Country and industry effects in corporate bond spreads in emerging markets

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\textbf{A B S T R A C T}

We use corporate bond data from firms belonging to 13 emerging markets and eight industries from 2007 to 2013 to study whether and how country and industry effects determine the spread between their yield and the respective sovereign debt yield. Existing models ignore country and industry effects as they implicitly assume that firm, bond issues, local, and global factors capture these effects. We find that country and, especially, industry effects are significant in explaining corporate bond spreads. From a practitioner’s point of view, our results are important as ignoring country and industry effects causes bonds to be mispriced in emerging markets, particularly in the energy, basic materials, and communications and technology sectors. We also find country effects for bonds from firms from Chile, Indonesia, and the Philippines, although with lower significance levels. Finally, and consistent with other recent papers, we also find violations of the sovereign ceiling rule.

1. Introduction

One of the most significant developments in the economics of emerging markets (EMs) in the 21st century has been the increasing reliance of firms from these countries on the issuance of foreign debt (Caballero, Fernández, & Park, 2016). According to data reported by these authors, the stock of international debt issued by these economies quadrupled from an outstanding balance of approximately $600 billion in the early 2000s to $2.4 trillion by 2014. And while an extensive literature exists on the determinants of sovereign spreads in emerging markets (the difference between the yields on sovereign bonds from emerging markets and developed markets), we know relatively little about the determinants of yield spreads between corporate and sovereign bonds in these economies (a spread that we term the “net spread” thereafter in this paper).

Another string of the literature has studied the impact of country risk and the sovereign ceiling on corporate debt yields for firms from EMs. In this paper, however, we focus on the determinants of the spread between the yield of corporate debt issued by firms from emerging markets against the yield of the respective sovereign debt. In particular, we examine whether country and industry effects can explain this spread after controlling for firm, bond issue, local, and global factors.

Existing models ignore country and industry effects as they implicitly assume that firm, bond issued, local, and global factors capture these effects. However, we find that country and, especially, industry effects are indeed important in explaining corporate bond spreads. From a practitioner’s point of view, our results are relevant as ignoring country and industry effects could cause bond mispricing in emerging markets.

According to Peter and Grandes (2005), there exists an extensive empirical literature on the determinants of government debt yield spreads (with respect to a benchmark from a developed country) in EMs. However, as previously mentioned, the study of the determinants of the spread between corporate and government debt yields in emerging markets is still a relatively understudied subject. Earlier research (Bricéño & Rivero, 2012; Peter & Grandes, 2005) finds the most important determinant of corporate default for firms from emerging markets is sovereign risk. However, these authors also demonstrate that there are other determinants, including firm specific factors.

We use a dataset of corporate and sovereign bonds to find the
determinants of these spreads for countries included in the MSCI Emerging Markets Index. Our data on the spread benefits from the use of the Yield Adjusted Spread (YAS) allowing us to control for the term structure of debt. The main finding is that there are persistent country and specially industry effects that explain the spread. This is a new result contrasting with the existing literature (Durbin & Ng, 2005) and allows us to gauge a better understanding as to how country and industry risk affect corporate bond pricing in emerging markets.

Our results can be explained as follows. We find a firm in the energy industry (where a large portion of the revenues is expected to come from abroad in U.S. dollars) that issues U.S. dollar denominated bonds will have a natural currency hedge and, as such, be less risky to investors, thus enjoying a smaller spread over sovereign debt. Alternatively, for basic materials and communications and technology, which are primarily industries with local revenues, we find positive and significant coefficients causing a wider net spread. Country effects are also found for firms issuing debt from Chile, Indonesia, and the Philippines albeit with lower statistical significance.

The article is organized as follows. The second section reviews the literature on the determinants of spreads on sovereign bonds and on the influence of sovereign debt on corporate debt yields. Section 3 describes the data and the methodology employed, while Section 4 presents the main results obtained. Section 5 is devoted to various robustness checks that were performed on the main results. The final section provides our conclusions and discusses the main findings.

2. Literature review

2.1. Determinants of spreads on sovereign bonds

Sovereign bond spreads are a measure of country risk and are usually defined as the spread between the yield to maturity of debt issued by the government of a certain country and the yield to maturity of debt issued by a benchmark country (e.g., the U.S. when the debt is issued in U.S. dollars). We briefly review the literature regarding the determinants of sovereign bond spreads.

Baldacci, Gupta, and Mati (2011) measure political risk and introduce fiscal variables into a model of spreads for a sample of 30 emerging market economies. They find that fiscal and political variables are the key determinants of country risk. Bellas, Papaoannou, and Petrova (2010) find macroeconomic variables are the main determinants of sovereign spreads in the long run and that financial volatility is the main determinant in the short run. They reach this conclusion after analyzing data from 14 emerging markets in a panel dataset from 1997 to 2009. In the same line, Hilscher and Nosbusch (2010) examined 32 emerging markets and found the effects of a number of macroeconomic fundamentals on sovereign credit spreads by using panel data from 1994 to 2007. More specifically, they determined that the terms of trade volatility (measured using a country-specific commodity price index) and country fundamentals have substantial explanatory power. Furthermore, Ferrucci (2003) finds that along with macroeconomic factors, external liquidity conditions are also a significant determinant of sovereign spreads in emerging markets.

Baek, Bandopadhyaya, and Du (2005) find that both macroeconomic variables and the risk attitude of the market are significant determinants of sovereign risks. They constructed their own measure, called the Risk Appetite Index, in order to assess the impact of the market attitude toward risk on the spread for Brady bonds (a group of government bonds issued by emerging markets in the early 1990s). Their sample started with 34 emerging and developed markets in 1992 and ended with 47 in 1996 in an unbalanced panel. Ludvigson and Ng (2009) studied the impact of macroeconomic factors in a dynamic framework and found a cyclical behavior of these factors in returns and long-term yield predictions for U.S. T-Bonds.

In a recent and related paper, Carletti, Colla, Gulati, and Ongena (2016) study the degree to which financial markets price contract terms. They take advantage of the natural experiment created by the Venezuelan debt crisis in 2016 (when the six-month credit default spread contract traded at close to 7000 basis points and the probability of default was above 90%) and consider that the outstanding sovereign bonds of Venezuela have a unique set of contractual features. The authors argue that this near default scenario represented an ideal setting to determine what legal terms should be most important to market participants. The authors find that in such a stressful scenario, markets seem to differentiate between bonds that allow for a greater ability to hold out (i.e., a holdout problem ensues when a bond issuer is in, or close to, default and proposes an exchange offer to restructure the debt held by current bond holders) and the rest of the bonds.

Dahlquist and Hasseltoft (2013) used a dataset covering monthly zero coupon interest rates for Germany, Switzerland, the U.K., and the U.S. from 1975 to 2009. They employ maturities of one month, three months, and one to five years for each country. They use a dynamic factor analysis methodology, also proposed by Cochrane and Piazzesi (2009), to study the influence of local factors in bond risk premiums across international bond markets and find not only global, but also local factors explain the spreads. These findings contrast with those of Westphalen (2001), who considers a systematic risk factor further than merely country risk, termed the “sovereign bond market factor” (Westphalen, 2001, pg. 22). The author remarks that whether the corporate bond market influences this factor needs to be tested.

In another branch of the literature, sovereign credit ratings are considered to be an important determinant of sovereign risk premiums (Kaminsky & Schmukler, 2002; Klein & Stelner, 2013; Remolona, Scatigna, & Wu, 2008). In this same line, Cantor and Packer (1996) examine the determinants of sovereign credit ratings for 42 developed and emerging countries. Although this strand of research is beyond the scope of our study, they find credit ratings have independent influence on credit spreads and are also positively correlated with macroeconomic factors.

Martínez, Tercéno, and Teruel (2013) and Tercéno, Sorrosal, Martínez, and Barberà (2013) study the determinants of the sovereign spread for seven Latin American countries by using a panel data framework. They test for the possible existence of the effects of the international financial crisis of 2008–2009 on the spreads, and find the existence of contagion effects across spreads during the crisis.

In general, the literature on sovereign spreads finds macroeconomic fundamentals are the most important determinants of the spread. Along these findings, some researchers also consider country specific factors as being determinants of the spread, as well as fiscal and political factors, investor’s risk attitude, and the terms of trade volatility. Another string of the literature has found credit ratings to be significant in explaining the sovereign spread.

2.2. The influence of sovereign debt on corporate debt yields

In theory, private debt should be riskier than sovereign debt. This implies that the credit rating of a sovereign bond issue should, in principle, be a ceiling for the bond of a firm incorporated in that country (Cuadra, Sanchez, & Sapir, 2010). However, existing evidence suggests that this is not always the case in the bond markets (Durbin & Ng, 2005). According to Borenstein, Cowan, and Valenzuela (2013), prior to 1997, no credit rating agency gave higher ratings to corporate debt issues than to the respective sovereign debt issues. This policy was termed the “sovereign ceiling” rule. However, this practice was relaxed in 1997. In fact, Lee, Naranjo, and Sirmans (2013) studied 2364 companies in 54 countries from 2004 to 2011 and observed violations to the sovereign ceiling rule. In the same vein, and more recently, Krylova (2016) also found a break up in the existence of country ceilings for corporate bond ratings during the recent global financial crisis (2008–2009). We also explore the possible existence of sovereign ceilings in our sample.

Borenstein et al. (2013) employ a panel dataset of 123 banks from
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