

**Impact of foreign participation in emerging markets'
local currency sovereign bond markets**

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Abstract

Motivated by the inclusion of Chinese government bonds in major global bond indices starting in 2019, this article looks to provide an updated analysis on the impact of foreign participation in emerging markets' local currency sovereign bond markets. With a focus on the post-global financial crisis period, a panel analysis shows that higher foreign participation tends to lower long-term sovereign bond yields. The results are largely in line with earlier studies.

**外國投資者參與新興市場本幣主權債券市場的影響
摘要**

隨著中國國債自 2019 年起被納入全球主要債券指數，本文就外國投資者參與新興市場本幣主權債券市場的影響進行了最新的分析。以環球金融危機後的數據為基礎，面板分析顯示，外國投資者參與度的提升有助降低長年期主權債券的收益率。這分析結果與早期的研究結果相約。

The views and analysis expressed in this article are those of the author and do not necessarily represent the views of the Office of the Government Economist.

I. INTRODUCTION

1. Motivated by the inclusion of Chinese government bonds (CGBs) and policy bank securities in major global bond indices starting in 2019, this article looks to provide an updated analysis on the impact of foreign participation in emerging markets' (EMs') local currency sovereign bond markets. Specifically, a panel data approach is adopted to estimate how changes in the level of foreign participation influence local borrowing costs.

II. MOTIVATION AND LITERATURE REVIEW

2. In March 2018, Bloomberg announced¹ that RMB-denominated CGBs and policy bank securities will be added to their flagship Bloomberg Barclays Global Aggregate Index, among several other bond indices, subject to certain operational enhancements to be made². Upon the completion of these enhancements, the inclusion of CGBs and policy bank securities in the indices was subsequently confirmed and a 20-month phase-in period commenced in April 2019. More recently, JP Morgan announced in September 2019 that CGBs will be added to their Government Bond Index - Emerging Markets, and a 10-month phase-in period commenced in February 2020. Meanwhile, China is also on the watch list for a potential upgrade from Market Accessibility Level 1 to Level 2 in FTSE's fixed income country classification, the prerequisite for inclusion into its flagship World Government Bond Index.

3. The inclusion of CGBs in major global bond indices follows years of liberalisation measures that aim to improve the accessibility of the domestic bond market in the Mainland. Among these, Bond Connect, introduced in 2017, represented a breakthrough. Bond Connect allows investors from the Mainland and overseas to trade in each other's bond markets through a market infrastructure linkage in Hong Kong. Northbound trading is currently in operation, while southbound trading will be explored at a later stage.

4. Given the estimated trillions of US Dollars that adopt a passive, index-tracking investment strategy, it is generally expected by market participants that the inclusion of CGBs in major global bond indices would lead to further increases in the foreign investment in the related bonds, and could have a lasting impact on the financing profile

¹ Bloomberg. 2018. "Bloomberg to add China to the Bloomberg Barclays Global Aggregate Indices." <https://www.bloomberg.com/company/press/bloomberg-add-china-bloomberg-barclays-global-aggregate-indices/>

² The conditions included the implementation of delivery versus payment settlement, the ability to allocate block trades across portfolios, and clarification on tax collection policies.

of the Central Government. Indeed, the latest data indicates increases in the foreign holdings of CGBs over the past year or so.

5. More broadly, the financing profiles of EMs have long proven to be a key component of global financial stability. This has been a topic of policy interest ever since the financial turmoil experienced by EMs in 1980s and 1990s, in which currency mismatches in debt profiles was at least an aggravating factor. It has since become well-known that a well-developed local currency bond market, as commonly defined by size and liquidity, is conducive to financial stability by reducing such currency mismatches among other benefits. In recent years, most emerging market economies have also overcome the problem of the “original sin”, i.e. the inability to borrow from abroad in local currencies, as their local currency bond markets experienced significant inflows. In light of this development, the academic literature has shifted some of its focus towards the impact of such foreign participation in local currency bond markets of EMs.

6. Intuitively, and as various research has noted, the ability to borrow from abroad in local currency should be conducive to the development of the local financial market by improving market liquidity, enhancing the diversification of the investor base and creating greater demand for local debt and thus lowering borrowing costs of the economy.

7. Indeed, the academic literature that quantifies the impact of foreign participation on EMs’ local currency bond markets has in general found that an increase in the level of foreign participation has a significant and positive impact in bringing down EM governments’ borrowing costs. This finding is consistent across earlier literature such as Peiris (2010)³ and Ebeke & Lu (2014)⁴, which were relatively more constrained by data availability, and more recent research such as Ebeke & Kyobe (2015)⁵ which benefited from a larger and more comprehensive set of data on the sovereign debt investor base produced by Arslanalp and Tsuda (2014)⁶.

³ Peiris, S. 2010. “Foreign participation in emerging markets’ local currency bond markets.” IMF Working Paper WP/10/88.

⁴ Ebeke, C. and Lu, Y. 2014. “Emerging market local currency bond yields and foreign holding in the post-Lehman period – a fortune or misfortune.” IMF Working Paper WP/14/29.

⁵ Ebeke, C. and Kyobe, A. 2015. “Global financial spillovers to emerging market sovereign bond markets.” IMF Working Paper WP/15/141.

⁶ Arslanalp, S. and Tsuda, T. 2014. “Tracking global demand for emerging market sovereign debt.” IMF Working Paper WP/14/39.

8. This article aims to provide an updated analysis on the impact of foreign holdings on the borrowing costs of EM governments, using recent data produced under the Arslanalp and Tsuda framework by the IMF Monetary and Capital Markets Department, with a focus on the post-global-financial-crisis period (before the inclusion of CGBs in major global bond indices).

III. DESCRIPTIVE STATISTICS ON THE TREND OF FOREIGN HOLDINGS IN LOCAL CURRENCY SOVEREIGN BOND MARKETS

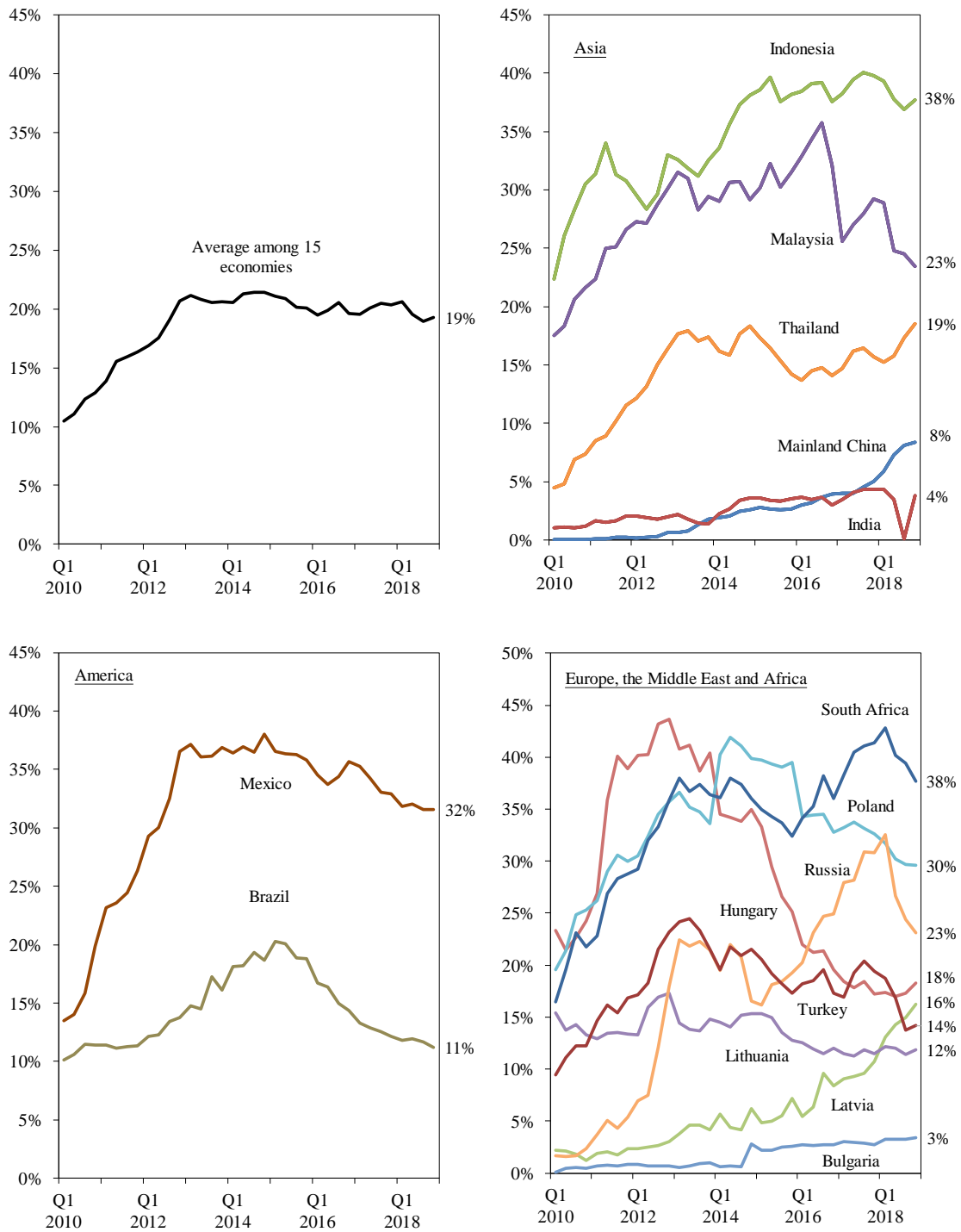
9. The Arslanalp and Tsuda database on EMs' sovereign debt investor base⁷ covers a total of 24 economies from 2004 onwards, though data on foreign ownership is not complete for every economy over the entire sample period. Because of data availability (for both foreign ownership and other macro variables), this article analyses quarterly data from 2010-2018 for 15 of those 24 economies, namely Brazil, Bulgaria, the Mainland, Hungary, India, Indonesia, Latvia, Lithuania, Malaysia, Mexico, Poland, Russia, South Africa, Thailand and Turkey.

10. The data indicates that, as mentioned earlier, EM governments in general have no difficulty in borrowing from abroad in local currencies. As of Q4 2018, foreign participants, on average, held around 20% of total local currency central government debt securities in the 15 economies covered in this article. On average, over the sampling period, the trend in foreign holding as a percentage of the total rose steadily from 2010 to 2012 before stabilising around the current level (see *Chart 1*).

11. Notably, the level of dependency on foreign investors varies significantly among EM governments. Foreign holdings of local currency central government debt securities as of Q4 2018 ranged from as low as 3% (Bulgaria) to as high as 38% (Indonesia and South Africa) in our sample, with the Mainland near the lower end of the spectrum at around 8%. Varying trends were also observed among individual economies over the sampling period. In general, it is observed that no obvious regional pattern exists in regard to the level and trend of foreign ownership, indicating that such foreign participation is likely to be influenced by country- and market-specific factors instead.

⁷ The Arslanalp and Tsuda database on EMs' sovereign debt investor base is updated semi-annually. The April 2019 version of database is adopted in this paper.

Chart 1: Foreign holding of local currency central government debt securities (% of total)



Source: Sovereign investor base estimates by Arslanalp and Tsuda (2014) (April 2019 update)

IV. ANALYSIS

12. In line with existing literature, a panel data approach is adopted to analyse the impact of the foreign holding ratio (% of total local currency central government securities held by foreign participants) on the yield of local currency long-term sovereign bonds. The panel data approach allows controlling for other macro variables that have an influence on bond yields.

13. Specifically, the dependent variable is the 10-year local currency sovereign bond yield, except in the case of South Africa for which the 15-year yield was used due to data availability. Meanwhile, control variables take into account both economy-specific factors, including local policy rates, inflation, GDP growth, central government debt (% of GDP) and current account surplus (% of GDP), as well as external factors such as the 10-year US Treasury yield, the Fed funds target rate and the VIX index. Data is collected from multiple sources, including the IMF, the World Bank, the OECD, Bloomberg and CEIC. As the sampling period was chosen with consideration to data availability, missing data is sparse in the dataset, and any gaps were filled in with simple imputation⁸.

14. As some of the variables were non-stationary, the results were derived on the basis of first differences for all variables. Since the data are first-differenced, and because an F test of the null hypothesis that all group specific intercepts are zero could not be rejected, pooled regressions with clustered standard errors were adopted in lieu of a fixed-effects model.

15. The regression results suggest that the foreign holding ratio has a statistically significant and negative impact on local currency long-term sovereign bond yields. The finding was consistent among different regression specifications, as set out in columns (1), (2) and (3) of *Table 1*. The results indicate that a 10 percentage point increase in the foreign holding ratio tends to lower the long-term government bond yield by around 50bp. The coefficients on other variables were also reasonable and consistent with intuition, though those on domestic macroeconomic variables such as GDP, inflation and current account surplus were found to be insignificant. On the other hand, local policy rates, 10-year US Treasury yields and the VIX index all exhibited significant and positive associations with local bond yields in EMs.

⁸ There were 3 cases of missing data in the dataset, namely: (a) central government debt data for the Mainland was only available on an annual basis prior to 2014; (b) three data points were missing for Brazil's 10-year local currency sovereign bond yield; and (c) one data point was missing for Turkey's 10-year local currency sovereign bond yield. Linear interpolation was adopted in all three cases to fill in the gaps.

Table 1. Regression results: foreign holdings and sovereign bond yield

(first differences)	Local currency long-term government bond yield		
	(1)	(2)	(3)
Foreign holding ratio	-0.100** (-2.37)	-0.051** (-2.29)	-0.051* (-1.99)
Policy rate	-	0.365*** (16.76)	0.363*** (17.94)
Inflation rate	-	-	0.015 (0.52)
GDP growth	-	-	0.008 (0.71)
Central government debt	-	0.042* (1.93)	0.041* (1.98)
Current account surplus	-	-	-0.003 (-0.07)
Fed funds target rate (midpoint)	-	-	-0.057 (-0.23)
US 10-year Treasury yield	-	0.485*** (4.36)	0.486*** (4.02)
VIX Index	-	0.009*** (3.33)	0.010*** (3.19)
Constant	-0.19 (-0.5)	-0.025 (-1.1)	-0.022 (-0.56)
R-squared	0.0526	0.3163	0.3172
Observations	525	525	525

Note: t-statistics are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

16. The results are largely in line with earlier studies. For instance, Peiris (2010) found that “a one percentage point increase in the share of foreign investors in the government bond market will tend to lower yields by about 6bps on average”, while Ebeke and Lu (2014) found that “a 10 percentage point increase in the share of foreign investors in the government bond market is associated with a reduction in yields of 70 to 90 bps”. This may indicate that the relationship between foreign holdings and local bond yields has not altered significantly over time.

V. CONCLUSION

17. Adopting a panel data approach, and with a focus on the post-global financial crisis period, this article finds that higher foreign participation tends to lower local currency long-term sovereign bond yields in EMs. The results are largely in line with earlier studies, and would suggest that, *ceteris paribus*, inflows brought about by bond index inclusion would reduce the borrowing costs of the Central Government.