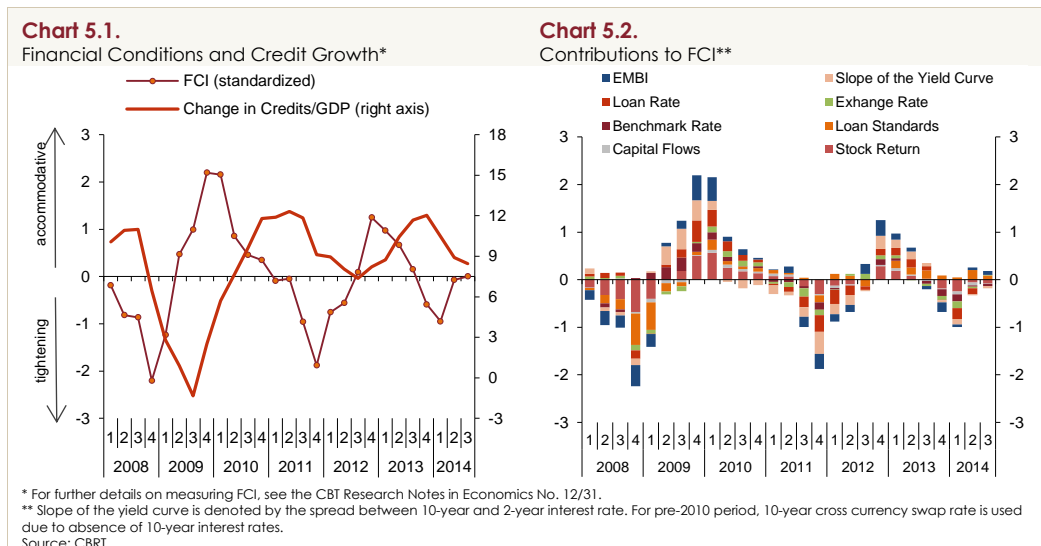


5. Financial Markets and Financial Intermediation

In the last quarter, financial markets remained volatile due to international developments. In this period, the uncertainty over the Fed's monetary policy continued to be less acute than the previous year, which fueled the risk appetite; yet the weak global growth outlook affected financial markets adversely. In addition, growing geopolitical tensions were another factor feeding market volatility. On the other hand, the decline in raw material prices, oil prices in particular, appears to have had a favorable impact on the risk premium of countries, such as Turkey, that are dependent on external energy.

The FCI for Turkey, which is calculated as the weighted average of various financial indicators, pointed to a neutral reading (close to the historical average) for the third quarter (Chart 5.1). In this period, each variable in the index mostly provided near-neutral contributions to financial conditions as well (Chart 5.2). Thanks to the CBRT's prudent monetary policy stance, the benchmark rate and the slope of the yield curve continued to help tighten financial conditions in the third quarter, albeit to a lesser degree. On the other hand, credit conditions were relatively accommodative. The contribution from loan rates was negative in the first two quarters of 2014, but turned neutral in the third quarter. Meanwhile, loan standards surpassed their historical average in the third quarter, which stemmed from the improvement in commercial loan standards. The ongoing decline in loan rates and the course of loan standards suggest that the downtrend in annual loan growth will no longer continue in the upcoming period. Yet, the rise in precautionary savings against geopolitical tensions and the CBRT's tight liquidity stance may restrain financial easing.

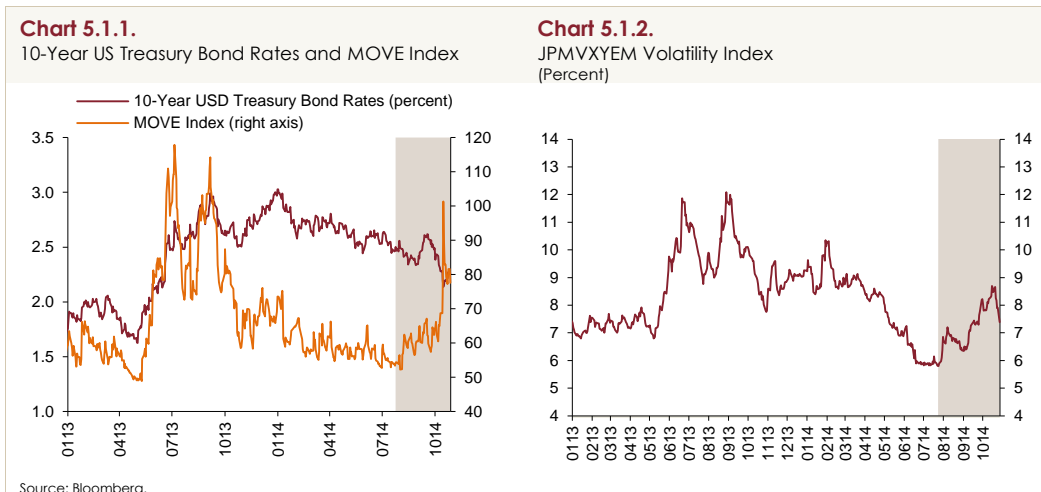


5.1. Financial Markets

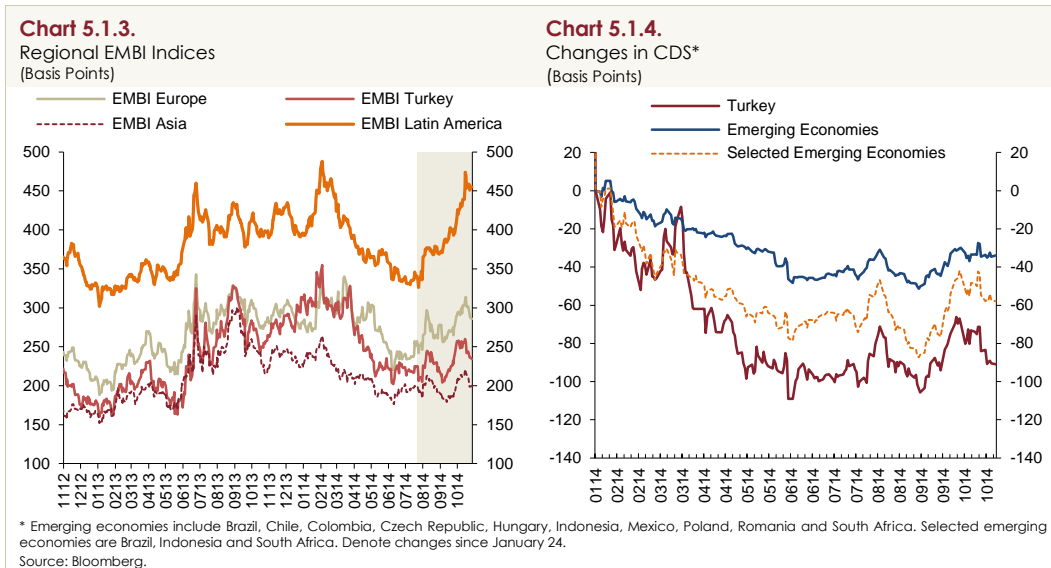
Global Risk Perceptions

The uncertainty over global monetary policies continued into the third quarter of 2014, with the Fed ending its bond-buying program and announcing that it would keep policy rates low for a while. Upward revisions to the second-quarter US growth rate in August and September and the recovery in

both economic activity and leading indicators spurred the belief that the Fed would deliver a sooner-than-expected policy rate hike. On the other hand, the hints from some board members in October that the Fed would continue to support economic growth in the face of weakening global growth boosted the global risk appetite. Meanwhile, amid weak economic activity in the EU and the growing risk of deflation, the ECB cut the policy rate and the negative interest rate imposed on banks for their deposits by 10 basis points each and decided to launch a two-year asset-backed securities purchase program starting in the final quarter of this year. Another highlight of this quarter was the sharp drop in Japan's second-quarter growth data, which fueled market expectations that Japan would announce new stimulus programs. The uncertainty over global monetary policies and the growing geopolitical risks caused volatility indices to soar in this period (Charts 5.1.1 and 5.1.2). Following the deteriorated risk sentiment in the beginning of the quarter, global investors fled increasingly towards safe-haven assets of the US bond market, which caused US bond yields to fall. The recent shift from stocks to government bonds has added to the decline in US yields (Chart 5.1.1).

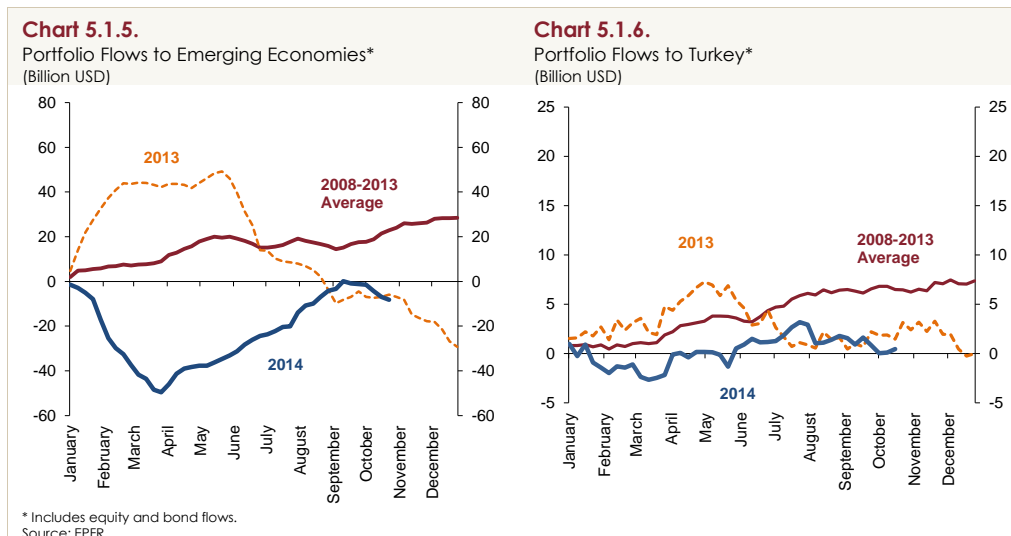


In the third quarter, the economic slowdown across Eastern Europe and Latin America, particularly after the Fed's signals, affected the risk sentiment for emerging economies negatively, leading to an increase in the risk premiums of these countries. The fall in CDS premiums of emerging economies amid reduced global uncertainty in the first half of 2014 was reversed in the second half due to the uncertainty about the Fed's policy rate hike and the geopolitical risks arising from developments in Iraq and Syria. However, CDS premiums have declined slightly following the growing global risk appetite amid the Fed's recent announcements supportive of economic growth. Meanwhile, Turkey's sovereign risk premium rose in line with other emerging economies in this period (Charts 5.1.3 and 5.1.4).



Portfolio Flows

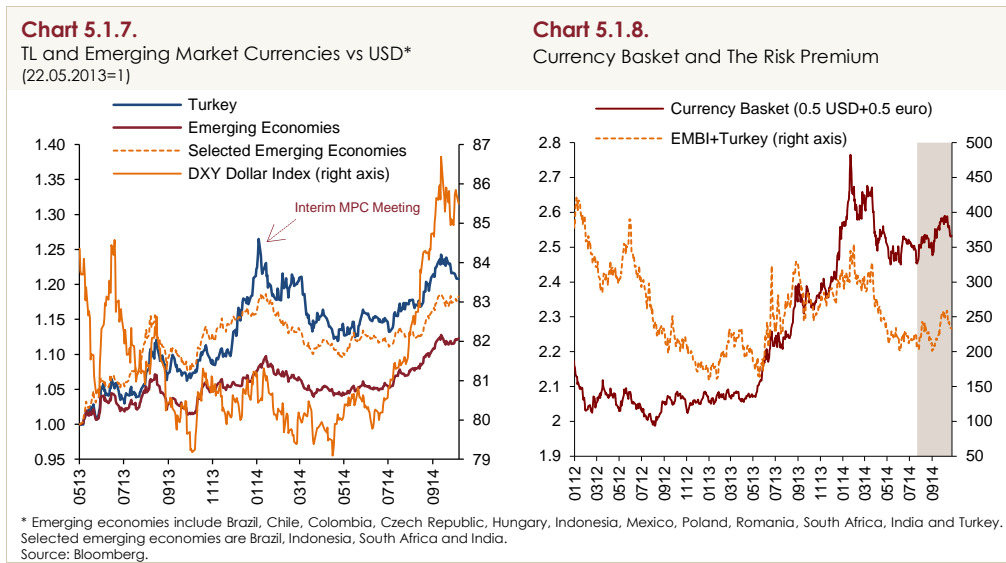
The loss of momentum in growth performances across emerging economies and the uncertainties surrounding global monetary policies caused emerging market capital flows to follow a weak and volatile course in the third quarter of 2014 (Chart 5.1.5). Capital flows to Turkey were also weak and volatile in this period because of increased sovereign risk premiums, and witnessed outflows despite capital inflows during June-July, causing cumulative portfolio flows from the start of 2014 to stay at near-zero (Chart 5.1.6).



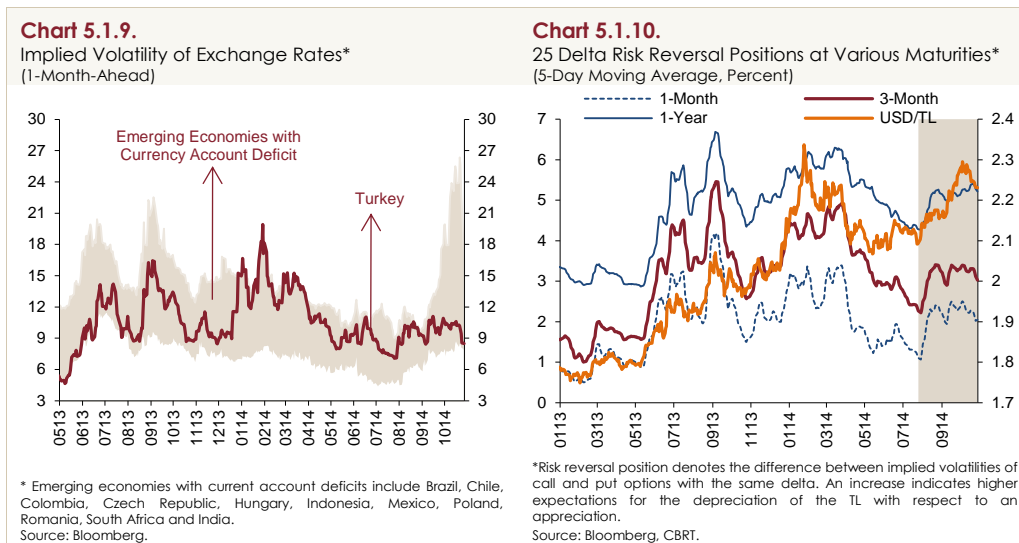
Exchange Rates

The economic recovery signaled by the promising US growth and employment data and leading indicators were interpreted to mean that the Fed would start a sooner-than-expected normalization in monetary policy. This possibility caused the DXY index to soar sharply in the third quarter amid expectations of continued monetary easing in the Euro Area and Japan launching new quantitative easing measures to support the economy. Meanwhile, emerging market currencies have

depreciated against the USD since the July reporting period due to the reduced global risk appetite and the heightening sovereign risk premiums (Chart 5.1.7). The global risk appetite recovered to some extent following the positive signals from the Fed in October, helping to compensate for some of these losses. The Turkish lira moved in tandem with the currencies of peer emerging market economies in the third quarter. The strong relationship between the currency basket and the risk premium continued in this period and the currency basket increased in line with the rising risk premium. After hitting 2.46 on July 24 when the July Inflation Report was released, the currency basket has hovered at 2.53 as of October 27 (Chart 5.1.8).



Third-quarter developments also had repercussions on the implied exchange rate volatilities of emerging market currencies causing the implied volatilities of emerging market currencies to increase. Turkey's implied exchange rate volatility moved in tandem with other emerging economies and posted a rise in both short-term and long-term maturities (Chart 5.1.9). Thanks to the recently improved global risk appetite, the implied volatility of the Turkish lira decreased again by diverging positively from the exchange rates of peer emerging economies. In addition, the movement observed in the exchange rate in the beginning of the third quarter was also evident in risk reversal positions, which denote the gap between the volatilities implied by call and put options. An increase in this gap shows that the expectations for an appreciation in the Turkish lira outweigh the expectations for depreciation. Yet, it appears that risk reversal positions have failed to reflect the rise in the exchange rate since September (Chart 5.1.10.)



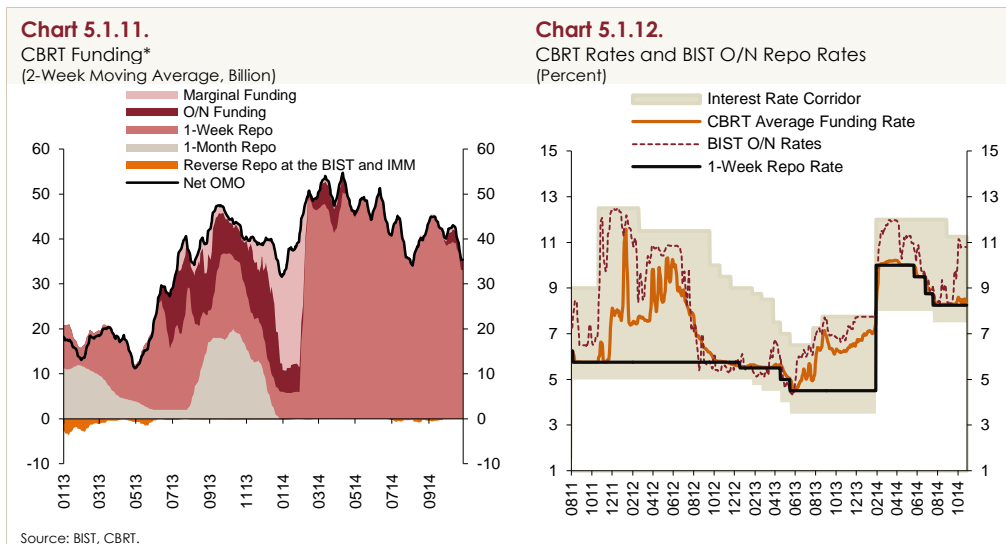
Monetary Policy

In the third quarter of 2014, global liquidity conditions deteriorated slightly, while the uncertainty over global monetary policies continued. In this period, while the Fed ended its asset purchases, it also announced that accommodative policies would be maintained for a while, which caused expected long-term interest rates to fall. In addition, the ECB cut policy rates against economic slowdown and risks of deflation and announced the details of the quantitative easing program. This policy divergence between advanced economies causes a deceleration of economic activity in emerging economies as well as heightened volatility in capital flows towards these economies. Against this background, the CBRT maintained its prudent policy stance and delivered measured rate cuts. In this context, the one-week repo rate was lowered from 8.75 to 8.25 percent while the overnight borrowing rate was reduced from 8 to 7.5 percent in July. In order to ensure the symmetry of the interest rate corridor, the overnight lending rate was lowered from 12 to 11.25 percent, while the rate on borrowing facilities for primary dealers via repo transactions was cut from 11.5 to 10.75 percent.

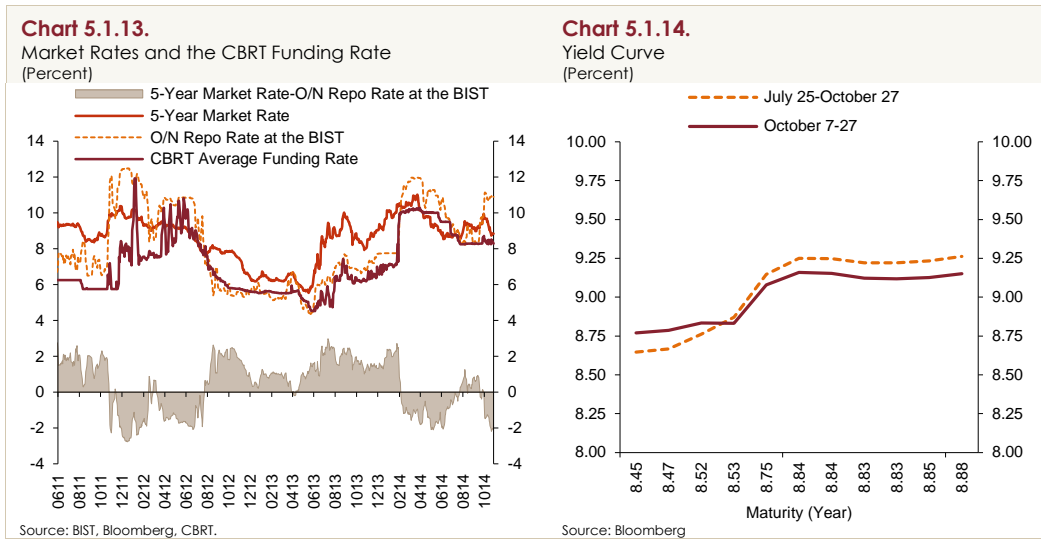
In order to maintain balanced growth and capital inflows during the upcoming global monetary policy normalization, the CBRT has changed the foreign exchange deposit rates that apply to banks to borrow from the CBRT within their limits through the Foreign Exchange Deposit Market. As of October 9, the rates for one-week maturity borrowings from the CBRT as the last resort facility have been reduced from 10 percent to 7.5 percent for USD and from 10 percent to 6.5 percent for eur. Moreover, considering the increase in banks' balance sheets and the CBRT's international reserves, it was announced that banks' transaction limits at the Foreign Exchange and Banknotes Markets, which are currently 10.8 billion USD, will be revised at the press meeting for the release of Monetary and Exchange Rate Policy for 2015. In addition, it was noted that it is crucial to further strengthen the currently solid structure of the banking sector for financial stability purposes. To this end, the CBRT announced on October 21 that it will start to remunerate the Turkish lira component of required reserves of financial institutions in November 2014 to spur balanced growth and domestic savings.

Accordingly, the remuneration rate will be the average CBRT funding cost minus 500 basis points for banks whose core liability ratios (deposit and equity over loans) are above the sector's average and the average CBRT funding cost minus 700 basis points for the remaining banks. Paying interest for core liabilities is thus considered an incentive.

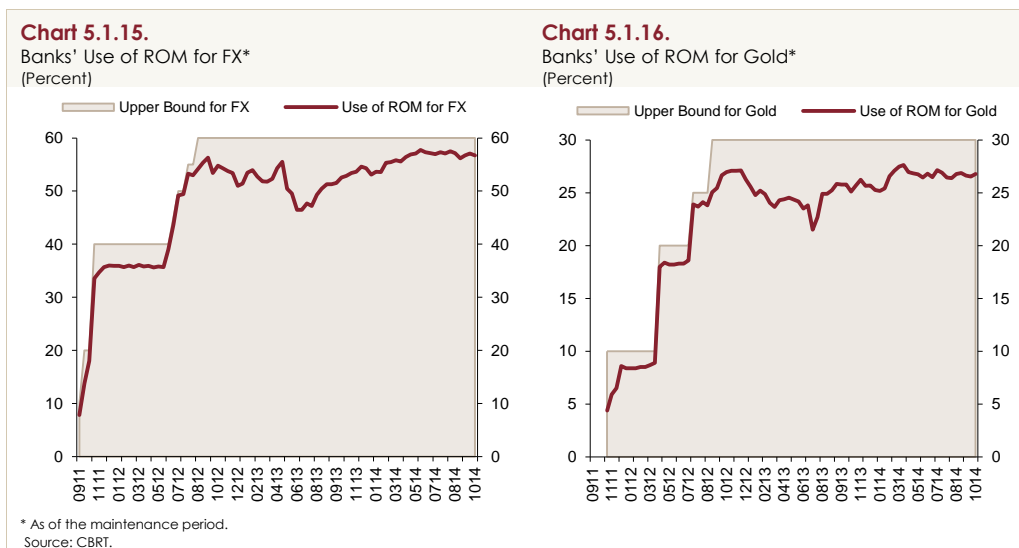
Since the July Inflation Report, the CBRT continued to fund the market primarily from the one-week repo rate following the decision made at January's interim MPC meeting that simplified the operational framework of monetary policy (Chart 5.1.11). The provision of liquidity primarily by one-week repo auctions enabled the CBRT average funding rate to near the weekly funding rate. Meanwhile, in view of the heightened geopolitical tensions and the financial market volatility, the tight monetary policy stance has been invigorated by a tight liquidity policy since September. Thus, the BIST overnight repo rates that hovered around the one-week repo auction rate in July and August has lately settled close to the upper end of the interest rate corridor (Chart 5.1.12).



While the CBRT had implemented measured rate cuts in the third quarter, it has maintained a tight monetary policy stance by keeping the yield curve nearly flat. The spread between 5-year market rates and the BIST overnight repo rates is at negative levels as of October (Chart 5.1.13). In addition, with the recent tightening in the liquidity policy imposed by the CBRT, short-term rates rose substantially, while the yield curve remained flat (Chart 5.1.14). The CBRT will closely monitor inflation expectations, pricing behavior and other factors affecting inflation in the upcoming period and maintain its tight monetary policy stance by keeping the yield curve flat until there is a significant improvement in the inflation outlook.

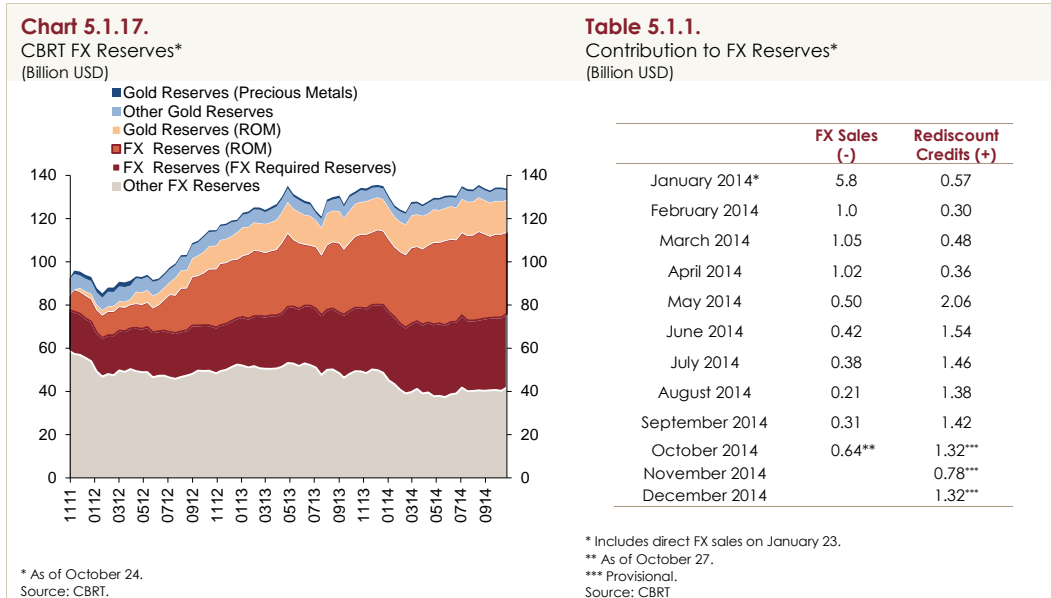


In the third quarter of 2014, Turkish lira costs remained higher than foreign currency costs as in the previous quarter, leaving the use of the ROM advantageous. In fact, banks resorted to both gold and foreign exchange ROM to a great extent (Charts 5.1.15 and 5.1.16). Banks' use of ROM stands at 94 percent (56.7/60) for FX and 89 percent (26.8/30) for gold as of the maintenance period starting on October 24.



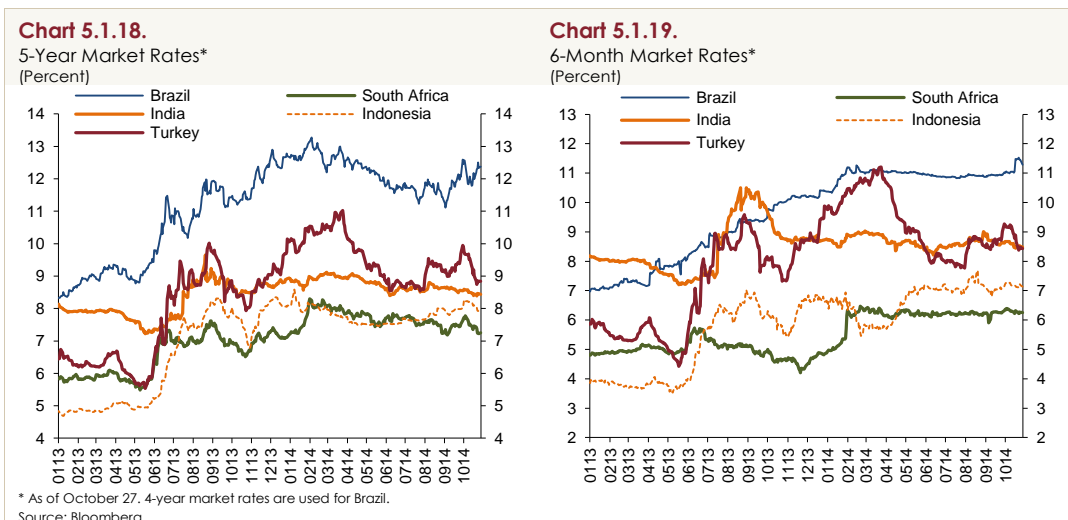
CBRT reserves remained virtually unchanged compared to the July Inflation Report (Chart 5.1.17). In the third quarter, considering the global market developments and the operational procedures for required reserves, the CBRT restricted the type of currency maintained within the ROM to USD as of the maintenance period which started on August 15. In this period, the marginal decline in reserves that the banks maintained under the foreign exchange and gold reserve options was compensated by the increase in foreign currency required reserves. Due to the increased volatility in exchange rates during the third quarter, the CBRT revised the foreign exchange selling auction amount from minimum 10 million USD to minimum 40 million USD as of October 29. Furthermore, the CBRT raised the limits of export rediscount loans and lowered loan costs on October 20 to support the balanced

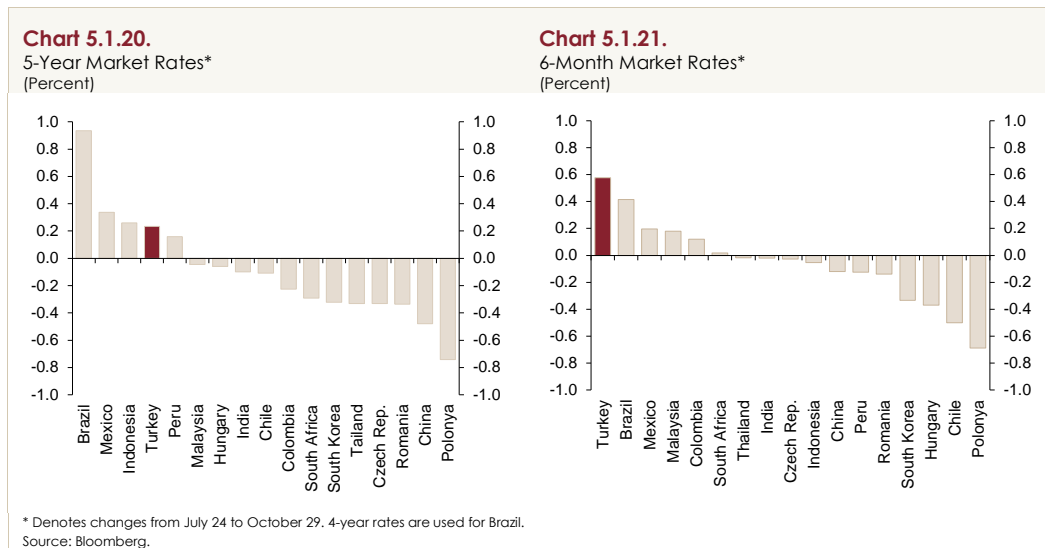
growth. These changes are expected to raise exporters' borrowing from the CBRT, which will also lead to an increase in the CBRT's FX reserves in 2015. However, continuing with FX selling auctions will lower the CBRT's FX reserves in the upcoming period (Table 5.1.1).



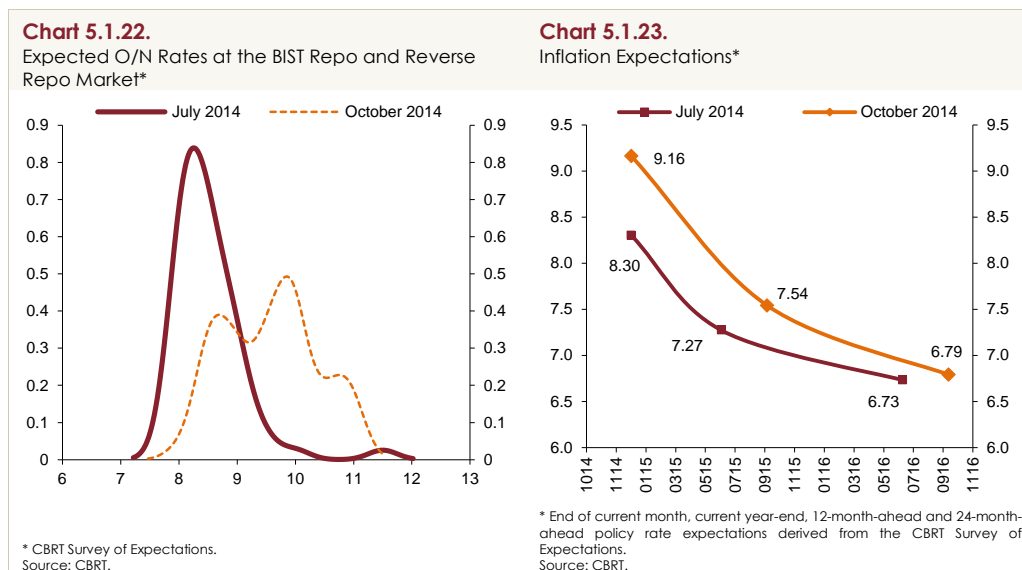
Market Rates

Due to the rise in emerging market sovereign risk premiums and the weak and volatile capital flows in the beginning of the third quarter of 2014, market rates went up slightly in emerging economies. With the recovery in the global risk appetite in October, the increase in market rates was reversed to some extent (Charts 5.1.18 and 5.1.19). In this period, Turkey's market rates firstly rose and then fell. Turkey's proximity to regions dealing with geopolitical risks and its commercial ties with the countries in this region caused market rates to follow a more volatile course in Turkey than in any other emerging economy. Across countries, Turkey's 5-year and 6-month market rates are among those which exhibited the most dramatic increase since the previous reporting period (Charts 5.1.20 and 5.1.21).

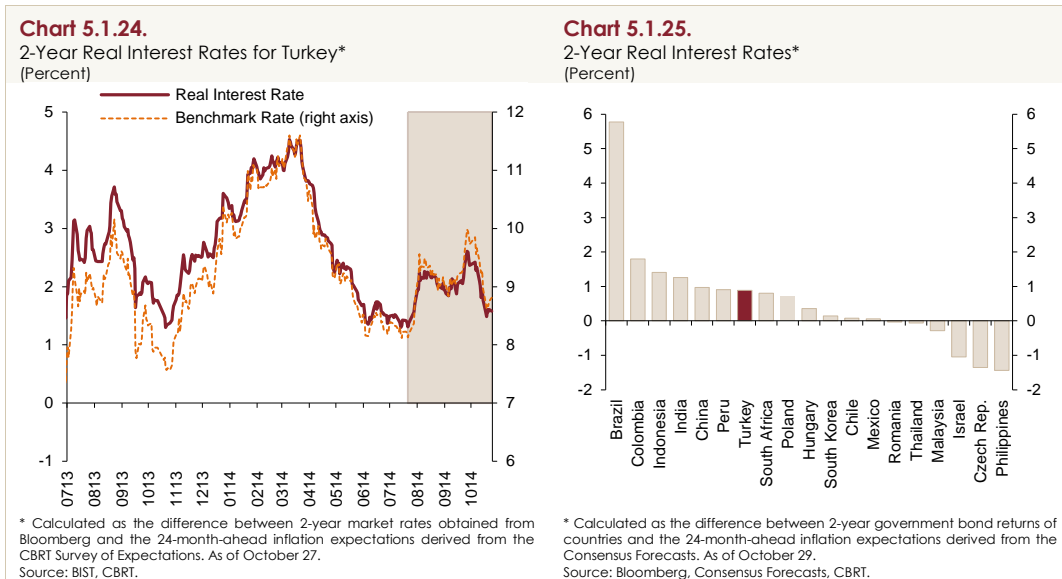




Due to growing geopolitical unrest and financial market volatility since September, the CBRT resorted to additional liquidity measures besides maintaining a tight monetary policy stance. Thanks to the recent liquidity measures, the BIST overnight repo rates neared the upper band of the interest rate corridor. Accordingly, the distribution of expected overnight rates at the BIST Repo and Reverse Repo Market shifted slightly towards the right compared to July (Chart 5.1.22). Inflation expectations, another factor that may be influential on market rates, posted a rise compared to July (Chart 5.1.23).

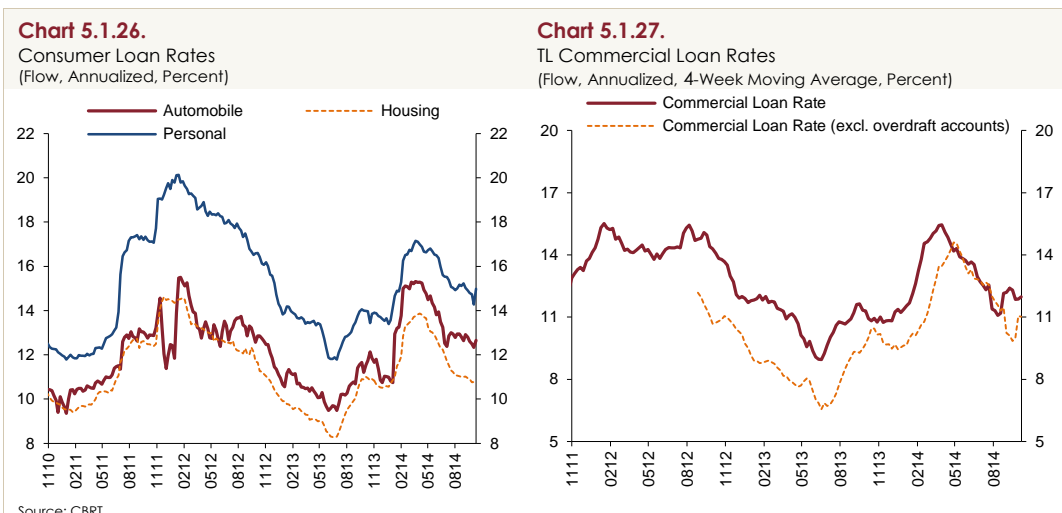


Real rates firstly increased, and then decreased in Turkey during the third quarter of 2014. Even though two-year inflation expectations remained broadly unchanged, nominal rates have been influential in the course of two-year real rates in this quarter (Chart 5.1.24). Meanwhile, moving parallel with Turkey's risk premium, the benchmark rate rose first in the third quarter, and then declined (Chart 5.1.24). After the recent decreases, Turkey's two-year real rate ranked around the middle among other emerging economies (Chart 5.1.25).



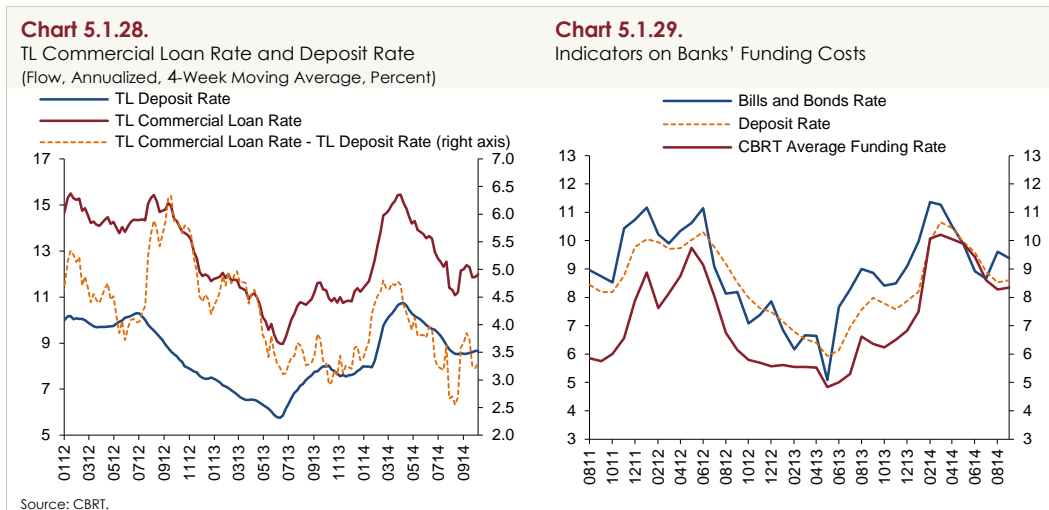
Loan Rates and Banking Sector Funding Costs

Rates on loans extended to the non-financial sector, which increased notably in early 2014, decreased gradually the rest of the year due to the loosened domestic and external financing conditions. The largest fall in consumer loans appeared in housing loans, posting a quarter-on-quarter decline of 130 basis points (Chart 5.1.26). Commercial loan rates, which are mostly extended in the short term, continued to fall by about 100 basis points. The drop during the week of the Ramadan holiday was discontinued with commercial loan rates rebounding the following week (Chart 5.1.27). According to the Loan Tendency Survey results of the third quarter of the year, banks slightly lowered coverage ratios for commercial firms, while fees and commissions (non-interest charges) remained unchanged.



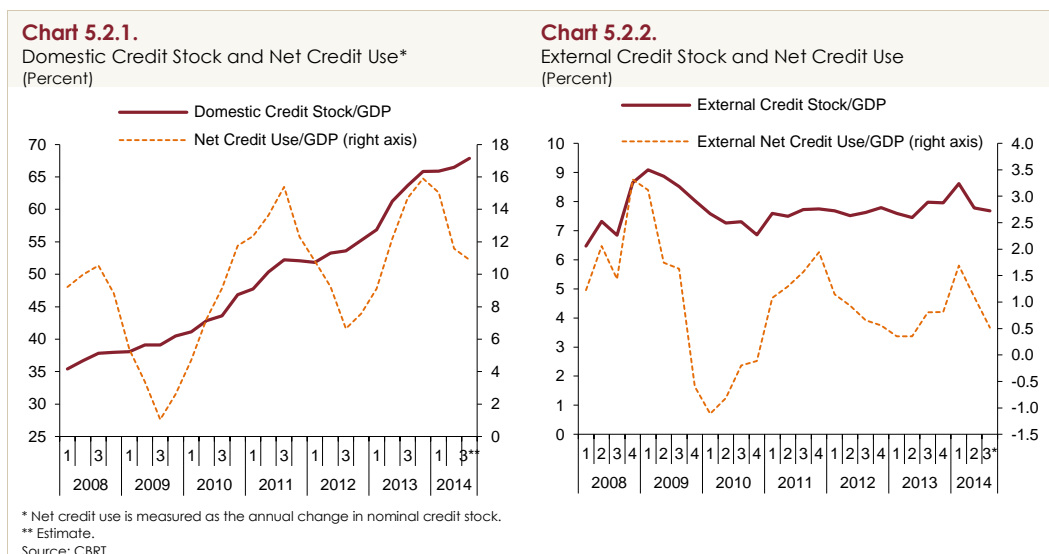
Rates on deposits, which are the main financing source of the banking sector and are heavily concentrated on less than 3-month maturity, started the second quarter with a decline, reflecting the CBRT's decisions and flattened in August and September. In this period, reflecting the respective

developments, the spread between the commercial loan rate and the deposit rate went slightly below the 3.5 percent mark at the end of the third quarter (Chart 5.1.28). The slowing growth across emerging economies in the third quarter and the uncertainty surrounding global monetary policies caused capital flows to be weak and volatile in this period, and capital flows to Turkey were no exception due to increased sovereign risk premiums. Thus, rates on bills and bonds issued by banks posted an increase in August, and edged down in September (Chart 5.1.29).



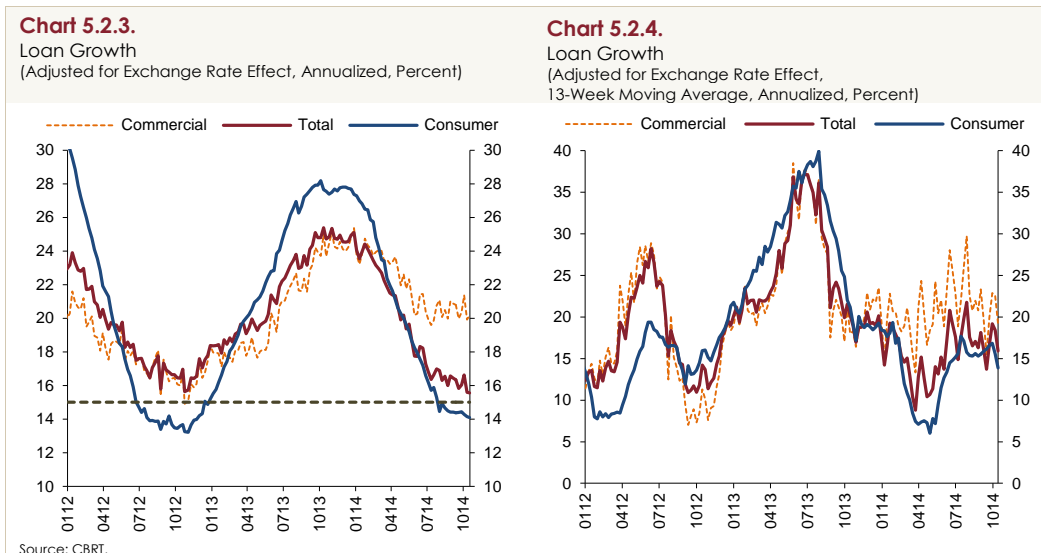
5.2. Credit Volume and Monetary Indicators

The net credits to the GDP ratio, which is critical to financial stability and an indicator of the relationship among credit growth, economic activity and aggregate demand, trended further downwards in the third quarter of 2014 and fell below 12 percent reflecting the slowdown in the credit growth (Chart 5.2.1). In the next quarter, with the CBRT's prudent policy stance, the net credits to the GDP ratio will pare down moderately. Meanwhile, the external net credit use of firms remained close to historical averages in this period, indicating that firms had easy access to external borrowing (Chart 5.2.2).

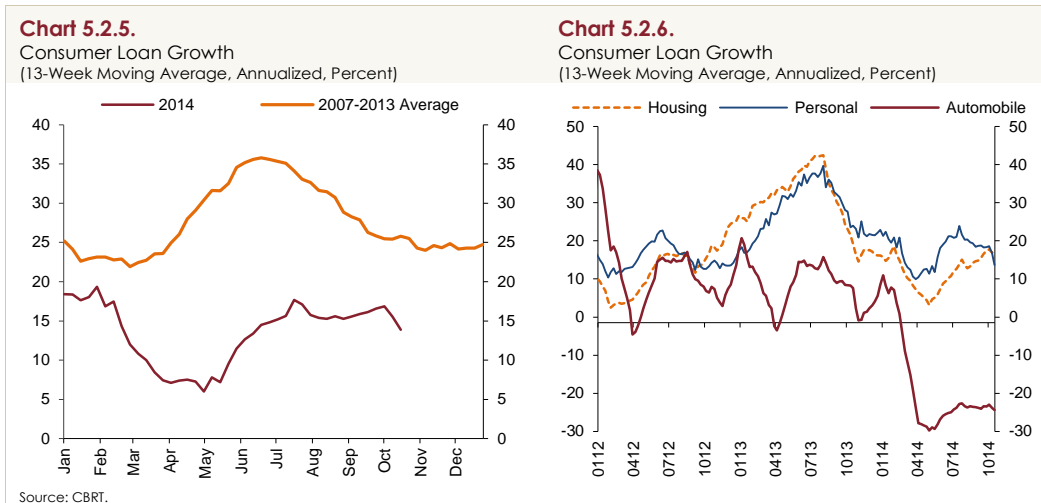


* Net credit use is measured as the annual change in nominal credit stock.
** Estimate.
Source: CBRT.

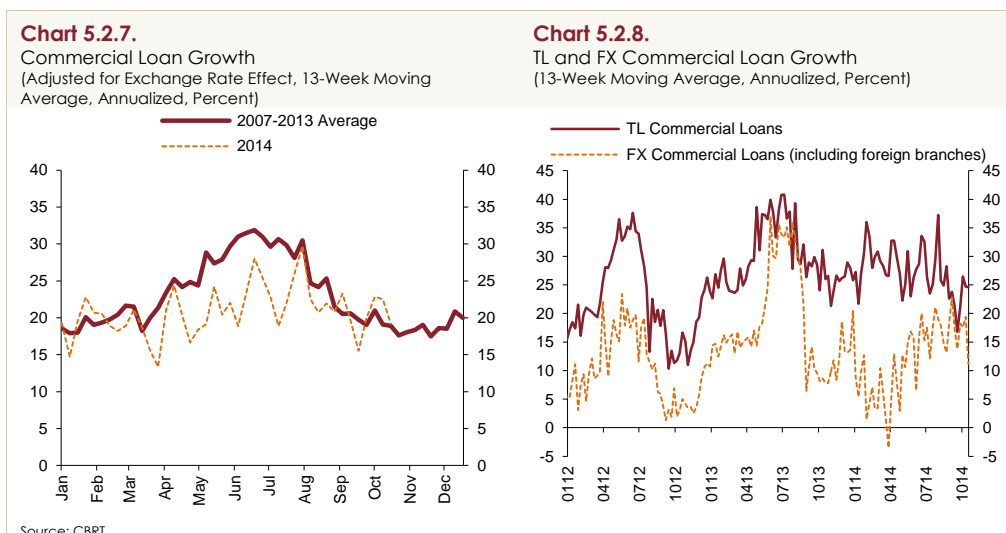
The annual growth rate of loans extended to the non-financial sector, which has been slowing due to the CBRT's tight monetary policy and the BRSA's measures introduced in the beginning of the year, recorded a mild decline in the third quarter of 2014. The annualized total loan growth rate reflecting the loan developments over the past three months neared past years' averages, albeit hovering slightly below. This was largely driven by loan rates declining modestly amid falling domestic funding costs. However, a quarter-on-quarter decrease in consumer confidence and the unchanged sentiment for the overall economic outlook prevented the loan growth rate from rising. Against these developments, loans extended to the non-financial sector posted a 16.4 percent year-on-year growth in exchange rate adjusted terms at the end of the second quarter of 2014 (Chart 5.2.3), while the 13-week moving average covering the third quarter recorded a 16.7 percent growth in annualized terms (Chart 5.2.4). In the final quarter, the improved sentiment for the overall economic outlook amid the expected rise in households' and firms' loan demands implies an increase in loan growth rates, while banks' expectations of a pickup in both domestic and external funding costs may restrain this implied increase.



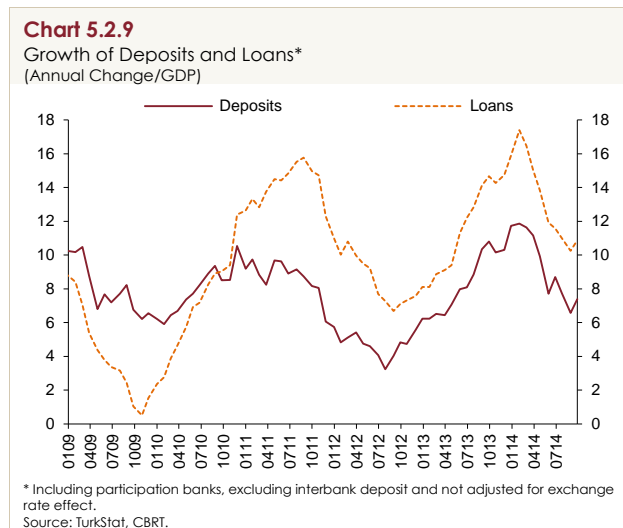
The uptrend of the annualized consumer loan growth that started in May continued into the third quarter (Chart 5.2.5). The consumer loan growth rate that has been rising moderately despite seasonality reflects the changes in consumer loan rates that are gradually falling. This upward trend is more prevalent in housing loans, which has a higher sensitivity to the interest rate. Meanwhile, personal loans move on par with the past years' averages. The annualized growth rate of housing loans stood at 17.5 percent at the end of the quarter, while the annualized growth rate of personal loans remained below the past years' averages with 18.3 percent in the same period (Chart 5.2.6). According to the results of the Loan Tendency Survey that covers the third quarter, loan standards were slightly tighter across all subcategories of consumer loans, while the demand for housing loans rose markedly. Personal loan standards are not expected to change in the fourth quarter of 2014, while demand for housing loans and personal loans are envisioned to rise. However, the minor fall in consumer confidence indices in the third quarter may curb this increase.



Having remained slightly lower than seasonal averages in the second quarter, the annualized growth rate of commercial loans was close to the past years' averages in the third quarter (Chart 5.2.7). In terms of currency denomination, the growth rate of TL commercial loans fell, while the growth rate of FX-denominated commercial loans picked up (Chart 5.2.8). According to the Loan Tendency Survey results that cover the third quarter, loan standards remained unchanged in terms of scale, maturity and the type of currency. In this period, the requested collaterals for commercial loans were slightly down. On the demand side, firms demanded fewer loans from banks. This contraction was more evident across large-scale firms. Analysis of the factors affecting firms' loan demand reveals that the investment demand fell significantly in the third quarter. Inventory build-up and use of working capital, which were among the main factors boosting demand in the previous period, failed to spur demand in this period. Banks indicated that they do not expect a change in commercial loan standards for the final quarter of the year. Meanwhile, firms' loan demand is likely to increase in the same period, which applies to the loan demand from both SMEs and large-scale firms. Yet, banks expect the demand for short-term loans to remain unchanged.



In the third quarter of 2014, growth rate of loans, especially consumer loans, continued to decline in annualized terms. Macroprudential measures led to a faster growth in commercial loans compared to consumer loans, supporting the balancing of the economy. This is consistent with an outlook in which domestic demand has little support for economic activity and net exports make a greater contribution. The expected rise in both domestic and external funding costs and the course of consumer confidence are estimated to bring loan growth rates down, while the impending increase in the demand for consumer and commercial loans and the likely economic recovery may drive loan growth rates higher in the upcoming quarter. The loan growth that has been slowing due to policies adopted by the CBRT and the BRSA is expected to gradually near the deposit growth rate (Chart 5.2.9). The decline in the difference between loan and deposit growth is a factor that will enhance the resilience of the banking sector against possible financial fluctuations by also reducing the banking sector's need for external financing.



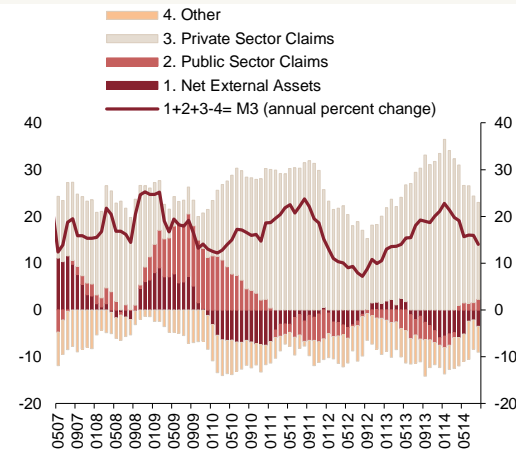
Monetary Indicators

The uptrend in credits extended to the private sector continued to determine the annual growth of M3, the broad measure of money supply, in the third quarter of 2014. The rate of increase in the Private Sector Claims mostly including the credits extended by banks to non-financial private individuals and institutions continued to fall, constituting the main factor of the decline in the growth of the M3.

In the third quarter, Public Sector Claims continued to contribute positively to the M3 growth for the second quarter in a row. The negative contribution of net external assets posted a quarter-on-quarter decrease. Meanwhile, the negative contribution of the item Other, which displayed a relatively steady course in line with bank profitability, is still a non-deposit funding source for the banking sector, yet recorded a slight fall compared to the end of the second quarter (Chart 5.2.10).

Chart 5.2.10.

Balance Sheet Decomposition of M3
(Contributions to Annual M3 Growth)

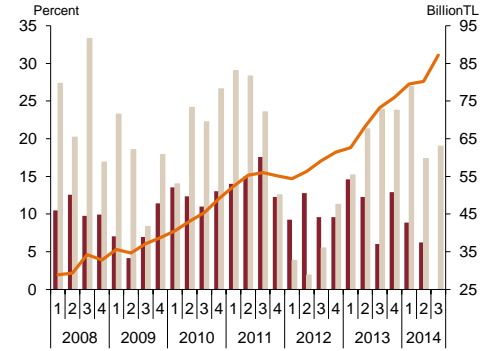


Source: CBRT.

Chart 5.2.11.

Currency in Circulation and Current Consumption Spending*
(Seasonally Adjusted)

■ Current Consumption Spending (annual percent change)
■ Currency in Circulation (annual percent change)
— Currency in Circulation (right axis)



* Consumption spending includes private and public consumption excluding furniture, household appliances, and transport and communication services at current prices.
Source: TurkStat, CBRT.

The annual growth of seasonally adjusted currency in circulation recorded a quarter-on-quarter increase in the third quarter of 2014 (Chart 5.2.11). This is in line with the expected third-quarter growth in private demand. Yet, the expected moderation in domestic demand and the slowdown in consumer loan growth due to the adopted macroprudential measures, the tight monetary policy stance and the weak capital flows fuel expectations of a more modest increase in the annual growth of the currency in circulation.

Box
5.1

Non-Core Liabilities

Total loans extended to the private sector increased at a relatively faster rate in emerging economies than advanced economies during the pre-crisis period. Although the global financial crisis put a cap on loan growth in emerging economies for a while, loans have picked up, particularly in recent years. This increase is largely attributed to the ample pre-crisis liquidity that became even more abundant due to post-crisis quantitative easing policies adopted by advanced economies.

Although credit expansion has the ability to absorb postponed loan demand, and drive investments and thus income higher, a fast credit expansion is accompanied by potential risks. One of these risks is the fact that loans can dampen a current account balance through import demand. Another risk, as we learned from the last global crisis, is that the bubbles occurring in asset prices due to a fast growing purchasing power might lead to systemic crises through the financial accelerator effect.¹ The macroprudential policies that are frequently referred to by central banks in recent years thus emphasize the importance of taking into consideration the heightened fragility in periods of easing when expectations are benign. To this end, central banks have adopted new policies that combine the conventional objective of price stability with financial stability.

The question of how to design a macroprudential framework is relevant in globalizing and deepening financial markets. Accordingly, every economy has to take individual action with respect to their own financial conditions; however, there are also attempts to construct an international framework.² Borio (2010) states that studies regarding macroprudential policies involve two main approaches based on the distribution of the size of the risk. The first approach studies the development of the systemic risk in financial markets over time and emphasizes that it is crucial to implement countercyclical policies in times of high risk. The other approach deals with how the risk is distributed in a certain time within the financial network determined by multiple financial structures and with the correlation among the risks of financial institutions, and focuses on measures that prevent the impact of a likely financial market risk from surging due to negative externalities.

As mentioned above, there are many risk indicators that address the development of financial market risks both over time and from a cross-sectional point of view. Some of these indicators are early warning systems dependent on market data. Another approach that has gained wide support in the literature in recent years aims to move the popular pre-crisis macroprudential perspective based on the balance sheets of financial institutions to a macroprudential framework that takes into account the increasingly more sophisticated structure of financial markets. This approach puts more emphasis on stress tests, financial network models or econometric models. Against this background, this box provides information on non-core liabilities and related studies in Turkey for non-core liabilities, which have been recently suggested as a systemic risk indicator in the literature.

¹ Schularick and Taylor (2014) show the correlation between credit expansion and financial crises for 14 countries during a time span of more than 130 years.

² The BIS publishes brief reports at certain intervals on how the international BASEL regulatory policy framework is implemented in respective countries. For an up-to-date report, see BIS (2014).

Shin (2010) suggests that the reliability of bank funding should be analyzed by decomposing the liability side of the balance sheets of financial institutions. Defining core and non-core liabilities is useful in understanding through what channels the credit expansion is financed during periods of economic recovery. To meet the loan demand in times of economic recovery, instead of reliable funding sources such as deposits, banks may opt for external debt or relatively less reliable and volatile funds such as repo. In terms of a more sophisticated financial network structure and an increased interdependence between financial institutions, such a lending behavior imposes more fragility on the sector against systemic risks. In this regard, Akdoğan and Yıldırım (2014) present a classification of core and non-core balance sheet liabilities for Turkey^{3,4} (Table 1).

Table 1. Classification of Core and Non-Core Liabilities

	Classification of Core and Non-Core Liabilities		
	Core Liabilities	Intermediate	Non-Core Liabilities
	Household	Non-Financial Corporations	Financial Institutions
Liquid	Demand deposits Short-term deposits (up to 1-month)	Demand deposits Short-term deposits (up to 3-month)	Demand deposits Funds from repo Short-term payables to banks
Partly Liquid	Medium-term deposits (1-month to 1-year)	Medium and long-term deposits	Medium and long-term deposits Medium and long-term payables to banks Securities Issued Other borrowings from banks
Non-Liquid	Long-term deposits (1-year and more)		

Source: Akdoğan and Yıldırım (2014).

As shown in Table 1, deposits of domestic households, which are relatively reliable and costless, constitute core funding sources that move in tandem with the income level of households. However, the increase in loan demand may be higher than the increase in deposits in times of economic recovery. In these periods, instead of reliable funds such as deposits, banks may prefer to provide funding from other financial institutions, particularly external ones. Therefore, non-core liabilities include debt items, such as payables to banks, repo, etc., borrowed from other financial institutions. These liabilities are funding resources that are both shorter term and more volatile than core liabilities.

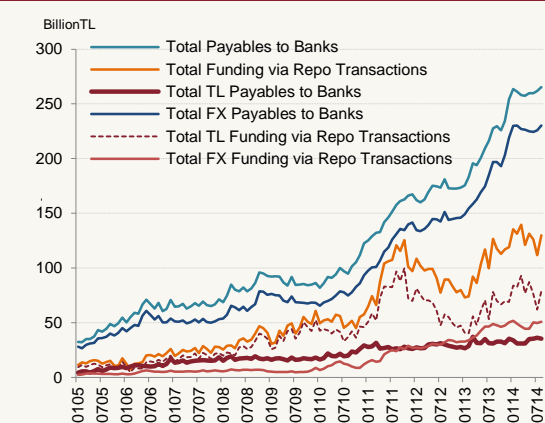
Regarding the components of non-core liabilities for Turkey, the payables to banks item accounts for a larger share than repo transactions (Chart 1). In terms of the type of borrowing, the payables to banks item consists more of borrowing from external banks, while repo transactions are mostly composed of Turkish lira transactions. Chart 2 shows the ratio of non-core liabilities to total external funds.⁵ Having hovered between 17-22 percent during 2005-2010, this ratio increased as high as 25 percent afterwards.

³ Akdoğan and Yıldırım (2014) also examine the course of non-core funds by a comparative analysis on Turkey, US and Korea. The authors find that the main driver of the rise in non-core funds is repo for the US and external borrowing for Turkey and Korea. The study simulates the Turkish banking system's interdependence through a financial networking system, and conducts a liquidity stress test to examine the resilience of the system against liquidity shocks. Having risen in recent years, non-core liabilities account for about 20 percent of total external funds, which is not an alarming level for the Turkish banking system as of the period in question; yet it is still advised to use non-core liabilities, which move in tandem with cyclical volatilities, as a systemic risk indicator.

⁴ Kılınc et al. (2013) point to a close relationship between non-core liabilities and credit growth in Turkey. Moreover, Özen et al. (2013) examine the course of non-core liabilities over sub-periods of 1995-2000 and 2004-2012 based on the thesis that non-core liabilities and portfolio flows may diverge when financial markets are calm or turbulent. The results of the study show that non-core liabilities responded more aggressively to the financial tightening caused by external developments in the 2004-2012 period than in the former period. Binici and Köksal (2013) indicate that non-core liabilities are among the main determinants of cycles of leverage in the Turkish banking system.

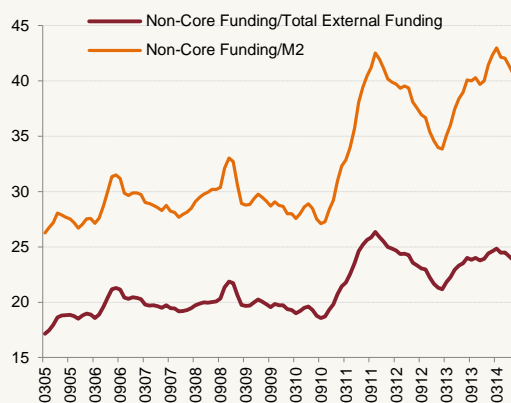
⁵ Shin (2010) suggests that the ratio of non-core liabilities to M2 should also be taken into account for considering the banking sector's liabilities towards depositors.

Chart 1. Sources and Components of Non-Core Funding



Source: BRSA, CBRT.

Chart 2. Ratio of Non-Core Funding to Total External Funding and M2 (3-Month Moving Average, Percent)



Monitoring the ratio of core liabilities to total external funds as a systemic risk indicator and establishing policies to bring such liabilities down to reasonable levels will serve to enhance the resilience of the financial system against liquidity shocks, provide a balanced growth and strengthen domestic savings. Thus, the CBRT created an incentive in October that remunerates financial institutions whose core liability ratios are higher than the sector's average at a higher rate unless they worsen their own situation.⁶ The CBRT will closely monitor both this ratio and the development of the loans to deposits ratio in the upcoming period and adopt policy tools that will reduce the sensitivity of the financial system to cyclical fluctuations.

REFERENCES

- Akdoğan, K. and B.D. Yıldırım, 2014, Non-core Liabilities as an Indicator of Systemic Risk and a Liquidity Stress Test Application on Turkish Banking System, *İktisat İşletme ve Finans*, 29(338): 39-66.
- BIS, 2014, Progress report on implementation of the Basel regulatory framework, Basel Committee on Banking Supervision.
- Binici, M. and B. Köksal, 2012, Is the Leverage of Turkish Banks Pro-cyclical? *Central Bank Review*, 12(2): 11-24.
- Borio, C., 2010, Implementing a macroprudential framework: Blending boldness and realism, Keynote address for the BIS-HKMA research conference on Financial Stability: Towards a Macroprudential Approach, Honk Kong SAR, 5-6 July 2010.
- CBRT, 2014, Press Release on Support for Core Liabilities dated October 21, 2014.
- Kilinc, Z., H.G. Karasoy and E. Yücel, 2013, Non-Core Bank Liabilities and Credit Growth: Evidence From an Emerging Economy, *International Finance Review*, vol. 14, Global Banking, Financial Markets and Crises, edited by Bang Nam Jeon and Maria Pia Olivero, Chapter 3: 71-90.
- Özen, E., C. Şahin and İ. Ünalmiş, 2013, External Financial Stress and External Financing Vulnerability in Turkey: Some Policy Implications for Financial Stability. *Central Bank Review*, 13(Special I): 65-74.
- Schularick, M. and A.M. Taylor, 2009, Credit booms gone bust: monetary policy, leverage cycles and financial crises, 1870–2008, NBER Working Paper No. 15512.
- Shin, H.S. and K. Shin, 2010, Pro-cyclicality and Monetary Aggregates, NBER Working Paper No.16836.

⁶ For details, see CBRT (2014).

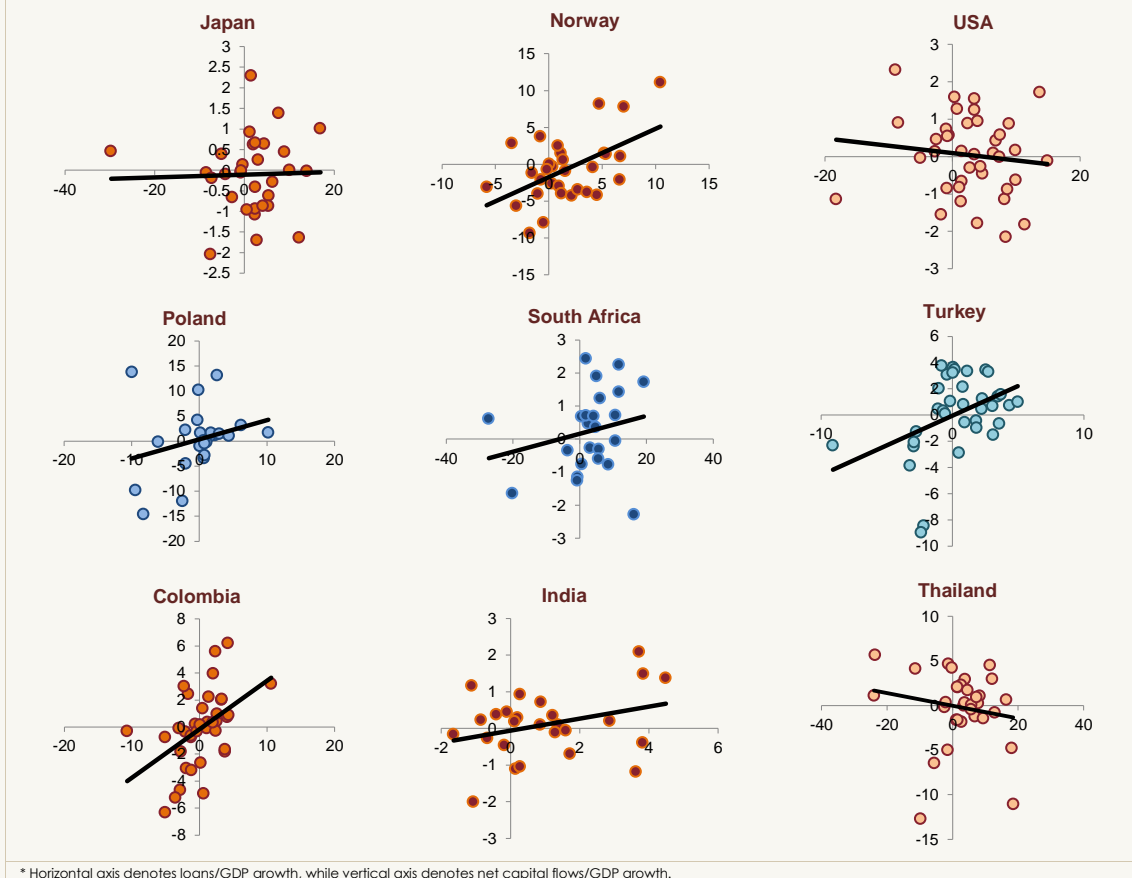
Box
5.2

International Capital Flows and Domestic Loan Growth

International capital flows have a potential to positively affect the economy in terms of financing investments, especially in countries with low savings rates. Yet, they can also lead to the accumulation of macrofinancial risks in emerging economies as experienced in the post-crisis period. Therefore, the relationship between international capital flows and macrofinancial stability remains a key issue to be explored. Specifically, benefiting from capital flows while also averting from their negative aspects is a major challenge faced by policymakers.

This box examines the empirical relationship between international capital flows and domestic loan growth by using a panel data set involving 101 emerging and advanced economies.⁷ Empirical results show a statistically significant and positive interaction between these two variables. By GDP per capita breakdown, the loan growth-capital flows correlation is much stronger in upper-middle income countries, including Turkey, than in lower-middle (LMIC) and higher income countries (HIC).

Chart 1. International Capital Flows and Domestic Loan Growth* (Percent)



⁷For further details, see Arslan and Taşkın (2014).

The data used in the analysis are obtained from International Financial Statistics (IFS), World Development Indicators (WDI), Chinn and Ito (2006), Darvas (2012) and Broner et al. (2013), covering the period from 1970 to 2009. The analysis is based on macroeconomic variables such as domestic loan growth, net capital flows, GDP, GDP per capita, real exchange rate, inflation and the external vulnerability index.⁸

Regression Analysis

Panel data regressions are used to examine the empirical relationship between international capital flows and domestic loan growth. The baseline regression is estimated using fixed effects model and alternatively by the Arellano-Bond model. The regression analysis is based on the following equation:

$$CR_{it} - CR_{it-1} = \alpha + (NCF_{it} - NCF_{it-1})\beta + (X_{it} - X_{it-1})\delta + D_{yr}\theta + D_{cr}\lambda + \mu_i + \varepsilon_{it} \quad (1)$$

Here, CR and NCF represent the natural logarithm of domestic loans and the international capital flows to GDP ratio, respectively. X stands for consumer price index, real effective exchange rate, external vulnerability, real GDP and real GDP per capita. D_{yr} and D_{cr} are the year dummy and crisis dummy variables, respectively.

Table 1. Regression Results

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Net Capital Flows/	0.43***	0.39***	0.37***	0.35***	0.37***	0.37***
Change in GDP	[0.084]	[0.081]	[0.068]	[0.064]	[0.062]	[0.062]
Percentage Change in Real GDP	0.62	0.99***	1.16***	1.14***	1.16***	1.18***
Real GDP	[0.514]	[0.176]	[0.188]	[0.188]	[0.178]	[0.180]
Inflation	-0.01**	-0.01**	-0.00	-0.00	-0.00	
	[0.004]	[0.004]	[0.003]	[0.003]	[0.003]	
Crisis dummy	-0.04*	-0.03*	-0.05**	-0.04		
	[0.021]	[0.020]	[0.024]	[0.024]		
Percentage Change in Real Exchange Rate	-0.12	-0.10	-0.11			
Exchange Rate	[0.077]	[0.077]	[0.073]			
Change in External	0.01	0.01				
Vulnerability Index	[0.008]	[0.008]				
Percentage Change in	0.46					
GDP per capita	[0.446]					
Year dummies	+	+	+	+	+	+
Number of observations	2.187	2.268	2.436	2.436	2.466	2.466
R ²	0.16	0.15	0.14	0.13	0.13	0.13
Number of countries	98	100	101	101	101	101

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The main equation is estimated by fixed effects model using the percentage change values of variables and also including dummy variables. The estimated coefficients are displayed in Table 1. The first row displays the estimated value of the coefficient β that shows the correlation between net international capital flows and loan growth. Each column in the table displays how the results change when explanatory variables are omitted. The correlation between these two variables is positive (0.43) and statistically significant. This result remained unchanged when alternative control variables are used (Table 1, columns 1-6). This estimation also reveals that there are statistically significant coefficients between other explanatory variables and loan growth (Table 1, rows 2-7).

⁸ For further details, see Arslan and Taşkın (2014).

In order to analyze the correlation between international capital flows and domestic loan growth by groups of GDP per capita, interaction variables were added to equation (1). Dummy variables were created for the income group (the higher income group and the lower-middle income group) and the interaction between these variables and other explanatory variables was added to the equation. The coefficient estimations of the interaction variables are shown in Table 2. The coefficients of both interaction variables were negative and statistically significant.

Thus, the correlation between net capital flows and loan growth is relatively weaker in lower-middle income countries than in high-middle income countries including Turkey (Table 2, rows 2-3).

(1) Percentage Change in Loans	Variables	(2) Percentage Change in Loans
0.71*** [0.212]	Net Capital Flows/Change in GDP	-
-0.38 [0.234]	Net Capital Flows/ Change in GDP*HIC	-
-0.39* [0.230]	Net Capital Flows/ Change in GDP*LMIC	-
-	Net Capital Flows/Trend of Change in GDP	0.77*** [0.218]
-	Net Capital Flows/ Trend of Change in GDP*HIC	-0.52** [0.245]
-	Net Capital Flows/ Trend of Change in GDP*LMIC	-0.45* [0.236]
2,176	Number of observations	2,179
0.17	R ²	0.17
97	Number of countries	97

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In sum, this box has examined the relationship between international capital flows and domestic loan growth. Empirical findings have shown that there is a positive and statistically significant relation between these two variables. By GDP per capita breakdown, the correlation between domestic loan growth and capital flows is stronger in upper-middle income economies including Turkey.

REFERENCES

- Arellano, J. and S. Bond, 1991, Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equation, *Review of Economic Studies*, 58(2): 277-297.
- Arslan, Y. and T. Taşkın, 2014, International Evidence on the Interaction Between Cross-Border Capital Flows and Domestic Credit Growth, *İktisat, İşletme ve Finans*, 29(341): 37-56.
- Broner, F., T. Didier, A. Erce and S. Schmukler, 2013, Gross Capital Flows: Dynamics and Crises, *Journal of Monetary Economics*, 60(1): 113-133.
- Chinn, M. and H. Ito, 2006, What Matters for Financial Development? Capital Controls, Institutions, and Interactions, *Journal of Development Economics*, 81(1): 163-192.
- Darvas, Z., 2012, Real Effective Exchange Rates for 178 Countries: a New Database, *Bruegel Working Paper No. 716*.

Box
5.3

Capital Flows and Loan Growth: The Impact of Macroprudential Measures

Many emerging economies were challenged by problems arising from short-term and volatile capital flows due to the quantitative easing policies adopted by advanced economies after the global financial crisis. Capital flows can support economic welfare by allowing converging economies to finance efficient projects, but they can also lead to financial risks at the same time. Therefore, many emerging economies have adopted policy measures against capital flow fluctuations in recent years.

This box analyzes how the elasticity of loan growth to cross-border banking flows has changed after adopting macroprudential measures against capital flows.⁹ To this end, a panel data set that covers the 2004Q1-2013Q2 period for 33 advanced and emerging economies is used.¹⁰ The findings show that cross-border banking flows is a significant explanatory variable for loan growth, which has become less elastic to capital flows due to the adoption of macroprudential measures by many emerging economies.

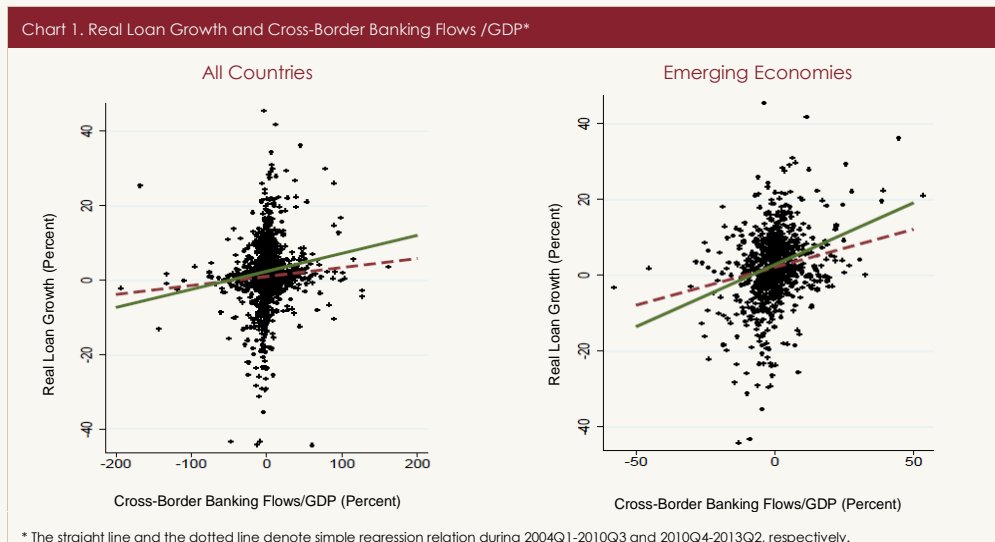


Chart 1 shows the real loan growth and the banking-sector capital flows used in the analysis. There is a significantly positive correlation between the two variables for the 2004Q1-2010Q3 period. This correlation is stronger for emerging economies. Moreover, this relationship has weakened across all countries and emerging economies after the end of 2010. Meanwhile, a regression analysis is used to measure how the correlation between loan growth and capital flows across economies implementing macroprudential policies has differed from other economies in the post-2010 period.

⁹ For further details, see Aysan et al. (2014).

¹⁰ 18 emerging economies include Brazil, Bulgaria, Chile, Colombia, Croatia, Czech Republic, Hungary, Indonesia, South Korea, Malaysia, Mexico, Philippines, Poland, Romania, Russia, South Africa, Thailand and Turkey. 15 advanced economies are Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Netherlands, Portugal, Spain and Sweden.

In the regression analysis, the dependent variable is the quarterly real loan growth ($\Delta\text{Credits}_t$), and the explanatory variables are the quarterly change of the cross-border banking flows to GDP ratio ($\Delta\text{CapitalFlows}_{it}$), the quarterly change of the public debt to GDP ratio ($\Delta\text{PublicDebt}_{it}$), the quarterly percentage change of the real exchange rate ($\Delta\text{RealExchange}_{it}$), and interest and inflation rates. The country dummy variable has a value of 1 for each country selected. Accordingly, the following equation is calculated using the system GMM method, and overall results and results pertaining to Turkey are given in Table 1.

$$\Delta\text{Credits}_{i,t} = a + \sum_{k=1}^2 \rho_k \Delta\text{Credits}_{i,t-k} + \sum_{s=0}^1 \left(\gamma_1^s \Delta\text{CapitalFlows}_{i,t-s} + \gamma_2^s \Delta\text{CapitalFlows}_{i,t-s} * \text{Dummy}[\text{Macroprudential}] + \gamma_3^s \Delta\text{CapitalFlows}_{i,t-s} * \text{Dummy}[\text{Country}] + \gamma_4^s \Delta\text{CapitalFlows}_{i,t-s} * \text{Dummy}[\text{Macroprudential}] * \text{Dummy}[\text{Country}] \right) + \Delta\text{PublicDebt}/\text{GDP}_{i,t-1} + \Delta\text{RealExchange}_{i,t-1} + \text{Inflation}_{i,t-1} + \text{Interest}_{i,t-1} + \mu_i + v_{i,t}$$

Macroprudential measures are implemented in 2010Q4 and onwards. The Fed announced its first quantitative easing package in November 2008, leading to a subsequent abundance of global liquidity, while emerging economies attracted strong capital inflows and faced currency appreciations. The Fed announced its second quantitative easing package in November 2010. As of end-2010, many emerging economies have re-adjusted their policy frameworks to focus on financial stability and adopted new policy measures. For example, Brazil has adopted tax measures against capital flows; Colombia has imposed restrictions on off-balance sheet derivatives of banks; Indonesia has raised required reserves and limited short-term foreign currency borrowing by banks; Korea has restricted the non-core liabilities of banks, and Thailand has adopted macroprudential measures such as imposing restrictions on the debt-to-value ratio for the housing market (IMF, 2011).

Table 1. Regression Results					
Dependent Variable: Real Loan Growth					
Explanatory Variables	(1)	(2)	Explanatory Variables (Cont.)	(1)	(2)
Credits(<i>t</i> -1)	0.370*** [0.066]	0.351*** [0.072]	$\Delta\text{CapitalFlows}(t) * \text{Dummy}[\text{Macroprudential}]$	-	-0.043*** [0.014]
Credits(<i>t</i> -2)	-0.255*** [0.036]	-0.251*** [0.038]	$\Delta\text{CapitalFlows}(t) * \text{Dummy}[\text{Turkey}]$	-	0.846*** [0.086]
$\Delta\text{CapitalFlows}(t)$	0.030*** [0.012]	0.042*** [0.015]	$\Delta\text{CapitalFlows}(t) * \text{Dummy}[\text{Macroprudential}] * \text{Dummy}[\text{Turkey}]$	-	-0.110 [0.079]
$\Delta\text{CapitalFlows}(t-1)$	0.028** [0.013]	0.037** [0.016]	$\Delta\text{CapitalFlows}(t-1) * \text{Dummy}[\text{Macroprudential}]$	-	-0.032** [0.014]
$\Delta\text{PublicDebt}/\text{GDP}(t-1)$	-0.220** [0.088]	-0.236*** [0.078]	$\Delta\text{CapitalFlows}(t-1) * \text{Dummy}[\text{Turkey}]$	-	-0.166** [0.078]
$\Delta\text{RealExchange}(t-1)$	-0.216** [0.081]	-0.181** [0.082]	$\Delta\text{CapitalFlows}(t-1) * \text{Dummy}[\text{Macroprudential}] * \text{Dummy}[\text{Turkey}]$	-	-0.625*** [0.164]
Interest(<i>t</i> -1)	0.059 [0.057]	0.040 [0.061]	Dummy[Macroprudential]	0.535 [0.525]	0.270 [0.457]
Inflation(<i>t</i> -1)	1.011*** [0.247]	1.102*** [0.262]	Dummy[Global Financial Crisis]	3.142*** [0.966]	3.312*** [0.957]
Number of observation	1.229	1.229			
Number of countries	33	33			

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Equation 1 in Table 1 shows the correlation between real loan growth and other macro variables for all economies and all periods. Accordingly, both the current period capital flows and the lagged value of capital flows are substantially influential on real loan growth. Having performed a similar analysis by using annual data and a broader selection of countries and capital flows, Box 5.2 shows that this relationship is significant, concurring with the findings of Arslan and Taşkın (2014). In equation 2, dummies for the macroprudential period and Turkey were added to the overall equation. Accordingly, in the period when macroprudential policies were applied, the elasticity of real loan growth to capital flows is mostly lower for all economies (coefficients of $\Delta\text{CapitalFlows}*\text{Dummy}[\text{Macroprudential}]$ variables). Moreover, this elasticity is higher for Turkey over the whole period compared to other economies (coefficients of $\Delta\text{CapitalFlows}*\text{Dummy}[\text{Turkey}]$ variables). Thus, across all countries, Turkey stands out with a higher loans-to-capital flows elasticity. Yet, in the period of 2010Q4 and onwards, this elasticity becomes markedly smaller in Turkey than in other economies (coefficients of $\Delta\text{CapitalFlows}*\text{Dummy}[\text{Macroprudential}] * \text{Dummy}[\text{Turkey}]$ variables). Even when only emerging economies are used in the regressions, this result is still valid, implying that Turkey has experienced a lower real loan growth-to-capital flows elasticity during 2010Q4 and onwards compared to other emerging economies. When the same analysis is repeated for certain emerging economies, the loans-to-capital flows elasticity is higher in Colombia, Indonesia and Korea over the entire period compared to other economies but lessens during the implementation of macroprudential measures as of 2010Q4 and onwards, similar to Turkey.¹¹

In sum, this box concludes that there is a significant correlation between domestic real loan growth and cross-border banking flows for a broad selection of countries. Many emerging economies have enhanced their policy frameworks as of 2010 to limit the financial risks arising from volatile and short-term capital flows and adopted macroprudential measures. The analysis shows that the periods when these measures were applied are marked by lower loans-to-capital flows elasticity in these countries.

REFERENCES

- Arslan, Y. and T. Taşkın, 2014, International Evidence on the Interaction Between Cross-Border Capital Flows and Domestic Credit Growth, *İktisat, İşletme ve Finans*, 29(341): 37-56.
- Aysan, A.F., S. Fendoğlu, M. Kılınc and S. Yıldız, 2014, Credit Cycles and Capital Flows: Effectiveness of Macroprudential Policy Framework in Emerging Countries, unpublished manuscript.
- IMF, 2011, Recent Experiences in Managing Capital Inflows: Cross-Cutting Themes and Possible Policy Framework, Public Information Notice No. 11/42.

¹¹ Similar results were obtained using alternative estimation methods (e.g. fixed effects or differenced GMM). Moreover, the results were similar even when the macroprudential period was set to a quarter earlier or later than 2010Q4. For details, see Aysan et al. (2014).