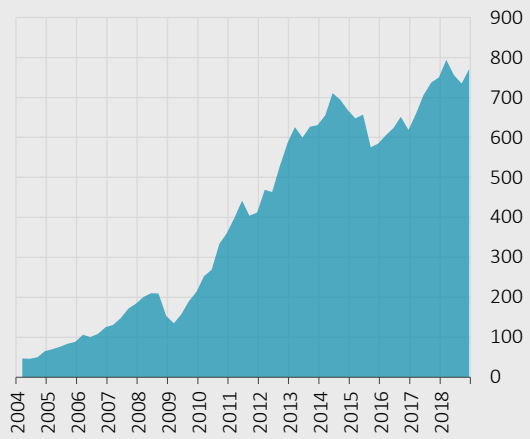
Box 2.1

Foreign Investor Position Index for Bond Markets in Emerging Economies

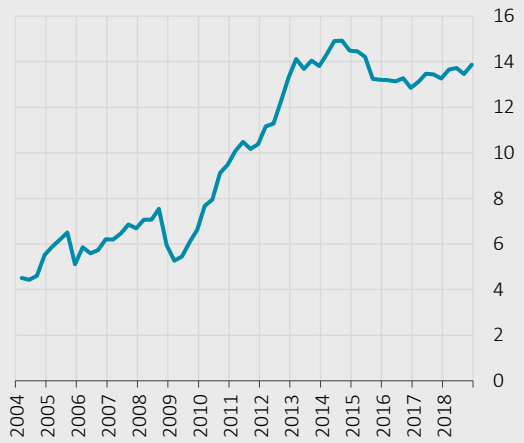
After the 2008 global financial crisis, central banks of advanced economies, particularly the Fed, implemented quantitative easing (QE) policies via purchasing long-term government bonds from markets. This led to a shortage of long-term government bonds in advanced economies. In addition, the extremely low levels of bond rates in advanced economies coupled with the abundance of global liquidity have stimulated international investors' interest in local currency bonds in emerging economies (Charts 1 and 2). Foreign investors' demand for domestic debt issued in local currency expanded the investor base, extended the maturity of borrowing, reduced the share of domestic FX-denominated debt instruments and increased the share of fixed-rate long-term debt instruments (Arslanalp and Tsuda, 2014; Yılmaz, 2016). This resulted in significant changes in both the supply and demand side of the domestic debt stock of emerging economies.

Chart 1: Value of Central Government Local Currency Bonds Held by Foreign Investors (Billion USD)



Source: Arslanalp and Tsuda (2014), authors' calculations.

Chart 2: Foreign Investors' Share in Central Government Local Currency Bonds (%)



Source: Arslanalp and Tsuda (2014), authors' calculations.

There is an extensive literature[1] on the determinants of foreign investors' interest in bonds of emerging economies denominated in local currencies. This literature summarizes how global factors affect the demand of foreign investors towards emerging economies over time, and how the relative demand of foreign investors towards individual countries is determined by country-specific factors. On the one hand, Cerutti et al. (2015)[2] stated that capital movements towards emerging economies, especially the bond and stock markets, act together and that the dynamics of this joint movement are explained by the push factors in advanced economies, but their relative importance varies according to the type of capital movement.

[1] Country-specific conditions and institutions are among pull factors for international capital flows. In this context, such policies as inflation targeting, flexible exchange rate regime, sustainable fiscal policy and macro prudential measures come into prominence. On the other hand, global risk appetite, global financial conditions and especially US monetary policy are considered as push factors for international capital flows (Koepke, 2019; Forbes and Warnock, 2012; Fratzscher, 2012).

[2] Amstad et al. (2017).

They showed that sensitivity to common dynamics varies among countries and this difference is more influenced by the characteristics of the market structure (foreign investor base, market liquidity level, etc.) rather than the institutional basis of the respective country.

On the other hand, there is limited research in the literature measuring the relative position of foreign investors in emerging economies. In this box, the relative position of the country among emerging economies is determined by examining the position of foreign investors in the bond market and evaluations are made as to whether there is room for improvement in the relative foreign investor position. In addition, the determination of the relative foreign investor position is also important in guiding the policy-making process. Arslanalp and Tsuda (2014) built a foreign investor position index to measure the foreign investors' position, taking into account the relative demand of foreign investors and the relative portfolio weight of that country's bond market. When interpreting the index, the relative foreign investor position of the countries in the index is evaluated with respect to each other. While Arslanalp and Tsuda index take the relative demand into account, it does not consider the relative domestic debt stock of the respective country. In this box, a similar index is derived in consideration of the relative supply as well as the relative demand in determining the foreign position of countries.[3]

Foreign Investor Position Indices

Arslanalp and Tsuda (2014) constructed a foreign investor position index ($FIPI.B_i$) using their compiled database to track the global demand for government bonds in emerging economies. To calculate the share of the portfolio of foreign investors in a country the local currency bonds owned by foreign investors in that country (F_i) is divided by the total amount of bonds owned by foreign investors in the countries covered ($\sum_{i=1}^{n} F_i$).

The index is calculated by subtracting the weight of the relevant country in the benchmark index (JPM_i)[4] of that country from its share in the portfolio of foreign investors, which can also be considered as relative demand:

$$FIPI.B_i = \frac{F_i}{\sum_{i=1}^{n} F_i} - JPM_i.$$

If this index is positive for a country within a selected group of countries, it means that the country in question attracts higher demand than other countries in the group as implied by the benchmark index and that the investor position for that country is overweight. The fact that a country has an overweight indicator investment position in this country group requires at least another country to have an underweight position due to the calculation method of the index.

The foreign investor position index ($FIPI.B_i$), which takes the benchmark index weights into account, considers only the demand side of the bonds market, but not the supply side (domestic debt stock) of the bonds market. Meanwhile, it is to be noted that, foreign investors mainly invest in fixed-rate bonds, yet they also show interest in other types of bonds (Özyer, Tırpan and Yılmaz, 2018). Therefore, the $FIPI.B_i$ index may be insufficient to measure the relative demand of international investors to the bonds of developing countries, where investments in instruments other than fixed-rate securities also have a substantial share.

[3] Tiryaki and Yılmaz (2019) used the database compiled in Arslanalp and Tsuda (2014) for their index, which has been updated regularly afterwards. The database covers a large part of the public debt that can be invested in 24 emerging market economies, and allows the investor demand for public debt to be monitored comparably and consistently at a quarterly frequency since 2004.

[4] The Government Bond Index for Emerging Markets (GBI-EM), created by the investment bank JP Morgan, includes only fixed-rate government debt securities in local currency in selected developing countries. In this box, GBI-EM Global country weights (JPM_i) are re-weighted according to the 12 countries considered and used as benchmarks.

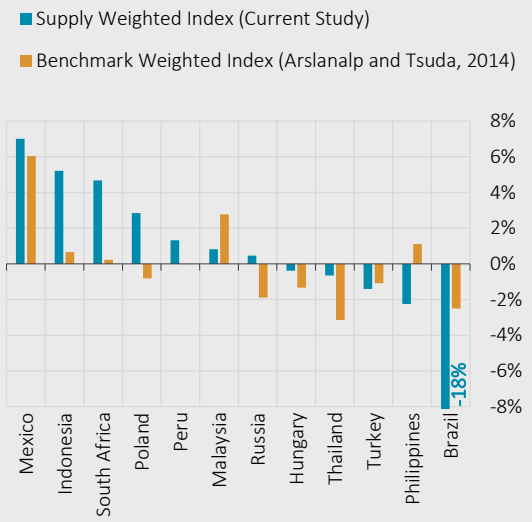
In order to compensate for the insufficiency of the foreign investor position index with benchmark index weights, an adjustment of the index is proposed (Tiryaki and Yılmaz, 2019). Considering also the supply effects, the foreign investor position index ($FIPI.S_i$) includes all the bonds issued by countries in local currency and calculates the relative bond supply among countries ($D_i/\sum_{i=1}^{n} D_i$) using:

$$FIPI.S_i = \frac{F_i}{\sum_{i=1}^{n} F_i} - \frac{D_i}{\sum_{i=1}^{n} D_i}.$$

This enables the comparison between the supply provided by a country of all borrowing instruments in which foreign investors can invest in local currency and how much foreign investment can be attracted in return.[5]

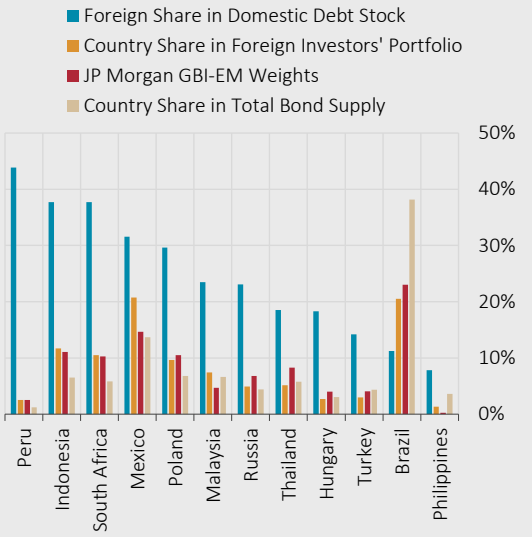
The striking finding in Chart 3 is that there is a difference between the investment position with supply effects and the investment position with benchmark weights in some countries. In addition to the fixed-rate bonds included in the index, the existence of floating-rate or inflation-indexed bonds in these countries explains the difference.

Chart 3: Foreign Investor Position Indices as of End-2018 (%)



Source: Arslanalp and Tsuda (2014), Bloomberg, authors' calculations.

Chart 4: Indicators for Local Currency Bonds Held by Foreign Investors as of End-2018 (%)



Source: Arslanalp and Tsuda (2014), Bloomberg, authors' calculations.

It is clear in Chart 4 that "the foreign share in the domestic debt stock", which is frequently used in many analyses, can cause misleading inferences especially in cross-country comparisons. For example, Peru, which has the highest foreign share in domestic debt stock, 44%, in the selected countries, has only a 1% share in the total bond supply of these 12 countries. The share of Peru in foreign investments in local currency bonds of the 12 selected countries is 3%. Peru's share in the GBI-EM index is also at this level. Another example on the other end of the continuum is Brazil, which accounts for 38% of the total bond supply of selected countries. In spite of this large share in the bond stock, 20% of the investor demand and benchmark index, Brazil's share of foreign investors is low compared to other countries.

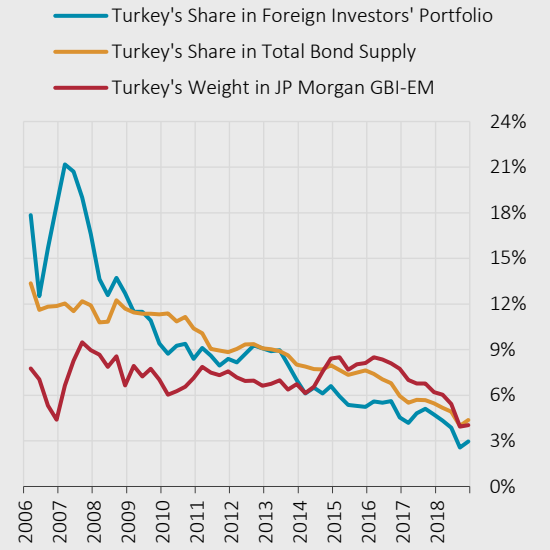
[5] A similar approach was proposed by Ahmed, Curcuru, Warnock and Zlate (2016) for the breakdown of international portfolio flows into components, and by Burger, Warnock and Warnock (2017) for the analysis of US investors' overseas investment portfolios. In this second study, relative portfolio weights were created by taking into account the relative size of the portfolio investments (demand) made by the US investors to the relevant country as well as the market size of the relevant market of the country where portfolio investments were made.

Position of Foreign Investors on Turkish Lira Bonds

Although the share of foreign investors in TL-denominated bonds increased significantly, the relative demand of foreign investors to TL bonds between 2009 and 2013 posted an overall decline compared to selected countries, and the share of foreign investors in TL bonds decreased from 13% to 9% (Chart 5). The share of Turkey in the benchmark index remained largely flat over the same period.

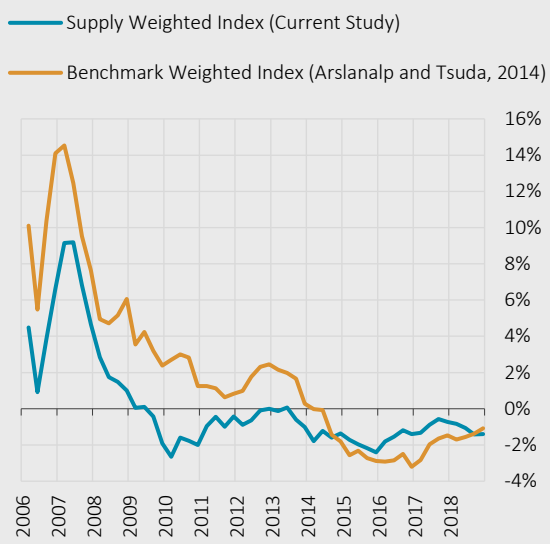
In line with these developments, the foreign investment position on TL-denominated bonds, which had the highest values in 2007, declined until 2013, mainly due to the fall in relative demand (Chart 6). Following the Fed's signal that it would begin to unwind its balance sheet expansion policies in May 2013, the foreign investor position declined further during the tightening of global liquidity conditions.

Chart 5: Turkey's Relative Demand and Relative Supply Position in Central Government Local Currency Bonds in Comparison with Selected Countries (%)



Source: Arslanalp and Tsuda (2014), Bloomberg, authors' calculations.

Chart 6: Foreign Investor Positions in Turkish Lira Bonds (%)



Source: Arslanalp and Tsuda (2014), Bloomberg, authors' calculations.

The foreign investor position index proposed by Arslanalp and Tsuda (2014), which takes the benchmark weights into account, and the index that takes into account the supply effects proposed in this box, at times diverge from each other due to the differences in the relative bond supply of countries. In the case of Turkey, a notable divergence was experienced in the period from the global crisis up to 2015. This was led by Turkey's domestic debt stock (the supply of bonds denominated in local currency) remaining steadily low compared to other countries in the sample between 2010 and 2015. In this respect, taking account of the supply side, as also shown by Turkey's case, contributes to the analysis of the relative position of foreign investors. The foreign investor position in Turkey has been underweight in both indices since 2015, which implies a potential for foreign investors' demand for bonds denominated in local currency.

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