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Conference Paper

Delays in Sovereign Debt Restructurings. Should we really blame the creditors?

Proceedings of the German Development Economics Conference, Zürich 2008, No. 44

Provided in Cooperation with:
Research Committee on Development Economics (AEL), German Economic Association

Suggested Citation: Trebesch, Christoph (2008) : Delays in Sovereign Debt Restructurings. Should we really blame the creditors?, Proceedings of the German Development Economics Conference, Zürich 2008, No. 44, Verein für Socialpolitik, Ausschuss für Entwicklungsländer, Göttingen

This Version is available at:
https://hdl.handle.net/10419/39906

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Delays in Sovereign Debt Restructurings.
Should we really blame the creditors?

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Preliminary draft[2]: 25 March 2008

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Abstract

Disorderly debt restructurings can be detrimental for debtor countries and creditors alike. This paper investigates delays in sovereign debt restructurings using a comprehensive new dataset since 1980. Why are some debt crises settled in just a few months, while others take many years? Have creditor coordination problems become more cumbersome in recent years? To answer these and other questions, the study provides ample case study evidence. Moreover, I apply semi-parametric duration models. The results indicate that holdouts, inter-creditor disputes and litigation explain some of the observed restructuring delays. However, government behaviour and political instability appear far more important in explaining lengthy restructurings. The volume of IMF credits has no systematic influence on the speed of crisis resolution

JEL: F34, F51, C41
Keywords: Debt Crises, Debt Restructuring, Duration Models

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[2] I thank Joseph Joyce and Axel Dreher for kindly providing their data on IMF program implementation.

"*These negotiations with the banks are realistically a kind of war, of financial war, economic war in which each side wants to use all the missiles it has to defend its interests*"
Venezuelan President Perez, Sept. 1989[3]

1. Introduction

The way in which sovereign debt crises are resolved can be of crucial importance for policymakers and creditors of defaulting countries. This paper investigates the duration of sovereign debt crises or, more precisely, the length of debt restructuring processes with private creditors in countries facing financial distress. To this date, it remains an open question why there is such a large variability in the length of debt defaults and debt renegotiations. In some cases the resolution of debt crises took many years (i.e. Argentina 2001 to 2005, Jordan 1989 to 1993 or Peru 1983 to 1997), while in other cases debt restructuring deals could be successfully completed in just a few months (Uruguay in 2003, Pakistan in 1999, Chile in 1990 or Romania in 1983). Given the potential costs of default for a country[4], it seems highly relevant to get a better understanding on the factors that explain the speed of debt crisis resolution.[5]

While there is a wealth of theoretical papers on crisis resolution, creditor coordination problems and sovereign bankruptcy procedures, barely any research has worked with real data. A main reason for this is probably the lack of reliable and systematic data on debt renegotiation processes. This paper presents and exploits a new, comprehensive dataset on restructuring cases since 1980. Relying on more than 20.000 pages of press articles and further sources, I have systematically collected information on the length of default and negotiations, on creditor behaviour and characteristics (inter-creditor disputes, holdouts, litigation, and the number and heterogeneity of creditors), on government behaviour during the negotiations and on exceptional events leading to delays (riots, armed conflicts, coups etc.). This database enables me to investigate, whether the creditor structure, litigation or inter-creditor disputes are systematic determinants of negotiation delays and what role the government behaviour and political factors have played in delaying past restructuring processes. Concretely, I evaluate the ample case study evidence and apply semi-parametric duration models.

Overall, the econometric results and the anecdotal evidence suggest that political risk and government behaviour might be a more important reason for restructuring delays than creditor behaviour. Additionally, the evidence provided puts into question the standard view that debt

[3] Cited by Reuters News, 22 September 1989
[4] See Borensztein and Panizza (2006), Rose (2005), Martinez and Sandleris (2006) and Arteta and Hale (2008) for some recent contributions on the costs of default.
[5] In a recent review on the sovereign default literature Hatchondo et al. (2007, p. 181) underline the need for more research on the question: "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."

workouts were quicker and easier in the era of bank finance of the 1980s and 1990s. Instead, the current practice of bond exchange offers appears to have been rather effective on average.

The remainder of this paper is structured as follows. Section 2 describes the related literature. Section 3 draws on case study evidence to provide stylized facts on the duration of debt restructurings and their potential causes. Section 4 presents the econometric approach and variables used in the regressions. In section 5 I present and discuss the empirical results. Section 6 concludes.

2. Related Literature

When it comes to disorderly debt workouts and delays in sovereign debt restructuring it is often creditors who are blamed. Both the academic literature and policy circles have emphasised incentive problems on the creditor side - be it problems of creditor moral hazard, holdouts by "rogue" creditors or "races to the courthouse". In most theoretical contributions, creditor coordination problems are modelled as the primary reason for inefficiency in sovereign distress situations.[6] Also prominent policy proposals such as the "Sovereign Debt Restructuring Mechanism" highlight the severity of creditor coordination problems (Krueger 2002). In recent years, the perception seems to be that problems on the creditor side have grown more severe. One factor is the rise of "vulture" creditors such as Elliot against Peru (see Alfaro et al. 2007). Another reason is the remarkable shift from bank lending towards bond financing since the early 1990s. Coordination problems, so it is argued, were particularly severe in recent restructurings, which involved thousands of different bondholders, compared to restructurings of commercial bank loans of the 1980s, where a small group of lead banks used to negotiate on behalf of all creditor banks. Usually, the case of Argentina (2002-2005) is cited as an obvious showcase in this regard. However, there has been little empirical research going beyond anecdotes that proves that this perception is generally true.[7]

Inefficiencies and negotiation delays due to government behaviour have received much less attention in the literature. Rogoff and Zettelmeyer (2002) point to the striking lack of papers that model bad debtor incentives as a reason for disorderly crisis resolution. Yet, with regard to this 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 behaviour, or because the debtor side exhibits collective action or political economy problems of its own (p. 496). I fully share this view. Accordingly, and as highlighted above, this article tries to take into account both delays due to creditor behaviour and delays caused by problems on the debtor side. I believe that the approach chosen here - a mixture of case studies and econometric analysis - provides some valuable new insights on the causes of disorderly debt restructurings.

[6] See, amongst others Ghoshal and Miller (2003), Haldane et al (2004) or Wright (2004). A series of articles has also analysed debt panics or self-fulfilling creditor runs, i.e. situations in which creditors do not delay crisis resolution but actually trigger the outbreak of crisis (e.g. Cole and Kehoe 2000 and Chamon 2007)

[7] Roubini and Setser (2004 p. 12) rightly underline that debt workouts in the 1980s were often messy and could involve hundreds of different banks.

Two recent theoretical papers are closely related to the questions raised in this study. Pitchford and Wright (2007) construct a model on the restructuring process for sovereign debt and couple it with a model of sovereign borrowing. They find that both creditor holdouts and creditor's free-riding on negotiation effort contribute to a delay in debt restructuring. Interestingly, however, they also conclude that a reduction in delays via policy measures such as CACs (collective action clauses) would not be welfare improving. The paper on debt renegotiation by Bi (2008) presents a two-player stochastic bargaining game based on Merlo and Wilson (1995). Bi argues that delays can be beneficial in that both creditors and debtors can share a larger "cake" once the debtor country has recovered. For this reason both sides can have an incentive to delay a settlement if output is below a critical threshold.

There is also a connected theoretical literature on debt restructurings in corporations. Authors such as Rajan (1992) and Bergman and Callen (1991) have modelled free-rider problems as increasing with the number of creditors. Morris and Shin (2004) focus on coordination risk among creditors of distressed firms and apply their framework to the pricing of debt. Again with a focus on corporations, Bolton and Scharfstein (1996) derive optimal debt contracts. A starting point in their model is that the debt structure will crucially influence debt renegotiations. More creditors (multiple lenders) lead to more complicated restructurings, lowering the payoffs for borrowers and thus the likelihood of strategic defaults.

In the field of corporate finance one can also find interesting empirical evidence on these issues. Gilson, Kose and Lang (1990) use a sample of 169 distressed companies in the U.S.. They find that successful restructurings are more likely when the number of lenders is small and when a higher share of debt is owed to banks. Franks and Torous (1994) study 45 distressed exchanges and 37 Chapter 11 reorganizations and come to an opposing result. According to their analysis, The share of bank debt does not appear to matter for restructuring success. In a more recent article, Brunner and Krahnen (2008) use a sample of 95 corporate restructurings in Germany. Their main result is that small pools of lenders significantly increase the probability of successful workouts, while large pools reduce the likelihood of success.

As to the literature on sovereign debt, there is barely any empirical evidence on the success or duration of restructurings.[8] There are, however, some recent articles on the length of other financial crises. Mecagni et al (2007) investigate the duration of 18 capital account crises, Frydl (1999) focuses on the length of bank crises and Tudela (2004) applies duration models for the occurrence of currency crises. Other authors have analysed the duration of financial system stability (Aka 2006) or the duration of IMF Programs (Joyce 2005).

The paper contributes to the existing literature in several ways. First, it provides a new, comprehensive database and ample case study evidence on delays in sovereign debt renegotiations of 34 developing countries since 1980. In particular, it offers the first

[8] I am aware of only one published study that explicitly investigates the length of sovereign debt renegotiations (Baek and Bandopadhyaya 1996). Yet, the paper is based on a small sample of restructuring cases of the 1980s only and uses a limited set of explanatory variables that are not time-varying.

comprehensive account of pre-restructuring litigation, creditor holdouts and inter-creditor disputes in debt restructuring negotiations between sovereigns and private creditors. These phenomena are widely discussed, but little systematic evidence has been compiled to this date. Second, the paper investigates the main determinants of restructuring delays for sovereign debt econometrically. The general aim is to provide some understanding whether delays were rather caused by creditor behaviour or because of policies and shocks on the debtor side. There has been barely any research specifically concerned with this quite general question. In the empirical analysis, I therefore focus on variables capturing creditor characteristics as well as those capturing political and economic factors. Likewise, I evaluate the detailed anecdotal evidence by disentangling delays due to creditor behaviour (litigation, holdouts, disputes) and delays due to government behaviour and political shocks.

3. Stylized Facts on Restructuring Delays and their Causes

This section summarizes main insights from a new database on restructuring delays, which was developed for the purpose of this paper. To assemble the information in the database, I started out by extracting all available lists of sovereign debt restructurings, in particular those contained in the reports Global Development Finance (GDF 2001, 2002, 2003, 2004, 2007), the list of sovereign defaults by Standard and Poor's (2006), and the list of restructurings by Stamm (1987). For obvious reasons, these lists do not contain 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.[9] To build a new database containing this kind of information, I therefore drew on a much broader information base, namely that assembled by Enderlein, Müller and Trebesch (2007). In the coding process of the restructuring database I (re-) evaluated 20.000 pages of articles from the financial press[10], all main reference books on sovereign debt crises containing case study evidence[11] as well as a series of policy reports.[12] A detailed description of information sources, coding procedures, and variables contained in the database can be found in the Appendix (A.1.). Given the level of detail and the aim to produce reliable and replicable results, I only coded those cases for which I had enough objective background material. Each individual restructuring was coded separately, even if there were several consecutive exchange deals in the same country. Ultimately, I ended up coding 91 restructuring cases with foreign private creditors in 34 developing and emerging economies. The period under consideration is 1980 to 2006. Table 1 in the Appendix provides an overview of the cases covered.

3.1. Stylized Facts on the Duration of Restructurings

[9] Only Stamm (1987) provides anecdotal evidence in a number of cases.

[10] The articles were extracted from the online news database *factiva* and come mainly 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 search algorithm applied was "countryname w/10 debt".

[11] Cline, 1995; Aggarwal, 1996; Boughton, 2001; Roubini and Setser, 2004; Rieffel, 2003; Andritzky, 2006; Sturzenegger and Zettelmeyer, 2006

[12] 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

As a first step it is useful to discuss the average (total) duration of restructuring processes. Here, the total duration of a restructuring is defined as the period of time spanning from the month of default or the month in which the restructuring is announced to the final implementation of the deal (see Appendix for details). A convenient way to present the distribution of events in duration analysis is the estimation of empirical survival functions. Figure 1 in the appendix plots a survival function based on monthly data of the duration of debt restructuring since 1980.[13] The estimation was performed using the non parametric Kaplan-Meier estimator, which is popular in economic research. Results show that after one year, more than a third of the 90 restructurings covered had been completed. After two years already two thirds of the deals were resolved. This means that the likelihood of finalising a restructuring increases strongly over time during the first years of financial distress. From then on, however, the plot shows a "long tail" with a series of finalisations distributed over an extended period of approximately 13 years. This, together with the estimated hazard function (not reported), indicates that the probability of reaching a final deal decreases from a certain point. In other words, the probability of exiting a debt crisis becomes lower over time for those cases in which the crisis could not resolved within the first few years of distress.

Table 1 provides some further descriptive statistics on the length of restructuring processes.[14] As can be seen, the average (total) duration for the case covered was about 2.5 years (29.2 months). The large standard deviation illustrates the enormous variability in the length of defaults and restructuring processes, a point which is also highlighted by Pitchford and Wright (2007). The longest restructuring process covered was that of Vietnam, which defaulted in 1982 and completed its restructuring only in 1998. The shortest restructuring processes - of only 3 months - could be observed in Argentina in 2001 (Megaswap), in Uruguay in 2003 and in Brazil in early 1983.

[13] The (total) duration is defined as the period from the beginning of debt distress (default or restructuring announcement) until the final implementation of the deal. See Appendix for details.

[14] The case of Dominica (starting in 2004) is not taken into account because the restructuring is not fully finalized as of today.

Table 1: Durations of Sovereign Debt Restructurings in Months (1980 -2006)

	Cases	Min	Max	Mean	Std. Dev.
Total Duration (from start of debt distress to final deal)	90	3	189	29.2	32.6
Total Duration Pre-Brady era (1980- Febr.1990)	53	3	79	17.7	15.0
Total Duration Brady era (March 1990 to Febr. 1998)	26	9	189	59.4	43.8
Total Duration Post-Brady era (since March 1998)	11	3	41	13.6	12.4
Time until Negotiations Start: Months from start of debt distress to start of negotiations / market sounding		1	150	9.5	18.4
Time of Negotiations: Months from start of negotiations to exchange offer		1	141	14.3	22.1
Time of Implementation: Months from exchange offer to final deal		1	32	7.7	5.7

Note: Pre-Brady era cases include all those finalized between 1980 and March 1990, when the first Brady deal with Mexico was concluded. Brady era cases includes those deals finalized between March 1990 and March 1998, when the last Brady deal with Vietnam was concluded. Post-Brady era cases includes those deals finalized since March 1998, when the last Brady deal with Vietnam was concluded.

When looking at different "eras" in the history of sovereign debt crises since 1980, it turns out that the average restructuring time was smallest for the most recent period (post-1998), in which bond restructurings became the standard solution to resolve crises. On average the bond restructurings since 1998 could be completed in little more than 1 year (mean of 13.6 months). Only Argentina's international bond restructuring (41 months) and the restructuring in Dominica (launched in 2004 and not completed yet) took considerably longer than 2 years.[15] As to the bank restructuring processes of the 1980s, they used to be rather quick, with an average duration of only 1.5 years.[16] There is, however, an impressive increase in restructuring durations in the run-up to the Brady deals of the 1990s. By the late 1980s many developing countries had witnessed years of economic stagnation and showed little willingness to engage in yet another round of debt rescheduling, with a mere extension of maturities.[17] In 1989 the Brady initiative had opened the floor for a new type of deal involving significant debt write offs, which were partly financed by Western governments and international financial institutions like the IMF (see Chuan and Sturzenegger 2005). However, the process until the exact terms of a Brady deal were agreed on and implemented could take many years. Additionally, many countries had been negotiating already for years before 1989. As a result, the restructurings finalized in the 1990s are characterised by an average run-up time of nearly 5 years (59.4 months), which is more than three times the average duration of deals concluded in the 1980s or 2000s.

[15] The case of Dominica is not taken into account because the restructuring is not fully finalized as of today.
[16] Particularly in the early 1980s there were a series of minor restructurings, which were relatively easy to arrange. Later multi-year restructurings and, in particular, the Brady deals involving nominal debt write-offs were more complicated to arrange (See Chuan and Sturzenegger 2005 for a good overview)
[17] In a conversation with Arturo Porzecanski he refered to the late 1980s as a period characterised by "restructuring fatigue" by both banks and governments.

It is also worthwhile to look at main sub-periods of the debt restructuring processes. Generally, the time line of sovereign debt restructurings can be divided in four main steps, which are captured in the dataset: (i) the start of debt distress, (ii) the start of negotiations, (iii) the time of the exchange offer to all creditors and lastly, (iv) the final implementation of the deal. This broad sequencing can be applied both to the bank debt restructurings deals of the 1980s and for most bond restructuring deals since the late 1990s (see the Appendix for a detailed discussion). Measuring the duration between each of the events provides additional insights as can be seen in the bottom part of Table 1.

The first sub-period of restructurings, i.e. the time from the beginning of debt distress (default event or restructuring announcement) until negotiations start, covers an average of 9.5 months. It is reasonable to assume that the duration of this sub-episode is mainly driven by government decisions and political factors. In fact, without negotiations in place and before any details on the deal are discussed, creditors will have much less say compared to later episodes. Instead, the choice about when to start negotiations with creditors is often a political one. Next, Table 1 shows that the "time of negotiations" constitutes the longest sub-period of past restructurings with an average of 14.7 months. The period is usually the one in which most details of the deal are worked out by the government, possibly in close coordination with creditors. Judging from the duration data only, it appears that this phase is the most cumbersome in debt restructuring process. A surprising insight is that the last sub-period, in which creditor behaviour is likely to matter most – i.e. the period from the exchange offer to creditors until the implementation of the deal - is rather short. It had an average duration of 7.7 months only. Once the exchange offer is launched, it is the creditors who will have to decide whether to accept or reject it. In most cases, a successful exchange and the implementation of the deal will require a certain minimum threshold of creditors who accept. Hence, potential creditor coordination problems and problems with holdout creditors and vulture funds are likely to be most acute during this period. Correspondingly, collective action clauses are probably most relevant for the restructuring process in this phase. However, problems and delays in implementing the deal in this sub-episode of restructurings seem to be relatively short-lived on average.

2.2. Stylized Facts on the Reasons for Restructuring Delays

Besides the above set of duration measures, the database provides case study evidence on the reasons of restructuring delays for the 90 cases covered. The survey of past restructurings was based on extensive material from the financial press, on case studies provided by other researchers in the field and on a large number of reports by international financial institutions (see the Appendix for details of all sources and the exact coding procedure). The main aim of the coding exercise was to create a small archive on restructuring delays, in the hope to contribute to a better, more refined understanding of sovereign debt restructuring processes since 1980 and the problems associated with them.[18]

[18] To my knowledge, there has been no such data gathering effort to this date. As a result, researchers and practitioners concerned with sovereign debt restructuring processes have often relied on their own knowledge of past debt crises and have frequently referred to those "messy" restructurings, which have become particularly prominent (e.g. in Argentina or Peru).

In the coding process, I put particular effort to differentiate between delays due to creditor behaviour on the one side and delays caused by political factors and government behaviour on the other side. Regarding creditor behaviour, I further distinguished between (i) cases of pre-restructuring litigation towards debtor countries (a frequent reason of delays in past crises) and (ii) cases in which disputes and coordination problems *within* the group of creditors lead to delays (with a particular focus on holdout problems).

Table 7 in the Appendix provides a record of anecdotes on inter-creditor disputes during the negotiations (including holdout problems), while Table 6 lists cases of litigation which became an issue in the restructuring negotiations. In the second part of the survey, Table 8 presents a list of anecdotes on political events leading to delays, extracted from the same qualitative sources. An overview on Tables 6 to 8 reveals that I was able to gather more information on government induced delay than on creditor induced delay. Given that the information base was very broad and given that journalists, researchers and policy observers alike were rather eager to report on creditor coordination problems, I doubt that this difference can be explained with a bias in coding or within the sources.[19]

Another interesting aspect is that delay episodes due to political events often went on for several years, while many anecdotes on inter-creditor disputes and litigation regarded relatively short time spans only. One way to assess this notion more systematically is to construct simple dummies for each year in which political events did reportedly delay the restructuring (for more than 3 months). Similarly, one can construct dummy variables by coding those years in which creditor disputes and/or litigation lead to delay. Altogether, the database at hand covers 294 country-year observations from 90 restructurings episodes in 34 countries. In this panel-type sample, political delay events were observed in 124 years. In contrast, only 71 yearly cases could be identified in which either litigation or holdouts and other inter-creditor disputes could be observed. More specifically, litigation was an issue in 32 yearly cases, while inter-creditor disputes and holdouts were observed in 47 years.[20] All of this indicates in stylized form that political factors were somewhat more important in determining delays than creditor behaviour. Of course, a more systematic analysis is needed to strengthen this perception.

It is surprising that the issues of pre-restructuring litigation and "races to the courthouse", which have received much attention in the literature[21], could be observed in relatively few restructuring cases only. When reviewing the case study evidence more closely, it seems that legal action by creditors has only been a major problem in the restructuring negotiations of 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. Put differently, litigation appears to have been an obstacle to the finalisation of restructuring deals

[19] Note that, in general, the financial press jointly with detailed policy reports and the case studies yielded a relatively good insight on problems in the debt negotiations. This includes detailed evidence on the main issues in the "closed-door negotiations" and "behind-the-scenes" information.
[20] In 8 cases litigation and creditor disputes occurred simultaneously in one year.
[21] See e.g. Sturzenegger and Zettelmeyer (2006, chapter 3).

only in 7 out of the 90 cases surveyed. 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, this type of post-restructuring litigation is not taken into account here, as the analysis focuses only on the time span until a restructuring is officially completed.

Inter-creditor disputes and problems with holdout creditors have been more serious stumbling blocks. In most cases, holdout problems were caused by groups of smaller banks or minor bondholder groups. However, in some cases during the 1980s and 1990s 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 problem that lead to delays during the 80s and 90s were problems in unifying on a position or disagreements over how the creditor committee should look like and on who would head negotiations (e.g. in Algeria 1994, Dominican Republic 1983, South Africa in 1985)

As to political events leading to delays, they were manifold. Among the reported factors are 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 already been agreed on (Jordan 1990, Peru 1984-85, Poland 1982, Russia 1995). However, 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.

2.3. Strategic Delay by Debtor Governments?

A last question before turning to the econometric analysis is whether the case studies provide some evidence on strategic negotiation delays by governments. It is a striking feature, particularly during the late 1980s and early 1990s, that negotiations were suspended at the same time as payments were suspended. In a 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 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. [22] During these periods the governments even refused to make symbolic token payments to banks and bondholders. In other words, they did not service their debt obligations and

[22] Variables capturing the suspension of interest and principal payments were coded by Enderlein, Müller and Trebesch (2007). The variables were coded on the basis of debt flow figures from the GDF database, as well as case study evidence. See the paper for a detailed description.

could divert resources to other spending purposes instead. One can thus be tempted to interpret these instances as one-sided, strategic restructuring delays by debtors. However, it should be underlined that a precise conclusion is obviously difficult to draw. In fact, behind the scenes, creditors might have agreed to the payment suspension or they might have contributed to the delay as well, e.g. by blocking a sustainable restructuring solution to avoid debt write-offs.

With reference to the paper on "beneficial restructuring delays" by Bi (2008) it should also be noted that some governments have explicitly justified negotiation delays with the wish to achieve an economic recovery first. 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 have publicly argued that a restructuring will be postponed until the economy has noticeably improved and that "premature" restructuring solutions should be avoided. In some of these instances, I could not identify any protest by banks to the statements, even though remarks on delayed restructurings are usually accompanied by angry public protests by creditors and respective press coverage. Sometimes banks even agreed explicitly for delaying agreement. This - obviously purely anecdotal - observation underlines Bi's "waiting-for-a-larger-cake" argument to a certain extent, i.e. that delays can be beneficial for both creditors and debtor governments and that both sides might mutually agree on a lengthening of the restructuring process.

4. Econometric Approach

4.1. The Cox Proportional Hazard Model

To estimate the determinants of debt restructuring delays I choose a model of survival analysis that allows 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).[23] 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 $h_0(t)$ ist he 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 the crisis is still ongoing. The key advantage of the Cox model vis a 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 $h_0(t)$.

[23] 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.

Instead, the shape of $h_0(t)$ is assumed to be unknown and is left unparametrized. 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.[24] The model can be extended straightforwardly once time varying covariates are included (see Lancaster (1990) for a detailed presentation). Moreover, for this type of analysis one needs to account for the prevalence of repeatable or *multiple events*. The dataset at hand contains *n* countries, some of which experiences several restructuring processes over the period of observation. 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).[25] Additionally, to account for consecutive restructurings events, I also add a variable on the number of years a country is in default. Before interpreting the estimation results, I verify whether a crucial assumption of the model - that on proportional hazards - is violated. For this purpose, I derive re-scaled Schoenfeld residuals and run Therneau and Grambsch's (2000) post-estimation test of proportionality.

Note 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 would mean 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.

4.2. Data and Explanatory Variables

The estimation sample includes restructuring cases from 31 developing and emerging economies in the period 1980 to 2006. Due to data constraints, particularly for the 1980s, the model is estimated with yearly data. This results in an overall sample of 242 observations. The dependent variable is the total duration of debt restructurings as defined above.

Table 4 in the Appendix provides summary statistics for the main explanatory variables and an overview of their data and coding sources. The first set of explanatory variables includes standard economic and financial variables to identify the determinants of sovereign risk and default (see e.g. Detragiache and Spilimbergo 2001, Manasse, Roubini and Schimmelpfennig 2003 or Van Rijkeghem and Weder 2004). Two variables capturing initial economic conditions (in the first crisis year) are the *ratio of total external debt to Gross National*

[24] Due to the problem of ties, i.e. coterminous event occurrences, it is necessary to modify the likelihood function. For the estimations in this paper Efron's approximation method is used.
[25] For survey on variance-correction methods for repeated events in survival analysis see e.g. Kelly and Lim (2000)

Income (GNI), as a measure of solvency, and the *ratio of short-term debt to reserves*, as a measure of liquidity. Both variables are important predictors for the severity of debt-servicing difficulties and are likely to increase the duration of restructuring processes. We would thus expect a negative sign of the hazard ratio. I also include *annual inflation*, *real growth*, and the ratio of the *current account balance in relation to GDP*. Inflation is often regarded as a good proxy for overall macroeconomic stability and for the quality of economic policy in developing countries. Thus, it is reasonable to expect a negatively signed coefficient. Contrarily, high rates of real growth and large relative current account surpluses are likely to improve the overall environment of debt restructurings and increase the likelihood that they are successfully resolved in a given year (exp. positive coefficient).

A further variable of interest is the annual *LIBOR* rate. In related studies it is often used to proxy for global liquidity conditions (e.g. Mecagni et al. 2007). One might thus expect a negative sign of this variable, i.e. longer, more difficult renegotiations in situations of more illiquid markets. On the other hand, interest rates may also be regarded as type of opportunity cost or as a discount rate for both creditors and debtor governments. When payments are fully or partially suspended during negotiations, higher interest rates lead to a quicker pile-up of arrears on the debtor side and to higher missed income for banks and bondholders. In times of high interest rates it is also more costly for vulture funds and other rogue creditors to hold out and keep non-performing loans in their portfolio in the hope to reach some beneficial future settlement. With reference to the model of Pitchford and Wright (2007), higher interest rates might thus lead to lower restructuring delays, which would imply a positive coefficient of this variable.

Next, I aim to capture basic features of the debt restructuring environment. First, I take the *ratio of debt owed to private creditors* to total public debt (measured at the start of the restructuring process). This variable is a reasonable proxy of the importance of private capital for the overall financial situation of a sovereign debtor. A high ratio implies that a government is more indebted to private creditors than to official or multilateral creditors as the IMF or Western governments. In such a situation, the debtor might be more dependent on good relations to private creditors leading to faster, less disputed restructurings. Moreover, countries with good access to private capital markets prior to a crisis are likely to have shown better overall fundamentals and a more stable political environment than countries more dependent on official financing. Following both arguments one might thus expect a positively signed coefficient for this variable. The amount of *debt restructured to total external debt* and a dummy for *Brady deals* are further explanatory variables on the restructuring environment. It seems intuitive that lengthy disputes and negotiation delays are more probable the larger the scale of a restructuring, i.e. the higher the relation of debt restructured to total debt. For this reason, the expected sign is negative. Similarly, one would assume that Brady deals, which often involved sizeable write-offs for banks, were particularly disputed and took longer to resolve (a fact pointed to in the previous section).

To test for the role of creditor characteristics in crisis resolution I include three variables in the regressions: the "*number of creditors*", the "*size of the advisory committee*" and a dummy for "*bond restructurings*". Following the standard argument outlined above, one would expect

that the number of creditors will aggravate creditor coordination problems and increase the likelihood of holdouts and legal action. Following this argument, a large pool of banks and large creditor committees will implicate longer restructuring processes - and a negative estimated coefficient of these covariates. Thanks to the comprehensive source material it was possible to find reliable information on the number of banks participating in the restructuring deals of the 80s and 90s and on the size and structure of the advisory committees (see Appendix). However, it was much harder to identify the exact number of bondholders participating in exchange deals. As a result, these variables could not be coded for the post-1998 cases. To deal with this shortcoming, I constructed an additional dummy for bond restructurings. In line with the above, one will expect a negative coefficient of this dummy. In fact, bond restructurings are usually characterised by a large group of diverse and dispersed creditors were coordination problems are believed to be even larger than during major bank restructurings (Krueger 2002).

A further crucial variable in this study is the one capturing *political stability*. The case study evidence showed that political turmoil played a major role in quite a number of sovereign debt restructurings. To validate this finding in a more formal way I include the ICRG index available since 1984 from the Political Risk Group, widely used in cross-country analyses in economic and political research. High values of this composed index (on a scale from 0 to 100) stand for lower political risk and higher degrees of political stability. I expect this variable to have a positive sign. In fact, a more stable political environment is likely to facilitate debt renegotiations, thereby contribution to fewer delays and shorter restructurings.

To take into account the role of the IMF I employ several explanatory variables. First, following Mecagni et al (2007), I construct a variable that measures total *IMF disbursements* over the restructuring period. It is calculated by simply summing up the annual net credit flows from/to the IMF for each crisis year (source: WDI database). For robustness checks, I also include a variable on the annual net IMF flows (from the WDI database) and a variable capturing the IMF quota on a yearly basis (outstanding IMF credits as % of national quotas taken from the IFS database). Furthermore, I use a dummy of IMF program interruptions from Dreher (2003), which is available through the year 2000.[26]

In a last step, and as a validation for the descriptive interpretation above, I also include the dummies on political delays, on litigation and on inter-creditor disputes, which were coded from the case study evaluation. Given that these dummies are in fact anecdotal measures of delay, I obviously expect all three of them to yield negatively signed coefficients. It will be of interest, however, whether the dummies turn out to be significant in a model that controls for other economic and financial conditions in the restructurings.

5. Results

[26] The information included was validated with data from Joyce (2005, 2006)

The Cox estimation results for different model specifications are presented in detail in Table 5 in the Appendix. Table 2 below presents a more compact overview of main findings.[27] Generally, I estimated a baseline model with main economic and financial controls. Given the relatively small sample I expanded this model stepwise to test for the key variables of interest, i.e. those capturing creditor characteristics and political risk. Note, that the variable capturing the number of years in default (over a period of 10 years) was not significant throughout the regressions. It is thus not reported.

Table 2: Overview of Results

Explanatory Variable	Expected Sign	Est. Coefficient
Main Regression		
Inflation	-	-0.000
Real Growth Rate	+	1.660
Current Account Balance / GDP	+	4.763**
LIBOR (benchmark rate)	+/-	-0.110*
Total External Debt / GNI (initial)	-	-0.002
Short-term Debt / Reserves (initial)	-	-0.081***
Share of Publ. Debt to Private Cred.(initial)	+/-	1.783***
Amount of Debt Restruct. / Total Ext. Debt	-	-0.513
Dummy for Brady Deal	-	-1.642***
Adding Additional Variables (one by one)		
Dummy for Bond Restructurings	-	0.043
Number of Creditors	-	-0.000
Size of Creditor Committee	-	-0.018
Dummy for Litigation by Creditors	-	-1.056
Dummy for Inter-creditor Disputes	-	0.086
Dummy for Political Delays	-	-1.574***
Political Stability (ICRG Index Points)	+	0.050**
Size of IMF credits (net, cumulated)	+	2.709
Dummy for IMF program failures	-	-0.257

*** indicate significance at a 1% level, ** at a 5% level, * at a 10% level.
See Table 4 in the Appendix for detailed regression outputs

The variables included in the main regression all showed the expected sign. Surprisingly, the variable capturing the initial degree of indebtedness (external debt to GDP) turned out to be statistically insignificant. Yet, the second measure of initial conditions, the ratio of short-term debt to reserves, is indeed significant and negatively signed. Apparently, countries with a more pronounced liquidity problem at the outbreak of the crisis take longer to restructure on average. The development of real growth and inflation did not appear to matter for the duration of crisis. However, the size of the current account balance to GDP has a positive and highly significant coefficient. High trade surpluses and net capital inflows do appear to decrease the length of restructuring processes. Like the prior result on the role of short-term debt, this indicates that liquidity and the availability of foreign exchange plays an important role for the pace of restructurings.

[27] Before interpreting the results, I verified whether the crucial assumption of proportional hazards is violated. The test based on an auxiliary regression of Schoenfeld residuals suggested by Therneau and Grambsch (2000, pp. 127-142) gives no indication of non-proportionality for the explanatory variables employed.

The dummy for Brady deals is highly significant and negative, confirming the above observation that Brady deals took considerably longer than other restructurings. It seems logical that these deals, which always involved a cut in principal, were more cumbersome to arrange than other restructurings, which often resulted in a mere lengthening of maturities without nominal write-offs. The mere scope of the restructuring, when measured by the amount restructured to total debt, does however not seem to play a role for the duration of restructuring processes. While the coefficient is negative, indicating that comprehensive deals imply lengthier negotiations, it is not statistically significant.

As to the LIBOR rate it turned out to be weakly significant and baring a negative sign. This can be interpreted in a way that unfavourable global conditions such as liquidity crunches with high interest rates complicate the completion of sovereign restructurings. With a view to the discussion above, the result would suggest that interest rates should not be seen as a proxy for negotiation costs but rather as a measure of external conditions. Of course, one might argue that this finding is due to time effects, given that during the 1980s, a period of relatively speedy restructurings, interest rates were particularly high compared to later periods. However, the result did not change once I included dummies for decades. Generally, dummies for the 1980s, 1990s and 2000s as well as dummies for different world regions were insignificant throughout the analysis and are therefore not reported.

Turning to creditor characteristics, the results are truly unexpected. Both the number of banks involved and the size of the creditor committee are insignificant predictors of restructuring duration, although they bare the expected negative sign. This result is stable for many different specifications and sub-samples (individual results not reported). Hence, on average, it does not appear to matter how many creditors are involved in the negotiations. Also the dummy for bond restructurings is insignificant in most specifications. It even has a positive sign, which would mean that bond restructurings could be resolved faster than bank loan restructurings. These findings stand in stark contrast to the common myth and some evidence from corporate finance that more creditors lead to more trouble and that bond debt takes much longer to restructure. Recall, that most deals since 1998 could be resolved in less than a year (see Table 1). Apparently, the myth of easier sovereign debt restructurings in the "good old banking times" of the 1980s and 1990s cannot be verified empirically (dummies for decades are insignificant again).[28] One could argue instead that modern time bond restructurings - involving thousands of creditors - were relatively effective, on average, as compared to the "messy" bank loan deals of the 1980s and 1990s.[29] Such arguing, however, puts into question the standard view on debt restructurings in the last three decades.

To further validate the surprising findings on creditor characteristics, I tested whether the dummy capturing inter-creditor disputes (including holdouts) and the dummy for litigation events are statistically significant determinants of restructuring duration, once other factors

[28] Roubini and Setser (2004 p. 12) explicitly refer to this as a pernicious myth.
[29] The fact that the current practice of bond exchange offers is relatively effective was pointed out by Jeromin Zettelmeyer at a recent conference (December 15th 2007 in Barcelona).

are controlled for. They turn out to be not.[30] Thus, in the econometric analysis, I can find little explicit evidence that creditor characteristics and creditor behaviour were a dominant reason of restructuring delays.

What I do find, however, is that politics matter. Political risk as measured by the ICRG index turns out to be a statistically significant predictor for the duration of restructurings. The lower the political risk, the higher the probability that a restructuring is completed in a given year. Similarly, the dummy for political delay coded from the case study evidence is highly significant for all model specifications, i.e. no matter which further control variables are included.

Finally, I investigated the role of the IMF for restructuring durations. First, the cumulated (net) volume of IMF credits did not turn out to be significant in the regressions. This result holds, if I include a time-varying variable of IMF flows on a yearly level instead. Similarly, the variable capturing IMF credits as percentage of quota showed no significant coefficient. A different approach was to include a dummy for IMF program interruptions by Dreher (2003). Surprisingly, however, this variable did also not show a significant coefficient in most specifications. Hence, overall, I conclude that there appears to be no strong systematic relation between the length of restructurings and the size of IMF financing over the crisis period.

6. Conclusion

The resolution of sovereign debt crises between sovereign debtors and private creditors is, and has always been, an extremely 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 article provides some new evidence on the issue, by focusing on the duration of restructuring processes and on the possible causes for negotiation delays.

A particularly surprising finding is that the number of creditors involved in restructuring does not, on average, lengthen the restructuring process. Bond restructurings of recent years, which involved thousands of creditors, could be solved in relatively short periods of time, with only one prominent exception: Argentina. Put differently, the myth of orderly bank loan restructurings of the 1980s and 1990s appears quite questionable. Instead, modern type exchange offers seem to be a relatively effective way of solving debt crises.

Generally, I do not find any compelling econometric evidence that creditor characteristics or creditor behaviour were a systematic and dominant reason for restructuring delays. When evaluating the case study evidence, this is confirmed to a certain extent. I was able to identify creditor coordination problems in only 71 yearly cases out of the 294 surveyed. In contrast, political risk and delays due to political events could be observed more frequently in the case study evaluation. Moreover, political risk and the dummy on political delays turned out to be

[30] The dummy for litigation is weakly significant (at the 10% level) in some specifications (not reported).

highly significant in the regressions. Overall, political shocks and government behaviour seem to be crucial reasons for restructuring delays.

Of course, these results should not be misinterpreted. Creditor coordination problems have certainly played a decisive role in many past restructurings.[31] Comparing the two recent cases of Belize and Dominica reveals that such problems remain highly problematic to this date.[32] Moreover, we do not know whether creditor coordination problems would have been much more severe in past crises, had there not been frequent pressure and "moral suasion" by national governments and central banks (see reports e.g. by Boughton 2001 and Bluestein 2001).

To answer the question posed in the title: Yes creditors can definitely be blamed for many instances of restructuring delays. Accordingly, the inclusion of CACs in current and future bond contracts is likely to facilitate speedy debt exchanges. However, the results of this paper underline the principal importance of bad debtor incentives and political risk in causing delayed and "messy" restructurings. Yet, these aspects have been somewhat disregarded in academic research. More work on the political economy of financial crises, particularly on the role of domestic political constraints in crisis resolution would be certainly beneficial for a better understanding of these issues.

[31] One should also highlight once more that debt crises can be partially triggered by creditor coordination problems from the outset. Debt crises after creditor panics and massive capital outflows could e.g. be observed in the Philippines 1983, in South Africa 1985 and in Uruguay 2002/2003.

[32] Due to holdout creditors and in the absence of collective action clauses, the tiny state of Dominica has been struggling to complete its debt exchange deal 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.

Literature

Aggarwal, V.K., 1996. *Debt Games: Strategic Interaction in International Debt Rescheduling.* Cambridge University Press, New York.

Aka, B. E., 2006. On the duration of the financial system stability under liberalization. *Emerging Markets Review*, vol. 7(2): 147-161.

Alfaro, L., Maurer N., Faisal, A. 2007. Gunboats and Vultures: Market Reaction to the "Enforcement" of Sovereign Debt. Mimeo. Harvard University.

Andritzky, J., 2006. *Sovereign Default Risk Devaluation - Implications of Debt Crises and Bond Restructurings*. Springer, Berlin, Heidelberg, New York.

Arteta, C.Hale, G., 2008. Sovereign Debt Crises and Credit to the Private Sector. *Journal of International Economics* 74 (1), 53-69.

Baek I-M., Bandopadhyaya, A. 1996. The determinants of the duration of commercial bank debt renegotiation for sovereigns. *Journal of Banking & Finance*, 20(4): 673-685

Bergman, Y.Z., Callen, J.L. 1991. Opportunistic Underinvestment in Debt Renegotiation and Capital Structure. *Journal of Financial Economics*, 29: 137-171.

Bi, R., 2008. "Beneficial" Delays in Debt Restructuring Negotiations. IMF Working Paper No. 08/38.

Bluestein, P. 2001. *The Chastening: Inside the Crisis that Rocked the Global. Financial System and Humbled the IMF*. NY: Public Affairs.

Bolton 2003. Toward a Statutory Approach to Sovereign Debt Restructuring: Lessons from Corporate Bankruptcy Practice Around the World. IMF Working Papers 03/13, IMF.

Bolton, P., Scharfstein, D.S., 1996. Optimal Debt Structure and the Number of Creditors., *Journal of Political Economy*, 104: 1-25.

Borensztein, E., Levy Yeyati, E., Panizza, U. (Eds.), 2006. Living with Debt - How to Limit the Risks of Sovereign Finance. Harvard Univ. Press, Washington D.C.

Brunner, A. and Krahnen, J.P. 2008. Multiple Lenders and Corporate Distress: Evidence on Debt Restructuring. *Review of Economic Studies*, 75(2): 415-442

Boughton, J.M., 2001. Silent Revolution: The International Monetary Fund 1979-1989. The International Monetary Fund, Washington, D.C.

Chamon, Marcos, 2007. Can debt crises be self-fulfilling? *Journal of Development Economics*, 82(1): 234-244.

Chuan, P., Sturzenegger, F., 2005. Default Episodes in the 1980s and 1990s: What Have We Learned, in: Aizenman, J. and Pinto, B. (Eds.), *Managing Economic Volatility and Crises: A Practitioner's Guide*. Cambridge University Press, Cambridge, M.A.

Cline, W.R., 1995. *International Debt Reexamined*. Institute for International Economics, Washington, D.C.

Cole, H. and Kehoe, T., 2000. Self-fulfilling debt crises. *Review of Economic Studies* 67:.91–116.

Cox, D.R., 1972. Regression models and life-tables. *Journal of the Royal Statistical Society*, Series B 34, 187-220

Detragiache, E., Spilimbergo, A., 2001. Crises and Liquidity: Evidence and Interpretation. IMF Working Paper 01 (2).

Dreher, Axel. 2003. The Influence of Elections on IMF Programme Interruptions, *Journal of Development Studies* 39, 6: 101-120.

ECB, 2005. Managing Financial Crises in Emerging Market Economies. Experience with the Involvement of Private Sector Creditors. ECB Occasional Paper Series (32)

Finger, H., Mecagni, M., 2007. Sovereign Debt Restructuring and Debt Sustainability. An Analysis of Recent Cross-country Experience. IMF Occasional Papers 255, International Monetary Fund.

Franks, J., Torus, W. 1994. A Comparison of Financial Recontracting in Distressed Exchanges and Chapter 11 Reorganizations. *Journal of Financial Economics* 35: 349-370.

Frydl,E.J., 1999. The Length and Cost of Banking Crises. IMF Working Papers 99/30.

Ghosal, S., Miller, M. 2003. Co-ordination Failure, Moral Hazard and Sovereign Bankruptcy Procedures. *Economic Journal*113, 487: 276-304.

Gilson, S.C., Kose, J., Lang, L.H.P., 1990. Troubled debt restructurings: An empirical study of private reorganization of firms in default. *Journal of Financial Economics*, 27(2): 315-353

Haldane, A., Penalver, A., Saporta V. , Song Shin, H. 2005. The Analytics of Sovereign Debt Restructuring. *Journal of International Economics* 65 (2): 315-333.

Hatchondo, J.C., Martinez, L.; Saprita, H., 2007. The Economics of Sovereign Defaults. Economic Quarterly of the Federal Reserve Bank of Richmond 93 (2), 163-187.

Henry, P.B., 1999. Chronological Listing of Major Policy Events in Developing Countries. Stanford University. https://faculty-gsb.stanford.edu/henry/Homepage/PDF/Reform%20List.pdf

IMF, 2001. Involving the Private Sector in the Resolution of Financial Crises - Restructuring International Sovereign Bonds. IMF Policy Development and Review and Legal Departments, Washington, D.C.

IMF, 2002. Fund Policy on Lending into Arrears to Private Creditors—Further Consideration of the Good Faith Criterion. IMF Policy Development and Review and Legal Departments, Washington, D.C.

IMF, 2003. Reviewing the Process for Sovereign Debt Restructuring within the Existing Legal Framework. International Monetary Fund, Washington, D.C.

Joyce, J.P. 2005 Time Past and Time Present: a Duration Analysis of IMF Program Spells. *Review of International Economics*, 13(2): 283-297

Kelly, PJ., and Lim, L.L.Y. , 2000. Survival analysis for recurrent event data: An application to childhood infectious diseases. *Statistics in Medicine*, 19:13-33.

Kincaid, R.G., Puckahtikom, C. Watson M. , Dillon, K.B., 1985. Recent Developments in External Debt Restructuring. IMF Occasional Papers 40,

Krueger, A., 2002. A New Approach to Sovereign Debt Restructuring. Washington, DC: IMF.

Lancaster, T., 1990. *The Econometric Analysis of Transition Data.* Econometrics Society Monographs. Cambridge University Press.

Lin, DY and Wei, LJ. 1989. The Robust Inference for the Cox Proportional Hazards Model. *Journal of the American Statistical Association.* 84:: 1074-78.

Manasse, P., Roubini, N. Schimmelpfennig, A. 2003. Predicting Sovereign Debt Crises. IMF working paper 03 (221).

Martinez, J.V., Sandleris, G., 2006. Is it Punishment? Sovereign Defaults and the Decline in Trade. mimeo, Johns Hopkins University (SAIS).

Mecagni, M., Hofman, D., Atoyan, R., Tzanninis, D., 2007. The Duration of Capital Account Crises--An Empirical Analysis. IMF Working Papers 07/258, IMF

Merlo, A., Wilson, C., 1995. "A Stochastic Model of Sequential Bargaining with Complete Information. *Econometrica*, 63(2): 371–399.

Miller, M.H. and Thomas, D.. 2007. Sovereign Debt Restructuring: The Judge, the Vultures and Creditor Rights. *The World Economy*, Vol. 30, No. 10, pp. 1491-1509.

Morris, S., Shin, H.S. 2004. Coordination Risk and the Price of Debt. *European Economic Review* 48 (1): 133-153.

Pitchford, R., Wright, M.L.J. 2007. Restructuring the Sovereign Debt Restructuring Mechanism. Mimeo. UCLA

Piñón-Farah, M.A., 1996. Private Bond Restructurings - Lessons for the Case of Sovereign Debtors. IMF Working Papers 96 (11).

Rajan, R. G., 1992. Insiders and Outsiders: The Choice between Informed and Arm's-Length Debt. *Journal of Finance*, 47: 1367-1400.

Reinhart, C.M., Rogoff, K., Savastano, M.A., 2003. Debt Intolerance. *Brookings Papers on Economic Activity* 1, 1-70.

Rieffel, L., 2003. *Restructuring Sovereign Debt: The Case for Ad Hoc Machinery.* Brookings Institution Press, Washington, D.C.

Rose, A.K., 2005. One Reason Countries Pay their Debts: Renegotiation and International Trade. *Journal of Development Economics* 77 (1), 189-206.

Roubini, N., Setser, B., 2004. Bailouts or Bail-ins? : Responding to Financial Crises in Emerging Economies. Institute for International Economics, Washington, D.C.

Standard & Poor's, 2006. Default Study: Sovereign Defaults At 26-Year Low, To Show Little Change In 2007, edited by D. Beers and J. Chambers.

Stamm, H., 1987. *Kooperation und Konflikt im Weltfinanzsystem. Eine Analyse multilateraler Umschuldungsaktionen seit 1956*. Soziologisches Institut der Universität Zürich.

Struthers, CA and Kalbfleisch, JD. 1986. Misspecified proportional hazard models. *Biometrika*, 73(2):363-369

Sturzenegger, F., Zettelmeyer, J., 2006. *Debt Defaults and Lessons form a Decade of Crises*. MIT Press, Cambridge, M.A.

Therneau T, Grambsch P. 2000. *Modeling survival data: Extending the Cox model.* Statistics for Biology and Health. New York, NY: Springer.

Tudela, M., 2004. Explaining currency crises: a duration model approach. *Journal of International Money and Finance*, 23(5): 799-816.

Van Rijckeghem, C., Weder, B., 2004. The Politics of Debt Crises. CEPR Discussion Paper Series 4683, 1-42.

Williams, R.C., Brau, E.H. et al., 1983. Recent Multilateral Debt Restructurings with Offcial and Bank Creditors. IMF Occasional Papers 25:

World Bank, 2003. Global Development Finance. The International Bank for Reconstruction and Development / The World Bank, Washington, D.C.

World Bank, 2004. Global Development Finance. The International Bank for Reconstruction and Development / The World Bank, Washington, D.C.

World Bank, 2006. Global Development Finance. The International Bank for Reconstruction and Development / The World Bank, Washington, D.C.

World Bank, 2007. Global Development Finance. The International Bank for Reconstruction and Development / The World Bank, Washington, D.C.

Wright, M.L.J., 2005. Coordinating Creditors. *American Economic Review Papers & Proceedings*, 95(2): 388-392.

APPENDIX

A.1. The Database on Restructuring Delays – an Overview

(i) Why Construct a New Database?

Why construct a new dataset if there are, in effect, several standardised sources on sovereign debt restructurings? Quite a few 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 contained quite a few errors regarding dates that would have resulted in a serious bias in this analysis. Often, a date listed as completion date was, in effect, the month in which the agreement in principle, but not the final agreement was reached. Drawing on a much broader information base, I therefore attempted to verify and correct the information contained in these lists. Generally, none of the existing lists did 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) Sources and Coding Procedure

The database on restructuring delays compiled here relies on the same set of information sources as Enderlein, Müller and Trebesch (2008). The coding was mainly based on the (re-)evaluation of 20.000 pages of articles from the financial press[33] but also on case study information by academic researchers[34] and policy reports[35] by the IMF and other international bodies. Further valuable sources were the comprehensive lists of debt restructurings by Stamm (1987), those in the GDF reports by the World Bank (2003, 2004, 2006, 2007) and the list of major policy events in developing countries by Henry (1999). To code the variables used in this study, I mainly conducted standardized keyword searches in those of the above documents that were available as PDF (keywords are provided in the next section). Each information is backed by respective quotes that are documented in a separate Excel-document. The quotes can be provided upon request.

(iii) Variables and their Definition:

The following variables were coded for each debt crisis:

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[36] announced a restructuring of government debt to private creditors in public. Both events show that the government is in obvious financial distress.

[33] During our efforts to gather information, the print-media turned out to be the most rewarding general information source for detailed crisis information. Given that debt crises are highly publicised events, the financial press provides extensive and detailed day-to-day coverage on the entire negotiation and restructuring process during crises. Concretely, we used the online news database factiva and focused our search on six flagship media sources: The Financial Times, Reuters, the Wall Street Journal, Dow Jones News Service, the New York Times and Associated Press. The search algorithm that proved to be most efficient was "countryname w/10 debt". Based on this search algorithm we then extracted all relevant articles into backup-documents for each crisis episode. These are available upon request once the database is published.

[34] Mainly Cline, 1995; Aggarwal, 1996; Boughton, 2001; Roubini and Setser, 2004; Rieffel, 2003; Andritzky, 2006; Sturzenegger and Zettelmeyer, 2006.

[35] e.g. 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

[36] This refers to the President, the Prime Minister, the chief debt negotiator or Ministers of Finance, Economy or Planning (or their respective speakers).

2. S*taring month of debt renegotiations*
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 post-Brady bond restructuring cases I coded the start of negotiations according to press reports and other rich case study evidence. Based on the various sources it is pretty obvious for all cases when serious market sounding and negotiations with investor groups started.[37]

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 (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 finalisation of the debt restructuring*
The finalisation of the deal is coded in that month in which the exchange or the new terms are actually implemented. The implementation could take either the form of an official signing ceremony (such as with banks during the 1980s of 1990s) or via the exchange of bonds on the market.

5. *Delays due to Political Events*
Delays due to political events are coded in case unilateral government behaviour reportedly lead to a delay or even breakdown in debt negotiations of more than 3 months. Also instances where governments explicitly refuse to initiate negotiations are coded as 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 my earlier coding on "breakdowns of negotiations" described in Enderlein, Müller and Trebesch (2007). However, I also added quite some additional information whenever I found it.

6. *Inter-Creditor Disputes and Creditor Holdouts*
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. *Amount restructured*
The information is taken from the IIF 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).

9. *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 I used were "banks" "foreign banks", "commercial banks" etc. For the bank restructuring deals the information was easy to gather. Similarly, I attempted to code the number of bondholders affected by each bond restructuring, with keywords such as "bondholders" etc. (with less success).

[37] Exact dates and underlying quotes can be provided upon request once the database is fully published.

10. *Structure of Bank Advisory Committee (Size and Members)*
The bank advisory committees of the 1980s and early 1990s played a crucial role in the restructuring negotiations. The database contains information on the size and, in most cases, on the exact composition and leading members (heads) of the committee. Additionally, I report whenever particular events lead to a change in the composition or leadership of the committees. Information was assembled by relying on keywords such as “bank”, “represent”, “committee”, “advisory”, “steering”, “on behalf of”, etc.

12. *Origin and Structure of Creditors*
Information on the structure and origin of creditors reported was collected systematically. Given the lack of reliable and complete information the variable was, in the end, not used in the regressions. Nevertheless, the database contains quite a few details that might be helpful to better understand some of the creditor coordination problems reported.

13. *Bond Restructuring*
Coded for all sovereign bond restructurings. Cases included 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.

14. *Brady deal*
Coded for all restructurings under the terms of the Brady initiative. Cases included 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.

Table 3: Debt Restructurings covered in the Dataset

Note: Formerly planned economies are excluded in the econometric analysis

	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	1984	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	2007	South Africa	1989	1989
Dominican Rep.	1982	1986	South Africa	1992	1993
Dominican Rep.	1989	1994	Trinidad and 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	1998
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			

Figure 1: Empirical Survival Estimate using Monthly Duration Data
(based on 90 restructurings since 1980)

Table 4: Summary Statistics

Variable	Obs	Min	Max	Mean	Std. Dev.	Source
Initial Conditions (first crisis year)						
Total External Debt / GNI	228	24.59	185.98	77.36	34.00	GDF
Short-term Debt / Reserves	241	0.06	24.00	2.73	5.05	GDF
Public debt to Private Creditors / Total Public	248	0.05	0.90	0.56	0.23	GDF
Time-Varying Variables						
Inflation	263	-23.48	12338.66	208.65	950.42	WDI
Real Growth Rate	269	-0.27	0.19	0.02	0.06	WDI
Current Account Balance / GDP	251	-0.28	0.18	-0.03	0.06	GDF
LIBOR (Benchmark rate)	286	1.22	16.87	7.53	3.02	Datastream
Details of the Deal						
Amount of Debt Restruct. / Total Ext. Debt	264	0.01	0.74	0.31	0.22	IIF, GDF (See Appendix)
Dummy for Bond Restructurings	295	0	1	0.08	0.28	Own Coding (See Appendix)
Dummy for Brady Deal Restructurings	295	0	1	0.35	0.48	Own Coding (See Appendix)
Number of Banks Participating	277	45	2000	336.03	271.15	Own Coding (See Appendix)
Number of Banks in the Creditor Committee	246	2	30	11.35	3.80	Own Coding (See Appendix)
Political Stability (Time Varying)						
ICRG Index Points	234	0.00	77.33	54.44	11.44	PRS
Role of the IMF						
Size of IMF disbursements (net, cumulated)	270	-0.03	0.09	0.01	0.02	WDI
Dummy for IMF program failures	293	0	1	0.28	0.45	Dreher (2003)
Own Delay Measures						
Dummy for Inter-creditor disputes and holdouts	293	0	1	0.17	0.38	Own Coding (See Appendix)
Dummy for litigation cases	293	0	1	0.11	0.31	Own Coding (See Appendix)
Dummy for Delays due to Political Events	293	0	1	0.43	0.50	Own Coding (See Appendix)

Note: The variables "Amount of Debt Restruct. / Total Ext. Debt" was calculated using the amount of external debt one year prior to the restructiurng agreement (GDF data)

Table 5: Estimation Results

Dependent Variable: Total Restructuring Duration in Years
Robust Variance Estimation Using the Lin-Wei Estimator

	spec1	spec2	spec3	spec4	spec5	spec6	spec7	spec8	spec9	spec10
Inflation	**-0.000**	**-0.000**	**-0.000**	**-0.000**	**-0.001**	**-0.000**	**-0.000**	**-0.000**	**-0.001**	**-0.000**
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.001)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Real growth	**4.087****	**1.660**	**1.624**	**2.425**	**0.704**	**2.433**	**0.531**	**1.764**	**1.334**	**2.348**
	(1.979)	*(2.479)*	*(2.462)*	*(2.858)*	*(2.616)*	*(3.258)*	*(3.224)*	*(2.514)*	*(2.761)*	*(3.592)*
CA/GDP	**4.289*****	**4.763****	**4.685****	**6.439*****	**7.111*****	**2.876**	**7.413*****	**4.848****	**5.500*****	**6.109****
	(1.560)	*(2.071)*	*(2.255)*	*(2.096)*	*(1.841)*	*(2.220)*	*(2.234)*	*(2.032)*	*(1.963)*	*(2.494)*
Libor	**-0.063**	**-0.110***	**-0.107***	**-0.114**	**-0.001**	**-0.066**	**-0.124****	**-0.110***	**-0.056**	**-0.026**
	(0.043)	*(0.058)*	*(0.064)*	*(0.082)*	*(0.064)*	*(0.073)*	*(0.062)*	*(0.057)*	*(0.071)*	*(0.109)*
Brady deal	**-1.032*****	**-1.642*****	**-1.643*****	**-1.516*****	**-1.350*****	**-1.660*****	**-1.127*****	**-1.626*****	**-1.399*****	**-1.165*****
(Dummy)	*(0.256)*	*(0.302)*	*(0.307)*	*(0.303)*	*(0.349)*	*(0.335)*	*(0.255)*	*(0.314)*	*(0.306)*	*(0.351)*
External Debt /		**-0.002**	**-0.002**	**-0.002**	**0.000**	**0.001**	**0.001**	**-0.002**	**-0.001**	**0.003**
GDP (initial)		*(0.004)*	*(0.004)*	*(0.004)*	*(0.003)*	*(0.005)*	*(0.004)*	*(0.004)*	*(0.004)*	*(0.005)*
Short-term debt /		**-0.081*****	**-0.081*****	**-0.082*****	**-0.083*****	**-0.061*****	**-0.060*****	**-0.077*****	**-0.080*****	**-0.064*****
Reserves (initial)		*(0.017)*	*(0.017)*	*(0.017)*	*(0.015)*	*(0.019)*	*(0.019)*	*(0.018)*	*(0.016)*	*(0.020)*
Share of Debt to		**1.778*****	**1.783*****	**1.942*****	**2.770*****	**1.195***	**1.313****	**1.766*****	**2.076*****	**1.251****
private creditors		*(0.569)*	*(0.536)*	*(0.657)*	*(0.508)*	*(0.644)*	*(0.619)*	*(0.570)*	*(0.587)*	*(0.621)*
Amount Restruct. /		**-0.513**	**-0.503**	**-0.515**	**-0.433**	**-1.058**	**-0.180**	**-0.523**	**-0.473**	**-0.150**
total ext. debt		*(0.668)*	*(0.686)*	*(0.660)*	*(0.695)*	*(0.768)*	*(0.736)*	*(0.672)*	*(0.630)*	*(0.859)*
Bond restruct.			**0.043**							**1.374****
(Dummy)			*(0.553)*							*(0.631)*
No of Creditors				**-0.000**						
				(0.000)						
Size of Advisory					**-0.018**					
Committee					*(0.021)*					
Political Stability						**0.050****				**0.024**
						(0.023)				*(0.025)*
Political Delays							**-1.574*****			**-1.225*****
(Dummy)							*(0.402)*			*(0.366)*
Litigation by							**-1.056**			**-2.316****
creditors (Dummy)							*(0.678)*			*(0.982)*
Inter-creditor							**0.086**			**0.261**
Disputes (Dummy)							*(0.305)*			*(0.379)*
IMF Credits (net								**2.709**		**-4.234**
cumulated flows)								*(6.719)*		*(7.260)*
IMF Program									**-0.257**	
Failure (Dummy)									*(0.250)*	
Observations	242	211	209	200	190	176	208	209	200	176
Number of cases	74	63	62	58	55	54	62	62	58	54

*** indicate significance at a 1% level, ** at a 5% level, * at a 10% level.

Standard Errors in Parentheses

Table 6: Anecdotes on pre-restructuring Litigation

to come (3 pages)

Table 7: Anecdotes on Inter-Creditor Disputes and Creditor Holdouts

to come (5 pages)

Table 8: Anecdotes on Political Events leading to Delay

to come (10 pages)