	1,041	1,041	1,041	1,041	1,041	1,041	1,041
Adjusted R2	0.092	0.091	0.088	0.088	0.089	0.087	0.087	0.087	0.093

*** indicates significance at a 1% level, ** at a 5% level, * at a 10% level. Robust standard errors clustered on country are in parentheses. Dependent variable: total amount borrowed in percentage deviation from the country specific mean. The regressions include year and country fixed effects and dummies for issuances by oil&gas, mining and chemical industries.

Table 4.6: Instrumental Variable Estimations

	Panel IV Estimation							
	Full Sample (no country fixed effects) Instrument: French Legal Origin				**Default Sub-Sample** (country fixed effects) Instrument: Regular Elections			
	(1a) Main (2nd Stage)	**(1b)** Main 1st Stage (Coerciven.)	**(2)** Coerciven. Residual (2nd Stage)	**(3)** Negotiation Indicators (2nd Stage)	**(4a)** Main (2nd Stage)	**(4b)** Main 1st Stage (Coerciven.	**(5)** Coerciven. Residual (2nd Stage)	**(6)** Negotiation Indicators (2nd Stage)
Coerciveness Index	-30.78**				-19.47*			
(max=10)	(14.13)				(11.65)			
"Inexcusable"			-43.56**				-33.68*	
Coerciveness			(20.00)				(20.12)	
Negotiation				-57.83**				-49.91*
Indicators				(26.71)				(27.82)
Banking Crisis	1.88	0.40***	-12.61	-1.35	18.65	0.07	12.07	17.27
	(14.92)	(0.04)	(11.97)	(14.05)	(15.63)	(0.12)	(13.32)	(15.04)
Currency Crisis	-11.18	0.47*	-39.84**	-13.08	-14.36	-0.31	-14.99	-15.24
	(16.62)	(0.26)	(15.80)	(15.41)	(15.95)	(0.21)	(16.16)	(16.33)
Natural Disasters	-3.36	0.35***	-25.61*	-10.37	-7.96	0.52***	-15.76	-23.50
(Dummy)	(18.19)	(0.10)	(15.42)	(16.54)	(15.82)	(0.16)	(17.39)	(20.14)
Political Disruptions	-3.53	0.25***	-3.53	-2.29	-0.70	0.35***	-0.73	-0.77
	(4.78)	(0.02)	(4.78)	(5.10)	(5.32)	(0.05)	(5.31)	(4.88)
Index 1.1.	3.16	0.01	3.66	2.93	-1.50	-0.17***	0.73	-2.70
	(5.09)	(0.01)	(5.16)	(5.08)	(7.05)	(0.06)	(6.74)	(7.54)
Index 1.2.	-3.32	0.00	-3.32	-2.42	3.85	0.01	3.35	5.66*
	(3.01)	(0.01)	(3.01)	(2.99)	(2.62)	(0.02)	(2.49)	(3.30)
Index 2.1.	4.57	-0.10***	6.63	3.98	2.67	-0.09	3.62	3.06
	(6.57)	(0.02)	(6.59)	(6.58)	(4.11)	(0.06)	(4.07)	(3.87)
Index 2.2.	-7.01	-0.34***	2.95	-3.88	-1.29	-0.14***	3.04	0.51
	(7.20)	(0.02)	(5.41)	(6.34)	(2.08)	(0.03)	(2.51)	(1.87)
Index 2.3.	3.20	0.08***	2.15	1.32	0.50	0.19***	-6.19	1.07
	(4.15)	(0.03)	(4.25)	(4.35)	(2.15)	(0.03)	(3.77)	(2.18)
Index 3.1.	2.68	-0.12***	5.45	2.24	8.33	-0.16**	11.00	12.71
	(5.07)	(0.02)	(4.68)	(5.18)	(10.68)	(0.08)	(10.69)	(10.85)
Index 4.1.	7.13***	-0.04**	8.11***	7.39***	7.67	0.11*	1.78	4.24
	(2.76)	(0.02)	(2.73)	(2.73)	(5.29)	(0.06)	(5.38)	(5.11)
Index 4.2.	7.33**	0.04**	6.17*	7.35**	2.98	-0.34***	-0.14	2.09
	(3.60)	(0.02)	(3.67)	(3.58)	(4.79)	(0.06)	(5.56)	(4.61)
Index 6.1.	-52.82**	0.05	-54.85**	-54.19**	-40.70	0.09	-39.82	-41.59
	(24.63)	(0.07)	(24.54)	(24.55)	(31.24)	(0.21)	(30.95)	(31.57)
Index 6.2.	45.16***	0.04	44.85***	44.12***	28.01	0.12	24.28	28.23
	(16.68)	(0.05)	(16.67)	(16.63)	(25.04)	(0.14)	(23.71)	(25.17)
French Legal Origins		0.77***						
		(0.04)						
French Legal Origins		0.06						
* Regular Elections (lag)		(0.11)						
Regular Elections						0.53***		
						(0.13)		
Regular Elections						0.98***		
(lagged)						(0.15)		
Constant	-91.25**	-0.38	-98.33**	-85.74*				
	(43.92)	(0.26)	(44.40)	(43.83)				
Observations	5,724	5,724	5,724	5,724	1,029	1,029	1,029	1,029
Adjusted R2	0.071	0.27	0.071	0.073	0.077	0.470	0.077	0.077
Diagnostics								
Partial R2 of excl. instr.	0.06		0.06	0.09	0.06		0.06	0.06
F-test excluded restriction	248.0 [0.00]		264.8 [0.00]	350.0 [0.00]	26.86 [0.00]		26.93 [0.00]	24.49 [0.00]
Over-identification test	[0.70]		[0.70]	[0.64]	[0.56]		[0.56]	[0.84]

*** indicates significance at a 1% level, ** at a 5% level, * at a 10% level. Robust standard errors in parentheses. The dependent variable is the total amount borrowed in percentage deviation from the country specific mean. "Inexcusable Coerciveness" refers to the residual of a first stage regression of the Coerciveness Index on the other variables in the regression (economic fundamentals). The regressions include year fixed effects and dummies for issuances by oil&gas, mining, utility and chemical industries.

Diagnostics: The first row reports the partial R-squared of the excluded variables (the instruments) in the first-stage. The second row reports the F-score that the instruments can be excluded from the first-stage. The third row reports the p-value for the Sargan–Hansen test of over identification restrictions. The null hypothesis is that the instruments (in columns 1-5: French legal origins, ineracted with lagged elections and the ICRG indicator of government stability) are valid.

Table 4.7: Results by Sector and Type of Debt

	By Sector and Type of Debt				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Financial Firms Only	Non-Financial Firms Only	Export Sector Only	Trade Credit Loans Only	Loans for Imported Inputs
Coerciveness Index	-9.29*	-15.85***	-12.74**	-18.21***	-13.18*
	(5.57)	(4.89)	(6.08)	(5.31)	(6.77)
Coerciveness	-8.90	-24.29***	-17.56	-20.77	-24.97*
(1 year lag)	(14.14)	(8.19)	(12.13)	(14.92)	(14.37)
Coerciveness	-18.93	-16.39**	-19.56**	22.68	-26.09**
(2 year lag)	(14.56)	(7.74)	(9.74)	(39.16)	(10.77)
Banking Crisis	-58.70**	-8.27	19.84	0.83	-10.39
	(22.88)	(19.95)	(35.09)	(23.95)	(26.04)
Currency Crisis	-39.64**	-45.47**	-48.25**	-33.03	-49.15**
	(18.46)	(18.35)	(18.77)	(24.12)	(21.95)
Natural Disasters	87.26	-19.60	-21.24	-17.05	-4.03
	(83.51)	(24.87)	(26.74)	(39.98)	(38.10)
Political Disruptions	-8.50	-7.30	-2.56	2.59	-9.18
	(7.55)	(4.82)	(8.29)	(9.59)	(8.53)
Index 1.1.	17.96	-3.78	-6.10	-15.21	7.79
	(12.79)	(7.06)	(9.22)	(11.63)	(8.95)
Index 1.2.	-5.57	-3.44	-1.57	8.77	-0.62
	(4.24)	(2.63)	(2.10)	(7.52)	(4.48)
Index 2.1.	11.48**	11.83	3.05	0.58	13.43
	(4.99)	(10.64)	(10.71)	(17.31)	(11.56)
Index 2.2.	0.94	12.49	24.52**	19.78*	16.53
	(6.94)	(10.69)	(10.42)	(10.88)	(11.23)
Index 2.3.	-3.59	-1.43	7.76	6.03	-8.85
	(10.31)	(6.56)	(10.84)	(10.71)	(10.04)
Index 3.1.	20.94**	6.47	-3.31	2.00	6.06
	(10.27)	(9.29)	(8.88)	(16.13)	(12.00)
Index 4.1.	17.90**	6.61*	6.12	21.23***	18.16***
	(7.77)	(3.74)	(6.63)	(6.93)	(6.95)
Index 4.2.	7.07	5.84	34.06***	18.33*	15.88*
	(9.09)	(5.92)	(9.24)	(9.53)	(8.76)
Index 6.1.	-101.50	-88.98***	-138.93***	-73.49	-87.72**
	(62.86)	(27.02)	(37.97)	(61.07)	(43.09)
Index 6.2.	85.53*	59.10***	103.81***	78.11*	60.52*
	(48.55)	(19.03)	(30.05)	(46.90)	(32.12)
Constant	-132.19*	186.68**	398.05***	-237.66*	239.34
	(70.88)	(87.62)	(148.48)	(141.72)	(151.27)
Observations	5,351	5,604	5,604	5,255	5,507
Adjusted R2	0.022	0.019	0.010	0.004	0.010

*** indicates significance at a 1% level, ** at a 5% level, * at a 10% level. Robust standard errors clustered on country are in parentheses. Dependent variable: total amount borrowed in percentage deviation from the country specific mean.

Table 4.8: Robustness Checks

	Robustness Checks								
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
	Coercivenes s Index Weighted by PCA	With Exchange Rate	With Sudden Stop	With Restructurin g Events	With Default towards Official Cred.	With IMF Program	With Creditor Actions	Excluding Argentina, Brazil, Mexico, Russia	1990s and 2000s
Coerciveness Index		-12.89**	-12.35**	-12.25**	-11.11**	-12.69**	-13.07***	-19.09***	-25.84**
(from 0-10)		(5.18)	(5.12)	(5.09)	(4.94)	(5.23)	(4.65)	(5.63)	(10.30)
Coerciveness Index	-10.52**								
(weighted through PCA)	(5.02)								
Coerciveness		-23.28***	-23.00***	-22.83***	-22.84***	-21.87**	-23.56**	-31.50***	-28.30**
(1 year lag)		(8.51)	(8.24)	(8.36)	(8.51)	(8.68)	(9.39)	(10.47)	(11.77)
Coerciveness		-16.93***	-16.70***	-16.78***	-16.66***	-15.93**	-17.25**	-26.19***	-22.06**
(2 year lag)		(6.38)	(5.90)	(6.24)	(6.23)	(6.46)	(6.86)	(6.36)	(8.58)
Real Exchange Rate		-0.02***							
		(0.01)							
Sudden Stop			-34.19*						
			(20.60)						
Default Episode to				-8.18					
Official Creditors				(13.62)					
Restruct. Agreement with				-27.76*					
Official Creditors				(16.32)					
Month of Interim					-25.50				
Agreement					(20.01)				
Month of Restructuring					-19.53**				
Agreement					(9.88)				
Real Exchange Rate						-13.60			
						(13.41)			
Creditor Litigation							31.19		
							(35.96)		
Creditor Holdouts							8.84		
							(17.15)		
Banking Crisis	-10.23	-3.91	-9.68	-8.31	-9.03	-8.15	-8.25	-0.73	-14.97
	(18.53)	(17.72)	(18.84)	(18.50)	(18.16)	(18.37)	(18.63)	(21.92)	(29.86)
Currency Crisis	-35.46***	-39.99***	-41.25***	-40.57***	-40.40***	-43.05***	-40.60***	-52.77***	-42.49
	(13.46)	(14.49)	(14.61)	(14.26)	(13.90)	(13.93)	(14.04)	(19.49)	(28.15)
Natural Disasters	-26.57	-19.20	-19.31	-19.37	-19.64	-19.22	-17.93	-30.10	-28.65
	(17.65)	(16.81)	(15.96)	(16.62)	(16.68)	(16.37)	(16.94)	(20.50)	(24.20)
Index 1.1.	-7.14	-5.28	-6.94	-6.83	-6.43	-6.22	-6.55	-7.12	-6.30
	(4.93)	(4.18)	(4.70)	(4.68)	(4.47)	(4.41)	(5.04)	(5.19)	(6.94)
Index 1.2.	-1.08	-1.41	-1.17	-1.55	-1.72	-6.45	-1.51	-3.98	-13.59
	(4.95)	(5.12)	(5.15)	(5.05)	(5.16)	(33.52)	(5.05)	(5.31)	(9.42)
Index 2.1.	-3.07	-3.00	-3.15	-3.28	-3.37	-3.33	-3.36	-6.48**	-4.24
	(2.98)	(2.82)	(3.04)	(2.95)	(2.88)	(2.89)	(2.94)	(2.55)	(3.26)
Index 2.2.	7.70	9.23	8.36	8.32	8.21	8.31	8.34	10.48	14.71
	(8.47)	(8.15)	(8.29)	(8.28)	(8.22)	(8.33)	(8.48)	(8.05)	(14.22)
Index 2.3.	3.91	2.38	3.58	3.77	2.25	3.22	3.63	6.63	5.76
	(6.16)	(6.37)	(6.43)	(6.34)	(6.46)	(6.38)	(6.29)	(8.03)	(9.40)
Index 3.1.	-0.05	0.37	0.45	0.32	-0.51	-0.17	1.07	-1.56	1.48
	(7.17)	(6.83)	(7.11)	(7.00)	(7.06)	(7.15)	(7.28)	(9.27)	(12.49)
Index 4.1.	7.01	8.93	8.35	7.83	7.54	7.91	7.89	9.22	8.74
	(7.69)	(7.33)	(7.88)	(7.62)	(7.53)	(7.63)	(7.68)	(9.16)	(8.84)
Index 4.2.	7.85**	7.62**	7.35**	7.81**	8.05**	7.06*	8.13**	7.05	8.54
	(3.39)	(3.23)	(3.38)	(3.25)	(3.23)	(3.89)	(3.28)	(4.89)	(6.17)
Index 6.1.	3.55	3.15	2.63	3.06	3.66	2.07	3.64	1.07	5.08
	(5.52)	(5.32)	(5.52)	(5.37)	(5.33)	(5.99)	(5.51)	(7.82)	(8.66)
Index 6.2.	-61.11***	-63.21***	-60.19***	-60.17***	-59.71***	-60.03***	-59.86***	-66.15***	-55.57**
	(20.74)	(20.77)	(20.69)	(20.65)	(20.62)	(21.01)	(20.54)	(24.10)	(26.61)
Constant	48.49***	51.26***	48.65***	48.70***	48.65***	48.42***	48.61***	54.74***	49.31**
	(15.16)	(15.12)	(15.17)	(15.16)	(15.14)	(15.71)	(15.16)	(16.88)	(19.69)
Dummies for	128.67	177.78**	159.60*	160.13*	159.28*	-196.20***	159.97*	-196.85***	-204.88*
World Regions	(87.37)	(83.81)	(83.38)	(83.65)	(83.17)	(41.88)	(83.44)	(56.58)	(105.74)
Observations	5,724	5,635	5,724	5,724	5,724	5,717	5,724	4,844	3,783
Adjusted R2	0.059	0.059	0.060	0.059	0.059	0.059	0.059	0.058	0.048

*** indicates significance at a 1% level, ** at a 5% level, * at a 10% level. Robust standard errors clustered on country are in parentheses. Dependent variable: total amount borrowed in percentage deviation from the country specific mean. The regressions include year and country fixed effects and dummies for issuances by oil&gas, mining and chemical industries.

Table 4.9: Results for Borrowing Costs (Loan by Loan)

Analysis of Corporate Borrowing Costs (Spread)

	(1)	(3)	(4)	(5)	(6)	(7)
	Only Fixed Effects	With Controls	Coerciven. Residual	Other Control Variables	Sovereign Rating	Trade Credits Only
Coerciveness Index	8.96*	31.61***		17.84**	14.18**	52.77***
(from 0-10)	(5.21)	(8.21)		(7.38)	(6.18)	(13.05)
"Inexcusable"			26.48**			
Coerciveness			(11.38)			
Coerciveness	23.68**	50.78***	50.71***	44.65***	35.89**	66.00***
(1 year lag)	(11.95)	(15.62)	(15.99)	(16.70)	(15.26)	(20.23)
Coerciveness	20.40***	59.41***	60.31***	44.00***	37.62***	38.21***
(2 year lag)	(7.79)	(10.75)	(11.43)	(8.61)	(8.39)	(7.83)
Coerciveness	11.25	33.90**	33.17**	28.96**	26.85**	52.78***
(3 year lag)	(11.20)	(15.73)	(15.86)	(12.11)	(13.31)	(13.50)
Loan Volume (log)	-7.79***	-5.22*	-5.31*	-10.51**	-7.16**	-5.32
	(2.41)	(2.83)	(2.92)	(4.80)	(3.57)	(5.94)
Loan Maturity	2.34***	2.55***	2.55***	2.16	2.05**	5.26***
	(0.87)	(0.95)	(0.96)	(1.39)	(0.92)	(2.02)
Index 1.1.		7.02**	6.93**			-1.83
		(3.01)	(3.20)			(8.52)
Index 1.2.		0.11	0.29			5.55
		(2.08)	(1.98)			(3.99)
Index 2.1.		4.13	3.94			6.39**
		(2.88)	(2.97)			(2.57)
Index 2.2.		21.16***	15.91**			28.42***
		(5.24)	(6.38)			(5.60)
Index 2.3.		-6.60	-6.52			2.59
		(5.09)	(5.41)			(7.06)
Index 3.1.		0.85	0.79			-1.96
		(1.66)	(2.03)			(3.15)
Index 4.1.		-13.88**	-16.28**			-14.08**
		(6.92)	(6.95)			(6.40)
Index 4.2.		-11.47**	-9.86**			-15.66*
		(4.73)	(4.82)			(9.03)
Index 6.1.		-7.80	-8.68			-43.58**
		(7.16)	(7.76)			(20.56)
Index 6.2.		6.73	8.33			28.64**
		(5.01)	(5.58)			(12.06)
Banking Crisis		-10.73	-3.45			-21.28*
		(11.50)	(11.36)			(12.73)
Currency Crisis		-23.82	-30.84*			83.64**
		(16.90)	(15.84)			(35.00)
Natural Disasters		10.14	18.76			7.42
		(16.99)	(16.99)			(31.40)
Political Disruptions				11.73**		-5.26
				(5.07)		(7.45)
Lehman Highy				-2.39		-3.95
Yield Debt Index				(4.13)		(5.71)
Debt to GNI (in %)				25.81		
				(35.70)		
Short-term debt to				-1.95**		
reserves				(0.99)		
Annual growth rate				6.97		
(real, one year lag)				(4.50)		
Sovereign Rating					3.10***	
(IIR)					(0.63)	
Constant	-22.42	157.19***	193.28***	177.58**	321.39***	113.11
	(21.13)	(23.30)	(36.16)	(72.85)	(45.30)	(101.81)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Sector Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	No	No	No	No	No
Observations	6,373	5,439	5,361	3,945	6,373	588
Adjusted R2	0.487	0.348	0.339	0.316	0.392	0.610

Regressions on a loan-by-loan level (full sample of USD demonminated loans only). The dependent variable is the spread over LIBOR or the respective reference interest rate. *** indicates significance at a 1% level, ** at a 5% level, * at a 10% level. Robust standard errors clustered on country are in parentheses.

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Chapter 5

Haircuts and Sovereign Borrowing

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Abstract[§]

A main puzzle in the sovereign debt literature is that defaults have only minor effects on subsequent borrowing costs and access to credit. This paper questions this consensus with improved data and comes to a very different conclusion. We construct the first complete database of investor losses ("haircuts") in all restructurings with foreign banks and bondholders from 1970 until 2010, covering 180 cases in 68 countries. We then show that restructurings involving higher haircuts are associated with significantly higher subsequent bond yield spreads and longer periods of capital market exclusion. The results provide new support to classic reputational theories of sovereign borrowing and cast doubt on the widespread belief that credit markets "forgive and forget."

JEL Classification Numbers: F34, G15

Keywords: Sovereign Default, Debt Restructuring, Reputation

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5.1. Introduction

A central feature of theory papers in international finance is that debtor governments have strong incentives to repay in order to maintain a good reputation and avoid exclusion from capital markets (see Eaton and Gersovitz 1981 or, more recently, Arellano 2008, D'Erasmo 2010, Kletzer and Wright 2000, Kovrijnykh and Szentes 2007, Yue 2010). Yet the empirical support for this proposition is weak at best. Recent studies show that defaulting countries often regain access to borrowing in just two years and do not face substantially higher borrowing costs after a default.[73] These findings have only confirmed the results of 30 years of prior research[74] and have led many to conclude that banks and bondholders have very short memories. As Bulow and Rogoff (1989, p. 49) put it, "debts which are forgiven will be forgotten." In this paper, we build and exploit a comprehensive dataset on creditor losses ("haircuts") in past debt restructurings and come to a very different conclusion. In contrast to earlier work, we find that sovereign default *is* a main predictor of subsequent borrowing conditions, once the scope of creditor losses is taken into account.

The paper is organized around its two main contributions. In part one, we construct an new database of haircut estimates, covering all sovereign debt restructurings with foreign banks and bondholders between 1970 and 2010, the only complete set of estimates so far. In part two, we use the estimated recovery rates to reassess classic theoretical predictions on the cost of default. We find that countries imposing higher haircuts also face much longer periods of capital market exclusion, and significantly higher borrowing costs, for up to seven years after the crisis. These results are in line with classic reputational theories and cast doubt on the widespread belief that default costs are negligible. Instead, our findings suggest that credit market penalties for non-payment are much larger and longer-lived than previously thought.

We begin by constructing a debt restructuring dataset, for which we gather and synchronize 29 different lists on restructuring terms and more than 150 further sources, including the IMF archives, private sector research, and articles from the financial press. The result is the first full archive on sovereign restructuring events since the 1970s, providing not just haircut estimates but also details on the occurrence and terms of past restructurings, as well as the characteristics of old and new instruments involved in each exchange. Like in Sturzenegger and Zettelmeyer (2008) we use the collected restructuring details to compute haircuts as the percentage difference between the present values of old and new instruments, discounted at market rates prevailing immediately after the exchange. To compute

[73] See Gelos et al. (2011), and Borensztein and Panizza (2008).
[74] See the surveys by Panizza, Sturzenegger and Zettelmeyer 2009, Eaton and Fernandez 1995, as well as Eichengreen (1989), Jorgensen and Sachs (1989), Lindert and Morton (1989), Özler (1993) and Tomz (2007).

deal-specific "exit yields" for each restructuring since the 1970s we also develop a new discounting approach, which takes into account both the global price of credit risk and country conditions at each point in time.

We find that the average sovereign haircut is 37%, which is significantly lower than for corporate debt restructurings in the United States (see section 5.3). We also find that there is a large variation in haircut size (one half of the haircuts are below 23% or above 53%) and that average haircuts have increased over the last decades. Haircuts were about 25 percentage points higher during the 1990s and 2000s, as compared to restructurings of the 1970s and 1980s. Surprisingly, however, we find that the Brady deals, which put an end to the 1980s debt crisis for 17 debtor countries, implied higher average haircuts compared to the set of 17 bond restructurings since 1998 (45% versus 38%, respectively). A further insight is that restructurings with nominal debt reduction (face value write-offs) are increasingly common. They also tend to imply much higher creditor losses, with average present value haircuts of 65%, compared to just 24% for deals that only extend debt maturities. Besides providing new stylized facts, the dataset is relevant for several reasons. First, from a policy perspective, as it enables more informed judgments on debt crises outcomes and private creditor burden sharing in the past decades. Second, the data shed new light on sovereign debt as an asset class. In particular, they provide, for the first time, representative estimates on sovereign debt recovery rates.[75] These may be used for future academic research, but also as inputs for a wide range of credit risk models used in the financial industry, e.g. to back out default probabilities from observable bond prices.

The second part of the paper uses the estimated haircuts as explanatory variable. Our key hypothesis is that higher haircuts result in (i) higher post-restructuring spreads and (ii) longer duration of exclusion from capital markets. These testable predictions can be derived from two recent theoretical models by Asonuma (2009) and Yue (2011), which build on the workhorse model by Eaton and Gersovitz. The intuition in both papers is straightforward. A defaulting country that aims to resolve its debt crisis, negotiates with creditors not only on the size of the haircut, but also on the level of subsequent risk premia and on the possibility to access credit in the future. The debtor faces a trade-off: A high haircut implies a large degree of debt reduction now, but is punished by markets tomorrow. To our knowledge this paper is the first to bring these theoretical priors to the data.

Our econometric analysis starts with sovereign borrowing costs. Specifically, we run a fixed effects panel regression with monthly sovereign bond spreads as dependent variable, using the Emerging Market Bond Index Global (EMBIG) for 47 countries.

[75] Given the lack of data, even rating agencies continue to base their recovery assumptions for sovereigns on a very small sample of restructurings. The most recent report by Moody's (2011) shows recovery rates on 15 recent cases, while Standard & Poor's (2011) relies on estimates for 5 countries.

We then lag our haircut measure for up to seven years after the restructuring to assess the relationship between restructuring outcomes and spreads in the short- and medium run. In a second step, we analyze the duration of exclusion from capital markets by applying semi-parametric survival models. Our exclusion measure captures the number of years from the restructuring until the country reaccesses international capital markets. Unlike previous work, we construct a yearly dataset of reaccess which combines primary market data on individual loans and bonds on the micro-level, with aggregate credit flow data on the country level.

The results can be summarized as follows: After controlling for fundamentals and country and year fixed effects, a one standard deviation increase in haircut (22 percentage points) is associated with post-restructuring bond spreads that are 150 basis points higher in year one after the restructuring and still 70 basis points higher in years four and five. These are sizable coefficients, especially when compared to the findings of previous empirical work. In addition, we find that haircut size is highly correlated with the duration of capital market exclusion. Ceteris paribus, a one standard deviation increase in haircuts is associated with a 50% lower likelihood of re-accessing international capital markets in any year after the restructuring.

We attribute our results to more precise measurement of a country's repayment record. Previous papers attempting to gauge the effects of defaults on subsequent market access have used a binary default indicator, capturing *any* missed payment as explanatory variable for past credit history.[76] But recent models predict punishments that are proportional to the loss inflicted on investors.[77] Using binary default instead of actual losses ignores the large variation in restructuring outcomes. This may be one reason why past research concluded that punishment effects in sovereign credit markets are negligible, at least in the medium run. We provide a nested structure which uses a default dummy alongside haircuts. The results indicate that it is crucial to consider the magnitude of past defaults, not only the default event per se.

The rest of the paper is organized as follows. The methodology to compute haircuts and a number of stylized facts from the resulting dataset are summarized in sections 5.2 and 5.3. Section 5.4 discusses theoretical considerations and the two testable predictions. Section 5.5 assesses the link between haircuts and subsequent borrowing costs, while section 5.6 focuses on capital market exclusion. The last section concludes.

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[76] See Eichengreen (1990), Jorgensen and Sachs (1989), Lindert and Morton (1989), Özler (1993), Dell'Arriccia et al. (2006), Borensztein and Panizza (2008), or Panizza et al. (2009). Relatedly, a recent paper Benczur and Ilut (2009) uses past arrears as a continuous measure for repayment history.

[77] See in particular, Asonuma (2009) and Yue (2010) who study debt renegotiation dynamics with endogenous recovery rates. Also Benjamin and Wright (2009) take into account the magnitude of default, and develop a model that generates a positive correlation between delays in debt renegotiation and the size of the haircut.

5.2. Estimating Creditor Losses: Methodology and Data

This section summarizes the construction of our haircut database, which is presented in detail in the Appendix. We provide two main sets of haircut estimates: one following the approach used by most market participants ("market haircut") and another using the more refined approach of Sturzenegger and Zettelmeyer ("SZ haircut") who estimate haircuts rigorously for 22 recent restructurings (see Sturzenegger and Zettelmeyer 2006 and 2008, SZ hereafter). Other authors have preceded us in providing haircut estimates – albeit with a more limited scope.[78] Our contribution is that we are the first to estimate haircuts based on a present value approach for the complete set of 180 sovereign restructurings with foreign banks and bondholders between 1970 and 2010. In addition, we collect data on nominal debt reduction, measured as the share of debt written off to face value.

Section 5.2.1 defines the two main haircut measures, while section 5.2.2 summarizes how we compute debt service streams and briefly presents our discounting approach. Section 5.2.3 discusses case selection and the data sources used.

5.2.1 Defining Investor Losses

Debt restructuring typically involves swapping old debt in default for a new debt contract. For a country *i* that exits default at time *t* and issues new debt in exchange for the old debt, and which faces an interest rate of r_t^i at the exit from default, the market approach to calculate haircuts (H_M) is

$$H_{M}{}_t^i = 1 - \frac{\text{Present Value of } New \text{ Debt } (r_t^i)}{\text{Face Value of } Old \text{ Debt}} \qquad (1)$$

This approach thus compares the present value (PV) of the new debt instruments (plus possible cash repayments) with the full face value amount of the old outstanding debt. This simple formula is widely used by financial market participants and does not require detailed knowledge of the old debt's characteristics. An

[78] Jorgensen and Sachs (1989) were the first to compute creditor losses in sovereign restructurings covering the cases of Bolivia, Chile, Colombia, and Peru during the 1930s and 1940s. Benjamin and Wright (2009) provide haircut estimates for a large sample of 90 cases since 1990, which are not computed in present value terms but rather based on aggregate face value reduction and interest forgiven. Further haircut estimates for several recent cases are provided by Cline (1995), Bedford et al. (2005), Díaz-Cassou et al. (2008a and 2008b), Finger and Mecagni (2007) and Rieffel (2003). In addition, some authors computed the internal rates of return on sovereign bonds historically or over longer periods of time, but without computing recovery values for specific restructurings: e.g. Eichengreen and Portes (1986, 1989), Esteves (2007), Lindert and Morton (1989), and Klingen et al. (2004).

important rationale for using it as a benchmark is that debt payments are typically accelerated at a default event.[79]

A more sophisticated haircut measure has recently been proposed by SZ (2008):

$$H_{SZ}{}_t^i = 1 - \frac{\text{Present Value of } New \text{ Debt } (r_t^i)}{\text{Present Value of } Old \text{ Debt } (r_t^i)} \qquad (2)$$

The key difference between equations (1) and (2) is that unmatured old debt instruments are not taken at face value but computed in present value terms and discounted at the same rate as the new debt instruments. The rationale for using a common discount rate for new and old instruments is that it reflects the increased debt servicing capacity resulting from the exchange itself. Of course, when the old debt had all fallen due at the time of the restructuring, H_{SZ} uses the face value of that old debt, just like H_M, which happens in 92 of the 180 cases in the sample. Furthermore, both formulae include past due interest on the old debt at face value, but disregard penalties.

Intuitively, equation (2) compares the value of the new and the old instruments in a hypothetical scenario in which the sovereign kept servicing old bonds that are not tendered in the exchange on a pari passu basis with the new bonds (SZ 2008, p. 783). Following this intuition, H_{SZ} effectively measures the loss realized in the exchange by the participating creditors. More generally, SZ interpret their measure as capturing the degree of pressure that must have been exerted on creditors to accept a given exchange offer, so as to overcome the associated free rider problem. They conclude that equation (2) provides haircuts that better describe the "toughness" of a successful exchange than equation (1). They also argue that acceleration clauses might not always be a valid justification for taking the old debt at face value. In fact, 77 of the 180 debt exchanges were pre-emptive, that is, implemented prior to a formal default that could have triggered acceleration.

Another advantage of the H_{SZ} approach is that it explicitly accounts for portions of debt that have been previously restructured. It therefore provides a better measure, compared to H_M, of the cumulative losses afforded by investors in a sequence of exchanges of the same debt.[80] This is empirically relevant, as many debtor countries restructured the same debt two or three times during the 1980s and early 1990s (see

[79] Acceleration clauses entitle creditors to immediate and full repayment in case the debtor defaults on interest or principal payments (see Buchheit and Gultai 2002).

[80] For example, if a country restructures old debt at time t but the new debt is renegotiated again soon after, say at time $t+N$, then H_M will depend on the product $\frac{PV\ New_t}{FV\ Old_t}\frac{PV\ New_{t+N}}{FV\ Old_{t+N}}$ which will tend to overestimate the cumulative loss of investors since in general $\frac{PV\ New_t}{FV\ Old_{t+N}} < 1$, especially when the debt is long term. Under H_{SZ}, this latter ratio would be $\frac{PV\ New_t}{PV\ Old_{t+N}}$ which under normal conditions is much closer to 1.

also Reinhart and Rogoff 2009 for a discussion of "serial defaults"). In light of these advantages, H_{SZ} will be our preferred haircut measure.

Equation (2) will often but not always yield a lower haircut estimate than equation (1). The difference between these two measures arises from the comparison between the face value and the present value of the old debt. When r_t^i is larger than the interest/coupon rate on the old debt, then $H_M > H_{SZ}$ (76 cases in the sample). This discrepancy will tend to increase, the longer the remaining maturity of the old debt. When r_t^i is smaller than the interest/coupon rate on the old debt, then the present value of the old debt is greater than par and $H_M < H_{SZ}$ (11 cases in the sample).

5.2.2 Discounting Payment Streams

This section presents a summary review of our methodology to compute present values of both the new and the old debt.

Computing Contractual Payment Flows*:* We start by computing the contractual cash flows in US dollars of the old and the new debt for each year from restructuring to maturity. To do this, we collect detailed data on debt amounts, maturity, repayment schedule, contractual interest/coupon rate and any further debt characteristics that might influence an instrument's value (such as the collateralization of interest payments in Brady bonds).

In computing cash flows, we take advantage of the most disaggregated information available. This means that we calculate present values on a loan-by-loan and bond-by-bond level, whenever we could collect such information. For all cases in which detailed terms were unavailable, as often happens in restructurings of the 1970s and 1980s, we simply compute an aggregated discounted cash flow stream and haircut for all of the debt. Appendix section 5.A2.2 provides further details, including the scope of data available for each restructuring.

Discounting: We next discount the cash flow streams to assess their present values. Most importantly, this requires choosing a discount rate for each restructuring. SZ, in their analysis of major deals from 1998 until 2005, use the secondary market yield implicit in the price of the new debt instruments at the first trading day after the debt exchange. Unfortunately, such market-based "exit yields" are only available for a very small subsample of recent cases with liquid secondary debt markets. This lack of data has pushed other researchers to use a constant rate across restructurings[81],

[81] A popular rule of thumb is to use a flat 10% rate, as done, for example, by the Global Development Finance team of the World Bank (Dikhanov 2004), by IMF staff (see Finger and Mecagni 2007) and by researchers such as Andritzky (2006). Others have used risk free reference rates such as U.S.

despite the fact that countries restructured their debts in very different creditworthiness conditions. [82]

We also provide an original contribution to the literature in this front: we design a procedure to impute voluntary market rates specific to each of the 180 restructurings in our sample, thus covering more than three decades. Our imputed discount rates take into account two main determinants of the cost of capital facing debt issuers at the exit from default: a) the specific country situation and b) the level of the credit risk premium at that time. In a nutshell, the procedure can be summarized as follows. We start from secondary market yields on low-grade US corporate bonds which we group by credit rating category. We then convert these corporate yields into discount rates on sovereign debt by first linking corporate and sovereign secondary market yields and then imputing yield levels for each sovereign based on its credit rating at the time of restructuring. In the spirit of SZ, we then use these imputed discount rates at the exit from default to discount the cash flows of the old and new debt. Overall, the procedure yields monthly discount rates for all countries in our sample for the period 1978 to 2010. To our knowledge, no set of estimates in the literature spans such a large number of countries and years (see the Appendix sections 5.A3.2 and A3.3 for a very detailed methodological description).

5.2.3 Data Sources and Sample

When starting this project there was no single standardized source providing the degree of detail, reliability and completeness necessary to set up a satisfactory database of restructuring terms since the 1970s from which to estimate haircuts. We therefore embarked into an extensive data collection exercise, for which we gather and cross-checked data from all publicly available lists on restructuring terms and many further sources, including articles in the financial press and from the IMF archives. Overall, our information set is based on 29 documents containing systematic lists with debt restructuring terms, as well as more than 150 additional sources such as books, academic articles, policy reports, offering memoranda, and press articles. Table 5.A1 in the Appendix provides a condensed overview, while the exact sources collected for each of the restructurings are documented in detail in our

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Treasury bond yields or Libor (Clark 1990, Claessens et al. 1992, Lee 1991). See e.g. Kozack (2005) for a survey.

[82] For example, when Nigeria restructured in 1991, its credit rating was 19.5 points on the Institutional Investor scale (a scale that goes from 0 to 100 where larger numbers imply more creditworthiness), while when South Africa restructured in 1993 its credit rating was 38.2. Hence, it is unlikely that the default-exit yield would be the same for these two debtors. It is also well known that the credit risk premium changes over time above and beyond the change in country conditions. For example, when Russia restructured in August 2000, the secondary market yield on Moody's index of speculative grade US corporate bonds was 11.43%, while it was only 8.14% when Argentina restructured in 2005. Our procedure takes into account both of these factors and gives different yields for these four cases: 9.81 for South Africa, 10.36 for Argentina, 12.48 for Russia and 18.28 for Nigeria.

database. To minimize errors and guarantee high data quality and completeness we adopt several strategies. First, we systematically collect and compare the available information across all our sources. Second, we report a data quality index for each deal, so as to be as transparent as possible with regard to the quality of our calculations.

The case sample in this paper covers the entire universe of sovereign debt restructurings with foreign commercial creditors (banks and bondholders) from 1970 until 2010. To identify relevant events we apply five case selection criteria. First, we focus on sovereign restructurings, defined as restructurings of public or publicly guaranteed debt. We do not take into account private-to-private debt exchanges, even if large-scale workouts of private sector debt were coordinated by the sovereign (e.g. Korea 1997, Indonesia 1998). Second, we follow the definition and data of Standard and Poor's (2006, 2011) and include only distressed debt exchanges. Distressed restructurings occur in crisis times and typically imply new instruments with less favorable terms than the original bonds or loans. We therefore disregard market operations that are part of routine liability management, such as voluntary debt swaps. Third, we focus on sovereign debt restructurings with foreign private creditors, thus excluding debt restructurings that predominantly affected domestic creditors and those affecting official creditors, including those negotiated under the chairmanship of the Paris Club. Foreign creditors include foreign commercial banks ("London Club" creditors) as well as foreign bondholders. For recent deals, we follow the categorization into domestic and external debt exchanges of Sturzenegger and Zettelmeyer (2006, p. 263).[83] Fourth, we restrict the sample to restructurings of medium and long-term debt, thus disregarding deals involving short-term debt only, such as the maintenance of short-term credit lines, 90-day debt rollovers, or cases with short-term maturity extension of less than a year. Finally, we only include restructurings that were actually finalized. We thus drop cases in which an exchange offer or agreement was never implemented, e.g. due to the failure of an IMF program or for political reasons.

Based on these selection criteria, we identify 182 sovereign debt restructurings in 68 countries since 1978 (no restructurings occurred between 1970 and 1977). We were able to gather sufficient data to compute haircuts on all of these cases, except for the restructurings of Togo 1980 and 1983. We thus base all summary statistics on a final sample of 180 implemented restructurings by 68 countries.

5.3. Haircut Estimates: Results and Stylized Facts

[83] As a result, we do include two restructurings involving domestic currency debt instruments, but only because they mainly affected external creditors: Russia's July 1998 GKO exchange and Ukraine's August 1998 exchange of OVDP bonds.

The dataset and estimates of the 180 deals in our final sample reveals a series of new insights on sovereign debt restructurings. This section summarizes the main stylized facts.

<Figure 5.1 about here>

<Figure 5.2 about here>

A first insight is the large variability in haircut size across space and time. Figure 5.1 plots our estimates of H_{SZ} (eq. 2) over time and the respective, inflation-adjusted debt volumes of each restructuring, as represented by the size of the circles. The graph illustrates the dispersion in haircuts, which has increased notably since the 1970s. Recent years have seen a particularly large variation, with some deals involving haircuts as high as 90% and others involving haircuts as low as 5%. Interestingly, we find that the three largest restructurings of recent years (Argentina 2005, Russia 2000 and Iraq 2006) all implied haircuts of more than 50%. But also the Brady deals of the mid 1990s show high haircuts and involved large volumes of debt. A related trend is illustrated in Figure 5.2, which differentiates between restructurings with some degree of face value debt reduction (57 cases) and deals that only involve a lengthening of maturities (123 cases). The figure shows that cuts in face value are increasingly common and that they tend to imply much higher creditor losses in present value terms. Deals with outright debt write offs have an average haircuts of 65%, compared to just 24% for pure debt reschedulings.

<Table 5.1 about here>

Table 5.1 provides further key insights, in the form of summary statistics for the full sample of 180 restructurings. Most notably, we find the average SZ haircut between 1970 and 2010 to be 37% (simple mean), while the volume-weighted average haircut is even lower, amounting to about 30%. This implies that, on average, investors could preserve almost two-thirds of their asset value in restructurings of the past decades. This degree of losses is surprisingly low, at least when compared to corporate debt exchanges. According to the most comprehensive set of estimates for US corporate bond and loan restructurings (Moody's 2006), the average haircut was 64% (between 1982 and 2005). This is nearly twice as high compared to what we find for sovereign debt. The large discrepancy is surprising, because US corporate debt, in contrast to sovereign debt, can be enforced in courts and because any corporate restructuring is subject to a standardized bankruptcy regime, making debt recovery more predictable.

The table also shows notable differences in haircut estimates depending on the formula applied. As expected, the market haircut tends to be larger than the SZ

haircut (40% vs. 37%, respectively). The difference between the two measures ranges from 0 (for those 92 deals in which the old debt had fully matured) up to 22 percentage points. More specifically, the average H_{SZ} is 6.5 percentage points lower than the average H_M for those cases in which the old debt had not fully come due. Interestingly, creditor losses appear remarkably lower when looking at face value reduction only, with an average haircut of only 16%. This low figure suggests that any estimates based on nominal debt write-offs will severely overestimate the actual recovery rates in sovereign restructurings.

Looking at different decades, we find a notable increase in haircut size over time. Average haircuts were about 25 percentage points higher during the 1990s and 2000s as compared to deals implemented during the 1970s and 1980s. One reason is that deals during the 1980s mostly implied maturity extensions only, thus postponing the day of reckoning that most debtor countries had deep-rooted solvency problems. Relatedly, we find that the Brady deals, which ultimately put an end to the 1980s debt crisis for 17 debtor countries, involved a high average haircut of 45%. This exceeds the mean investor loss for the more recent subsample of 17 sovereign bond restructurings since 1998 (38%).

The type of debtor also matters. In particular, we find average haircuts of 87% in restructurings of highly indebted poor countries (HIPCs). To show this, we categorize a subsample of restructurings as donor supported, defined as those co-financed by the World Bank's Debt Reduction Facility (see World Bank 2007).[84] The average haircut in these 23 donor supported restructurings is nearly three times as large as for restructurings in middle income countries.

<Table 5.2 about here>

Table 5.2 shows deal-specific estimates for 17 main restructurings since 1998 and compares them to existing estimates in previous work. For the overlapping sample, our estimates are very similar to those of SZ. When comparing their average haircut (reported in SZ 2006, p. 263) to our equivalent of equation 2 we get a mean absolute deviation of 5.8 percentage points. Only two estimates differ significantly (by more than 10 percentage points), namely Pakistan 1999 and Ukraine 2000, and this is mostly because our methodology yields significantly lower discount rates for these two cases. We also find our results to be roughly in line with the net present value estimates by Bank of Spain and Bank of England staff (Bedford et al. 2005 and Diaz-Cassou et al. 2008a, 2008b), with a mean absolute deviation of 7.9 and 8 percentage points, respectively. Our results differ more markedly from Finger and Mecagni

[84] The Debt Reduction Facility grants funds to governments to buy back their debts to external commercial creditors at a deep discount. Typically, the size of haircuts granted by commercial creditors are in the range of those accepted by official creditors in these same countries (see World Bank 2010).

(2007), who apply a 10% discount rate, and from those reported by Benjamin and Wright (2009), who do not calculate haircuts in present value terms but base their estimates on World Bank data on debt stock reduction and interest and principal forgiven.

5.4. Theoretical Considerations

Theoretically, we build on Asonuma (2009) and Yue (2010) who provide clear predictions of how haircut size affects subsequent access to foreign credit. Yue's (2010) dynamic stochastic general equilibrium model generates endogenous exclusion from financial markets after default, where the duration of exclusion increases with the amount of debt reduced. A bad credit record and a low recovery rate of the defaulted debt imply longer exclusion. Asonuma (2009) extends Yue's model by incorporating the rate of return offered on newly-issued debt after default. In his model, forward-looking creditors and debtors bargain not only over the size of the recovery rate, but also on the risk premium paid on debt issues after re-entry into capital markets. His quantitative analysis reveals that the yield spread on new debt will be higher, the lower the implied recovery rate of the restructuring, i.e. the higher the haircut. From these models, we can derive two testable hypotheses: Hypothesis 1: The larger the size of *H*, the higher the yield spreads after restructurings; and Hypothesis 2: The larger *H*, the longer the period of exclusion from capital markets.

The underlying mechanism suggested by Yue (2010) and Asonuma (2009) is the classic reputational one in Eaton and Gersovitz (1981): A good repayment record assures access to credit in the future, while defaulting will be punished.[85] However, there could be other channels linking the size of haircuts and subsequent borrowing conditions. First, there is the countervailing effect of debt relief. Sovereigns imposing high haircuts will reduce their indebtedness more significantly, making them more solvent, at least in the short run. In an atomistic bond market without tacit creditor collusion, as in Wright (2002), lenders may ultimately reward sovereigns for imposing high haircuts, as this can result in a lower debt to GDP ratio and may decrease the likelihood of future default. Higher haircuts would then imply lower post-restructuring spreads and quicker reaccess. Empirically, we control for this possibility by controlling for the debt to GDP ratio after the restructuring as well as for the sovereign rating.

[85] Another theoretical channel is linked to Grossmann and van Huyck (1988) who suggest a model in which debt-servicing obligations are implicitly contingent on the realized state of the world. Accordingly, adverse reputational effects could only occur if the size of *H* is "inexcusable", i.e. not justified by bad exogenous macroeconomic conditions. In an earlier version of this paper we follow this route and decompose actual H_{SZ} into its "predicted" value and a residual which we interpret as measuring the "inexcusable" haircut. For reasons of brevity we omit this extension here.

Second, high haircuts could be seen as a signal of untrustworthy economic policies and expropriative practices by the government, with adverse consequences for country spreads and capital access (in analogy with Cole and Kehoe 1998 and Sandleris 2008). In the econometric analysis we address this possibility by including political risk indicators, which account for the perceived risk of expropriation, and by controlling for government changes, because investor sentiment may change once a new executive comes in.

Finally, it is possible that countries imposing higher haircuts are also in a worse shape than those imposing lower haircuts. Unobservable country characteristics could influence both the size of *H* and country access conditions after the restructuring. To address this concern, we include country and time fixed effects and control for a large set of observable, time-varying fundamentals suggested by theory and the previous international finance and asset pricing literature. This mitigates, but not necessarily completely eliminates, the possibility that the coefficients of *H* pick up the effect of a confounding variable which remains omitted. However, it should be underlined that we largely replicate the models used in 30 years of previous work on the issue, which tends to reject the claim that sovereign defaults have lasting, substantial effects in credit markets. Here, we reassess this finding with more refined data, under the maintained hypothesis that the empirical models in the received literature are an adequate testing tool. The results should nevertheless be interpreted with caution.

5.5. Haircuts and Post-Restructuring Spreads: Data and Results

This section assesses the link between debt crisis outcomes and subsequent borrowing costs in the period 1993 to 2010. In order to identify post-crisis episodes, we focus on "final" restructurings only, which we define as those (i) that were not followed by another restructuring (vis à vis private creditors) within the subsequent four years and (ii) which effectively cured the default event, meaning that the country did not remain in ongoing default according to data by Standard & Poor's (2006, 2011). We thereby disregard intermediate restructurings like many deals of the early and mid-1980s that only implied short-term debt relief. One example is Peru's restructuring of 1983, which is not regarded as final, because the country continued to accumulate arrears until it finally resolved its debt crisis with a Brady deal in 1997. Another example is Russia's 1997 restructuring of Soviet era debt, which is not included because the country restructured that same debt only three years later.[86]

[86] An overview of the 67 final restructurings in 62 countries is provided in Table 8 below. Due to lack data coverage, only 27 of these events, from 23 countries, are used in our analysis of EMBIG spreads. Specifically, it accounts for the following 27 events, in increasing order of haircut: Dominican Republic (05/2005), Uruguay (05/2003), Croatia (07/1996), Pakistan (12/1999), Ukraine (04/2000),

5.5.1 Dependent Variable: EMBIG Spreads

As dependent variable, we use data on secondary market bond stripped yield spreads from J.P. Morgan's EMBI Global (EMBIG). EMBIG spreads have been used extensively in the academic literature to proxy foreign currency borrowing costs of both governments and the private sector in emerging market economies.[87] A main advantage of using EMBIG data is that it allows constructing a monthly panel dataset for a large number of countries whose bonds satisfy certain minimum liquidity and global visibility benchmark, so that one would expect informationally efficient pricing. The EMBIG is composed of U.S.-dollar denominated sovereign or quasi-sovereign Eurobonds and Brady Bonds that are actively traded in secondary markets, as well as a small number of traded loans.[88] While the EMBIG was only introduced in January 1998, historical yield data for major emerging market countries is available back to 1994 from Morgan Markets.[89] Overall, the yields available cover 47 countries from January 1993 until December 2010, resulting in a panel of over 5000 observations. Among the 47 countries covered by the EMBIG, 23 are defaulters which restructured their debt,[90] while the other 23 countries are "non-defaulters".[91]

5.5.2 Preliminary Data Analysis

We begin with a preliminary analysis of bond spreads. Figure 5.3 plots monthly post-restructuring spreads for all cases in our EMBIG sample from 1993 until 2010. Most importantly, the figure distinguishes between cases with haircuts that are higher or lower than 36.7%, the median haircut in this sample. Instead of comparing plain

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South Africa (09/1993), Algeria (07/1996), Belize (02/2007), Philippines (12/1992), Brazil (04/1994), Mexico (05/1990), Argentina (04/1993), Panama (05/1996), Venezuela (12/1990) –median haircut–, Ecuador (08/2000), Nigeria (12/1991), Ecuador (02/1995), Poland (10/1994), Russia (08/2000), Cote d'Ivoire (04/2010), Bulgaria (06/1994), Cote d'Ivoire (03/1998), Peru (03/1997), Ecuador (06/2009), Serbia & Montenegro (07/2004), Argentina (04/2005), and Iraq (01/2006).

[87] Eichengreen and Mody (2000) underline that sovereign spreads tend to predict actual government borrowing costs realized in primary markets. Relatedly, Durbin and Ng (2005) show that sovereign spreads determine corporate borrowing costs in emerging markets, reflecting a "sovereign ceiling."

[88] The stripped yield spread is simply the difference between the weighted average yield to maturity of a given country's bonds included in the index and the yield of a U.S. Treasury bond of similar maturity. In line with most other researchers, we use stripped spreads which focus on the non-collateralized portion of the emerging country bonds (see J.P. Morgan 2004 for details).

[89] In order to maximize time coverage of our sample, we added the plain EMBI index yields for 1993 for Argentina, Brazil, Mexico, Nigeria and Venezuela. The results do not change if we omit 1993.

[90] The group of 24 defaulters in the EMBIG sample are Algeria, Argentina, Brazil, Belize, Bulgaria, Chile, Cote d'Ivoire, Croatia, Dominican Republic, Ecuador, Gabon, Iraq, Mexico, Morocco, Nigeria, Pakistan, Panama, Peru, Philippines, Poland, Russia, Serbia & Montenegro, South Africa, Ukraine, Uruguay, Venezuela, Vietnam.

[91] Our counterfactual is the group of 23 "non-defaulters" covered in the EMBIG. This includes countries with no external sovereign debt restructuring in the 1990s/ 2000s: China, Colombia, Egypt, El Salvador, Georgia, Ghana, Greece, Hungary, Indonesia, Jamaica, Kazakhstan, Lebanon, Lithuania, Malaysia, South Korea, Sri Lanka, Thailand, Trinidad and Tobago, Tunisia, and Turkey. In addition, we include four countries which did restructure their debt at some point since 1990, but which entered the EMBIG more than seven years after that restructuring: Chile, Gabon, Morocco and Vietnam.

spreads, the figure shows the spread differential of defaulters over non-defaulters.[92] The rationale for showing spread differential is that this can mitigate the impact of common shocks, such as the Mexican crisis of 1995 or the Russian default of 1998, and that it addresses the potential endogeneity of restructuring dates, i.e. the concern that the decision to restructure may depend on the global borrowing conditions for emerging market countries.[93] The resulting plot shows a notable difference between low-haircut and high-haircut cases. Restructurings with high haircuts feature much higher average post-restructurings spreads, especially from year three onwards. The differences often surpass 200 basis points (bp), which is very large given the average spread level of about 530 bp in the sample of defaulters.

<Figure 5.3 about here>

5.5.3 Estimated Model on Post-Restructuring Spreads

Since asset markets are forward looking, we need to control for current and expected future conditions which affect both the prevailing price of credit risk and expected collection. Specifically, we assess the role of credit history for sovereign borrowing costs with a bond spread equation in the vein of those by Dell'Arriccia et al. (2006), Panizza et al. (2009) or Eichengreen and Mody (2000). Our innovation is that we complement the binary default variable with a continuous measure of investor outcomes.

The empirical model is:

$$S_{it} = \left\{ \phi_1 I_1(i,t) + \phi_2 I_2(i,t) + \phi_3 I_3(i,t) + \phi_{4-5} I_{4-5}(i,t) + \phi_{6-7} I_{6-7}(i,t) \right\} H_i + \beta' X_{i,t-1} + \omega_i + \eta_t + u_{it} \qquad (3)$$

$$i = 1,...,N \quad t = 1,...,T$$

where $I_\tau(i,t)$ is an indicator variable that equals 1 when month t belongs to year τ after country i finalized its last restructuring (τ=1,2,3,4-5,6-7) and zero otherwise, H_i is the haircut arising from that restructuring, $X_{i,t\text{-}1}$ is a vector of macroeconomic control variables known during month t, ω_i is a country fixed effect, η_t is a time fixed effect and u_{it} is an error term. The key parameters of interest are ϕ_τ, the coefficients of the lagged haircut variable.

[92] Specifically, we compute the spread differential by subtracting the average spread of the 23 non-defaulters at each point in time from the spread of the low- and high-haircut group.

[93] It is possible that low haircut countries may have restructured at times when future yields were expected to be lower than when high haircut countries restructured.

In a second step, we estimate a specification that includes both the lagged haircut variable and the lagged binary restructuring variable, denoted as R_i:

$$S_{it} = \left\{ \phi_1 I_1(i,t) + \phi_2 I_2(i,t) + \phi_3 I_3(i,t) + \phi_{4-5} I_{4-5}(i,t) + \phi_{6-7} I_{6-7}(i,t) \right\} H_i + \left\{ \gamma_1 I_1(i,t) + \gamma_2 I_2(i,t) + \gamma_3 I_3(i,t) + \gamma_{4-5} I_{4-5}(i,t) + \gamma_{6-7} I_{6-7}(i,t) \right\} R_i + \beta' X_{i,t-1} + \omega_i + \eta_t + u_{it} \quad (4)$$

$$i = 1,...,N \quad t = 1,...,T$$

In this specification we effectively estimate a multiplicative interaction model, in which H_i is interacted with the lagged restructuring dummies. Put differently, we now estimate the conditional hypothesis that the relationship between restructurings and subsequent spreads depends on the size of H_i. It is natural to think of this specification in light of the wide variation of investor losses documented in section 5.3. Strictly speaking, equation (3) is underspecified and potentially biased, because the constitutive terms (the lagged R_i) are not included (Brambor et al. 2006). For this reason we choose equation (4) as our main model.

As control variables, we follow the received literature in including the debtor country's level of public debt to GDP, the ratio of reserves to imports, the country's annual rate of inflation, GDP growth, the level of the current account to GDP and the government's primary budget balance, which are all lagged by one year. International credit market conditions are controlled for by including the Barclays-Lehman Brothers index of low grade US corporate spreads[94], lagged by one month. We also take into account credit ratings, by including the residual of a regression of S&P and Moody's country credit ratings on the set of other fundamentals and variables in each specification. To capture a country's political situation we include the widely used political risk index by ICRG[95], lagged by one month, and variables capturing government changes. Specifically, we include a variable capturing the number of "years in office" of the government from the Database of Political Institutions, and also construct a "new government" dummy which takes the value of 1 for the first two years after a new administration comes in. The country fixed effects will pick up any unobservable and time constant country differences, while year effects account for the potential endogeneity of the timing of restructuring (e.g. as in countries hurrying to settle with creditors when they anticipate favorable future borrowing conditions). The definition and sources of variables are listed in Table 5.3.

<Table 5.3 about here>

[94] Results are the same when using the 10 year US Treasury yield rate instead.
[95] Results are nearly identical when using the ICRG sub-indicator on "government stability".

5.5.4 Results: Haircuts and Subsequent Bond Spreads

Table 5.4 shows the main results of our bond spread regressions. We start by replicating the established literature and include a lagged debt crisis dummy as proxy for sovereign credit history. Like Borensztein and Panizza (2008) we only find significant effects in the first and second year after the restructuring. The coefficient of the lagged R_i drops from 260 bp in year one to about 150 bp in year two, but is clearly insignificant thereafter. Thus, with a binary measure of default, effects appear very short-lived.

The results are notably different when we substitute the restructuring dummy with our continuous haircut measure, which is measured in percentage points (column 2). After controlling for country and time fixed effects, we find that a one percentage point increase in haircuts is associated with EMBIG spreads that are about 6.75 bp higher in year one after the restructuring and still about 3.16 bp higher in years four and five. This means that a haircut of 40%, which is roughly the mean for the EMBIG sample used here, can be associated with 270 bp higher spreads in year one and 127 basis points higher in years four and five. [96] Accordingly, a one standard deviation increase in H_{SZ} (about 22 percentage points in this sample) is associated with spreads that are 149 to 70 basis points higher in year one and four and five, respectively. Even when controlling for ratings (column 3) and/or when including additional macroeconomic and financial variables (as in previous versions of this paper) the coefficient of the lagged H_{SZ} variable remains significant up to year five.

The next columns (4 - 7) show results for the fully specified model of equation (4), which includes both the lagged haircut variable and the lagged dummies. When interpreting the results, it should be kept in mind that, as in any multiplicative interaction models, the coefficients of the constitutive terms (here, the γ coefficients of the lagged R_i) cannot be interpreted as unconditional marginal effects (Brambor et al. 2006). The dummy estimates can thus not be taken at face value, as they show marginal effects that are conditional on the size of H_i. The key result from column 4 is that the lagged values of H_{SZ} show high and significant coefficients up to year 7 after the restructuring, although they are only significant at the 10 percent level in the first three years. Once we add the control variables suggested by Eichengreen and Mody (2000) and Dell'Arriccia et al. (2006), we find significant coefficients in years four to seven only. For these years, however, they are much larger than before.

The strictest model is that in column (7), which includes macroeconomic control variables, the ratio of public debt to GDP, country and year fixed effects and proxies for credit rating and political risk. In this specification, a one standard deviation increase in haircuts is associated with spreads that are 112 basis point higher in years

[96] The calculation is 40*6.75 = 270 and 40*3.15 = 126,6, respectively.

four and five, and 161 bp higher in years six and seven after the restructuring. These are sizable magnitudes, especially when compared to the findings of earlier studies. For example, the influential early studies by Lindert and Morton (1989) and Özler (1993) and a new paper by Benczur and Ilut (2009) suggest that past default leads to an average increase in post-crisis spreads of, at most, 50 basis points.

5.5.5 Robustness

In Table 5.5, we implement several extensions and robustness checks, building on a parsimonious specification of equation (4), which only includes control variables that are widely used in the related literature and which are weakly correlated among each other.[97] As before, we include country and time fixed effects.

<Table 5.5 about here>

We start by selecting various sub-samples and find results to be very robust throughout. In a first step, we restrict the time frame to 1998-2010, thus dropping all Brady-era observations of 1993-1997 (column 2 of Table 5.5). Next, we focus on the subsample of defaulters, defined here as countries that restructured sovereign debt at least once after 1985. In both cases we find the results to be very similar to the benchmark specification in column (1). We find even stronger results when dropping three outlier countries, namely Argentina, Iraq and Russia, which all defaulted unilaterally on large volumes of debt and which imposed exceptionally high haircuts of 50% or higher. Without these outliers, the coefficient for the lagged haircut variable turns significant in year 3, and is much higher than in the benchmark equation (column 4). The same is true when implementing an even more demanding robustness check, which excludes all countries that imposed haircuts higher than 37%. Column (5) shows that the ϕ_τ, coefficients are nearly twice as high in this subsample compared to the benchmark.

We next assess the results for alternative haircut measures. Column (6) shows estimates when including lagged values of the "market haircut" H_M (equation 1), while column (7) includes lagged values of the face value reduction measure, which ignores changes in the debt's present value. In addition, column (5) shows results with lagged values of an "effective haircut" measure, which results from multiplying H_{SZ} by the fraction of total foreign debt owed to private international creditors (in *t*-1) involved in the final deal (with data on debt to private creditors taken from the World Bank's GDF database). This last measure thus takes into account the percentage of debt affected by the haircut. Overall, the results are robust, and even somewhat more pronounced, when including H_{SZ} or the "effective haircut" measure

[97] Throughout, the results are only marginally affected by our choice of control variables.

(columns 6 and 7).[98] In contrast, we find only small and weakly significant coefficients when using the face value reduction measure. This non-finding may be due to the fact that the plain measure of "debt reduction" does not capture the "true" loss implied for investors.

Finally, we implement a series of robustness checks for which results are available upon request. First, we assess the role of government changes. The binary "new government" variable is clearly insignificant and including it does not affect the results, not even when interacting it with the lagged haircut variables. The same is true when using a variable on the government's years in office. We therefore conclude that government changes play no role for the relationship between haircuts and subsequent borrowing costs. Next, we include a dummy variable for ongoing holdout and litigation events using data from Trebesch (2008). We thereby take into account instances like in Argentina post-2005 or Peru post-1997 in which countries did come to a final restructuring but continued in disputes with holdout creditors. We find that the dummy variable for litigation is insignificant and the haircut coefficients are largely unchanged. Lastly, we split our sample in countries with high and low income. Specifically, we estimate an equation which only includes countries with a 1993 GDP per capita that is higher than 4000 US$ in purchasing power parity terms (sample median). Again, the results remain little affected.

5.6. Haircuts and Duration of Exclusion: Data and Results

To assess the role of haircuts for exclusion duration we construct an annual dataset on access to capital from 1980 until 2010. The decision to use yearly data is in line with related research and driven by data availability, because our duration analysis goes further back in time and spans a larger number of defaulting countries, so that monthly data are often unavailable. We again focus on access conditions after all 67 final restructurings as defined above, which include all 17 Brady deals as well as all recent external bond restructurings.

5.6.1 Dependent Variable: Years of Exclusion

The dependent variable on exclusion duration measures the number of years between a restructuring event and the successful reaccess to international credit markets.[99] To avoid lengthy discussions on the benefits and drawbacks of alternative definitions and data sources, we construct a measure of market access that is as comprehensive

[98] We also find results to be robust when using a "naïve haircut" measure, which is just like the market haircut but imposes a uniform 10% discount rate.

[99] If a country restructures and regains market access in the same year, we follow the literature in considering the duration of market exclusion to be one year.

as possible and which builds on the two main contributions on this issue in recent years. Specifically, we combine the approach by Gelos et al. (2011), who focus on individual syndicated loans and bonds issued in international markets, with the definition of market access by Richmond and Dias (2009), who use aggregate capital flows.

Our main measure captures "partial" reaccess defined as the first year with an international loan or bond placement and/or the first year with positive aggregate credit flows to the public sector. More precisely, the measure takes a value of one in case the country places at least one public or publicly guaranteed bond or syndicated bank loan on international markets which results in an increase in indebtedness and/or if the public sector receives net transfers from private foreign creditors, so that new borrowing minus debt service is positive. The first criterion builds on primary market issuance data in international markets from the comprehensive Dealogic database from 1980 until 2010. Specifically, we aggregate information of 8,776 individual public and publicly guaranteed bonds in 95 developing countries and 10,212 public or publicly guaranteed syndicated loans from 136 countries.[100] In line with Gelos et al. we only regard issuances that lead to an increase in public sector indebtedness, using debt stock data to private creditors from the World Bank's GDF dataset.[101] The second criterion is constructed from aggregate credit flow data. The dummy takes a value of one in case bank or bond transfers from foreign private creditors to the public and publicly guaranteed sector are larger than 0.[102] To check the robustness of our finding we also construct (i) a measure of "full reaccess" defined as the first year in which debt flows surpass 1% of GDP[103], (ii) a measure that focuses on primary market issuance only (the original Gelos et al. definition), and (iii) a measure that takes into account flows to the public and private sector of debtor countries (the Richmond and Dias definition).

5.6.2 Preliminary Data Analysis

Next, we present descriptive findings on haircut size and the duration of exclusion. Table 5.6 lists the 67 final restructuring events and the respective year of reaccess

[100] These samples result from a query retrieving all public and publicly guaranteed emerging market loans and bonds of developing countries, excluding issues which are placed and marketed in domestic markets only, according to the Dealogic identifier.
[101] The idea is to disregard instances in which governments are in net terms repaying, not borrowing.
[102] Data is available from GDF using the following series: DT.NTR.PBND.CD (net bond transfers) and DT.NTR.PCBK.CD (net bank transfers). We do not consider arrears as a positive transfer to the debtor.
[103] Specifically, we define full access when (i) bond or loan issuances in international markets exceed 1% of GDP and/or (ii) if net bank and bond transfers to the public sector exceed 1% to GDP. The 1% threshold is chosen in accordance with Richmond and Dias and represents less than one-half of the annual public sector borrowing requirements over the entire sample of years and developing countries. GDP data is taken from the World Development Indicator dataset. The annual volume of loan and bond placements is again aggregated from Dealogic, while net transfers are from the GDF dataset.

using various definitions. The average duration from restructuring to partial reaccess is 5.1 years, while the median is 3 years. We find that exclusion time increases notably in haircut size. On average, partial reaccess takes just 2.3 years after cases with H_{SZ} < 30%, while the duration is more than twice as long (6.1 years) for cases with H_{SZ} >30%. For the full sample, Figure 5.4 plots the relationship between H_{SZ} and years until partial reaccess, further pointing to a positive relationship between the two. The overall picture is similar when using alternative measures of exclusion duration, such as the one on full reaccess.

<Table 5.6 about here>

<Figure 5.4 about here>

Another way to illustrate the patterns of exclusion is to plot an empirical survival function. We apply the non-parametric Kaplan-Meier estimator, which estimates an unconditional survival function and is very popular in the survival analysis literature, also because it can take into account censored data. This statistic reports the compound probability of not having reaccessed the market for each year after the restructuring. It can be defined as

$$\hat{S}(t) = \prod_{j|t_j \leq t} \left(\frac{n_j - d_j}{n_j} \right) \qquad (5)$$

where $t_j, j = 1, ...,$ denotes the times at which failure occurs, d_j are the number of failures, or "exits" at time t_j and n_j is the total number at risk of failure at time t_j (see Kalbfleisch and Prentice 2002). Here, the number of failures d_j is simply the sum of countries that successfully reaccess capital markets in a given year, while n_j counts the number of country cases that were excluded at t_{j-1}.

<Figure 5.5 about here>

Figure 5.5 shows the estimated survival function for partial reaccess. Unlike previous research, we estimate survival functions depending on haircut size of the restructuring. More specifically, we group cases with H_{SZ} <30%, with H_{SZ}>60% and those in between. The graph shows that the estimated functions are markedly different for cases with higher haircuts. More than 60% of countries with H_{SZ} <30% regain access within two years, compared to only 30% for cases with H_{SZ} >60%. The figure also shows that exceptionally high haircuts are often followed by exceptionally long periods of exclusion. Countries imposing H_{SZ} >60% are very likely to remain excluded even after 10 years, with an unconditional probability exceeding 50%.

5.6.3 Estimated Model on Exclusion Duration

The univariate analysis of Figure 5.5 shows a correlation between haircut size and exclusion. However, it is likely that the same factors that are causing the exclusion are also causing the large haircut in the first place. To address this, we next estimate a semi-parametric Cox proportional hazard model which allows including constant and time-varying covariates and can deal with the problems of censored observations and multiple events.

For this model, the hazard rate for the *i*th individual (or *i*th exclusion episode) can be written as

$$h_i(t) = h_0(t)\exp(\beta' z), \qquad (6)$$

where $h_0(t)$ is the baseline hazard function, z a set of covariates and β a vector of regression coefficients.

The key advantage of the Cox model vis-à-vis other duration models, such as the parametric Weibull model or the log logistic model, is that it is not necessary to specify a functional form of the baseline hazard rate $h_0(t)$. Instead, the shape of $h_0(t)$ is assumed to be unknown and is left unparameterized. Accordingly, we estimate reduced form models allowing the functional form of the hazard function to be explained by the data. The model is estimated via a partial likelihood function of the following form:

$$L(\beta) = \prod_{i=1}^{n}\left(\frac{\exp(\beta' z_i)}{\sum_{j\in R(t_i)}\exp(\beta' z_j)}\right)^{\delta_i}, \qquad (7)$$

where $R(t_i) = (j : t_j \geq t_i)$ denotes the risk set (i.e. the number of cases that are at risk of failure) at time t_i. The model can be extended in a simple manner once time varying covariates are included (see Lancaster 1990 for a detailed presentation).

In estimating the model we rely on the variance correction method proposed by Lin and Wei (1989).[104] This avoids misleading inference in the case of repeated events and is relevant because some countries in our dataset had multiple restructurings and reaccess episodes since 1980. Thereby potential learning effects are also taken into account.

As before, H_{SZ} is the key explanatory variable of interest, while we build on Dell'Arriccia et al. (2006), Gelos et al. (2011) and Richmond and Dias (2009) in our

[104] For a survey on variance-correction methods for repeated events in survival analysis see Kelly and Lim (2000).

choice of model specification and control variables. One difference compared to the above is that we now use country ratings by Institutional Investor magazine instead of commercial rating agency ratings, simply because we cover a much larger sample of countries and years than in the monthly EMBIG dataset. We also include dummy variables for world regions as well as year fixed effects.[105]

5.6.4 Estimation Results: Haircuts and the Duration of Market Exclusion

Table 5.7 shows the results for various specifications of the Cox proportional hazard model. Here, a positive coefficient indicates that higher values of that variable are associated with quicker reaccess relative to the baseline, while negative coefficients indicate longer exclusion duration.

< Table 5.7 about here >

The main result is that the coefficient of H_{SZ} is negative and robustly significant in all specifications. It also has a sizable quantitative effect. To illustrate this and to allow for a more intuitive interpretation, it is necessary to exponentiate the coefficients shown in the results Table 5.7. The coefficient of -0.024 in the full model of column (7) indicates that a one unit (percentage point) increase in H_{SZ} lowers the likelihood of reaccessing capital markets in a given year by 2.4%.[106] Thus, according to our most conservative estimate, a one-standard deviation increase (30 percentage points in this sample) is associated with a 51% lower likelihood of reaccess any given year.[107] This provides further indication that restructuring outcomes play a crucial role for borrowing conditions after settlement.

Regarding the other variables included, we can report only few significant coefficients. We find that population size, GDP per capita and a good credit rating can be associated with quicker reaccess times. In addition, for some specifications, the debt to GDP ratio and the fiscal balance shows significant negative coefficients, suggesting that higher indebtedness and budget surpluses imply longer exclusion duration. All other variables, such as political risk, annual inflation and growth, or the ratio of reserves to imports are clearly insignificant.

5.6.5 Robustness

To assess the validity of our findings we settle on a baseline specification which strikes a balance between parsimony and performance of the model (see column 1 in

[105] Note that the proportional hazard survival models produce biased estimates with country fixed effects (Allison 2002).
[106] The calculation is $100*(e^{-.024}-1) = -2.37$.
[107] The calculation is $100*(e^{[30*-.024]}-1) = -51.32$.

Table 5.8). As the most important robustness check, we start by altering the definition of market access and find results to be surprisingly robust. Column (4) shows that the coefficient on H_{SZ} is very similar when using the full reaccess measure. Likewise, in column (5), we find H_{SZ} to remain significant when we follow the narrower access definition by Gelos et al. (2011), which focuses on primary market issuance only. In line with Richmond and Dias (2009), we also extend the definition to include capital flows to the private sector, which translates into significantly shorter periods of exclusion, as illustrated in Table 5.8. Even for this specification the coefficient on haircut remains at about -0.02, although it is only significant at the 10% level.

< Table 5.8 about here >

We conduct a further series of robustness checks, most of which are not directly reported but available upon request. Column (5) in Table 5.8 shows that there is no major change when including H_M instead of H_{SZ}.[108] However, the coefficient on haircut is clearly statistically insignificant when considering the face value reduction measure (column 6). This is in line with the findings on EMBIG spreads and may be attributed to the imprecision of this loss estimate. As before, we also get similar results when excluding poor and highly indebted countries (column 8 in Table 5.7), when dropping outlier cases like Argentina, Iraq and Russia, or when focusing on the post-Brady period since 1997 (results available upon request). Furthermore, to assess the potential bias due to right-censoring, we drop the last 5 years in our sample, without any notable effect on the results. Finally, we check the role of government changes, as in section 5.4, and also include a measure of government stability from the ICRG dataset. Again, we find no significant effects while our main result remains the same.

5.7. Conclusion

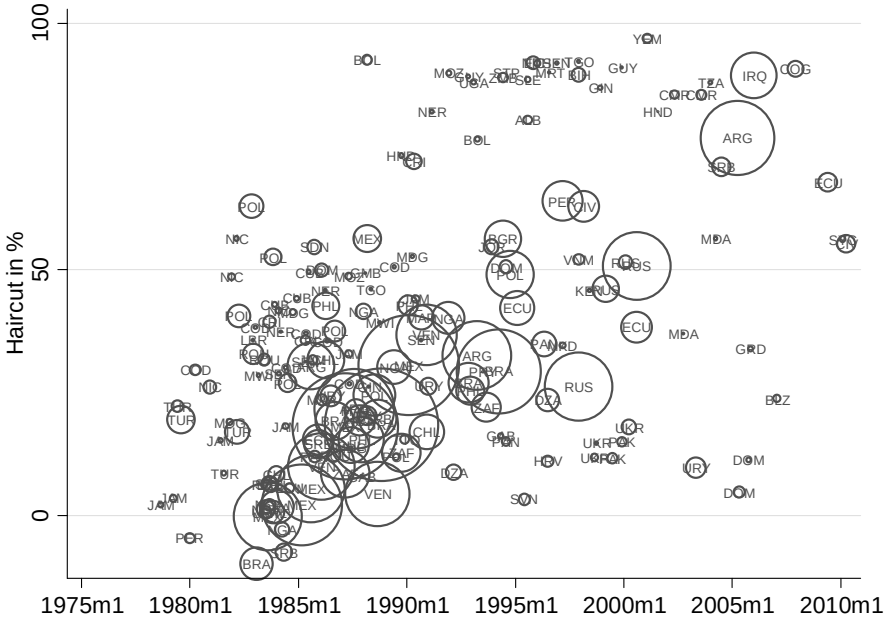
This paper constructs a new database on haircuts implicit in debt restructurings between sovereigns and private international creditors during 1970-2010 and documents a close relationship between size of haircuts and subsequent borrowing conditions for the sovereign. High creditor losses are associated with significantly higher post-restructuring spreads and longer periods of market exclusion.

[108] The same is true when including the effective haircut measure or the naïve haircut, which we also use in section 5.4 above.

The results are important in two main ways. First, they cast doubt on the stylized fact that the costs of default are short lived and small in size. Instead, the analysis suggests that not repaying can have adverse consequences for governments and their borrowing conditions in the medium run. Second, our findings are much more consistent with theory than previous empirical work, which mostly rejects the possibility that defaults have reputational consequences. In particular, our findings are in line with Eaton and Gersovitz (1981) and many related papers which build on this workhorse model.

We believe that further work is needed to better understand our findings. In particular, we did not identify a mechanism or channel that links haircuts and sovereign borrowing conditions. We also did not assess the determinants of high or low haircuts. This could be addressed in future research.

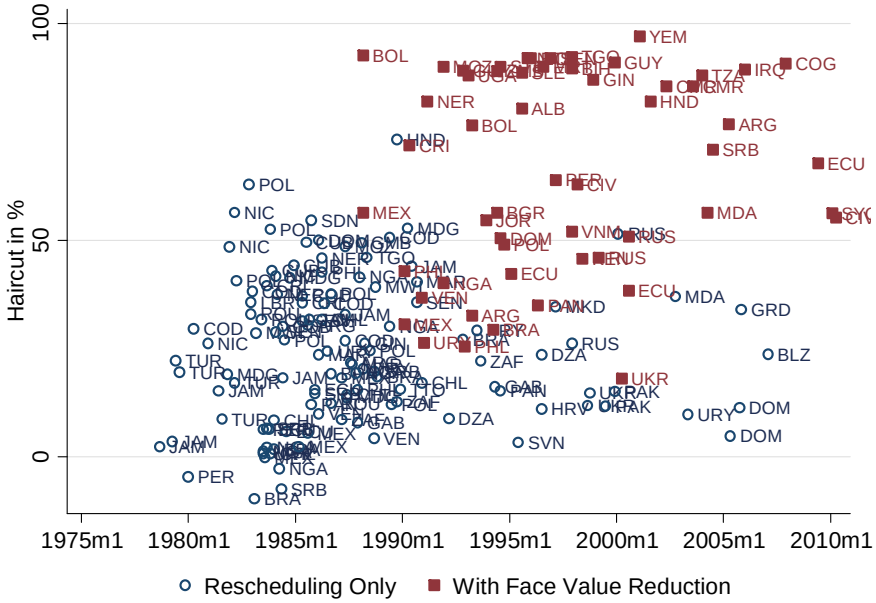
Figure 5.1: Haircuts and Deal Volumes over Time



The figure plots the size of haircuts in % (H_{SZ} from eq. 2) across countries and time. The circle size reflects the volume of debt restructured in constant US Dollars (US$ of 1980).

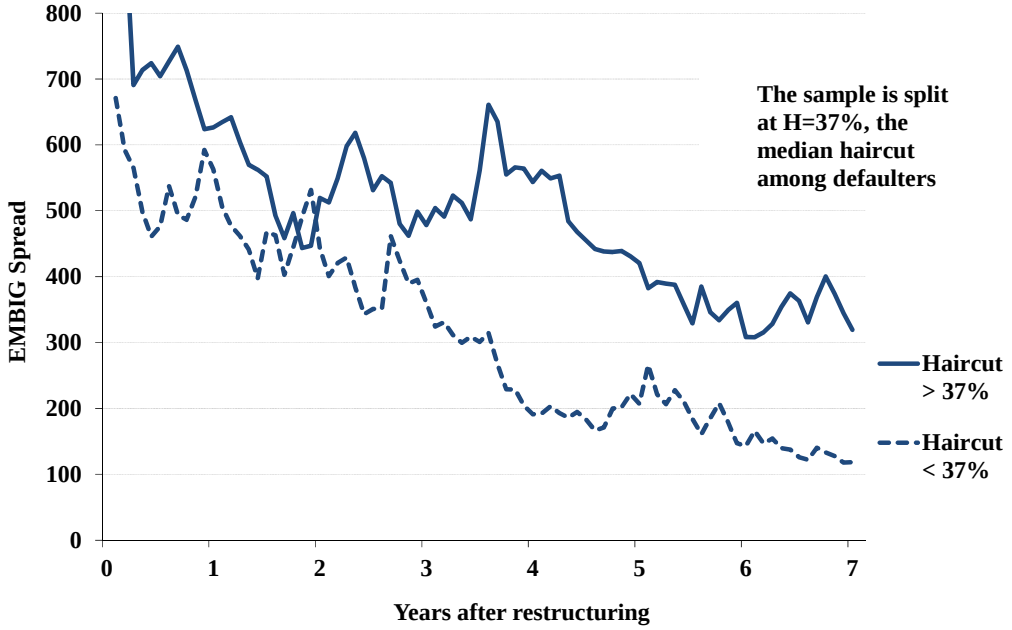
Negative haircuts typically result from those restructurings in which the interest rate on the new debt exceeds the market discount rate prevailing at the time. Any lengthening of maturities will then increase the present value of the restructured debt, instead of decreasing it, so that *H* turns negative. While these look like bad deals for the government, a successful restructuring can buy time and avoid disorderly default. In severe distress, these benefits can outweigh the drawback of accepting a deal at unfavorable terms.

Figure 5.2: Restructurings with and without Debt Reduction



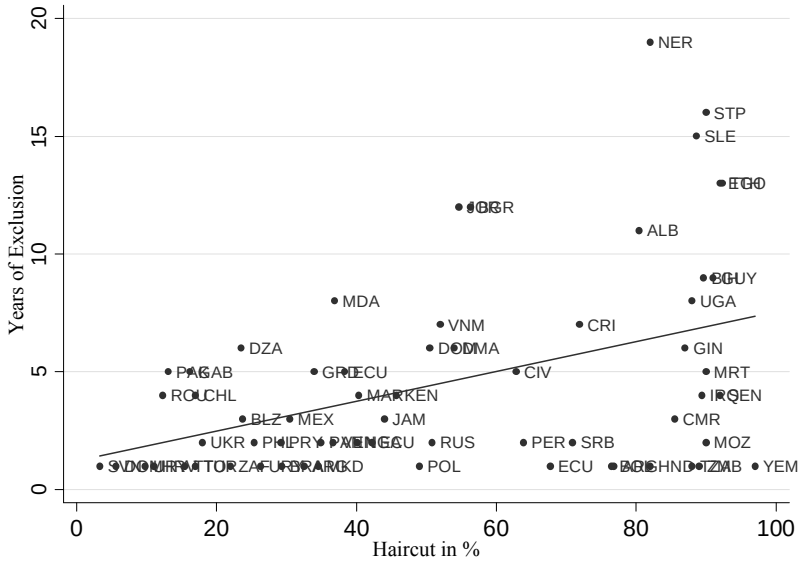
The figure plots the size of SZ haircuts for reschedulings, which only lengthen the maturities of old instruments, versus restructurings that imply a reduction in face value (debt write-off).

Figure 5.3: Haircut Size and Post-Restructuring Spreads



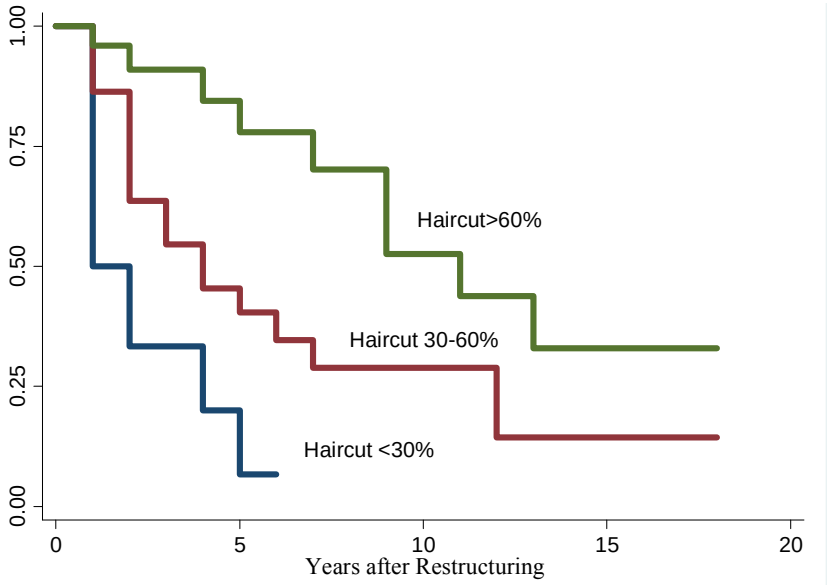
The figure shows that high-haircut countries tend to experience post-restructuring spreads that are about 200 basis points higher than low-haircut countries, especially in years 3 to 7 after the restructuring. Specifically, the figure splits the sample in restructurings with higher and lower than median (37%) haircuts and plots the respective average post-restructuring EMBIG stripped yield spread in event time. To avoid bias, we use the spread differential between defaulters and non-defaulters, as opposed to using the plain spread of defaulters. The reason is that we aim to purge the effect of common shocks and to control for the potential endogeneity in the timing of the restructuring decision (see text for details). Note, however, that the picture looks very similar when comparing plain spreads instead of spread differentials.

Figure 5.4: Haircut Size and the Duration of Exclusion



The figure plots the relationship between H_{SZ} and the years of exclusion from capital markets after the respective restructurings, 1980-2010. See Table 5.6 for the relevant list of cases. Reaccess here is defined as the first of the following two events: (i) issuance of a syndicated loan or bond on international markets that leads to an increase in indebtedness and/or (ii) a positive net transfer of foreign bond or bank credit to the public sector.

Figure 5.5: Kaplan-Meier Survival Functions for Duration of Reaccess



Note: The figure plots the survival function for "years until reaccess to capital markets" after 65 final restructurings, depending on the size of H_{SZ} (smaller than 30%, larger than 60%, or in between). The y-Axis denotes the Kaplan-Meier survival estimate for each function, which represents the unconditional, compound probability that countries remain excluded from capital markets for each year after the restructuring.

Table 5.1: Haircut Estimates by Type of Restructuring and Era

	Obs.	Mean	Std. Dev.	Min	Max
By Type of Estimate					
Market Haircut (eq. 1)	180	40.01	27.02	-9.80	97.00
SZ Haircut ("preferred", eq. 2)	180	37.04	27.28	-9.80	97.00
Face Value Reduction	180	16.77	30.55	0.00	97.00
By Type of Creditor					
Bank Debt Restructuring	162	37.05	27.90	-9.80	97.00
Bond Debt Restructuring	18	36.97	21.60	4.70	76.80
Rescheduling vs. Debt Reduction					
Rescheduling Only	123	24.15	16.67	-9.80	73.20
With Reduction in Face Value	57	64.84	24.94	-8.30	97.00
By Era					
1970-1989	99	25.57	18.83	-9.80	92.70
1990-1997	48	51.81	28.48	3.30	92.30
1998-2010	33	49.96	31.30	-8.30	97.00
By Type of Debtor					
HIPC or Donor Funded	23	87.03	6.97	62.80	97.00
All Other Countries	157	29.72	20.61	-9.80	92.70

The table shows summary statistics for different estimates and subsamples. The "type of estimates" refers to different haircut computation formula (section 5.3.1.). All other estimates are based on our "preferred" H_{SZ} haircuts from equation 2. "HIPC or Donor Funded" restructurings are those implemented in the poorest and highly indebted countries supported by the IDA debt reduction facility (World Bank 2007).

Table 5.2: Haircuts in Selected Recent Restructurings (1999-2007)

Restructuring Details							**Haircuts: Our Estimates**				**Comparison with Prior Estimates**					
Debtor Country	**Type of Debt**	**Date of Exchange**	**Anouncement of Restruct.**	**Default Date**	**Debt exchanged (in m USD)**	**Participation Rate**	**Preferred Haircut (SZ, eq. 2)**	Underlying Discount Rate	**Market Haircut (eq. 1)**	**Face Value Reduction**	**SZ (2006) average haircut**	**SZ (2006) haircut 10% DR**	**Benjamin & Wright (2009)**	**Finger & Mecagni (2007)**	**Bedford et al. (2005)**	**Diaz-Cassou et al (2008a,b)**
Pakistan	Bank debt	Jul-99	Aug-98	Aug-98	777	n.a.	**11.6**	0.132	12.0	0.0						
Pakistan	Bonds	Dec-99	Aug-99	Preemptive	610	99%	**15.0**	0.146	14.0	0.0	31	0.3	29	9-27	35	30
Ukraine	Bonds	Apr-00	Dec-99	Preemptive	1,598	97%	**18.0**	0.163	17.0	0.9	28.9	2.2	1	5	40	32
Ecuador	Bonds	Aug-00	Jul-98	Aug-99	6,700	98%	**38.3**	0.173	59.8	33.9	28.6	21	34	25	40	26
Russia	Bank/Bond debt	Aug-00	Sep-98	Dec-98	31,943	99%	**50.8**	0.125	62.0	36.4	52.6	48.2	32	44	50	48
Moldova	Bonds	Oct-02	Jun-02	Preemptive	40	100%	**36.9**	0.193	37.0	0.0	33.5		42	0-6		
Uruguay	Bonds	May-03	Mar-03	Preemptive	3,127	93%	**9.8**	0.090	9.0	0.0	12.9	7.8		8-20	15	14
Serbia & Montenegro	Bank debt	Jul-04	Dec-00	since 1990s	2,700	n.a.	**73.2**	0.097	70.9	59.3			57			62
Argentina	Bonds	Apr-05	Oct-01	Jan-02	43,736	76%	**76.8**	0.104	79.0	29.4	75	77.8	63	75	70	73
Dominican Rep.	Bonds	May-05	Apr-04	Preemptive	1,100	94%	**4.7**	0.095	4.1	0.0	1.5	1.6		1	5	1
Dominican Rep.	Bank debt	Oct-05	Apr-04	Feb-05	180	n.a.	**11.3**	0.097	16.0	0.0				2		
Grenada	Bonds	Nov-05	Oct-04	Preemptive	210	97%	**33.9**	0.097	41.0	0.0						
Iraq	Bank/Comm. Debt	Jan-06	in 2004	since 2003	17,710	96%	**89.4**	0.123	89.4	81.5						
Belize	Bank/Bond debt	Feb-07	Aug-06	Preemptive	516	98%	**23.7**	0.096	29.0	0.0						28
Ecuador	Bonds (Buy-Back)	June/Nov-09	Jan-09	Dec-08	3,190	n.a.	**67.7**	0.130	68.6	68.6						
Seychelles	Bonds	Feb-10	Mar-09	Jul-08	320	84 - 89%	**55.6**	0.107	56.0	50.0						
Cote D'Ivoire	Bonds	Apr-10	Aug-09	Mar-00	2,940	99%	**55.2**	0.099	52.0	20.0						

The table shows details for 17 main recent restructurings. It also compares our preferred haircut estimates H_{SZ} (highlighted in grey) to haircut estimates in previous studies. It is important to underline that the average haircuts by Sturzenegger and Zettelmeyer (2006, 2008) and those by the Bank of Spain and Bank of England staff (Benford et al 2005, Diaz-Cassou et al. 2008a,b) are computed in present value terms using country-specific discount rates. They can thus be directly compared to our H_{SZ} measure. In contrast, Finger and Mecagni (2007) mostly use a 10% discount rate, while Benjamin and Wright's (2009) estimates are based on nominal interest and principal forgiven, so that the results are not directly comparable.

Table 5.3: Description of Data and Variables used in Estimations

Variable	Description	Frequency	Source
Dependent Variables			
EMBIG Stripped Spread	Monthly average EMBIG stripped spread	Monthly	JP Morgan (MorganMarkets)
Reaccess	Dummy capturing the first of the following two events: (i) foreign syndicated loan or bond issuance (public or publicly guranteed) that leads to an increase in indebtedness, (ii) net transfer from private foreign creditors to the public sector	Yearly	Dealogic (primary market data of individual loans and bonds); Global Development Finance (aggregate data, series DT.NTR.PNGB.CD and DT.NTR.PNGC.CD)
Main Haircut Measures			
Haircut (M)	Market haircut (comparing par value of old debt with present value of new debt, see eq. 1)	Monthly/Yearly	Own Calculations
Haircut (SZ)	Haircuts computed in analogy to Sturzenegger and Zettelmeyer (comparing present value of old and new debt, see eq. 2)	Monthly/Yearly	Own Calculations
Control Variables			
High-yield bond spread	Barclays US Corporate High Yield spread (formerly Lehman Brothers)	Monthly/Yearly	Barclays Capital
US 10-year Treasury Yield	Yield on 10-year US Treasury bonds	Monthly/Yearly	US Treasury
Political Risk (ICRG)	Political Risk Index (lagged)	Monthly/Yearly	ICRG (Political Risk Group)
New Government	Dummy which takes the value of 1 for the first two years after a new government comes into power.	Yearly	Database of Political Institutions 2010 (see Beck et al. 2001), Variable "yrsoffc".
Credit Rating	Rating average of available ratings or only available rating.	Monthly (S&P, Moody's), Yearly (IIR)	S&P, Moody's (in EMBIG analysis), and Institutional Investor Magazine (in duration analysis)
Rating Residual	Residual from regression of ratings on fundamentals and credit history, lagged	Monthly/Yearly	Own Calculations, based on ratings data
Public Debt / GDP (in %)	Gross government debt to GDP (in %, lagged)	Yearly	Abbas et al. (2010)
GDP real growth (in %)	GDP real growth (yoy in %, lagged)	Yearly	World Development Indicators
Current Account to GDP (in %)	Current account to GDP, four-year moving average (in%, lagged)	Yearly	World Development Indicators
Primary Balance to GDP (in %)	Central government primary fiscal balance to GDP (in %, lagged)	Yearly	Economist Intelligence Unit
Reserves to Imports (in %)	Reserves (incl. gold) to Imports (in %, lagged)	Yearly	World Development Indicators
Inflation (in %)	Consumer price inflation (yoy in %, lagged)	Yearly	World Development Indicators
Population (log)	log of population size	Yearly	World Development Indicators
GDP per capita (PPP, log)	log of per capita GDP in purchasing power parity, lagged	Yearly	World Development Indicators

Table 5.4: Main Results for Haircuts and Bond Spreads

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	With lagged Restructuring Dummies (Previous Literature)	With lagged Haircuts ("preferred" haircut, SZ), Fixed Effects	With lagged Haircuts, controlling for Rating	With lagged Dummies and lagged Haircuts	With lagged Dummies and lagged Haircuts, with Rating	With Main Fundamentals (Eichengreen and Mody)	Full Model (Dell'Arriccia et al..)
Haircut (SZ), 1 year lag		6.75***	5.67***	6.46*	2.57	2.28	1.32
		(2.15)	(1.35)	(3.74)	(3.88)	(3.13)	(3.94)
Haircut (SZ), 2 year lag		4.73***	3.18***	6.18*	1.10	0.50	-0.96
		(1.79)	(1.07)	(3.24)	(2.66)	(3.60)	(3.24)
Haircut (SZ), 3 year lag		3.89**	3.10**	6.25*	4.15	3.84	3.11
		(1.87)	(1.48)	(3.29)	(2.97)	(3.27)	(2.67)
Haircut (SZ), 4 & 5 year lag		3.16**	2.86**	7.44***	5.50***	5.08***	5.08***
		(1.38)	(1.29)	(2.11)	(1.48)	(1.50)	(1.27)
Haircut (SZ), 6 & 7 year lag		0.80	0.86	9.01***	6.08***	7.36***	7.34***
		(1.41)	(1.03)	(1.96)	(1.54)	(1.85)	(1.65)
Restructuring Dummy, 1 year lag	262.54***			9.00	135.88	-32.31	103.79
	(99.99)			(172.59)	(200.04)	(183.07)	(227.33)
Restructuring Dummy, 2 year lag	151.23**			-80.79	73.30	-32.59	100.57
	(72.25)			(115.03)	(122.52)	(143.40)	(159.46)
Restructuring Dummy, 3 year lag	103.69			-124.10	-66.92	-198.99	-115.96
	(82.07)			(121.89)	(116.34)	(125.40)	(105.87)
Restructuring Dummy, 4 & 5 year lag	51.91			-217.19**	-128.33*	-229.77***	-186.53**
	(63.68)			(86.32)	(67.26)	(89.14)	(72.91)
Restructuring Dummy, 6 & 7 year lag	-56.24			-367.05***	-218.41***	-365.68***	-281.61***
	(58.88)			(84.45)	(74.20)	(88.02)	(74.92)
Rating (Residual)			-55.60***		-51.67***		-36.38***
			(12.44)		(11.21)		(10.44)
Public Debt to GDP						5.44***	3.17***
						(0.73)	(1.08)
GDP real growth						-6.26**	-5.43**
						(2.67)	(2.67)
Reserves to Imports							-1.01
							(1.22)
Inflation							0.12*
							(0.07)
Primary Balance to GDP							-9.03*
							(5.05)
Current Account to GDP							-13.25***
							(4.50)
Political Risk (ICRG)						-8.04***	-7.95***
						(2.99)	(2.82)
High-yield bond spread	60.26***	60.19***	58.30***	60.69***	58.55***	57.19***	54.82***
	(6.69)	(6.68)	(6.82)	(6.68)	(6.82)	(7.00)	(7.23)
Constant	-128.19	-115.54	-320.99***	-87.70	-274.90**	243.63	248.89
	(131.94)	(107.25)	(117.92)	(115.24)	(113.70)	(258.13)	(250.42)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,369	5,369	4,969	5,369	4,969	4,808	4,269
R2	0.42	0.42	0.46	0.44	0.47	0.52	0.51
Adjusted R2	0.42	0.42	0.45	0.44	0.47	0.52	0.51

The table shows coefficients of an unbalanced panel data regression with robust, country-clustered standard errors and country and year fixed effects. The dependent variable is the monthly average country spread to US treasury bonds (plain EMBIG stripped spread), while the key explanatory variables are the lagged values of H_{SZ} up to 7 years after each final restructuring. Note that the coefficients of the lagged restructuring dummies in specifications 4 to 7 cannot be interpreted as unconditional marginal effects, but only conditional on H_{SZ}.

Table 5.5: Robustness Checks for Haircuts and Bond Spreads

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SUBSAMPLES (Using SZ Haircut)					**OTHER HAIRCUT MEASURES**		
	Main Model	Post-1998 Only	Without Argentina, Iraq, Russia	Defaulters Only	Excluding High H cases (H>0.37)	With Market Haircut	With Effective Haircut	With Face Value Haircut
Haircut, 1 year lag	0.95	1.66	-0.26	1.02	17.81*	1.37	-0.86	-0.41
	(3.75)	(4.05)	(4.59)	(3.79)	(9.78)	(4.01)	(2.74)	(3.80)
Haircut, 2 year lag	-1.15	-1.84	3.25	-1.11	14.27	0.18	1.20	0.58
	(3.36)	(3.56)	(3.27)	(2.84)	(9.25)	(3.17)	(1.49)	(4.25)
Haircut, 3 year lag	3.30	2.16	8.11***	3.18	16.89**	5.06*	4.57**	7.18*
	(2.66)	(2.34)	(2.33)	(2.18)	(6.92)	(2.76)	(2.00)	(3.87)
Haircut, 4 & 5 year lag	4.44***	4.73***	5.36***	3.70***	16.06**	5.38***	4.04**	0.04*
	(1.40)	(1.73)	(1.98)	(1.27)	(6.72)	(1.74)	(1.71)	(0.02)
Haircut, 6 & 7 year lag	6.31***	6.71***	7.21***	5.77***	16.65***	6.39***	4.35***	0.07***
	(1.53)	(1.52)	(1.69)	(1.31)	(5.57)	(1.66)	(1.68)	(0.02)
Restructuring Dummy, 1 year lag	61.76	51.39	111.16	5.79	-223.92	50.25	132.68	112.38
	(212.52)	(258.47)	(244.30)	(207.98)	(275.55)	(240.04)	(163.28)	(155.11)
Restructuring Dummy, 2 year lag	38.53	64.75	-67.70	-3.66	-275.05	-2.56	-9.24	-10.55
	(151.30)	(176.54)	(145.93)	(133.16)	(224.89)	(154.09)	(98.63)	(104.26)
Restructuring Dummy, 3 year lag	-188.33*	-182.45*	-302.14***	-216.54***	-488.41***	-268.36***	-207.56***	-178.42***
	(103.85)	(104.52)	(82.96)	(83.60)	(166.84)	(100.61)	(77.01)	(68.31)
Restructuring Dummy, 4 & 5 year lag	-182.60**	-224.38**	-189.62**	-179.63**	-414.05**	-242.56**	-140.63*	-88.82
	(80.33)	(100.81)	(92.79)	(69.96)	(163.47)	(94.21)	(74.18)	(73.17)
Restructuring Dummy, 6 & 7 year lag	-287.12***	-323.77***	-307.95***	-295.55***	-509.54***	-331.84***	-201.47***	-167.83***
	(81.46)	(75.62)	(84.89)	(63.87)	(113.19)	(82.66)	(74.37)	(62.49)
Rating (Residual)	-38.14***	-40.17**	-37.82***	-50.57***	-45.90***	-37.25***	-46.48***	-38.16***
	(11.10)	(16.34)	(12.11)	(14.57)	(14.03)	(10.43)	(11.84)	(11.90)
Public Debt to GDP	4.32***	4.92***	4.20***	4.33***	4.14***	4.33***	4.67***	4.55***
	(0.97)	(1.24)	(1.18)	(1.20)	(1.40)	(0.94)	(0.87)	(1.01)
GDP real growth	-8.74***	-7.92***	-7.91***	-12.44***	-7.70***	-8.01***	-8.40***	-8.82***
	(2.51)	(2.84)	(2.71)	(2.73)	(2.52)	(2.50)	(2.39)	(2.44)
Political Risk (ICRG)	-7.19**	-7.86***	-7.16**	-9.76***	-5.94**	-7.41***	-5.47**	-6.83**
	(2.81)	(2.97)	(2.91)	(3.78)	(2.93)	(2.67)	(2.76)	(2.92)
High-yield bond spread	56.98***	57.26***	54.92***	62.68***	55.04***	56.92***	57.29***	56.80***
	(7.03)	(7.02)	(7.17)	(9.43)	(7.35)	(7.01)	(7.02)	(7.00)
Constant	87.76	-61.12	83.70	257.50	-149.87	99.34	-92.25	46.79
	(235.23)	(201.43)	(235.67)	(330.57)	(230.07)	(216.19)	(212.06)	(240.94)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,562	4,041	4,290	3,023	3,870	4,562	4,354	4,562
R2	0.50	0.51	0.52	0.55	0.52	0.50	0.51	0.50
Adjusted R2	0.50	0.51	0.52	0.54	0.51	0.50	0.51	0.49

Note: The table shows coefficients of a fixed effects panel data regression with robust, country-clustered standard errors. The dependent variable is the monthly average country spread to US treasury bonds (plain EMBIG stripped spread), while the key explanatory variables are lagged values of various haircut measures up to 7 years after each final restructuring. The Market Haircut is described in equation 1. The Face Value Haircut captures the percent of debt written off, but ignores changes in the debt's present value. The Effective Haircut takes into account the percentage of total debt owed to private creditors, which is affected by the haircut (see main text for further details). Note that the coefficients of the lagged restructuring dummies cannot be interpreted as unconditional marginal effects, but only conditional on the size of haircut in the respective restructuring.

Table 5.6: Overview on Restructuring Cases and Reaccess Years

				Main Definition (Flows to PUBLIC sector)		**Robustess Check** (Flows to PUBLIC or PRIVATE)
				Partial Reaccess (Flows > 0)	Full Reaccess (Flows > 1% of GDP)	Partial (> 0), including flows to private sector
Nr	Country	HIPC	Year of Restructuring	Year of Reaccess	Year of Reaccess	Year of Reaccess
1	Albania		1995	2006	2008	2004
2	Argentina		1993	1994	1994	1994
3	Argentina		2005	2006		2006
4	Bulgaria		1994	2006	2006	1996
5	Bosnia & Herzegov.		1997	2006	2006	2001
6	Belize		2007			
7	Bolivia	1	1993	1994		1994
8	Brazil		1994	1995	2000	1995
9	Chile		1990	1994	1998	1991
10	Cote d'Ivoire	1	1998	2003	2003	2003
11	Cote d'Ivoire	1	2010			
12	Cameroon	1	2003	2006		2006
13	Costa Rica		1990	1997	1998	1992
14	Dominica		2004			
15	Dominican Rep.		1994	2000	2001	2000
16	Dominican Rep.		2005	2006	2006	2006
17	Algeria		1996	2002		2002
18	Ecuador		1995	1997	1997	1997
19	Ecuador		2000	2005	2005	2001
20	Ecuador		2009			
21	Ethiopia	1	1996	2009	2009	2009
22	Gabon		1994	1999	2007	1999
23	Guinea	1	1998	2004		2004
24	Gambia	1	1988			
25	Grenada		2005			
26	Guyana	1	1999	2008	2009	2008
27	Honduras	1	2001	2002	2004	2002
28	Croatia		1996	1997	1997	1997
29	Iraq		2006			
30	Jamaica		1990	1993	1998	1993
31	Jordan		1993	2005	2005	2005
32	Kenya		1998	2002	2009	2002
33	Morocco		1990	1994	2003	1993
34	Moldova		2002			2003
35	Mexico		1990	1993	1993	1991
36	Macedonia		1997	1998	2003	1998
37	Mozambique	1	1991	1993		1992
38	Mauritania	1	1996	2001		2001
39	Malawi	1	1988			1989
40	Niger	1	1991			
41	Nigeria		1991	1993	2008	1993
42	Pakistan		1999	2004	2006	2004
43	Panama		1996	1998	1998	1997
44	Peru		1997	1999	1999	1998
45	Philippines		1992	1994	1994	1993
46	Poland		1994	1995	1995	1995
47	Paraguay		1993	1995	1999	1994
48	Romania		1986	1990	1992	1990
49	Russia		2000	2002	2002	2002
50	Senegal	1	1996	2000	2009	1997
51	Sierra Leone	1	1995			
52	Serbia		2004	2006		2005
53	Sao Tome & Principe	1	1994			
54	Slovenia		1995	1996	1996	1996
55	Togo	1	1997			
56	Trinidad & Tobago		1989	1990	1992	1990
57	Turkey		1982	1983	1983	1983
58	Tanzania	1	2004	2005		2005
59	Uganda	1	1993	2001		2001
60	Ukraine		2000	2002	2002	2001
61	Uruguay		1991	1992	1994	1992
62	Uruguay		2003	2004	2004	2004
63	Venezuela		1990	1992	1992	1992
64	Vietnam		1997	2004	2005	2004
65	Yemen		2001	2002		2002
66	South Africa		1993	1994	1994	1994
67	Zambia	1	1994	1995		1995

Table 5.7: Main Results for Haircuts and Years of Exclusion

	Plain	With Sovereign Rating	With Political Risk	Population and GDP	External Financing Conditions	Country Funda-mentals	Full Model	Full Model without HIPCs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Haircut (SZ, in %)	-0.037***	-0.034***	-0.031***	-0.027***	-0.032***	-0.034***	-0.024***	-0.038***
	(0.008)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.008)	(0.010)
Credit Rating (Residual)		0.068***						
		(0.024)						
Political Risk (ICRG)			0.037					
			(0.028)					
GDP per capita (log)				0.774***			0.826***	0.501
				(0.206)			(0.281)	(0.424)
Population (log)				0.414***			0.159	0.326
				(0.102)			(0.189)	(0.240)
High-yield bond spread					-0.132*			
					(0.080)			
US Treasury 10-year Bond Yield					0.136			
					(0.143)			
Primary Balance (in % to GDP)						-0.094**	-0.071*	-0.065*
						(0.044)	(0.038)	(0.038)
Public Debt (in % to GDP)						-0.031***	-0.021*	-0.007
						(0.010)	(0.012)	(0.015)
Growth (real, p.a.)						-0.064	-0.050	0.017
						(0.072)	(0.070)	(0.094)
Inflation (real, p.a.)						0.002	0.002	0.001
						(0.001)	(0.002)	(0.001)
Reserves to Imports (in %)						0.002	-0.003	-0.007
						(0.005)	(0.006)	(0.008)
Time Fixed Effects (year dummies)	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of Observations	322	272	276	322	321	237	237	133
No of Cases	65	61	54	65	64	52	52	37
Log-Likelihood	-109.24	-98.12	-87.96	-100.80	-120.71	-75.89	-72.67	-57.84
BIC	339.750	353.202	327.679	334.406	276.057	310.356	309.385	228.162

The table shows coefficients (not hazard rates) of a Cox proportional hazard model. Here, a negative sign indicates that higher values of that variable imply longer exclusion duration, but coefficients need to be exponentiated for easier interpretation (see main text). Our duration measure captures the time between a restructuring and the first year with (i) an issuance of a public or publicly guaranteed bond or syndicated loan on international markets and/or (ii) positive net credit flows to the public sector of the debtor country. Column 8 excludes highly indebted poor countries from the sample.

Table 5.8: Robustness Analysis of Exclusion Duration

	Benchmark	Different Definitions of Market Access			Different Haircut Measures	
	SZ haircut, Partial access	**Full Access** (flows > 1% of GDP)	**Primary Market Access** only (Gelos et al.)	Incl. **Access by Private** (Richmond and Dias)	With **Market Haircut**	With **Face Value Haircut**
	(1)	(2)	(3)	(4)	(5)	(6)
Haircut (in %)	-0.025***	-0.022***	-0.019**	-0.021*	-0.026***	-0.013
	(0.009)	(0.007)	(0.009)	(0.012)	(0.008)	(0.009)
Rating (Residual)	0.012	0.000	0.044**	0.095***	0.009	0.022
	(0.031)	(0.024)	(0.022)	(0.032)	(0.031)	(0.031)
Population	0.361**	0.210**	0.588***	0.275*	0.389**	0.338**
(log)	(0.155)	(0.096)	(0.182)	(0.152)	(0.163)	(0.171)
GDP per capita	0.928***	1.089***	0.956***	0.245	0.988***	1.016***
(log)	(0.246)	(0.293)	(0.302)	(0.254)	(0.251)	(0.249)
Public Debt	-0.004	-0.021***	-0.006	-0.005	-0.003	-0.008
(in % to GDP)	(0.008)	(0.008)	(0.011)	(0.010)	(0.009)	(0.010)
Growth	0.025	-0.015	0.024	-0.058	0.022	0.024
(real, p.a.)	(0.053)	(0.057)	(0.063)	(0.051)	(0.053)	(0.056)
Inflation	0.002	0.000	0.002	0.010	0.002*	0.003*
(real, p.a.)	(0.001)	(0.002)	(0.002)	(0.016)	(0.001)	(0.001)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
No of Observations	249	403	338	187	249	249
No of Cases	57	60	58	56	57	57
Log-Likelihood	-83.22	-86.60	-84.41	-99.42	-83.14	-84.95
BIC	315.41	341.18	326.04	350.54	315.25	318.87

Note: The table shows coefficients (not hazard rates) of a Cox proportional hazard model. The dependent variable measures years from a restructuring until reaccess to capital markets.

"Full reaccess" in column 2 is defined as the first year in which (i) the volume of bond issuances or new syndicated loans on international markets surpass 1% of GDP and/or (ii) net debt flows to the public sector of the debtor country, surpass 1% of GDP. The dependent variable in column3 captures only primary market placements, thus measuring the number years from the restructuring until the first international bond issuance or syndicated loan by the government or a publicly guaranteed entity. The dependent variable in column 4 is the same as our baseline definition of "partial access" but also takes into account capital flows to the private sector. Columns 5 and 6 use different haircut measures. The Market Haircut is described in equation 1. The Face Value Haircut captures the percent of debt written off, but ignores changes in the debt's present value. The Effective Haircut takes into account the percentage of total debt owed to private creditors, which is affected by the haircut (see main text for further details).

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Appendices to Chapter 5

Appendix 5.A1: Case Selection and Sample

We analyze the entire universe of sovereign debt restructurings with foreign commercial creditors (banks/bondholders) in the period 1970 to 2010. Five key criteria define our selection of cases:

1. We focus on sovereign debt restructurings, defined as restructurings of public or publicly guaranteed debt. Restructurings of private-to-private debt are not taken into account even when large-scale workouts of private sector debt were coordinated by governments, such as in Korea 1997 or Indonesia 1998.

2. We include restructurings with foreign private creditors only, thus excluding debt restructurings that predominantly affected domestic creditors and those affecting official creditors, including those negotiated under the chairmanship of the Paris Club. Foreign creditors include foreign commercial banks (i.e. "London Club"[109] creditors) as well as foreign bondholders. For recent deals, we follow the categorization into domestic and external debt exchanges of Sturzenegger and Zettelmeyer (2006, p. 263). We therefore explicitly include two domestic debt restructurings but only because they mainly involved external creditors: Russia's July 1998 GKO exchange and Ukraine's August 1998 exchange of OVDP bonds.

3. We focus on distressed debt exchanges, defined as restructurings of bonds (bank loans) at less favorable terms than the original bond (loan). We thereby follow the definition and data provided by Standard & Poor's (2005, 2011). Restructurings that are part of routine sovereign liability management such as debt swaps and buy backs in normal times are disregarded.

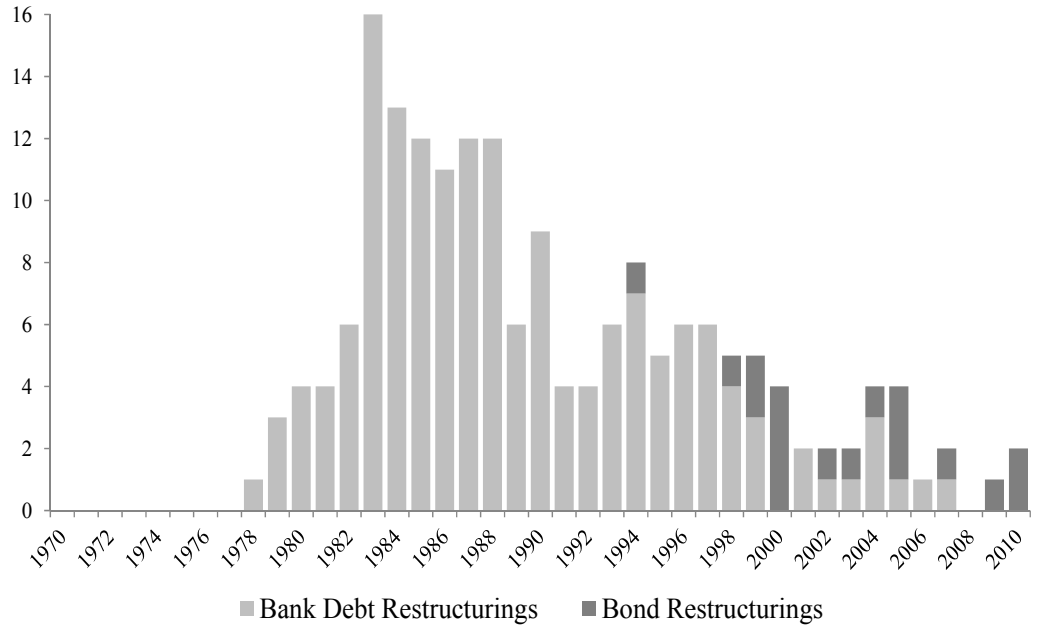
4. We restrict the sample to medium and long-term debt restructurings only. We thus disregard short-term agreements, such as 90-day debt rollovers or the maintenance of short-term credit lines (e.g. trade credit). We also exclude agreements with maturity extension of less than a year. We do include, however, cases in which short-term debt is exchanged into debt with a maturity of more than one year.

[109] The term "London Club" is often used to describe negotiations conducted under the chairmanship of a bank advisory committee (or steering committee). These committees of five to twenty major banks met regularly with government representatives of defaulting countries to negotiate the restructuring terms on behalf of all affected banks. Most bank debt restructurings of the 1980s and 1990s were arranged in a London Club framework (See Rieffel 2003, chapter 6, for an excellent account).

5. We only regard restructurings that are actually implemented, thus ignoring cases in which negotiations where never concluded or in which an agreement in principle or an exchange offer were never finalized.

Based on these selection criteria, we identify 182 sovereign debt restructurings with private creditors since 1970, in 68 countries. Note that we were able to gather sufficient data to compute haircuts for all of these cases, except for the cases of Togo 1980 and 1983. This means that our final sample of cases covers 180 debt restructurings with banks and bondholders since 1970. Figure 5.A1 provides an overview of cases per year 1970-2010.

Figure 5.A1: Sovereign Debt Restructurings with Private Creditors, 1950-2010



The graph shows that there have been no restructurings in the early and mid-1970s. Furthermore, it illustrates that sovereign bond restructurings have reentered the sovereign debt universe only after the Brady plan of the early 1990s, which exchanged bank loans into new bond instruments. Since 1998, there have been 17 distressed sovereign bond exchanges with foreign bondholders, in 13 countries. This does not mean, however, that bank debt restructurings are a phenomenon of the past. Recent loan restructurings include a number of debt buy-backs in low-income countries, but also bank debt restructurings such as in Pakistan 1999, in Serbia and Montenegro 2004, in the Dominican Republic 2005, or in Iraq 2006.

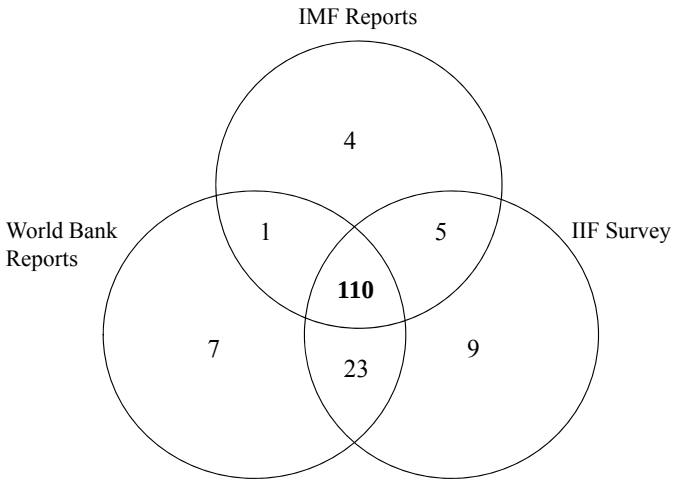
Appendix 5.A2: Data Sources and Data Quality

5.A2.1. Data Sources on Restructuring Terms

When starting this project, there was no single standardized source providing the degree of detail, reliability and completeness necessary to set up a satisfactory database of cash flow and haircut estimates for the period after World War II. We therefore gathered data from all publicly available lists on restructuring terms and many further sources, including articles in the financial press and from the IMF archives.

Overall, our information set is based on 29 documents containing systematic lists with debt restructuring terms, as well as more than 150 additional sources such as books, academic articles, policy reports, offering memoranda, and press articles. Among the many sources, some are much more important than others. In particular, we build heavily on three publication series, in descending order of relevance: (i) a series of reports providing detailed and high-quality coverage on debt restructuring terms from the IMF (1986, 1990, 1991, 1993, 1995), (ii) a detailed survey collected by the Institute of International Finance (IIF 2001) and (iii) various issues of "World Debt Tables" and "Global Development Finance" (GDF hereafter) published by the World Bank between 1991 and 2007 .

Figure 5.A2: Case Coverage across Main Sources



Note: Our three main sources, the IMF restructuring lists, IIF 2001 and the World Bank restructuring lists cover 159 cases out of 180. The remaining 21 restructurings are covered by various other sources, including Sturzenegger and Zettelmeyer (2006), financial press, offering memoranda, country specific IMF reports, case studies etc.

Figure 5.A2 depicts the number of cases covered by each combination of our three main sources and shows that there is a considerable overlap, with 109 cases covered

by all three of them. However, a total of 21 cases are not covered by the main lists, so that we had to rely on additional sources.

For the more recent period, a key source was Sturzenegger and Zettelmeyer (2006, 2007, and 2008, referred collectively as SZ hereafter). These authors generously shared their database of bond-by-bond haircut calculations covering restructurings in eight countries since 1998. For the earlier part of our sample, a valuable archive was the list of debt restructuring terms in Stamm (1987) covering the period from 1956 to 1985.[110]

In addition, we gathered information from the financial press, from the IMF Archives, from published IMF country reports, from case studies by various authors and from offering memoranda or press releases on debtor government websites. To identify many of these sources we draw extensively on the qualitative information collected by Enderlein, Trebesch and von Daniels (2010) and Trebesch (2011). Their data collection is based on 20,000 pages of crisis related press articles[111], as well as numerous policy reports, academic articles and books.

While we collected many sources, we generally relied on only one primary source and, sometimes, one or two additional sources for the final calculations. Table 5.A1 provides an overview, while exact sources for each case are documented in section B.

Table 5.A1: Overview of Sources as used in the Calculations

Primary Source	IMF	IIF	SZ	Press	WB	Stamm	Other	Sum
	99	46	14	7	6	0	8	180
Secondary Sources								
IMF	--	8	0	0	1	5	0	14
IIF	11	--	0	0	0	0	0	11
SZ	0	0	--	0	0	0	0	0
Press	5	4	0	--	0	0	6	15
WB	4	3	0	0	--	0	0	7
Stamm	5	0	0	0	0	--	0	5
Other	5	4	1	5	3	0	--	18

SZ stands for Sturzenegger and Zettelmeyer (2006, 2007, 2008), Stamm stands for Stamm (1987). The IMF, IIF and Word Bank (WB) provide detailed lists with restructuring terms.

[110] The list provided in Stamm (1987) was originally assembled for a book draft by Ulrich Pfister and Christian Suter, which, however, was never published.

[111] The press search in these papers was conducted using the online news database *Factiva* and entailed a standardized search in six flagship media sources: The Financial Times, Reuters, The Wall Street Journal, Dow Jones News Service, The New York Times and Associated Press. To identify relevant articles the search algorithm "countryname w/10 debt" was used.

5.A2.2. Data Quality and Scope of Information

With no single reliable dataset available, we adopt several strategies to minimize errors and guarantee high data quality and completeness. First, we systematically collect and compare the available information across all our sources. Second, we also report a data quality index for each restructuring, to be as transparent as possible with regard to the quality of our calculations.

Comparing Data Sources

For each restructuring deal, we gathered information from at least two, but mostly from three or more independent sources. To minimize errors, we started by merging the information contained in the main lists of restructuring terms by the IMF, IIF and World Bank, as well as by Stamm (1987) and SZ. We then compared restructuring details as provided by each source, in particular the information on agreement dates, maturity, grace period, interest rate, repayment schedule, and any further key characteristics on the debt restructured. In case we faced contradictory information across sources, we collected as much additional information as possible, especially from the financial press and from the IMF archives. This detailed comparison exercise enabled us to fill most data gaps and correct many minor inaccuracies contained in the individual sources. It also revealed notable differences in the content and scope of the available sources.

For the 1980s and 1990s, the IMF and IIF reports were more detailed than the other available sources.[112] They are therefore used as primary source for coding in most restructurings (together 145 cases). For the more recent period, the most reliable source is the data by SZ, which we use whenever available (14 cases). We also found vdetailed information in Finger and Mecagni (2007), in IMF country reports, offering memoranda and in the International Financing Review, a weekly investor magazine.

To our surprise, the information contained in GDF reports by the World Bank are sometimes incomplete, imprecise, or outright wrong.[113] This is relevant, because GDF data and the restructuring lists in the related reports are widely used in the literature, amongst others, by Arteta and Hale (2008), Benjamin and Wright (2009), Detragiache and Spilimbergo (2001) and Pescatori and Sy (2007). For a non-negligible number of cases, we found the World Bank lists to miss restructuring deals, to omit important details, to provide wrong figures on the amount of debt restructured, or to identify a date as restructuring date, when it was only a principal agreement. Therefore, the

[112] An exception is the subset of Brady deal restructurings, for which the GDF lists provide very detailed information.
[113] The errors and omission became evident after comparing the details in the World Bank reports with the restructuring lists by the IIF and IMF, and re-checking that information with details from the press, case studies, official debtor country websites or offering memoranda.

World Bank reports are used as primary source for only 6 out of 180 cases in our sample.

Data Quality Index

We create an index of data quality, capturing the depth and validity of information available for each restructuring. The index consists of five components, each coded as a binary variable. The result is a composite index with a maximum of 5 (excellent scope of information) and a minimum of 0 (no criterion fulfilled, only basic information available).

The five indicators are:

1. Knowledge of when the restructuring is implemented. This includes the exact month of the agreement and whether a deal was ultimately implemented or not (fulfilled in all cases).
2. Knowledge of the key characteristics of the new debt issued, including the type of debt and the amounts restructured, as well as the maturity, grace period and interest rate of the new instruments (fulfilled in 175 cases, 97%);
3. Knowledge of the key characteristics of the old debt being restructured. This includes knowledge on which parts of the outstanding debt has fallen due or, for parts still to mature, main characteristics such as the interest rate, maturity and redemption profile (fulfilled in 122 cases, 68%);
4. Full consistency of information across all available sources. This includes all key characteristics, in particular the date, volumes, interest rate and repayment schedule (fulfilled in 93 cases, 52%);
5. Whether restructuring terms are available by instrument, i.e. loan-by-loan or bond-by bond (fulfilled in 49 cases, 27%);

The coding of these indicators for each case reveals interesting patterns. Table 5.A2 plots the data quality index over time, showing a clear upward trend. The maximum index value of 5 is fulfilled in only 24 restructurings of the 1990s and 2000s.

Table 5.A2: Data Quality Across Time

Data Quality Index Value (1-5)	1970s	1980s	1990s	2000s	Nr. of Restructurings
1	0	0	0	0	0
2	1	21	2	0	24
3	0	52	20	5	77
4	3	21	25	6	55
5	0	0	11	13	24
Nr. of Restructurings	4	94	58	24	180

The table plots the distribution of our Data Quality Index by decade. The index is calculated for each of the 180 debt restructurings. As can be seen, average data quality has increased notably over time.

More specifically, the terms of new debt instruments could be collected for almost all restructurings. The same is true for information on the date and implementation of agreements (partly taken from Trebesch 2008). Knowledge of the terms of the old debt was harder to come by, with details being available in only 68% of the cases. This means that, for about a third of the cases, we have to make simplifying assumptions to calculate H_{SZ} (see section A3.1). Similarly, we could gather bond-by-bond and loan-by-loan information for only about a fifth of debt restructurings, including all bond restructurings of recent years and most Brady deals. Finally, it is striking that a full consistency across sources is fulfilled for only about one half of the sample. This underlines the necessity to collect (and compare) data from more than one source.

Appendix 5.A3: Computation Methodology

We next review in detail the methodology used to compute haircuts. We first discuss our approach to compute cash flows of the old and new debt, and end with a detailed account of our computation of discount rates specific to each restructuring.

5.A3.1. Computation of Cash Flow Streams: Details and Assumptions

Timing: We use the month of the final agreement for bank loan restructurings or the date of the debt exchange for bond debt restructurings as a baseline date to compute cash flows streams and to identify the discount rates applied. This is the beginning of year 1 in the event timeline. From there, all cash-flows are computed on an annual basis, so within-year interest and principal repayments are added up. Accordingly, we compute the first due amount in the cash flow stream to occur exactly 12 months after the final agreement –which would be the end of year 1 in event time.

Principal Repayment: Grace Period and Maturity: Information on grace periods and maturity is readily available for all restructurings. For many deals we also know the exact repayment timeline, i.e. which percent of the principal is due in every future month. When the exact redemption timeline is unknown we assume repayment in equal yearly tranches between the end of the grace period and the year of maturity. This assumption, which applies mostly to deals of the 1980s and 1990s, is in line with the terms of most commercial restructurings during the time and also follows standard Paris Club practice until the late 1990s (see Rieffel 2003, p. 87).

Interest / Coupon Payments: In case of fixed interest rates, the amount of annual interest payments can be easily computed. During the 1980s and 1990s, however, interest payments where typically the sum of a floating reference rate (such as the US London Interbank Offered Rate, Libor) and a spread above this rate. In this latter case it is necessary to assume an expected path of those future rates at the time that the debt instrument is being valued. To do this, we construct Libor forward rates using the settlement price of Eurodollar contracts traded at the Chicago Mercantile Exchange at the end of each month. The price data were obtained from the Futures Industry Institute and from Bloomberg.

At each point time, we fitted a cubic polynomial through all the available 90-day implicit Libor futures rates. From the estimated Libor futures curve, we extracted the rates prevailing for day 90 and for all of its multiples until the farthest futures contract available at that point in time (180 days, 270, 360, 450, 540, etc.). Since our valuation methodology computes annual interest payments, we next computed the average of the future Libor rates prevailing during the first year, the second year, etc. When the

valuation horizon exceeded the farthest available futures contract, we assumed a flat yield curve thereafter.[114] Before the inception of Eurodollar futures contracts in December 1982, we assumed a flat Libor yield curve fixed at the one year spot which we took from the IMF's International Financial Statistics. These future rates would have been the fixed rate of an interest rate swap if the debt holder wanted to trade his right for variable coupons for a fixed rate on the restructuring month.

Aggregation: Whenever disaggregated information on the old and new debt is available loan-by-loan and bond-by-bond we take advantage of it. However, such information is not always available, particularly in the early part of our sample. In the 1970s and early 1980s, for example, restructurings often imposed the same terms on a bundle of loans with no information on the composition and detailed characteristics of the instrument exchanged. In these cases we simply compute a single discounted cash flow stream and haircut for all of the debt. In the late 1980s more and more deals imposed differing terms across (aggregated) subcomponents of restructured debt. The same is true for the Brady deals of the 1990s, which typically allowed creditors to choose from a menu of three or four different instruments. For these cases, we calculate individual haircuts for each of the instruments/debt bundles and compute an average haircut that is weighted by debt volumes. Also for two more recent restructurings (Argentina 2005, Uruguay 2003) we aggregate instruments for ease of calculation so as to get summary debt service streams for subsets of similar bonds being exchanged. Aggregating across instruments is unlikely to have a major impact on the results, but simplifies our calculations significantly.[115]

Computing *PV Old*: Computing H_{SZ} type haircuts from equation (2) requires calculating *PV Old*, which is computed analogously to *PV New,* i.e. using the same set of assumptions, the same Libor forward rates and the same discount rates. For consistency, we also use the same US dollar reference amounts to derive payment streams of the new and the old debt, except of cases with face value reduction or debt forgiveness. Note also that, for simplicity, we only discount cash flows on the old instruments if their remaining maturity exceeds one year. We thus disregard negligible, intra-year differences between discounted and face value.

Due to data constraints, especially for the 1970s and 1980s, the detailed characteristics of old instruments are not always available. If this is the case, we derive approximate principal and interest payments in the following way.

[114] For debts whose interests are tied to 180-day Libor, we proceeded in the same way though in this case we previously compounded the future 90-day Libor rates to obtain 180-day rates.

[115] Sturzenegger and Zettelmeyer (2008, p. 789) acknowledge that the difference between "mean haircuts", i.e. the average of haircuts computed for each instrument in the deal (weighted by debt volumes), and "aggregate haircuts", derived from summary cash flow streams across instruments, is small in most cases, often "with differences of less than a percentage point."

- For principal payments, we derive an approximate redemption timeline by taking advantage of readily available information on consolidation periods. The consolidation period of a restructuring is the time window in which the debt being exchanged would have originally fallen due. A restructuring deal in July 1987 might e.g. have a consolidation period of January 1985 to December 1989, so that all principal due in this period is subject to the exchange. In line with the above, we assume a linear repayment pattern over the consolidation period and discount only those principal amounts coming due after the restructuring date (here, between July 1987 and December 1989). Payments due before the restructuring month, including unpaid interest tranches, are taken at face value and added to the sum of discounted future debt. Penalties for missed payments are ignored.

- To compute interest payments on unmatured parts of the old debt, we construct a series of past sovereign interest rates by country (spread above US Libor).[116] Specifically, we calculate past average spreads from primary market loan data in the five year period prior to the default.[117] To avoid bias, we use the full universe of US dollar denominated public and publicly guaranteed loans issued by each developing country and weight the average spreads by volume of the individual issuances. For the 1970s, loan-by-loan data on sovereign debt issuances is from "Borrowing in International Capital Markets", a World Bank publication, as collected by Benczur and Ilut (2009). The data covers more than 1000 sovereign syndicated loans issued by developing countries in the period 1973-1979, including information on volume, currency and interest rate spread (spreads range from 0.125 to 2.5 percentage points). For the 1980s and 1990s we rely on the full sample of more than 7000 US dollar sovereign syndicated loans by developing countries as reported by the comprehensive Dealogic database.

Accounting for Previously Restructured Debt: 61 restructuring events out of the 179 in our sample affect debt that had been previously restructured, meaning that the same original debt is exchanged more the once.[118] A benefit of computing haircuts from equation (2) is that it allows accounting for such restructurings that include portions of previously restructured debt (PRD). Previously restructured loans or bonds can in fact be treated the same way as other old instruments. The relevant future

[116] We focus on spread data because this set of assumption is applied only on bank debt restructurings prior to 1998, a period when interest on sovereign debt was predominantly linked to the Libor rate. Given the much better knowledge on the characteristics of restructured bonds, we do not need to apply a similar procedure to any of the recent bond restructurings.
[117] To identify the five-year period prior to default, we use S&P data on default years.
[118] For example, the government of Venzuela restructured $20 bn of outstanding debt in a multi-year restructuring agreement in February 1986, then amended the terms of this agreement in September 1988 and then re-restructured the debt again in its Brady deal in December 1990.

payment streams can be easily computed given the detailed knowledge on the terms of previous restructurings. As with other instruments, we take those parts of PRD that have already fallen due at face value, while future payments are computed using the updated Libor forward rates and are discounted from the date of the restructuring on using the most recent discount rate.

Treatment of "New Money": 25 restructurings in the sample involve so called new money or concerted lending, which was a common feature of agreements of the 1980s and 1990s. A main rationale of issuing new money to distressed debtors was to allow governments to continue servicing interest payments so as to avoid loan-loss write offs in the creditor bank's balance sheets. In principle, debt rescheduling and new lending can be seen as functionally equivalent as they both provide payment relief to debtors. Despite this, we do not include new money loans or bonds in the baseline haircut calculations. The reason is that these instruments tend to have a short maturity as compared to the "regular" new instruments, so that including them tends to bias the overall haircut estimate downwards.[119] However, we calculate an additional set of haircut estimates in which new money loans or bonds become an integral part. The results do not differ markedly and are available upon request.

5.A3.2. Methodology to Estimate Discount Rates for Each Restructuring

The value of sovereign debt at the exit from default is subject to both aggregate credit market and specific country conditions prevailing at that time. The procedure explained below reconstructs these conditions for each country-month from 1978 until 2010. To our knowledge, no set of discount rate estimates used in the literature spans such a large sample of countries and years. To summarize briefly, the estimation method starts by using the secondary market yield to maturity on low-grade US corporate bonds, a truly free market price. For each credit rating category we then estimate the average spread between US corporate and EMBI sovereign yields. We then add this spread to the original corporate yield series to obtain an estimated time series of sovereign secondary market yields for each credit rating category. In the last step, we use the country credit rating in each month to obtain a discount rate reflecting both global financial market conditions and the specific country situation. The procedure is carried out in four steps that we next describe.

[119] More specifically, the haircut will be biased downward (i) when the maturity of the new money debt is shorter than the average maturity of other new debt instruments and (ii) when the discount rate exceeds the interest/coupon rate on the new debt. Both conditions are met in the large majority of cases.

Step 1: Constructing a full time series of low grade US corporate bond yield

In this step we use an extrapolation routine to obtain a full time series of speculative grade US corporate bond yields to maturity from 1978 until 2010 by credit rating. Low-grade yield data for the 1978-1990 period is only available for the aggregate US market but not by individual credit grades. Altman (1987 and 1989) and Asquith, Mullins and Wolff (1989) are the only sources that report these yields for the early 1980s –a market that was very thin at the time. We chose the Altman (1987) figures for they have the widest coverage and are similar to those of the other papers. Unfortunately, Altman (1987) provides only a single average yield per year for this market.[120] Starting in 1987, Lehman Brothers began computing the yield to maturity on its US corporate high-yield index on a monthly basis.[121] We merge the two series into a single aggregate market index yield combining Altman for 1980-1986 with Lehman for 1987-1991.[122] Starting in 1991 Moody's provides monthly median secondary market yields on intermediate term US corporate bonds by credit grade.[123]

Using the yields from Moody's and from the Barclays-Lehman Brothers index for the overlapping years, for each credit rating grade we run a linear time-series regression of the former on the latter. [124] Table 5.A3 reports the results for the complete sample period and for two split samples.

The table shows a high correlation between the two variables as the adjusted R2 is between 0.65 and 0.94. Both the fit and the slope coefficient increase almost monotonically as the credit quality deteriorates so the lower the credit rating, the more sensitive and volatile are yields to a given change in market conditions. These lower

[120] Altman (1989) does provide a breakdown of yield by credit rating. However the series are incomplete and stop in 1987. Since we have the same problem for the 1988-1990 period, in this step we apply a common method to the aggregate market yield (both from Altman and from the Lehman Brothers index introduced next) to estimate the breakdown of yield by credit grade back to 1980.

[121] Although the return history of the index was backfilled until earlier years, the yield to maturity series start in 1987 (Fridson, 2007, and Horan, 2007). Other index providers are Credit Suisse, KDP and Merrill Lynch, but the Lehman one has earliest information about yields. The correlation among all of these indices is very high. Altman (1987) and the Lehman index overlap during 1987. The average yield from the two sources is 12.67 and 12.99 respectively, so they seem quite consistent with one another. In 2008 Lehman was taken over by Barclays Capital and the index was relabeled accordingly. We will refer to it as the Barclays-Lehman Brothers US corporate high-yield index hereafter.

[122] In part as a result of the difficulties of compiling first-hand information on the low-grade public debt market, a number of studies (e.g. Fons, 1987, Fridson and Gao, 1996) also rely on aggregate market index yields for this period.

[123] To be included in the index, bonds must be regular coupon type (no zero coupons or floating-rate), have maturities between six and eight years, have outstanding values of more than $50 million and be rated by Moody's. Each observation is unweighted in the sample, and the yields are calculated for end-of-month values. All yields are yield-to-maturity calculated on a semi-annual basis and Moody's reports the simple median yield for each credit rating grade. Typically, the index will have 1000-1200 bonds each month. Monthly data are available starting in January, 1991.

[124] We also tested a quadratic version of the model but it produced minor differences so we use the linear model for simplicity.

ratings are our primary focus of interest since defaulting countries will typically be in the lower categories upon completion of a restructuring process –even within the speculative ratings considered here.

Table 5.A3: Regression of US Corporate Secondary Market Yields on the High-Yield Index

$$Yield_t^i = \alpha^i + \beta^i \; Yield_t^{Barclays} + \varepsilon_t^i, where \quad \begin{matrix} i = Ba1,\ Ba2,\ Ba3,\ B1,\ B2,\ B3,\ Caa \\ t = \text{Jan}-1991, \text{Feb}-1991, ..., \text{Dec}-2010 \end{matrix}$$

i	**1991-2010**			**1991-1999**			**2000-2010**		
	α^i	β^i	**Adj. R2**	α^i	β^i	**Adj. R2**	α^i	β^i	**Adj. R2**
Ba1	3.39	0.43	0.75	4.60	0.36	0.65	2.89	0.45	0.88
Ba2	3.08	0.51	0.79	4.59	0.41	0.75	2.47	0.54	0.89
Ba3	3.38	0.52	0.77	3.41	0.58	0.82	3.24	0.49	0.92
B1	3.80	0.54	0.73	4.32	0.55	0.78	3.46	0.51	0.92
B2	3.28	0.65	0.78	2.70	0.77	0.86	3.32	0.59	0.94
B3	1.48	0.93	0.87	1.06	1.03	0.88	1.50	0.89	0.94
Caa	-5.90	2.02	0.85	-8.82	2.33	0.90	-4.99	1.89	0.84
N	240			108			132		

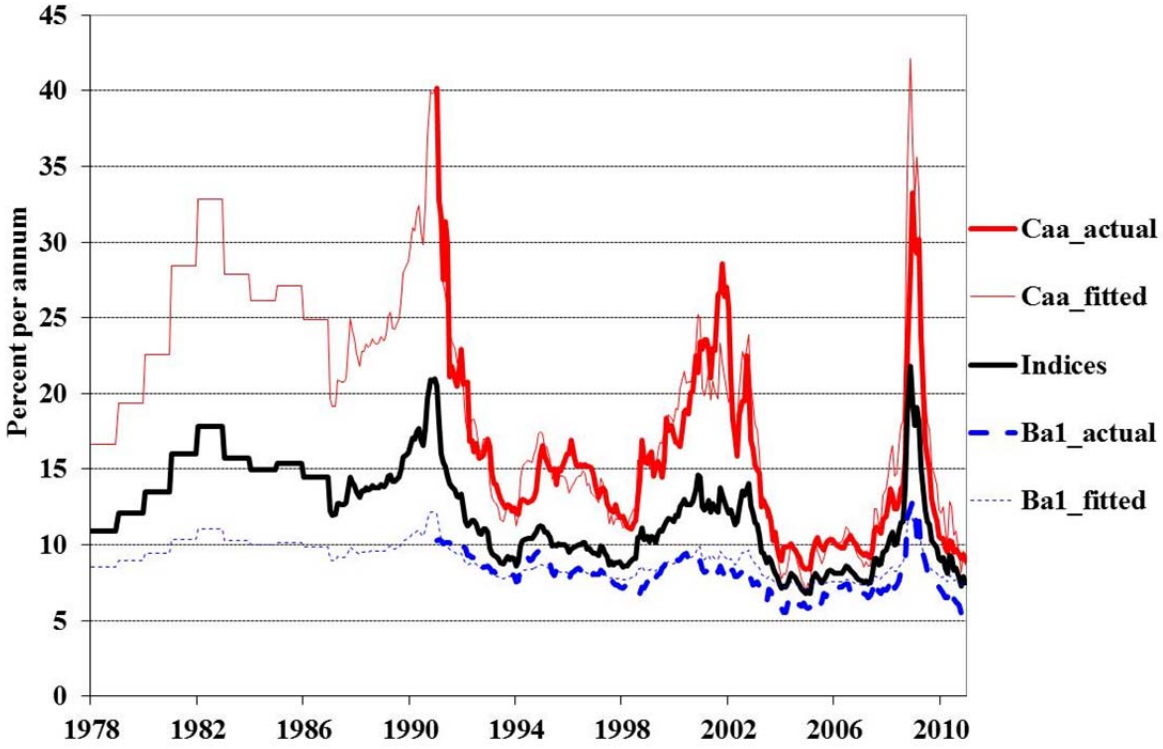
This table shows the coefficient estimates of a regression of US corporate secondary market yields from Moody's on Barclays- Lehman Brothers US Corporate High-Yield Bond Index since the start of the disaggregated Moody's data. A separate regression is done for each credit rating level. Since Chow tests indicate that all coefficients are significantly different across decades, we use the coefficient estimates from 1991-1999 to generate a yield series by credit rating for 1978-1990. All coefficient estimates are significant at 1 percent level or better.

Chow tests on the split sample revealed that the coefficients during the 1990s were significantly different from those during the 2000s for all ratings. Therefore, we use the estimated coefficients for 1991-1999 to obtain imputed yields for the years 1978 through 1990 for bonds in each credit rating category. The explanatory variable is the Barclays-Lehman Brothers index yield for 1987-1990 and the Altman (1987) average annual yields for 1978-1986.

The output of this step is a full time series of corporate bond yields for the 1978-2010 period where the series up to 1990 result from the extrapolation just discussed and the series for 1991-2010 are taken from Moody's. Figure 5.A3 shows the actual and estimated secondary market yields for the two extreme rating categories (Ba1 and Caa) together with the index yields. The good fit of the linear models is apparent in the figure. This is true even out of sample into the 2000s which we do not use. More importantly, the imputed yields for the period before 1987 closely correspond to actual

yields by category directly computed off market data by Altman (1989) for the few years and categories for which the latter are available.

Figure 5.A3: Yield to Maturity on US Low-Grade Corporate Bonds



This figure shows that yields on low grade US corporate bonds differ markedly by credit rating level over the period 1978 to 2010. The risk premium between the Ba1 and Caa ratings is also markedly volatile. The solid thick middle line shows average sub-investment grade US corporate bond yield as reported by Altman (1987) from 1978 until 1986 and the yield on the Barclays-Lehman Brothers US Corporate High-Yield Bond Index thereafter. The top and bottom thick lines show the yields at the end of each month which are available since 1991 from Moody's. The thin lines report the extrapolated series for the Ba1 and the Caa credit ratings based on the coefficients from the 1991-1999 regression. The thin lines show a precise tracking of the actual yields in sample (1991-1999) as would be expected, but also out of sample (2000-2010). The thin lines for 1978-1990 show the extrapolation of yields for the two extreme non-investment grade categories based on the yield of the aggregate index at each point in time.

Step 2: From US corporate yields to sovereign yield

In this step, we convert the corporate yields from step 1 into discount rates on sovereign debt by estimating the spread that the market typically adds to corporate yields for a given credit rating. We use three data inputs in this step:

i. The corporate median yield spreads over US Treasury from Moody's which are part of the same data package used in step 1.

ii. JP Morgan's Emerging Markets Bond Index (EMBI) Global stripped yield spread prevailing for each country at the end of each month from December 1991 until December 2010. Since the Global index is not available for 1991-1997, we take spreads from the plain EMBI index for those years.[125] This set includes 45 countries that were in the index at some point or another.

iii. For each country-month in JP Morgan's sample, we take the long term foreign currency sovereign debt issuer rating from Moody's and focus on those in the speculative grade categories (Ba1 and under).[126]

We next match, for each month and credit rating category, the median sovereign and corporate spreads, and take the difference thereof.[127] Table 5.A4 shows statistics of these differences for the whole sample and by decade.

There was more than twice the number of observations across the different rating grades during the 2000s than during the 1990s, which reveals that the market was much less developed in the earlier years.[128] During the full sample, there was a median sovereign minus corporate difference of about 110 basis points per annum for bonds of a given grade. So typically, for a given credit rating category, sovereign yields were larger. However, the 5th and 95th percentiles in the table show that the distribution shifted to the left during latter decade. Moreover, the positive gap that prevailed during most of the sample reversed during the 2008-2009 crisis in the US so that, for the higher ratings, sovereign bonds actually had lower median yields during the last decade.[129]

[125] The original EMBI index focused only on Brady bonds. As countries later began issuing non-Brady bonds, JP Morgan constructed two broader indices: the EMBI+ and the EMBI Global which start in December 1997. The EMBI Global has less stringent liquidity criteria for the included bonds than the EMBI+ and so covers more securities and a wider set of countries. We focus on the EMBI Global to maximize the sample coverage as many of the defaulting countries lack a highly liquid secondary market.

[126] We neglect country-months rated by Standard and Poor's and not by Moody's as recent evidence suggests that investors differentiate between the two rating agencies and assign more weight to the ratings from Moody's, the more conservative rating agency (Livingston, Wei and Zhou, 2011).

[127] Since the lowest category in Moody's US corporate yields data is Caa (withouth a qualifying number), we blend all country-months in the Caa1 and Caa2 categories in a single both to match the corporate Caa one, and we discard all country-months rated Caa3 and lower.

[128] A polar case is the Caa category for which there were only three months in the 1990s for which EMBI countries were in this range compared to 125 such cases during the 2000s.

[129] If we cut the sample in December 2007, the median diffence across all ratings is about 41 basis points larger.

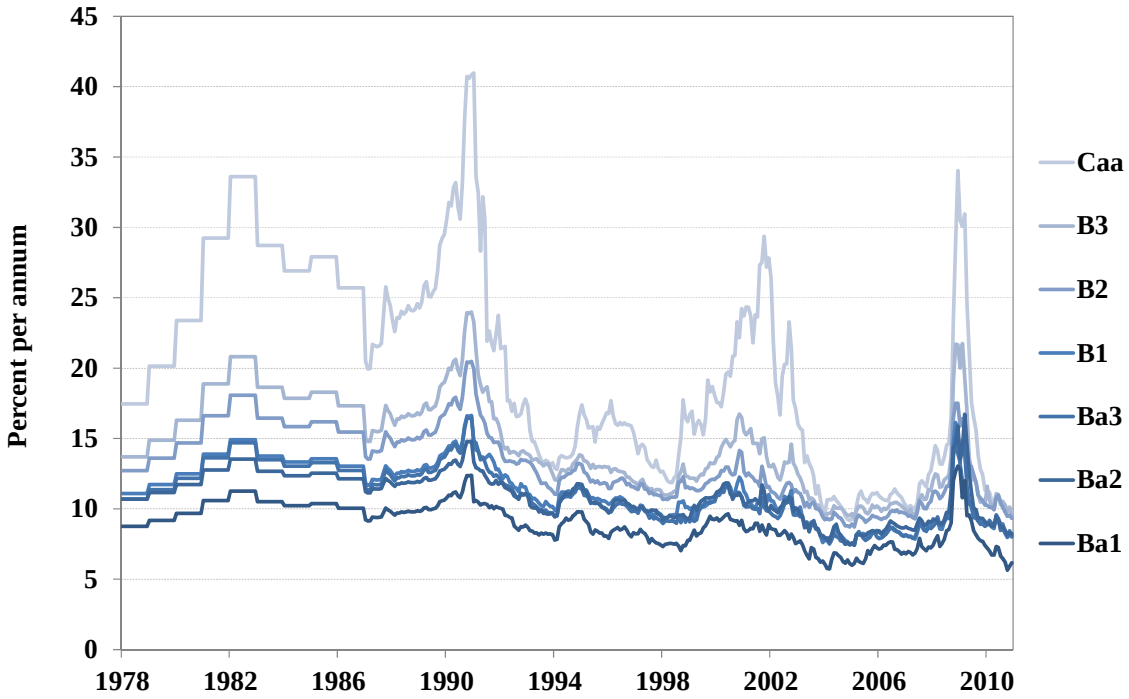
Table 5.A4: Statistics of the Sovereign minus Corporate Bond Yield Differential

Credit rating	Period	N	5th pct.	Median	95th. Pct.
Ba1	All	193	-2.76	0.21	5.86
	1991-1999	61	1.16	2.55	7.93
	2000-2010	132	-3.16	-0.92	1.78
Ba2	All	177	-2.27	1.61	5.34
	1991-1999	58	1.41	3.24	7.40
	2000-2010	119	-2.51	0.29	3.55
Ba3	All	207	-2.93	0.99	9.45
	1991-1999	76	0.36	2.24	11.64
	2000-2010	131	-3.24	-0.44	2.51
B1	All	204	-2.19	0.72	7.18
	1991-1999	81	0.20	2.59	8.31
	2000-2010	123	-2.29	-0.22	4.03
B2	All	199	-1.23	1.55	7.14
	1991-1999	67	0.39	3.15	8.49
	2000-2010	132	-1.39	0.35	3.69
B3	All	159	-1.72	1.41	26.76
	1991-1999	32	1.41	19.55	37.59
	2000-2010	127	-1.72	0.88	6.05
Caa	All	128	-7.84	0.80	24.07
	1991-1999	3	19.32	22.79	25.70
	2000-2010	125	-7.84	0.73	23.76
All ratings	All	1267	-2.50	1.10	8.57
	1991-1999	378	0.42	3.09	19.32
	2000-2010	889	-2.82	-0.04	4.29

This table shows statistics of the sovereign over corporate premium for a given credit rating category (figures in percentage points). More specifically, the base variable is the gap between the median EMBI/EMBI Global sovereign stripped yield spread over US Treasury and the median US corporate bond spread over US Treasury reported by Moody's. The figures show that the risk premium for sovereign over corporate debt of a given creditworthiness was much higher in the 1990s when this market started to develop than in recent years. The median gaps for each credit rating grade during the whole sample are added to the corporate yields from step 1 to generate the imputed sovereign yields by credit rating from 1978 until 2010 shown in Figure 5.A4.

Because we seek to impute secondary market sovereign spreads for the whole sample, we use the overall sample median difference hereafter. We next add the median all sample difference for each rating category to the median US corporate secondary market yield for that category from step 1. The output of step 2 is thus a time series of imputed secondary market sovereign yields for each credit rating grade from 1978 until 2010 as shown in Figure 5.A4.

Figure 5.A4: Imputed Sovereign Discount Rates for Different Issuer Credit Ratings



This figure shows the evolution over time of a market-based imputed yield to maturity on medium-term US dollar denominated sovereign bonds for the different Moody's speculative credit rating categories. Both the levels of yields and the gaps between yields for different ratings vary substantially over time.

Step 3: Correspondence between Moody's sovereign credit grade and the Institutional Investor country credit ratings

Very few countries had agency credit ratings during the 1980s and early 1990s so we cannot rely on Moody's ratings to assess discount rates that vary depending on defaulters' conditions. However, as early as 1979, Institutional Investor (henceforth *II*), a trade magazine, started publishing country credit ratings for an initial list of 93 countries, which grew to over 178 nowadays. These ratings cover all but 12 of the 180 restructuring events to impute estimated agency ratings. The ratings are the average of the credit score assigned to governments by the credit rating teams of a pool of about 100 internationally active banks. Because of their ample coverage, the *II* ratings have been widely used in the international finance literature (Feder and Ross, 1982, Feder and Uy, 1984, Lee, 1993, Ul-Haque, Kumar, Mark and Mathieson, 1996, Erb, Harvey and Viskanta, 1995 and 1997, later jointly with Bekaert, 1997, Ferson and Harvey, 1998, Reinhart and Rogoff, 2009, see Cruces, 2006, for a review). Since the majority of our restructurings are not covered by Moody's or Standard and Poor's, we rely on *II* for a set of credit ratings that are consistent both in the time series and in the cross

sectional dimension.[130] However, given that the yield data from step 2 are for Moody's credit rating categories, in this step we convert the *II* country credit ratings into their Moody's equivalents.

Our goal is to have a good prediction for non-investment grade countries, as these are the ones most likely to undergo credit difficulties. The maximum *II* credit rating for a non-investment grade country in our sample was 65. Because we want to estimate the distribution of Moody's ratings conditional on a given *II* rating, we discard all country-semesters with an *II* rating greater than 65. We next take the prevailing Moody's credit rating as of January and July of each year, starting in mid-1979, and convert it to a numerical scale going from 21 for the A category all the way down to 2 for the Ca category.[131] We match these country-month ratings to those of the March and September *II* surveys for the same years.[132] Table 5.A5 reports the results of a linear projection of the Moody's ratings on those from *II*,[133]

Table 5.A5: Linear Projection of Moody's on Institutional Investor Ratings

$$Moody's\,CCR_{jt} = \alpha + \beta\, Institutional\ Investor\ CCR_{jt} + v_{jt}$$

Sample	α	β	*N*	*Adj. R2*
Full sample	1.232	0.215	1,867	0.67
	(7.71)	(61.93)		
1980s	8.580	0.154	74	0.20
	(5.14)	(4.42)		
1990s	1.885	0.216	603	0.77
	(8.56)	(45.53)		
2000s	0.705	0.212	1,190	0.80
	(4.93)	(67.91)		

This table shows the results of a linear regression of country credit ratings from Moody's on those from Institutional Investor. We do one separate regression for each decade and one for the whole sample. Very few countries were actually rated by Moody's in the 1980s (less than 4% of the sample). These countries had better unobservable characteristics than those that

[130] Since our ultimate object of interest is the haircut imposed by a country compared to that imposed by other similar countries, or to that imposed by the same country in other time periods, in case there is a systematic bias in the computation of discount rates, this would presumably affect all restructurings in a similar fashion.

[131] This conversion of categorical to ordinal scales is standard in the literature; see Cantor and Packer (1996) for references.

[132] Cruces (2006) documents that the Institutional Investor surveys whose results are published in March and September of each year are conducted about two to three months before publication.

[133] We also try a quadratic specification but the significance of the quadratic term is very unstable over time.

Moody's began rating in later decades. This is shown by the reduction of the intercept from 8.6 in the 1980s to 1.9 in the 1990s and to 0.71 in the 2000s. The slope is markedly stable after 1990. As the output of step 3 we use the full sample estimates to generate an estimated Moody's rating for each country-semester with an Institutional Investor rating. This imputed rating is matched with the yields from step 2 to generate a country-month specific discount rate in step 4.

The table shows a strong positive relation between ratings from the two sources. The slope coefficient for the whole sample is 0.215 so that it takes 4.65 *II* credit points to raise one notch in the Moody's scale. The table shows that this slope coefficient is quite similar for the 1990s and the 2000s. The lower slope coefficient for the 1980s sample results from some outliers which kept high Moody's ratings even as the country situation deteriorated substantially. For example, Venezuela had an Aa rating issued in 1983 and kept it until Moody's lowered this by nine rating notches to Ba2 in mid-1987 (see Moody's 2010). In the meantime, its *II* rating fell monotonically each semester from 57.2 points in 1983 to 36.9 in mid-1987.

The intercept represents heterogeneity that is not captured by the *II* ratings: it is larger for the earlier period and it falls as time progresses. In fact Moody's focused on the subset of most developed countries in the 1980s and it incorporated less developed countries as the years went by, hence the secular reduction in the intercept.

Given the stability of the slope coefficients over time and because we are analyzing countries with credit difficulties and at different levels of development during the three decades, in the next step we use the full sample specification to impute a Moody's equivalent credit rating for each country-semester Institutional Investor rating.

Step 4: Individual country discount rates at each point in time

From step 2 we have imputed secondary market yields for sovereign bonds in each of Moody's speculative grades (Fig. A4). Step 4 uses the sovereign rating for each country-month in the sample from step 3 and imputes a market discount rate for that rating-month combination by linear interpolation of rates from step 2. When the imputed Moody's rating falls in the investment grade range, we avoid computing a discount rate as our procedure is designed for countries facing debt problems. These are the final discount rates used to compute haircuts at each sovereign debt restructuring from 1978 until 2010.

While very comprehensive, the *II* report provides no ratings for a small set of poor countries in the 1980s and 1990s. As a result, we are not able to estimate country-specific discount rates for 12 restructurings. As a proxy, we use the respective monthly rates of the nearest country in the region that was also in default or implemented a restructuring during the time. For the cases of Bosnia and Macedonia in 1997 we use the rate estimated for Albania; for Dominica in 2004 we use the respective monthly

rate of the Dominican Republic; for Gambia and Guinea in 1988 we use Sierra Leone's rate, respectively; for the cases of Madagascar 1981, 1984, 1987 and 1990 and for Mozambique in 1987 we use Tanzania's rate; for Niger 1984 and 1986 we use Sudan's rate and for Togo 1988 we use the rate estimated for Liberia. For Jamaica's 1978 restructuring, we backward extrapolated linearly the rates in 1979.

The discount rates so computed are used in 161 of the 180 cases. 18 of the remaining cases consist of buybacks of all fallen due debt for which no discount rate is needed (*PV New* is the buyback price and *PV Old = FV Old*).[134] The remaining case is Russia 1999 which is a complicated local currency denominated exchange for which we borrow the rate from Sturzenegger and Zettelmeyer (2008) who went through the painstaking job of estimating it as an exit yield was not readily available.

The unbiasedness and the timeliness of credit ratings have been subject of much debate in recent years. While some authors argue that agencies add fundamental value above and beyond market prices (e.g. Cavallo, Powell and Rigobon 2008, Sy 2004), others have criticized them for reacting to public information with delay (see Kaminsky and Schmukler 2002, among others). Despite this, we think that the Institutional Investor ratings are the most reliable and useful source of information on sovereign risk across countries and time for our purposes: First, they arise directly from the credit analysis teams of large internationally active banks who were the players in the sovereign debt market, hence the agents who would potentially trade these assets in primary or secondary markets. Second, they span a much larger number of countries and cover a wider time period than any alternative source of data on sovereign risk (including bond or loan spreads). Furthermore, we use semester data, which will be less prone to agency rating delays and bias compared to rating data on a daily or weekly basis.

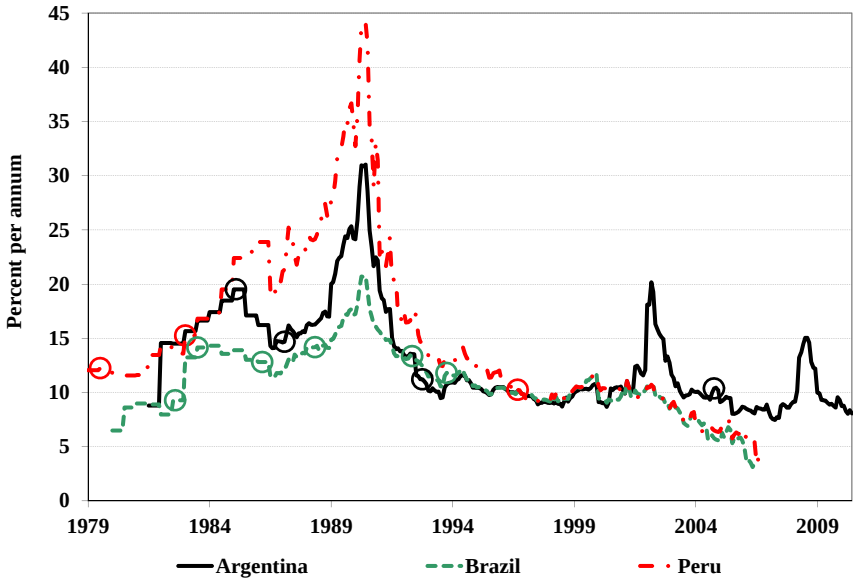
[134] A few other buybacks involve yet to mature debt and are among the 162 cases.

5.A3.3. Resulting Discount Rates: Overview and Benchmarking

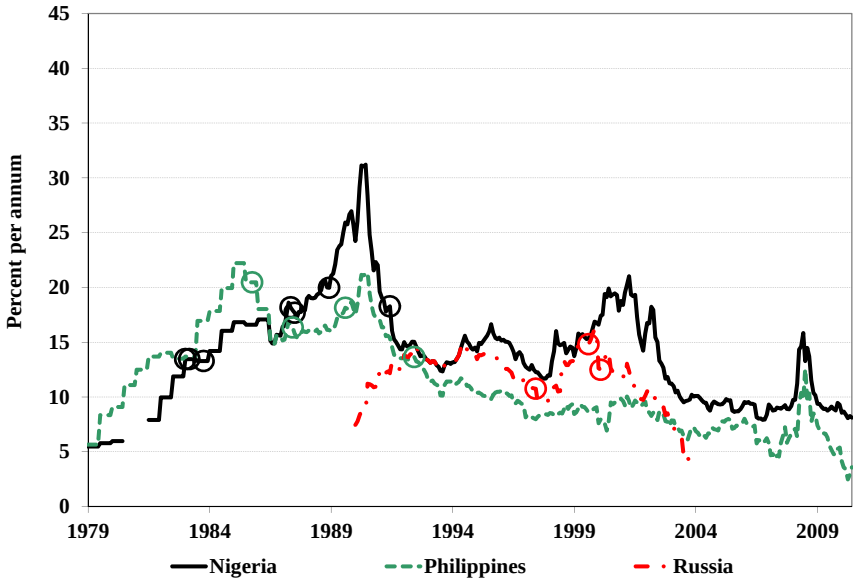
For illustration purposes, Figure 5.A5 shows the time series of discount rates for six selected countries with circles highlighting the rates that are actually used along each country's series (i.e. restructuring cases).

Figure 5.A5: Imputed Discount Rates for Selected Countries

Panel A:



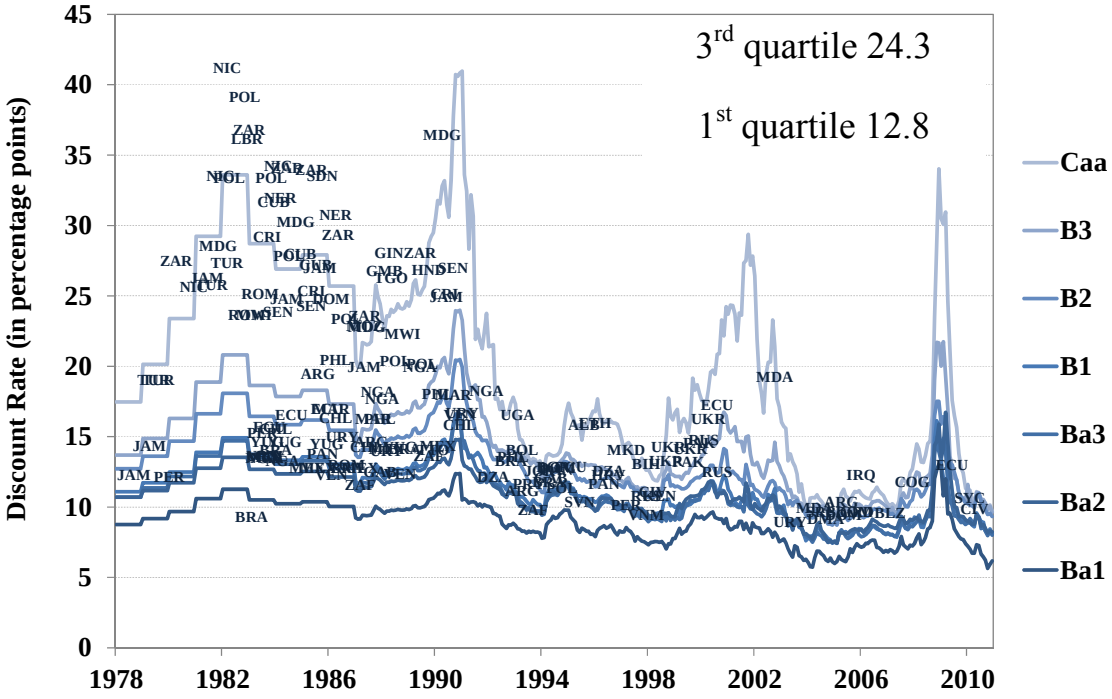
Panel B:



This figure shows the discount rates imputed to six countries over the sample period and highlights that yields respond to changing country and world market conditions. The circles along each series correspond to those rates that are actually used in computing haircuts. Some lines are discontinued, because we no longer compute yields when a country's imputed credit rating graduates to investment grade (Baa), e.g. Russia after 2004.

The figure clearly shows that there are very volatile common movements in discount rates which make them swing together between about 7% and 25%. It also underscores that there are important specific country conditions above and beyond the common movements: the upswing of Argentina and Nigeria around 2001 is not accompanied by Brazil, Peru, Philippines or Russia. Last, while country and world conditions change over time, it could be the case that countries restructure at times when discount rates reach a certain fixed level (e.g. 10% as used by some authors), which would make this whole discount rate estimation procedure futile. The example of the six countries in Figure 5.A5 shows that although the discount rates actually used are less volatile than the underlying series, they still range from about 9% to slightly over 20% so that it seems appropriate to have restructuring-specific discount rates in order to compute haircuts.

Figure 5.A6: Discount Rates Actually Used Each Year in Computing Haircuts



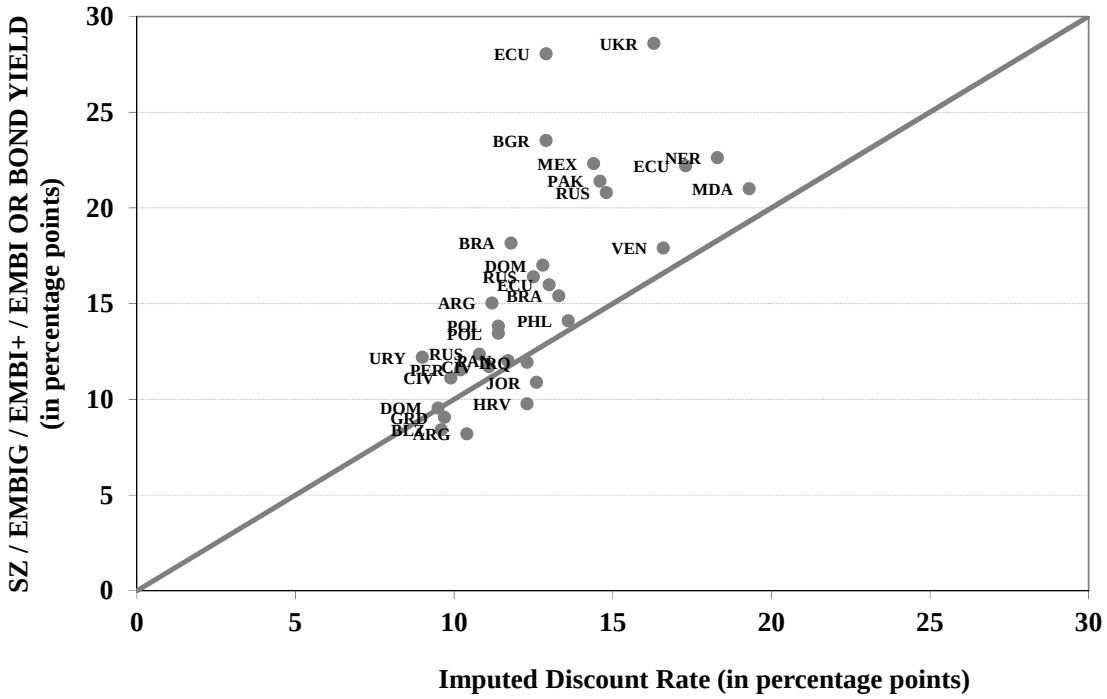
This figure shows the discount rates actually used in computing haircuts and the time and country to which they correspond. One fourth of the discount rates were lower than 12.8% and another fourth were higher than 24.3. The first half of the sample shows the largerst discount rates.

Figure 5.A6 provides even stronger evidence of the relevance of this exercise by showing the discount rates actually used in each restructuring by the different countries and their breakdown over time. The first quartile of the series is 12.8 and the

third quartile is 24.3, so that about one half of the discount rates are outside of this range.

Finally, we provide two "acid tests" of the validity of our discount rate imputation procedure. For a set of 31 recent restructurings, exit yields are available from SZ (2006, 2008), from the EMBI or EMBI Global indices and/or from major bonds whose yields are reported by Morgan Markets. Figure 5.A7 compares these data with our discount rates.

Figure 5.A7: Benchmarking Imputed Rates against Actual Exit Yields: 1990s/2000s



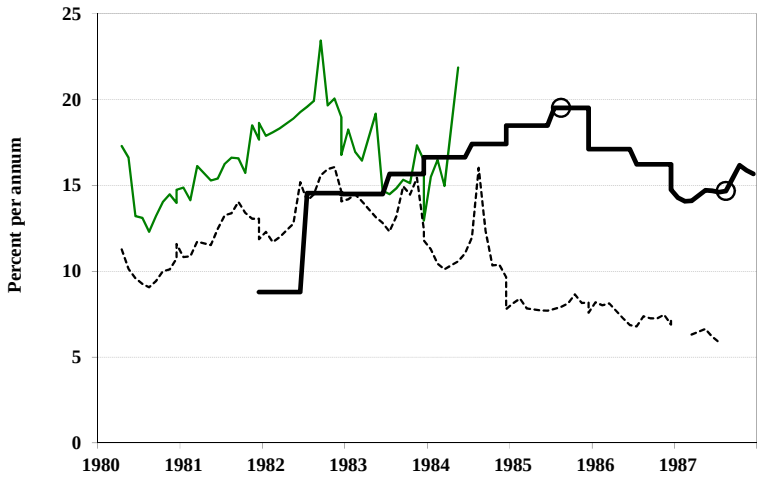
This figure contrasts our discount rates (x-axis) with the exit yields from SZ (2006, 2008), EMBI/EMBIG and MorganMarkets (y-axis) for 31 recent restructurings for which these latter data are available. While the methodology presented in this paper seems to underestimate exit yields at levels above 15%, the correlation coefficient between the two series is 73%.

As evident form the figures, our imputed rates are largely consistent with actual exit yields whenever they are available. The correlation coefficient is a high 73%. Yet, there are a few cases above 12% for which our procedure underestimates the exit yields. As is evident from Figure 5.3 in the paper, exit yields drop considerably in the few months after the new bonds begin circulating. It is then natural to ask whether holders of old debt instruments will sell their claims immediately after the new bonds begin circulating or if they will wait a few months until the situation normalizes (and their haircuts are reduced as the exit yields taper off).

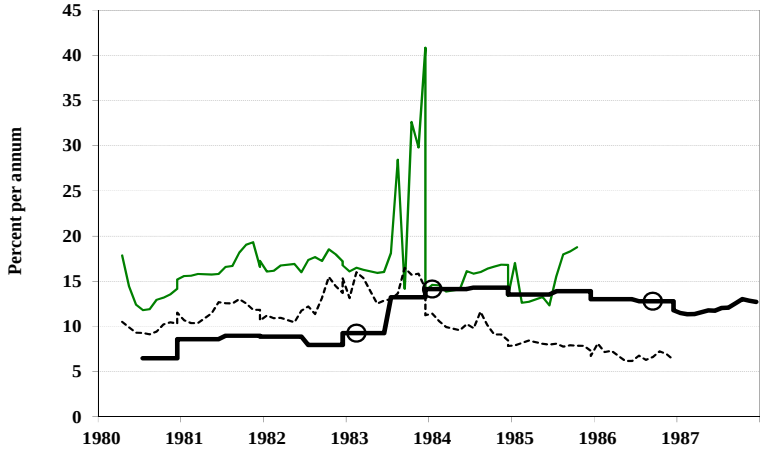
Our last acid test compares discount rates at the other extreme of the sample, the 1980s. Folkerts-Landau (1985) and Edwards (1986, ft.25) report emerging country bond yields from the International Herald Tribune. This newspaper has continuous series for very few emerging countries, most notably Argentina, Brazil and Mexico. We retrieved those yields, following the same bonds over time, and computing the average thereof on the first Monday of each month from 1980 until they ceased to be listed. Figure 5.A8 shows the average among US dollar and Deutsche mark bonds together with our discount rates (thick line).[135] The circles on the thick line highlight the discount rates that are actually used in computing haircuts.

Figure 5.A8: Benchmarking Imputed Rates against Secondary Market Yields: 1980s

Panel A: Argentina

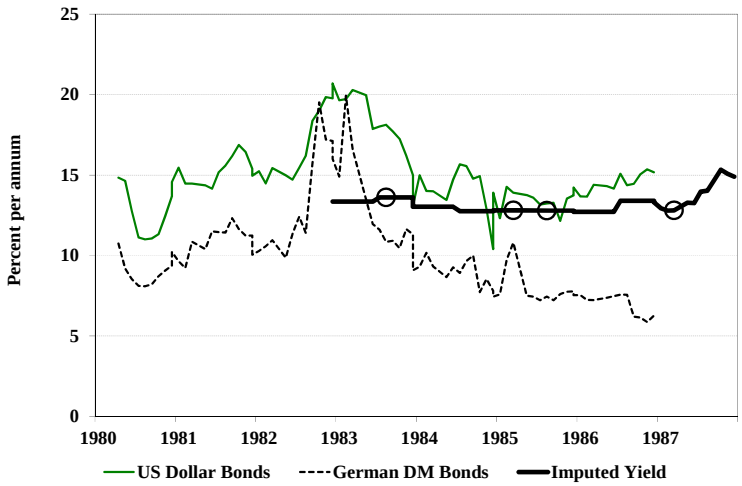


Panel B: Brazil



[135] Our discount rates are constant within a semester up to 1986 due to the fact that the corporate yields from step 1 are only available by year for that early period while country credit ratings vary by semester.

Panel C: Mexico



A few emerging countries floated hard currency bonds which were traded in very thin international markets in the 1980s. This figure shows the average yield at the beginning of each month on the US dollar and the Deutsche mark bonds for the very few countries that had continuous reporting of their yields by the International Herald Tribune. It also shows our imputed discount rates which for the pre-1987 period varied only by semester. The circles highlight the yields that are actually used in computing haircuts. It is apparent from this figure that the imputed discount rates are broadly consistent with the levels and changes of these secondary market yields.

Again, while the data are noisy, due in part to the thinness of these markets, it is apparent from the figure that the imputed discount rates are broadly consistent with the levels and changes over time in these secondary market yields even for the 1980s.

5.A3.3. Computing Haircuts: Four Examples

Sovereign debt markets have evolved considerably over time, and so have debt restructuring techniques. The following paragraphs illustrate our haircut computation approach for four representative restructurings during the 1980s, 1990s and 2000s.

Poland's April 1982 Rescheduling

Poland's 1982 debt agreement was a landmark case, being the first restructuring of the 1980s debt crisis with "a broader systemic significance" (Rieffel 2003, p. 102). It also was in a typical deal of the early 1980s, in that it featured consolidation periods of one or two years only and affected debt that had already fallen due or that was about to mature in the very short-term. Poland and its creditor banks signed the restructuring agreement in April 1982. The deal rescheduled 95% of principal that had fallen due in 1981 ($1.95 bn) into a new loan with maturity of 7 years, grace period of 4 years and a 1.75 interest spread above Libor. The relevant 180 day Libor forward rate computed

for April 1982 is 14.75% and remains flat. Based on this basic information, we derive the following repayment schedule: Annual interest payments of 16.5% on the outstanding principal from year one to seven, disbursed in end March of each year. Principal repayment in equal amounts after the end of the grace period, with 33% being disbursed in end March of 1987, 1988 and 1989 respectively.

The discount rate applied is a very high 33.45%, which reflects the exceptionally low country credit rating of Poland and a low appetite for high-risk debt at the time. Specifically, Poland had a country credit rating of 13 on the *Institutional Investor* (*II*-CCR) scale. This rating is tantamount to 4.03 on an ordinal scale in which 4 corresponds to a Moody's rating of Caa2. At the time, the yield on medium term US corporate bonds rated Caa2 was 32.81%, a price of credit risk only surpassed in late 1990 and 2008.

The resulting present value of the discounted debt servicing stream is 1.16 bn US$, yielding an overall market haircut of 40.6% (roughly: 1- 1.16/1.95). Because all of the old debt had already matured at the time of exchange, this H_M is equal to H_{SZ}, which is a typical pattern of restructuring deals in this period.

Chile's 1987 Baker Plan deal

The mid- and late- 1980s saw a new typology of debt restructurings, which were coined as "Multi Year Restructuring Agreements" (MYRAs) or as Baker Plan restructurings (see Chuhan and Sturzenegger 2005 for details). MYRAs restructured unmatured debt coming due in a period of up to five years in the future, and resulted in new loans with a maturity of up to 25 years. The newly negotiated interest rates were more concessional than in the early 1980s, with spreads above Libor of around 1% or less. Overall, these agreements were both more comprehensive and more complicated to assess, because they involved previously restructured debt and often resulted in more than one new debt instrument.

An exemplary case for the period is Chile's June 1987 restructuring, which had three main elements: Part one restructured $1.41 bn of maturing "new money" loans that had been issued in June 1984 and April 1986 into a new loan with 5 years maturity, three years grace period and a 1.125% spread. Part two exchanged $2.95 bn of debt that had been previously restructured in agreements of November 1983 and January 1984. The PRD falling due between January 1988 and December 1990 is exchanged into a new loan with a maturity of 15.5 years, a grace period of five years and a spread of 1%. The same terms applied for part three, which restructured $1.53 bn of previously unrescheduled debt falling due between January 1988 and December 1991 into a new loan with 15.5 years maturity, five years grace and 1% spread. The imputed 180 day Libor forward rate for June 1987 increases from 7.67% in year one to 9.16%

in year 10 (as a reference, the yield to maturity on 10-year US Treasury bonds was 8.4% at the time). The imputed country specific discount rate applied to all three parts is 14.32%. Chile's *II* credit rating was 26, which was tantamount to about a B2 on Moody's scale. The return on US corporate bonds rated B2 was about 12.51% at the time.

For the restructured new money loans of part one of the deal we compute interest rate payment streams that increase from 8.67% (7.67% + 1%) in year one, to 10.3% at the end of year five. 50% of principal is redeemed at the end of the fourth year, the other half in year five. The resulting present value of this new instrument is $1.21 bn, compared to $1.42 bn in face value. Part two and three of the deal also foresee annual interest payments from 8.7% in year one to a maximum of 10.3%. Principal payment occurs linearly at a rate of 9.52% from year six to fifteen and 4.75% in the last six month (July to December 2002). The resulting present value is $2.26 bn for part 2, and $1.18 bn for part 3, compared to $2.95 bn and $1.53 bn in face value, respectively. Overall, this yields a weighted market haircut H_M of 21.2% (roughly: 1-(1.21+2.26+1.18)/ (1.42+ 2.95+1.53)).

Calculating H_{SZ} for this restructuring builds on two approaches. For parts one and two of the deal, *PV Old* can be computed using the known terms of the new money and previously restructured debt of 1983 and 1984. For the old instruments of part one we apply an average interest rate spread to of 2.06% above Libor, which is the weighted average spread of the 1.3 bn of new money of November 83 (with a spread of 2.25%) and the 780 m of new money of June 84 (with a spread of 1.75%). For part two we apply a 2.25% spread, as all relevant parts of the 1983 and 1984 restructuring agreements had this spread. With reference to the original terms, the relevant principal repayment of both parts are plotted in equal annual tranches until the end of 1990. The reference Libor forward rates and the discount rate applied are the same as for the new debt, i.e. using those relevant in June 1987. The result is *PV Old* of $1.31 bn for part one and of $2.74 bn for part two of the deal, which is significantly less than their face value of $1.42 bn and $2.95 bn of their face value, respectively.

Computing *PV Old* for part three of the deal is more complicated, as this part does not affect PRD and because we have little further information on the old loans being restructured. As discussed in section 5.A3.1, we therefore derive an approximate payment schedule and assume linear redemption across all years of the relevant consolidation period (01/88-12/90). To derive interest payments we apply the weighted average interest rate spread of the five-year period prior to Chile's default, i.e. 1.07%. The respective time span is 1978 to 1982 and 1.07% is the weighted average spread on all of Chile's public and publicly guaranteed syndicated loans in this period. Again, the Libor forward rates and the discount rate applied are those of June 1987. The resulting *PV Old* for part three is $ 1.37 bn compared to 1.53 bn of its

face value. When summing up the present value of all three parts, we get $ 5.31 bn and a H_{SZ} haircut of only 14.3% (roughly: 1- (1.21+2.26+1.18)/(1.31+ 2.74 +1.37)).

Mexico's 1990 Brady Deal

Mexico was the first country to reach a restructuring agreement under the Brady initiative, which implied outright debt reduction and the exchange of bank debt into bonds. Mexico's February 1990 agreement was a typical Brady exchange in that it allowed creditors to choose from a menu of options so as to accommodate differences in business goals and regulatory environment across banks. Specifically, Mexico's deal had four parts: Under option one (chosen for $20.55 bn) banks exchanged outstanding principal with a 35% discount into new 30 year bonds with bullet maturity and a spread of 0.8125%. Option two (chosen for $22.43 bn) implied interest reduction, as debt was exchanged into a 30 year bullet bonds with a fixed interest rate of 6.25%. For both of these 30 year bonds, principal payments were collateralized with US Treasury zero-coupon bonds while interest payments are backed by an 18-month rolling interest guarantee. Collateralization was supported through a special Brady deal funding facility set up by the IMF and the World Bank. Option three (chosen for $5.1 bn) did neither foresee principal nor interest reduction, but exchanged debt at par if creditors where willing to provide new money (in the form of new lending or trade finance) equivalent to 25% of eligible debt. The bonds exchanged in option three had a maturity of 15 years, a grace period of 7 years and a spread of 0.8125% above Libor. Beyond these three options, the deal foresaw the restructuring of $6.4 bn of debt coming due from previous new money packages (of 1983, 1984 and 1987) without debt and debt-service reduction. The resulting bonds also had a maturity of 15 years, a grace period of 7 years and a spread of 0.8125% above Libor. The imputed forward Libor rate of February 1990 increases from 8.59% in year one to 9.29% from year 10 on. As a reference, the yield to maturity on 10-year treasuries was 8.47% at the time.

Debt payments on all uncollateralized bonds are discounted at the exit yield of 14.42%. Mexico had an II- credit rating of of 32.6 at the time, which was tantamount to 8.24 on Moody's ordinal scale in which 8 corresponds to B1 and 9 corresponds to Ba3. The yield on medium-term US corporate bonds rated B1 was 13.76 and on those rated Ba3 was 13.25 at the time. A different rate has to be applied for the 30 year bullet bonds, as they are collaterized with US Treasuries. Specifically, we discount the principal repayment of these bonds in year 30 (February 2020) using a discount rate derived from the US Treasury yield curve of February 1990 (8.45%). The interest payments are discounted at the 15.35% country rate, except for the first 18 months, which are guaranteed and thus discounted using a rate derived from the US Treasury yield curve (8.12% in the first year and 8.43% for months 13 to 18). As to the repayment schedule, the bonds of option three as well as the additional bond on

previous new money have annual principal repayments of 12.5% from year 8 to 15 as well as yearly interest disbursements, which are linked to the (forward) Libor.

To compute the overall haircuts, we discount the debt streams of each of the instruments as described above and add their present values to get *PV New*. This results in a weighted H_M of 43.7%. *PV Old* is easy to compute here, as in March 1987 all outstanding sovereign loans (including previously restructured ones) had been exchanged into to two new instruments with a spread of 0.8125% above Libor and maturities of 10 and 20 years. To derive cash flows streams, we can therefore simply use the terms of these two instruments, as well as the terms of four "new money" loans issued at that time (same spread and maturities of 8, 12 and 15 years). Due to the long remaining maturity, the present value of the outstanding debt instruments amounts to a low $43.97 bn, compared to the face value of $54.3 bn. The resulting H_{SZ} is 30.5%, which is significantly smaller than the computed market haircut. The face value haircut is even lower, 13.1%, because only part one of Mexico's Brady deal menu implied principal reduction.

Ecuador's 2000 Bond Exchange

Ecuador's 2000 exchange is an exemplary case of a modern-era bond restructuring. In 1999, Ecuador was the first country to default on its Brady bonds. The government launched an exchange offer on six outstanding bonds in July of 2000, which was successfully closed on August 17 with a participation rate of nearly 99%. The deal affected four bonds resulting from the country's 1996 Brady deal, as well as a $350 m bullet Eurobond maturing in 2002 and a $150 m bullet Eurobond maturing in 2004. The Brady instruments had an outstanding US$ face value of 1,655 m (Brady Par bonds), 1,435 m (Bray Discount bonds), 2,781 m (Brady Past Due Interest bonds) and 143.25 m (Brady Interest Equalization bonds). Their maturities are 2025, 2025, 2015 and 2004 respectively. The Brady bonds have an interest rate of 0.8125% above Libor except for the Par bond, which has a step up coupon rate increasing from three to five percent annually.

All six old bonds were exchanged into a new 30 year bullet bond maturing in August 2030 with annual coupon rates increasing from 4% in year one to 10% from year nine on. Besides a lengthening of maturities, the exchange implied a cut in principal of 60% for the Brady Par bonds, of 42% for the Brady Discount bonds and of 22% for the Brady PDI bonds (this yields an overall weighted cut in principal of 33.88%). Note, however, that this cut in principal was accompanied by a sweetener, as holders of Brady PDI and Brady Discount bonds that agreed to the exchange became eligible to a cash payment of 23.5% of principal outstanding. Furthermore, the deal foresaw the capitalization of a total of $185.3 m of overdue interest payments on all of the six old instruments. This accrued interest was exchanged into a new bullet Eurobond maturing

in 2012 and paying a fixed 12% annual coupon. Future payments are discounted with the imputed country specific discount rate of 17.3%. At the time Ecuador had an *II* credit rating of 18.3 which is tantamount to 5.16 on Moody's ordinal scale in which 4 corresponds to Caa and 6 corresponds to B3. The yield on medium-term US corporate bonds at the time was 13.3 for B3 bonds and 20.04 for Caa bonds as computed directly by Moody's.

We can compute *PV Old* precisely, given the detailed knowledge on all of the old instruments, including their exact principal redemption schedule. We apply the same country-specific discount rate of 17.3%, except for the collaterized Brady bonds which are discounted based on the prevailing US 30-year Treasury yield curve). To get the total present value of the old instruments, we compute present value estimates for each of the six outstanding bonds and add to this the total accrued past interest. This results in a total present value of the old debt of $43.58 bn, compared to $66.99 bn in outstanding face value. Next, we compute the present value of the two new bonds and addto this the cash payment sweetener on the Brady PDI and Discount bonds. The results is a total *PV New* of $26.91 bn. Overall, we thus get a market haircut of 59.8% (roughly: 1- 26.91/66.99) and a SZ haircut estimate of 38.3% (roughly: 1- 26.91/43.58). This large discrepancy between H_M and H_{SZ} can mainly be explained by the long remaining maturity of the old outstanding Brady debt instruments. Finally, it should be mentioned that the agreement also had a sizable face value haircut of 33.88%, due to the sizable write-off on three of the six outstanding instruments.

Appendix 5.A4: Complete List of Cases

Table 5.A6 provides a complete list of the 180 restructurings 1970 to 2010. The table also provides details on key features of each restructuring agreements, in particular

1. The volume of debt restructured in million US$
2. If the restructuring involves bond debt only
3. If the deal implies a reduction in face value of outstanding debt
4. If the deal is a buy-back
5. If the restructuring is a Brady deal
6. If the deal is donor funded or supported by bilateral or multilateral money, e.g. via funds by International Development Association Debt Reduction Facility (World Bank 2007).
7. If all the old debt being restructured has fallen due
8. If the exchange includes previously restructured debt
9. If the agreement includes the provision of new money or concerted lending
10. If the agreement also affects short-term debt, e.g. trade credits
11. The Data Quality Index, reflecting the scope of information available

In addition, Figure 5.A9 provides a more condensed overview. The graph underlines the high frequency of restructurings, both within and across countries. On average, defaulting countries restructured their debt two and a half times since 1970. Especially the 1980s saw a large number of successive restructurings, which were often linked to each other. The country with the most completed debt exchanges was Poland with eight deals, followed by Mexico, Congo (Dem. Rep.), Jamaica and Nigeria with seven deals each and by Argentina, Brazil and Mexico with six deals each. These figures reconfirm the notion of "serial defaults" highlighted by Reinhart and Rogoff (2009). Interestingly, however, not all serial defaulters feature a high number of restructurings. Peru, for example, was in default for as long as 14 years before it finally restructured its debt in its Brady deal of 1997.

Table 5.A6: Sovereign Debt Restructurings 1970-2010

Case Nr	Country	Date	Debt Affected in m USD	Bond Exchange	Reduct. in Face Value	Buy Back Deal	Brady Deal	Donor Funded	All Fallen Due	Affects PRD	New Money Incl.	Short-Term Debt Incl.	Data Quality Index
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Albania	08 / 1995	501		1			1	1				2
2	Algeria	03 / 1992	1,457										3
3	Algeria	07 / 1996	3,200							1			2
4	Argentina	08 / 1985	9,900						1		1	1	2
5	Argentina	08 / 1987	29,515						1		1	1	3
6	Argentina	04 / 1993	28,476		1		1			1			3
7	Argentina (Global)	04 / 2005	43,736	1	1					1			5
8	Belize	02 / 2007	516	1									5
9	Bolivia	03 / 1988	473		1	1			1				2
10	Bolivia	04 / 1993	171		1	1		1	1				3
11	Bosnia & Herzeg.	12 / 1997	1,300		1	1				1			4
12	Brazil	02 / 1983	4,452						1		1	1	2
13	Brazil	01 / 1984	4,846								1	1	2
14	Brazil	09 / 1986	6,671						1			1	2
15	Brazil	11 / 1988	62,100								1	1	2
16	Brazil	11 / 1992	9,167						1				4
17	Brazil	04 / 1994	43,257		1		1			1			3
18	Bulgaria	06 / 1994	7,910		1		1		1				3
19	Cameroon	05 / 2002	600		1	1		1	1				3
20	Cameroon	08 / 2003	796		1	1		1	1				3
21	Chile	11 / 1983	2,169								1	1	2
22	Chile	01 / 1984	1,160						1				3
23	Chile	04 / 1986	6,007							1	1	1	3
24	Chile	06 / 1987	5,901							1		1	3
25	Chile	12 / 1990	6,494							1	1	1	3
26	Congo, DR (Zaire)	04 / 1980	402						1				3
27	Congo, DR (Zaire)	01 / 1983	58										3
28	Congo, DR (Zaire)	06 / 1984	64										3
29	Congo, DR (Zaire)	05 / 1985	61										3
30	Congo, DR (Zaire)	05 / 1986	65										3
31	Congo, DR (Zaire)	05 / 1987	61										3
32	Congo, DR (Zaire)	06 / 1989	61							1			3
33	Congo, Rep.	12 / 2007	2,100		1			1	1				2
34	Costa Rica	09 / 1983	609									1	2
35	Costa Rica	05 / 1985	440									1	2
36	Costa Rica	05 / 1990	1,384		1		1			1			4
37	Cote d'Ivoire	03 / 1998	6,462		1		1	1		1			4
38	Cote d'Ivoire	04 / 2010	2,940	1	1					1			4
39	Croatia	07 / 1996	858							1		1	5
40	Cuba	12 / 1983	130						1			1	3
41	Cuba	12 / 1984	103						1			1	2
42	Cuba	07 / 1985	90						1			1	2
43	Dominica	09 / 2004	144	1	1								4
44	Dom. Rep.	02 / 1986	823						1				2
45	Dom. Rep.	08 / 1994	1,087		1		1			1			3
46	Dom. Rep. (Bonds)	05 / 2005	1,100	1									5
47	Dom. Rep. (Loans)	10 / 2005	180										2
48	Ecuador	10 / 1983	970						1		1	1	2
49	Ecuador	08 / 1984	350						1			1	2
50	Ecuador	12 / 1985	4,224								1	1	2
51	Ecuador	02 / 1995	7,170		1		1			1			4
52	Ecuador	08 / 2000	6,700	1	1					1			5
53	Ecuador	06 / 2009	3,190	1	1	1				1			4
54	Ethiopia	01 / 1996	226		1	1		1	1				3
55	Gabon	12 / 1987	39										2
56	Gabon	05 / 1994	187						1				3
57	Gambia,The	02 / 1988	19						1				3
58	Grenada	11 / 2005	210	1									4
59	Guinea	04 / 1988	43						1			1	2
60	Guinea	12 / 1998	130		1	1		1	1				2

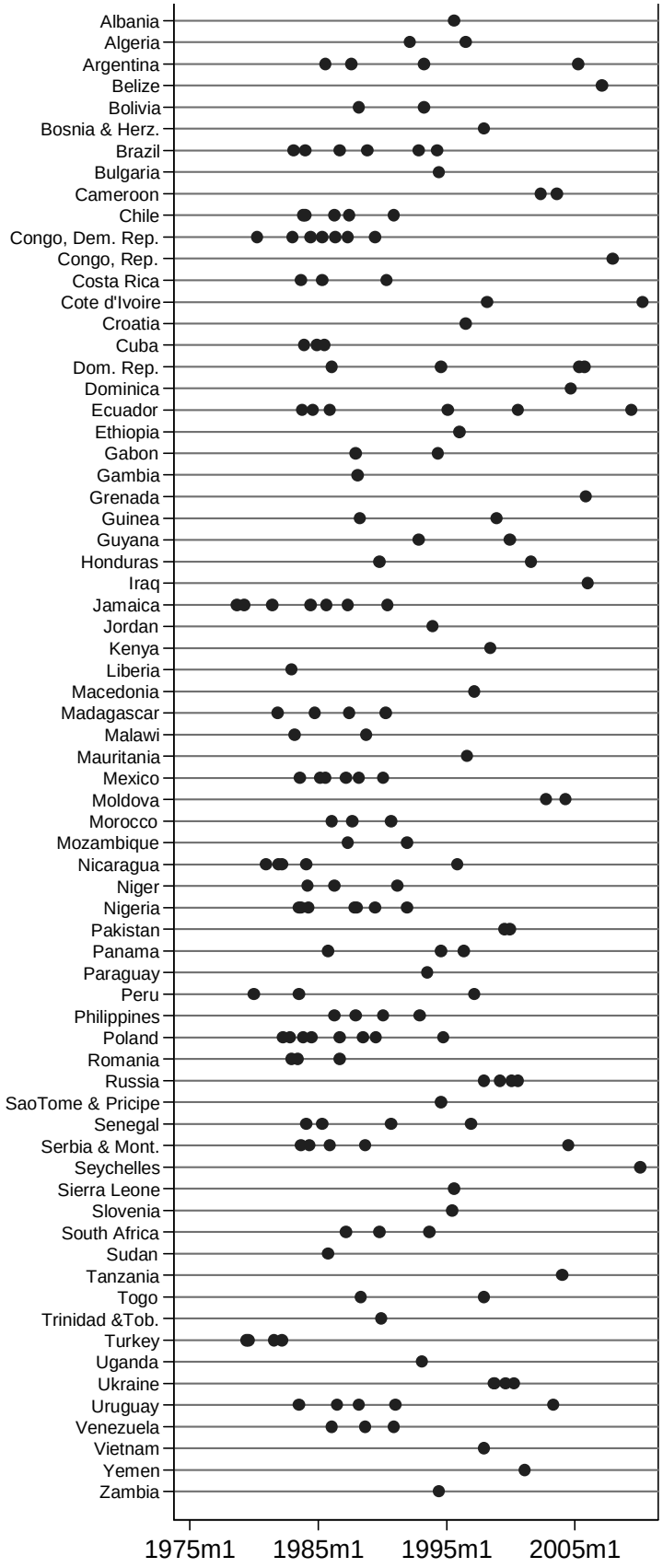
Table 5.A6: Sovereign Debt Restructurings 1970-2010 (Cont'd)

Case Nr	Country	Date	Debt Affected in m USD	Bond Exchange	Reduct. in Face Value	Buy Back Deal	Brady Deal	Donor Funded	All Fallen Due	Affects PRD	New Money Incl.	Short-Term Debt Incl.	Data Quality Index
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
61	Guyana	11 / 1992	93		1	1		1	1				3
62	Guyana	12 / 1999	56		1	1		1	1				3
63	Honduras	10 / 1989	132						1				3
64	Honduras	08 / 2001	13		1	1		1	1				3
65	Iraq	01 / 2006	17,710		1	1			1				4
66	Jamaica	09 / 1978	63						1				3
67	Jamaica	04 / 1979	149										2
68	Jamaica	06 / 1981	89								1		2
69	Jamaica	06 / 1984	165						1				3
70	Jamaica	09 / 1985	369							1			3
71	Jamaica	05 / 1987	285							1			3
72	Jamaica	06 / 1990	332							1			3
73	Jordan	12 / 1993	1,289		1		1		1	1			3
74	Kenya	06 / 1998	91		1				1				4
75	Liberia	12 / 1982	30										2
76	Macedonia, FYR	03 / 1997	229							1			5
77	Madagascar	11 / 1981	147						1				3
78	Madagascar	10 / 1984	195						1			1	3
79	Madagascar	06 / 1987	60							1			4
80	Madagascar	04 / 1990	49							1			3
81	Malawi	03 / 1983	57										3
82	Malawi	10 / 1988	35						1				3
83	Mauritania	08 / 1996	53		1	1		1	1				3
84	Mexico	08 / 1983	18,800								1	1	3
85	Mexico	03 / 1985	28,600							1			3
86	Mexico	08 / 1985	20,100							1			3
87	Mexico	03 / 1987	52,300							1	1		3
88	Mexico	03 / 1988	3671		1				1				3
89	Mexico	02 / 1990	54,300		1		1			1		1	4
90	Moldova (Eurobonds)	10 / 2002	40	1					1				5
91	Moldova (Gazprom)	04 / 2004	115		1	1			1				5
92	Morocco	02 / 1986	538						1			1	3
93	Morocco	09 / 1987	2,444						1	1		1	2
94	Morocco	09 / 1990	3,200						1	1			2
95	Mozambique	05 / 1987	253						1			1	3
96	Mozambique	12 / 1991	124		1	1		1	1				2
97	Nicaragua	12 / 1980	582						1			1	2
98	Nicaragua	12 / 1981	192						1			1	2
99	Nicaragua	03 / 1982	100						1			1	2
100	Nicaragua	02 / 1984	145						1	1			2
101	Nicaragua	11 / 1995	1100		1	1		1	1				3
102	Niger	03 / 1984	27										2
103	Niger	04 / 1986	52										2
104	Niger	03 / 1991	111		1	1		1	1				2
105	Nigeria	07 / 1983	1350						1			1	2
106	Nigeria	09 / 1983	585						1			1	2
107	Nigeria	04 / 1984	925						1			1	2
108	Nigeria	11 / 1987	4,249						1		1	1	2
109	Nigeria	01 / 1988	1,213						1				3
110	Nigeria	06 / 1989	5,829							1		1	2
111	Nigeria	12 / 1991	5,883		1		1			1			2
112	Pakistan (Bank debt)	07 / 1999	777						1			1	4
113	Pakistan (Bond debt)	12 / 1999	610	1									5
114	Panama	10 / 1985	579								1	1	2
115	Panama	08 / 1994	452	1					1				4
116	Panama	05 / 1996	3,936		1		1			1			3
117	Paraguay	07 / 1993	20			1			1				3
118	Peru	01 / 1980	340							1			3
119	Peru	07 / 1983	380						1		1	1	2
120	Peru	03 / 1997	10,600		1		1		1				3

Table 5.A6: Sovereign Debt Restructurings 1970-2010 (Cont'd)

Case Nr	Country	Date	Debt Affected in m USD	Bond Exchange	Reduct. in Face Value	Buy Back Deal	Brady Deal	Donor Funded	All Fallen Due	Affects PRD	New Money Incl.	Short-Term Debt Incl.	Data Quality Index
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
121	Philippines	04 / 1986	3,242						1			1	2
122	Philippines	12 / 1987	9,690							1		1	2
123	Philippines	02 / 1990	2,120		1					1	1		3
124	Philippines	12 / 1992	4,471		1		1			1	1		3
125	Poland	04 / 1982	1957						1				3
126	Poland	11 / 1982	2,225						1			1	3
127	Poland	11 / 1983	1,192						1			1	2
128	Poland	07 / 1984	1,390									1	2
129	Poland	09 / 1986	1,970							1		1	2
130	Poland	07 / 1988	8,441							1		1	2
131	Poland	07 / 1989	206							1			2
132	Poland	10 / 1994	13,531		1		1			1	1	1	3
133	Romania	12 / 1982	1,598						1			1	3
134	Romania	06 / 1983	567						1				2
135	Romania	09 / 1986	800							1			2
136	Russia	12 / 1997	30,500						1				4
137	Russia (GKOs)	03 / 1999	4,933	1	1								5
138	Russia (MinFin3s)	02 / 2000	1,307	1						1			5
139	Russia (Prins, IANs)	08 / 2000	31,943	1	1					1			5
140	Sao Tome and Principe	08 / 1994	10.1		1	1		1	1				3
141	Senegal	02 / 1984	77						1				2
142	Senegal	05 / 1985	20										3
143	Senegal	09 / 1990	37						1				3
144	Senegal	12 / 1996	80		1	1		1	1				2
145	Serbia and Montenegro	07 / 2004	2700		1					1			3
146	Seychelles	02 / 2010	320	1	1								3
147	Sierra Leone	08 / 1995	235		1	1		1	1				2
148	Slovenia	06 / 1995	812							1			3
149	South Africa	03 / 1987	10900						1	1		1	3
150	South Africa	10 / 1989	7500						1	1			3
151	South Africa	09 / 1993	5000						1	1		1	4
152	Sudan	10 / 1985	920						1	1		1	3
153	Tanzania	01 / 2004	155.8		1	1		1	1				2
154	Togo	05 / 1988	49						1				3
155	Togo	12 / 1997	75		1	1		1	1				3
156	Trinidad and Tobago	12 / 1989	446							1			3
157	Turkey	06 / 1979	429						1		1	1	3
158	Turkey	08 / 1979	2,269						1			1	3
159	Turkey	08 / 1981	100						1				3
160	Turkey	03 / 1982	2269							1			3
161	Uganda	02 / 1993	153		1	1		1	1				3
162	Ukraine (OVDPs)	09 / 1998	420	1									5
163	Ukraine (Chase loan)	10 / 1998	109						1				5
164	Ukraine (ING loan)	08 / 1999	163		1				1				5
165	Ukraine (Global)	04 / 2000	1,598	1	1								5
166	Uruguay	07 / 1983	575								1	1	3
167	Uruguay	07 / 1986	1,958							1			4
168	Uruguay	03 / 1988	1,770							1			3
169	Uruguay	01 / 1991	1,610		1		1			1	1		4
170	Uruguay	05 / 2003	3,127	1						1			5
171	Venezuela, RB	02 / 1986	20,307										2
172	Venezuela, RB	09 / 1988	20,338							1			3
173	Venezuela, RB	12 / 1990	19,585		1		1			1	1		4
174	Vietnam	12 / 1997	782		1		1		1				3
175	Yemen, Republic of	02 / 2001	607		1	1		1	1				2
176	Yugoslavia	09 / 1983	950						1		1	1	2
177	Yugoslavia	05 / 1984	1,250						1				2
178	Yugoslavia	12 / 1985	3,600							1			3
179	Yugoslavia	09 / 1988	6,895							1	1	1	2
180	Zambia	06 / 1994	570		1	1		1	1				2

Figure 5.A9: Sovereign Restructurings by Country 1970 - 2010



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Deutsche Zusammenfassung

Die Krise der Jahre 2009-2010 hat verdeutlicht, dass Schuldenkrisen ein immer wiederkehrendes Phänomen internationaler Finanzmärkte sind. Trotz der mehr als tausendjährigen Geschichte von Staatsbankrotten gibt es jedoch nach wie vor keine geregelte Insolvenzordnung für Staaten. Krisensituationen werden weiterhin fallweise gelöst, ohne institutionalisiertes Regelwerk und ohne bindende Rechtsnormen. Das Resultat sind ungeordnete und unvorhersehbare Umschuldungsverhandlungen, die oft Jahre dauern und erhebliche Kosten sowohl für Gläubiger als auch für die Schuldnerregierung mit sich bringen.

Das Ziel dieser Arbeit ist es, den Prozess zur Lösung von Schuldenkrisen und zur Umstrukturierung staatlicher Anleihen und Kredite anhand neu gesammelter Daten zu untersuchen und daraus Schlussfolgerungen für zukünftige Krisen zu ziehen. Erstens baut die Dissertation ein umfassendes Datenarchiv zu Schuldenkrisen der letzten Jahrzehnte auf, mit detaillierten Informationen zur Krisendauer und dem Ablauf von Umschuldungsverhandlungen. Auch wird ein neuer Datensatz zur Höhe der Gläubigerverluste („haircuts“) entwickelt, der weltweit alle 180 Umstrukturierungen seit 1970 abdeckt. Mithilfe dieser Daten werden dann, zweitens, zentrale Hypothesen der theoretischen Literatur zu Schuldenkrisen getestet und die bisherigen empirischen Ergebnisse hinterfragt. Der Fokus liegt insbesondere auf Theorien zur Rolle von Reputation in Kreditmärkten.

Die Ergebnisse der Arbeit lassen sich in zwei Punkten zusammenfassen. Die erste zentrale Einsicht ist, dass Schuldenkrisen eine erhebliche Heterogenität aufweisen. Manche Umschuldungsverhandlungen werden in einem Monat gelöst, andere dauern 15 Jahre. Auch das Verhandlungsverhalten von Regierungen gegenüber Banken und Investoren ist sehr unterschiedlich. Die Schuldnerpolitik reicht von sehr kooperativ, mit vorbeugenden Verhandlungen ohne Zahlungsausfall, bis sehr konfrontativ, etwa wenn die Regierung sich weigert überhaupt zu verhandeln oder wenn sie jahrelange Schuldenmoratoria auferlegt. Ebenso variieren die Verluste von Gläubigern stark. In einigen Restrukturierungen betragen sie nur 5%, in anderen bis zu 97% des Nettobarwertes der Schulden.

Insgesamt liefert die Arbeit damit erstmals einen systematischen Überblick zu Ablauf und Ergebnis von Umschuldungsverhandlungen zwischen Regierungen und Gläubigern. Durch die gewonnenen Erkenntnisse wird auch eine neue Kategorisierung von Schuldenkrisen möglich, die über die bisher in der quantitativen Forschung verwendete binäre Krisenvariable hinausgeht. Statt der einfachen Einteilung in Krisen-

und Nicht-Krisenjahre können nun die Determinanten und Konsequenzen einzelner Krisencharakteristika untersucht werden. So kommt der erste Teil der Arbeit zu dem Schluss, dass politische und institutionelle Faktoren eine wesentliche Rolle dabei spielen, wie schnell und gläubigerfreundlich die Verhandlungen zwischen Schuldenstaaten und Gläubigern ablaufen.

Das zweite zentrale Ergebnis ist, dass das Regierungsverhalten in Schuldenkrisen erhebliche Auswirkungen auf die Wohlfahrt eines Landes haben kann. Regierungen, die sich konfrontativ gegenüber ihren Gläubigern verhalten, scheinen der Reputation ihres Landes zu schaden, wie dies auch von theoretischen Modellen vorausgesagt wird. Wenn Regierungen ihren Gläubigern hohe Verluste aufbürden oder sich weigern, mit ihnen zu verhandeln, so hat dies negative Folgen für private Firmen im Schuldnerland, aber auch für die Regierung selbst. Kapitel 4 zeigt, dass sich das Verhandlungsverhalten der Regierung auf den Zugang des Privatsektors zu externen Krediten auswirkt. In Jahren in denen sich die Regierung besonders konfrontativ verhält lässt sich ein starker Rückgang der durch Firmen im Ausland geliehenen Schuldenvolumina verzeichnen und es kommt zu deutlich höheren Risikoaufschlägen.

Die Ergebnisse von Kapitel 5 deuten zudem darauf hin, dass hohe Gläubigerverluste mittelfristig von den Finanzmärkten „bestraft“ werden. Die Schätzergebnisse zeigen: je höher der in der Umstrukturierung implizite „haircut“, desto höher die Zinsaufschläge, welche die Regierung nach der Krise zahlen muss. Auch erhöht sich die Wahrscheinlichkeit, dass die Regierung vollständig von internationalen Kapitalmärkten abgeschnitten wird. Die identifizierten Effekte sind stärker und deutlich langlebiger als in der bisherigen empirischen Literatur; denn die meisten Untersuchungen der letzten 30 Jahre kommen zu dem Schluss, dass Schuldenkrisen keine oder nur geringe Folgen für den Zugang zu Kapitalmärkten haben. Insgesamt stellen die Resultate somit die weit verbreitete Ansicht in Frage, dass Investoren ein“kurzes Gedächtnis“ haben.