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Boon or Burden? The Effect of Private Sector Debt on the Risk of Sovereign Default in Developing Countries

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Abstract

We explore how the share of the private sector in total external debt affects perceived creditworthiness and the likelihood of sovereign default in developing countries. While there are theoretical arguments both in favor and against a stabilizing role of private-sector borrowing, the evidence clearly supports the notion that a greater share of the private sector in total external debt is associated with a reduced likelihood of sovereign default.

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1 Introduction

The past two decades have witnessed a sustained and accelerating increase of private foreign borrowing in emerging markets and developing countries. While in 1990 the private sector accounted for a mere 16 percent of all external loans disbursed to countries covered by the World Bank's *Global Development Finance*, this share has increased to 77 percent in 2006 (see Figure 1a). This trend is also reflected by the evolution of debt *stocks*: in 2006, the share of liabilities that were held by private agents (and that were not publicly guaranteed) accounted for 44 percent of developing countries' total external debt – up from a mere 5 percent in 1990 (see Figure 1b).[1]

Of course, these aggregate figures mask a substantial degree of cross-country heterogeneity: Figure 2 illustrates how total external debt (as a portion of GNI) and the private sector's share in external debt evolved in four countries. In all cases, external debt hovered between 30 and 80 percent of GNI for most of the nineties. However, in Chile, the share of the private sector has typically been high relative to most emerging markets and increased further in the 1990s, while in Turkey the share grew considerably since the mid 1990s from relatively low levels. The private sector's role has remained more muted in Indonesia, and in Pakistan private sector debt represented and still represents only a negligible share of total external debt.

In this paper, we investigate whether the increasing importance of private sector borrowing matters for sovereign creditworthiness in developing countries. On theoretical grounds, there are arguments both in favor and against a stabilizing role of the private sector. A critical view of private-sector exposure is based

[1]Figure 1 and the following figures refer to *Long-term* debt, which comprises instruments that have an original or extended maturity of more than one year (World Bank (2007b)). Comprehensive data on private versus public external debt and borrowing is available only for long-term debt instruments.

on the notion that large-scale private borrowing creates vulnerabilities that may eventually lead to a sovereign default. A "sudden stop"may force the public sector to assume at least part of the private debt and the associated real exchange rate depreciation may cause debt-service difficulties for the government. Following this logic, both public and private external debt pose a threat to external fiscal sustainability. The opposite argument that private sector borrowing does not harm government creditworthiness can be made by invoking the idea that the private sector is exposed to greater competitive pressure, which raises the incentives to use the borrowed funds productively. Moreover, a potentially stabilizing role of private sector borrowing can be linked to the distributional consequences of sovereign defaults: agents who are reliant on foreign credit are particularly vulnerable to the disruptions that come along with sovereign default. A larger share of the private sector in total external debt–a proxy of the relative size and stake of agents that would be hurt by sovereign default–would thus raise the political costs of default and reduce its attractiveness to the government.

Given the competing theoretical arguments, the role of the private sector for sovereign creditworthiness is ultimately an empirical question. A first impression of how these magnitudes may be related is provided by Figure 3, which plots the *Institutional Investor's* measure of country creditworthiness ($IICCR$) against the level of external debt relative to GNI (Figure 3a) and the share of *private* long-term external debt in countries' total long-term external debt (Figure 3b).[2] Not surprisingly, the correlation between debt and creditworthiness is negative (-0.37). By contrast, the correlation between private-sector share and the IICCR is positive (0.54).[3] While this picture obviously doesn't prove a causal relationship,

[2]For the IICCR, the data points refer to five-year averages between 1980 and 2005, while the debt-variables are measured at the beginning of these five-year periods.

[3]In both cases, extreme observations seem to play a prominent role. If we remove the top five percent of the debt variable observations – limiting our attention to countries with debt-to-GNI-ratios below 200 percent and a share of the private sector below 40 percent, respectively –

it suggests that relative private-sector exposure and perceived creditworthiness are positively related.

Further evidence that private and public debt are likely to have very different effects on the risk of sovereign default is provided by Table 1. The entries in this table are cross-country averages of various debt-related variables just before the onset of five-year periods in which a sovereign default did or did not take place.[4] The first column of Table 1 shows that initial debt relative to GNI is, on average, much higher before a default period than before a non-default period. Conversely, column 2 indicates that the average share of the private sector in total external debt is much higher before non-default periods than before default periods.

	Ini. Ext. Debt/GNI	Ini. Private Ext. Debt/ Ext. Debt
Default in t	108.51	5.02
No default in t	55.33	10.59

Table 1: Debt variables before defaults

Sources: World Bank (2007b) and Standard and Poor's (2007).

A first look at the data thus seems to point into the direction that a higher share of private debt in total external debt is associated with higher perceived creditworthiness – as reflected by the *Institutional Investor*'s country credit ratings – and with a lower likelihood of sovereign default. The aim of this paper is to subject this hypothesis to closer scrutiny: does the composition of external

the correlation in Figure 3a becomes -0.43, while the correlation in Figure 3b decreases to 0.46.

[4]Here and in what follows we adopt the definition of the rating agency *Standard and Poor's* which identifies a sovereign default as the "...failure to meet a principal or interest payment on the due date (or within the specified grace period) contained in the original terms of the debt issue"(Standard and Poor's (2006)).

debt still matter if we account for other determinants of sovereign risk and the potential endogeneity of international borrowing and lending? Is this relationship driven by a particular group of countries or limited to a specific time interval? Our findings suggest that there is indeed a case to be made that a high share of the private sector in countries' external debt is more of a boon than a burden: an exogenous increase of this share reduces sovereign risk.

The rest of the paper is structured as follows: the next section offers a review of the relevant literature and highlights our own contribution. Section 3 introduces our empirical specification, the data we use, and comments on the results. Section 4 summarizes and concludes. Detailed information on data definitions and sources are given in the data appendix.

2 Review of the Literature

There is a rich literature on the causes and consequences of sovereign risk. Much of the theory departs from the notion that, in the absence of a supra-national enforcement institution, the incentive to repay crucially hinges on the sanctions a government faces in case of default. These sanctions can be subdivided into two main types: starting with Eaton and Gersovitz (1981), it has been argued that governments avoid default in order to preserve access to future loans. However, this idea was criticized by Bulow and Rogoff (1989) who demonstrate that a sovereign debtor can achieve a higher welfare level by denying repayment and by investing the outstanding amount in a third country. Hence, unless it is possible to exclude countries from financial markets both as debtors *and* as creditors, only the threat of direct sanctions – including negative "reputation spillovers" (Cole and Kehoe (1997)) – is effective to enforce repayment.[5]

While the notion that defaulting governments are shut off from interna-

[5]An authoritative survey of this discussion is provided by Eaton and Fernandez (1995).

tional capital markets gets mixed empirical support (see Eichengreen and Lindert (1989), Gelos et al. (2003)), there is ample evidence that a debt crisis imposes large costs on the economy: Rose (2005) demonstrates that the volume of trade is reduced by as much as eight percent for a considerable time span after a sovereign default. De Paoli et al. (2006) as well as Borensztein and Panizza (2006) document that defaults are associated with sharp declines in aggregate output.

It is quite obvious, however, that the costs of default do not affect all citizens of a country in a symmetric fashion. In fact, there is strong evidence that "political factors" – e.g. the proximity of elections or the characteristics of the institutional environment – have a significant effect on countries' perceived creditworthiness and the likelihood of default.[6] Nevertheless, there are few studies that explicitly consider the distributional effects of debt crises and agents' conflicting interests with respect to sovereign default. Notable exceptions are Tomz (2002), Tomz (2004), Arteta and Hale (2008) as well as IMF (2002). Tomz (2002) analyzes the shift in popular attitude that preceded the Argentine default of 2001. In particular, he documents how the sentiment of workers increasingly turned against compliance with international repayment obligations. Tomz (2004) presents the results of a survey which relates agents' attitude towards debt repayment to their professional and educational background. Not surprisingly, agents for whom access to international capital markets is important advocate debt repayment while public employees and individuals who are dependent on public welfare payments appreciate the relaxed budget constraint that comes along with sovereign default. The empirical findings of Arteta and Hale (2008) point into the same direction: sovereign default substantially worsens firms' access to international credit markets and thus hurts those who are most reliant on foreign credit. IMF (2002) analyzes the distributional consequences of four recent default episodes.

[6]See, e.g., Manasse et al. (2003), Van Rijckeghem and Weder (2004), Block and Vaaler (2004).

In some of these cases, default was associated with a sharp depreciation of the domestic currency. This depreciation "...eroded the balance sheets of banks, particularly those with significant open foreign exchange positions" (IMF 2002:15). By contrast, "... others, particularly low-leveraged firms, reaped benefits from the depreciation" (IMF 2002:16). These observations single out private agents with a large exposure to international capital markets as a group whose wealth and income is particularly affected by the government's default decision and suggests a distributional conflict between those individuals on the one hand and workers, non-leveraged firms, and public-sector employees on the other hand. In Celasun and Harms (2007), we present a simple model that formalizes this notion by juxtaposing "workers" and "entrepreneurs": while workers are predominantly interested in low taxes and therefore support default, entrepreneurs who borrow abroad to finance their investments suffer a capital loss in case of default and thus advocate repayment. In this model, a larger "entrepreneurial class" – i.e. a greater volume of private external borrowing – increases the political costs of default and therefore raises sovereign creditworthiness.

The alternative view that private-sector borrowing is harmful for a country's creditworthiness focuses on private agents' incentives to deny debt repayment and the consequences for the aggregate economy. Jeske (2006) presents a model in which private agents who default on their external debt are still allowed to borrow on domestic capital markets. This raises the attractiveness of private default and constrains a country's ability to borrow abroad. While default never takes place in equilibrium, the important point of Jeske's paper is that – in terms of creditworthiness – public borrowing is superior to private borrowing. The view that large private sector external debt is a source of financial risk for the public sector is also supported by anecdotal evidence on private debt nationalizations

after currency and financial crises.[7] For instance Reinhart (2002) states that "...even if the government itself has little outstanding debt, history has shown that, time after time, governments assume private sector debt during currency crises." Hence, it is possible that private borrowing is more of a burden than a boon to sovereign creditworthiness since private agents frequently succumb to over-borrowing, and since a high level of private-sector debt may threaten government solvency even in cases of healthy public finances.[8]

To determine which of the theoretical effects sketched above is dominant we estimate how the share of the private sector in total external debt affects countries' perceived creditworthiness and the likelihood of sovereign default. Both the empirical studies on the determinants of sovereign defaults (Detragiache and Spilimbergo (2001), Manasse et al. (2003), Manasse and Roubini (2005)) and the literature on sovereign ratings (Cantor and Packer (1996), Haque et al. (1996), Harms and Rauber (2006), Mellios and Paget-Blanc (2006), Borio and Packer (1996) Afonso et al. (2007)) support the notion that high external debt is an important cause of debt crises. However, to the best of our knowledge, none of them considers the potentially different impact of private and public debt.[9]

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[7]See, e.g., Larrain and Velasco (1990) for an account of private debt nationalizations and the Chilean external debt restructuring during the 1982 crisis.

[8]Corsetti et al. (1999) identify excessive foreign borrowing by the private sector as one of the key causes of the Asian currency crises of 1997-1998. Indonesia, one of the countries hit hardest by the crisis, restructured its foreign currency bank debt in 1998-99 and was thus classified by Standards and Poor's as being in sovereign default status at that time.

[9]A notable exception is Frankel and Rose (1996) who explore *inter alia* how the share of the public sector in total external debt affects the occurrence of currency crises. Interestingly, a higher share of the government raises the likelihood of a currency crash in the subsequent year. By contrast, the effect of the public sector-share on currency crises in the same period is not significant.

3 Empirical analysis

3.1 Creditworthiness and defaults

The goal of this paper is to investigate whether an increasing share of the private sector in external debt affects developing countries' creditworthiness and the likelihood of sovereign default. We proceed in two steps: in a first set of regressions, we estimate the impact of private sector exposure on a widely-used indicator of creditworthiness, namely the *Institutional Investor's* country credit rating. In a later section, we then estimate whether the share of private debt has an effect on the occurrence of actual defaults.

Our data set covers 65 developing countries and emerging markets for the years 1980 – 2005. The unit of time measurement we adopt is five years, and the variables used in our regressions will either be five-year averages (1981-85, 1986-1990, ..., 2001-2005), or initial values preceding the respective five-year periods (1980, 1985, ..., 2000). We will be interested in the following question: how does a change of the private-sector share in total external debt affect average creditworthiness and the likelihood of sovereign default in the subsequent five years? Our choice of five-year averages is based on the notion that many of the theoretical mechanisms sketched above are likely to have a discernible effect on creditworthiness only at a low frequency. In addition, our dynamic structure has the virtues of simplicity and transparency: using annual data would require a more sophisticated dynamic specification and would possibly lead to coefficients that are difficult to interpret. Moreover, it would be much harder to address issues like unobserved heterogeneity and endogeneity.[10]

While focusing on actual defaults seems straightforward at first glance, it comes with a number of serious difficulties: first, there is no generally accepted

[10]Note, however, that we are able to replicate most of the qualitative results reported below with annual data.

definition of sovereign default. In our analysis, we rely on the definition of the rating agency *Standard and Poor's*, which characterizes sovereign defaults as "...the failure to meet a principal or interest payment on the due date (or within the specified grace period) contained in the original terms of the debt issue" (Standard and Poor's (2006)). While this approach has the advantage of applying a straightforward and transparent criterion, it does not consider the size of arrears, nor does it capture those *latent* debt crises whose occurrence was prevented by foreign rescue operations and concessions.[11] A further problem with exclusively focusing on actual default episodes is that governments' creditworthiness frequently recovers while they are still negotiating the terms on which to repay existing arrears. During these periods, they are technically "in default", but the likelihood to deny repayment in the future may be much lower than suggested by their default status.

Therefore, as a first step, we use *Institutional Investor's* measure of country creditworthiness ($IICCR$) which is likely to represent a more delicate and informative seismograph of investors' assessment whether current loans will be repaid in the future. The $IICCR$ ranks countries on a scale from 0 to 100, with a lower rating reflecting a higher likelihood that borrowers in this country will default on their debt. The ratings are "...based on information provided by senior economists and sovereign risk analysts at leading global banks and money management and securities firms" (Institutional Investor, 2002:170) and have been published twice per year since 1979.[12] Although it does not exclusively refer to

[11]Given these considerations, Manasse et al. (2003) augment the Standard-and-Poors data with information on concessional IMF loans, while Beim and Calomiris (2001) differentiate between outright repudiation and minor, pre-announced defaults. Rose (2005) identifies sovereign defaults with the onset of Paris-Club negotiations, Arteta and Hale (2008) combine information about renegotiations with those of *Standard and Poor's* and the *Economist Intelligence Unit*.

[12]As reported by Haque et al. (1996), the individual criteria used by banks to assess default risk are not specified.

the likelihood of *government* default, we conjecture that *sovereign risk* makes up for a large share of "country creditworthiness". Our conjecture is confirmed by comparing the *Institutional Investor*'s indicator to ratings which more explicitly focus on government creditworthiness, but cover a smaller number of countries and years.[13]

The performance of rating agencies in predicting financial crises has frequently been criticized in the recent past. However, Reinhart (2002) documents that credit ratings do a fairly good job in predicting sovereign defaults. This notion is confirmed by the numbers in Table 2, which gives the results of regressing the variable $SOVDEFAULT$ on the *Institutional Investor's* measure of creditworthiness. $SOVDEFAULT$ is a binary variable which is one if *Standard and Poors* rated a government to be in default at least once during a five-year period (1981-85, 1986-90 etc.) and zero otherwise. $IICCR^{ini}$ is the value of $IICCR$ in the year preceding that period (1980, 1985 etc.). The regression is based on a probit model and includes both regional dummies and time dummies. The *Institutional Investor* credit rating has a significant relationship with the likelihood of default. Evaluated at the mean, raising $IICCR^{ini}$ by one percentage point reduces the likelihood of default by about one percentage point. In terms of goodness of fit, the regression performs reasonably well: 81 percent of default episodes and 72 percent of the episodes without default are correctly predicted. Column (2.2) of Table 2 demonstrates that $IICCR^{ini}$ is still significant if we include the lagged value of $SOVDEFAULT$: hence, it is a good predictor of future defaults even if we control for the possibility that past defaults both raise the probability of future defaults and reduce current creditworthiness.[14]

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[13]The $IICCR$ has been widely used in empirical work on sovereign creditworthiness, given its coverage of a large number of countries and years. The rank correlation between the $IICCR$ and the sovereign ratings published by *Moody's* in the 1990s is 0.92. The rank-correlation with the sovereign ratings of *FitchRatings* is 0.85.

[14]We performed the same exercise using five-year averages ($IICCR^{av}$) instead of initial

3.2 Private debt and creditworthiness: data and model specification

To investigate how a larger share of the private sector in total external debt affects perceived creditworthiness, we estimate variants of the following equation:

$$IICCR_{it}^{av} = \beta_1 PRIVSHARE_{it}^{ini} + \beta_2 DEBT_{it}^{ini} + \sum_{k=1}^{K} \gamma_k \; x_{k,it} + \xi_t + \varepsilon_{it} \qquad (1)$$

where $IICCR_{it}^{av}$ is the *Institutional Investor*'s average measure of country creditworthiness for country i in period t, and $PRIVSHARE_{it}^{ini}$ is the initial percentage share of country i's long-term *private* external debt in its *total* long-term external debt at the start of period t. Both the numerator and the denominator of this ratio are taken from the World Bank's *Global Development Finance*, which defines private non-guaranteed long-term debt outstanding and disbursed as "...an external obligation of a private debtor that is not guaranteed for repayment by a public entity". To compute the denominator of $PRIVSHARE^{ini}$, we take the sum of private and public long-term debt. Public long-term debt comprises "...long-term external obligations of public debtors [...] and external obligations of private debtors that are guaranteed for repayment by a public entity "(World Bank (2007b)).[15] The variable $DEBT^{ini}$ is the initial level of external debt – short-term and long-term – relative to GNI.[16] Note that by using the values of $PRIVSHARE$ and $DEBT$ observed at the end of the *previous* five-year

values. This variable correctly "predicts" almost 100 percent of all defaults – which is not surprising, given that risk ratings usually drop substantially once a government declares default.

[15]The variable $PRIVSHARE^{ini}$ is based on long-term debt since the public versus private sector decomposition is not available for short-term debt. As we will show later, the focus on long-term debt does not appear to be consequential for our empirical results.

[16]For the time being, we do not distinguish between different *sources* of loans. That is, public borrowing comprises both loans from official sources and loans from private investors. As we will show later, this aggregation is not crucial for our results.

period we are reducing the potential for reverse causality, i.e. of creditworthiness affecting private and public borrowing behavior.

Our choice of control variables $x_{k,it}$ largely follows the studies of Haque et al. (1996) as well as Harms and Rauber (2006). First, we use the lagged five-year average of the IICCR as a regressor ($IICCR^{av}(-1)$). A dynamic specification is suggested by Haque et al. (1996:718) who find that "there is considerable persistence in the ratings, so that a country tends to retain its rating over time unless significant adverse or positive developments occur". Moreover, by controlling for lagged $IICCR^{av}$, we further reduce the potential endogeneity of the debt variables: if a positive correlation between $PRIVSHARE^{ini}$ and $IICCR^{av}$ were only driven by the high persistence of credit ratings and the fact that $PRIVSHARE^{ini}$ reacts to ratings of the past, the correlation should disappear once lagged creditworthiness is explicitly taken into account.

A correlation between initial private sector debt and average creditworthiness could, of course, also reflect the expectation of more favorable economic and political conditions in the *future*: it is quite plausible that private sector borrowing expands more than proportionately in anticipation of a boom, and that such an upswing is also reflected by a rising measure of creditworthiness. To account for this possibility, we introduce two proxies for "economic prospects": the average growth rate of real per-capita GDP in the preceding five-year period ($GROWTH^{av}(-1)$) and the average growth rate of the main trading partners' GDP ($TPGROWTH^{av}$) in the current period. The advantage of using trading partners' growth is that this variable – while being significantly correlated with domestic growth – is unlikely to be endogenous with respect to $IICCR^{av}$.[17] We also include the five-year average of an index of government stability ($GOVSTABILITY^{av}$), compiled by the *International Country Risk Guide*,

[17]Including the growth rate of domestic output did not alter the qualitative results we report in subsequent sections.

which captures the extent of political risk during a given time period, and which is likely to affect both creditworthiness and private borrowing.[18]

To account for the possibility that the share of the private sector in total external debt merely reflects the *level of economic development*, we include the logarithm of real per-capita income (in international dollars) at the end of the previous five year period. ($INCOMEPC^{ini}$). Moreover we use measures of financial and macroeconomic stability which are likely to affect both private borrowing and creditworthiness: the initial volume of reserves as a share of imports ($RESERVES^{ini}$) and the log of the average inflation rate in the preceding five-year period ($INFLA^{av}(-1)$). We also include the initial degree of trade openness ($OPEN^{ini}$), measured as the ratio of exports and imports to GNI. Since more open economies are more vulnerable to the declines in foreign trade identified by Rose (2005), their willingness to default should be lower. At the same time, countries that are more open are likely to be more vulnerable to external shocks and may thus face a higher risk of default.

Finally, we use dummies for East Asia, Eastern Europe and Central Asia, South Asia, Latin America and Subsaharan Africa to account for regional differences as well as time dummies ξ_t to capture time-variant factors – changes in world interest rates or investor sentiment – that influence all countries' creditworthiness.

[18] $GOVSTABILITY^{av}$ is the sum of three subcomponents, namely government unity, legislative strength, and popular support.

3.3 Private debt and creditworthiness: results

3.3.1 Private debt and creditworthiness: benchmark regressions

Column (3.1) of Table 3 shows the results of estimating equation (1) by OLS.[19] All control variables have the expected sign. The coefficient on $DEBT^{ini}$ is highly significant, confirming the notion that a large level of external debt reduces creditworthiness.[20] Most importantly for our analysis, the share of private sector debt – as reflected by $PRIVSHARE^{ini}$ has a *significantly positive* coefficient, implying that ceteris paribus, countries with a higher share of private debt in total external debt would be expected to have higher creditworthiness.[21]

Column (3.2) of Table 3 includes the second lag of $IICCR^{av}$ as an additional regressor: if the serial correlation of creditworthiness goes beyond one period and if private debt is slow to react to changes in credit rankings, omission of this variable could lead to biased estimates. However, this does not seem to be the case: while the second lag of $IICCR^{av}$ has a significantly *negative* coefficient, the estimated coefficient of $PRIVSHARE^{ini}$ is almost unaffected.

The results so far suggest that a higher share of the private sector in total external debt is significantly associated with a higher level of creditworthiness. However, the significantly positive coefficients could just indicate that countries with a more developed financial sector have a larger share of private external debt and run a lower risk of sovereign default. To account for this possibility we

[19]The standard errors presented in squared brackets are based on a covariance matrix that is robust with respect to heteroskedasticity and serial correlation of cluster-specific disturbances.

[20]This result is due to dropping the observation for Nicaragua in 1990, which is characterized by an excessively high level of external debt (1087 percent of GNI). Including this data point substantially increases the standard error of $DEBT^{ini}$ without, however, changing the qualitative results with respect to the other regressors.

[21]This result does not hinge on our indiscriminate treatment of private and official *creditors*. If we constrain our attention to debt owed to *private* agents and institutions – thus netting out official loans – we get a somewhat smaller, but significantly positive coefficient.

include the initial value of domestic credit to the private sector relative to GDP ($DOMCREDIT^{ini}$) as a measure of financial depth. Column (3.3) demonstrates that, while this variable has a positive sign, it is not significant and its inclusion has almost no effect on the coefficient of $PRIVSHARE^{ini}$.

Column (3.4) of Table 3 reports the results of replacing $GOVSTABILITY^{av}$ with another measure of the investment climate. The variable $GOVERNANCE^{av}$ is also based on the *International Country Risk Guide's* assessments, but refers to different criteria – namely the control of corruption, the quality of the bureaucracy, and the rule of law. While this modification slightly lowers the size of the coefficient of $PRIVSHARE^{ini}$, the effect is not substantial, and the variable remains significant.

We also considered another disaggregation of external debt which possibly affects country creditworthiness and which might be correlated with private-sector exposure: column (3.5) in Table 3 reports the result of including the variable $STDEBT^{ini}$, which reflects the share of *short-term debt* in total external debt. It turns out that this variable has no significant independent effect on perceived creditworthiness, and that its inclusion does not influence the coefficient of $PRIVSHARE^{ini}$.[22]

3.3.2 Private debt and creditworthiness: accounting for unobserved heterogeneity and endogeneity

There is, of course, a high probability that the regressors we have included do not capture all sources of cross-country heterogeneity. The positive coefficient of $PRIVSHARE^{ini}$ may thus merely reflect the influence of other country-specific factors which affect both private borrowing and creditworthiness. Moreover, we

[22]To further explore whether the maturity structure of external debt was important for our results we ran our benchmark regression under the two alternative assumptions that all short-term external debt was either private or public. It turned out that the modified values of $PRIVSHARE^{ini}$ still had a significantly positive impact on $IICCR^{av}$.

have not yet come to terms with the possible endogeneity of $PRIVSHARE^{ini}$: while we have argued above that regressing the five-year average of $IICCR^{av}$ on the *initial* share of private debt in total external liabilities should reduce the potential for reverse causality – especially, when the lagged measure of creditworthiness is included – there are more sophisticated ways to deal with this issue.

In this subsection, we first follow the approach of Arellano and Bond (1991) and estimate the parameters of interest by differencing equation (1) and by using lagged levels of the regressors as instruments.[23] The results in column (4.1) of Table 4 are based on a specification that uses up to four lags of the regressors as instruments. To avoid the overfitting that comes along with an excessive number of moment conditions and that results in biases and uninformative diagnostic statistics, we impose the condition that the coefficients are uniform across the time periods in the first stage.[24] Moreover, we adopt a two-step approach that uses an optimal weighting matrix to aggregate the individual moment conditions. Standard errors are computed using the finite sample correction suggested by Windmeijer (2005). The p-values referring to Hansen's J-test of overidentifying restrictions (Hansen (1982)) and to the (m2-)test of no second-order autocorrelation in the differenced residuals (Arellano and Bond (1991)) are given at the bottom of the table. As the results in column (4.1) show, most coefficients change when we move from pooled OLS to the "Difference-GMM estimator" of Arellano and Bond (1991), suggesting that unobserved heterogeneity and endogeneity may indeed have influenced the results presented in Table 3. Nevertheless, our finding that the share of the private sector in total external debt raises countries' creditworthiness is strengthened rather than weakened.

Column (4.2) shows the results of applying the estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998) to equation (1). This

[23]Bond (2002) and Wooldridge (2002a) offer excellent surveys on dynamic panel estimation. We used the *xtabond2* module by Roodman (2006) to implement the difference-GMM estimator.

[24]We do this by using the *collapse* option in the *xtabond2* routine in Stata.

approach simultaneously estimates the first-differenced version of the regression equation – using lagged levels of the right-hand-side variables – and the original equation in levels using lagged differences as instruments. The first advantage of this "Systems-GMM" estimator is that it exploits the information contained in the first period – a property that is of particular merit in our case where the number of periods is small. Moreover, it mitigates the weak-instruments problem that arises if the time series involved are very persistent. Column (4.2) in Table 4 demonstrates that, with this specification, the coefficient of $PRIVSHARE^{ini}$ is significantly positive.

So far, we have followed the standard approach of using lags of all regressors as instruments. While the J-test gives no warning signs, our results may be biased if the right-hand side variables are endogenous. We are particularly concerned about $PRIVSHARE^{ini}$ and $DEBT^{ini}$ and therefore remove these variables from the list of instruments. Column (4.3) in Table 4 presents the results of following this approach when the "Difference-GMM" estimator is used, column (4.4) refers to the "Systems-GMM" estimator. In both cases, the coefficient of $PRIVSHARE^{ini}$ remains significant.

The last columns of Table 4 present the results of treating the problems of unobserved heterogeneity and potential endogeneity of $PRIVSHARE^{ini}$ separately: first, we estimated our model with fixed effects. To account for the bias inherent in dynamic-panel estimation (Nickell (1981)) we applied the bias-correction suggested by Kiviet (1995) and Bruno (2005).[25] As indicated by column (4.5), using this "corrected LSDV (LSDVC)" estimator barely changes the coefficient of $PRIVSHARE^{ini}$ as compared to the pooled OLS results reported in Table 3. Finally, we accounted for the potential endogeneity of $PRIVSHARE^{ini}$ by instrumenting this variable with potential determinants of private-sector bor-

[25]To compute these results, we used the *xtlsdvc* routine developed for Stata by Giovanni Bruno.

rowing: the (lagged) quality of financial sector regulation ($CREDREG^{av}(-1)$) which is based on an index compiled by the *Fraser Institute* (Fraser Institute (2006)), the distance from the equator ($LATITUDE^{av}$) and the lagged average of the *Freedom House* index of civil liberties ($REPRESS^{av}(-1)$) as proxies for the quality of governance (Freedom House (2006)), and the initial number of telephone main lines per 1000 people ($TELEPHONES^{ini}$) as a proxy for the quality of a country's infrastructure. The Cragg-Donald statistic of instrument relevance (see Cragg and Donald (1993) and Stock and Yogo (2005)) and Hansen's J-test of overidentifying restrictions indicate that these instruments perform reasonably well in terms of relevance and exogeneity, and, importantly, instrumenting for ($PRIVSHARE^{ini}$) does not strongly affect its estimated coefficient. The notion that the coefficient of initial private sector debt is not driven by reverse causality is also supported by an explicit test for endogeneity which prevents us from rejecting the hypothesis that ($PRIVSHARE^{ini}$) is actually exogenous.[26]

We conclude from the results presented in this subsection that accounting for unobserved heterogeneity and potential endogeneity changes the size of the estimated parameters – without, however, affecting our key finding that a higher share of the private sector in total external debt raises a country's creditworthiness.

3.3.3 Private debt and creditworthiness: varying samples

This section reports the results of estimating equation (1) using various subsets of the original sample. It is apparent from Figure 3b) that in a large number of countries, *all* external borrowing is done by the government. We explored whether dropping the observations for which $PRIVSHARE^{ini}$ was zero changes the coefficient of this regressor. Column (5.1) of Table 5 demonstrates that it does

[26]To test for endogeneity, we used both the Wu-Durbin-Hausman-test and the Difference-in-Sargan test implemented in Stata by Baum et al. (2003) and Baum et al. (2006).

not. We then restricted our attention to countries for whom $IICCR$ exceeded the value of 25. Reinhart et al. (2003) identify this value as a threshold below which countries do not really have access to international capital markets. Column (5.2) demonstrates that the size of the coefficient of $PRIVSHARE^{ini}$ is slightly reduced in this case, but the significantly positive estimated effect is not affected. Finally, we checked whether our result depended on the simultaneous decline of creditworthiness and private foreign borrowing that could be observed during the 1980s. As column (5.3) of Table 5 reports, excluding the observations from the "lost decade" reduces the sample by almost one third, but barely affects the coefficient of $PRIVSHARE^{ini}$.

Columns (5.4) to (5.6) report the results of estimating equation (1) for the subsamples described above, using the Difference-GMM estimator of Arellano and Bond (1991). Again, dropping those observations for which $PRIVSHARE^{ini}$ was zero (column 5.4) or those in which creditworthiness did not exceed a minimum threshold (column 5.5) did not alter our key result – nor did restricting attention to the years after 1990 (column 5.6).

3.4 Private debt and sovereign default: results

3.4.1 Benchmark results

So far, we have used the *Institutional Investor*'s measure of creditworthiness as a dependent variable. While we found strong evidence that the *perceived* likelihood of sovereign default is reduced by a larger share of the private sector in total external debt, this does not necessarily prove that governments' decisions on default vs. repayment are actually affected by private sector exposure. To explore whether this is indeed the case we now use the dummy $SOVDEFAULT$ as the dependent variable. As described in section 3.1, this variable is one if *Standard and Poor's* rated a government as being in default – i.e. failing to meet its repayment obligations – for at least one year in a five-year interval and zero

otherwise. Except for the lagged indicator of creditworthiness, we are using the same set of covariates as in the previous subsections.

Our first regression uses the *probit* estimator to identify the determinants of sovereign defaults. The results are reported in column (6.1) of Table 6. With the exception of $INCOMEPC^{ini}$, the coefficients of the control variables have the expected sign – although only lagged growth and the initial debt to GNI ratio are statistically significant. $PRIVSHARE^{ini}$ clearly has a negative relationship with the likelihood of default. At the bottom of Table 6, we report the partial effect of this variable: evaluated at the sample mean, an increase of $PRIVSHARE^{ini}$ by roughly one percentage point *ceteris paribus* reduces the likelihood of default by one percentage point. As column (6.2) in Table 6 shows, using the *logit* estimator instead of probit yields a marginal effect of almost identical size. In terms of goodness of fit, both approaches do reasonably well: The $pseudo-R^2$ of McFadden (1974) is approximately 0.31 in both cases, and the *percent correctly predicted* is 75 percent.[27]

There might, however, be a problem with taking these results at face value: as the previous sections have indicated, sovereign creditworthiness is quite persistent – even if we focus on five-year averages. This is likely to apply *a fortiori* to actual defaults: after the initial denial of full repayment, it usually takes several years until an agreement with creditors is reached. During this period the country is rated as a defaulter. This, in turn, is likely to affect private borrowing (see Arteta and Hale (2008)). Hence, the negative coefficient of $PRIVSHARE^{ini}$ may just capture the persistence of defaults, combined with the negative effect of past defaults on private external borrowing. Columns (6.3) and (6.4) in Table 6 indicate that this conjecture is at least partly correct: the coefficient of the first lag of $SOVDEFAULT$ is significantly positive, and the influence of

[27]Probit (Logit) correctly predicts 77.9 (78.7) percent of all defaults and 72.1 (72.1) percent of all non-defaults.

$PRIVSHARE^{ini}$ decreases once we include the first lag of the dependent variable. However, as the partial effects at the bottom of Table 6 reveal, this change is quite limited: once we include the lagged dependent variable, it takes an increase of $PRIVSHARE^{ini}$ by approximately 1.3 percentage point to reduce the likelihood of default by 1 percentage point. The entries in the bottom rows indicate that including the lagged dependent variable improves the fit, but not by very much: the $pseudo - R^2$ moves from 0.31 to 0.36 while the percent correctly predicted increases from 75 to 81 and 82, respectively.

3.4.2 Accounting for unobserved heterogeneity

As in the previous subsections, we need to be concerned about unobserved heterogeneity: the likelihood of default may depend on country-specific characteristics which we have not explicitly accounted for in our regression equation. While introducing country-specific effects is the straightforward solution to this problem in a linear regression model, things are a bit more complicated when it comes to discrete-choice models. The probit estimator, in particular, suffers from the *incidental parameters problem* – i.e. it is not possible to consistently estimate the coefficients of the covariates using maximum likelihood without estimating the country-specific effects. This, in turn, fails if the number of time periods is finite.[28] There are several remedies to this problem: under the assumption that the individual effects are not correlated with the covariates, the *random effects probit estimator* yields consistent estimates (Wooldridge (2002a)). Column (7.1) in Table 7 shows the results of adopting this approach. Column (7.2) reports the coefficients we get when estimating the random effects model using *logit*: interestingly, the partial effects for $PRIVSHARE^{ini}$ (-0.014 and -0.015) do not

[28]Chapter 15 in Wooldridge (2002a) offers an excellent treatment of this issue. Further discussions of this issue can be found in Lancaster (2000) and Greene (2001).

stray too far from the values we received from the pooled regression in Table 6.[29] Column (7.3) reports the results from applying the *fixed effects logit estimator*. If the distribution of the underlying error term is assumed to be logistic, consistent estimation of the relevant parameters is possible even if unobserved heterogeneity is treated by means of fixed effects. However, this advantage comes at a cost: since the fixed effects cannot be estimated, it is impossible to compute partial effects. Hence, the magnitude of the negative coefficient of $PRIVSHARE^{ini}$ in column (7.3) cannot be readily compared with our previous results. To better understand the role of unobserved heterogeneity we finally specified the model as a simple linear equation including fixed effects.[30] Interestingly, the coefficient of $PRIVSHARE^{ini}$ in column (7.4) is very close to the partial effects we reported in Table 6.

The last two columns in Table 7 return to the issue of whether the significantly negative effect of $PRIVSHARE^{ini}$ merely reflects the persistence of sovereign defaults. To explore this issue, we include the lagged value of $SOVDEFAULT$ as an additional regressor, adopting two alternative approaches: we first follow Wooldridge (2002b) who suggests to estimate a random-effects (logit or probit) model conditioning on initial observations. The results of this strategy are presented in column (7.5) of Table 7: while the lagged dependent variable is significant, the coefficient of $PRIVSHARE^{ini}$ is still significantly negative, and the estimated marginal effect barely differs from the one displayed at the bottom of column (7.1). However, this estimator is biased unless the other regressors are strictly exogenous. Hence, as a robustness check, we also estimated the linear probability (LPM) model with a lagged dependent variable and fixed effects. As

[29]These partial effects are evaluated under the assumption that the unobserved effect equals zero.

[30]While the *linear probability model (LPM)* has the drawback that the predicted values do not necessarily fall into the zero-one interval, the estimated marginal effects are often close to those delivered by probit and logit models.

column (7.6) demonstrates, the lagged dependent variable has no impact on the other coefficients in this case. Of course, given the caveats with respect to this estimator, we do not want to overrate this result. The main finding we take away from these estimations is that the significantly negative effect of $PRIVSHARE^{ini}$ on sovereign defaults does not seem to be an artifact of neglecting unobserved heterogeneity and the persistence of defaults.

4 Summary and conclusions

While external debt figures among the usual suspects when it comes to explaining sovereign risk, little attention has been devoted to the potentially different effects of *private* and *public* external debt. The main contribution of our paper is to emphasize that this difference is substantial: a higher share of the private sector in total external debt raises country creditworthiness and reduces the likelihood of default. Our results thus offer one potential explanation for the observation of Reinhart et al. (2003) that countries with similar levels of external debt may exhibit vast differences in their creditworthiness and their propensity to default: "debt intolerance" may more heavily afflict countries where the government accounts for most of the external borrowing.

We have gone at great lengths to show that our results are not driven by unobserved heterogeneity – i.e. creditworthiness and private sector exposure being driven by country-specific unobserved parameters – and that they do not just reflect the reverse impact of creditworthiness on private borrowing. Our findings suggest that, for a *given* country, an *exogenous* increase of private debt as a share of total external debt raises creditworthiness and reduces the likelihood of default. An explanation as to *why* countries exhibit such large differences in the composition of their external debt goes beyond the scope of this paper, but offers a very promising subject for future research.

5 Data appendix

5.1 Definitions and sources

$CREDREG^{av}$: Five-year average of the *Fraser Institute's* index of credit market regulation, ranging from 0 (minimal regulation) to 10 (maximal regulation). Criteria: (i) Ownership of banks: percentage of deposits held in privately owned banks; (ii) Competition: domestic banks face competition from foreign banks; (iii) Extension of credit: percentage of credit extended to private sector; (iv) Avoidance of interest rate controls and regulations that lead to negative real interest rates; (v) Interest rate controls: interest rate controls on bank deposits and/or loans are freely determined by the market. Source: Fraser Institute (2006).

$DEBT^{ini}$: Total external debt relative to GNI. "Total external debt is debt owed to nonresidents repayable in foreign currency, goods, or services. Total external debt is the sum of public, publicly guaranteed, and private nonguaranteed long-term debt, use of IMF credit, and short-term debt. Short-term debt includes all debt having an original maturity of one year or less and interest in arrears on long-term debt. Data are in current U.S. dollars." Sources: World Bank (2007a) and World Bank (2007b).

$DOMCREDIT^{ini}$: Domestic credit to private sector relative to GDP. "Domestic credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises." Source: World Bank (2007a).

$GOVERNANCE^{av}$: Simple average of indices measuring bureaucratic quality, corruption, and the rule of law, from the *International Country Risk Guide*. Source: Political Risk Services (2006).

$GOVSTABILITY^{av}$: Index of government stability from the *International Country Risk Guide*. Source: Political Risk Services (2006).

$GROWTH^{av}(-1)$: Average growth rate of real-per capita income in the preceding

five-year period. Source: Penn World Table 6.2 (Heston et al. (2006)).

$IICCR^{av}$: Five-year average of the country credit ratings published in the Institutional Investor magazine every March and September since 1980. Source: Institutional Investor magazine.

$INCOMEPC^{ini}$: Log of initial value of real per capita income in constant PPP-adjusted dollars. Source: World Bank (2007a).

$INFLA^{av}(-1)$: Log of the average growth rate of the consumer price index in the preceding five-year period. Source: World Bank (2007a).

$OPEN^{ini}$: Initial value of the ratio (Exports + imports)/GNI. Source: World Bank (2007a).

$LATITUDE$: Squared latitude. Source: World Bank (2001).

$PRIVSHARE^{ini}$: Initial share of private nonguaranteed long-term external debt in total long-term external debt. "Private nonguaranteed debt outstanding and disbursed (LDOD) is an external obligation of a private debtor that is not guaranteed for repayment by a public entity. Long-term debt outstanding and disbursed (LDOD) is the total outstanding long-term debt at year end. Long-term external debt is defined as debt that has an original or extended maturity of more than one year and that is owed to nonresidents and repayable in foreign currency, goods, or services." Source: World Bank (2007b).

$REPRESS^{av}$: Five-year average of the *Freedom House* index of civil liberties, ranging from 1 (maximal rights) to 7 (minimal rights). Source: Freedom House (2006).

$RESERVES^{ini}$: Initial value of the ratio (International reserves)/(Imports of goods and services). Source: World Bank (2007a).

$SOVDEFAULT$: Dummy variable. One if *Standard and Poors* rates a government to be in default at least once during a five-year period and zero otherwise. A default is characterized by "...the failure to meet a principal or interest payment on the due date (or within the specified grace period) contained in the original terms of the debt issue" (Standard and Poor's (2006)). Source: Standard and Poor's (2007).

$STDEBT^{ini}$: Short-term debt to total external debt. "Short-term external debt is de-

fined as debt that has an original maturity of one year or less. Available data permit no distinction between public and private nonguaranteed short-term debt." Source: World Bank (2007b).

$TELEPHONES^{ini}$: Number of telephone main lines per 1000 people. Source: World Bank (2007a).

$TPGROWTH^{av}$: Five-year average of the growth rate of a weighted average of trading partners' GDP. Sources: World Bank (2007a) and IMF (2006).

5.2 Countries

Algeria , Argentina, Bangladesh, Benin, Bolivia, Botswana, Brazil, Bulgaria, Cameroon, Chile, China, Colombia, Congo Rep., Costa Rica, Cote d'Ivoire, Democratic Republic of Congo, Dominican Republic, Ecuador, Egypt Arab Rep., El Salvador, Estonia, Gabon, Ghana, Haiti, Honduras, Hungary, India, Indonesia, Jamaica, Jordan, Kenya, Latvia, Lithuania, Malawi, Malaysia, Mali, Mauritius, Mexico, Morocco, Nicaragua, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Romania, Russian Federation, Senegal, Sierra Leone, South Africa, Sri Lanka, Syrian Arab Republic, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Venezuela RB, Zambia, Zimbabwe.

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6. Tables

Table 2: Institutional Investor's Country Credit Rating (IICCR) and the likelihood of sovereign default

	(2.1) Probit	(2.2) Probit
IICCR ^{ini}	-0.032***	-0.017**
	[0.007]	[0.008]
East Asia and Pacific	0.623	0.483
	[0.439]	[0.454]
South Asia	-0.325	0.048
	[0.678]	[0.675]
Europe and Central Asia	0.368	0.265
	[0.388]	[0.405]
Sub-Saharan Africa	0.917***	0.874**
	[0.328]	[0.344]
Latin America and the Caribbean	0.899***	0.766**
	[0.314]	[0.330]
OIL	0.437	0.352
	[0.270]	[0.281]
1986-90	-0.086	-0.243
	[0.302]	[0.319]
1991-95	-0.546*	-0.903***
	[0.301]	[0.324]
1996-00	-1.039***	-1.363***
	[0.286]	[0.306]
2001-05	-1.463***	-1.684***
	[0.290]	[0.306]
SOVDEFAULT(-1)		1.032***
		[0.221]
Constant	0.953**	0.245
	[0.459]	[0.506]
Marginal effect of IICCR	-0.013***	-0.007**
	[0.003]	[0.003]
Observations	281	281
Pseudo R2	0.23	0.29
Percent correctly predicted	0.77	0.76

Notes on Table 2: Standard errors in parantheses. ***, **, * denote significance levels of 1, 5, and 10 percent. The data sample is an unbalanced panel, comprising five year averages or initial values between 1980-2005. The dependent variable is *SOVDEFAULT*, which is a binary variable indicating if *Standard and Poor's* rated a government as being in default at least once during a five year period.

Table 3: The effect of PRIVSHARE on IICCR - Pooled OLS

	(3.1) OLS	(3.2) OLS	(3.3) OLS	(3.4) OLS	(3.5) OLS
IICCR ^{av} (-1)	0.553***	0.771***	0.534***	0.526***	0.548***
	[0.040]	[0.061]	[0.044]	[0.047]	[0.040]
PRIVSHARE ^{ini}	0.115***	0.123***	0.115***	0.093***	0.114***
	[0.030]	[0.030]	[0.030]	[0.029]	[0.032]
DEBT ^{ini}	-0.022***	-0.019***	-0.023***	-0.026***	-0.023***
	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]
TPGROWTH ^{av}	2.695*	1.544	2.667*	2.829**	2.569*
	[1.370]	[1.356]	[1.398]	[1.409]	[1.417]
GROWTH ^{av} (-1)	0.713***	0.595***	0.718***	0.705***	0.706***
	[0.114]	[0.152]	[0.115]	[0.119]	[0.114]
GOVSTABILITY ^{av}	1.253***	1.477***	1.237***		1.259***
	[0.312]	[0.322]	[0.310]		[0.313]
INCOMEPC ^{ini}	1.553	2.343**	1.372	1.391	1.431
	[1.044]	[1.059]	[0.969]	[1.110]	[1.003]
RESERVES ^{ini}	0.042**	0.057**	0.041*	0.041*	0.043*
	[0.021]	[0.024]	[0.021]	[0.022]	[0.021]
INFLA ^{av} (-1)	-0.365	-0.079	-0.281	-0.363	-0.355
	[0.452]	[0.558]	[0.468]	[0.452]	[0.453]
OPEN ^{ini}	0.027**	0.036**	0.022*	0.029**	0.027**
	[0.013]	[0.017]	[0.013]	[0.014]	[0.013]
East Asia and Pacific	-0.404	-0.269	-0.499	-0.817	-0.508
	[1.524]	[1.777]	[1.492]	[1.704]	[1.564]
South Asia	0.392	1.453	0.467	-1.057	0.418
	[1.978]	[2.083]	[2.025]	[2.067]	[2.010]
Europe and Central Asia	4.568**	3.655*	5.354***	2.498	4.431**
	[1.793]	[1.849]	[1.718]	[1.726]	[1.874]
Sub-Saharan Africa	-1.791	-1.07	-1.702	-3.187*	-2.012
	[1.456]	[1.539]	[1.344]	[1.664]	[1.437]
Latin America and the Caribbean	-2.273**	-1.744	-2.176*	-3.818***	-2.407**
	[1.119]	[1.080]	[1.128]	[1.222]	[1.162]
OIL	-0.919	-0.553	-0.57	0.473	-0.879
	[1.345]	[1.831]	[1.506]	[1.550]	[1.382]
IICCR ^{av} (-2)		-0.243***			
		[0.053]			
DOMCREDIT ^{ini}			0.026		
			[0.025]		
GOVERNANCE ^{av}				2.036***	
				[0.690]	
STDEBT ^{ini}					0.029
					[0.043]
Constant	-17.490**	-18.257**	-16.031**	-8.54	-16.225*
	[8.585]	[8.041]	[7.991]	[9.418]	[8.529]
R-Squared (adj.)	0.88	0.89	0.88	0.88	0.88
Number of Observations	257	207	255	257	257

Notes on Table 3: Standard errors in parantheses, based on a robust covariance matrix. ***, **, * denote significance levels of 1, 5, and 10 percent. The data sample is an unbalanced panel, comprising five year averages or initial values between 1980-2005. The dependent variable is *Institutional Investor*'s average country credit rating for the five year period ($IICCR^{av}$). All regressions include time dummies; their coefficients are available upon request.

Table 4: The effect of PRIVSHARE on IICCR - GMM and fixed effects estimation

	(4.1) Diff-GMM	(4.2) Sys-GMM	(4.3) Diff-GMM (red. instr.)	(4.4) Sys-GMM (red. instr.)	(4.5) Corrected fixed effects	(4.6) Pooled IV
$IICCR^{av}$ (-1)	0.392***	0.484***	0.351***	0.470***	0.653***	0.525***
	[0.109]	[0.057]	[0.099]	[0.077]	[0.086]	[0.057]
$PRIVSHARE^{ini}$	0.213**	0.216***	0.364***	0.329***	0.099*	0.181*
	[0.101]	[0.055]	[0.093]	[0.087]	[0.051]	[0.091]
$DEBT^{ini}$	-0.013	-0.003	-0.017	-0.014	-0.041***	-0.022***
	[0.017]	[0.008]	[0.028]	[0.020]	[0.014]	[0.008]
$TPGROWTH^{av}$	4.312**	3.078*	4.893**	2.422	3.902**	3.276**
	[1.766]	[1.750]	[1.978]	[2.185]	[1.585]	[1.615]
$GROWTH^{av}$ (-1)	0.705***	0.880***	0.573***	0.717***	0.717***	0.727***
	[0.231]	[0.143]	[0.200]	[0.177]	[0.208]	[0.126]
$GOVSTABILITY^{av}$	1.393*	1.234***	1.843***	1.731***	1.193***	1.496***
	[0.724]	[0.417]	[0.590]	[0.414]	[0.426]	[0.314]
$INCOMEPC^{ini}$	7.063	-0.061	3.479	-0.276	-5.559*	1.11
	[5.550]	[3.195]	[5.026]	[4.448]	[3.194]	[1.105]
$RESERVES^{ini}$	0.066*	0.051*	0.059*	0.053*	0.065**	0.042*
	[0.033]	[0.028]	[0.032]	[0.027]	[0.026]	[0.021]
$INFLA^{av}$ (-1)	-1.259	-0.484	-1.041	-0.706	-0.657	-0.629
	[0.760]	[0.757]	[0.784]	[0.683]	[0.478]	[0.510]
$OPEN^{ini}$	-0.042	0.014	-0.07	0.012	0.061*	0.023
	[0.061]	[0.030]	[0.062]	[0.039]	[0.033]	[0.015]
Constant		-1.595		-3.108		-15.271*
		[25.857]		[35.771]		[8.046]
R-Squared (adj.)						0.87
Number of Observations	193	257	193	257	221	245
Hansen's J-stat. (p-value)	0.26	0.4	0.4	0.48		0.42
AB m2-stat. (p-value)	0.95	0.88	0.72	0.56		
Cragg-Donald stat.						8.63

Notes on Table 4: Standard errors in parantheses. ***, **, * denote significance levels of 1, 5, and 10 percent. The data sample is an unbalanced panel, comprising five year averages or initial values between 1980-2005. The dependent variable is *Institutional Investor*'s average country credit rating for the five year period ($IICCR^{av}$). All regressions include time dummies; their coefficients are available upon request. Estimates presented in columns (4.1)-(4.4) are based on two-step standard errors with the Windmeijer (2005) finite sample correction. For columns (4.3) and (4.4) we did not use lagged values of $PRIVSHARE^{ini}$ and $DEBT^{ini}$ as instruments. For the corrected fixed effects estimation in column (4.5), the Arellano and Bond (1991) difference-GMM estimator was used to initialize the bias correction. Estimates presented in column (4.6) are based on robust standard errors clustered by country.

Table 5: The effect of PRIVSHARE on IICCR - varying samples

	(5.1) OLS PRIVSHARE > 0	(5.2) OLS IICCR > 25	(5.3) OLS No 1980s	(5.4) Diff-GMM PRIVSHARE > 0	(5.5) Diff-GMM IICCR > 25	(5.6) Diff-GMM No 1980s
$IICCR^{av}$ (-1)	0.554***	0.484***	0.592***	0.447***	0.402***	0.369***
	[0.047]	[0.057]	[0.054]	[0.089]	[0.134]	[0.119]
$PRIVSHARE^{ini}$	0.103***	0.100***	0.120***	0.194*	0.208*	0.267***
	[0.035]	[0.033]	[0.027]	[0.113]	[0.108]	[0.100]
$DEBT^{ini}$	-0.028**	-0.064***	-0.012*	-0.008	-0.104***	-0.007
	[0.013]	[0.021]	[0.006]	[0.009]	[0.032]	[0.009]
$TPGROWTH^{av}$	3.651**	4.249***	0.16	6.183***	6.973**	5.333**
	[1.420]	[1.446]	[1.529]	[1.922]	[2.982]	[2.039]
$GROWTH^{av}$ (-1)	0.705***	0.804***	0.729***	0.686***	0.59	0.743***
	[0.140]	[0.160]	[0.143]	[0.236]	[0.382]	[0.259]
$GOVSTABILITY^{av}$	1.378***	1.290***	1.188***	1.248*	1.253	1.342*
	[0.384]	[0.463]	[0.340]	[0.702]	[0.811]	[0.768]
$INCOMEPC^{ini}$	1.224	2.150*	2.077*	2.525	-1.829	3.175
	[1.276]	[1.089]	[1.102]	[6.564]	[8.176]	[9.075]
$RESERVES^{ini}$	0.045*	0.050***	0.057*	0.079*	0.083**	0.067
	[0.023]	[0.018]	[0.030]	[0.041]	[0.033]	[0.055]
$INFLA^{av}$ (-1)	-0.812	-2.170***	-0.033	-0.352	-1.599	-0.716
	[0.623]	[0.505]	[0.595]	[0.618]	[1.025]	[0.950]
$OPEN^{ini}$	0.030*	0.01	0.034**	-0.032	-0.001	-0.078
	[0.015]	[0.012]	[0.017]	[0.052]	[0.053]	[0.056]
Constant	-9.766	-18.135**	-14.301			
	[9.047]	[8.137]	[8.642]			
R-Squared (adj.)	0.86	0.81	0.89			
Number of Observations	208	160	176	159	122	158
Hansen's J-stat. (p-value)				0.28	0.8	0.2
AB m2-stat. (p-value)				0.77	0.59	0.31

Notes on Table 5: Standard errors in parantheses. ***, **, * denote significance levels of 1, 5, and 10 percent. The data sample is an unbalanced panel, comprising five year averages or initial values between 1980-2005. The dependent variable is *Institutional Investor*'s average country credit rating for the five year period ($IICCR^{av}$). All regressions include time dummies and the regressions in columns (5.1)-(5.3) include regional dummies; their coefficients are available upon request. Estimates presented in columns (5.1)-(5.3) are based on robust standard errors clustered by country. Estimates presented in columns (5.4)-(5.6) are based on two-step standard errors with the Windmeijer (2005) finite sample correction.

Table 6: The effect of PRIVSHARE on SOVDEFAULT

	(6.1) Probit	(6.2) Logit	(6.3) Probit with LDV	(6.4) Logit with LDV
PRIVSHARE ^{ini}	-0.023**	-0.040**	-0.018**	-0.032**
	[0.009]	[0.016]	[0.009]	[0.015]
DEBT ^{ini}	0.011**	0.020**	0.009**	0.016**
	[0.004]	[0.008]	[0.004]	[0.008]
TPGROWTH ^{av}	-0.322	-0.774	-0.235	-0.539
	[0.501]	[0.945]	[0.500]	[0.987]
GROWTH ^{av} (-1)	-0.078*	-0.152*	-0.07	-0.13
	[0.044]	[0.083]	[0.045]	[0.096]
GOVSTABILITY ^{av}	-0.173	-0.321	-0.195*	-0.356*
	[0.108]	[0.196]	[0.103]	[0.182]
INCOMEPC ^{ini}	0.492*	0.902*	0.462*	0.867*
	[0.286]	[0.482]	[0.267]	[0.477]
RESERVES ^{ini}	-0.003	-0.006	-0.003	-0.005
	[0.004]	[0.006]	[0.004]	[0.006]
INFLA ^{av} (-1)	-0.012	-0.002	-0.014	-0.008
	[0.104]	[0.184]	[0.099]	[0.182]
OPEN ^{ini}	-0.004	-0.006	-0.003	-0.004
	[0.004]	[0.008]	[0.004]	[0.007]
East Asia and Pacific	1.199***	2.055***	1.019***	1.715***
	[0.398]	[0.658]	[0.335]	[0.578]
South Asia	0.684	1.103	0.749*	1.11
	[0.473]	[0.853]	[0.433]	[0.841]
Europe and Central Asia	0.066	-0.051	-0.132	-0.351
	[0.520]	[0.864]	[0.416]	[0.693]
Sub-Saharan Africa	1.280***	2.078***	1.002**	1.730**
	[0.470]	[0.789]	[0.391]	[0.680]
Latin America and the Caribbean	1.172***	1.953***	0.822**	1.369**
	[0.407]	[0.718]	[0.368]	[0.663]
OIL	0.421*	0.713	0.419*	0.727*
	[0.255]	[0.452]	[0.218]	[0.418]
SOVDEFAULT(-1)			0.936***	1.617***
			[0.222]	[0.403]
Marginal effect of PRIVSHARE	-0.009**	-0.010**	-0.0071**	-0.0079**
	[0.004]	[0.004]	[0.0036]	[0.0037]
Observations	229	229	229	229
Pseudo R2	0.31	0.31	0.36	0.36
Percent correctly predicted	75.54	75.54	81.12	82.40

Notes on Table 6: Standard errors in parantheses. ***, **, * denote significance levels of 1, 5, and 10 percent. The data sample is an unbalanced panel, comprising five year averages or initial values between 1980-2005. The dependent variable is *SOVDEFAULT*, which is a binary variable indicating if *Standard and Poor's* rated a

government as being in default at least once during a five year period. All regressions include time dummies; their coefficients are available upon request. Robust standard errors clustered by country are reported for all regressions.

Table 7: The effect of PRIVSHARE on SOVDEFAULT - probit and logit with fixed and random effects

	(7.1) Probit RE	(7.2) Logit RE	(7.3) Logit FE	(7.4) LPM FE	(7.5) Probit RE	(7.6) LPM FE
PRIVSHARE ^{ini}	-0.035**	-0.060**	-0.123**	-0.009**	-0.036**	-0.009**
	[0.016]	[0.028]	[0.056]	[0.004]	[0.016]	[0.004]
DEBT ^{ini}	0.012***	0.021***	0.031**	0.002*	0.006*	0.002*
	[0.004]	[0.007]	[0.013]	[0.001]	[0.003]	[0.001]
TPGROWTH ^{av}	-0.438	-0.804	-1.064	-0.138	-0.349	-0.137
	[0.462]	[0.833]	[1.068]	[0.159]	[0.441]	[0.154]
GROWTH ^{av} (-1)	-0.093**	-0.169**	-0.346**	-0.029***	-0.083**	-0.028***
	[0.041]	[0.073]	[0.136]	[0.010]	[0.039]	[0.011]
GOVSTABILITY ^{av}	-0.257**	-0.446**	-0.588**	-0.067*	-0.17	-0.067*
	[0.122]	[0.210]	[0.261]	[0.035]	[0.127]	[0.035]
INCOMEPC ^{ini}	0.692*	1.201**	6.591**	0.539**	0.524*	0.539**
	[0.357]	[0.609]	[2.580]	[0.243]	[0.283]	[0.243]
RESERVES ^{ini}	-0.004	-0.006	-0.006	-0.001	0.002	-0.001
	[0.005]	[0.009]	[0.017]	[0.001]	[0.006]	[0.001]
INFLA ^{av} (-1)	0.047	0.074	0.2	0.042	-0.004	0.042
	[0.131]	[0.223]	[0.362]	[0.034]	[0.117]	[0.034]
OPEN ^{ini}	-0.004	-0.006	-0.028	-0.001	0	-0.001
	[0.006]	[0.010]	[0.023]	[0.002]	[0.005]	[0.002]
East Asia and Pacific	1.549*	2.615*			1.502**	
	[0.906]	[1.536]			[0.748]	
South Asia	1.032	1.487			1.214	
	[1.163]	[2.059]			[0.849]	
Europe and Central Asia	0.007	-0.04			-0.314	
	[0.791]	[1.336]			[0.674]	
Sub-Saharan Africa	1.621**	2.698**			1.190**	
	[0.699]	[1.183]			[0.556]	
Latin America and the Caribbean	1.369**	2.298**			0.754	
	[0.631]	[1.077]			[0.519]	
OIL	0.54	0.908			0.377	
	[0.472]	[0.802]			[0.368]	
SOVDEFAULT(-1)					1.063***	0.003
					[0.256]	[0.066]
Marginal effect of PRIVSHARE	-0.0140**	-0.0148**			-0.0142**	
	0.0064	0.007			0.0065	
R-Squared (adj.)				0.31		0.31
Percent correctly predicted	74.25	74.25		57.51	76.82	57.94
Number of Observations	229	229	167	229	192	229

Notes on Table 7: Standard errors in parantheses. ***, **, * denote significance levels of 1, 5, and 10 percent. The data sample is an unbalanced panel, comprising five year averages or initial values between 1980-2005. The dependent variable is *SOVDEFAULT*, which is a binary variable indicating if *Standard and Poor's* rated a

government as being in default at least once during a five year period. All regressions include time dummies; their coefficients are available upon request. The estimates presented in columns (7.4) and (7.6) are based on robust standard errors clustered by country.

Figure 1a

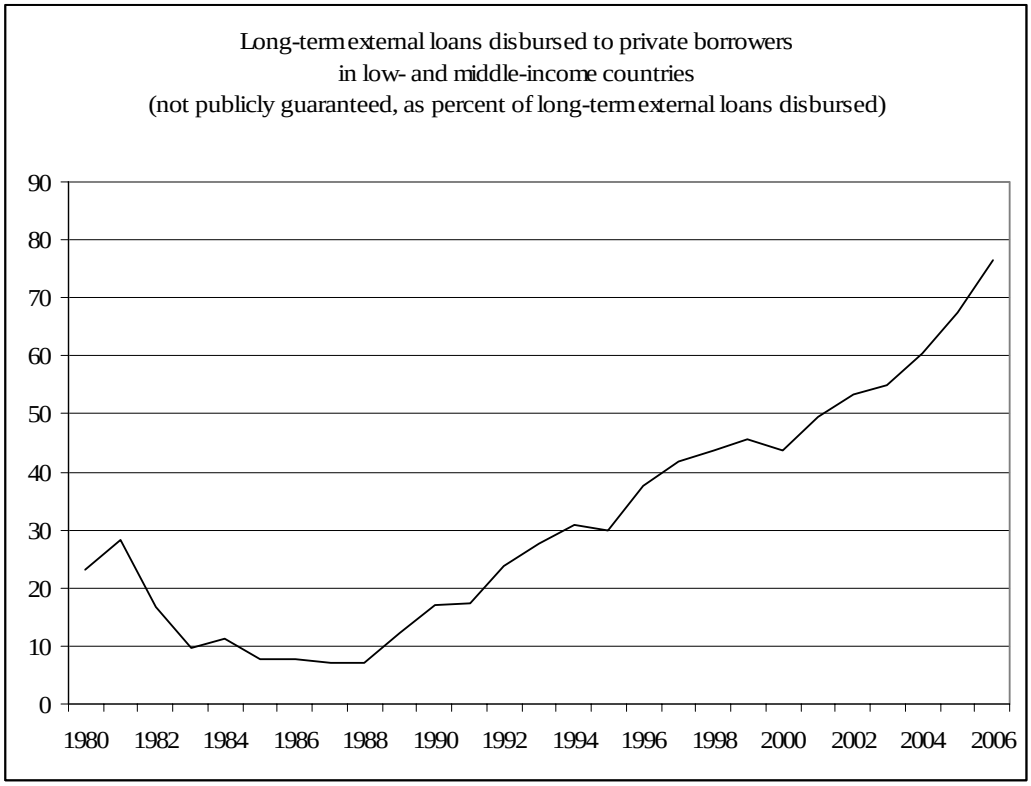
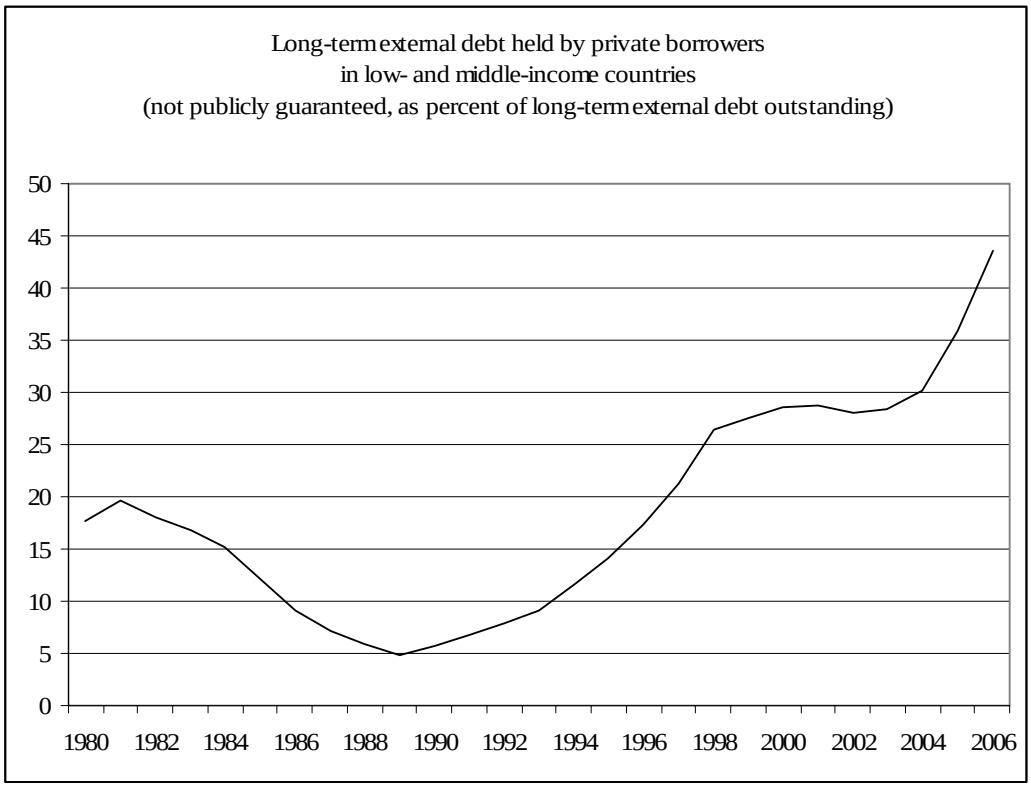
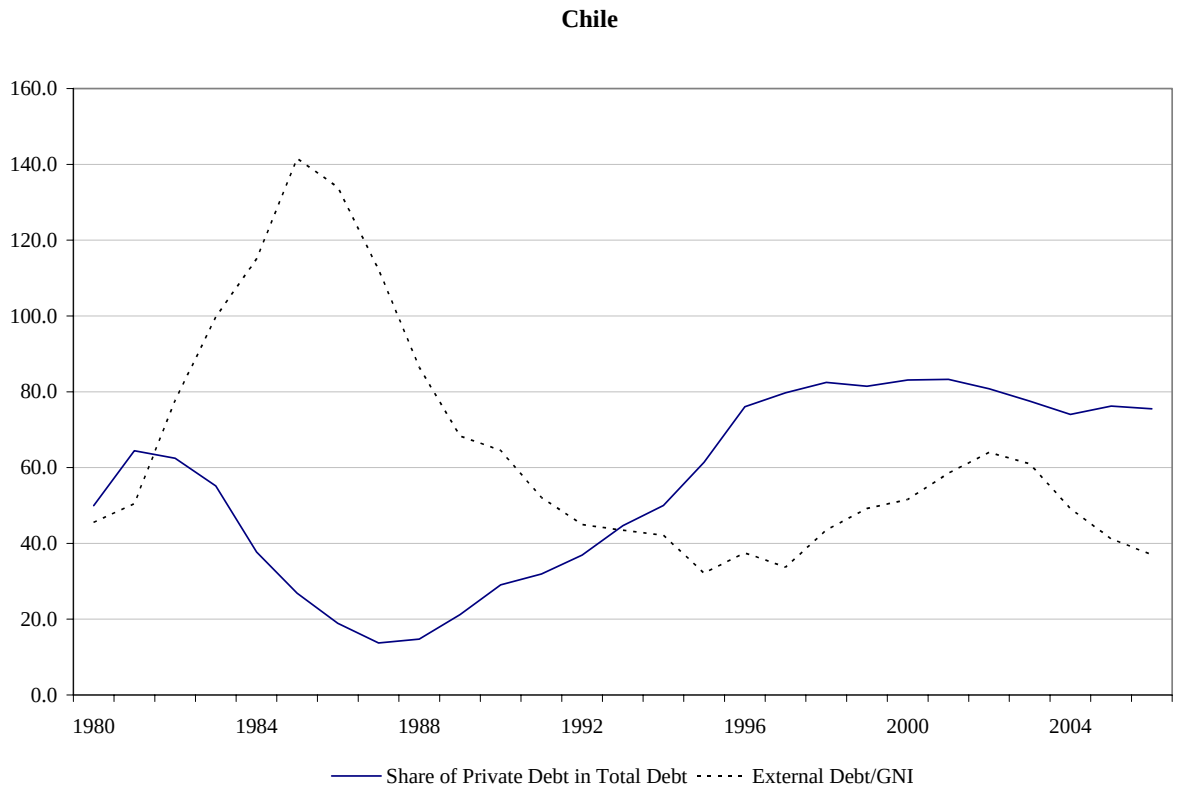


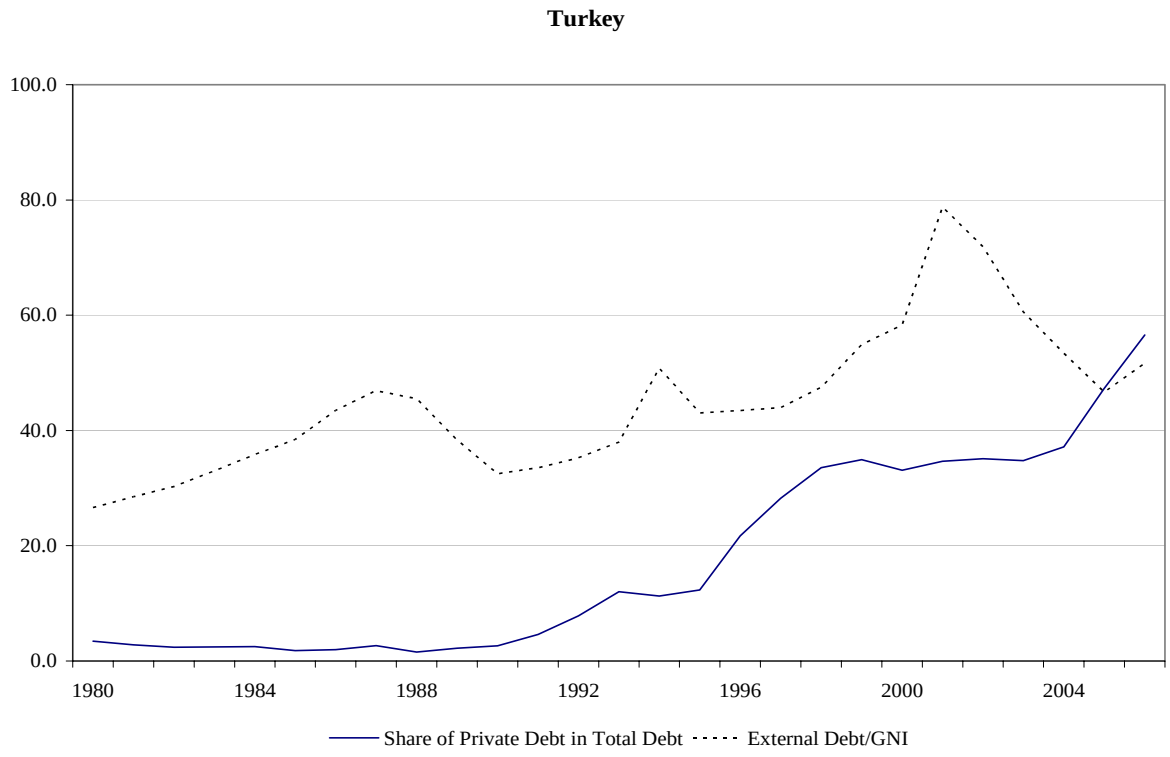
Figure 1b



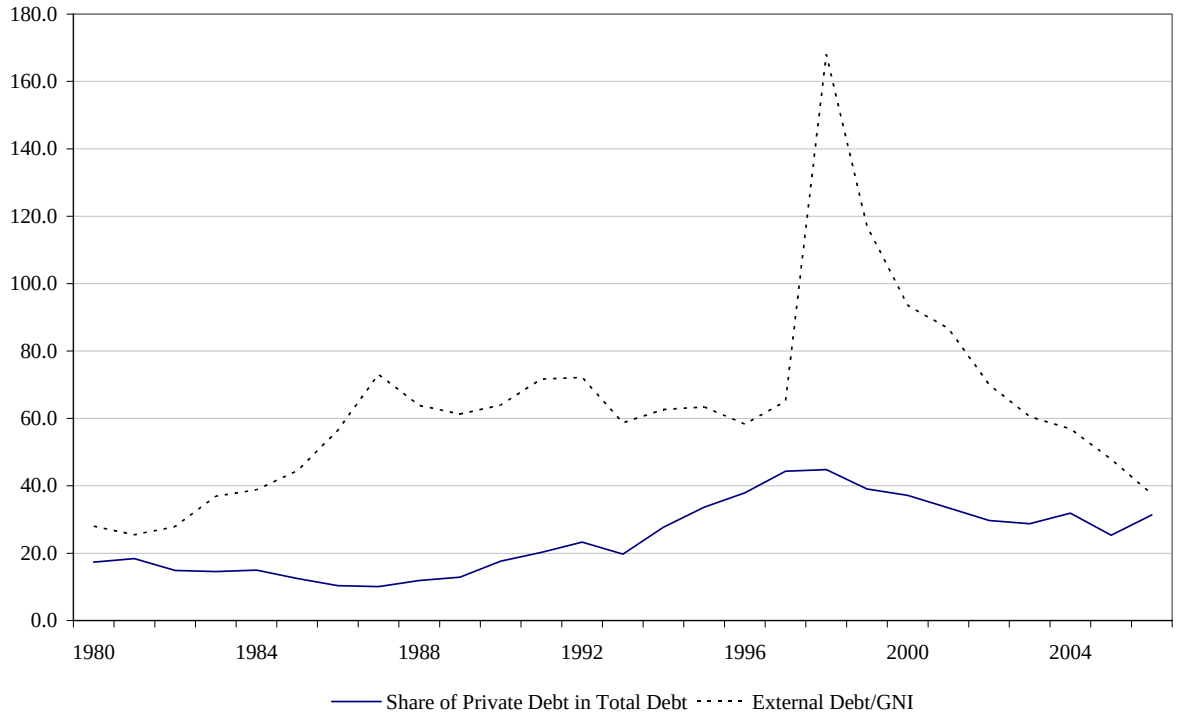
Source: World Bank (Global Development Finance)

Figure 2: External debt (relative to GNI) and the share of the private sector in total long-term external debt in selected countries.

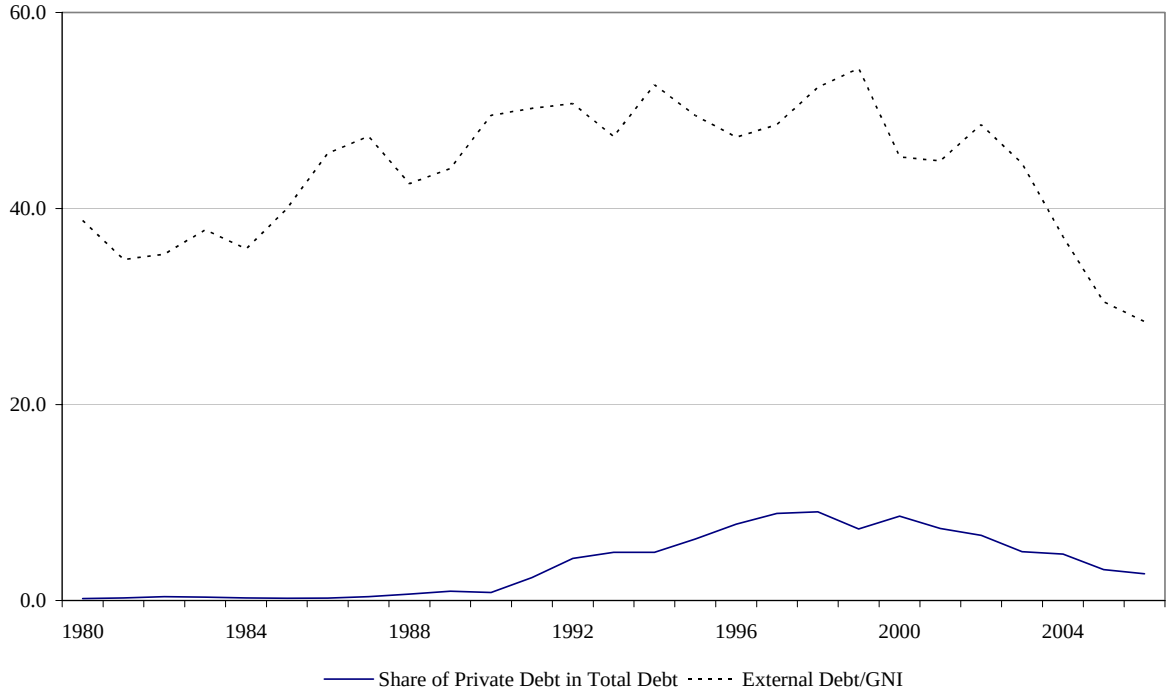




Indonesia

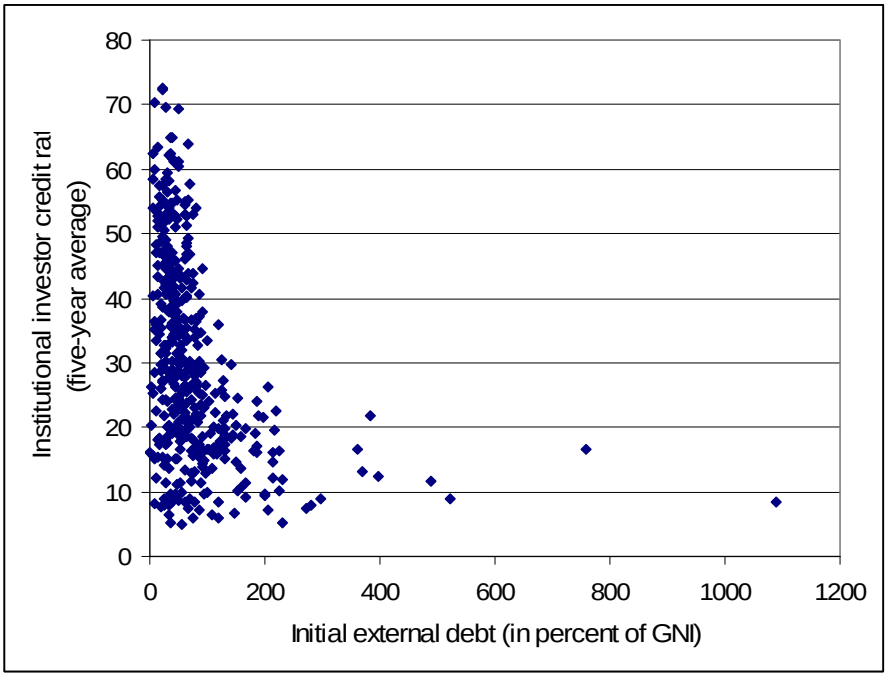


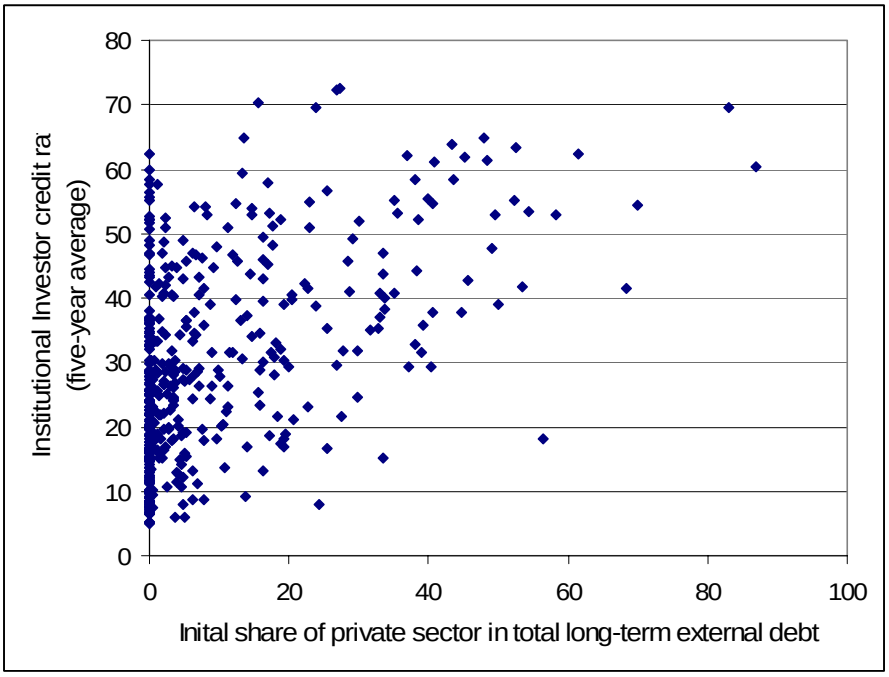
Pakistan



Source: World Bank (Global Development Finance)

Figure 3: Initial external debt (relative to GNI) and initial share of private sector in total long-term external debt and the *Insitutional Investor's* measure of country creditworthiness.





Sources: World Bank (Global Development Finance) and Institutional Investor.