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## The Cost of Aggressive Sovereign Debt Policies: How Much is the Private Sector Affected?

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**IMF Working Paper**

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**The Cost of Aggressive Sovereign Debt Policies: How Much is the Private Sector Affected?**

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**Abstract**

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This paper proposes a new empirical measure of cooperative versus conflictual crisis resolution following sovereign default and debt distress. The index of government coerciveness is presented as a proxy for excusable versus inexcusable default behaviour and used to evaluate the costs of default for the domestic private sector, in particular its access to international debt markets. Our findings indicate that unilateral, aggressive sovereign debt policies lead to a strong decline in corporate access to external finance (loans and bond issuance). We conclude that coercive government actions towards external creditors can have strong signalling effects with negative spillovers on domestic firms. “Good faith” debt renegotiations may be crucial to minimize the domestic costs of sovereign defaults.<sup>1</sup>

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## I. INTRODUCTION

Sovereign defaults on external debt are a recurring phenomenon of international financial markets. History shows, however, that debt crisis situations have been resolved in very different ways. Once in default, governments can choose from a large set of negotiation and debt restructuring strategies towards their creditors. The policy spectrum ranges from unilateral moratoria and enforced debt exchanges on the one hand, to preemptive and voluntary restructurings with no missed payments on the other. Some governments facing financial distress took a very confrontational stance towards creditors, opting to halt debt payments for several years and refusing to engage in any negotiations. Other governments, instead, initiated early and close consultations with creditor representatives, avoided running into arrears and took only a few months to restructure their debt (see ECB (2005) or Sturzenegger and Zettelmeyer (2007) for a comparison of recent cases).

This paper analyzes to what extent sovereign debt policies and crisis resolution patterns affect the domestic private sector, in particular its access to international debt markets. It is well known, that sovereign risk can be a crucial factor for corporations in emerging markets,<sup>2</sup> especially during periods of financial and macroeconomic turmoil. Related to this, a large body of research has analyzed the costs of sovereign default for the domestic economy (see Panizza, Sturzenegger, and Zettelmeyer (2008) for a review). Yet, only few existing studies have differentiated between different types of debt crises in general, and different types of crisis resolution policies, in particular. We argue that default cases differ considerably and that, in principle, not all cases should be treated as the same in empirical research. In line with this argument, the paper departs from a mere examination of default effects, and instead focuses on the consequences of government debt policies and renegotiation strategies during default. Specifically, we aim to provide evidence on whether unilateral policies towards external creditors, such as full payment moratoria, can exacerbate the negative consequences of a debt crisis for the domestic economy.

In a first step, the paper introduces a novel sovereign risk measure as key explanatory variable. The index of coerciveness by Enderlein, Müller, and Trebesch (2007) measures how cooperatively debtor governments solve default situations. Its nine sub-indicators capture coercive actions imposed on creditors during default and during the negotiations in the run-up to a debt restructuring agreement. In principle, the index of coerciveness may be regarded as a complement to existing sovereign risk measures such as credit ratings, bond spreads or political risk. In more general terms, and with a view to the theoretical debate on sovereign debt and default, the index may also be seen as a proxy of “good” versus “bad” government types or excusable versus inexcusable defaults, with high degrees of coerciveness signaling expropriative practices and unwillingness to pay (Sandleris (2008),

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<sup>2</sup> Authors such as Reinhart and Rogoff (2004) argue that sovereign risk is the main reason for the “Lucas Paradox” of limited capital flows to developing countries.

Cole and Kehoe (1998), Cole, Dow, and English (1995)). We expect that adverse spillovers of government policies to the domestic private sector may increase the more “negative” signals a government sends to financial markets. In a second step, we thus draw on Arteta and Hale (2008) and use a dependent variable based on firm-level data of foreign syndicated loans and bond issuances of 32 major emerging market countries for 1980 to 2004, to examine the extent to which debt policies determine the level of private sector external credit.

The results indicate that crisis resolution policies, measured by the index of coerciveness, do indeed play a crucial role for corporations and their external borrowing behavior. More coercive debt policies towards private external creditors lead to a sizable drop in issuance volumes of corporate bonds and syndicated loans, an effect that holds during default episodes and for up to two years after crises have been resolved. Periods of particularly aggressive debt policies are associated with a 40 percent *decrease* in corporate external borrowing, while episodes of cooperative debt renegotiations are associated with an *increase* in foreign credit. To validate our results and to identify the true causal effect of crisis resolution policies, we conduct a series of robustness checks. We find that the index of coerciveness is a significant predictor even after controlling for economic fundamentals, political events and political risk, country credit ratings and common shocks. In other words, the observed adverse impact of coercive debt policies goes beyond an effect merely attributable to the severity of the crisis, shocks or political turmoil. Interestingly, the default dummy, as binary measure of debt crisis periods, becomes insignificant when it is included jointly with the coerciveness index in the regressions. This provides some indication that it is not default per se that adversely impacts domestic agents but the type of default and the way in which defaults are resolved by governments.

It should be noted that our econometric setup does not allow to test for the role of demand and supply effects explicitly. Yet, a series of additional findings indicate that the supply channel may drive much of the results. In particular, we find that governments enforcing a fully unilateral, non-negotiated debt restructuring trigger a particularly strong drop in private sector external borrowing—of up to 80 percent over and above the debt crisis effect per se.

The rest of the paper is organized as follows: Section II gives an overview on the related literature and provides an intuitive discussion on the causal mechanisms of how sovereign debt distress and aggressive debt policies might affect the private sector and its demand and supply for credit. This is linked to recent theoretical models in the field. Section III presents our empirical model and compares it to that of previous approaches in the “cost of default” literature. Section IV is devoted to the key explanatory variable, the index of coerciveness, while Section V describes all additional control variables and data sources. Estimation results are discussed in Section VI, which includes a series of robustness tests. Section VII concludes.

## II. RELATED LITERATURE

There are few empirical papers that have systematically analyzed potential risk spillovers from the sovereign to the private sector in the emerging market context.<sup>3</sup> A small empirical literature shows that sovereign risk and defaults influence emerging market firms both in normal times and during crisis episodes. Borenzstein et al. (2007) show that sovereign ratings strongly determine corporate ratings. Levy-Yeyati et al. (2004) find that sovereign distress affects the behavior of depositors and can contribute to bank runs. In a similar vein, Borenzstein and Panizza (2008) provide evidence that debt crises may trigger systemic banking crises, but find no effect of defaults on industries that are more dependent on external finance. With regard to stock markets, Cruces (2007) finds sizable sovereign-risk related equity premia. According to his results, corporations in countries with credit ratings in the default range are forced to pay much higher expected rates of return compared to companies based in non-default countries.

### A. Debt Crises and Private Sector Access to Credit

A main recent contribution in the field is the paper by Arteta and Hale (2008). Based on a comprehensive analysis, the authors find that sovereign debt crises and restructurings with official creditors have a strong negative impact on private sector external borrowing. After controlling for fundamentals and external shocks, the drop in foreign loans and bond issuance by domestic firms amounts to more than 20 percent. Their analysis was among the first to provide direct evidence on the domestic costs of sovereign default, an issue that has been at the core of recent theoretical work.<sup>4</sup>

As highlighted by the authors, there are at least two causal channels by which sovereign debt distress can affect private sector external borrowing in emerging market countries. First, there are possible *demand effects*. Default periods often coincide with output losses and lower domestic demand (Dooley (2000), Borenzstein and Panizza (2008), Tomz and Wright (2007)). This can lead to a drop in production, investment and profits, which may be further reinforced by banking sector stress. As a result, firms may demand less credit.<sup>5</sup> Second, the drop in corporate external credit may be attributable to *supply effects*. Sovereign defaults

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<sup>3</sup> There is a larger literature on private sector contingent claims and “bottom up” risk transfers (see e.g., Gray, Bodie, and Merton (2007), Gapen et al. (2008), or Honohan and Laeven (2005)). See also the approach by Celasun and Harms (2007, 2008).

<sup>4</sup> Recent theoretical contributions focusing on the domestic consequences of sovereign default are Cole and Kehoe (1998), Alfaro and Kanczuk (2005), Sandleris (2006), Catao, Fostel and Kapur (2007) and Mendoza and Yue (2008).

<sup>5</sup> Lower profits might also induce a drop in supply due to credit rationing.

might worsen country risk perceptions as a whole, increase risk premia on all new loans to domestic agents and thereby reduce private sector external debt issuance.<sup>6</sup>

### **B. The Role of Cooperation and Policy Signals**

It is reasonable to assume that particular coercive government policies towards foreign creditors send strong signals to international financial markets. These signals may then trigger negative spillover effects to domestic corporations. A number of recent theoretical contributions have supported this line of reasoning.

The model of Cole and Kehoe (1998) shows that untrustworthy actions by governments in one field can have general reputation effects. Government actions regarding sovereign debt may have ramifications in a variety of other economic arenas, e.g., in domestic investment or trade. The paper by Sandleris (2008) suggests a mechanism explaining such spillovers. In line with Cole, Dow and English (1995), Eaton (1996) and Catao, Fostel, and Kapur (2008), Sandleris argues that the decision to default can send a negative signal about country fundamentals and government type. Default and repayment choices reveal information that influence the beliefs of foreign and domestic agents alike. He argues that this signaling effect alone can cause foreign direct investment to drop and trigger a credit crunch for the private sector in a defaulting country.

It is straightforward to extend the arguments in these papers to crisis resolution policies. Coercive actions during default, such as unilateral moratoria or the refusal to negotiate, may have strong signaling value beyond the default signal per se. This, together with potential reputational spillovers à la Cole and Kehoe (1998), might lead foreign investors to reduce the supply of capital to the country and to demand higher risk premia.<sup>7</sup>

To some degree, particularly aggressive debt policies might also be seen as an indication of strategic defaults in the spirit of Grossman and van Huyck's (1988) seminal paper. In their framework, lenders sharply differentiate between excusable defaults and cases of inexcusable debt repudiation. Coercive debt policies that are not justifiable by exceptionally "bad times"

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<sup>6</sup> It is challenging to distinguish between these two effects, particularly as the firm-level data on primary and secondary spreads of loans and bonds since the 1980s are too sparse and too noisy for a reliable analysis.

<sup>7</sup> Of course, the negative effect of signaling and international reputation on the volume of corporate external borrowing may run several ways: (i) a direct channel in private debt markets, where foreign creditors might withdraw their capital and thus cause a credit crunch; and (ii) an indirect channel via other forms of cross-border transactions. A drop in FDI and trade credit might contribute to an economic slowdown, which could then induce firms to demand less credit. However, for either effect, the adverse reaction of international investors plays a key role. See the papers by Rose and Spiegel (2002), Rose (2005), and Fuentes and Saravia (2006) for a related discussion.



would thus lead to a deterioration of country reputation and, thereby, may have a negative effect on the borrowing conditions of domestic economic agents.

### III. ECONOMETRIC METHODOLOGY

This section presents our empirical approach and compares it to that of the existing literature. The aim of our analysis is to test for the consequences of aggressive debt policies for domestic corporations and their borrowing abroad. Our estimations cover the period 1980 to 2004 and include 32 major emerging market countries, of which 13 witnessed one or several periods of default since 1980 (Table 1 provides an overview).

#### A. Previous Approaches

Previous research in the field has mostly relied on a binary dummy to capture debt crisis events and their possible consequences.<sup>8</sup> A popular approach in the cost of default literature has been to estimate some variant of the following reduced form equation:

$$C_{it} = \alpha_i + \beta_1 \text{DEFAULT}_{it} + X'_{it} \gamma + u_{it}$$

where  $C_{it}$  may capture different types of capital flows to developing countries (trade credits, debt flows etc.),  $\alpha_i$  is a constant or a set of fixed effects,  $\text{DEFAULT}_{it}$  is a dummy of default events - often based on data from Standard & Poor's<sup>9</sup> - and  $X'_{it}$  is a set of control variables. Papers that have used a related empirical setup include: Borenzstein and Panizza (2008), who, among others, use trade credits as the dependent variable; Levy Yeyati (2006) who focuses on aggregate debt flows; Fuentes and Saravia (2006) who analyze the effect of defaults on foreign direct investments (FDI) in a gravity model framework; and Arteta and Hale (2008), who use data on corporate bond issuance and syndicated loans.<sup>10</sup>

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<sup>8</sup> While the default dummy continues to be used in empirical debt crisis research, new indicators of sovereign debt distress have received more attention in recent years. The level of sovereign bond spreads (Pescatori and Sy (2007)) as well as credit default swap prices (Andritzky and Singh (2006)) have become popular distress indicators, both among researchers and practitioners. These measures give a more nuanced picture on the degree of financial distress a government is facing and capture debt distress beyond missed payments or restructurings. However, there are constraints in data availability, as time series on emerging market bond spreads or CDSs do not exist for the 1980s and early 1990s, a period in which sovereign debt distress peaked. Furthermore, the measures do not capture crisis resolution policies and individual coercive actions by debtor governments.

<sup>9</sup> Standard and Poor's defines sovereign default as either (i) the government's failure to meet a principal or interest payment on the due date or (ii) a debt exchange at less-favorable terms than in the original bond or loan contracts (see Standard & Poor's (2007)).

<sup>10</sup> A series of additional related papers, e.g., Chowdry (1991), Özler (1993) analyze the effect of default on country borrowing costs in a similar framework.

## B. Estimated Model

We build on the above literature, but substitute the simple, binary default dummy with a novel, more continuous index of government behavior during default. The rationale is to account for the large variation in crisis resolution patterns that have been largely disregarded in earlier research. The index of coerciveness by Enderlein, Müller, and Trebesch (2007) used here ranges from 1 to 10 by coding observable government policies during a default. A value of 10 represents the highest level of government coerciveness towards external private creditors. A score of 1, at the other extreme, indicates that the crisis was resolved in a fully cooperative way and without any missed payments. The composition and coding of the coerciveness index is presented in detail below.

We focus on the credit channel as an indicator of the costs of sovereign default for firms in emerging markets. To investigate whether aggressive debt policies cause a decline in private sector external credit, we estimate a reduced-form equation of the following form, using fixed effects regression:

$$C_{it} = \alpha_i + \alpha_t + \beta_2 COERC_{it} + X'_{it}\gamma + u_{it} \quad (1)$$

where  $C_{it}$  is a credit measure,  $\alpha_i$  and  $\alpha_t$  are country and year fixed effects respectively,  $COERC_{it}$  is the index of government behavior, which is 0 for non-default months and ranges from a 1 to 10 in default episodes,  $X'_{it}$  is a set of control variables and  $u_{it}$  are robust errors clustered by country.

To assess the effect over the medium run, lags of up to three years of the coerciveness index are also included in the estimations. The lag variables pick up the degree of coerciveness related to each sovereign debt restructuring for the period of 1 to 12 months, 13 to 24 months and 25 to 36 months after the agreement, respectively.<sup>11</sup> They thus capture the extent to which non-cooperative debt policies during a crisis impact private sector external credit in the three years after the crisis has been resolved. With a view to post-crisis effects, it would also be desirable to control for the size of the haircut, i.e., the relative debt reduction in present value terms. Markets might negatively react to agreements when the implied haircut is regarded as too high. Unfortunately, however, reliable haircut estimations for most bank debt restructurings of the 1980s and 1990s are not available, which is why this remains an issue for future research.<sup>12</sup>

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<sup>11</sup> 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.

<sup>12</sup> Panizza et al. (2008) show that our index and the size of haircuts calculated by Sturzenegger and Zettelmeyer (2008) are positively correlated for a small number of recent restructuring cases. A more systematic comparison is needed to better understand the link between coercive policies and haircut sizes.

The following sections describe the dependent variable (section III.C.), the approach to measure debt crisis episodes (section III.D.), the index of coerciveness (section IV) and all additional variables and data sources (section V). After a detailed discussion of the index of coerciveness, we focus in particular on the set of control variables. In fact, it is crucial to account for fundamentals and shocks when trying to identify the true causal effect of coercive government policies on domestic corporations.

### **C. Dependent Variable: Foreign Credit to the Private Sector**

Our dependent variable is based on firm-level debt issuance data as reported in the Dealogic database, which provides comprehensive coverage of emerging market debt capital markets (formerly Bondware/Loanware). We 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 Arteta and Hale (2008), who exclude countries which had only limited access to foreign capital in the period of observations.<sup>13</sup> We also exclude public corporations and domestic firms that are foreign owned, e.g., by multinational corporations.

For each country, the total volume of corporate debt issuances in U.S. Dollars is summarized on a monthly level. Issuance volumes are deflated by U.S. CPI. From there, we construct averages of real issuance volumes for the entire 25 year period. The final dependent variable is measured as 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.

### **D. Measuring Crisis Episodes**

The analysis focuses on episodes of sovereign defaults towards private creditors.<sup>14</sup> Restructurings with official (bilateral or multilateral) creditors are disregarded, although they will be taken into account in the robustness analysis. The reason is that the key proxy of government behavior used here—the index of coerciveness by Enderlein et al. (2007)—is not coded for official restructuring deals, mainly due to a lack of reliable unrestricted information on these cases.

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<sup>13</sup> Arteta and Hale (2008) 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, we exclude Ghana, as the index of coerciveness is not coded for this country due to a lack of reliable information.

<sup>14</sup> We choose a narrower definition of debt crises than Arteta and Hale (2008). 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, we 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.

A further main difference to Arteta and Hale 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), *or* (ii) the beginning of debt talks and restructuring negotiations. Moreover, we define a debt crisis as ended with the final agreement of a debt restructuring. Our approach to measure the start of a sovereign debt distress differs from Arteta and Hale (2008). In particular, we do not capture renegotiation periods only, but explicitly account for moratorium episodes in which no negotiations took place. 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, we also use revised data on the timing of restructuring agreements.<sup>15</sup> All data on crisis sequencing and restructuring events are taken from Trebesch (2008).

#### IV. DATA: THE INDEX OF COERCIVENESS

This section presents the index of sovereign risk by Enderlein, Müller, and Trebesch (2007) in detail. The index measures coercive actions that governments impose on their private external creditors during default and restructuring negotiations. As argued, this index can be understood as a valid signal of “good” versus “bad” government types during default.

The idea of categorizing different types of crises and different types of government behavior towards creditors is not new. Authors such as Aggarwal (1996), Andritzky (2006), Cline (2004), Frankel and Roubini (2001), and Roubini and Setser (2004) have 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, which would be suitable for econometric analysis.

A main challenge in coding an index of government behavior in default is to define appropriate criteria of coerciveness or cooperation. The sub-indicators chosen should be as objective as possible. At the same time, they should mirror the consensus view of researchers, financial sector experts and policymakers on what cooperative and fair debt restructurings should look like. Accordingly, an important point of reference for the construction of the index 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). A further important point of orientation were the criteria suggested by Cline (2004), Frankel and Roubini (2004), and Roubini (2004).

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<sup>15</sup> Arteta and Hale (2008) 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.

It should be underlined that the index is applicable for different eras of debt defaults. It avoids sub-indicators that are too closely linked to specific restructuring techniques (e.g., novel legal instruments such as exit consents). The criteria are thus general enough to measure coercive actions in both the 1980s debt crises and more recent sovereign bond restructurings. It should also be noted that the index measures government behavior towards *private international* creditors only.

### A. Composition of the Index

The final index used here consists of nine sub-indicators. These 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.

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, described in detail below, are the following:

Indicators of Payment Behavior:

- 1) Payments missed beyond the grace period (yes/no)
- 2) Unilateral payment suspension (yes/no)
- 3) Full suspension of interest payments (yes/no)
- 4) Capital and exchange controls on debt flows (yes/no)

Indicators of Negotiation Behavior:

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

#### ***Indicators of Payment Behavior***

*1) Payments missed beyond the grace period (yes/no)*

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 beyond the grace period. 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 preemptive 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 (Andritzky (2006), Bedford et al. (2005), ECB (2005), Finger and Mecagni (2007), Díaz-Cassou et al. (2008a, 2008b)).

*2) Unilateral payment suspension (yes/no)*

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 behaviour and unwillingness to resolve the distress situation pre-emptively and in coordination with creditors. The respective sub-indicator is coded 1, whenever the government misses payments unilaterally, i.e., without a previous agreement or consultations on payment deferral.

*3) Full suspension of interest payments (yes/no)*

The suspension of interest payments has to be regarded as a separate indicator of payment behaviour. A government that fully suspends interest payments, even refusing to make token payments, sends a strong signal of its unwillingness to pay. Suspended interest payments also coincide with an accelerated build-up of arrears. In this regard, Obstfeld and Taylor (2003) distinguish between “partial” and “full” defaulters, while Eichengreen (1991) refers to “light” versus “heavy” defaulters. Note that partial or symbolic debt servicing has been a key demand of creditors in the crises of the last decades, and even centuries (Conklin (1998), IIF (2006), Sachs and Huizinga (1987), Sturzenegger and Zettelmeyer (2007)).<sup>16</sup> Nevertheless, a subset of debtor governments has explicitly refused even minor interest payments, signalling a particularly coercive stance towards creditors. The resulting sub-indicator is coded 1 in case the government fully suspends interest payments on sovereign bonds or public syndicated bank loans for more than 90 days in a given year.<sup>17</sup>

*4) Capital and exchange controls on debt flows (yes/no)*

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

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<sup>16</sup> Partial interest payments were also of particular concern to commercial banks during the 1980s. By securing at least minimal payments, banks aimed to avoid that their loans would be classified as “value-impaired,” obliging them to write them off and take a loss on their books (Sachs and Huizinga (1987)).

<sup>17</sup> One should note that this does not apply to cases in which there is a mere ceiling of interest payments.

creditor assets in the country and should certainly be regarded as a coercive government policy (Cline, 2004). 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, including foreign debt repayments by domestic corporations.

***Indicators of Negotiation Behavior:***

*5) Breakdown or refusal of negotiations (yes/no)*

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 (2008)), 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.<sup>18</sup>

*6) Data disclosure problems (yes/no)*

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.

*7) Explicit threats to repudiate on debt (yes/no)*

A further indicator of negotiation behavior captures open threats, which can be a crucial element of debt renegotiations (Bulow and Rogoff (1989)). The indicator included here is coded 1 whenever a key government actor<sup>19</sup> publicly threatens to repudiate on debt, e.g., via an indefinite moratorium. In the spirit of related theoretical models, such public statements

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<sup>18</sup> Note that delays caused by creditor coordination failure or outright inter-creditor disputes are not taken into account. Such creditor induced negotiation delays are coded in a separate indicator (Trebesch (2008)).

<sup>19</sup> Namely the President, the Prime Minister, the chief debt negotiator or Ministers of Finance, Economy or Planning.

can be seen as a threat of shifting into autarky permanently, with a full cancellation of outstanding debt (e.g., Kletzer and Wright (2000), Kohlscheen and O’Connell (2008), Yue (2006)). Threats to repudiate can be regarded as a clear signal of non-cooperative debt policies.

*8) Explicit moratorium or default declaration (yes/no)*

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 were 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 (Hallet (1998)). 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 behaviour.<sup>20</sup> The sub-indicator takes the value of 1 whenever a key government actor publicly proclaims the decision to default.

*9) Forced and non-negotiated restructuring (yes/no)*

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.<sup>21</sup> 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.<sup>22</sup> The indicator included here captures instances (i) where the government enforced a restructuring (e.g., by unilaterally lowering coupon levels or interest rates) or (ii) where the government issued a non-negotiated offer on a final agreement.

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<sup>20</sup> The seminal article on interstate conflicts by Jones et al. (1996) codes official war declarations as a particularly hostile government action.

<sup>21</sup> 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.”

<sup>22</sup> Most recent bond restructurings involve a final, unilateral offer that is usually not amended after it is launched. However, even these offers can be the result of a coordination and negotiation process. Bedford, Penalver, and Salmon (2005, p. 95) state that “in several cases, notably Uruguay and the Dominican Republic, the launch of the exchange offer was preceded by a period of consultation between sovereign debtor and creditor representatives.”



## B. Coding of the Index

All nine sub-indicators of coercive actions are coded on a yearly basis. The final index is additive, meaning that the scores of the nine dummy indicators are summed up (with a lower bound of 1). Accordingly, the maximum index 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 low level of coerciveness and a fully cooperative policy stance. Detailed coding procedures including information sources, as well as case study examples, descriptive statistics and stylized facts from the data are presented in detail in Enderlein et al. (2007).

The general approach was to gather as much information as possible across a large set of countries. The basis of coding was a thorough and standardized evaluation of more than 19,000 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. (2007) for more details on the database).

## V. ESTIMATION ISSUES: CONTROLLING FOR SHOCKS, POLITICS AND FUNDAMENTALS

We face a number of estimation issues. While reverse causality should not be a major problem here<sup>23</sup>, omitted variable bias is a relevant concern. It is possible that external shocks and macroeconomic developments simultaneously affect private external credit and government debt policies. To properly identify the causal effect of default and coercive government actions, it is thus crucial to control for fundamentals and common shocks.<sup>24</sup> We do our best to capture external factors, domestic demand effects and a government's ability to pay by including a large set of economic control variables in the regressions (Table 2 provides an overview). Many of the variables employed are in line with the recent literature on market access that finds both domestic and global factors to matter for the volume of

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<sup>23</sup> There is little reason to believe that the volume of corporate debt issued per month will have a causal effect on the occurrence of debt crises or the degree of cooperation in crisis resolution policies.

<sup>24</sup> Controlling for fundamentals is particularly relevant in the context of sovereign debt, as foreign creditors may constantly evaluate whether a country is not able or rather not willing to pay. The short- and long-term effect of debt policies on capital flows might thus depend on whether coercive actions are implemented during severe economic crises or during good times.

credit, equity and FDI flows to emerging markets (e.g., Kaminsky and Fostel (2007), Richmond and Dias (2008)). Furthermore, all estimations include country and year fixed effects.

Given the focus on government policies, it is also crucial to control for political events and political instability, which might affect both external borrowing and a government's negotiation stance.<sup>25</sup> As a first measure, we include the monthly political risk indicator taken from ICRG. This index is widely used, but based on subjective risk perceptions and might thus be partly endogenous to a government's policy choices. As an alternative, we therefore construct a measure of political disruptions with event data on general strikes, anti-government demonstrations, coups and revolutions taken from Databanks International.<sup>26</sup>

Regarding economic and financial variables, we start with the same set of controls used in Arteta and Hale (2008).<sup>27</sup> 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 five broad categories and constitute a set of indexes:

#### *International competitiveness*

Arteta and Hale's 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). We use the same two principal components retained by Arteta and Hale (Index 1.1. and 1.2. of Table 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

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<sup>25</sup> Enderlein, Müller, and Trebesch (2008) use the Index of Coerciveness as the dependent variable and show that political events and institutions are key determinants of a government's crisis resolution policies and the degree of coercive actions imposed on external creditors.

<sup>26</sup> As these political events are highly correlated, we employ Principal Component Analysis to summarize the information in the individual series into a smaller set of variables. The first principal component is retained for this variable.

<sup>27</sup> We thank the authors for kindly sharing their comprehensive dataset.

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 (Ibbotson, GFD, Bloomberg). Three principal components are retained (Index 2.1, 2.2. and 2.3. of Table 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 (IMF, Glick, and Hutchison (2005)). The first principal component is retained (Index 3.1. of Table 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 U.S. Dollars (IFS) and the unemployment rate (IFS). The first two principal components are retained (Index 4.1. and 4.2. of Table 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 constructed by Arteta and Hale (2008) 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 2).

It should be underlined that 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, we explicitly control for currency and banking crises. 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). In addition, we try to

capture disruptions due to natural disasters. Data on natural disasters come from the International Emergency Disasters Database. Concretely, we use a dummy whenever governments declared a state of emergency due to earthquakes, floods, storms, fires or volcano outbreaks.<sup>28</sup> As will be shown in the robustness analysis, we will also explicitly control for sudden stops in capital flows.

Finally, we 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, on average, 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, we include monthly dummies for debt issuances by oil & gas, chemical and mining corporations respectively.

## VI. DISCUSSION OF RESULTS

### A. Main Results

We estimate the effect of coercive debt policies on corporate external borrowing, both during debt crises and up to three years afterwards. Table 3 shows our baseline estimation results for the model including country and year fixed effects.

The findings indicate a strong negative impact of aggressive debt policies on total external borrowing by the private sector.<sup>29</sup> The index of coerciveness is significant at the one percent level after controlling for macroeconomic fundamentals, global liquidity and common shocks and has a sizeable coefficient. Interestingly, the debt policy variable remains significant even when including the standard measure of political risk by ICRG and a measure of sovereign credit rating (columns 3 and 4). This indicates that the coerciveness index captures an effect beyond political instability or foreign risk perceptions. The coefficients of the PCA weighted indices are difficult to interpret given that they summarize a set of various explanatory variables. However, all additional control variables have the expected negative sign, but only sovereign ratings, a depreciation in the real exchange rate and episodes of currency crisis have a significant negative effect on the volume of external corporate credit.

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<sup>28</sup> To verify, we also use a dummy for cases in which the total number of affected people was larger than 5 percent of the total population.

<sup>29</sup> The  $R^2$  is relatively low compared to related studies using annual data. However, it should be underlined that our dependent variable, the monthly percentage deviation in external credit, is highly volatile. When estimated in levels (log form) the  $R^2$  is higher than 0.3 in most of the specifications, with results being very similar. Therefore, the size of  $R^2$  should not be regarded as a major concern here.

For illustrative purposes, we construct a dummy for periods of particularly coercive government behavior towards international creditors.<sup>30</sup> As can be seen in column (2), the dummy has a high coefficient of -0.57 indicating that particularly aggressive debt policies cause a reduction in credit of 57 percent per month relative to what it would have been otherwise. The results in Table 3 also show that debt policies in default have a strong impact for up to two years after the crisis.<sup>31</sup> The lagged value of the coerciveness index is highly significant for the first 12 months after the restructuring agreement. The negative effect is somewhat weaker for the second year after the agreement is reached and vanishes thereafter. Lagged index values for the third year are not significant in any of the regressions.

To provide comparability of our approach to that of previous studies, we also show results using the standard default dummy variable and its lagged values for up to three years after the debt crisis (Table 4). The coefficient of the binary default dummy is significant and indicates a decline of 39 percent in external credit during debt crisis periods with private creditors. This is broadly in line with the effect identified by Arteta and Hale (2008), 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, the default dummy and its lagged values turn insignificant as soon as the more continuous index of coerciveness is included in the regressions.<sup>32</sup> This indicates that it is not default per se that best explains the negative impact on external credit, but the type of default and the type of government behavior during default. We further investigate this finding by including both the dummy for periods of “High Coerciveness” jointly with the default dummy. For this specification (column 3 in Table 4), we find both the default and the “High Coerciveness” dummy to have significant coefficients, although only at the 10 percent level. The coefficient for the coerciveness dummy indicates that aggressive policies can explain an additional 40 percent decline in corporate external borrowing over and above the debt crisis effect per se.

We get a very similar picture when estimating the model for the sub-sample of default months only (see columns 4 to 6 in Table 4). The index of coerciveness remains significant, further underlining that the measure has strong explanatory power on corporate borrowing in crisis episodes. The dummy of “High Coerciveness” is negatively signed and has about the same size as in column (3), again pointing to a nearly 40 percent decline in credit. Altogether, coercive actions towards external creditors during default appear to have a strong

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<sup>30</sup> The dummy for “High Coerciveness” turns 1 in periods in index value is 5 or higher.

<sup>31</sup> Other studies have show that large countries take 2 to 3 years to reaccess capital markets after default (See Gelos et al (2004), and Richmond and Dias (2008)).

<sup>32</sup> The same is true when using the dummy for negotiation episodes by Arteta and Hale (2008).

negative spillover effect on private sector borrowing. This finding is further strengthened when including a second dummy that captures episodes of particularly cooperative behavior during default (with index values of 1, 2 or 3). The “Low Coerciveness” dummy has a *positive* and significant sign (column 6), showing that access to external credit tends to be better in periods of government cooperation.

### **B. Effects of Individual Coercive Policies**

The above findings have shown that the overall debt policy of a government seems to be an important determinant for private sector external credit. However, what about individual coercive actions? Do some policies during default have a particularly negative impact on corporations? To get a better understanding about this, we ran separate regressions including each of the nine sub-indicators individually. Table 5 shows the results for the sub-sample of default periods.

As can be seen, a government’s payment behavior during distress episodes seems to be particularly relevant. The criteria on “Missed Payments,” “Unilateral Payment Suspension” and “Full Suspension of Interest Payments” are individually significant and all have high, negative coefficients. The dummy for additional capital controls, however, is insignificant.

Regarding negotiation policies, it seems that both breakdowns in talks with creditors and explicit moratorium declarations have a negative effect, although the coefficients are only significant at the 10 percent level. As to the variables on “Data Disclosure Problems” and “Threats,” they 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 high as the coefficients of the payment variables. Apparently, enforced debt exchanges, with creditors having no say at all, trigger a strong negative reaction on international financial markets. This policy seems to “hurt” private sector borrowers particularly severely.

### **C. Robustness Analysis**

Finally, we conduct a series of robustness checks. Table 6 provides some of the results. Altogether, the results are robust to a series of changes in the estimation setup. We first include a measure of systemic sudden stops by Cavallo and Frankel (2007), as an additional means to account for common shocks. Column (1) shows that results are unaffected.<sup>33</sup> In a next step, we analyze the extent to which results are driven by the choice of the estimation

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<sup>33</sup> The same is true when including alternative sudden stop indicators by Calvo, Izquierdo, and Talvi (2006), and Calvo, Izquierdo, and Mejia (2008).

technique and potential regional heterogeneity. We thus estimate a random effects model that includes dummies for world regions according to the World Bank definition (column 2). The results remain unaffected. As discussed above, we also check for the role of defaults and restructurings towards official creditors. For this purpose, we used information on Paris Club negotiation periods and restructuring events listed in the Working Paper Version of Arteta and Hale's study. As shown in column (3), the results are barely affected when controlling for these two additional variables. In a similar vein, we also included event data for defaults towards private creditors. Results stay the same, when including a dummy for months with interim agreements and for months with a final restructuring agreement.

To better understand the time dimension of the results, we ran the model for the 1980s debt crises and the post-1990 period separately (columns 4 and 5 in Table 6). As can be seen, the index is significant for both of these sub-periods, indicating the relevance of debt policies over time. However, we find that effects are much stronger for the post-1990 period of Brady deals and bond exchanges. Apparently, government debt policies mattered less during the 1980s period of protracted defaults in the developing world, than during the 1990s and afterwards when defaults occurred less frequently. One likely reason for this is the generally low supply of capital to emerging market firms during the second half of the 1980s. External corporate borrowing reached pre-crisis levels only after the first Brady deals were concluded.

Furthermore, we look at different country sub-samples. Generally, the exclusion of any individual country from the sample did not impact our results in a significant way. Even when excluding all major defaulters (Argentina, Brazil, Mexico, and Russia) results remained very similar. 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. We conclude that the results do not seem to be driven by individual countries or country groups.

Finally, we re-estimated the model with quarterly data for the 1990s and 2000s with a different set of explanatory variables, i.e., using a number of individual push and pull factors employed in the capital flow literature instead of the indices constructed by Arteta and Hale. This secondary dataset is constructed using the GDF, EUI, and IFS databases. Our overall results stay the same even in this very different estimation setup.<sup>34</sup>

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<sup>34</sup> Results are not reported but available upon request. The explanatory variables that were included in the regressions are total debt to GDP, measures of liquidity (ratios of short- to long-term debt, level of reserves to imports), annual inflation and growth, the trade balance to GDP and/or terms of trade, the ratio of domestic credit to GDP, push factors such as the VIX index of volatility and/or 3-year U.S. Treasury rate, the total volume of capital flows to developing countries as well the same set of additional control variables used above (real exchange rate, banking and currency crises, natural disasters, political risk and a measure for sudden stops). The high significance level and coefficient sizes of the coerciveness index is robust in a whole set of specifications including few or all of these variables.

## VII. CONCLUDING REMARKS

We find a strong negative impact of aggressive debt policies on the volume of corporate external borrowing in emerging markets. The index of coercive government behavior has a high explanatory power beyond political risk and sovereign ratings, after controlling for a large set of variables capturing fundamentals and shocks. This indicates that we are identifying the true causal impact of coercive debt policies during and after sovereign debt crises. Apparently, both individual coercive actions, as well as the general policy stance of the government can have an adverse effect on corporations. Payment moratoria and enforced, non-negotiated restructurings have a particularly negative impact.

We interpret our results as evidence for risk spillovers from the sovereign to the corporate sector. Apparently, aggressive debt policies and government rhetoric do have adverse consequences for economic agents in a defaulting country. One likely explanation is the role of negative policy signals and reputation stressed by some of the recent theoretical literature (Sandleris (2008), Cole and Kehoe (1998)). If countries signal unilateral behavior in the area of sovereign debt, this has negative repercussions in other fields of the economy. Sovereign risk becomes country risk, with private corporations facing a jump in risk premia and external borrowing constraints. To the extent that this is true, one could interpret the identified effect as a punishment mechanism by international financial markets. Corporations face a deterioration in access to foreign capital, because sovereigns do not “play by the rules.”

Our results have strong policy implications for emerging market sovereigns. A government’s non-compliance with the generally accepted standards of “fair debt restructurings” appears to cause significant costs for the domestic economy. “Good faith” debt restructurings may be crucial to minimize the negative effects of sovereign defaults on domestic corporations. Policymakers in emerging countries should take these costs into account when facing debt distress.



**Table 1. Emerging Market Countries Included in the Estimations**

<b>“Defaulters” – Countries with Default or Debt Distress</b>	<b>“Non-Defaulters”</b>
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.

For the purposes of this study, “defaulters” are countries whose governments defaulted on debt obligations towards foreign private creditors in the period 1980 to 2004 or whose governments arranged a related debt restructuring at terms less favorable than the original terms.

Sources: Standard & Poor’s (2007) and Enderlein, Müller, and Trebesch (2008).

**Table 2. List of Control Variables**

Concept	Index Nr	Variables	Source
International Competitiveness	Index 1.1.	Terms of Trade (scaled by trade openness)	Artea and Hale (2008)
	Index 1.2.	Change in CA	Artea and Hale (2008)
		Change in real exchange rate	
		Export commodity index	
Investment Climate and Monetary Stability	Index 2.1.	Sovereign Credit Risk	Artea and Hale (2008)
		Debt services/exports	Artea and Hale (2008)
	Index 2.3.	Investment/GDP	
		Lending rate/deposit rate	Artea and Hale (2008)
		Inflation rate	
		Domestic credit/GDP	
Financial Development	Index 3.1.	Change in stock market index	
		Financial account openness	Artea and Hale (2008)
		Financial bank assets/GDP	
Long-run Macroeconomic Prospects	Index 4.1.	Stock market cap./GDP	
		Foreign debt/GDP	Artea and Hale (2008)
		Growth rate of real GDP	
		Growth rate of GDP in USD	
Global Supply of Capital	Index 6.1.	Unemployment rate	
		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	
Political Risk		Growth rate of US stock market index	
		ICRG Index of Political Risk	Political Risk Service
Political Turmoil (Events)		Coups d'etats	Databanks International
		General strikes	
		Revolutions	
		Anti-government demonstrations	
Real Exchange Rate		Calculated with US & Foreign CPI.	IFS, WEO
		Increase = Depreciation	
Sovereign Rating		Institutional Investor Rating	Institutional Investor Magazine
Natural Disasters		State of Emergency Dummy	EMDAT
Banking Crisis		Dummy for Systemic or Borderline Financial Crises	Laeven and Valencia (2008)
Sudden Stop		Dummy for Systemic Sudden Stop Episodes	Frankel and Cavallo (2004)

*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), and WEO is the IMF's World Economic Outlook database.

**Table 3. Effect of Aggressive Debt Policies on Total Amount Borrowed**

	Entire Sample					
	(1)	(2)	(3)	(4)	(5)	(6)
Index of Coerciveness	-13.06*** (3.86)		-17.28*** (5.50)	-12.47*** (4.36)	-7.95** (3.97)	-13.32*** (4.29)
High Coerciveness (Dummy)		-57.52*** (21.74)				
Lagged Coerciveness (1 Year)	-23.72*** (7.80)	-20.83*** (7.67)	-27.49*** (8.66)	-23.59*** (8.17)	-17.08** (8.17)	-25.72*** (8.41)
Lagged Coerciveness (2 Year)	-16.46*** (5.94)	-13.84** (6.02)	-20.45*** (6.59)	-17.04*** (5.99)	-11.38* (6.25)	-18.06*** (5.83)
Political Risk (ICRG)			-1.16 (0.86)			
Political Turmoil (Events)				-2.79 (7.34)		
Sovereign Rating (IIR)					-2.59*** (0.74)	
Real Exchange Rate						-0.03*** (0.01)
Banking Crisis						-20.41 (14.89)
Currency Crisis						-33.06*** (12.55)
Natural Disasters (Dummy)						-8.25 (16.06)
Index 1.1.	-3.50 (3.41)	-3.39 (3.23)	-3.42 (4.33)	-1.27 (4.20)	-4.49 (3.42)	-1.99 (3.38)
Index 1.2.	-5.13* (2.67)	-4.67 (2.85)	-5.21* (2.72)	-4.53* (2.64)	-5.74** (2.44)	-4.17 (2.81)
Index 2.1.	-2.55 (8.58)	-2.15 (8.57)	-6.69 (11.12)	-2.05 (8.77)		-2.81 (8.16)
Index 2.2.	5.50 (5.05)	7.32 (4.72)	4.26 (5.49)	5.13 (5.85)		0.94 (4.65)
Index 2.3.	3.19 (5.42)	3.54 (5.35)	2.88 (6.53)	0.20 (6.47)		2.90 (6.00)
Index 3.1.	15.53** (6.30)	16.15** (6.43)	14.22** (6.55)	14.85** (7.17)	14.64** (7.16)	16.67*** (6.23)
Index 4.1.	9.05*** (3.00)	9.30*** (3.00)	9.34*** (3.47)	8.55** (3.32)	6.07** (3.08)	7.29** (2.97)
Index 4.2.	4.67 (4.81)	5.08 (4.82)	7.73 (5.03)	4.32 (5.43)	2.04 (4.92)	2.73 (4.46)
Index 6.1.	-56.59*** (17.60)	-56.59*** (17.62)	-61.08*** (21.01)	-55.07*** (20.12)	-56.82*** (17.45)	-73.47*** (20.82)
Index 6.2.	39.01*** (11.90)	38.88*** (11.93)	45.98*** (15.53)	40.95*** (13.65)	38.75*** (11.74)	52.39*** (14.58)
Constant	124.71** (58.80)	125.22** (58.47)	63.73 (80.55)	119.49* (69.28)	-25.25 (78.66)	180.55** (70.12)
Observations	7,193	7,193	5,848	5,909	7,191	6,716
Adjusted R2	0.061	0.061	0.060	0.061	0.063	0.062

Dependent variable: total amount borrowed in percentage deviation from the mean

\*\*\* indicates significance at a 1% level, \*\* at a 5% level, \* at a 10% level

Robust standard errors clustered on country are in parentheses. The regressions include year and country fixed effects and dummies for issuances by oil&gas, mining and chemical industries.

**Table 4. Default Effects and Aggressive Debt Policies during Default**

	Entire Sample			Sub-Sample of Default Episodes		
	(1)	(2)	(3)	(4)	(5)	(6)
Default Dummy	-39.54*	0.72	-33.43*	Index of Coerciveness	-8.70**	
	(20.47)	(24.18)	(18.81)		(3.68)	
Lagged Default (1 Year)	-61.73**	34.56		High Coerciveness (Dummy)		-38.32***
	(26.32)	(30.25)				(9.25)
Lagged Default (2 Year)	-31.28	98.12		Low Coerciveness (Dummy)		22.10**
	(26.27)	(102.08)				(10.98)
Index of Coerciveness		-13.12***		Real Exchange Rate	0.01	0.03
		(5.06)			(0.07)	(0.07)
High Coerciveness (Dummy)			-40.36*	Banking Crisis	25.52**	22.13**
			(21.58)		(11.64)	(10.12)
Lagged Coerciveness (1 Year)		-33.02***	-23.64***	Currency Crisis	-7.96	-7.87
		(11.72)	(8.11)		(7.03)	(7.66)
Lagged Coerciveness (2 Year)		-42.59	-16.35***	Political Turmoil (Events)	4.44	5.02
		(27.88)	(6.15)		(5.12)	(4.82)
Index 1.1.	-3.33	-3.25	-3.41	Natural Disasters (Dummy)	5.78	1.87
	(3.50)	(3.32)	(3.41)		(12.10)	(12.01)
Index 1.2.	-5.26**	-5.07*	-4.93*	Index 1.1.	1.13	1.42
	(2.58)	(2.69)	(2.72)		(7.47)	(6.40)
Index 2.1.	-2.15	-2.78	-2.33	Index 1.2.	3.48	4.65**
	(8.46)	(8.63)	(8.56)		(2.26)	(2.08)
Index 2.2.	6.77	5.59	5.79	Index 2.1.	7.37**	7.04**
	(4.97)	(5.13)	(5.13)		(3.25)	(3.25)
Index 2.3.	1.79	3.55	2.59	Index 2.2.	0.98	1.09
	(5.71)	(5.15)	(5.46)		(2.05)	(1.82)
Index 3.1.	15.65**	15.59**	15.74**	Index 2.3.	-2.40	-2.73
	(6.38)	(6.28)	(6.31)		(2.08)	(1.99)
Index 4.1.	9.47***	9.05***	9.17***	Index 3.1.	17.35***	17.07***
	(3.00)	(3.01)	(2.94)		(5.88)	(5.58)
Index 4.2.	5.12	4.47	4.84	Index 4.1.	7.55**	7.77***
	(4.94)	(4.78)	(4.88)		(2.93)	(2.56)
Index 6.1.	-56.80***	-56.62***	-56.56***	Index 4.2.	6.52	12.04***
	(17.55)	(17.60)	(17.57)		(4.61)	(4.63)
Index 6.2.	38.88***	38.99***	38.89***	Index 6.1.	-41.58	-41.77
	(11.88)	(11.90)	(11.89)		(33.29)	(32.24)
Constant	126.03**	124.67**	125.35**	Index 6.2.	26.75	26.43
	(59.12)	(58.70)	(59.00)		(23.76)	(23.10)
				Constant	240.29	217.44
					(153.86)	(144.41)
Observations	7,193	7,193	7,193	Observations	1,041	1,041
Adjusted R2	0.060	0.061	0.061	Adjusted R2	0.090	0.091

Dependent variable: total amount borrowed in percentage deviation from the mean

\*\*\* indicates significance at a 1% level, \*\* at a 5% level, \* at a 10% level

Robust standard errors clustered on country are in parentheses. The regressions include year and country fixed effects and dummies for issuances by oil&gas, mining and chemical industries.

**Table 5. Effect of Individual Coercive Actions (9 Sub-Indicators)**

	Sub-Sample of Default Episodes								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Payments Missed Beyond Grace	-48.03*** (18.06)								
Unilateral Payment Suspension		-33.85* (17.60)							
Full Suspension of Interest Payments			-21.06* (11.37)						
Capital Controls / Freeze of Assets				-21.23 (14.50)					
Breakdown of Negotiations					-20.08* (11.08)				
Data Disclosure Problems						-4.95 (8.52)			
Explicit Threats to Repudiate Debt							5.55 (8.89)		
Explicit Moratorium Declaration								-15.01* (8.95)	
Forced Restructurings									-86.93*** (32.73)
Real Exchange Rate	0.01 (0.08)	0.06 (0.08)	-0.00 (0.08)	-0.01 (0.08)	0.01 (0.07)	0.00 (0.08)	0.00 (0.08)	-0.00 (0.08)	0.03 (0.08)
Banking Crisis	21.50* (11.00)	23.16** (10.52)	21.15* (10.89)	27.34** (13.47)	24.07** (11.71)	22.93* (12.30)	22.77* (12.13)	23.28* (12.22)	28.24** (12.71)
Currency Crisis	-8.28 (8.13)	-8.35 (7.78)	-9.01 (7.99)	-9.62 (7.18)	-8.05 (6.65)	-11.16 (7.66)	-10.66 (7.77)	-11.02 (7.73)	-12.04* (7.20)
Political Turmoil (Events)	8.09 (5.37)	4.52 (5.56)	3.99 (5.12)	3.35 (5.55)	2.74 (5.73)	4.10 (5.48)	3.82 (5.41)	3.96 (5.22)	3.43 (4.72)
Natural Disasters (Dummy)	7.30 (12.84)	-1.79 (11.33)	1.59 (12.72)	6.80 (12.24)	-0.01 (10.50)	-1.86 (11.49)	-0.95 (11.44)	-0.83 (11.49)	15.76 (15.19)
Index 1.1.	0.60 (7.24)	1.82 (7.63)	3.03 (7.06)	1.94 (6.94)	1.76 (6.76)	2.95 (7.21)	2.89 (6.81)	3.31 (7.17)	2.89 (7.37)
Index 1.2.	1.89 (2.22)	3.19 (2.36)	4.52 (2.84)	2.98 (2.64)	4.58* (2.63)	3.58 (2.86)	3.66 (2.88)	3.25 (2.74)	4.40* (2.66)
Index 2.1.	6.99** (3.35)	7.43** (3.19)	7.89** (3.85)	8.33** (3.92)	8.15** (3.75)	8.24** (4.19)	8.47** (4.32)	8.01** (4.01)	9.04** (4.04)
Index 2.2.	0.82 (2.31)	0.93 (2.02)	1.28 (2.39)	1.06 (2.41)	1.18 (2.53)	1.87 (2.52)	1.59 (2.76)	1.45 (2.52)	4.05 (2.51)
Index 2.3.	-2.20 (2.07)	-2.84 (2.06)	-3.90 (2.44)	-3.31 (2.27)	-4.10* (2.48)	-4.15 (2.55)	-4.24* (2.54)	-3.67 (2.45)	-2.90 (2.51)
Index 3.1.	14.77*** (5.34)	16.71*** (4.50)	17.40*** (6.20)	19.15*** (6.92)	19.63*** (6.22)	18.43** (7.18)	18.94*** (6.99)	18.34*** (6.91)	20.96*** (7.48)
Index 4.1.	6.26** (2.94)	9.22*** (2.81)	7.28** (2.88)	8.27*** (2.40)	5.67 (3.46)	7.76*** (2.68)	7.73*** (2.70)	8.39*** (2.78)	8.87*** (2.88)
Index 4.2.	4.87 (6.28)	7.30 (4.96)	9.10* (5.17)	9.24 (6.02)	9.00* (5.37)	9.77 (6.22)	9.80 (6.34)	8.54 (5.91)	6.25 (6.35)
Index 6.1.	-42.62 (32.82)	-41.15 (33.06)	-42.49 (32.42)	-41.78 (33.06)	-43.83 (33.07)	-42.51 (32.75)	-42.61 (32.73)	-41.68 (32.95)	-40.86 (33.66)
Index 6.2.	27.54 (23.45)	25.87 (23.50)	26.11 (23.05)	26.18 (23.51)	27.44 (23.39)	26.11 (23.25)	26.12 (23.23)	25.75 (23.36)	25.86 (23.91)
Constant	231.34 (150.82)	208.18 (148.10)	214.32 (152.39)	224.51 (153.76)	223.59 (149.62)	207.84 (152.42)	208.34 (152.34)	206.89 (152.64)	233.03 (155.27)
Observations	1,041	1,041	1,041	1,041	1,041	1,041	1,041	1,041	1,041
Adjusted R2	0.092	0.089	0.086	0.086	0.087	0.085	0.085	0.086	0.091

Dependent variable: total amount borrowed in percentage deviation from the mean

\*\*\* indicates significance at a 1% level, \*\* at a 5% level, \* at a 10% level

Robust standard errors clustered on country are in parentheses. The regressions include year and country fixed effects and dummies for issuances by oil&gas, mining and chemical industries.

**Table 6. Robustness Tests**

	Entire Sample			Subsamples	
	Sudden Stop	Random Effects	Official Defaults	1980s Only	Year >1990
Index of Coerciveness	-13.32*** (4.29)	-10.42*** (2.77)	-12.44*** (4.07)	-2.95** (1.40)	-27.13*** (10.15)
Lagged Coerciveness (1 Year)	-25.72*** (8.41)	-26.46*** (6.61)	-25.73*** (8.45)	-8.74 (7.37)	-32.19*** (11.57)
Lagged Coerciveness (2 Year)	-18.06*** (5.83)	-17.77*** (3.80)	-18.01*** (5.76)	5.63 (14.25)	-25.48*** (7.12)
Default Episodes to Official Creditors			-14.78 (14.21)		
Month of Restructuring Agreement with Official Creditors			-18.75** (9.10)		
Sudden Stop	-40.47** (19.32)	-33.81 (20.93)	-40.73** (19.34)	-7.57 (14.92)	-51.72** (21.94)
Real Exchange Rate	-0.03*** (0.01)	-0.01*** (0.00)	-0.02*** (0.01)	0.01* (0.01)	-0.03*** (0.01)
Banking Crisis	-20.41 (14.89)	-27.70** (12.76)	-21.19 (14.78)	7.21 (9.24)	-40.96* (24.40)
Currency Crisis	-33.06*** (12.55)	-37.05*** (12.94)	-32.53** (12.65)	-13.72*** (4.51)	-45.15** (22.42)
Natural Disasters (Dummy)	-8.25 (16.06)	-14.48 (15.17)	-8.69 (15.52)	-2.51 (5.11)	-26.03 (24.69)
Index 1.1.	-1.99 (3.38)	-0.57 (3.41)	-2.08 (3.45)	2.04 (2.40)	-10.74** (4.72)
Index 1.2.	-4.17 (2.81)	-4.41 (2.77)	-4.20 (2.77)	3.09 (3.84)	-4.69 (3.33)
Index 2.1.	-2.81 (8.16)	-4.26 (7.80)	-2.97 (8.08)	-0.58 (1.09)	-8.24 (13.15)
Index 2.2.	0.94 (4.65)	4.18 (4.24)	0.25 (4.84)	1.98 (2.11)	0.25 (7.59)
Index 2.3.	2.90 (6.00)	5.42 (6.14)	2.48 (6.09)	2.73** (1.37)	4.24 (10.47)
Index 3.1.	16.67*** (6.23)	15.25** (6.36)	16.42*** (6.20)	-4.47 (3.03)	17.32** (7.08)
Index 4.1.	7.29** (2.97)	6.19** (2.86)	7.37** (2.98)	1.26 (4.35)	7.93 (5.39)
Index 4.2.	2.73 (4.46)	2.42 (4.24)	2.98 (4.48)	4.36 (4.56)	5.25 (6.96)
Index 6.1.	-73.47*** (20.82)	-72.81*** (21.41)	-73.24*** (20.75)	-1.48 (5.94)	-83.39*** (27.76)
Index 6.2.	52.39*** (14.58)	52.13*** (14.99)	52.30*** (14.56)	4.14 (4.48)	64.11*** (20.29)
Constant	180.55** (70.12)	187.72*** (69.13)	180.57*** (69.98)	-69.87*** (22.18)	429.57*** (87.41)
Asia		-18.67* (10.71)			
Europe/Central Asia		3.25 (14.03)			
Middle East / Africa		-40.27* (20.96)			
Latin America / Caribb.		14.03 (16.11)			
Observations	6,716	6,462	6,716	2,508	4,208
Adjusted R2	0.062		0.062	0.029	0.049

Dependent variable: total amount borrowed in percentage deviation from the mean

\*\*\* indicates significance at a 1% level, \*\* at a 5% level, \* at a 10% level

Robust standard errors clustered on country are in parentheses. The regressions include year and country fixed effects and dummies for issuances by oil&gas, mining and chemical industries.

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