Local currency bond returns in emerging market economies and the role of foreign investors

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Abstract

Foreign investors play a key role in sovereign bond markets in emerging market economies (EMEs), in part because their portfolio flows are sensitive to bond returns and are therefore pro-cyclical in nature. This note discusses the implications of the framework proposed by So et al (2019), which incorporates the risk that arises from the portfolio performance and flows of actively managed bond funds. When the framework is applied to the data, using local currency sovereign bonds of 16 EMEs, preliminary calculations show that local currency sovereign bonds that positively covary with the returns of active funds receive risk premia as compensations for active fund risk. Furthermore, and in line with theory, the price of this risk increases when bond funds experience outflows and the exposure to active funds risk increases with the heightened price of risk. This double effect helps explain why spikes in returns of some EME local currency bonds can be especially large. These results demonstrate how the portfolio performance and flows of actively managed funds help transmit shocks across EMEs.

JEL classification: F31, F34, G15

Keywords: bond excess returns, portfolio flows, institutional investors, conditional asset pricing

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1. Introduction

Local currency sovereign debt instruments issued by emerging market economies (EMEs) have increased dramatically during the past two decades – by 2017, the amount of local currency sovereign debt had reached almost USD 10 trillion. Foreign investors have been a major driver in the growth of such bonds: they now own, for the average EMEs, about 20% of outstanding local currency sovereign debt, with some EMEs experiencing shares as high as 40% (G20, IFAWG (2018)). Foreign institutional investors, in particular, play a substantial role, facilitated by the inclusion of EME debt securities in major tradable benchmarks and improved secondary market liquidity (Arslanalp and Tsuda (2014), Agur et al (2018)).[2]

One important question is how the performance and flows of portfolios actively managed by foreign investors – especially bond funds – affect the pricing of local currency sovereign bonds. To answer this question, we borrow the theoretical and empirical results from the recent work by So et al (2019), who build a conditional asset pricing model that incorporates the portfolio allocation decisions and fund flows of active foreign investors. More specifically, taking the view that the performance of foreign active portfolios may represent a source of risk (active fund risk) for EME sovereign debt, we report and discuss the evidence that risk premia arise from the covariation between the returns of local currency bonds and the ones from foreign bond funds who actively manage their holdings. Our calculations, based on a panel of 16 local currency bonds spanning the sample period July 2007 – March 2018, show that bonds whose returns positively covary with the returns of active funds will see their price drop in bad times, as active funds exert price pressures when they are forced to liquidate their holdings. In addition, the price of active fund risk increases as fund outflows becomes larger;[3] as fund outflows gather pace and as the price of active fund risk increases, the model predicts that the covariation between bond returns and fund returns increases, magnifying its effect on bond expected excess returns. The structure of this note is as follows: Section 2 briefly provides some key statistics related to local currency bond markets and foreign investors' participation in EMEs. Sections 3 and 4 introduces the main features of So et al (2019) asset pricing framework and discusses the implications of their empirical results. Section 5 concludes.

2. Background

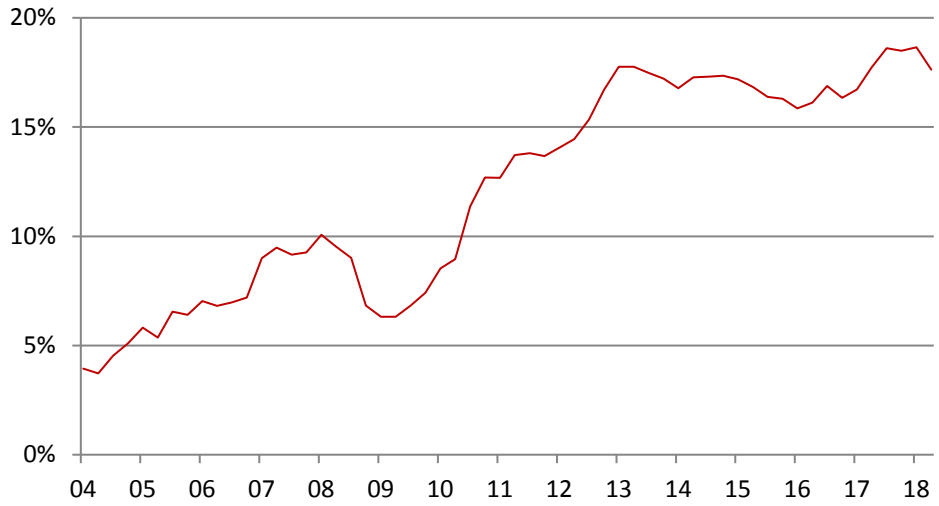
In the aftermath of the financial crisis, longer-term yields in advanced economies (AEs) have declined consistently. Together with the fact that EMEs performed relatively well during the financial crisis, this has led AE investors to reach for yield – a behaviour that has manifested in portfolio inflows from AEs to EMEs. At the same time, because of currency mismatches over the past several decades,

[2] Foreign participation is highly heterogeneous across EMEs. While most exhibit a large share of debt owned by non-resident investors, a few countries continue to have a limited participation. We discuss the implications of this heterogeneity in Section 2.

[3] This is described by Vayanos and Woolley (2013) as an amplification effect. Shifts in risk sentiments, as in Goldstein et al (2017), may represent an alternative rationalisation of the same stylised fact. The currency risk-taking channel, as in Hofmann et al (2017), is also another possible explanation as currency risk premia represent non-negligible components of local currency bond returns in USDs.

EME authorities have increasingly turned to issuing debt in local currencies as a way to mitigate sovereign default risk. The result of these two developments can be seen in Graph 1, which shows that foreign investors hold an increasing portion of local currency EME bonds.

Foreign investor shares in local currency sovereign bonds, average of 24 EMEs Graph 1

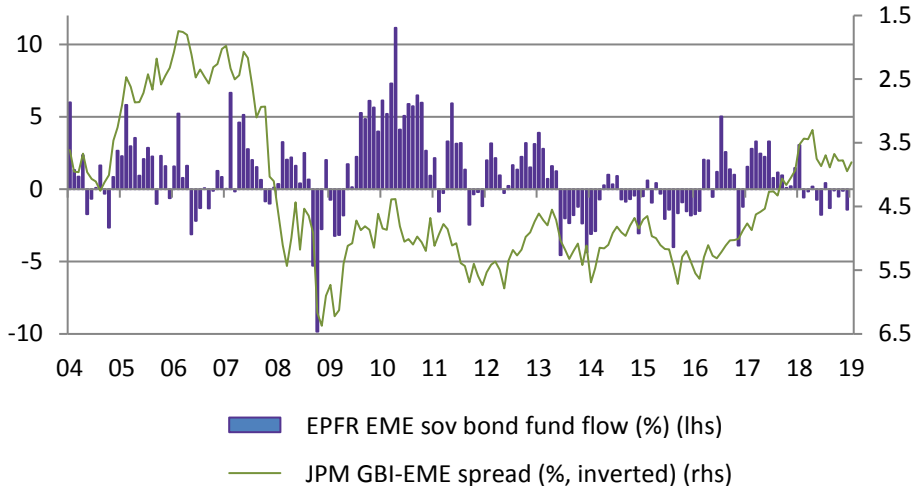


[1] The 24 EMEs are Argentina, Brazil, Bulgaria, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Latvia, Lithuania, Malaysia, Mexico, Peru, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey, Ukraine and Uruguay

Source: Arslanalp and Tsuda (2014).

Much of these local currency bonds are purchased by AE investment funds, such as open-ended mutual funds. As documented in Goldstein et al (2017) for bond funds, the flow-performance relationship displays an asymmetry: outflows are more sensitive to weak performance than inflows to strong performance. In the context of local currency EME bonds, the increased participation of foreign investors in the past decade suggests that the flow-performance relationship may be incorporated in bond returns in the form of higher risk premia. Our goal in this note is to discuss and interpret the evidence related to the extent to which the flows and performance of active funds are priced in the cross-section of sovereign bond returns.

Sovereign bond flows and sovereign bond spreads vis-à-vis US Treasury yields Graph 2



Sources: EPFR, Bloomberg. Sovereign bond spreads are calculated vis-à-vis US Treasury yields.

3. Theoretical insights

In order to provide some insights regarding the key questions of this note, we seek some guidance from existing theoretical works. More specifically, Vayanos and Woolley (2013) are among the early few who show that in a market where active and passive investors co-exist, excess returns on risky assets are due to exposure to market risk and potential losses originating from assets managed by active investors. So et al (2019) extend this framework to EME's long-term local currency bonds. They document that, under the assumption that active portfolios are mostly comprised of EME local currency bonds, local currency bond returns, adjusted for market risk, contain risk premia compensating for the exposure to active fund risk. In addition, they also show that the flows that generate the time variation in the price of active fund risk are proportional to the overall net capital outflows from EMEs.[4] The key equation in So et al (2019) is:

$$E\left(e_{h,t+1}^{(n)}\right) = \bar{\lambda}_t \bar{\beta}_{h,t}^{A,(n)} + \phi_h^{(n)} var(\lambda_t) \quad (1)$$

where $e_{h,t+1}^{(n)}$, $\bar{\beta}_{h,t}^{A,(n)}$, $\bar{\lambda}_t$ denote the country h local currency n-year bond excess returns in USDs adjusted for market risk, the average active fund beta (ie the average quantity of active fund risk), the average time varying price of risk associated with the active fund, and $\phi_h^{(n)} = \text{cov}\left(\lambda_t, \beta_{h,t}^{A,(n)}\right)/var(\lambda_t)$, respectively. Equation (1) states that the average bond excess return or, put differently, its risk premium, is due to the product between the average price and quantity of active fund risk. However, both variables change over time. In order to capture this time variation, equation (1) includes an

[4] It is implicitly assumed that active funds invest in various EMEs at once. When there are shocks to these economies (or because of withdrawal from the active fund), investments in EMEs are liquidated jointly and their proceeds repatriated. This joint liquidation causes co-movements across capital flows from EMEs.

additional term containing two variables: the first, $\phi_h^{(n)}$, which is labelled as beta-premium sensitivity, measures the covariation between the price and quantity of active fund risk. The second, $var(\lambda_t)$, captures the variability of the price of active fund risk. The term $\phi_h^{(n)}$ is particularly important in this framework as it allows to capture the detrimental effect of capital outflows from EMEs in bad times. In fact, local currency bonds with positive beta-premium sensitivities exhibit high risk precisely when the active fund experiences negative returns and large outflows. This is the time when investors dislike risk and the price of risk is high. Hence, these bonds earn higher average returns than the ones with low or negative beta-premium sensitivity.

4. Preliminary evidence

So et al (2019) bring their empirical framework to the data using empirical proxies for the variables of interest from multiple sources.[5] Their dataset is compiled over the sample period June 2007 – March 2018 [6] and explore the following sample of 16 EMEs: China, Colombia, Czech Republic, Hong Kong SAR, Hungary, Indonesia, Malaysia, Mexico, Peru, Poland, Russia, Singapore, South Africa, South Korea, Thailand and Turkey.

To strengthen the inference on the parameter estimates, So et al (2019) adopt a portfolio approach, conventionally used in much empirical literature in finance, whereby bonds from different countries are bundled together at any given time on the basis of their estimated exposure, or beta, to active fund risk.[7] More specifically, two portfolios are formed at the end of each month: the H and L portfolios including the bond/countries exhibiting the highest and lowest exposure to active fund risk, respectively.[8] This procedure is then repeated until the end of the sample.

Equation (1) suggests that bonds with large and positive betas should command a large risk premium and a higher expected return. This is because those are the assets that experience the largest losses in bad times, ie the active funds that experience negative returns and large outflows. Conversely, bonds exhibiting small positive or negative betas will act as a hedge in bad times, resulting in lower expected returns. In Table 1 we report the estimations of the average excess returns for both H and L portfolios, and their difference, for two bond maturities (one and three years, respectively). The average excess returns exhibited by the H portfolio are positive and significantly higher than the ones recorded for the L portfolio. While excess returns from H portfolio are all statistically significant at the 1% level, excess returns computed for L portfolio are overall insignificantly different from zero. Hence, the

[5] For further details on the data sources and the empirical proxies, refer to So et al (2019), Section 4)).

[6] Although bond return data are available from an earlier period, reliable data on fund flows are available only from mid-2000s.

[7] The conditional betas are estimated in the spirit of Shanken (1990), using an auxiliary regression where the time variation in betas is captured by bond-specific characteristics. The time varying price of active risk is computed using the procedure proposed by Petkova and Zhang (2005) where the time variation of the price of risk is a linear function of the aggregate net capital outflow for bond investments from EMEs and a set of control variables. For further details refer to So et al (2019).

[8] The highest and lowest exposure are computed as the top and lowest tercile of the distribution of estimated monthly betas.

resulting return differentials between H and L portfolios are large and significant. These results confirm one of the main predictions embedded in Equation (1): bonds whose returns positively co-move with the ones of the active fund command a substantial premium.

Excess returns and portfolio betas for the H and L portfolios Table 1

Maturity	Excess returns		Portfolio betas	
	1 year	3 year	1 year	3 year
H portfolio	1.008***	1.406***	2.056***	3.745***
	(0.29)	(0.26)	(0.18)	(0.34)
L portfolio	0.112	0.148	0.268***	0.603***
	(0.16)	(0.14)	(0.06)	(0.14)
Difference	0.895***	1.187***	1.778***	3.141***
	(0.19)	(0.15)	(0.14)	(0.24)

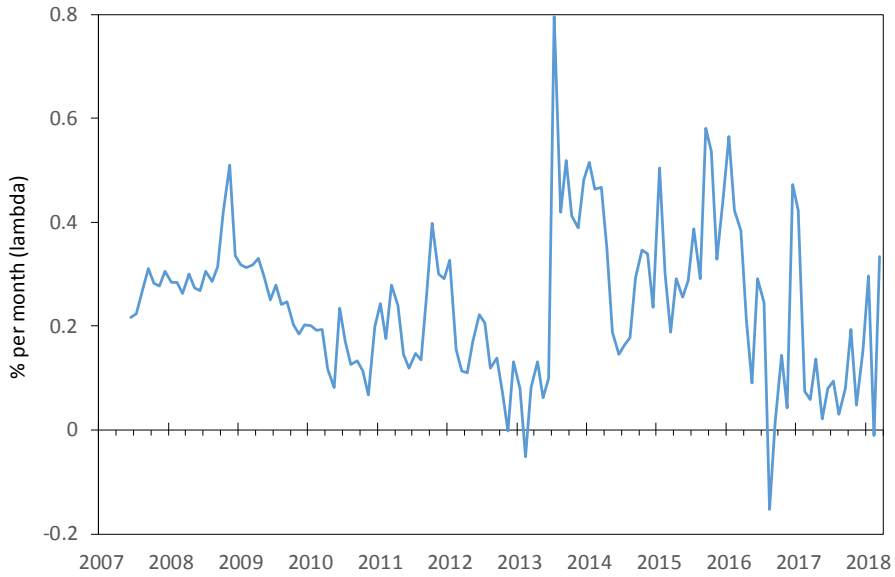
[1] Portfolio returns are reported as percentage points per month and recorded for each month subsequent to the construction of the portfolio. All returns are expressed in USDs. Values in parentheses are serial correlation- and heteroscedasticity-adjusted standard errors. ***, **, * denote statistically significant at the 1%, 5% and 10% levels, respectively.

It is worthwhile to note that the set of countries usually included in the H portfolio tend to have weaker macroeconomic fundamentals than those in the L portfolio. In fact, countries included in the H portfolio record current account deficits, hold less foreign reserve and their exchange rates depreciate significantly against the USD. Meanwhile, countries mostly included in the L portfolio run large current account surpluses, possess larger foreign exchange reserve and their currencies remain relatively stable over the sample period. This evidence suggests that the H portfolio comprises bonds issued by countries that exhibit a larger fragility than the one recorded for the L portfolio, and this fragility affects the reaction of bond returns to active fund risk and, ultimately, impacts bond risk premia.

We plot the time series estimate of the price of risk in Graph 3. The price of active fund risk was relatively flat at around 20 basis points per month (per unit of beta) until the taper tantrum episode in mid-2013. Then the large portfolio net outflows from EMEs shifted the price of risk from a value close to zero to 80 basis points. Since mid-2013 and until 2018, the price of active fund risk has remained higher on average at around 40 basis points per month until 2016 and it decreased afterwards. This pattern is indicative of a potential risk attitude shift around 2013, which led to a more cautious behaviour of market participants over the subsequent three years.

The price of active fund risk

Graph 3



[1] The price of active fund risk is the estimate of λ_t .

As a final statistics of interest, we report in Table 2 the estimates of the beta-premium sensitivity for H and L portfolios introduced in Table 1. We observe a positive relationship between the exposure and price of active fund risk by estimating beta-premium sensitivity. For both maturities, the difference between the two beta-premium sensitivities is positive and statistically significant. This confirms that the time variation of both the price and quantity of active fund risk is important in characterising the expected returns of local currency bonds. In addition, the results also suggest that local currency bonds with positive beta-premium sensitivities have high risk precisely when the active fund experiences negative returns and large outflows. This is the time when investors dislike risk and the price of this risk is high. Hence, these bonds are indeed the ones to earn higher average returns than the bonds with low or negative beta-premium sensitivity. This mechanism offers an alternative reading of the current debate on the occurrence of a global financial cycle. In fact, our model suggests a prominent role played by the time variation of the price of active fund risk in generating higher returns because of large capital outflows in bad times.

Beta-premium sensitivities

Table 2

Maturity	1 year	3 year
H portfolio	1.170*	2.156**
	(0.62)	(1.11)
L portfolio	0.164	0.340
	(0.20)	(0.42)
Difference	1.007*	1.816**
	(0.55)	(0.91)

[1] Values in parentheses are serial correlation- and heteroscedasticity-adjusted standard errors. ***, **, * denote statistically significant at the 1%, 5% and 10% levels, respectively.

5. Conclusions and policy discussion

The growth of local currency bond markets in EMEs is an important institutional development that has accelerated after the 2008 Great Financial Crisis. This note builds upon the empirical implications of theoretical models incorporating portfolio decisions of institutional investors and fund flows, and focuses on the implications of a framework that aims to explain the cross-section of EME local currency bond returns.

We discuss a host of interesting findings: First, there is evidence of a large heterogeneity of exposures to active fund risk in the panel of local currency bond. The portfolio comprising bonds with the largest exposure exhibits average excess returns, adjusted for market risk, that are higher than the ones recorded for the portfolio comprising bonds with the smallest exposure. Second, bonds contained in the portfolio with the largest exposure to active fund risk are issued by countries that exhibit weaker fundamentals over the sample period. Third, the portfolio containing bonds with the highest exposure to active fund risk exhibits a positive and statistically significant beta-premium sensitivity. Put differently, when outflows ensue, not only does the price of active fund risk increase, but also the exposure to active risk, meaning that certain countries suffer from a double and mutually reinforcing negative effect with bond prices dropping substantially and expected returns increasing to a larger extent.

The results discussed in the note help identify several important policy insights as local currency bond markets in EMEs develop further. First, as local currency bonds are increasingly included in traded benchmarks and as foreign investment funds gain more interests on local currency bonds, countries should be aware of the associated risks, namely the increased exposures of local currency bonds to the performance of active funds. Second, the development and expansion of local currency bond markets should be associated with the strengthening of the underlying macroeconomic fundamentals, or those that could "get one's house in order". In fact, we see that countries with good economic fundamentals are likely to have lower exposure to active fund risk. Third, policies aimed at minimising the negative externalities associated with first-mover advantages, namely the investor incentives that make portfolio flows to EMEs more volatile, could be a logical way to reduce the likelihood of large spikes in the price of active funds risk and the associated risk premia accruing to local currency bonds.

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