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Cost of sovereign debt and foreign bias in bond allocations

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ABSTRACT

Finance theory suggests that markets where foreign bond portfolio investors overweight their portfolio relative to the prescribed theoretical benchmark should experience higher international risk sharing. Correspondingly, the cost of debt in such markets should be lower compared to markets facing a lower degree of international risk sharing. We empirically examine this prediction using a panel data set of sovereign bond yield spreads and a measure of suboptimal foreign bond portfolio allocations for 50 emerging and ten developed markets. Consistent with theory, our results show higher levels of foreign bond allocations – relative to the theoretical benchmark – are negatively related to the cost of debt. These results have important policy implications as a country's cost of debt could potentially be lowered by encouraging foreign portfolio investors to hold their optimal allocation.

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1. Introduction

In this study we investigate whether the investment preferences of foreign bond portfolio investors, relative to the theoretical prescription, influence the host country's cost of debt. Finance theory suggests that foreign portfolio investors should follow the benchmark country allocation prescribed by the International Capital Asset Pricing Model (ICAPM). However, it is well established in the literature that barriers to international investments induce portfolio investors to ignore the normative prediction of the ICAPM and discriminate between countries by either under-weighting or over-weighting their investments relative to the prescribed optimal benchmark (see Cooper et al., 2012 for a review). With respect to foreign investments, such suboptimal allocation is known as foreign bias. Theory further notes that varying degrees of foreign biases should differentially affect market integration and thus international risk sharing (Stulz, 1999; Bekaert and Harvey, 2000).

The theoretical framework relating sub-optimal foreign investments and cost of capital is well established (Lewis, 1999). It states that when markets are perfectly integrated and barriers to international investments are absent, a country's expected return on a portfolio of tradeable assets is determined by the covariance between its return and that of the world market portfolio (Adler and Dumas, 1983). At the other extreme, for a severely segmented market, the expected return of a portfolio is a function of the covariance between the portfolio return and the local market return. Investors investing in a highly segmented local market require a higher return to compensate for the lower level of global risk sharing between domestic and foreign investors (for a mathematical derivation see Lau et al., 2010). When a market is partially integrated with the world market, the country's expected return on a portfolio is determined by the weighted average of the covariance

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of the portfolio with the local market and the covariance of the portfolio with the world market, the weight being the level of market integration with the world market (Bekaert and Harvey, 1995). Consequently, it follows that higher levels of foreign bias (i.e. over-allocation relative to benchmark) towards the domestic market should enhance global risk sharing (higher integration) of domestic assets, which in turn should lower the cost of capital (Stulz, 1999). However, empirical studies investigating the implications of suboptimal foreign allocations are scarce, and mainly limited to equity. To the best of our knowledge, no prior study examines the impact of suboptimal foreign investments (i.e. foreign bias) on the cost of debt. We address this gap by examining whether biases observed by foreign bond portfolio investors, compared to the theoretical prescription, have any implication for the host country's cost of debt. Specifically, we argue that a higher level of foreign bond bias (relatively higher weighting against the prescribed weight) should result in lower cost of debt.

Our study on the implication of foreign bias on cost debt is also motivated by the importance, development¹ and characteristics² of the bond market that are different from equity market. Comparatively, the size of global bond markets is roughly twice the size of equity market.³ The bond market has significantly grown in the past decade since debt financing has become one of the important sources of funding for governments, financial institutions and corporations. However, despite such substantial growth increases in cross-border bond investments studies reveals that bond investors are sub-optimally diversifying (Fidora et al., 2007). Our study provides implication of such sub-optimal diversification on the cost of debt.

We test our research question using panel data sets from multiple sources reflecting suboptimal foreign bond allocations, and sovereign debt yield spread⁴ as a proxy of cost of debt. Specifically, we use the yield spread, over US Treasury bonds, of the comparable sovereign debt of emerging markets. We also use the sovereign bond yield spread, over similar German bonds, for Eurozone (economic and monetary union (EMU)) countries as a measure of cost of debt for developed European markets. Consistent with theory, we find that the cost of debt across our sample countries is strongly and negatively related to foreign bond portfolio investors' foreign bias. Our results provide evidence that varying degrees of foreign bias have significant implications for the cost of debt in a host country.

This key result remains qualitatively unchanged when we address the issue of endogeneity using different robustness tests, including vector auto-regressive models and instrumental variables. Our results are also consistent when we use data from different sources such as JP Morgan Emerging Market Bond Indices (EMBI) series, Thomson Reuters, Coordinated International Portfolio Survey (CIPS) and EPFR Global Inc. Further, the recent Eurozone sovereign debt crisis offers an ideal experimental set-up to observe whether any difference in foreign bias observed between the group comprising the five most affected countries (i.e. Greece, Ireland, Italy, Portugal and Spain, hereafter referred to as GIIPS) and the group constituting five relatively less affected Eurozone countries differentially impacts the cost of debt.

Our study contributes to two different strands of the finance literature. First, we add to the limited but growing literature that investigates the implications of suboptimal international allocations. To the best of our knowledge, this is the first study which investigates the link between the theoretically inconsistent phenomenon of foreign bias and cost of debt. This study has similarities to that of Lau et al. (2010) who examine the effect of suboptimal international equity allocations on cost of equity capital; however, we differ in a number of important areas. The cost of equity is only one part of the overall cost of capital and it is important to understand whether foreign bond holders' deviation from the theoretically prescribed benchmark affects the cost of debt. Also, rather than investigating how home investors' suboptimal investments in their home market affect cost of debt, we examine how foreign investors' theoretically biased investment decisions influence the cost of debt.⁵ Finally, we also apply a more rigorous research approach by addressing the possibility of endogeneity using country fixed effects, vector auto regression, instrumental variable estimation and by exploiting a quasi-natural experimental set-up.⁶

Second, our study also adds to the finance literature investigating the determinants of sovereign bond spreads, i.e. credit risk (Longstaff et al., 2011; Cruces and Trebesch, 2013; Bekaert et al., 2014). Our paper differs from these studies by considering the idea that suboptimal foreign bond allocation (i.e. foreign bias) is also related to the cost of sovereign debt. A number of existing studies also explore the relation between foreign bond investments and spreads.⁷ Our study is conceptually dif-

¹ The examination of debt is economically important due to the size of global bond markets which is nearly twice the size of equity markets with steady growth in the past decade. Data from the Bank for International Settlements (BIS) show that bond market size increased from USD 35.5 trillion in 2001 to USD 97.8 trillion in 2013. During the corresponding period, cross-border holdings of long-term debt (excluding money market instruments) grew from USD 6.4 trillion to USD 24.2 trillion, as reported by International Monetary Fund (IMF) in Coordinated International Portfolio Survey (CIPS).

² Myers and Majluf (1984) highlight the relative attractiveness of debt over equity to firms in their seminal study. Bonds also have unique characteristics relative to equity as asset class. For example, relative to equities, bonds exhibit lower volatility returns with a higher degree of relative safety. Studies also show that government bond returns are not influenced by the same factors that impact equity returns (Elton, 1999). Further, Campbell and Taksler (2003) document that the price of bonds significantly diverges from that of equities, suggesting that different factors could drive the attractiveness of equities and bonds asymmetrically. Further, there is evidence that investors do not avoid volatility in equity markets but do so from volatility in bond markets (Burger and Warnock, 2003).

³ See McKinsey Global Institute (2011) for comparative size of equity and debt markets.

⁴ Borensztein et al. (2013) show that sovereign ratings represent a strong upper bound assigned to corporate bonds. They conclude that sovereign risk is a significant factor in the pricing of corporate debt.

⁵ Sub-optimal investments in domestic market is referred to as home bias, which relates to the phenomenon in which local investors over-weight their domestic market relative to the prescribed theoretical benchmark, thereby leaving significantly lower share of the country's wealth to be held by foreign investors. The presence of foreign bias indicates that foreign investors either overweight or underweight foreign markets relative to the benchmark. However, Cooper et al. (2012) show that home and foreign biases are inversely related.

⁶ Lau et al. (2010) use pooled ordinary least squares (OLS) regressions and the Fama-Macbeth approach.

⁷ See Peiris (2010), Andritzky (2012), Jaramillo and Zhang (2013), and Arslanalp and Poghosyan (2014).

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