

## 2. International Economic Developments

The slowdown in global economic activity that started in the second quarter of 2018, continued in the second quarter of 2019 with a stronger pace, and the manufacturing industry witnessed a considerable loss of momentum. In the first half of the year, the easing cycle in monetary policies of many advanced and emerging economies grew clearer, which had a positive effect on financial markets. Meanwhile, re-mounting trade tensions between the US and China and mutually-raised tariffs distorted the confidence in global markets considerably, rendered uncertainty about global economic policies more pronounced and had a negative impact on business confidence and investment decisions. Uncertainties regarding global economic policies, geopolitical risks and vulnerabilities specific to emerging economies are envisaged to remain as downside risk factors to global growth in the upcoming period. Accordingly, growth prospects both for advanced and emerging economies have got weaker since the previous reporting period.

Headline inflation rates declined across advanced and emerging economies in the third quarter of 2019. In this period, global economic activity weakened further and caused demand-side factors to limit the upward movement of crude oil prices. The weak outlook and high uncertainty in global economic activity restrained commodity markets on the one hand, and restricted the pass-through of tightening in the labor market to wage increases on the other. In fact, in an environment of low unemployment, the pass-through of wage increases to core inflation is assessed to remain limited due to profit margin adjustments of firms. Accordingly, due to the moderate course of global growth and commodity prices as well the courses of wages, global inflation rates are projected to follow a flat course in 2019.

In the third quarter of the year, protectionist trade measures, compounding uncertainties stemming from Brexit and geopolitical developments led global financial markets to fluctuate due to the positive and negative developments emanating from these channels. The easing cycle in global monetary policies grew stronger compared to the previous reporting period, rate cuts spread across the whole, and the monetary stance eased considerably in emerging economies in particular. As both inflation and expectations for inflation were contained, the easing trend in monetary policies was supported. Thus, global financial conditions proved more favorable, while long-term bond rates declined especially in the US. Meanwhile, central banks emphasized high uncertainty for the upcoming period and refrained from giving a clear signal for the future rate cuts. In sum, the course of global uncertainty will remain critical to global financial conditions in the upcoming period.

With downside risks to global trade and growth prospects and the mild outlook for the course of inflation, the relative easing in monetary policies of advanced economies is likely to grow more evident in the period to come. Meanwhile, the course of portfolio flows will be shaped by pulling factors specific to emerging economies rather than other push factors.<sup>1</sup> Accordingly, EMEs having healthier financial conditions and more eligible business environment for international investors may not only avail themselves of improved global financial conditions, but also may stay relatively more flexible and resilient against negative shocks.

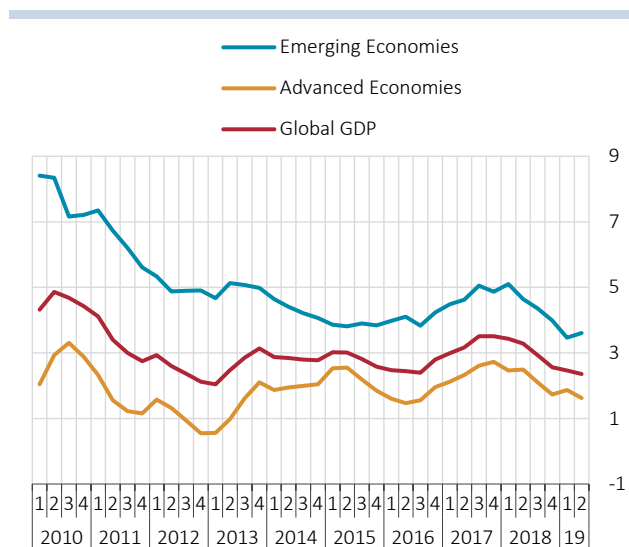
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<sup>1</sup> The index derived in consideration of the relative supply as well as the relative demand in determining the foreign position in debt securities markets of emerging economies is presented in Box 2.1.

## 2.1 Global Growth

The deceleration in global economic activity grew more pronounced in the second half of the year and the growth rate stood below that of the previous quarter (Chart 2.1.1). In this period, the annual growth rate declined in advanced economies, chiefly in the US, the Euro area and Japan compared to the previous quarter. However, EMEs performed better in this period on a quarterly basis due to Latin America and Eastern Europe (Chart 2.1.2). In this period, Brazil, a great contributor to the EME growth, witnessed accelerated economic activity, while Argentina overcame stagnation. Nevertheless, the slowdown in the Chinese economy attenuated the growth performance in Asia.

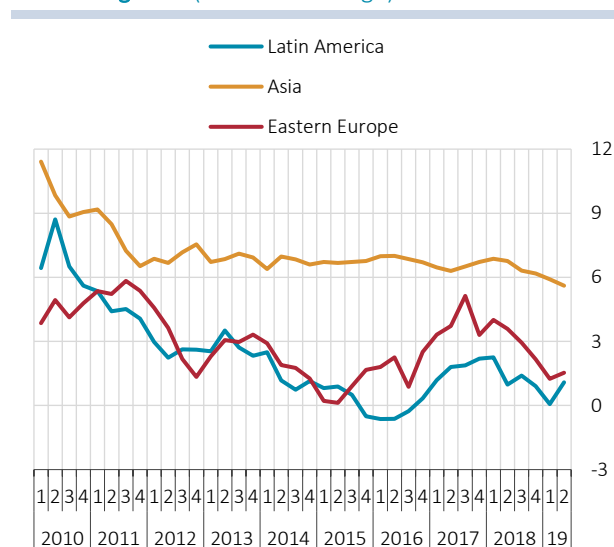
Chart 2.1.1: Global Growth Rates\* (Annual % Change)



Source: Bloomberg, CBRT.

\* Weighted by each country's share in global GDP.

Chart 2.1.2: Growth Rates of Emerging economies Across Regions\* (Annual % Change)



Source: Bloomberg, CBRT.

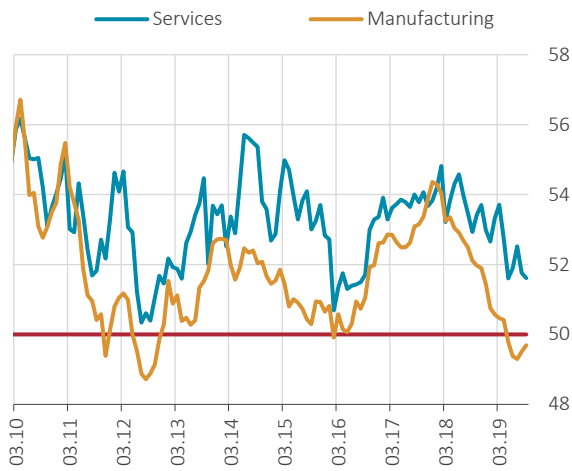
\* Weighted by each country's share in regional GDP.

Global PMI data for the third quarter of 2019 suggest that the slowdown in the global economy continues. In this period, the decline in the global manufacturing PMI indicator proved more noticeable (Chart 2.1.3). This was led by the deterioration in the manufacturing industry PMI indicators of advanced economies, chiefly the Euro area (Chart 2.1.4). Meanwhile, the manufacturing industry PMI data of emerging economies displayed more favorable outlook in this period (Chart 2.1.5). These data show that the industrial sector saw a globally slowing growth, which proved more apparent in advanced economies. In fact, the annual growth rate of industrial production plummeted in the US in July and August; and turned out negative in the Euro area and Japan.

In the third quarter, the services sector PMI data fell in advanced economies, but did not record a notable difference in emerging economies (Chart 2.1.5). Accordingly, the services sector global PMI indicator declined slightly in this period (Chart 2.1.3).

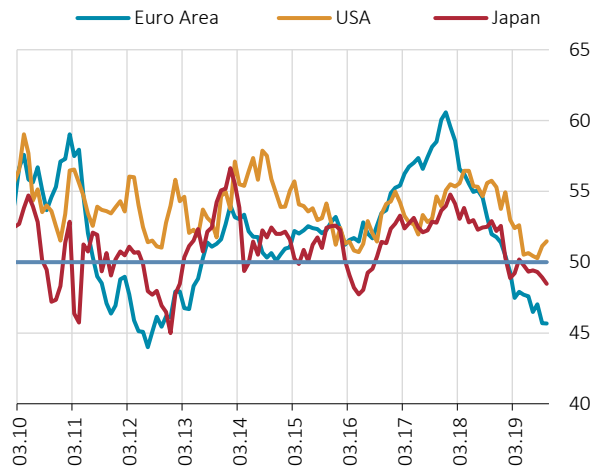
Lingering uncertainties over global trade increased considerably in this period and stood out as the leading factor to affect economic activity negatively. In fact, the World Trade Organization revised global trade volume growth forecasts for 2019 and 2020 considerably downwards in early October. Moreover, the blurred Brexit process emerged as another factor to impact economic growth chiefly in the Euro area and the UK. In the third quarter, despite the easing cycle in monetary policies, slowdown in capital inflows to emerging economies is considered to limit growth in these countries.

Chart 2.1.3: Global PMI



Source: IHS Markit.

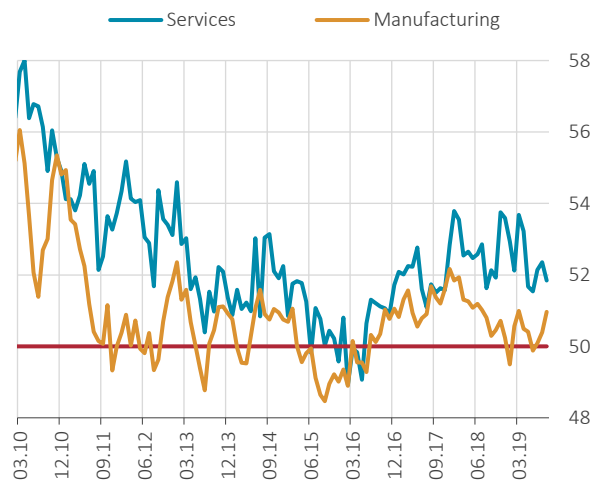
Chart 2.1.4: Advanced Economies Manufacturing Industry PMI



Source: IHS Markit.

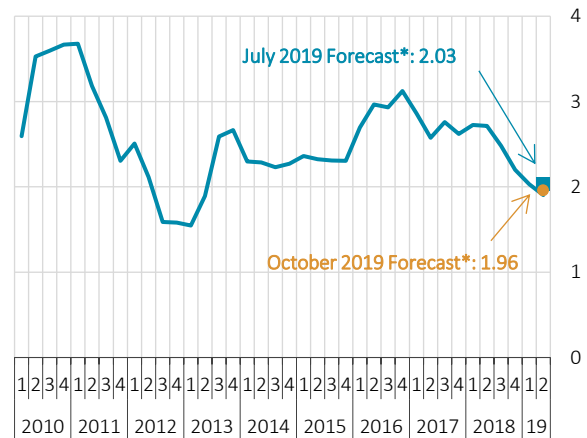
In summary, the slowing trend in global economy continued in the third quarter of 2019, and the global growth rate is expected to stay lower than the previous quarter especially due to EMEs. The growth forecast for 2019 obtained from Consensus Forecasts bulletins has been revised downwards by 0.2 points in October since the previous reporting period, supporting this expectation. The year-end growth forecast was revised downwards in most advanced economies (Table 2.1.1).

Chart 2.1.5: Emerging Economies PMI



Source: IHS Markit.

Chart 2.1.6: Export-Weighted Global Production Index (Average Y-o-Y % Change)



Source: Bloomberg, CBRT.

\* Average growth forecast for 2019.

Uncertainties regarding the global trade as well as Brexit accompanied by geopolitical risks stemming from the Middle East are expected to restrain global economic activity further in the last quarter. These risk factors and EME-specific vulnerabilities are expected to slow down capital inflows to these countries.

Consensus Forecasts for 2019 were subject to a quarter-on-quarter downward revision in October in all advanced economies except Japan, and in Latin America and Asia on the emerging economies front (Table 2.1.1). Growth forecasts for 2019 in the IMF World Economic Outlook Report of October also print a similar downward revision for advanced and emerging economy groups. Accordingly, the export-weighted global production index incorporating October Consensus Forecasts indicates that global growth rate has decreased compared to the July period (Chart 2.1.6). Against this background, growth

prospects for the upcoming period have become weaker for both advanced and emerging economies compared to the July Inflation Report. This implies that Turkey's foreign demand of current markets will get weaker in the period to come.

**Table 2.1.1: Growth Forecasts for 2019 and 2020 (Y-o-Y Average % Change )**

	July		October	
	2019	2020	2019	2020
Global	2.7	2.7	2.5	2.5
<b>Advanced Economies</b>				
USA	2.5	1.9	2.3	1.8
Euro Area	1.1	1.2	1.1	0.9
Germany	0.7	1.4	0.5	0.8
France	1.3	1.3	1.3	1.2
Italy	0.0	0.4	0.1	0.4
Spain	2.3	1.8	2.1	1.7
Japan	0.7	0.3	1.0	0.2
UK	1.3	1.3	1.2	1.0
<b>Emerging Economies</b>				
Asia Pacific	5.4	5.3	5.2	5.1
China	6.2	6.0	6.2	5.9
India	6.9	7.1	6.0	6.8
Latin America	0.9	2.2	0.5	1.6
Brazil	0.9	2.2	0.9	1.9
Eastern Europe	1.9	2.6	2.0	2.6
Russia	1.1	1.9	1.0	1.8

Source: Consensus Forecasts.

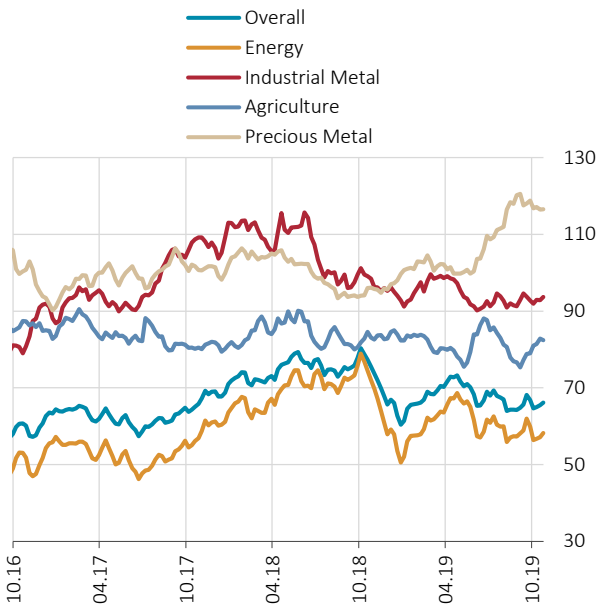
## 2.2 Commodity Prices and Global Inflation

Despite the rise in precious metal prices due to the high uncertainty in global economy as well as the easing cycle in monetary policies, the downward course in other commodity prices pulled commodity prices down by 5.1% on average on a quarterly basis. In this period, precious metal prices displayed a quarterly increase by 13.2% on average, whereas energy, industrial metal and agricultural prices declined by 7.2%, 1.5% and 1.4% on average (Chart 2.2.1).

As trade disputes escalated between the US and China, global trade policies grew more blurred and the global growth outlook turned less favorable compared to the previous reporting period, which emerged as major factors to depress industrial metal prices in the third quarter. These factors are believed to sustain downside risks to industrial metal prices in the upcoming period as well. Meanwhile, geopolitical risks, blurred global economic policies and monetary policy easing pushed precious metal prices considerably upwards in this period, and this is likely to continue in the period ahead, which will cause precious metal prices to increase further.

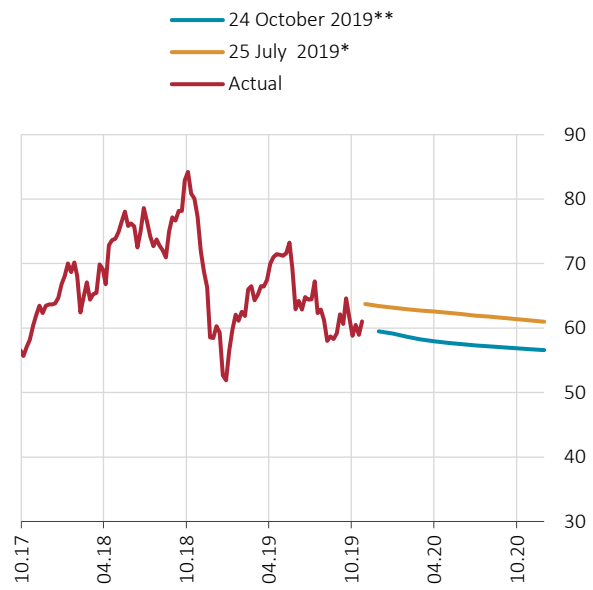
However, agricultural prices posted a decrease in the third quarter as the rise in meat prices stemming from infectious diseases in some countries lagged behind the fall in other food prices. Nevertheless, extraordinary weather conditions accompanied by possible rise in China-driven demand remain as upside risk factors to agricultural prices.

Chart 2.2.1: S&P Goldman Sachs Commodity Price Indices (January 2014=100)



Source: Bloomberg.

Chart 2.2.2: Crude Oil (Brent) Prices (USD /bbl)



Source: Bloomberg.

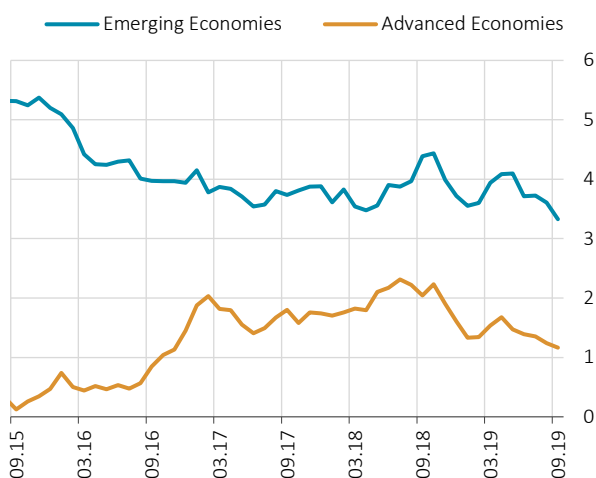
\* 14-day average of prices on futures contracts up to 25 July 2019.

\*\* 14-day average of prices on futures contracts up to 24 October 2019.

In the third quarter of 2019, crude oil prices fluctuated around USD 60-65 despite the high geopolitical uncertainty. Supply cuts in crude oil production due to geopolitical problems such as the attacks to oil production facilities in Saudi Arabia in September and the extension of the OPEC's decision to limit production until the end of the 2020Q1 had a temporary upside effect on prices. In fact, strong expectations for demand to lose more momentum due to further deterioration in prospects for global economic activity limited the upward movement of prices.

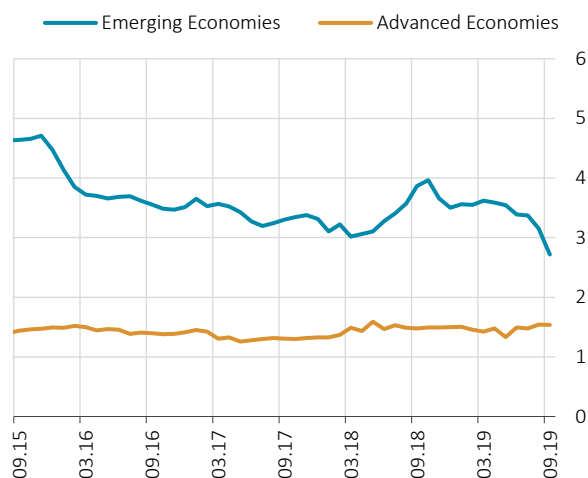
In the upcoming period, sustained geopolitical risks at a global scale emerge as upside risks to crude oil prices through their negative impacts on the oil supply and transport costs. However, high uncertainty in global trade and the unfavorable outlook for global economic activity are likely to continue, which bring the downside risks to crude oil prices to the fore. Accordingly, Brent crude oil futures contracts imply that crude oil prices in 2019 will hover around USD 63 on average and materialize at about USD 58 in 2020 on average (Chart 2.2.2).

Chart 2.2.3: Advanced and Emerging Economies Consumer Inflation (Annual, %)



Source: Bloomberg, CBRT.

Chart 2.2.4: Advanced and Emerging Economies Core Consumer Inflation (Annual, %)



Source: Bloomberg, CBRT, Datastream.

Owing to the poor global growth outlook coupled with the fall in commodity prices, considered as input for production, headline inflation rates declined in advanced and emerging economies in the third quarter of 2019 (Chart 2.2.3). Core inflation rates increased in advanced economies, but decreased in emerging economies (Chart 2.2.4). Inflation expectations for 2019 posted a quarter-on-quarter decline for many advanced economies (Table 2.2.1).

Table 2.2.1: Inflation Forecasts for 2019 and 2020 (Y-o-Y Average % Change)

	July		October	
	2019	2020	2019	2020
<b>Advanced Economies</b>				
USA	1.9	2.1	1.8	2.1
Euro Area	1.3	1.4	1.2	1.2
Germany	1.5	1.6	1.4	1.5
France	1.2	1.4	1.2	1.3
Italy	0.9	1.2	0.7	1.0
Spain	1.0	1.3	0.8	1.1
Greece*	0.8	1.1	0.6	0.9
UK	1.9	2.0	1.9	2.1
Japan	0.6	0.8	0.6	0.7
<b>Emerging Economies</b>				
Asia Pacific	2.3	2.4	2.3	2.5
China	2.3	2.3	2.5	2.5
India**	3.8	4.3	3.5	4.0
Latin America (excl. Venezuela)	8.3	6.7	9.9	8.2
Brazil*	3.9	4.0	3.4	3.7
Eastern Europe	6.4	5.6	5.9	5.1
Russia*	4.4	4.0	3.9	3.9

Source: Consensus Forecasts.

\* Annual percentage change.

\*\* Based on fiscal year.

In the US, wages went up as unemployment rates hovered at historic-low levels, yet with the support also from the falling crude oil prices in the third quarter, headline consumer inflation registered a quarter-on-quarter decline. In the Euro area, despite the ongoing increase in wages in tandem with the tight labor market, headline inflation is expected to stay below 2% in the medium term. In Japan, although headline

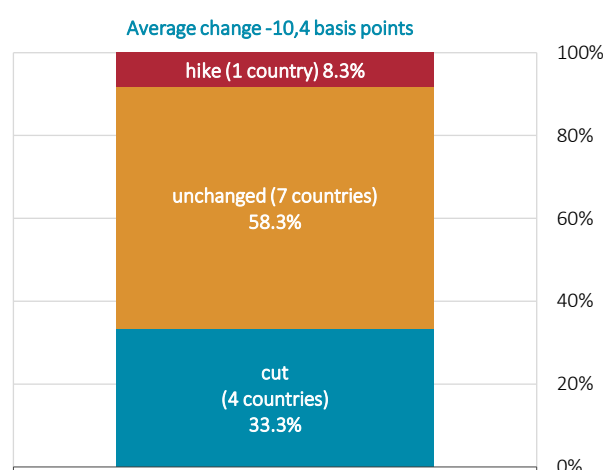
inflation hovered below 1%, increased medium and long-term inflation expectations along with the lingering positive output gap are projected to push headline inflation to 2% at a moderate pace. Meanwhile, in the UK, the tight labor market and the persistently increasing unit wage costs notwithstanding, headline inflation declined modestly on a quarterly basis and remained slightly below 2%.

In the upcoming period, the above-mentioned risks to crude oil prices constitute risks also to global headline inflation in the same direction. In advanced economies, tight labor markets and high wage increases stand out as upside risk factors to core inflation. However, the recent slowdown in employment growth rates in some advanced economies is regarded as a factor to lower the tightness in the labor market in the periods to come. Overall, possible negative effects of global economic policy uncertainties on growth prospects remain as a downside risk to core inflation.

## 2.3 Global Monetary Policy

Negative developments in global trade lead the global growth outlook to get weaker, while the easing trend in the monetary policy grew stronger compared to the previous reporting period. Policy rate cuts continue at a global scale, while the monetary stance particularly in emerging economies eased to a considerable extent (Charts 2.3.1 and 2.3.2). Expectations of policy rates were revised downwards and the global policy rate path shifted down in both advanced and emerging economies in the inter-reporting period (Chart 2.3.3).

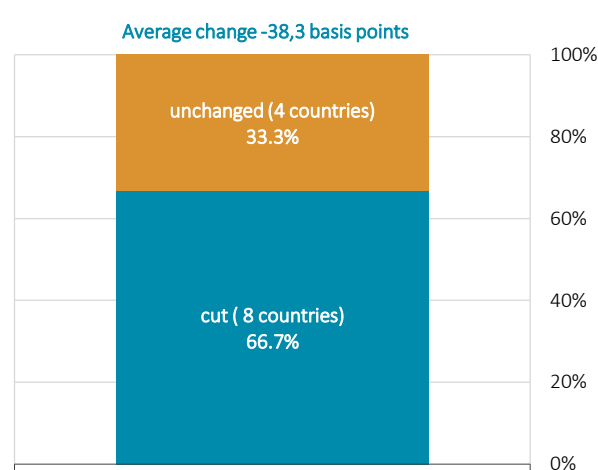
**Chart 2.3.1: Policy Rate Decisions of Advanced Economies\* from July to October**



Source: Bloomberg.

\* Advanced Economies: Australia, Canada, Czechia, Euro area, Israel, Japan, New Zealand, Norway, S. Korea, Sweden, UK, USA.

**Chart 2.3.2: Policy Rate Decisions of Emerging Economies\* from July to October**



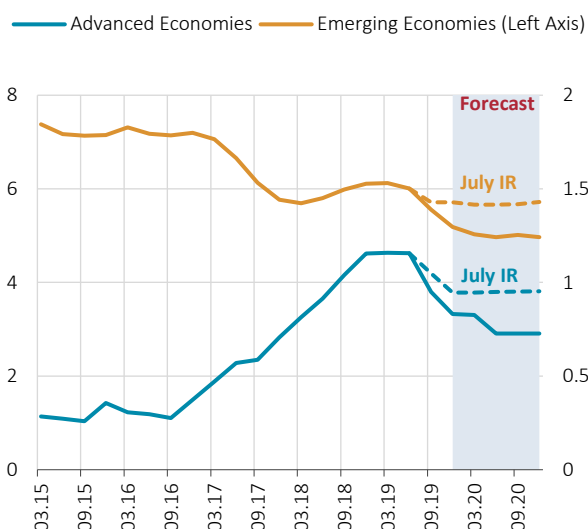
Source: Bloomberg.

\* Emerging Economies: Brazil, Colombia, Hungary, India, Indonesia, Mexico, Philippines, Poland, Romania, Russia, S. Africa, Thailand.

The Fed cut policy rates in July and September meetings, pointing out the trade tensions and global uncertainties as the underlying reasons for these decisions. Inflation that remained below the target and the tightened labor market and wage increases that did not spill over into inflation proved to be other developments that influenced the Fed's decisions. Despite the easing in policy stance, minutes of the meeting point out that the Fed members have different views on policy rate cuts. Accordingly, the Fed refrained from giving clear signals about future rate cuts and emphasized the high uncertainty. The rate priced in the market has also decreased compared to the previous reporting period. In early September, market pricing hit the bottom, while four additional rate cuts were priced based on the current value until the end of 2020. Then, the interest rate implied by options followed a fluctuating course due to developments and statements. By 14 October, the market had priced two to three rate cuts for the end of 2020 (Chart 2.3.4).

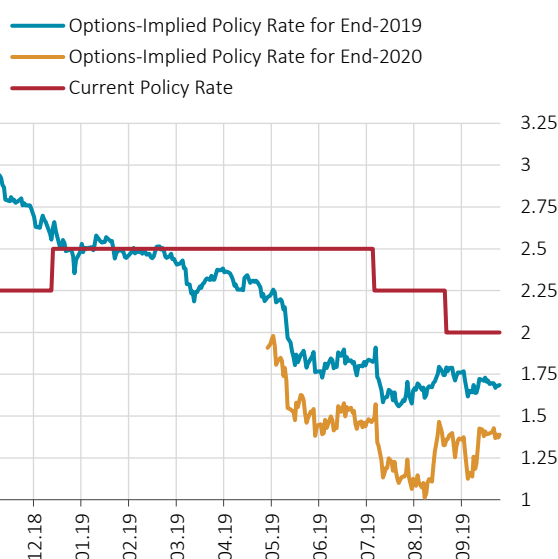
At the September meeting, the ECB lowered the interest rate for deposits, which has already been negative, by 10 basis points and announced that bond purchases would be resumed as 20 billion euro per month as of November. The amount of monthly purchases was kept low compared to the previous schemes, while the scheme was defined as open-ended and the expiry was conditioned to inflation, which were considered to be relatively "dovish". Meanwhile, at the press meeting, it was emphasized that the ECB took these steps for price stability purposes, yet the side effects of expansionary policies on financial stability were also monitored. At the October meeting, the ECB kept the policy set intact. Both the emphasis on financial stability and the decision taken in October indicate that the ECB may adopt a cautious stance in policy easing in the future.

**Chart 2.3.3: Average Policy Rate and Expectations (GDP-Weighted, %)**



Source: Bloomberg, CBRT estimates.

**Chart 2.3.4: Fed Policy Rate Implied by Options for end-2019 (% Upper Band)**



Source: Bloomberg.

## 2.4 Global Risk Indicators and Portfolio Flows

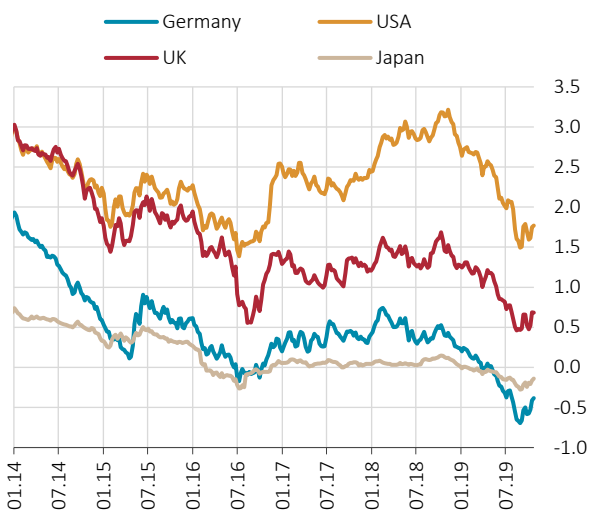
In addition to the more apparent expectations for a slowdown in global growth in the third quarter of 2019, the mild inflation outlook caused advanced economies to maintain rate cuts in monetary policies, and stimulated a re-increase in asset purchases by the Fed and the ECB. This strengthened the expectations that monetary easing will continue, while 10-year bond returns declined in the US, and remained flat in other countries (Chart 2.4.1).

In this period, protectionist measures in trade, uncertainties stemming from Brexit and geopolitical developments gained momentum, while stock markets followed a fluctuating course in advanced and emerging economies due to positive and negative developments from these channels (Chart 2.4.2). Similarly, varying risk sentiment caused fluctuations in exchange rate volatilities both in advanced and emerging economies (Chart 2.4.3).

Despite more pronounced easing in monetary policies of central banks of advanced economies, the re-escalating international trade tension and the worse prospects for global growth caused bond markets of EMEs to remain quite limited in the third quarter of 2019, and equity markets recorded sizeable outflows (Chart 2.4.4).

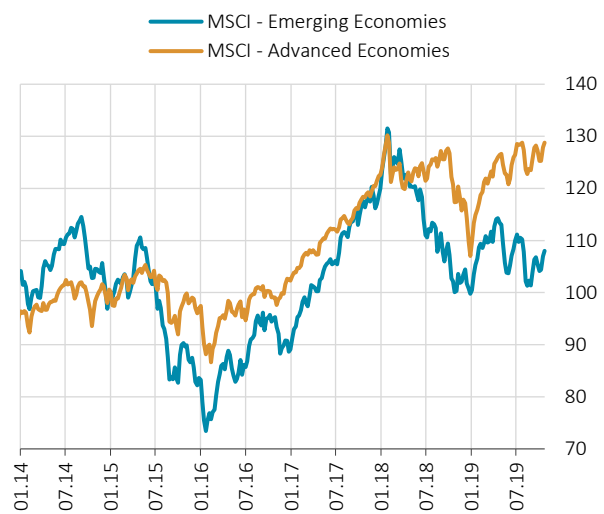


Chart 2.4.1: 10-Year Bond Returns (%)



Source: Bloomberg.

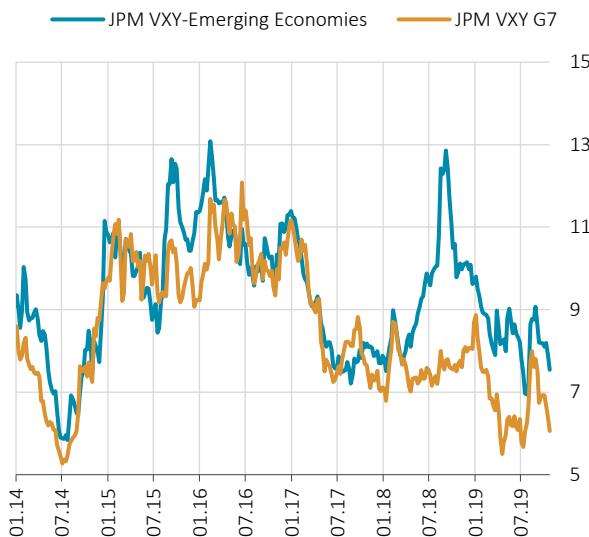
Chart 2.4.2: MSCI Indices (January 2015=100)



Source: Bloomberg.

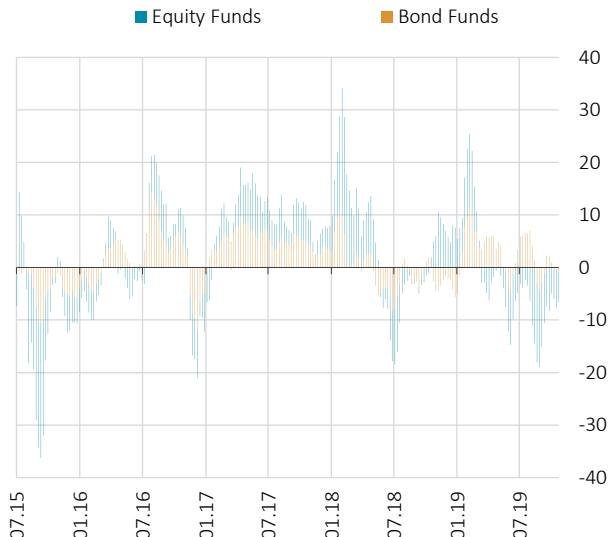
In the third quarter, inflows to bond markets continued in all regions, albeit at a slower pace. Although the global risk appetite has not recovered enough, easing cycles of central banks of advanced economies proved more evident, which directed international investors to EME bonds with higher risks. Outflows from stock markets also continued in all regions in this period. Outflows from stock markets of the Asian region accelerated due mainly to the re-escalating trade tension as China retaliated for the raised customs tariffs by the US in August (Table 2.4.1).

Chart 2.4.3: JP Morgan Exchange Rate Volatility Indices (Weekly)



Source: Bloomberg.

Chart 2.4.4: Weekly Fund Flows to Emerging Economies (Billion USD, 4-Week Cumulative)



Source: EPFR.

Monetary easing implemented by central banks of advanced economies, which has grown more pronounced, is considered to be an important factor that may increase portfolio flows to EMEs. However, high global uncertainty, ongoing geopolitical turmoil, re-mounting protectionism and country-specific fragilities in EMEs stand out as factors to decelerate portfolio inflows to these countries. Accordingly, portfolio inflows towards EMEs are likely to fluctuate further in the upcoming period.

Table 2.4.1: Composition of Fund Flows to Emerging Economies (Quarterly, Billion USD)

		Total	Portfolio Composition		Regional Composition			
			Bond Funds	Equity Funds	Asia	Europe	Latin America	Middle East and Africa
<b>2015</b>	Q1	-8.6	1.9	-10.5	-8.1	2.2	-2.4	-0.2
	Q2	-8.0	1.4	-9.4	-6.9	0.4	-2.0	0.4
	Q3	-45.3	-16.5	-28.8	-23.8	-6.5	-10.8	-4.1
	Q4	-22.3	-12.7	-9.6	-11.1	-3.0	-6.4	-1.9
<b>2016</b>	Q1	-4.5	-1.2	-1.6	-2.5	-1.4	-0.3	-0.3
	Q2	-1.4	7.3	-8.7	-4.5	0.7	1.9	0.6
	Q3	42.4	26.1	16.3	17.9	7.5	12.4	4.7
	Q4	-17.4	-9.3	-8.1	-12.6	-0.8	-2.7	-1.3
<b>2017</b>	Q1	32.7	19.9	12.8	8.2	7.7	12.4	4.3
	Q2	52.6	24.4	28.2	25.2	7.6	14.5	5.4
	Q3	37.1	17.3	19.8	19.4	4.9	9.2	3.5
	Q4	29.5	11.8	17.6	14.8	3.7	8.3	2.7
<b>2018</b>	Q1	57.9	12.0	46.0	34.1	6.5	12.0	5.3
	Q2	-10.4	-10.4	0.0	-0.7	-4.3	-3.3	-2.1
	Q3	-9.9	-3.6	-6.3	-4.6	-1.4	-3.2	-0.7
	Q4	4.5	-14.0	18.5	14.1	-4.5	-3.1	-2.0
<b>2019</b>	Q1	29.8	20.2	9.6	9.7	4.2	10.3	5.5
	Q2	-6.7	7.9	-14.6	-8.1	-1.2	-0.9	3.5
	Q3	-19.4	9.2	-28.6	-19.2	-0.7	0.8	-0.2

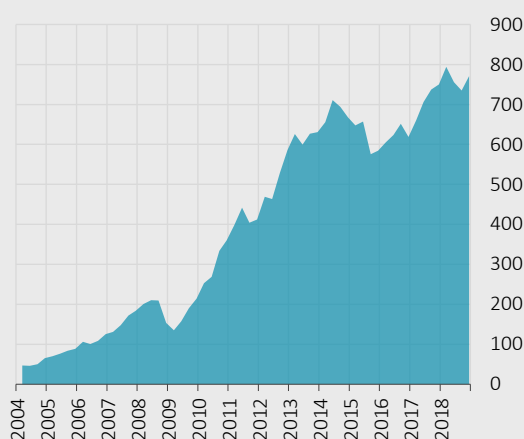
Source: EPFR.

## Box 2.1

### Foreign Investor Position Index for Bond Markets in Emerging Economies

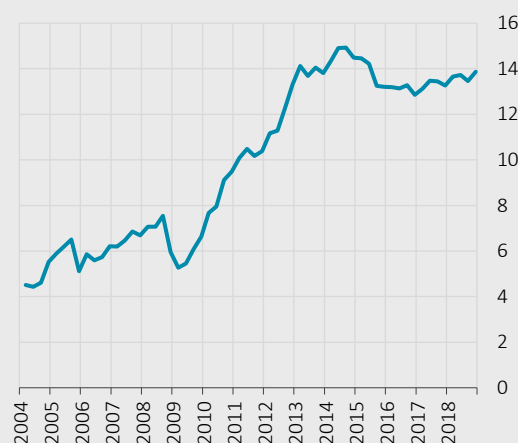
After the 2008 global financial crisis, central banks of advanced economies, particularly the Fed, implemented quantitative easing (QE) policies via purchasing long-term government bonds from markets. This led to a shortage of long-term government bonds in advanced economies. In addition, the extremely 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; Yilmaz, 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<sup>1</sup> 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)<sup>2</sup> 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.

<sup>1</sup> 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).

<sup>2</sup> 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.<sup>3</sup>

### Foreign Investor Position Indices

Arslanalp and Tsuda (2014) constructed a foreign investor position index (*FIPI. B<sub>i</sub>*) 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<sub>i</sub>*) 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<sub>i</sub>*)<sup>4</sup> 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<sub>i</sub>*), 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<sub>i</sub>* 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.

<sup>3</sup> 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.

<sup>4</sup> 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<sub>i</sub>*) are re-weighted according to the 12 countries considered and used as benchmarks.

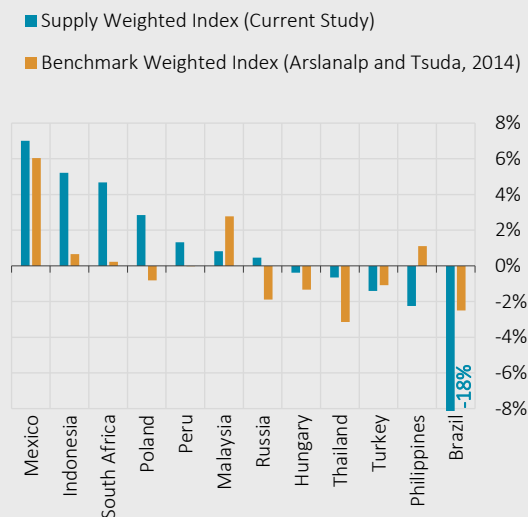
In order to compensate for the insufficiency of the foreign investor position index with benchmark index weights, an adjustment of the index is proposed (Tiryaki and Yılmaz, 2019). Considering also the supply effects, the foreign investor position index ( $FIPI.S_i$ ) includes all the bonds issued by 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.<sup>5</sup>

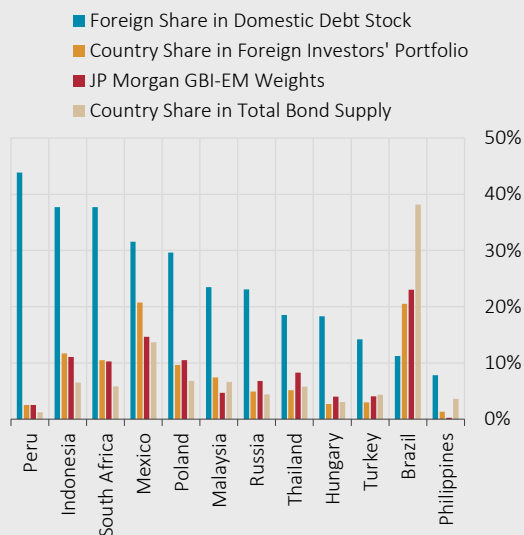
The striking finding in Chart 3 is that there is a difference between the investment position with supply effects and the investment position with benchmark weights in some countries. In addition to the fixed-rate bonds included in the index, the existence of floating-rate or inflation-indexed bonds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

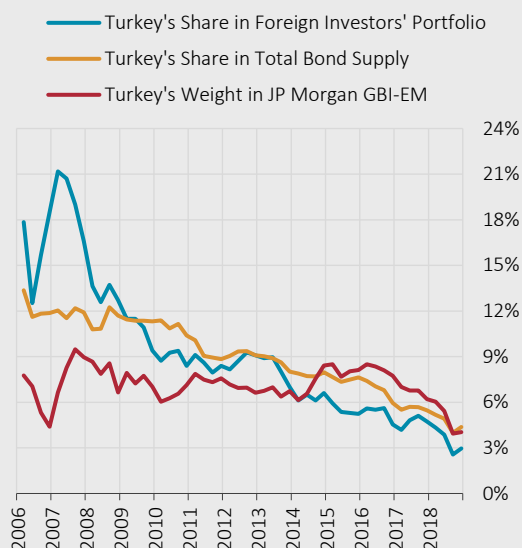
<sup>5</sup> A similar approach was proposed by Ahmed, Curcuru, Warnock and Zlate (2016) for the breakdown of international portfolio flows into components, and by Burger, Warnock and Warnock (2017) for the analysis of US investors' overseas investment portfolios. In this second study, relative portfolio 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.

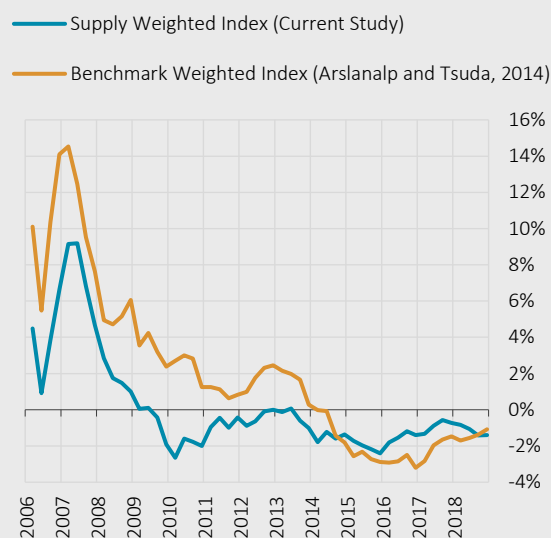
In line with these developments, the foreign investment position on TL-denominated bonds, which had the highest values in 2007, declined until 2013, mainly due to the fall in relative demand (Chart 6). Following the Fed’s signal that it would begin to unwind its balance sheet expansion policies in May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