



## Sovereign debt and corporate borrowing costs in emerging markets

Şenay Ağca<sup>a</sup>, Oya Celasun<sup>b,\*</sup>

<sup>a</sup> George Washington University, United States

<sup>b</sup> International Monetary Fund, United States

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### ABSTRACT

We document that the corporate sector faces higher borrowing costs when the external debt of the public sector is higher. By contrast, no significant relationship is found between domestic public debt and corporate borrowing costs. An increase in sovereign debt by one standard deviation from its sample mean is associated with 9% higher loan yield spreads. The correlation is considerably higher in countries with weak creditor rights and past sovereign default episodes. Overall, these findings suggest substantial adverse linkages between public external debt and private financing costs.

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### 1. Introduction

Corporate access to international financial markets is crucial for capital accumulation and growth in emerging economies. The linkages between sovereign debt and the terms of corporate access to international debt markets are frequently debated in policy circles, but, surprisingly, have not received much attention in the academic literature. This issue has started to attract growing interest since the 2008–09 recession, as public debt in many countries has started to rise after several years of decline. At the same time, emerging market corporations have considerably increased their reliance on foreign debt, reinforcing the need to better understand the impact of sovereign debt on corporate borrowing terms.

How would a higher level of sovereign debt—the foreign borrowing of a government entity—affect the costs of corporate borrowing from foreign lenders? First, increasing foreign borrowing by government entities is likely to trigger a reassessment of country risk. Countries with higher public debt face higher risks of a sovereign debt crisis for a given adverse economic shock and sovereign debt crises are known to spread through the economy and impair private creditworthiness. For instance, sovereign defaults have been shown to curtail the private sector's access to foreign finance (Arteta and Hale, 2008; Kohlscheen and O'Connell, 2008); lower international trade

(Rose, 2005); and reduce domestic private credit and increase the risk of a banking crisis (Borensztein et al., 2007; Sandleris, 2008). Moreover, even if it does not lead to a sovereign default, higher sovereign debt raises the risk of higher future corporate taxation or expropriation of private investments as in Aguiar et al. (2009), and Aguiar and Amador (2011), while reducing the ability of the government to honor its implicit guarantees to the private sector. This channel, a sovereign risk effect, would imply an adverse impact of rising sovereign debt on the cost of corporate borrowing.

In addition, even abstracting from any changes in country risk, increased government debt could lead to lower and more costly access to foreign debt markets for private sector borrowers from the same country. Both corporate and sovereign debts are subject to the same country-specific macroeconomic risks. Hence, banks and other creditors seeking diversification of their lending portfolio would manage their overall exposure level to each country, irrespective of whether the lending is to a corporation or to the government.<sup>1</sup> As a result, increased government debt could “crowd out” corporate borrowing from foreign creditors.

The literature also recognizes that sovereign debt can improve private access to foreign credit. In particular, Dittmar and Yuan (2008)

\* Corresponding author.

E-mail addresses: [sagca@gwu.edu](mailto:sagca@gwu.edu) (Ş. Ağca), [ocelasun@imf.org](mailto:ocelasun@imf.org) (O. Celasun).

<sup>1</sup> Bank regulators explicitly advise banks to establish country exposure limits (see for example, The Office of the Comptroller of the Currency, 2008).

find that sovereign bond issuances generate sizable benefits for the development of corporate bond markets in emerging markets. Such benefits could overturn or weaken the relationship between sovereign debt and corporate borrowing costs stemming from the sovereign risk and portfolio crowding out channels.

This paper examines how the borrowing costs of the corporate sector vary with public debt in emerging market economies using data on syndicated loan issuances from 1990 to 2006.<sup>2</sup> Establishing causation from public debt to the corporate sector's borrowing terms is clearly a challenging task, since a number of imperfectly-observed factors—such as the cyclical position of the economy—could affect both public debt and the creditworthiness of the private sector. We therefore control for an array of country factors that could affect both public debt and private creditworthiness, including GDP growth, country-fixed effects, creditor rights, financial development, in addition to the balance sheet, default risk, and profitability information for the borrowers. While these controls should go a long way toward mitigating spurious correlations, they do not guarantee the estimation of causal effects. Hence, our results should be interpreted as conditional correlations and stylized facts that researchers can use and build on.

Our key finding is that a higher level of sovereign debt is associated with significantly higher corporate borrowing costs in emerging market economies. The correlation is strong and robust to using alternative specifications and controls. Yield spreads on syndicated loans to corporations are higher by 9% if the public external debt-to-GDP ratio is higher than its sample mean (21%) by one standard deviation (11%). For a US\$147 million loan of four years maturity (roughly the average loan size and maturity in the sample) a one standard deviation increase in debt would add close to US\$1 million to the interest cost over the lifetime of the loan.

The estimated relationship between sovereign debt and the cost of corporate syndicated borrowing is significantly stronger in economies where creditor protection is weak, suggesting that the combination of high sovereign debt and weak creditor rights produces a riskier environment for creditors. Under weak creditor rights, lenders would be able to recover a smaller share of their investment if the borrower defaults due to a sovereign-debt driven economic crisis. Thus, when rising sovereign debt heightens the risks of sovereign debt distress, lenders seek extra compensation from private borrowers in countries where they have less legal protection.

Reinhart and Rogoff (2004) document that sovereign default risk is highly persistent. We examine whether the relationship between sovereign debt and corporate borrowing costs is different in countries that have experienced sovereign default episodes in the recent past and, therefore, could be perceived to have higher sovereign risk. We find that an increase in public external debt by one standard deviation is associated with a seven times larger increase in yield spreads in countries that have experienced sovereign defaults in the past as compared to those that have not.

In contrast to the robust relationship between public external debt and corporate yield spreads, we do not find a statistically significant association between domestically-issued public debt and corporate yield spreads. This finding is consistent with the notion that domestic public debt can have both positive and negative effects on sovereign risk. On the one hand, a higher level of domestic public debt contributes to a higher total debt level and reduces the government's ability to service its debt in the event of a negative output shock. On the

other hand, if governments are unable to selectively default on foreign creditors and instead have to default uniformly on all creditors, a higher level of domestically-held public debt raises the costs of a default on the domestic economy, and, therefore, reduces the government's incentives to default, as in Basu (2010) and Gennaioli et al. (2011).<sup>3</sup> In addition, domestically-held debt does not have a bearing on foreign lenders' portfolios, and therefore would not push up private borrowing costs through the crowding out channel. The lack of a significant correlation between domestic public debt and corporate yield spreads suggests that these mechanisms largely offset each other.

Overall, the evidence presented in this paper is strongly suggestive of previously-undocumented, adverse linkages between public external debt and the cost of foreign credit to the corporate sector. The rest of this paper is organized as follows. Section 2 discusses the specification and estimation method. Section 3 discusses the data. Section 4 presents the regression results. Section 5 relates the findings to existing literature. Section 6 concludes.

## 2. Specification and estimation issues

We use multivariate OLS regressions to document how corporate borrowing costs vary with public debt. Our empirical specification is derived from a commonly-used model developed by Edwards (1984, 1986). Eichengreen and Mody (2000), Qian and Strahan (2007), and Bae and Goyal (2009) use similar specifications to estimate the determinants of syndicated loan yield spreads.<sup>4</sup> We estimate the following specification:

$$Spread_{ijt} = \alpha_1 DEBT_{it} + \alpha_2 X_{it} + \alpha_3 Y_{ijt} + \alpha_4 L_{ijt} + \delta_t + \gamma_i + \epsilon_{ijt} \quad (1)$$

The dependent variable,  $Spread_{ijt}$  is the natural logarithm of yield spread (inclusive of all fees) on a loan commitment made to firm  $j$  in country  $i$  in year  $t$ .  $DEBT_{it}$  is the ratio of public debt to GDP and  $X_{it}$  is a vector of macroeconomic variables for country  $i$  in year  $t$ .  $Y_{ijt}$  is a vector of variables (including information on default risk, balance sheets, and income) for firm  $j$  in country  $i$  for year  $t$ .  $L_{ijt}$  is a vector of loan characteristics, including the loan size and maturity, and three sets of dummy variables indicating the industry in which the firm operates, the loan purpose (see Table A2 in Appendix B), and whether the loan was issued in a major currency (U.S. dollar, Euro, Yen, or Deutsche Mark).  $\delta_t$  are year dummies,  $\gamma_i$  are country dummies, and  $\epsilon_{ijt}$  is a loan-specific error term. Standard errors are clustered at the country level.

Our dataset is an unbalanced panel; we do not necessarily observe a corporate syndicated loan issuance from each country every year, and in some years we observe multiple issuances by different firms or the same firm in the same country. In case of multiple loan issuances by the same firm within a given year, we use the average loan size across the multiple issuances and the weighted average of yield spreads and maturities (where the weights are given by the loan sizes as a share of total loan issuance by the firm in that year).

<sup>2</sup> The syndicates providing the loans are predominantly composed of foreign banks. The syndicated loan market is an important source of foreign funding for emerging market firms. Corporate borrowing through syndicated loan commitments has increased substantially in the last decade—rising more than threefold in five years to above \$250 billion in 2007.

<sup>3</sup> A growing body of work explores the implications of nondiscriminatory defaults. For instance, Broner and Ventura (2010, 2011) examine the implications of nondiscrimination for the effects of financial liberalization and globalization, Brutti (2011) and Gennaioli et al. (2011) examine the links between sovereign default and domestic financial fragility.

<sup>4</sup> Eichengreen and Mody (2000) estimate yield spread equations for a pooled sample of public and private borrowers and do not include public external debt as a separate explanatory variable. Qian and Strahan (2007) and Bae and Goyal (2009) investigate the effect of the contractual environment on loan terms.

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