I. Macroeconomic Outlook

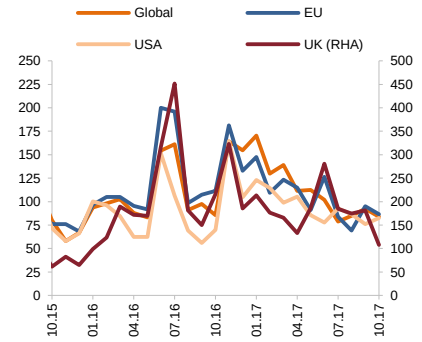
Portfolio inflows to emerging economies continue thanks to the global risk appetite that has been increasing since the beginning of 2017 and the search for high yield. Along with the increase in risk appetite and the partial decline in economic policy uncertainty in advanced economies, stock market indices have performed notably well in emerging economies and the United States since the previous Report period. The decline in economic policy uncertainty was mainly driven by the fact that the elections in several EU countries as well as the United Kingdom are over and the monetary policy normalization of the Fed has become slightly clearer in terms of balance sheet downsizing. The recovery in global economic activity is not widespread, but it continues with support from emerging economies. In the first quarter of 2017, growth rates in emerging economies, except China and India, surpassed those of advanced economies for the first time since the second quarter of 2014.

During the first half of 2017, domestic economic activity rallied through private consumption expenditures and strong exports of goods and services supported by measures and incentives. In this period, the central government budget deficit slightly increased. However, it is predicted that the current level of budget deficit will be temporary and will be close to the long-term average in the medium term. In this period, the positive contribution of foreign trade to the current account balance has continued with the strong movement in exports of goods and the recovery in tourism. The CBRT reserves have increased since the last Report period. Moreover, consumer inflation, which declined in the second quarter, rose in the third quarter. The cautious monetary policy stance continued in the third quarter.

I.1 International Developments

Economic policy uncertainty has decreased since the beginning of 2017.

Chart I.1.1
Economic Policy Uncertainty Indices
(Index, 2012=100)



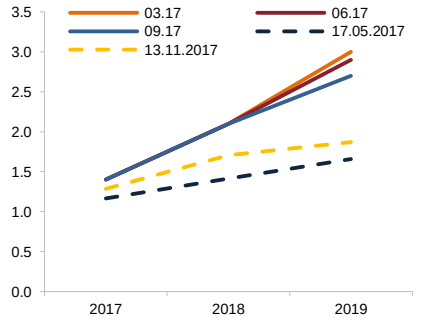
Note: Indices are not comparable among themselves in terms of level.
Source: Bloomberg (Latest Data: 10.17)

The downtrend in economic policy uncertainty in global financial markets that had been observed since the beginning of the year continued in the last report period (Chart I.1.1). This decline was mainly driven by policy normalization of the Fed becoming slightly clearer in terms of balance sheet downsizing and the finalization of the election process in some EU countries and the United Kingdom. Meanwhile, the uncertainty following the elections in Germany persists.

The downward deviation of the inflation in the US from the 2-percent target of the Fed has brought about the convergence of the Federal Open Market Committee (FOMC) members' policy rate forecasts to the expectations of market participants during the normalization process in monetary policy (Chart 1.1.2). The level of unemployment rate that dropped to the lowest level since the crisis, and the recovery in leading indicators for economic activity have augmented the Fed's likelihood of raising rates in the rest of the year. In addition, the course of the inflation level and the appointment process of some Fed members are among the factors that may affect the roadmap of the increase in Fed rates.

Market participants foresee a softer path in the Fed's policy rate.

Chart I.1.2
FOMC Members' Median Policy Rate Forecasts (Straight Lines) and Market Expectations (Intermittent Lines)

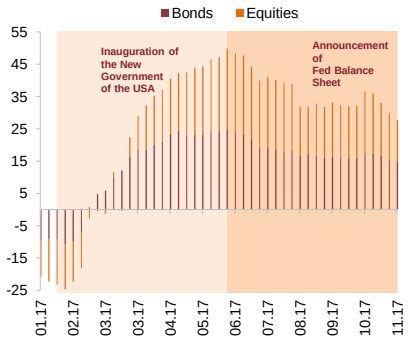


Note: Intermittent lines indicate 30 day Fed fund futures rates.
Source: Bloomberg

With respect to the monetary policies of advanced economies, at its meeting in June 2017 the Fed announced the technical details about downsizing its balance sheet and declared that it will be **gradual and foreseeable until reaching a level that does not prevent** the effective conduct of the monetary policy. Meanwhile, in the European Union, where low profitability of banks and the issue of non-performing loans linger, the European Central Bank is expected to maintain the expansionary monetary policy while decreasing the monthly amount of asset purchasing from early 2018 onwards. In Japan, where the inflation rate is expected to undershoot the target in the medium term, monetary policy maintains its expansionary outlook.

Portfolio flows towards emerging economies have continued since the beginning of 2017.

Chart I.1.3
Weekly Capital Flows to Emerging Economies
(Billion US Dollar, 13 Week Cumulative)



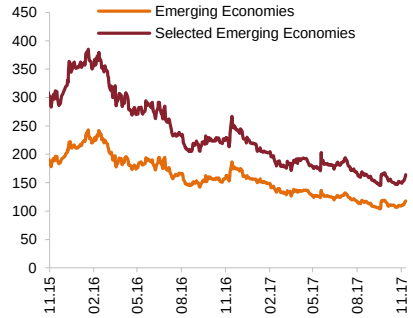
Source: EPFR (Latest Data: 08.11.17)

Portfolio inflows to emerging economies, thanks to the global risk appetite that have been high since the beginning of 2017 and the search for high yield, continue, albeit some deceleration since the third quarter (Chart I.1.3). In this quarter, strong demand for high-yield

debt instruments and capital market instruments were maintained on the back of stronger leading indicators for global economic outlook and the partial clarification of Fed's decision to downsize its balance sheet. In emerging markets, risk premiums and portfolio inflows improved owing to global liquidity conditions and increased risk appetite (Chart I.1.4).

Credit default premiums in emerging economies improved owing to the increased risk appetite.

Chart I.1.4
CDS Premiums in Emerging Economies
(Basis Points)



Note: Emerging economies include Brazil, Czechia, Indonesia, S. Africa, Colombia, Hungary, Poland, Romania, Turkey and Chile. Brazil, Indonesia and South Africa CDS premiums are used for the calculation of the average of selected emerging economies.

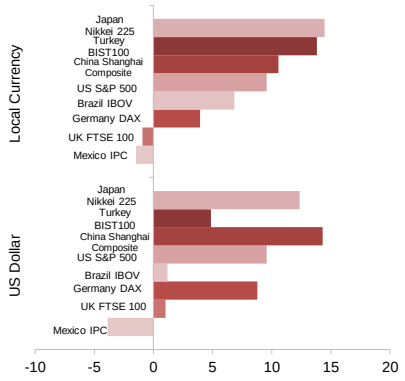
Source: Bloomberg (Latest Data: 10.11.17)

With the increase in risk appetite and the partial decrease in uncertainty in global financial markets, stock market indices have displayed strong performance especially in emerging markets and in the USA since the previous Report period (Chart I.1.5). Compared to the last Report period, the bond yields in advanced economies have been stable (Chart I.1.6). In emerging economies, generally, bond yields decreased in tandem with capital movements (Chart I.1.7).

Due to rapid portfolio flows towards emerging ' markets since January 2017, emerging market currencies have appreciated against the US dollar (Chart I.1.8). Similarly, major currencies have also appreciated against the US dollar. The decline in uncertainties arising from domestic policy developments in these countries played a role in the appreciation of these currencies against the US dollar.

Advanced and emerging economy stock market indices showed strong performance.

Chart I.1.5
Stock Market Indices
(Percentage Change, 17.05.2017-12.11.2017)



Source: Bloomberg

The recovery in global economic activity, although it is not widespread, continues with support from emerging economies (Chart I.1.9). Leading indicators of growth and the decline in political uncertainties signal that growth in advanced economies, particularly in the EU, will continue (Chart I.1.10). It is estimated that the uncertainty about the expansionary fiscal and trade policies envisaged to be implemented in the upcoming period plays a role in the deterioration of the US purchasing managers' index.

Chart I.1.6
10-Year Treasury Bond Yields in Advanced Economies (Percent)

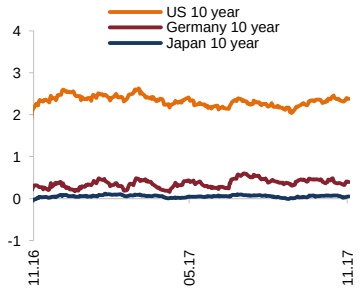
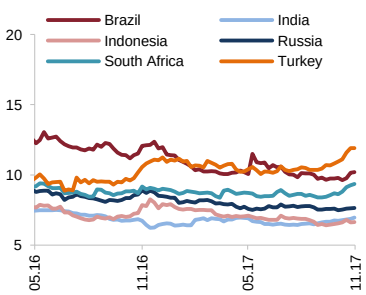


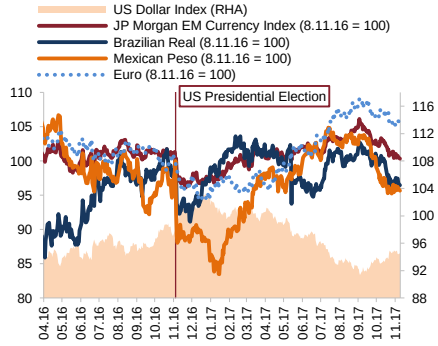
Chart I.1.7
10-Year Treasury Bonds Yields in Emerging Economies (Percent)



Source: Bloomberg (Latest Data: 13.11.17)

Since the beginning of 2017, US dollar has depreciated against major currencies and emerging market currency index.

Chart I.1.8
Exchange Rate Indices

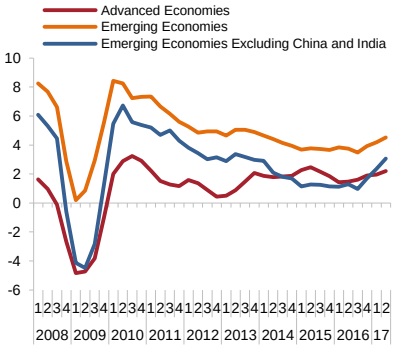


Source: Bloomberg (Latest Data: 13.11.17)

As of the first quarter of 2017, growth rates in emerging economies, except China and India, have surpassed those of advanced economies for the first time since June 2014. The rise in domestic demand and growth performance above expectations in China in the first half of the year supported global growth. On the other hand, shadow banking and high indebtedness in China continue to be considered as vulnerabilities. Growth rate in India has lost some pace due to structural reforms. Brazil, Russia, Turkey and ASEAN-5 countries have contributed to the growth of emerging economies.[1]

Emerging economies, except China and India, demonstrated a better economic growth outlook compared to advanced economies in the last period.

Chart I.1.9
Growth in Advanced and Emerging Economies
(Percentage Change, Annual)



Note: Advanced Economies: USA, Euro Area, Japan, UK, Canada, S.Korea, Switzerland, Sweden, Norway, Denmark, Israel. Emerging Economies: China, Brazil, India, Mexico, Russia, Turkey, Poland, Indonesia, S.Africa, Argentina, Thailand, Malaysia, Czechia, Colombia, Hungary, Romania, Philippines, Ukraine, Chile, Peru, Morocco.

Source: Bloomberg, CBRT (Latest Data: 06.17)

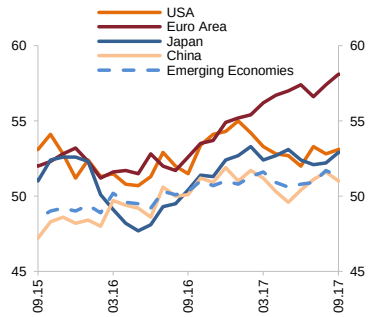
The upward trend in commodity prices, that had been obversed since 2016, continues due to global demand. (Chart I.1.11). The rise in the general commodity index observed since the last Report period was mainly driven by domestic demand in China and in advanced economies. Oil prices also increased compared to the previous Report period. The extent of the implementation of the oil production restriction imposed by the OPEC member countries, the recovery in oil production of Nigeria and Libya, and the more-than-expected increase in shale gas production in the USA are among the factors that influence the direction and pace of oil prices.

The geopolitical developments, and the vulnerabilities, such as the uncertainty pertaining to fiscal and trade policies envisaged to be implemented in the USA, high global indebtedness, and the low profitability of banks as well as the problem of non-performing loans particularly in the EU, take place in the agenda for global financial stability. Moreover, digital currency and crowdfunding as well as high-

[1] Asean-5 countries; Indonesia, Malaysia, Philippines, Thailand and Vietnam.

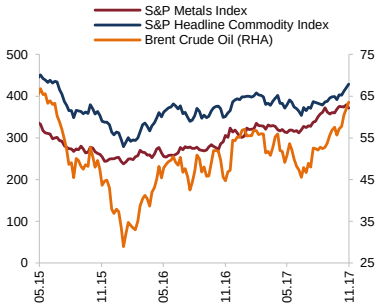
frequency trading in debt securities markets (Box I.1.I and Box I.1.II) are closely monitored by the international standard setting bodies and especially by the Financial Stability Board (FSB). In this framework, it is important that countries adopt to global financial reforms. It is also highly important to closely monitor the impact of these reforms, as well as adopt effective policies in response to structural problems.

Chart I.1.10
Manufacturing Industry PMI Indices



Source: Bloomberg, CBRT (Latest Data: 09.17)

Chart I.1.11
Commodity Prices
(Indices, US Dollar)



Source: Bloomberg (Latest Data: 10.11.2017)

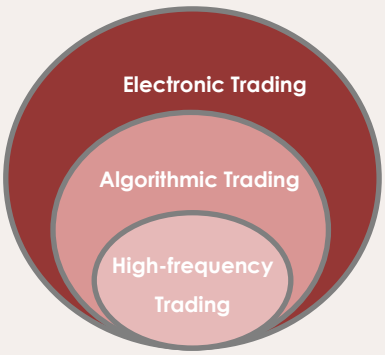
Box I.1.I

High Frequency Trading and Regulatory Approaches

High-frequency trading (HFT), a subclass of algorithmic trading, is defined as automated buying and selling transactions that are executed at speeds of one millionth of a second (microseconds) in line with pre-programmed investment strategies (BIS, 2016). HFTs, which operate via high technology connection infrastructures, are used in stock markets, foreign exchange and futures markets through organized exchanges and electronic trading platforms (Figure I.1.II.1).

The widespread use of algorithmic trading and HFTs at such markets brings about the need for the measurement of the volume of these transactions and the identification of their effects on price movements, and the regulation of them where necessary. Different methods are used to detect the trading activities originating from the HFTs which are largely being used in financial markets of developed countries. According to the findings of various academic researches, the transactions in which HFTs are used constitute 60 percent and 40 percent of total trading volumes in US and European capital markets, respectively.[1] In addition, it is estimated that investment banks and investors working with brokers have electronic access to the markets or use algorithmic transactions.[2]

Figure I.1.I.1
Trading Methods in Securities Exchanges



Source: BIS (2016)

There are two main sources of profit for HFTs. The first one is to obtain revenues from small price differences through short-term buy and sell transactions and high trading volumes. In this case, price differences of securities traded in more than one market are detected, or the delay arbitrage is utilized for the disclosures of data belonging securities traded on a single market. The second major source of profit for HFTs is the liquidity-providing function. The premium between bid and ask prices is received by asking continuous quotation or cost advantages are gained through market-making function.

The Impact of HFTs on Markets

In spite of the positive contributions of HFT's search for yields such as increasing the trading volumes and liquidity in the markets and reducing the bid – ask margins, these transactions carry some risks as well. Under normal market conditions, HFTs allegedly reduce volatility in the markets and lower transaction costs;[3] while they are also believed to increase the magnitude of market volatility by leading to a sudden shrink in liquidity and market depth as a result of the sale pressure they cause through cancellations of high-volume orders in the markets where prices are falling.[4] The sudden

1 Grant, J. (2010). High-frequency trading: Up against a bandshaw. Financial Times (2 Eylül 2010) and Haldane, A. G. (2010). Patience and finance. Speech to Oxford China business forum. Beijing: Bank of England.
2 "Regulators Struggle to get to grips with high-frequency trading", Global Risk Regulator, December 2016, Volume 14, Issue 11.
3 Eichengreen, Barry, Romain Lafarguette, and Arnaud Mehl. (2017)."Thick vs. Thin-Skinned: Technology, News, and Financial Market Reaction", IMF Working Paper, No. 17/91.
4 Gerig, A. (2012). High-Frequency Trading Synchronizes Prices in Financial Markets. Working paper, http://ssrn.com/abstract=2173247.

market fluctuations of the S&P 500 futures market on 6 May 2010 and the British pound on 7 October 2016, called the "Flash Crash", are examples of these fluctuations.[1] In addition, liquidity conditions deteriorated in the US treasury bond market on 15 October 2014, while on the same day it had the highest bid - ask spread and trading volumes since the global financial crisis. The decreasing share of HFTs in the "central limit order book", which is referred to as the measure of the market depth, is considered to have played a role in the market liquidity crunch.[2] The fact that HFTs are involved in duplicative trade activities may also cause market liquidity to appear more than its actual level.[3]

Regulatory Approaches for HFTs

Advanced Countries

There are different approaches in advanced countries regarding the regulation of algorithmic and high frequency trading. In the USA, there is an ongoing discussion on the monitoring of software codes used by market participants in algorithmic trading via the Regulation Automated Trading (RegAT) which is envisaged to be put into practice. However, there are some uncertainties regarding the enforcement of the regulation. The regulation of the Mifid II (Markets in Financial Instruments Directive II), which will enter into force in 2018 in the European Union, also makes it possible to supervise the financial institutions involved in algorithmic trading and the market infrastructures subject to these transactions. In accordance with the Mifid II, the data on HFT transactions must be reported to local authorities, and the algorithms used must be tested. Likewise, the regulation to take effect in Japan in 2018 stipulates that the organizations involved in the HFT have an official permission and appropriate risk management measures.

On the other hand, the tightening of regulations, increased competition, and market developments indicate that the competitive advantage that HFTs have gained through high speed is not sustainable. High infrastructure investment costs and the low volatility levels in the securities markets of developed countries have reduced the profit margins in the sector. Income generated from market-making activities in the US stock markets decreased from USD 7.2 to USD 1.1 billion between 2009 and 2016. This development points to the decrease in revenues of HFTs from market-making activities.[4]

Emerging Countries

HFTs, which are also being executed in the capital markets of emerging countries in the recent years, contribute to the increase in trading volumes and market depth. It is estimated that the HFT transactions in the Asia region, including China and India, had an average market share of 32 percent by 2015. These transactions have a share of 36 and 21 percent in the Russian and Brazilian stock markets, respectively.[5] Nevertheless, it is agreed that there is a need for regulatory infrastructure in order to mitigate the potential risks these transactions may pose to the capital markets of emerging

1 Kirilenko, Andrei, Albert S. Kyle, Mehrdad Samadi, and Tugkan Tuzun (2017). "The Flash Crash: High Frequency Trading in an Electronic Market", Journal of Finance, Volume 72, Issue 3, Page 967–998.
2 "Electronic trading in fixed income markets", BIS, January 2016, http://www.bis.org/publ/mktc07.htm.
3 ESMA, "Order duplication and liquidity measurement in EU markets", 2016.
4 Tabb Group, http://tabbforum.com/
5 Aite Group, http://aitegroup.com/

countries and their adverse effects on financial stability.

In Brazil, trading orders that are considered to be in the high-speed transaction category are filtered through the "pre-trade risk tool". India and China, where more than one national securities exchange operates, have also introduced measures for HFTs. A levy of 0.017 percent is imposed on options and futures markets for buying and selling transactions in India, where various speed bumps on the securities exchanges are implemented. China has measures including a stamp duty of 0.1 percent for selling of any security, the T+1 settlement which forbids selling a purchased stock on the same day, and the restriction on intraday trading of certain products on the futures markets.

Box I.1.II

Crowdfunding

There has been an upward trend in innovative and technology-based projects triggered by Industry 4.0. However, after the 2008 global financial crisis, entrepreneurs in need of seed or start-up capital have encountered problems in accessing conventional financing instruments. The lack of financing for these kinds of entrepreneurships may hinder a potential positive contribution to economic development as well. In this context, new-generation financing methods may offer a solution to this problem. Recently, alternative funding methods like venture capital and angel investing that facilitate entrepreneurs' access to financing have emerged in the portfolios of investors. In this sense, crowdfunding is a new-generation financing tool that enables large numbers of investors who may not otherwise be able to create a potential to fund a project in small amounts through direct funding or donation via Internet.

Types of crowdfunding

Crowdfunding can take place through a variety of business models. These models can be summarized as follows:

- Equity-based: Investor companies issue shares or equitiesfor funders through electronic platforms.
- Lending-based (P2P or market lending): Investor companies obtain funding by making a loan contract with funders through electronic platforms.
- Reward-based: Funders donate to a project in return for a prospective non-financial benefit.
- Donation-based: Funders provide funding for intangible benefits, expecting nothing in return.
- Hybrid model: This model has the characteristics of more than one of the crowdfunding models above.

Crowdfunding process and its effects

At the first stage of the crowdfunding process, entrepreneurs apply to a crowdfunding platform of their choice and present their projects. If the entrepreneurs are to use the crowdfunding mechanism to raise funds for commercial purposes, then they may have to provide their potential funders with strategic information such as the target markets, value added of the project, and revenue models in order to attract them. Moreover, the amount of funds required to launch the project should be announced and the time period for the collection of this amount should be set. The return to be offered to funders for their contribution to the project should also be specified at this stage.

At the second stage, the crowdfunding platform evaluates the application and decides whether to post it on the website or not. If the application is accepted, then it is posted on the website

and thus the project campaign gets started at the third stage of the process.

The final stage is the fundraising stage. Investors provide funding for the proposed investment opportunities at amounts they deem appropriate. Crowdfunding platforms intermediate the payments.

Crowdfunding reduces the dependence of start-ups with limited funding capability on traditional financing instruments for initial and growth capitals, and enable them to access a new investor base. The system facilitates and accelerates capital formation by such firms. On the other hand, crowdfunding removes the geographical barriers to capital formation. According to the traditional financing doctrines, as the distance between the entrepreneur and the investor increases, the probability of financing the project by the investor decreases due to the lack of interaction between the two parties, the reduced control capability, and the difficulty in collecting information and providing input. Yet, crowdfunding investors are distributed across an extensive geography, and the project owners are able to reach investors from all around the world.

Crowdfunding is one of the most efficient ways to reach large numbers of potential investors, and simplifies the time-consuming process of finding, getting into contact with, and persuading an investor. The high capability of investors to produce information through feedbacks and product modification advices is one of the appeals of crowdfunding. All these factors decrease the cost of equity for entrepreneurs using this method. Crowdfunding also offers entrepreneurs a chance to test the market potential of their product or service before putting it on the market and to create awareness among consumers.

There are elements of crowdfunding open to improvement. The process of entrepreneurship generally requires changing the plans in line with the incoming information. However, entrepreneurs who are using the crowdfunding mechanism and the budget determined at the very beginning of the entrepreneurship process lack this opportunity. Moreover, it is very important to well manage the differing expectations of shareholders as the number of shareholders joining the crowdfunding mechanism to support the projects could be very large. Investors' decisions to funda project through the crowdfunding mechanism depend on the information that the entrepreneurs will provide regarding the venture or the products/services. Particularly in the equity-based crowdfunding, the more detailed the information is and the better it explains the innovative side of the business model, product or service, and the revenue model, the more attractive it becomes in the eye of the investor.

On the other hand, in terms of funders, the crowdfunding mechanism may involve risks such as failure of entrepreneurs or project owners to successfully realize the project or complete it on time, or investing in fictitious projects even though the platforms use various filters during the evaluation of applications. Additionally, there is the risk of money laundering through crowdfunding platforms. Inclusion of crowdfunding in the shadow banking framework was among the topics discussed in 2016 during the annual Global Shadow Banking Monitoring exercises conducted by the Financial Stability Board (FSB).

Crowdfunding on the global scale

Crowdfunding is a fast-growing mechanism in many countries. The regulations are in effect in countries like France, Italy, and the UK. The relevant European Commission decision and the regulation[1] of the US Securities and Exchange Commission (SEC) have been effective since 2014 and 2016, respectively.

The total amount of funds raised through crowdfunding was USD 2.7 billion in 2012 and is estimated to have reached USD 34 billion by 2015 (Chart I.1.II.1). Of this total amount, USD 25 billion belonged to funding through the lending-based model, followed by reward, donation and equity-based crowdfunding. (Chart I.1.II.2)

Chart I.1.II.1
The global volume of crowdfunding
(Billion USD)

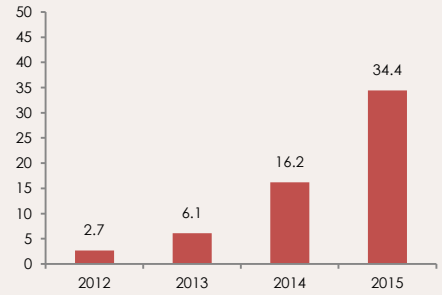
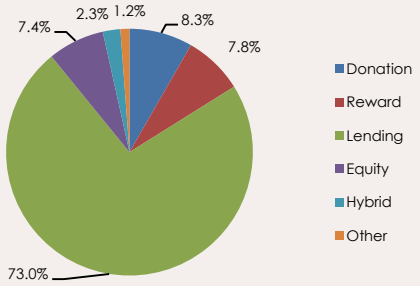


Chart I.1.II.2
Crowdfunding models (2015)



Source: Massolution Crowdfunding Industry 2015 Report

A global picture of crowdfunding reveals that North America has the largest amount of crowdfunding financing with a total volume of USD 17.2 billion, followed by Asia with USD 10.5 billion and Europe with USD 6.5 billion. South America, Africa and Australia have relatively smaller crowdfunding volumes.

According to a study published by the EU Commission in May 2016, the total amount of financing through crowdfunding was 4.1 billion euros in 2015. [2] According to the same study, the number of active crowdfunding platforms in the EU was 510 by the end of 2014. Of these platforms, 502 were based in the EU, and the remaining 8 were in countries like the USA, China, and Canada. The highest number of crowdfunding platforms was in the UK followed by France and Germany. The most commonly used crowdfunding models in the EU were reward-based (%23) and lending-based (%21) models.

On the other hand, there are also developments in the implementation and regulation of crowdfunding in emerging countries like India, Brazil, Mexico, the Czech Republic and South Africa. The first crowdfunding regulation in Brazil was introduced in 2017. However, crowdfunding has been used as a means of financing since 2011. Reward, donation and equity-based crowdfunding models

1 https://www.sec.gov/info/smallbus/secg/rccomplianceguide-051316.htm

2 European Commission Staff Working Document, "Crowdfunding in the EU Capital Markets Union", SWD (2016) 154 final, 3.5.2016

are permitted in India while equity, lending and reward-based crowdfunding models are used in the Czech Republic.

Crowdfunding in Turkey

Crowdfunding in Turkey has become more attractive as the number of people willing to establish platforms, project owners, and entrepreneurs has increased rapidly. However, it is still infant in terms of reaching the volume and effectiveness level of crowdfunding practices abroad. Currently, reward-based crowdfunding activities can be performed in Turkey. Crowdfunding platforms are still in the process of development due to lack of a regulatory infrastructure and the low level of awareness in entrepreneurs and the public. Nevertheless, these platforms created a total fund amount of TRY 406.523 from 2,529 investors for different projects by the end of 2014.

The draft law that will amend the Capital Markets Law and provide a legal infrastructure for crowdfunding was sent by the Government to the Parliament on 26 December 2016. The draft law is expected to be brought to the General Assembly after it is discussed in the Planning and Budget Committee.

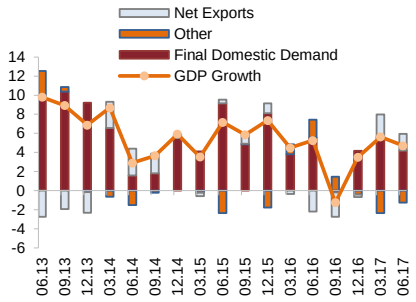
The aim of this regulation is to provide a stable investment environment where the entrepreneur can reach the funder and the funder can reach the entrepreneur through authorized crowdfunding platforms. It is anticipated that with this regulation, financing problems of start-up projects will be solved on the one hand, and investors will be able to gather and the segment of investors who are not willing to invest will be oriented towards saving on the other hand. However, it is very important to monitor the development and enhancement of the crowdfunding industry after the introduction of the regulation.

I.2 Domestic Developments

In the first two quarters of 2017, economic activity grew with the favorable effect from both domestic demand and net exports (Chart I.2.1). **Despite a limited decrease compared to the first quarter, growth in the second quarter was around 5 percent.** In this quarter, private consumption and construction investments in domestic demand composition, and in addition to these, net exports were the main drivers of the annual growth, while machinery-equipment investments and public consumption declined compared to the same period of the previous year. Machinery-equipment investments is expected to have recovered partially.

Strong growth was observed in the first half of 2017.

Chart I.2.1
Contribution to Annual Growth from the Expenditure Side
(Percentage Point)

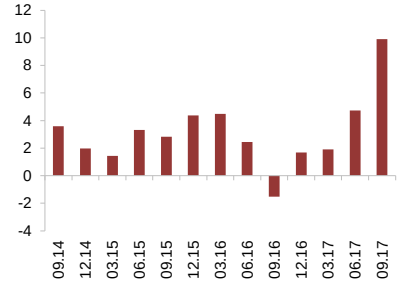


Source: TURKSTAT (Latest Data: 06.17)

Following the contraction in industrial production in the third quarter of 2016, the recovery in the last quarter of the same year continued increasingly in the first half of 2017 (Chart I.2.2). Thanks to the positive contribution of support and incentives, the recovery remained strong in the third quarter and helped reduce unemployment.

Seasonally and calendar-adjusted industrial production index has improved with the support of incentives in 2017.

Chart I.2.2
Industrial Production Index
(Seasonally and Calender Adjusted Annual Percentage Change)

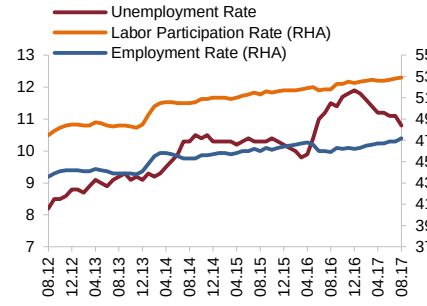


Source: TURKSTAT (Latest Data: 09.17)

The unemployment rate significantly decreased compared to the beginning of 2017 (Chart I.2.3). As a result, the unemployment rate in August fell to 10.8 percent. This improvement was mainly driven by policies intended to strengthen economic activity and increase employment. However, the relatively limited recovery in non-exporting SMEs restricts the positive impact of growth on investments and the labor market. Meanwhile, the rise in population and labor participation limited any further decline in unemployment. On the other hand, a combined analysis of leading indicators, the industrial production index and the growth trend indicates that the decline in unemployment will continue in the upcoming period.

By 2017, unemployment rate started to decrease.

Chart I.2.3
Labor Force
(Seasonally Adjusted, Percent)

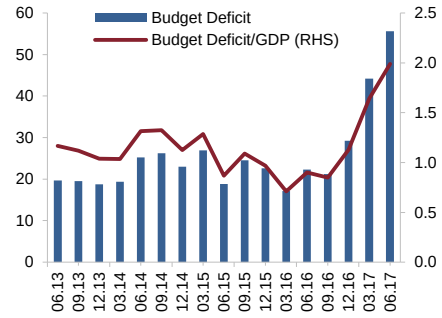


Source: TURKSTAT (Latest Data: 08.17)

The central government budget deficit was 2 percent at the end of the second quarter (Chart I.2.4). Although the ratio of central government budget spending to GDP decelerated in the first two quarters of 2017 with the impact of consumption and investment incentives, the uptrend in 2016 continued. As a result of the aforementioned acceleration loss, it is predicted that by the third

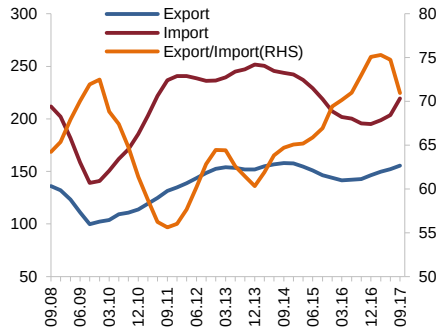
Central government budget deficit continued to increase due to the effect of stimulus package.

Chart I.2.4
Central Government Budget Balance
(12-Month Cumulative, Billion TL, Percent)



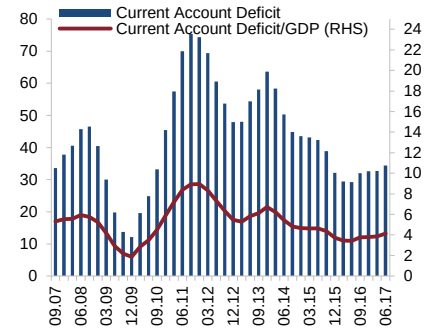
Source: Undersecretariat of Treasury (Latest Data: 06.17)

Chart I.2.5
Foreign Trade
(12-Month Cumulative, Billion USD, Percent)



Source: Undersecretariat of Treasury (Latest Data: 09.17)

Chart I.2.6
Current Account
(12-Month Cumulative, Billion USD, Percent)



Source: Undersecretariat of Treasury (Latest Data: 06.17)

quarter of 2017 this ratio will increase by 0.9 points compared to the same period of 2016 and will be 1.7 percent.

In the first two quarters of 2017, foreign trade contributed positively to growth (Chart I.2.5). Strengthened growth trend in the EU region and the global economy supported exports of goods, while increased tourism revenues owing to the recovery in tourism supported exports of services. Meanwhile, the import coverage ratio decreased, particularly, in the third quarter due to the limited increase in imports of goods excluding gold and significant increase in gold imports.

The macroprudential policies applied through the financial system channel and the incentives implemented to support economic activity have been effective in accelerating the economy in 2017. On the other hand, although the increase in net imports of gold and energy prices deteriorated to a limited extent in foreign trade, the same deterioration was not observed in the current account deficit in the first half of 2017 (Chart I.2.6). Moreover, despite the rise in GDP in 2017, there has not been any significant deterioration in the current account balance, and a tight monetary policy has continued to be implemented in a coordinated manner with fiscal measures and incentives.

Since the last Report period, the share of portfolio flows has increased while direct investments in current account deficit financing have remained the same despite internal and external shocks (Chart I.2.7). The main driver of rising portfolio flows was risk appetite that increased on the back of the normalization in global markets.

The gross reserves and short-term external debt stock have been following an uptrend since the turn of 2017. (Chart I.2.8). As a result, the ratio of the CBRT's gross reserves to short-term external debt stock remains 100 percent.

Annual inflation indicators B and C, which displayed a moderate course in the second quarter of the year, increased approximately 1.5 percentage points to 10.89 and 10.98 percent,

respectively, in the third quarter (Chart I.2.9). While the CPI decreased diverged from the B and C indicators, but it showed a similar outlook as the corresponding indices as of July. Due to the rise in import prices, mainly in oil and basic metals, and the negative impact of the exchange rate movements, CPI was 11.2 percent in September and 11.9 percent in October. Annual food inflation, which rose rapidly in the first two quarters, decreased by 1.84 points in the third quarter.

The CBRT maintains its tight monetary policy stance and the average funding rate reflects this tight stance (Chart I.2.10). Nevertheless, the supportive measures and incentives provided in 2017, have delayed the impact of the monetary transmission mechanism. The normalization of credit growth is likely to enhance the effectiveness of the monetary policy.

Geopolitical developments and statements coming from advanced economies pertaining to the normalization of their monetary policies caused volatility in the exchange rate basket as of the second half of September (Figure I.2.11), breaking the horizontal course that had prevailed since the last Report period. In the period in question, the Turkish lira diverged negatively from other emerging market currencies due to the influence of geopolitical developments. On the other hand, decreasing volatility and uncertainty in the global markets as of 2017 led to a positive trend in risk perceptions for Turkish assets. However, it is observed that the CDS premiums have been increasing recently.

CBRT average funding rate has recently been steady.

Chart I.2.10
Interest Rates
(Percent)

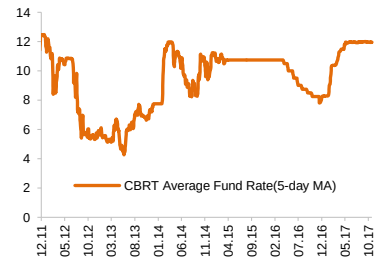
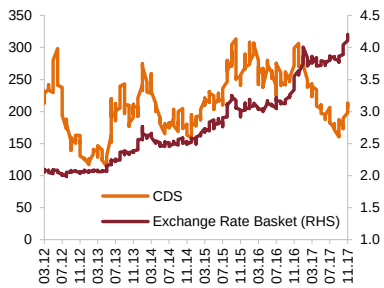


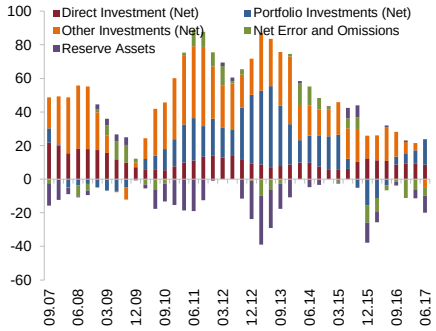
Chart I.2.11
Exchange Rate Basket and CDS
(Basis points, TL)



Note: Exchange rate basket is the arithmetic average of the dollar and euro.

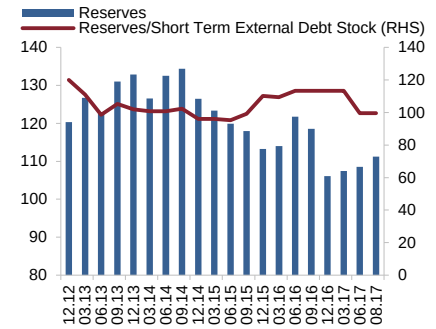
Source: CBRT and Bloomberg (Latest Data: 11.17)

Chart I.2.7
Current Account Deficit Financing Items
(12-Month Cumulative, Billion USD)



Source: CBRT (Latest Data: 06.17)

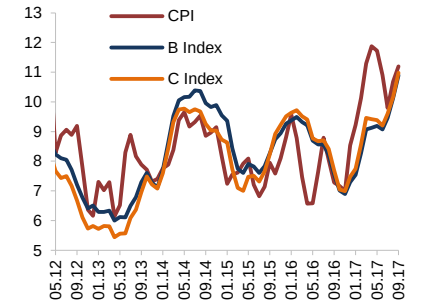
Chart I.2.8
Short-term External Debt Stock and CBRT Gross FX Reserves (Billion USD, Percent)



Source: CBRT (Latest Data: 08.17)

Consumer inflation, which decreased in the second and third quarters, started to increase again in August.

Chart I.2.9
Price Indices
(Annual Percentage Change)



Note: The B and C indices, which are published by the TURKSTAT, are the continuation of the H and I indices published before 2017.

Source: CBRT (Latest Data: 09.17)

Box I.2.I Financial Stress Index as an Early Warning Indicator

The most important feature of the 2008 global financial crisis was the rapid spread of the fragility of one segment of the financial system to other segments and consequently the pressure it exerted on the real economy. Despite extensive liquidity measures introduced to the financial system, the impact of the crisis on the real economy has not been fully remedied for almost a decade now and the crisis has gained a systemic nature. Considering that systemic financial crises lead to lasting and destructive effects, the strengthening of early warning systems has emerged as an important issue. It has become more important to monitor the risks in the financial system through high frequency data, whereas until recently, early warning indicators were constructed on lower frequency data.

Early warning systems, in simple terms, are an outcome of the attempts to explain past crises with a broad macroeconomic, financial and fiscal data set. However, these systems do not foresee that the fragility emerging in one segment of the financial sector can spread rapidly, and this may have real consequences. Therefore, to foster development of early warning systems, it is worth investigating the risks that appear in the lower segments of the financial sector, their relationship to other segments, and the destructive effects of the financial system on the overall real economy. For this purpose, taking into account the unique financial structures of countries, many central banks in developed countries construct indicators by aggregating the risks of the financial sectors that could signal potential systemic risk in the economy and use these indicators as a means of policy formulation and communication. This box also aims to devise a financial stress index (FSI) that can be used for Turkey and to evaluate the performance of this index based on past fragilities.

The FSI is based on consolidating the stress of each sub-segment of the financial system using a particular aggregation method. There are a variety of methods used to measure stress representing financial fragility and aggregate the value of each segment to form a single index. In the literature, there is no consensus on the superiority of any of these methods. Therefore, the FSI to be introduced in this box was obtained by weighting 15 different FSIs that employ the most used aggregation methods in the economic literature in proportion to their relation with economic activity[1].[2] This avoids any procedural dependence and the resulting index contributes to the final index in proportion to its relation to economic activity in order to better represent the overall systemic risk in the economy.

In the development of the FSI, a total of 14 data sets were defined for 5 different segments including money markets, bond markets, foreign exchange markets, stock markets and the banking sector (Table I.2.I.1). Money markets and bond markets are represented by 2 each, foreign exchange markets by 4, and stock markets and the banking sector by 3 data sets each. Since the effects of financial system risks on the real economy have a major importance in this study, high correlation with economic activity has been taken into account in the selection of the data to represent the financial

1 Growth of the industrial production index is used as an indicator of economic activity.

2 In this context, the most commonly used methods in the literature, namely principal component analysis, equal weighting, basic portfolio theory and dynamic factor model, are used to construct FSI.

markets. The following steps were followed in obtaining the final FSI:

i. The raw data for each segment were standardized and made available either at their level or by making corresponding transformations and estimations (CMAX, volatility, correlation). [1]

ii. These time series were collected with equal weight to obtain a single time series for each segment and this series was defined as a risk indicator for that segment. Thus, 5 different risk indicators for each segment were obtained.

iii. In order to obtain a single FSI from 5 different risk indicators, 4 different aggregation methods were used based on equal weight, principal component analysis, portfolio theory and dynamic factor analysis approaches.

iv. 15 different FSIs were obtained in the form of combinations of 4 different aggregation methods and different volatility estimations.

v. The final FSI was obtained with a final weighting based on the correlation (quarterly moving window correlation) between 15 different indices and the economic activity which is proxied by the industrial production index.

Table I.2.I.1
Data Definitions

Financial Segment	Data	Starting Date	Data Source
Money Markets	3 month TRLIBOR volatility	05 May	TRLIB3M Index
	TED spread	05 April	BASPTDSP Index
Bond Markets	Benchmark bond volatility	05 May	BENCH Index
	EMBI+ Turkey Index	05 April	JPEMTU Index
Foreign Exchange Markets	Us dollar volatility	05 May	USDTRY Curncy
	Us dollar CMAX transformation	06 April	USDTRY Curncy
	Euro volatility	05 May	EURTRY Curncy
	Euro volatility	06 April	EURTRY Curncy
Equity Markets	BIST 100 volatility	05 May	XU100 Index
	BIST 100 CMAX transformation	06 April	XU100 Index
	BIST100 and benchmark bond correlation	05 May	XU100 Index, BENCH Index
Banking Sector	Banking sector equity volatility	05 May	XBANK Index
	Banking sector equity CMAX transformation	06 April	XBANK Index
	Banking sector beta	05 May	XBANK Index

Source: Bloomberg (Latest Data: December 2016)

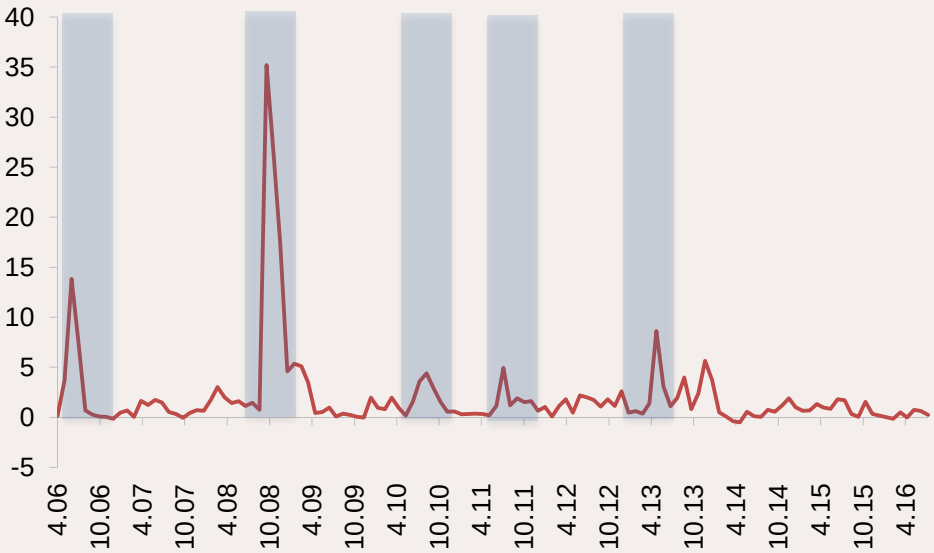
When the relation between the index obtained and the economic activity is analyzed in order to examine the performance of the final FSI, the final index is found to lead economic activity from a certain period ahead. Another performance criterion for the FSI and the reason to employ the FSI as an early warning indicator is whether the index captures the major stress episodes of the past

1 CMAX is used as a hybrid volatility-loss measure in finance literature and is expressed as $CMAX_t = \frac{y_t}{max[y \in (y_{t-j} | j = 0,1,\dots,T)]}$. Volatility is calculated using the GARCH (1,1) and linear stochastic volatility models in this study. Correlation is obtained by using the DCC-GARCH model and the realized correlation calculated on the three-month windows. These methods have been used to observe how they affect the final index obtained and thus served as a robustness test.

period. When the FED's monetary tightening in May 2006, the Lehman Brothers bankruptcy and the subsequent financial crisis in September 2008, the Greece-based Euro Zone crisis in May 2010, and the FED tapering and domestic shocks in 2013 are accepted as the main stress episodes during the analysis period, it is observed that the FSI captures those stress episodes successfully (Chart I.2.I.1). One criticism of FSIs is that these indices do not provide numerical information on crisis periods. In other words, for which values of the index a crisis should be expected is beyond the scope of this study. A generally valid interpretation is that financial stress increases when the index value rises. From this point of view, comparisons with past periods can give more concrete results.

The FSI proposed in this study responds most to the uncertainties that emerged during and after the Lehman Brothers bankruptcy in 2008 and reaches its highest level during this period. In 2006, 2010 and 2013, stress also increased markedly. However, the recent low levels of the FSI may be considered surprising at first glance given the exchange rate movements in that period. Since the FSI

Chart I.2.I.1
Final Index
(Basis Points)



Source: Calculations of the authors
Note: The gray areas point to the FED monetary tightening period for the year 2006, the bankruptcy of Lehman Brothers for 2008, the Euro Zone debt crisis for 2010 and 2011, and the FED tapering and major domestic uncertainties for 2013.

takes 5 different financial segments into account and the equity markets in emerging economies and peculiarly the Turkish banking sector have performed well despite recent exchange rate movements, it is evaluated that the developments in the exchange rate market have not been sufficient on their own to significantly increase stress.