

Financial Stability Report

May 2015

Vol. 20



TÜRKİYE CUMHURİYET
MERKEZ BANKASI

Financial Stability Report

May 2015

Volume 20

THE CENTRAL BANK OF THE REPUBLIC OF TURKEY

Head Office

İstiklal Cad. 10 Ulus, 06100 Ankara, Türkiye

Tel: (+90 312) 507 50 00

Fax: (+90 312) 507 56 40

Telex: 44033 mrbrt tr; 44031 mbdi tr

World Wide Web Home Page: <http://www.tcmb.gov.tr>

E-mail: bankacilik@tcmb.gov.tr, info@tcmb.gov.tr

ISSN 1306-1232

ISSN 1306-1240 (Online)

This report, which is aimed at informing the public, is based mainly on March 2015 data. Nevertheless, the Report includes developments and evaluations up to its date of publication in Turkish. The full version of this text is available on the CBRT website. The CBRT cannot be held accountable for any decisions made based on the information and data provided therein.

Foreword

Since the release of the previous volume of the Financial Stability Report, Turkey's financial system has remained strong and with the contribution of the macroprudential measures introduced, the loan growth rate and the loan composition have underpinned balanced growth. The CBRT has maintained its cautious monetary policy stance and taken a series of measures to reinforce financial stability.

I hope that the 20th volume of the Financial Stability Report, which presents a detailed discussion of macrofinancial developments and financial stability measures, will be of benefit to all readers.

Erdem BAŐCI
Governor





Contents

Overview	1
I. Macroeconomic Outlook	3
I.1. International Developments	4
I.2. Domestic Developments	6
II. Non-Financial Sector	9
II.1. Household Developments	9
II.2. Corporate Sector Developments.....	14
III. Financial Sector	27
III.1. Credit Risk	28
III.2. Liquidity Risk	34
III.3. Interest Rate Risk and Exchange Rate Risk	47
III.4. Capital Adequacy, Profitability and Resilience to Shocks	51
IV. Special Topics	53
IV.1. FX Short Positions of Corporate Sector Firms	53
IV.2. The 2008-2009 Global Financial Crisis and the Credit Channel	61
IV.3. Testing Macroprudential Policy with Micro Data: The Effect of Loan-to-Value Restrictions on Car Sales in Turkey	68
IV.4. Is There a Housing Bubble or a Quality Boom in Turkey? Evidence from Hedonic Price Adjustment.....	75
IV.5. Federal Reserve Policies and the Banking Sector's External Borrowing	81
IV.6. The New Monetary Policy Framework and the Interest Rate Transmission Mechanism.....	87
IV.7. Determinants of Real Sector Firms' Borrowing Costs in Turkey.....	94
IV.8. Competitive Structure of the Turkish Banking System.....	102
List of Charts	111
Tables and Diagrams	116
Abbreviations	117



Overview

Global economic developments remain important in terms of financial stability. The divergence across countries with respect to economic recovery has continued since the release of the November 2014 volume of the Financial Stability Report. The US has shown a stronger growth performance compared to other advanced economies, whereas economic growth is still weak in the euro area. There has been a deceleration in the growth rates of emerging economies which constitute a significant portion of global growth. Inflation is below the targets in advanced economies, while it is moving upwards in emerging economies. Signals for a rate hike and uncertainties regarding the normalization process in the monetary policy in the US keep the sensitivity of global markets to data flow at high levels. In such a conjuncture, the US dollar has appreciated against other currencies and capital movements in emerging economies have fluctuated.

Indicators for the first quarter of 2015 suggest that domestic economic activity has lost some momentum due to the deceleration in external demand. The economic activity is estimated to resume the moderate upward trend as of the second quarter of the year, on the back of the partial recovery in European Union growth. On the inflation outlook front, cautious monetary and fiscal policies as well as macroprudential measures have favorably affected core inflation indicators. In addition, low levels of commodity prices have backed the downward trend in inflation. However, the high increases in food prices and exchange rate developments in the first quarter of the year have contained the improvement in inflation more than envisaged. In this framework, the CBRT has maintained its cautious monetary policy stance.

The current account balance has improved, while the persisting fiscal discipline has underpinned the downtrend both in risk premiums and inflation. The CBRT has maintained its cautious monetary policy stance on the one hand and on the other, aimed at reducing macrofinancial risks with measures that will support the FX liquidity, core liabilities and long-term borrowing.

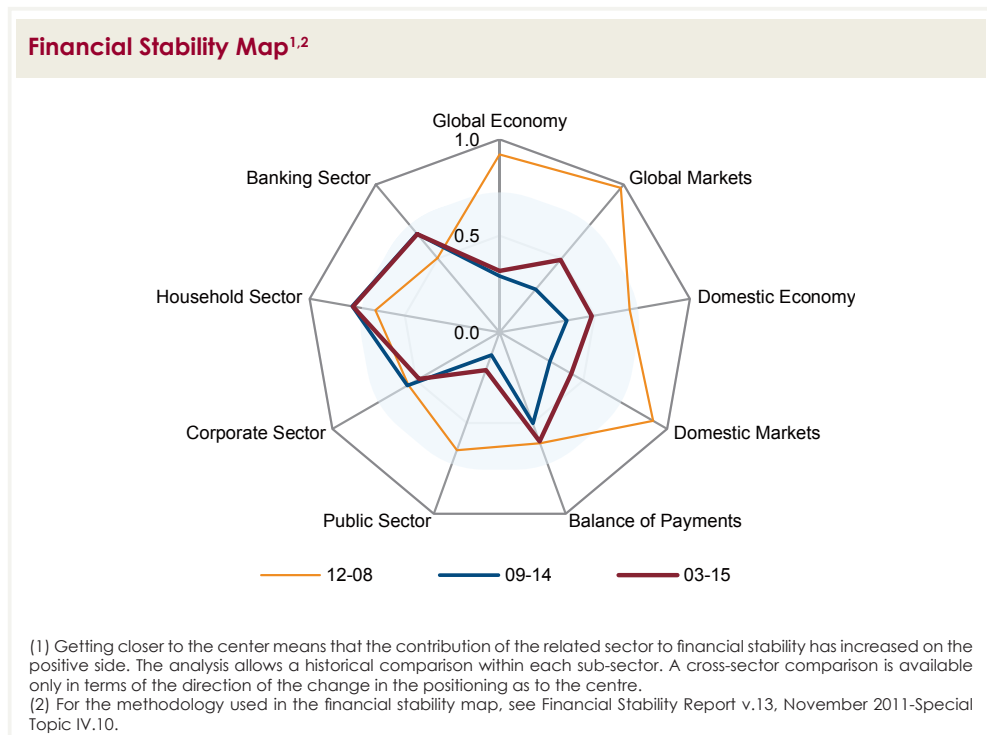
The improvement in the ratio of household financial liabilities to their financial assets continues due to the impact of macroprudential measures taken. Households borrow only in Turkish lira and with a fixed rate, which contributes to the solvency of households in a period of increased volatility in financial markets. The credit demand of the corporate sector is mainly shaped by the financing of the Turkish lira working capital and the need to roll over the current debt. FX loans extended to the corporate sector are predominantly long-term loans; the short-term short position is low and FX loans are used rather by large companies that can manage the exchange rate risk well. All these facts are believed to restrain the exchange rate risk. Moreover, with a new legal arrangement introduced to lower the high leverage caused by the tax advantage of

financing through borrowing, a new tax incentive was offered for the growth in money capital. This incentive is expected to encourage equity financing.

Loan growth rates in the banking sector are at reasonable levels and commercial loan growth has outpaced consumer loan growth thanks to the macroprudential measures, which altogether support balanced growth. Although the non-performing loan ratio remains flat, factors such as the weak economic activity and the exchange rate volatility require the credit risk to be monitored. Current capital buffers are adequate enough to cover potential credit risk losses. The robust liquidity outlook continues in the banking sector.

With the contribution of the change that the CBRT introduced in its reserve requirement implementation to extend the maturity of non-deposit FX sources, the average maturity of banks' external funding has extended. The CBRT also started remunerating TL required reserves to encourage core liabilities, while banks have increased their use of core funding sources, which is a positive development in terms of financial stability. Steps taken towards supporting FX liquidity, core liabilities and long-term borrowing are aimed at increasing the resilience of the Turkish economy to global shocks. If needed, additional measures may be taken in the same manner.

The macro display chart below presents the schematic reflection of the developments in financial stability in Turkey within the framework of the evaluations made. Accordingly, global markets, domestic economy and domestic financial market developments have been weaker in the last six-month period compared to the previous six-month period.

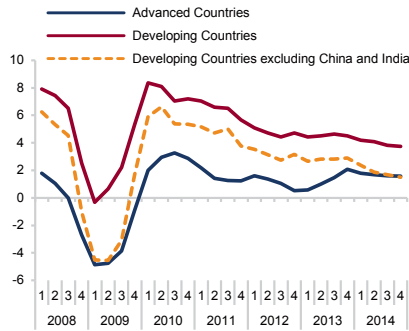


I. Macroeconomic Outlook

The global economy displayed a moderate growth in 2014 while the discrepancies continue between recovery trends of countries. Inflation in advanced economies hovers below the target rates owing to the fall in commodity prices, especially oil prices. In emerging markets, however, inflation rates display an uptrend due to the depreciation in national currencies. The discrepancies between growth and the inflation outlook are reflected in national monetary policies of advanced economies. Global markets remain highly sensitive to data flows due to these developments coupled with low predictability in global economy and elevated uncertainties. Consequently, the volatility in risk perceptions and capital flows persists. The global economic developments offer both opportunities and challenges to emerging economies. The low oil prices are positively affecting the inflation, current account deficit and growth outlook of emerging economies that import commodities. Meanwhile, subdued global economic activity poses a downside risk to the growth prospects of the emerging economies via the foreign trade channel. The significant appreciation of the US dollar against all other currencies on the global foreign exchange market stands out as a risk factor for those emerging economies running a high level of FX indebtedness.

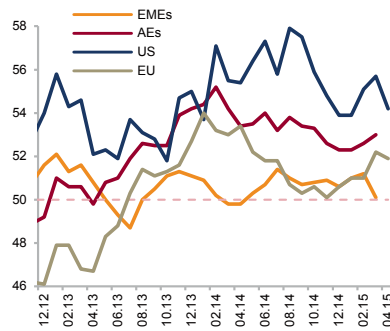
In Turkey, economic activity remains moderate. Weak export trend is the main factor decelerating growth. While aggregate demand conditions are underpinning disinflation; food prices and the lagged effects of exchange rate developments curb improvement in the inflation outlook. While portfolio flows to Turkey remain weak, there are fluctuations in the risk premium and the value of the Turkish lira. The CBRT sustains its cautious monetary policy stance and maintains a tight monetary policy to curb the impact of the volatility in the global markets on Turkey's inflation outlook and inflation expectations. While the current account deficit is improving on the back of the cautious monetary stance coupled with the sustained macroprudential measures, the risk premia remains low thanks to the fiscal discipline and the banking sector's strong position. In the upcoming period, the course of economic activity and

Chart I.1.1
Global and Advanced Economies' Growth Rates¹
(Percent, Annual)



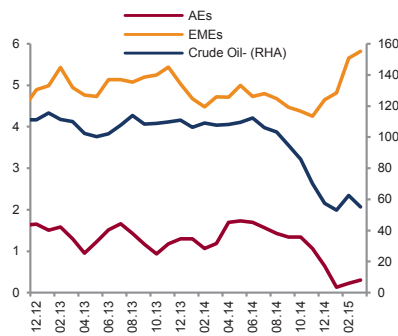
(1) Weighted by each country's share in global GDP.
Source: Bloomberg, CBRT.

Chart I.1.2
Manufacturing Industry PMI Indices



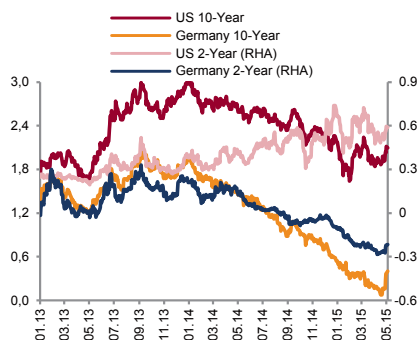
Source: Bloomberg

Chart I.1.3
Inflation in Advanced and Emerging Economies and Crude Oil Prices (Percent, Annual, USD)



Source: Bloomberg

Chart I.1.4
US and Germany Treasury Bond Yields (Percent)



Source: Bloomberg

the volatility in the markets will be the factors affecting financial stability. While the CBRT maintains its cautious monetary stance on one hand, on the other it aims to mitigate macro-financial risks by introducing measures supporting foreign exchange liquidity, core liabilities and long-term borrowing.

1.1. International Developments

Global growth realized at moderate levels in 2014 and the recovery trends in the economic activity of countries has continued to diverge. The USA enjoys a stronger growth performance compared to other advanced economies. Despite signs of recovery, growth in the euro area is still subdued. The growth pace of advanced economies, which comprises 75 percent of global growth, is slowing down (Chart I.1.1). The manufacturing industry PMI indices exhibit signals that the slowdown in the growth pace of the emerging economies will likely continue throughout 2015. However, the manufacturing industry PMI indices for advanced economies suggest that the economic outlook in the euro area may improve whereas recovery in the USA will likely lose some pace (Chart I.1.2).

Inflation outlook in advanced economies and emerging economies diverge significantly. The decline in commodity prices, particularly in oil prices, reduces inflationary pressures. Moreover, inflation rates in advanced economies remain below targets due to weak demand in countries like the euro area and Japan. However, inflation rates in emerging economies, display an uptrend due to the depreciation in national currencies (Chart I.1.3).

The monetary policies of advanced economies diverge due to the discrepancies in the growth and the inflation outlook. The ECB drove lending rates down to negative and expanded the asset purchase program that it initiated in October 2014 by including public sector 2-year bonds. Interest rates in the euro area are falling rapidly on the back of monetary expansion and the fall in inflation expectations (Chart I.1.4). On the other hand, the Fed is giving signals of a start of an interest rate hike with the improvement in the US economy. Overall, these developments have led to the appreciation of US dollar against the euro

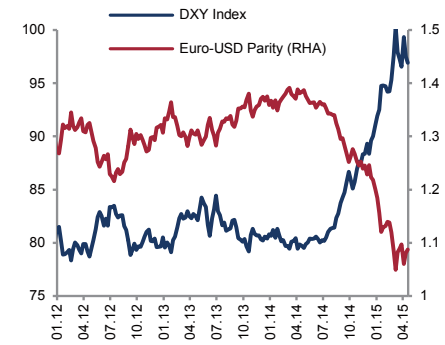
(Chart I.1.5). Even though the change in the euro / US dollar parity is welcomed as this will support recovery in the euro area, there is not a noteworthy improvement in credit supply yet. The high NPL ratios in the balance sheets of the banks in the euro area prevents effective operating of the credit market.

The implementation of an effective communication strategy by the Fed regarding its monetary policy is of crucial importance. The low inflation trend coupled with lower-than-expected US data is elevating uncertainties over the normalization process of the US monetary policy. These uncertainties lead to a discrepancy between the expectations of the Federal Open Market Committee members and those of the market. Market participants are expecting a smoother increase in the Federal funds rate than the FOMC members (Chart I.1.6). An earlier and faster than expected rise in the rate might lead to fluctuations in the global financial system.

Capital movements in emerging economies have been fluctuating due to the uncertainties in the United States' monetary policy. Moreover, currencies of emerging economies have depreciated and exchange rate volatility has increased in these countries. Nevertheless, the depreciation in currencies of the emerging economies was partly offset when the FMOC members revised their interest rate expectations downwards in the March meeting. The CDS premiums of emerging economies is rising due to capital outflows (Chart I.1.7 and I.1.8). Expectations for the Federal funds rate, growth performances of emerging and advanced economies and commodity prices will have a significant impact on the global risk appetite as well as the capital flows toward emerging economies.

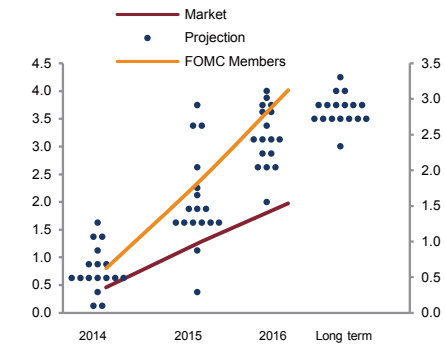
The differences between monetary policies of advanced economies increase the sensitivity of emerging markets to exchange rate. FX borrowing in most of the emerging economies has moved upwards compared to the pre-crisis period (Chart I.1.9). Appreciation of the US dollar increases the debt burden of emerging economies and accordingly, some concerns about roll-over of especially short-term debts. In this framework, amid the current global low interest rate environment, extending

Chart I.1.5
EUR/USD Parity and DXY Index



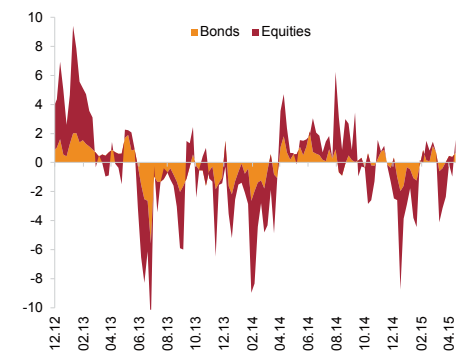
Source: Bloomberg

Chart I.1.6
Expectations of the FOMC Members and the Market
(End-year, percent)



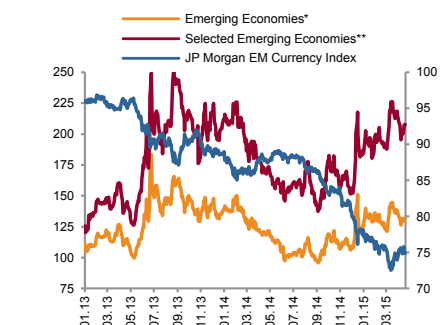
* Fed fund futures rates have been used for market expectations. Median of FOMC Members' interest rate expectations have been used.
Source: CME Group, Fed

Chart I.1.7
Capital Flows to Emerging Economies
(Weekly, Billion USD)



Source: EPFR

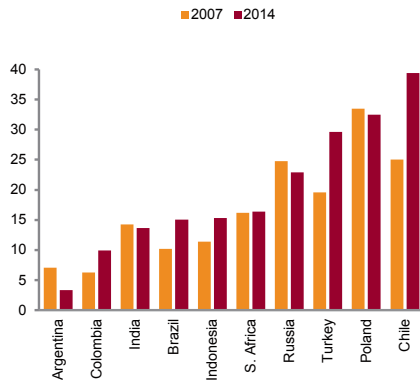
Chart I.1.8
CDS Premiums for Emerging Economies and JP Morgan Exchange Rate Index



Source: Bloomberg
* Emerging economies include Brazil, Czech Republic, Indonesia, South Africa, Colombia, Hungary, Mexico, Poland, Romania, Chile and Turkey.
** CDS premia of Brazil, Indonesia and South Africa have been used to calculate the average of selected emerging economies.

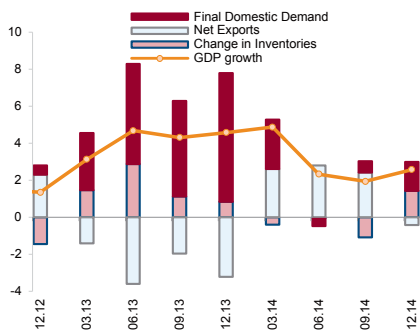
foreign debt maturities and supporting prudent borrowing will strengthen financial stability.

Chart I.1.9
FX Indebtedness of Households and the Corporate Sector
(Percent of GDP)



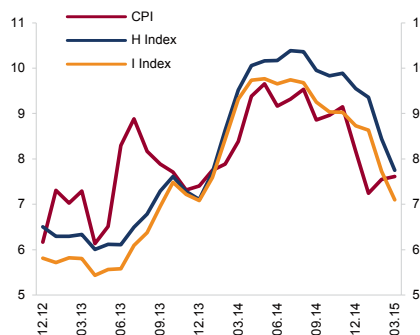
Source: IMF

Chart I.2.1
Contribution to Growth From The Spending Side
(Percentage Point)



Source: CBRT, TURKSTAT

Chart I.2.2
Price Indices
(Annual Percentage Change)



Source: CBRT, TURKSTAT

The global economic developments offer both opportunities and challenges for emerging economies. The decline in commodity prices, particularly in oil prices, reduces upside risks in inflation in emerging economies that are importing commodities. Moreover, this decline is expected to have a positive impact on the current account deficit and the growth. Recovery in the US economy and the signs of recovery in the euro area due to measures taken will make a positive effect on the growth outlook of emerging economies.

I.2. Domestic Developments

Growth was slightly slower in 2014 compared to 2013.

Despite the weak external demand, net exports contributed positively to growth (Chart I.2.1). Industrial production slightly accelerated in the first quarter of 2015. This acceleration was mainly driven by the robust vehicle production. While consumer confidence and investment tendency implies moderate private sector domestic demand, the leading indicators suggest that external demand is relatively weak. The weak global economic activity coupled with the geopolitical developments pulls down growth by curbing exports growth. The excessive volatility in the euro/dollar parity is also adversely affecting exports. Signs of recovery in the euro area are expected to be one of the factors supporting external demand in the upcoming period. An analysis of the developments in economic activity with respect to labor market reveals that the unemployment rate climbed because the rise in employment in 2014 fell short of the growth in the labor supply. Recently, both industrial production data and survey results point to a moderate recovery in the labor market.

Despite the decline in demand, the fall in inflation was more limited than forecasted due to cost-side pressures.

The cautious monetary and fiscal policies coupled with the macroprudential measures are having a positive impact on core inflation indicators (Chart I.2.2). Moreover, the low level of commodity prices underpins the improvement in inflation.

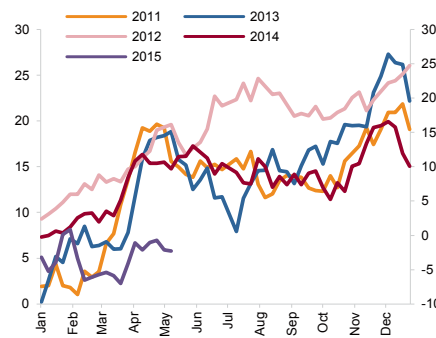
Nevertheless, the high level of food inflation and the lagged effects of exchange rate developments on domestic prices curb further improvement in the inflation outlook. A significant correction in food prices is expected to take place in the near future as the adverse weather conditions seem to have subsided and the Food Committee started to operate. But still, food prices and exchange rate volatility continue to be the primary risk factor on inflation outlook.

While portfolio flows to Turkey remain weak, there are fluctuations in the risk premium and the value of the Turkish lira. Uncertainties over the normalization process of the Fed's monetary policy lead to fluctuations in financial markets. The Turkish lira has depreciated against the US dollar and has displayed a more stable trend against the euro (Chart I.2.3 and I.2.4). Meanwhile, the yield from government domestic debt securities has increased significantly.

The CBRT has sustained its cautious monetary policy stance by maintaining a tight liquidity policy. The CBRT introduced measured rate cuts in the first quarter of 2015 and maintained the yield curve almost flat by sustaining the cautious monetary policy (Chart I.2.5). The cautious stance in the monetary policy need to be maintained taking into account the adverse impact of the global uncertainties and exchange rate volatility on core inflation and the fluctuations in energy and food prices. In addition, the CBRT has introduced some additional measures for the FX liquidity in response to the elevated exchange rate volatility. While the export rediscount credits continue to contribute to the CBRT's FX reserves, these reserves can be used as a supporting tool in times of excessive volatility.

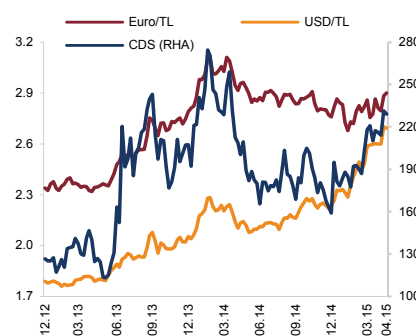
The current account balance has been improving. The decline in commodity prices are having favorable impacts in terms of the current account deficit, inflation and growth in Turkey (Chart I.2.6). The credit growth, which was kept at reasonable levels by maintaining the cautious monetary policy stance and the macroprudential measures, contributed to the recovery in the current account balance. The financing of the current account deficit is mostly made by long-term sources.

Chart I.2.3
Cumulative Portfolio Flows¹
(Billion USD)



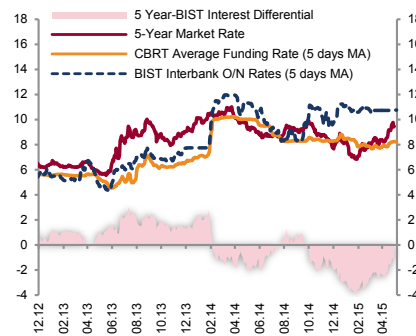
(1) Calculated by weekly net portfolio flows. Includes data on repo, GDDS and securities portfolio as well as banks' off-balance sheet FX position. Source: BRSA, CBRT

Chart I.2.4
Exchange Rates and Turkey's 5-Year CDS Prices



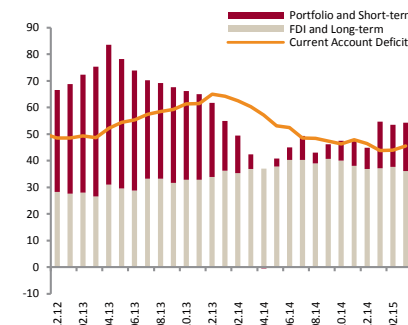
Source: CBRT, Bloomberg

Chart I.2.5
CBRT Rates and BIST Interbank O/N Rates
(Percent)



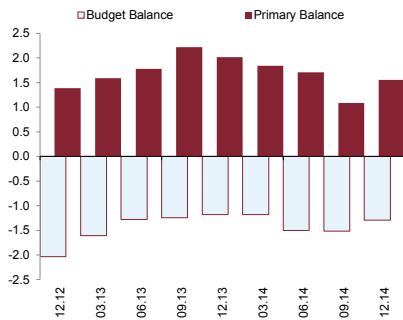
Source: CBRT, BIST

Chart I.2.6
Current Account Deficit and Financing Items
(12-Month Cumulative, Billion USD)



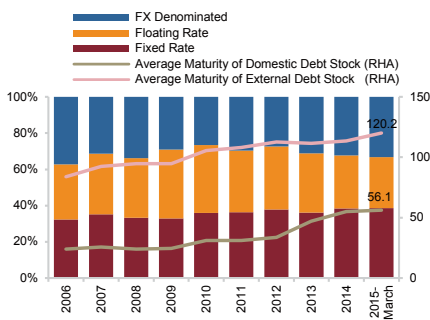
Source: CBRT

Chart I.2.7
Central Government Budget Balances
(12-Month Cumulative, Percent of GDP)



Source: Ministry of Finance

Chart I.2.8
Composition of Central Government Debt Stock and
Average Days to Maturity* (Month)



(1) Data of days to maturity pertains to October 2013.
Source: Undersecretariat of Treasury

The fiscal discipline contributes to bringing down both the risk premium and inflation. Even if the central government budget deficit slightly increased, it was still below the pre-defined target (Chart I.2.7). The downward tendency in public debts continues. The fact that borrowing is mostly in fixed rate, TL denominated and has long maturities contributes to financial stability (Chart I.2.8).

The course of the economic activity and level of volatility in financial markets will be the key factors affecting financial stability in the upcoming period. From the economic activity stance, external demand remains weak while domestic demand offers a moderate support to growth. Volatility in financial markets might curb the contribution of the private sector final demand to growth. Meanwhile the weak global demand conditions are having negative impact on external demand. The recent signs of recovery in the euro area might be promising for external demand. The global uncertainties, the risk appetite and volatility in capital flows still persist. While the CBRT maintains its cautious monetary stance on one hand, on the other, it aims to mitigate the macro-financial risks by introducing measures to support foreign exchange liquidity, core liabilities and long-term borrowing. In the upcoming period, the macro-financial risks will be closely monitored and additional measures will be introduced if required.

II. Non-Financial Sector

The progressive improvement in the ratio of household liabilities to household assets continues. The impact of the macroprudential measures on individual credit cards and the vehicle loans extended by the banking sector also continues. While credit growth is stronger in housing loans, it is milder in general purpose loans. Deposits are still the main component of household assets; however, the share of mutual funds in household financial assets is on the rise owing to the real persons' increased interest in these instruments.

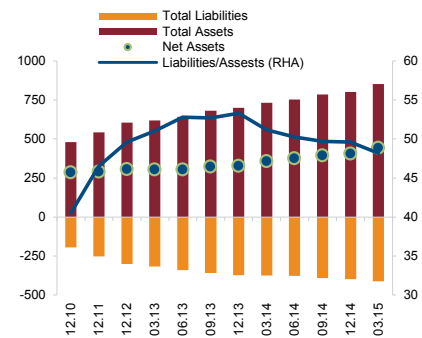
The ratio of the corporate sector's financial liabilities to GDP continues to increase mainly driven by domestic TL loans. Meanwhile, growth in foreign exchange adjusted commercial deposits accelerated. The ratio of foreign liabilities -whose maturities have extended- to the GDP displayed a measured rise due to the appreciation of exchange rates. In the second half of the year, tax incentives that will be introduced for capital to encourage firms to use their own equity for financing will contribute to financial stability by curbing excessive indebtedness.

II.1. Household Developments

The downtrend in the ratio of household liabilities to household financial assets continues. In the first quarter of 2015, the growth in household financial assets exceeded the growth in household liabilities. The rise in assets was mainly driven by saving deposits. The moderate growth trend in retail loans continues owing to the decline in aggregate demand and the macroprudential measures implemented as of end-2013 towards retail loans except housing loans (Chart II.1.1 and II.1.2).

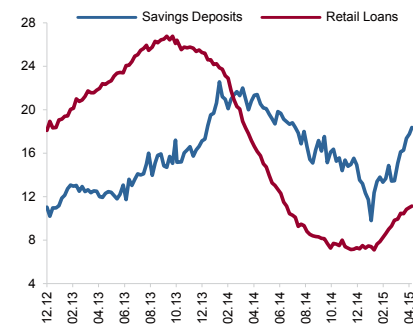
Deposits are still the main component of household assets. While the share of TL deposits in household assets displayed no change compared to September 2014, on which the data of the previous report was based, the TL equivalent of FX deposits increased due to the depreciation of the TL; and this was reflected as a rise in the share of FX deposits in the composition of household assets.

Chart II.1.1
Household Assets and Liabilities
(Billion TL, Percent)



Source: CBRT, BRSA, MKK, CMB, TOKI

Chart II.1.2
Growth in Household Loans* and Deposits
(Annual Percentage Change)



* Loans extended by domestic banks. Credit cards included.
Source: CBRT, BRSA (Latest Data: 30.04.15)

Table II.1.1
Household Financial Assets

	09.14		03.15	
	Billion TL	Share	Billion TL	Share
Total Assets	784.4	100	852.2	100
TL Saving Deposits	376.7	48.0	402.2	47.2
FX Saving Deposits	186.9	23.8	217.6	25.5
- (Billion USD)	82.8		83.3	
Precious Metal Deposits	16.1	2.1	10.8	1.3
- (Billion USD)	7.1		4.1	
Bonds and Bills	20.3	2.6	19.7	2.3
- Public Sector	6.4	0.8	5.9	0.7
- Private Sector	13.9	1.8	13.8	1.6
Mutual Funds	62.3	7.9	72.3	8.5
Pension	33.4	4.3	39.8	4.7
Other Mutual Funds	28.9	3.7	32.5	3.8
Equity Securities	39.7	5.1	43.5	5.1
Repo	2.4	0.3	3.4	0.4
Currency in Circulation	80.1	10.2	82.8	9.7

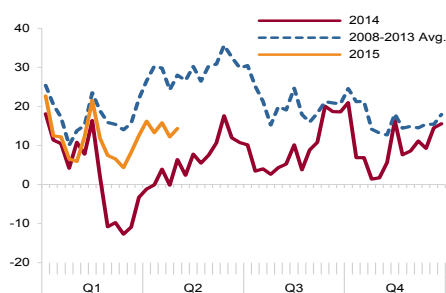
Source: CBRT, BRSA, MKK, CMB, TOKI

Table II.1.2
Household Financial Liabilities¹

	09.14		03.15	
	Billion TL	Share	Billion TL	Share
Total	389.7	100	410.7	100
(Based on Type)				
Housing	134.7	34.6	145.1	35.3
Vehicle	14.2	3.6	15.0	3.6
General-Purpose + Other	150.7	38.7	160.5	39.1
Individual Credit Cards	80.7	20.7	78.9	19.2
Asset Management Companies' Receivables	9.4	2.4	11.2	2.7
(Based on Counterparty)				
Banks	359.2	92.2	378.2	92.1
Financing Companies	7.8	2.0	9.2	2.2
TOKI	13.2	3.4	12.1	2.9
Asset Management Companies'	9.4	2.4	11.2	2.7

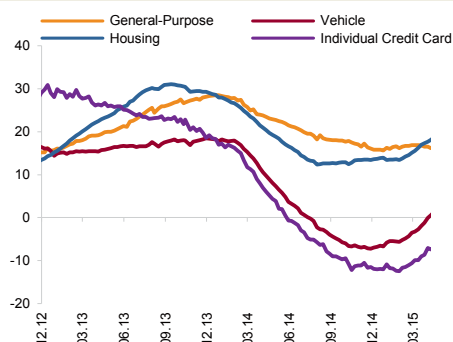
(1) Housing loans include TOKI's receivables against house sales with installments.
Source: CBRT, BRSA, TOKI

Chart II.1.3
Retail Loan Growth¹
(Outstanding Data, 4-Week Moving Average, Annualized, Percent)



(1) Financing companies excluded.
Source: CBRT, BRSA (Latest Data: 30.04.15)

Chart II.1.4
Retail Loan Growth by Type of Loan¹
(Outstanding Data, Annual Percentage Change)



(1) Financing companies excluded.
Source: CBRT, BRSA (Latest Data: 30.04.15)

Households' interest in the private pension system continues. The growth rate of private pension funds outpaced that of total assets over the last six months. Meanwhile, the share of precious metal deposit accounts, government bonds and corporate bonds in total household assets slightly decreased compared to September 2014 (Table II.1.1).

Household liabilities have been growing at a moderate pace on the back of the macroprudential measures introduced and the deceleration in consumer demand. An analysis of the composition of retail loans making up a large portion of liabilities reveals that the share of individual credit cards subject to macroprudential measures fell while the shares of housing loans and general-purpose loans increased. An analysis of household liabilities by type of creditor suggests that the share of banks decreased marginally due to NPLs sold to asset management companies, while the share of financing companies, which have a rapid growth rate in vehicle loans, increased (Table II.1.2).

Retail loan growth has recently been hovering below the previous years' averages, but above last year's figures. The retail loan growth, which accelerated in 2013, lost pace significantly in 2014 and converged to historic averages at the end of the year. Having decreased to relatively low levels in the first quarter of 2015, the retail loan growth displayed a moderate pick-up at the beginning of the second quarter (Chart II.1.3).

Housing loan growth rates accelerated moderately at the beginning of 2015. Housing loans, which displayed a stable rise at around 12-13 percent in the second half of 2014, further accelerated in recent months and reached almost 20 percent. Meanwhile, there has been no remarkable change in the general-purpose loan growth compared to the last report period. The uptrend in the growth of vehicle loans and individual credit cards mainly stems from the previous year's low base effect (Chart II.1.4).

In the first quarter of 2015, the housing loan rates, which decreased slightly compared to the final quarter of 2014,

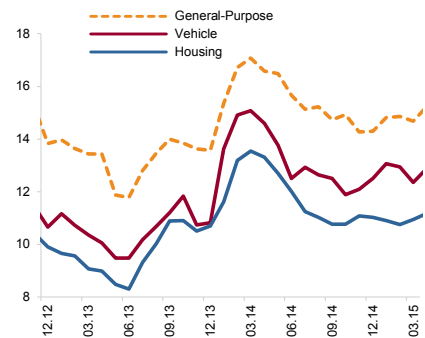
contributed to the housing loan growth. In the same period, general-purpose loan rates slightly increased (Chart II.1.5). The rise in the general-purpose loan rates is mainly attributed to the CBRT's tight liquidity policy and the recently observed slight increase in the general-purpose loan riskiness (See III.1. Credit Risk section).

The household current consumption spending and unsecured retail loan extensions are still highly interrelated. As individual credit cards and general-purpose loan instruments have started to be used by consumers more commonly as a financing instrument, developments in these types of loans are more influential in consumer spending. There has been no significant rise in individual credit card spending owing to the macroprudential measures introduced in 2014 for credit card spending with installments; however individual credit card spending with installments was partly substituted by general-purpose loans, thus pushing consumer spending upwards (Chart II.1.6).

The impact of the macroprudential measures introduced for credit card spending with installments still continues. Households started to prefer credit card spending without installments after the regulation limiting installments on credit cards was introduced. The decline in credit card balances with installments slowed in the last two quarters mainly due to last year's low base effect (Chart II.1.7).

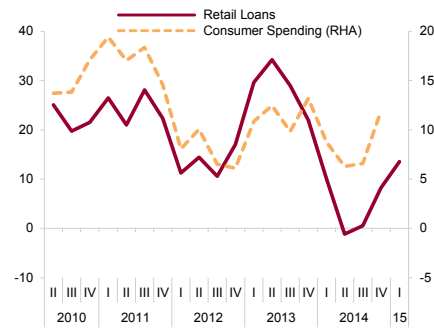
Credit card spending throughout 2013 and spending after April 2014 have been compared to analyze the changes in sectors with significant shares in credit card spending that occurred after the regulation (Chart II.1.8). The comparative study suggests that after the regulation, there have been significant drops in the shares of all sectors except for catering, various food and services sectors in overall spending. The study also revealed that the impact of the regulation, which was enacted in October 2014 and rescinded the prohibition of credit card installments in jewelry spending and allowed up to four installments in this sector remained quite modest and the decline in jewelry spending continued. Sectors, which sell durable goods and have a relatively bigger share in individuals'

Chart II.1.5
Consumer Loan Rates
(Percent)



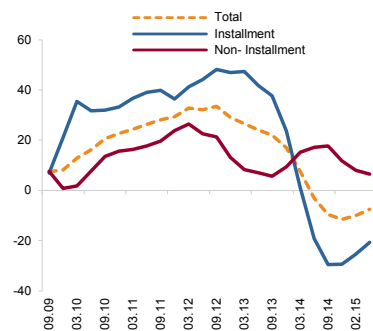
Source: CBRT (Latest data: 30.04.15)

Chart II.1.6
Growth of New Retail Loan^{1,2} Extensions and Consumer Spending
(Annual Percentage Change, Flow Data)



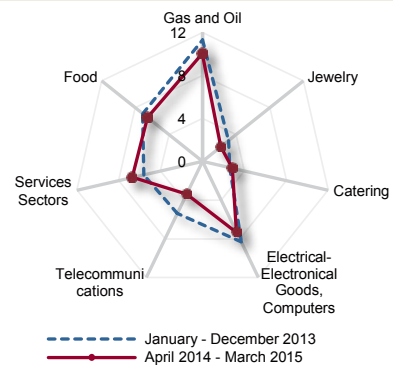
(1) Retail loans are composed of general-purpose and other loans as well as credit card spending.
(2) One quarter lagged values are used for retail loan growth.
Source: CBRT, BRSA, BKM (Latest Data: Retail Loans 03.15, Consumer Spending 12.14)

Chart II.1.7
Individual Credit Card Balances
(Annual Percentage Change)



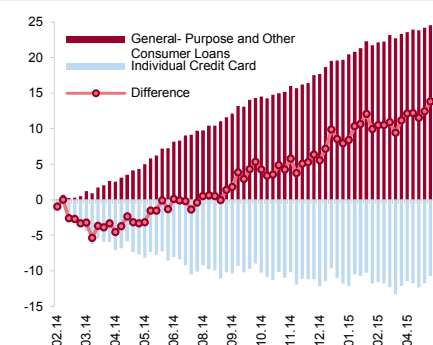
Source: CBRT, BRSA (Latest Data: 03.15)

Chart II.1.8
Breakdown of Individual Credit Card Spending by Sectors
(Percentage Share)



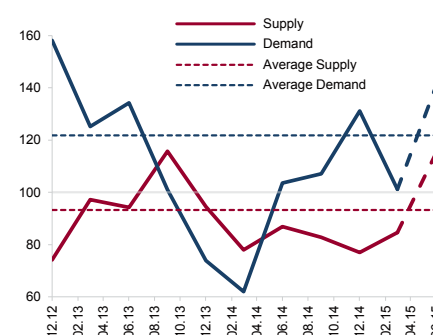
Source: BKM

Chart II.1.9
Individual Credit Cards and Consumer Loans
(Billion TL, Weekly Stock Change)



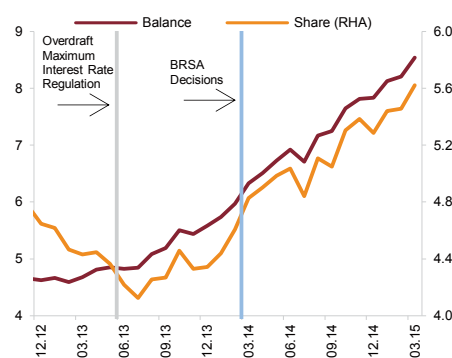
Source: CBRT, BRSA (Latest Data: 30.04.2015)

Chart II.1.10
Supply and Demand for General-Purpose Loans¹



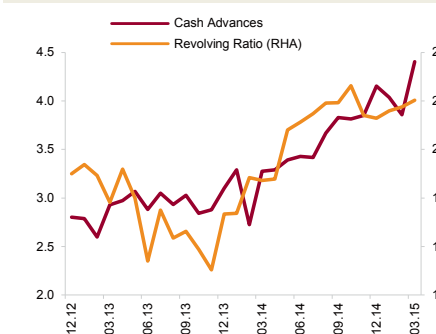
(1) Derived from Bank Loans Tendency Survey. Values below 100 imply a tightening, above 100 imply an easing. June 2015 data are estimations taken from the survey. Dashed lines display averages since 2009. Source: CBRT

Chart II.1.11
Personal Overdraft Account Balance and Its Share in General-Purpose Loans¹ (Billion TL, Percent)



(1) General-purpose and other consumer loans. Source: CBRT, BRSA

Chart II.1.12
Credit Card Cash Advances and Revolving Ratio
(Flow Data, Billion TL, Percent)



Source: CBRT, BRSA, BKM

credit card spending, have been affected by the regulation the most and the impact of the regulation has been limited in sectors selling non-durable goods in which payments with installments were not common even before the regulation.

The rise in the amount of general-purpose loans surpassed the decline in individual credit card balances, thus partly offset the impact of the limitation introduced in credit card spending with installments. Over the last six months, the change in general-purpose loan balances have been higher than that of individual credit card balances on which macroprudential measures were introduced (Chart II.1.9).

Results of the Bank Loans Tendency Survey suggest that banks maintained their tight and cautious stance about general-purpose loan standards in the first quarter of 2015. The survey respondents indicated that expectations about general economic activity and concerns over consumers' credit worthiness urged them to tighten whereas competition between banks, improvement in funding costs and balance sheet limitations encouraged them to ease credit conditions. Demand for general-purpose loans displayed a slight decline due to consumer confidence, household savings and loans obtained from other banks (Chart II.1.10). Banks expect a modest easing in general-purpose loan standards and a rise in demand in the second quarter.

Developments in other unsecured retail loan instruments shows that individual overdraft account products are used in an incremental manner in meeting households' demand for financing. After the regulation limiting the number of installments in credit card spending was introduced, overdraft accounts became important instruments of consumer financing, and the share of overdraft balances in general-purpose loans continued to climb throughout 2014 and in the first quarter of 2015 (Chart II.1.11). Individual credit card cash advances display a similar trend to that of overdraft accounts and an uptrend is observed in the amount of cash advances after the regulation limiting installments. Meanwhile, even if there is an uptrend in the individual credit card revolving ratios, this uptrend is attributed to the rise in revolvments as of the second half of 2014 and the

decline in credit card balances (Chart II.1.12).

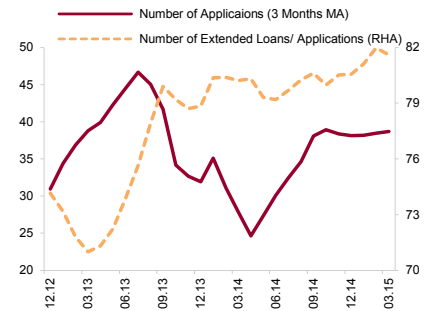
The house sales and the trend of housing loan extensions remained robust and the high level of housing loan applications recorded in the third quarter of 2014 was maintained thanks to the reasonable financing costs (Chart II.1.13). While house sales remained robust in the first quarter, the rise in the share of mortgaged house sales continued (Chart II.1.14).

Results of the Bank Loans Tendency Survey for the first quarter of 2015 imply that there has been no significant change in housing loan standards; and the increase in the volume of housing loans was mostly demand-driven. The upswing in the demand for housing loans can mainly be attributed to positive expectations about the housing market. While banks have implemented almost no change in housing loan standards, it is interesting that non-bank financing facilities have been listed as a factor -albeit a weak one- easing credit standards. An analysis of the survey with respect to the expectations regarding the second quarter of 2015 suggests that credit standards will tighten slightly and converge to historical levels. The housing loan demand, which is currently strong, is expected to decelerate (Chart II.1.15).

While retail vehicle loan growth remains subdued, recently there has been a discrepancy between growth trends of vehicle loans for banks and financing companies. While vehicle loan growth of banks continues to decrease, that of financing companies is still on an uptrend, which confirms the increasing share of financing companies in retail vehicle loans (Chart II.1.16). The rise in the share of financing companies in the vehicle loan extension composition to the detriment of banks can be attributed to the attractive financing costs offered by financing companies in vehicle sales.

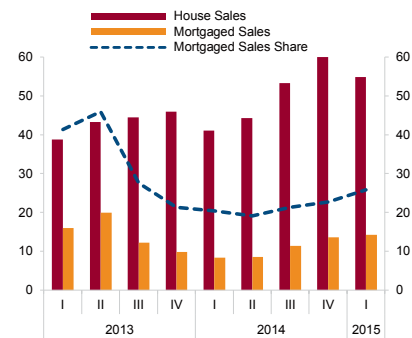
Savings deposits, which constitute approximately 75 percent of household assets, increased on the back of the rise in TL savings deposits since the last quarter of 2014. In the same period, resident real persons' US dollar-denominated FX savings deposits displayed a limited fall. In recent months, currency

Chart II.1.13
Applications and Extensions for Housing Loans
(Thousand, Percent)



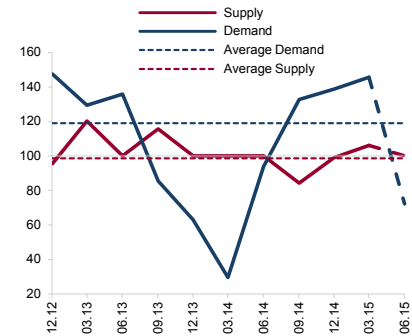
Source: CBRT

Grafik II.1.14
Housing Sales Financed Through Loans¹
(Flow Data, Billion TL, Percentage Share)



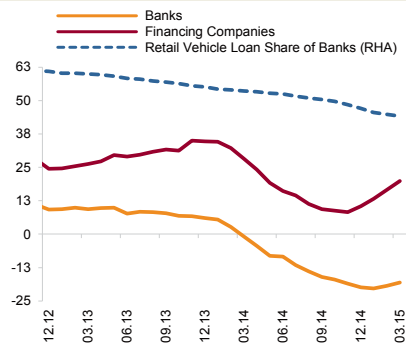
(1) Calculated based on the unit square meter prices released by the CBRT, under the assumption that all the houses sold are 120 m².
Source: CBRT, BRSA, TURKSTAT

Chart II.1.15
Supply and Demand for Housing Loans¹



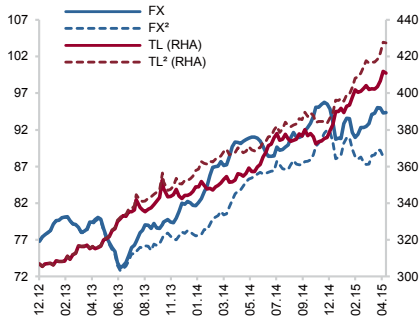
(1) Derived from Bank Loans Tendency Survey. Values below 100 imply a tightening, above 100 imply an easing. June 2015 data are estimations taken from the survey. Dashed lines display averages since 2009.
Source: CBRT

Chart II.1.16
Retail Vehicle Loans
(Outstanding Data, Annual, Percent)



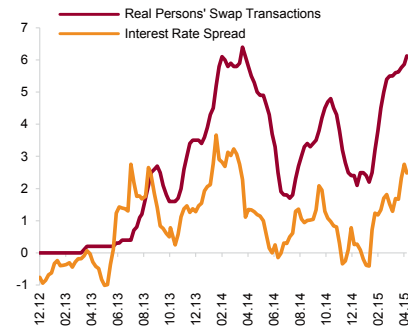
Source: CBRT, BRSA

Chart II.1.17
Deposits of Resident Real Persons^{1,2}
(Billion TL, Billion USD)



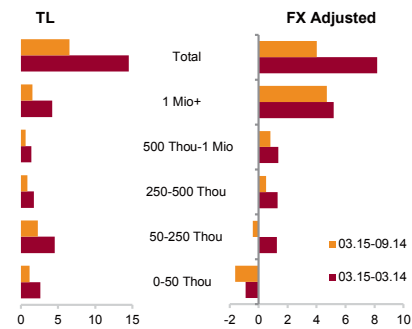
(1) FX savings deposits have been adjusted for the EUR/USD parity effect.
(2) Excluding currency swap transactions.
Source: CBRT, BRSA (Latest Data: 24.04.15)

Chart II.1.18
Resident Real Persons' FX Borrowing Currency Swap Transactions and the Interest Rate Spread^{1,2}
(Billion Basket, Percentage Point)



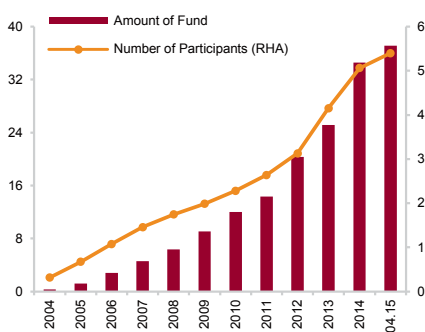
(1) First, the interest spread between TL savings deposit rate for 3-month maturity and currency swap rate for 3-month maturity was calculated. Then, this spread was subtracted from the FX savings deposit rate for 3-month maturity.
(2) (0.65+0.46) currency basket has been used.
Source: CBRT, BRSA, Bloomberg (Latest Data: 30.04.15)

Chart II.1.19
Contribution of Resident Real Persons' Deposit Sizes to Growth by Periods^{1,2} (Percentage Point)



(1) FX savings deposit has been adjusted for exchange rate effect with the (0.65+0.46) currency basket.
(2) Precious metal deposit accounts have been included in FX deposits.
Source: CBRT, BRSA

Chart II.1.20
Amount of Private Pension System Funds and the Number of Participants in the System (Billion TL, Million People)



Source: Pension Monitoring Center (Latest data: 30.04.15)

swap transactions, which are offered to resident real persons as a substitute for TL deposits, have accelerated again in line with the developments in deposit and currency swap rates. These transactions are also effective on the shift between TL and FX deposits. Excluding the impact of the currency swap transactions, the rise in the amount of TL savings deposits is more remarkable than the decline in the amount of FX savings deposits (Chart II.1.17 and II.1.18).

Real persons' TL preference come forward compared to the end of year and the previous Report period. However, a breakdown by amounts indicates that in high-amount savings deposit accounts, which are more susceptible to interest rate changes and bear more volatility, the rise in FX deposits is relatively higher and this is believed to have stemmed from currency swap transactions. However, in small-medium amount deposits that constitute the deposit base, depositors have preferred TL deposits compared to the previous Report period (Chart II.1.19).

In 2014, approximately one million new customers joined the private pension fund system and private pension funds continued to grow. With the growing interest of households in the private pensions system, the growth in private pension funds in 2014 exceeded the growth in 2013, when the state incentive system was first introduced. Thus, private pension funds' contribution to household savings increased as well. Actually, the share of private pension funds in household assets posted a significant rise between two report periods. In the first quarter of 2015, the uptrend in both the number of participants and the amount of funds in the system continued (Chart II.1.20).

II.2. Corporate Sector Developments

The ratio of the corporate sector's total financial liabilities to the GDP continued to increase in the first quarter of 2015. While the growth in the corporate sector's financial liabilities in the final quarter of 2014 was mainly driven by the sector's TL domestic borrowing, the acceleration in the first quarter of 2015 was triggered by the rise in FX liabilities due to the exchange rate effect (Chart II.2.1). An analysis of the corporate sector's debts

by original currency units (which means without exchange rate effect), shows that the volume of foreign liabilities maintains a flat trend and FX loans extended by domestic banks remain weak.

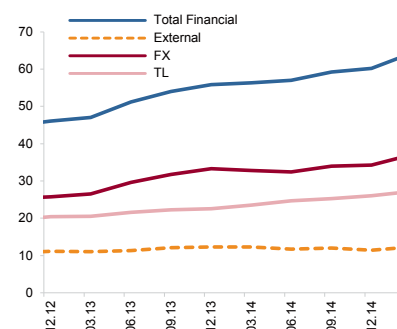
There has been no significant change since the last Report period in the composition of the funding that the corporate sector obtained from banks, non-bank financial institutions and bonds issuances. Funds obtained from bond issues are on a downward trend in tandem with the subdued activity in FX-denominated bond issues. Nevertheless, the share of issues, nearly 70 percent of which is FX-denominated, in total debt stock remained unchanged due to the depreciation of the Turkish lira. Although the share of funding from non-bank financial institutions didn't change, the share of financing companies in this group increased significantly. While the share of domestic banks in bank loans increased throughout 2014, the uptrend halted in the first quarter of 2015 due to the depreciation of the TL (Chart II.2.2).

According to FX-adjusted data, the rise in the share of TL-denominated loans in borrowing from domestic banks continues. While the growth in FX-adjusted total loans hovers close to its long-term average, the recovery in the annual growth in FX-loans has decelerated since end-2014 (Chart II.2.3). The FX corporate loans are mostly extended in US dollars and euros; however, the recent appreciation trend in the US dollar coupled with the cost advantages in euro borrowing encourage firms to demand loans in euros (See Box III.2.1. Developments in Financing Structure by Foreign Currencies).

The ratio of FX-indexed loans (tracked under FX loans) to total FX loans has decreased. The level of FX-indexed corporate loan extensions that bear no legal limitations unlike the FX-denominated corporate loans is also decreasing in terms of flows data (Chart II.2.4).

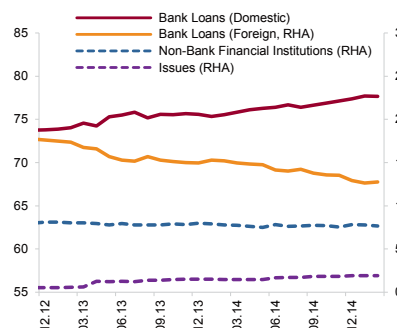
The changes in the corporate loans since the last Report period were mainly determined by the demand dynamics. Banks tend to tighten credit conditions and standards in tandem

Chart II.2.1
Financial Liabilities of the Corporate Sector^{1,2,3}
(Percent of GDP)



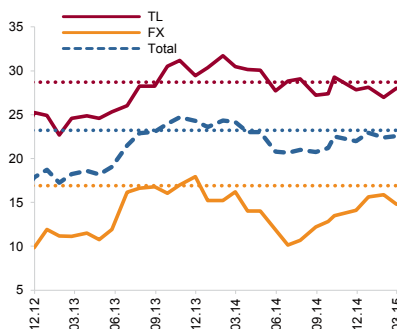
(1) Composed of loan liabilities and issues.
(2) External liabilities exclude data from foreign branches and affiliates of resident banks.
(3) External TL liabilities are included in total FX liabilities.
Source: CBRT, TURKSTAT (Latest Data: 02.15)

Chart II.2.2
Structure of Corporate Sector Financing Sources¹
(Percentage Share)



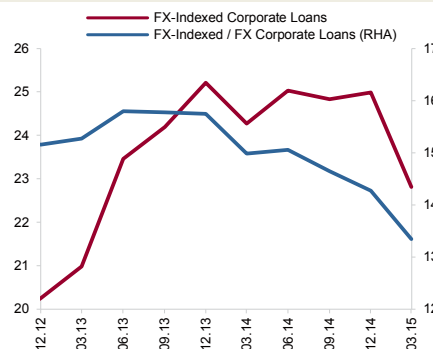
(1) Foreign branches of domestic banks have been included under foreign banks.
Source: CBRT, BRSA (Latest Data: 02.15)

Chart II.2.3
Domestic Corporate Loans¹
(FX-adjusted, Annual Percentage Change)



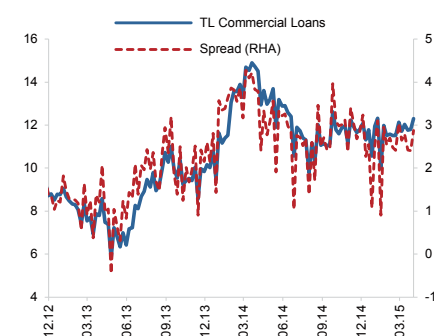
(1) The basket value used to adjust for the exchange rate effect is composed of 70 percent USD and 30 percent euro. FX-indexed loans have been included in FX loans. Year-on-year changes are calculated by using the same date values of the previous year. Dashed lines point to averages of the January 2011-March 2015 period.
Source: CBRT, BRSA (Latest Data: 27.03.15)

Chart II.2.4
FX-Indexed Corporate Loan Balances
(Monthly Average, Billion USD; Percentage Share)



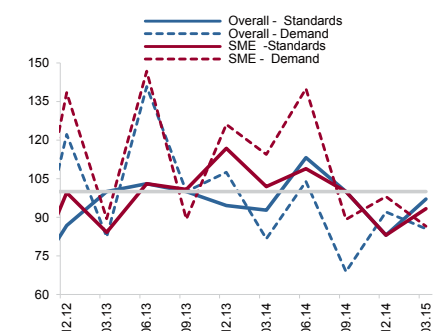
Source: CBRT, BRSA

Chart II.2.5
TL Corporate Loans Rate¹ and Loan-Deposit Spread (Percent)



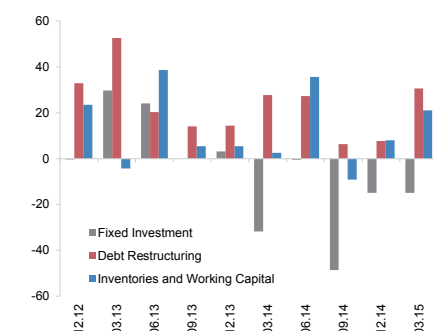
(1) Excluding specialty loans, fund-sourced loans, securities purchases loans, overdraft accounts, credit cards and the zero-rate loans extended that week. Source: CBRT (Latest data: 30.04.15)

Chart II.2.6
Supply and Demand Developments in Overall Corporate Loans and SME Loans¹ (Percent)



(1) Derived from the Bank Loans Tendency Survey. Values below 100 imply a tightening, above 100 imply an easing. Source: CBRT

Chart II.2.7
Contributions to Corporate Loan Demand¹ (Percent)



(1) Derived from the Bank Loans Tendency Survey. Source: CBRT

with credit risk perceptions at times of slower economic activity. Moreover, historical data shows that firms in the SME segment are the first to be affected from any adverse development in the loan market. However, despite the weak GDP growth trend since the second quarter of 2014, there has been no concrete data in hand pointing to a decrease in banks' lending appetite. According to Bank Loans' Tendency Survey, there has been no remarkable change in credit standards neither for large-scale banks nor for SMEs. While corporate loan rates remained flat, the spread between corporate loan rates and deposit rates maintains a flat trend as well (Chart II.2.5). The fact that there is no significant difference between growth rates of corporate loans for SMEs and large-scale firms also confirms that banks have not made a noteworthy change in their stance towards credit supply.

The Bank Loans' Tendency Survey suggests that, although the credit standards for both overall corporate loans and SME loans were eased moderately in the first quarter of 2015 compared to end-2014, banks maintained their cautious stance. On the supply side, in the first half of 2015, expectations about the general economic activity and particularly about risk perceptions made a tightening impact, whereas competition between banks made an easing impact especially on corporate loans standards extended to large-scale firms. Meanwhile, the demand for corporate loans maintained its weak trend (Chart II.2.6).

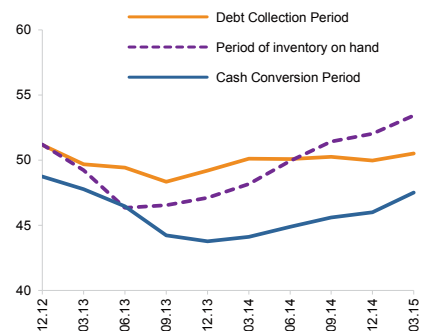
It is observed that, on corporate sector loan demand, while the investment motive weakened, working capital finance and rolling over of the current debts were much more influential. FX loans, which have longer maturities than TL-loans, are known to be used generally for financing investments rather than business finance. Therefore, the slowdown in FX-loans is attributed to the stagnation in investment demand observed since the beginning of 2014. The steady growth in TL-loans is believed to be driven by the increased need for working capital and rolling over of the current debts. The Survey results confirm these arguments as well (Chart II.2.7).

An analysis of the data of corporate sector firms quoted on the BIST suggests that financing of the working capital and roll-over of current debts will continue to be the primary motives for a while determining the corporate loan demand. The balance sheets of firms indicate that debt collection periods as well as the period of inventory on hand have been extending since the turn of 2014 when the economic activity began weakening (Chart II.2.8).

The amendment of Law No. 6637, which was enacted on 26.03.2015 and which will take effect on 01.07.2015, stipulates that capital companies are allowed a deemed interest deduction that is equal to 50 percent of the interest calculated on the cash capital increase in the registered capital of the existing corporations or cash capital contributions of the newly incorporated firms based on the interest rate announced by the CBRT for TL denominated commercial loans, from their Corporate tax base of the relevant year.¹ The tax incentive introduced for corporate sector firms is expected to support the firms' financing structure by decreasing their indebtedness ratios and might be a mitigating factor for the loan needs in the upcoming period.²

Currently, although the corporate sector's external debt roll-over ratio is highly above 100 percent (Chart II.2.9), any steps that the Fed will take about its monetary policy will likely influence access to external financing facilities through global liquidity conditions. In Turkey, however, the ratio of the corporate sector's external borrowing in total liabilities is low and borrowing through bond issues, which is a type of borrowing foreseen to be severely affected by fluctuations in global liquidity, is still at very low levels. Thus, the corporate sector is expected to be strong enough to resist the risks from this channel (Chart II.2.10).

Chart II.2.8
Activity Ratios of Corporate Sector Firms¹
(Days)



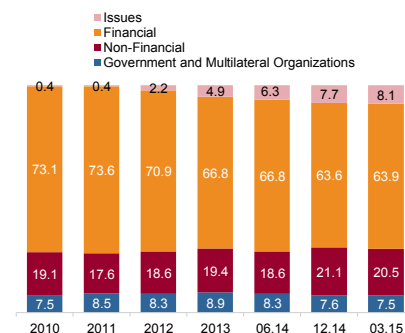
(1) 357 corporate sector firms quoted on BIST have been analyzed.
Source: CBRT

Chart II.2.9
External Debt Roll-Over Ratio
(6-month moving average, Percent)



Source: CBRT

Chart II.2.10
Distribution of Corporate Sector's External Liabilities
(Excluding Foreign Branches, Percentage Share)

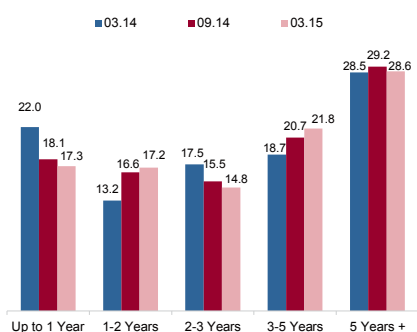


Source: CBRT

1 Article 8 of the "The Law on Amendment to Certain Laws and Decree Laws" No.6637, a paragraph was added to paragraph 1 of Article 10 of Corporate Tax Law No.5520 states that capital companies, except for those that operate in the sectors of finance, banking and insurance public economic enterprises, are allowed a deemed interest deduction calculated on the cash capital increase in the registered capital of the existing corporations or cash capital contributions of the newly incorporated corporations from their corporate tax base of the relevant year.

2 Similar legal arrangements have also been implemented in several countries such as Brazil and Belgium. This system, called the allowance for corporate equity (ACE), allows tax exemptions for firms until the firms achieve a certain profit level. The problems that may arise from allowing more tax incentives for borrowing than allowed for equity financing is a highly debated issue in the international platforms.
For more information please see The Economist, 16 May 2015 and Ruud A.de Moji (2011), "Tax Biases to Debt Finance: Assessing the Problem, Finding Solutions, IMF Staff Discussion Note, SDN/11/11.

Chart II.2.11
Breakdown of Corporate Sector's External Financial Liabilities by Maturities (Percentage Share)

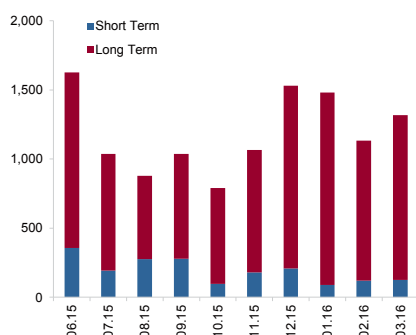


Source: CBRT

The fact that firms' external borrowings have long maturities is a factor reinforcing the corporate sector's resilience against short-term fluctuations in availability of external borrowing facilities.

The decline in the share of the corporate sector's external liabilities with maturities shorter than one year continues. This decline was reflected as an increase in the share of liabilities with maturities of 1-2 years and 3-5 years. The share of external liabilities with maturities of 5 years and longer in all maturities remained unchanged over the last year. The relative drop in short-term external borrowing is a significant development as it means lower payment of near future external liabilities amid high exchange rate volatility environment (Chart II.2.11).

Chart II.2.12
External Loans Due Within One Year (Million USD)

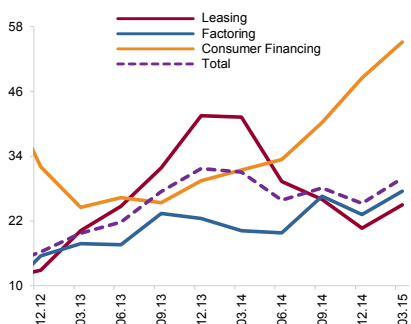


Source: CBRT

For the June 2015-March 2016 period, the corporate sector has a total of USD 11.9 billion loan repayment, of which USD 10 billion of which is for long-term loans and USD 1.9 billion is for short-term loans. On the other hand, by the end of March 2015, short-term import loans decreased by 7.9 percent compared to end-2014 and became USD 25.6 billion (Chart II.2.12).

The corporate sector's net FX short position has not posted a significant deterioration since mid-2014, and was USD 177.8 billion in February 2015. Over the last few months, direct capital investments abroad and FX loans obtained from domestic banks led to an almost equal rise in assets and liabilities of the corporate sector. Meanwhile, short-term FX short position decreased by USD 3.3 billion between mid-2014 and February 2015 and stood at USD 10 billion.

Chart II.2.13
Changes in Corporate Sector Loans Extended by Non-Bank Financial Institutions¹ (Annual Percentage Change)



(1) Data covers financing companies' commercial loans with installment options, factoring receivables of factoring companies and leasing receivables of leasing companies. Source: CBRT, BRSA

The corporate sector's liabilities to non-bank financial institutions constitute nearly 10 percent of their total domestic liabilities. The acceleration in the corporate sector's liabilities to financing companies, which started in 2013, continued in the first few months of 2015 as well. This rise can be attributed to the fact that financing companies are replacing banks for vehicle loans in tandem with the increased demand for consumer financing companies' vehicle sales with installments. Even if the growth in the corporate sector's liabilities to financial leasing and financial factoring loans companies showed a moderate decline

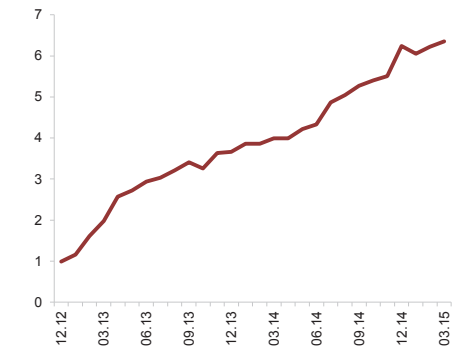
in the final quarter of 2014, growth in these liabilities rebounded in the first quarter 2015 (Chart II.2.13).

The Turkish domestic bond market, which is quite small compared to other country examples, continues to expand. By March 2015, the corporate sector's domestic bond issues increased by approximately 60 percent year-on-year (Chart II.2.14). The domestic bond issues with an average maturity of approximately 28 months is seen as an important potential in meeting the long-term TL-denominated financing need of the corporate sector.

The annual growth of FX-adjusted total commercial deposits has been accelerating since the end of 2014. The acceleration is mainly attributed to the rebound in the annual growth of TL commercial deposits that had remained weak throughout 2014. The downtrend in the annual growth of FX commercial deposits terminated as of end-2014 when exchange rate volatility increased. This development can be mainly attributed to several factors like firms with FX short positions tending towards FX deposits during periods of appreciating FX, as well as the rise in currency swap transactions with resident legal persons recorded on the balance sheets as an increase in FX deposits (Chart II.2.15 and II.2.16).

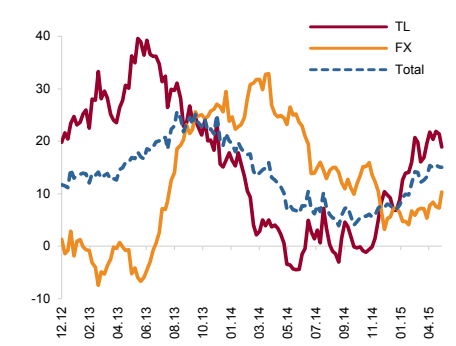
Compared to the final quarter of 2014 and the previous year, legal persons have tended towards TL deposits across all deposit amounts. Unlike small-amount deposits, there is a rise in large-amount FX commercial deposits with the support of the currency swap transactions. The amount of FX commercial deposits has been decreasing since September 2014 across all deposit fractions below TL 250 thousand (Chart II.2.17).

Chart II.2.14
Corporate Sector's Domestic Bond Issues
(Billion TL)



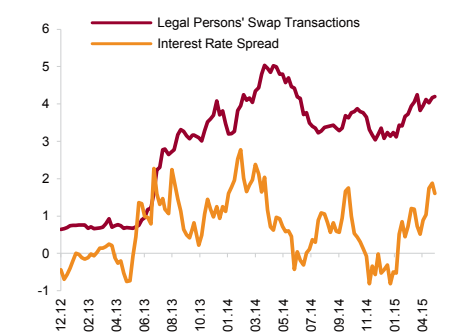
Source: MKK, CMB, CBRT (Latest Data: 31.03.15)

Chart II.2.15
Commercial Deposits¹
(FX-adjusted, Annual Percentage Change)



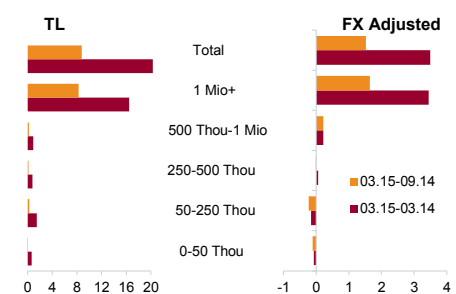
(1) The FX commercial deposit has been adjusted for the exchange rate effect with the (0.65+0.4€) currency basket.
Source: CBRT (Latest data: 30.04.15)

Chart II.2.16
Resident Legal Persons' FX Borrowing Currency Swap Transactions and the Interest Rate Spread^{1,2} (Billion Basket, Percent Point)



(1) First, the interest spread between TL commercial deposit rate for 3-month maturity and currency swap rate was calculated. Then, this spread was subtracted from the FX commercial deposit rate for 3-month maturity.
(2) (0.65+0.4€) currency basket has been used.
Source: CBRT, BRSA, Bloomberg (Latest Data: 30.04.15)

Chart II.2.17
Contribution of Resident Legal Persons' Deposit Amounts to Growth by Periods^{1,2} (Percentage Points)



(1) The FX commercial deposit has been adjusted for the exchange rate effect with the (0.65+0.4€) currency basket.
(2) Precious metal deposit accounts have been included in FX deposits.
Source: CBRT, BRSA

Box
II.2.1

Rediscount Credits Extended to the Corporate Sector for Exports and Foreign Exchange-Generating Services

Rediscount credits, which are governed by Article 45 of the Law on the Central Bank of the Republic of Turkey, are extended to exporters and firms providing foreign exchange generating services through Eximbank and other commercial banks in Turkish liras and with a maturity of 240 days by presenting foreign exchange bills for rediscount. As the repayments of these credits are made in foreign exchange on the date of maturity, they help boost the CBRT's foreign exchange reserves.

As rediscount credits help decrease exporters' financing costs thanks to their favorable interest rates and long maturities, the rise in the number of firms that are extended rediscount credits as well as the rise in the distribution of these credits by sectors and regions contribute to the proliferation of Turkey's export markets and export products, which thus supports the exports sector and contributes to balancing foreign trade.

The rediscount credit limit was raised to USD 17 billion on 23 January 2015 of which USD 15 billion was allocated to the Eximbank and USD 2 billion to other banks.

The rediscount credit limit is USD 300 million per foreign trade capital company and USD 250 million for other types of firms; the entire limit can be used for credits with a maturity up to 120 days and up to 50 percent of the limit can be used for credits with a maturity of 121-240 days.

Pursuant to the amendments made to the CBRT regulations on rediscount credits on 23 January 2015:

- In addition to exports, foreign exchange generating services (tourism, health, consultancy, software and engineering, transportation, repair and maintenance services) were included in the scope of the rediscount credits.
- The Turkish Eximbank and commercial banks were authorized to intermediate for the extension of rediscount credits for financing foreign exchange generating services.
- Commercial banks were allowed to intermediate pre-shipment export rediscount credits.
- Pre-shipment and post-shipment export receivables transferred to factoring firms as well as foreign exchange generating service receivables were included in the scope of rediscount credits to be extended by Turkish Eximbank and other banks.

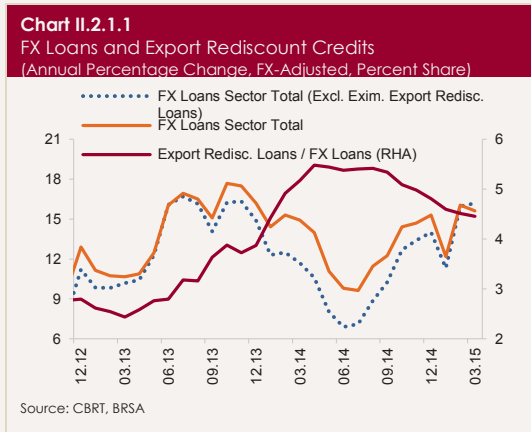
In 2014, the amount of rediscount credits extended was USD 15.3 billion. In 2015, USD 5.4 billion worth of rediscount credits were extended until 30 April 2015 and the debt balance was USD 7.9 billion. In 2015, 76 percent of rediscount credits were extended in US dollars and 24 percent were extended in euros.

In 2015, rediscount credits were extended primarily to the basic metal industry, textile industry and metal products' manufacturing industry.

The contribution of rediscount credits to CBRT reserves in 2015 by 30 April 2015 was USD 13.9 billion and USD 6.1 billion of this amount has been registered in the CBRT reserves.

In 2015, around USD 16.5 billion worth of rediscount credits are expected to be extended and the contribution of these credits to the CBRT reserves is expected to be around USD 15.5 billion.

Export rediscount credits, which are paid back in FX, are deemed as instruments reinforcing foreign exchange reserves. The share of export rediscount credits in FX loans that the corporate sector firms received from domestic banks has posted a moderate decline since the second half of 2014 (Chart II.2.1.1)



Box
II.2.2

Financial Asset and Liability Structure of Non-Financial Corporations

The global financial crises and the recent sovereign debt crises have magnified the need for more detailed statistics reflecting different approaches for policy-makers, market participants and the public. In other words, the recent crises accentuated the importance of revising the balance sheets structure to allow analysis of currency and maturity mismatches as well as relations between different sectors in the economy. One of the areas of statistics thus discussed is the Financial Accounts that have a broad range of applications in fields from monetary policy to financial stability and macro-prudential measures.

The Financial Accounts, which are compiled by the CBRT annually since 2011, measure financial transactions between resident and non-resident sectors and reveal the surplus or deficit of each sector.¹ The data compiled under this framework identifies non-financial corporations as the most indebted one among domestic sectors.² Therefore, non-financial corporations' behaviours, their relations with resident and non-resident sectors and the risks they bear have become an important determinant of the general economic outlook and a need arose for a more detailed analysis of the assets and liabilities of this sector.

In this Box, the assets and liabilities of non-financial corporations are analyzed in light of Financial Accounts (FA) compiled in accordance with the ESA (European System of Accounts) standards³ and principles. Traditionally, FA incorporates breakdowns by instrument, sector and maturities for certain balance sheet items. In this Box however; in addition to these, balance sheet items were also analyzed by maturity and Turkish lira / foreign currency breakdowns; and the data presented by the FA for non-financial corporations have been summarized with a different approach.

Overview of the Financial Assets and Liabilities

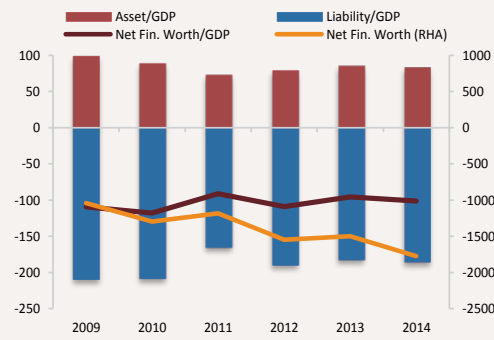
By their nature, non-financial corporations invest mostly in non-financial assets, therefore they bear a negative financial net worth; in other words, their financial liabilities are more than their financial assets. The net financial worth of these companies, which is calculated by subtracting their financial liabilities from their financial assets, has reached TRY -1,773 billion by the end of 2014, and the ratio of their financial net worth to the GDP maintained its level at minus 100 percent in recent years (Chart II.2.2.1). Compared to those ratios of other countries, Turkey is quite close to the euro area average and holds a better position than several emerging markets such as Hungary, Portugal, Estonia and Slovenia (Chart II.2.2.2).

¹ CBRT "Financial Accounts- Methodology".

² CBRT Financial Accounts Report, 2013.

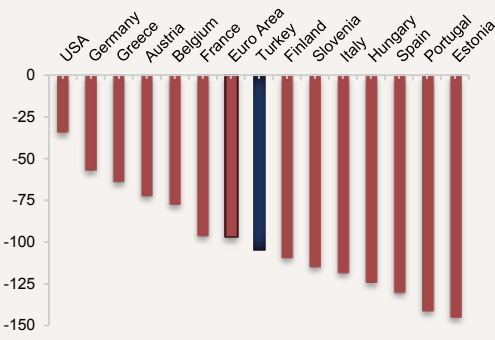
³ European System of Accounts 1995 (ESA 95).

Chart II.2.2.1
Net Financial Worth/ GDP
(Percent, Billions TL)



Source: CBRT, TURKSTAT, BIST

Chart II.2.2.2
Non -Fina ncial Corporations' Net Financial Worth/ GDP
Ratio Across Countries as of 2014 (Percent)

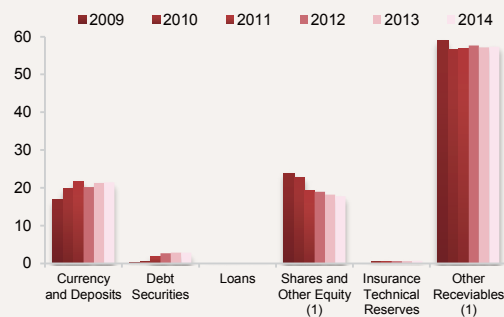


Source: CBRT, ECB, BIS

An analysis of the asset and liability structures of non-financial companies reveals that more than half of their assets are constituted by other accounts receivables that cover trade credits from domestic institutions, and the second largest asset item is shares and other equity to be followed by currency and deposits (Chart II.2.2.3). Meanwhile, most of the other accounts receivable are composed of trade credits and advances vis a vis resident non-financial corporations, and the rest is composed of transactions with non-resident institutions and 60 percent of the currency and deposits are time deposits held at resident banks.

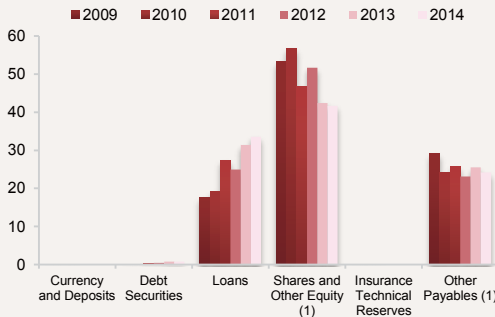
About 42 percent of the liabilities of these corporations are stemmed from financing through shares and other equity; and this ratio remained stable in the period analyzed. The share of loans in total liabilities have increased over the years and reached 34 percent at the end of 2014 from its level at 18 percent in 2009 (Chart II.2.2.4).

Chart II.2.2.3
Instrument Decomposition of Financial Assets
(Percentage Share)



(1) Data is estimated for 2014.
Source: CBRT, BIST, MKK

Chart II.2.2.4
Instrument Decomposition of Financial Liabilities
(Percentage Share)



(1) Data is estimated for 2014.
Source: CBRT, BIST, MKK

Sector and Maturity Structure

Another noteworthy information that can be drawn from the FA is the interlinkages between sectors. In this framework, the counterpart sector analysis revealed that the sectoral links of non-financial companies were dominantly composed of commercial debts and receivables within the sector (relations among non-financial corporations). The second highest connection is with resident banks, followed by non-resident banks with mostly in the form of liabilities (Diagram II.2.2.1)

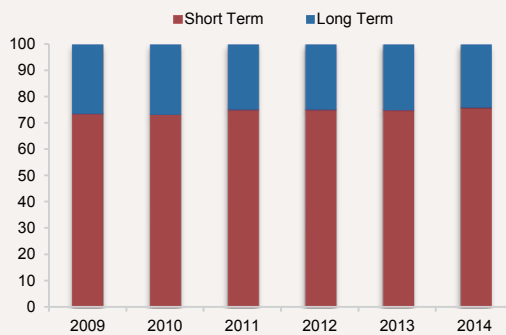
Diagram II.2.2.1
Sectoral Linkages of Non-Financial Corporations
(2014, Billions TL)¹



(1) Shows asset/liability relations with the respective sector.
Source: CBRT

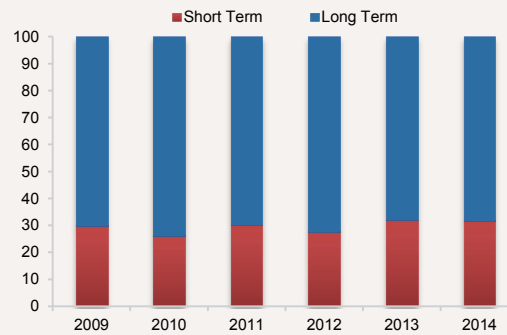
The maturity structure of financial assets is overwhelmingly composed of short-term relatively liquid assets. The short-term assets of the sector are basically domestic TL deposits and receivables from non-financial corporations (Chart II.2.2.5). The maturity structure of financial liabilities is predominantly composed of long-term liabilities, mostly including loans and equity (Chart II.2.2.6).

Chart II.2.2.5
Maturity Structure of Financial Assets
(Percentage Share)



Source: CBRT, BIST

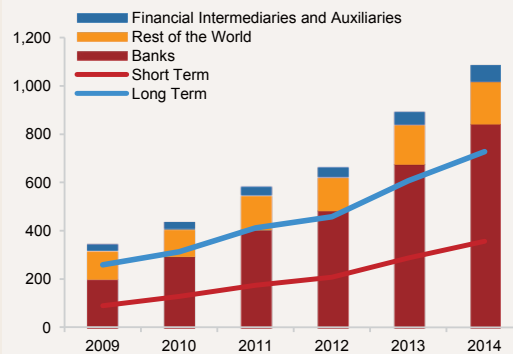
Chart II.2.2.6
Maturity Structure of Financial Liabilities
(Percentage Share)



Source: CBRT, BIST

Over the years, the dominance in the composition of sectors extending loans shifted from nonresidents to resident banks while maturity structure remained long-term. To put it in figures: while 34 percent of the loans were obtained from abroad in 2009, only 16 percent of the loans were obtained from abroad in 2014. In the same period, the ratio of loans obtained from domestic institutions was up from 58 percent to 78 percent (Chart II.2.2.7).

Chart II.2.2.7
Loans Extended by Sector and Maturity
(Billions TL)



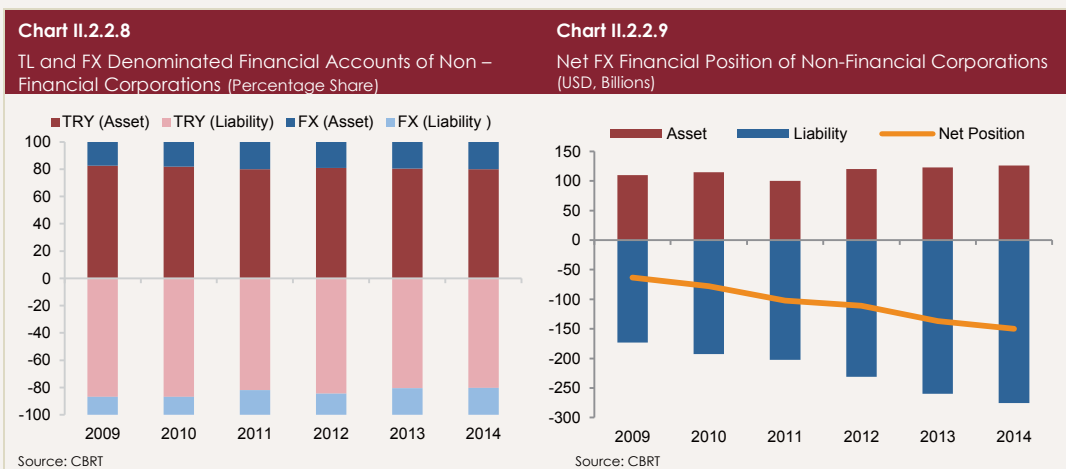
Source: CBRT, MKK

FX Position

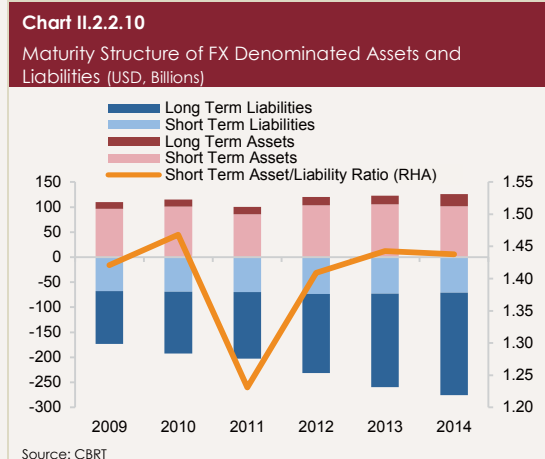
Under various assumptions, financial assets and liabilities compiled in the framework of FA can be decomposed in terms of the TL and FX, thus information on the FX position of non-

financial corporations becomes available. Accordingly, between 2009-2014, the TL items had an around 80 percent share in non-financial corporations' assets and liabilities while the share of FX items has displayed an upward trend over time. The share of FX assets in non-financial corporations' total assets increased from 17 percent in 2009 to 20 percent in the final quarter of 2014. The change was more remarkable on the liabilities side: the share of FX liabilities in total liabilities was up from 13 percent to 20 percent for the same period (Chart II.2.2.8).

As for the net financial position of the non-financial corporations, FX liabilities have been higher than FX assets throughout the analysis period and these corporations held net open positions. With respect to the amounts, the FX net liabilities have increased over time mainly due to the rise in FX loans. The net liabilities items, which was USD 63 billion at the end of 2009, reached USD 150 billion by the last quarter of 2014 (Chart II.2.2.9).^{4, 5}



The maturity structure of FX financial assets and liabilities remained in tandem with the maturity structure of total financial assets and liabilities throughout the period analyzed. While FX assets are mostly short-term, FX liabilities are mostly long-term. As a consequence of this structure, by the end of 2014, the ratio of short-term liabilities covered by short-term assets was 144 percent (Chart II.2.2.10)



⁴ There is a difference with respect to scope of description between the net FX position data compiled in the framework of the FA and the position calculated in the scope of the monthly "Foreign Exchange Assets and Liabilities of Non-Financial Companies" statistics. Accordingly, while the FA incorporates more detailed data on other receivables and debt securities by sectors on the asset side, on the liabilities side the FX-indexed loans are classified as TL according to ESA standards.

⁵ Although the FA data is compiled in TL, as the US dollar is the most commonly used currency in FX position analysis, in this part the amounts are presented in US dollars.

To conclude, the sectoral FA compiled based on the balance sheet methodology is an important data source in evaluating the financial structure and developments of non-financial corporations. An analysis of the data compiled and disseminated by the CBRT reveals that non-financial corporations sector is the most indebted sector. When financial net worth, which is an indicator of net debt levels, is compared to those of other countries, it is observed that Turkey is in the range of the euro area averages and is better than that of other emerging economies.

While the financial liabilities of the non-financial corporations are mostly in the form of long-term financing items, assets are composed of basically short-term and liquid assets. The maturity distribution in assets and liabilities is quite favorable and currency breakdown suggests that 80 percent of assets and liabilities are in TL. Despite the uptrend in non-financial corporations' FX net financial liabilities over the last few years, when the maturity structure is considered it is observed that the ratio of short-term FX liabilities covered by short-term FX assets is high.

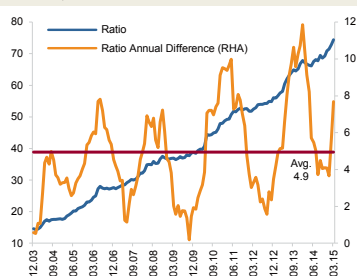
II. Financial Sector

Loan growth rates are at reasonable levels thanks to the tight monetary policy implemented and the macroprudential measures. In addition, commercial loan growth has outpaced consumer loan growth. These two factors support a balanced growth. Loan rates have been flat despite increased exchange rate volatility in the recent period and the returns on government securities. The non-performing loan ratio in the banking sector is also flat and the current capital buffers of the sector are seen to be strong enough.

Volatilities in the financial markets call for an analysis of the sensitivity of the sector to interest rate and exchange rate risks. The hike in interest rates negatively affects the sector's net interest income due to the short-term liability structure on the one hand and causes a loss of value in the securities portfolio on the other. The decreased weight of securities in the balance sheet and the presence of floating-rate securities limit the interest rate risk that the sector may face. Banks' current net interest margins and capital adequacy ratios are sufficient enough to cover the likely losses that may originate from interest rate hikes. Moreover, as the net FX short position of the banking sector is low, exchange rate shocks do not lead to pressure on the banking sector directly via the balance sheet channel.

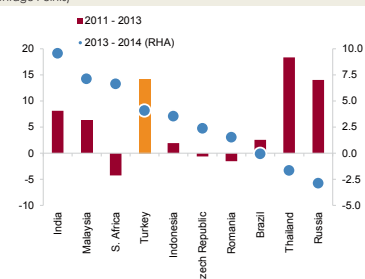
The liquidity position of the banking sector remains strong. Banks are able to meet the legal liquidity coverage ratios put into effect by the BRSA in early 2015 in line with Basel III regulations. The banking sector, which has no problem in obtaining and rolling over external debt despite global uncertainties, seems to have adequate buffers against likely external liquidity shocks. With the contribution of the change that the CBRT introduced in its reserve requirement implementation to extend the maturity of non-deposit FX sources, the share of short-term sources in banks' external funding sources has decreased and average maturities of borrowing have extended. The CBRT started remunerating the portion of TL required reserves maintained in terms of TL such that to encourage core liabilities. Accordingly, banks' increased use of core funding sources is believed to be a positive development in terms of financial stability.

Chart III.1.1
Loan/GDP Ratio¹
(Nominal, Percent)



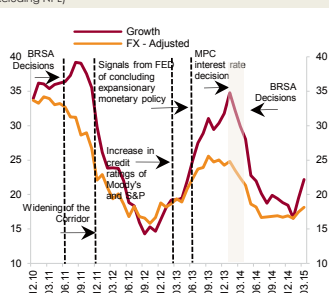
(1) January and February 2015 data are GDP projections.
Source: CBRT, BRSA, TÜRKSTAT (Latest Data: 03.15)

Chart III.1.2
Loan/GDP Ratio Change
(Percentage Points)



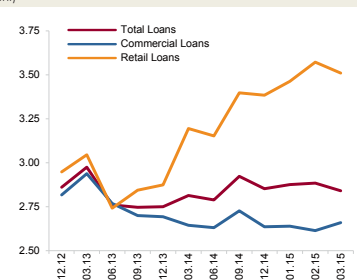
Source: CBRT for Turkey data, SNL Financial for other countries data.

Chart III.1.3
Annual Loan Growth¹
(Percent, Excluding NPL)



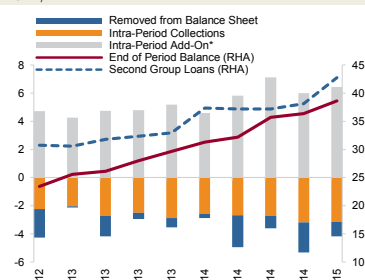
(1) The basket value used to adjust for the exchange rate effect is composed of 70 percent USD and 30 percent euro. FX-indexed loans have been included in FX loans.
Source: CBRT, BRSA

Chart III.1.4
NPL Ratios
(Percent)



Source: CBRT, BRSA

Chart III.1.5
Flow NPL Developments and Loans under Close Monitoring
(Flow, Billion TL)



* Intra-Period Add-On + Movements Across Groups
Source: CBRT, BRSA

III.1. Credit Risk

The cautious monetary policy stance of the CBRT and the macroprudential measures taken by the BRSA have helped to contain the rapid increase in the loan/GDP ratio, bringing it close to the historical average. The deceleration has been more visible in retail loans due to macroprudential measures, whereas it has been rather limited in commercial loan growth rate. As of April 2015, the exchange rate-adjusted annual growth in corporate loans was 22.9 percent, while the retail loan growth remained limited at 11.1 percent. Despite the sluggish economic activity, the annual change in the loan/GDP ratio stood below the average value in end-2014 due to the deceleration in loan growth rate. However, the ratio was slightly above the historical average as of March 2015 (Chart III.1.1).

The high increase in the loan/GDP ratio caused Turkey to diverge from emerging countries between 2011 and 2013. However, this increase dropped to a level similar to that in other countries by end-2014 (Chart III.1.2). The exchange rate-adjusted loan growth continued on a downtrend until the end of 2014 and posted a moderate rise in March 2015 with the contribution of both TL and FX loans (Chart III.1.3). The slightly upward movement in TL loans was triggered by the surge in retail loans observed due to the previous year's base effect.

The NPL ratio has been flat despite the slowing in the loan growth rate. Retail loan NPL ratios have been higher than those of corporate loan. Corporate loan NPL ratios hover around relatively low levels (Chart III.1.4).

Non-performing loans written off since the second half of 2014 account for 10.4 percent of the total NPL amount registered in March 2015. Of these assets, 69 percent have been sold to asset management companies in return for an average of 13.6 percent of the balance sheet value.³ Notwithstanding the written-off loans, the increase in intra-period add-ons, though it lost pace, was the main determinant of the growth in NPL. Loans under close monitoring (2nd group loans), which have a

3 Data on assets sold to asset management companies are as of March 2015.

potential to turn into non-performing loans and are accepted as an important indicator for risk accumulation in performing loans, display an upward movement (Chart III.1.5).

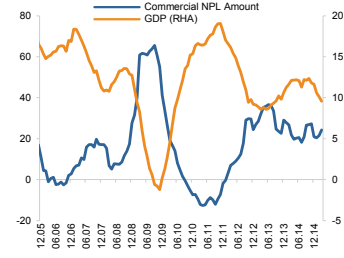
The recent uptrend in corporate loan NPL ratios is primarily related to economic activity developments. Corporate loan NPL ratios, which are historically closely related to GDP developments, posted only a limited increase due to the lagged effects of the growth performance that have weakened since the second quarter of 2014 (Chart III.1.6).

An analysis of corporate loans in terms of scale reveals that NPL ratios in both SME loans and large corporate loans have been at low levels in the last six-month period (Chart III.1.7). Historical data suggest that NPL ratios in SME loans increase in a faster and stronger manner in times of stress. However, in terms of scale, the recent NPL divergence is lower than the levels in times of stress, while in terms of level, the SME loan NPL ratio lingers at levels close to the historical average.

NPL ratios in loans extended to sectors with high shares in terms of gross NPL amount display a positive outlook in general. The NPL ratio in the "Construction, REIT and Real Estate Dealer" sector, the sector with the highest NPL ratio, was flat in the second half of 2014 but has been in a downtrend since November. Meanwhile, NPL ratios in the "Textile and Textile Products", "Agriculture and Livestock" and "Food and Beverages" sectors have slightly decreased, while the NPL ratio in the "Wholesale and Retail Trade" sector has been generally horizontal in recent months (Chart III.1.8).

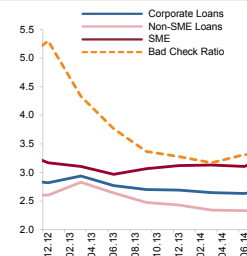
As explained in the "Corporate Sector Developments" section of the Report, there is no sign of a weakening in banks' credit appetite. Results of the Bank Loans Tendency Survey for the first quarter of 2015 imply that banks have been closely monitoring the slowdown in the economic activity but have not introduced a further tightening in corporate loan standards (Chart III.1.9). On the other hand, the same survey reveals that banks have adopted a more cautious stance on FX loans (Chart III.1.10). The cautious stance on FX loans is believed to be

Chart III.1.6
Corporate Loan NPLs and GDP
(Annual Percentage Change)



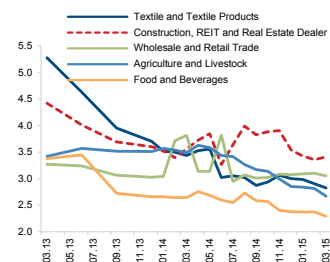
Source: CBRT, BRSA (Latest Data: 03.15)

Chart III.1.7
Development of NPL Ratios and Bad Cheque Ratio¹
(Percent)



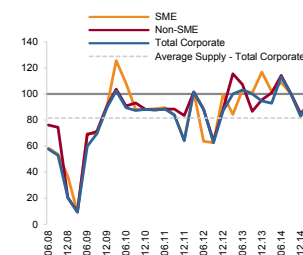
(1) Bad cheque ratios have been calculated based on amounts and refer to 3-month moving averages.
Source: CBRT, BRSA (Latest Data: 03.15)

Chart III.1.8
Development of NPL Ratios by Selected Sectors
(Percent)



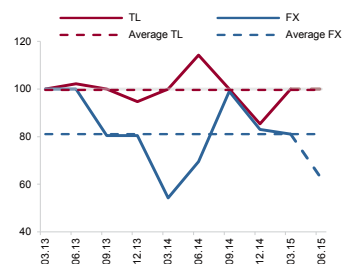
Source: CBRT, BRSA

Chart III.1.9
Corporate Loan Standards
(Percent)



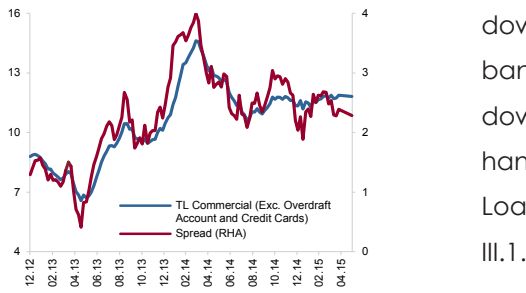
(1) Derived from Bank Loans Tendency Survey. Values below 100 imply a tightening, values above 100 imply an easing. June 2015 data are estimations taken from the survey.
Source: CBRT

Chart III.1.10
TL and FX Loan Standards¹
(Percent)



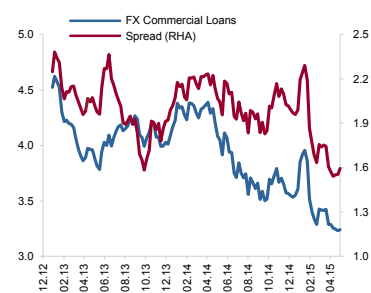
(1) Derived from Bank Loans Tendency Survey. Values below 100 imply a tightening, values above 100 imply an easing. June 2015 data are estimations taken from the survey.
Source: CBRT

Chart III.1.11
TL Commercial Loan Spreads¹
(Flow Data, 4-Week Moving Average, Percent)



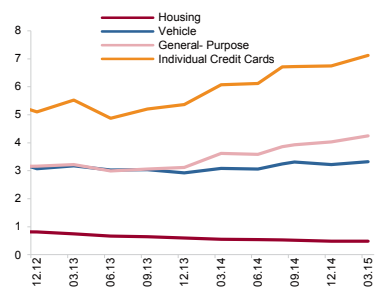
(1) Zero-rate loans extended in the relevant week have been excluded.
Source: CBRT (Latest Data: 30.04.15)

Chart III.1.12
FX Commercial Loan Spreads¹
(Flow Data, 4-Week Moving Average, Percent)



Source: CBRT (Latest Data: 30.04.15)

Chart III.1.13
NPL Ratios in Retail Loans
(Percent)



Source: CBRT, BRSA

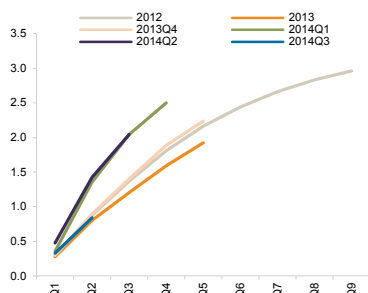
Table III.1.1
Number of Credit Card and Consumer Loan Defaulters¹
(Thousand people)

	12.12	12.13 ²	12.14	03.15
Banks	1,487	1,339	1,380	1,412
Asset Management Companies	782	898	1,045	1,237
Financing Companies	8	10	10	10
Total ²	1,949	2,001	2,149	2,332

(1) Customers with more than one registry in a particular financial institution group are counted as a single customer. The minimum amount of non-performing loans to be disclosed by each bank has been set as 20 TL as of September 2013. Amounts less than 20 TL have not been included in the calculation.

(2) As customers may be registered in more than one financial institution group, the sum of the three rows in the table and grand total are not equal.
Source: CBRT and Banks Association of Turkey Risk Center

Chart III.1.14
Vintage Analysis in NPL Ratios of General-Purpose Loans
(Percent)



Source: CBRT

related to recent fluctuations in the value of the TL. The recent downtrend in the TL loan rate spreads supports the finding that banks have not tightened TL corporate loan standards. The downtrend in FX commercial loan rate spreads, on the other hand, suggests that the cautious stance underlined in the Bank Loans Tendency Survey has not been reflected in pricing (Chart III.1.11 and III.1.12).

The recent uptrend in the NPL ratio of individual credit cards is attributed to the deceleration in the growth of credit card balances, besides the rise in NPL amounts. NPL sales registered in the last quarter of 2014 contained the expected negative effects on unsecured loan NPL ratios to a certain extent. Meanwhile, the positive outlook in secured consumer loans persists. Despite the contraction in the vehicle loan balance, vehicle loan NPL ratios remain almost flat due to receding NPL amounts. The gradual decline in housing loan NPL ratios continues on the back of the relative revival in loan growth (Chart III.1.13).

The number of credit card and consumer loan defaulters indebted to asset management companies escalated significantly compared to the third quarter of 2014 as a result of NPL purchases from banks, whereas the number of defaulters indebted to banks increased slightly (Table III.1.1).

The surge in the general-purpose loan NPL ratio stemmed from general-purpose loans extended in the first two quarters of 2014. The vintage analysis based on the loan's extension period shows that the general-purpose loan NPL performance for 2013 was better than the performance for 2012. However, this performance started worsening in the last quarter of 2013, and NPL ratios particularly in the first and second quarters of 2014 stood above the levels in the preceding years (Chart III.1.14).

Historically the most significant increase in general-purpose loan NPL ratios has been recorded in the second quarter following the loan extension. Especially, for general-purpose loans extended in the first half of 2014, the second quarter increase in NPLs was remarkably high (Chart III.1.15). However,

the uptrend in general-purpose loan NPL ratios is expected to stop as the quarterly contributions to NPL ratios calculated for 2014-Q1 loan extensions converge to the averages of previous years and the surge in the unemployment rate ceases.

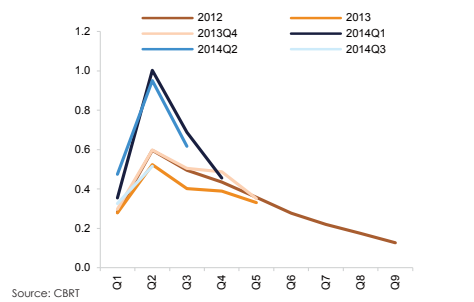
The vintage analysis indicates that the favorable trend in housing loan NPL ratios will be maintained in the upcoming periods as well. The housing loan NPL ratio was relatively high in loans extended in 2011 and 2012. In 2014, NPL ratios, which decelerated in 2013, hovered at levels close to the NPL ratio levels observed in 2013 (Chart III.1.16).

The tightening in general-purpose loan standards of banks continues. Housing loan standards remain close to historical averages, while the tightening observed in general-purpose loan standards since 2014 continues. General-purpose loan standards are estimated to ease considerably in the second quarter of 2015, whereas housing loan standards are expected to tighten slightly (Chart III.1.17).

There has been an upward movement in general-purpose loan rates in recent weeks. The downtrend observed in general-purpose loan rate spreads in the last two-month period has reversed in the most recent week, indicating that banks have started reflecting their cautious stance regarding the general-purpose loan extensions on their pricing (Chart III.1.18).

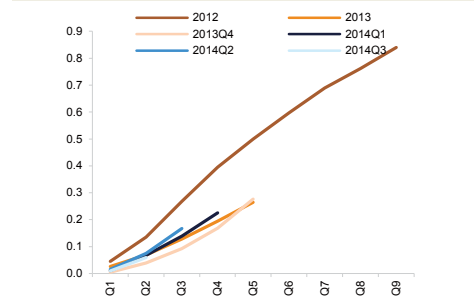
Housing loan rates have not registered a significant change since the last quarter of 2014, whereas interest rate spreads dropped at first and then assumed a flat trend (Chart III.1.19).

Chart III.1.15
NPL Ratios of General-Purpose Loans - Quarterly Contributions (Percent)



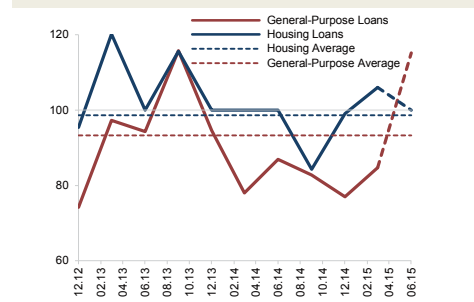
Source: CBRT

Chart III.1.16
Vintage Analysis in NPL Ratios of Housing Loans (Percent)



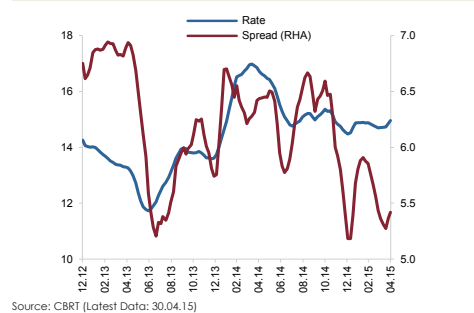
Source: CBRT

Chart III.1.17
General-Purpose and Housing Loan Standards¹⁾



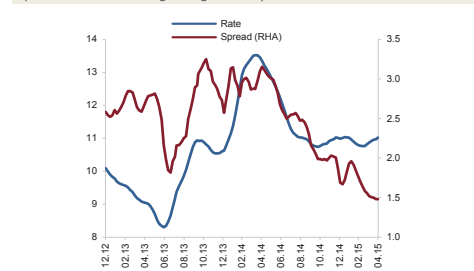
(1) Derived from Bank Loans Tendency Survey. Values below 100 imply a tightening, values above 100 imply an easing. June 2015 data are estimations taken from the survey. Dashed lines display averages since 2009. Source: CBRT

Chart III.1.18
General-Purpose Loan Rates and Spreads (Flow Data, 4-Week Moving Average, Percent)



Source: CBRT (Latest Data: 30.04.15)

Chart III.1.19
Housing Loan Rates and Spreads (Flow Data, 4-Week Moving Average, Percent)



Source: CBRT (Latest Data: 30.04.15)

Box
III.1.1

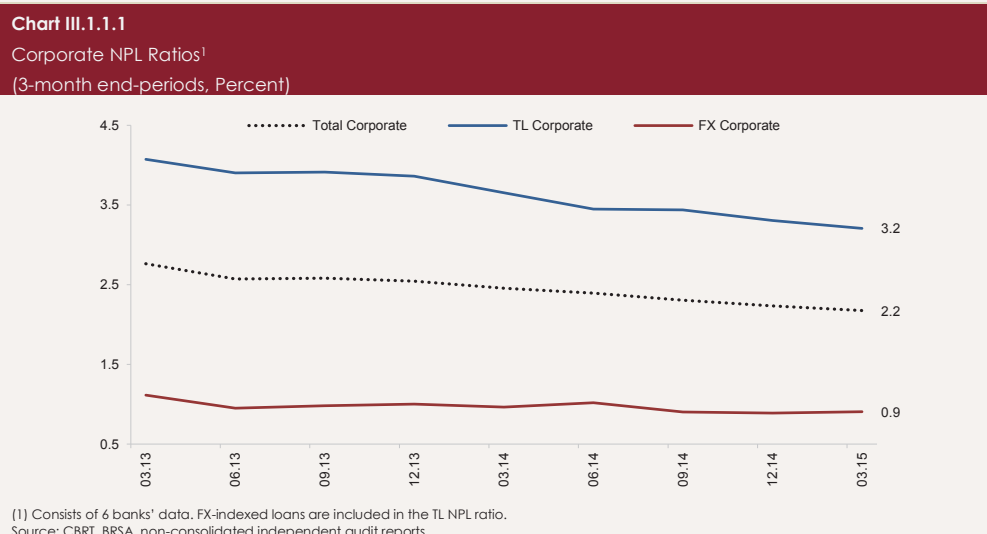
Corporate Non-Performing and Close Monitored FX Loans

There have been significant fluctuations in the value of TL against reserve currencies since 2013. It is important to identify the credit quality impact of this fact, which may unfavorably affect corporate liabilities and borrowing costs, as the FX short positions of the corporate sector firms need to be monitored in terms of financial stability.

This box presents an analysis of the developments in the non-performing loan (NPL) ratio in FX corporate loans via banks' balance sheet data (For an analysis of corporate exchange rate risk through firms' balance sheets, see Special Topic IV.1).

Since the related legislation allows tracking FX loan NPL amounts within TL loan NPLs, and banks mostly use this facility, it is not possible to obtain FX NPL data from bank reportings. However, these data are accessible in independent audit reports. In this scope, for the period between 2013Q1 and 2015Q1, FX NPL developments have been analyzed by using the independent audit reports of six banks comprising approximately 66 percent of FX loans of the sector.

Data suggest that on average, FX corporate NPL ratios remain considerably below the TL ones and do not diverge negatively from TL corporate NPLs in times of serious exchange rate volatilities (Chart III.1.1.1).



Different from NPLs, bank loans under close monitoring can be obtained on a currency unit basis. Loans extended to households and firms, which are currently less than 90-days past due or do not have any repayment problem but for which there are estimations for a weakening repayment capability in the future, are classified as "loans under close monitoring". If the delay in the repayment of loans under close monitoring exceeds 90 days or the belief that their collection will be problematic strengthens, these loans start being monitored under the non-performing loan (NPL) class.

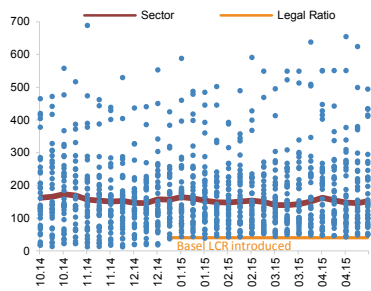
In this respect, TL and FX corporate loans under close monitoring are thought to be a possible leading indicator of NPL developments. In fact, historically, there has been a lagged connection between annual growth rates of total loans under close monitoring and intra-period NPL add-ons (Chart III.1.1.2).

In this framework, a close look at annual growth rates of TL and FX loans under close monitoring reveals that these loans move together in general. Moreover, there was a downward movement in the annual growth rate of FX loans under close monitoring in the period following the second half of 2013 in where TL displayed a fluctuating trend against the USD (Chart III.1.1.3).



To sum up, an analysis of the developments in FX loan quality based on data for NPLs and loans under close monitoring suggests that NPL ratios in FX loans are lower than NPL ratios in TL loans on average, and neither the current trends in NPLs nor the loans under close monitoring which are good leading indicators for NPLs point to a negative trend in FX loans.

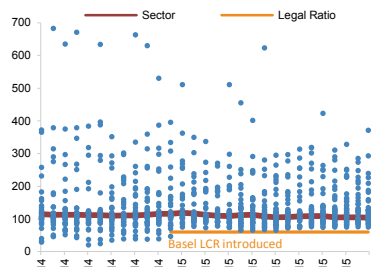
Chart III.2.1
FX Liquidity Coverage Ratio^{1,2,3}
(Percent)



(1) Excluding development and investment banks.
(2) Based on non-consolidated reports.
(3) Dots stand for banks.

Source: CBRT, BRSA (Latest Data: 30.04.15)

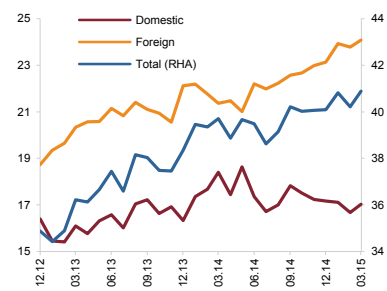
Chart III.2.2
Total Liquidity Coverage Ratio^{1,2,3}
(Percent)



(1) Excluding development and investment banks.
(2) Based on non-consolidated reports.
(3) Dots stand for banks.

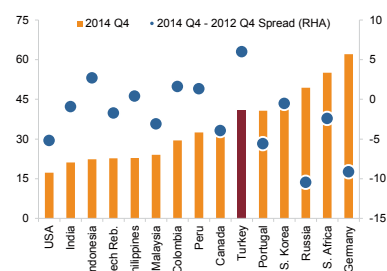
Source: CBRT, BRSA (Latest Data: 30.04.15)

Chart III.2.3
Ratio of Non-Deposit Funding to External Funding
(Percent)



Source: CBRT, BRSA

Chart III.2.4
Ratio of Non-Deposit Funding to External Funding in Selected Countries and Its Change^{1,2}
(Percent, Percentage Points)



(1) For S. Africa, S. Korea and Portugal, 2014Q2 data; for the US and Russia, 2014Q3 data; for Turkey, February 2015 data; for other countries, 2014Q4 data have been used.
(2) In FSI data, deposits are customer deposits.

Source: CBRT, BRSA

III.2. Liquidity Risk

Banks are meeting the legal liquidity coverage ratios.

As of 1 January 2015, the liquidity coverage ratio (LCR), which shows the capability of banks to cover net cash outflows from the high-quality asset stocks in their balance sheets in a significant stress scenario lasting 30 calendar days, has been set as 40 percent and 60 percent for FX and total, respectively, for all banks except development and investment banks. Weekly "non-consolidated" and monthly "consolidated" reports suggest that banks remain resilient to short-term liquidity shocks. The liquidity risk of the sector is contained by the securities portfolio that continues to occupy a significant place in banks' balance sheets despite a weakening in recent years, as well as by foreign currency and gold reserves that banks hold in the scope of the ROM mechanism and required reserves (Chart III.2.1 and III.2.2).

Non-deposit funding of banks continued to increase in the last quarter of 2014 and onwards, while its share in external funding has not changed significantly. The TL equivalent of external funding that constitutes the majority of non-deposit funding continues to increase on the back of the exchange rate effect, whereas the contribution of exchange rate-adjusted external funding to the total non-deposit funding growth remains rather limited. An important portion of the rise in non-deposit external funding has originated from funding obtained from debt to banks, issues and repo transactions. Domestic non-deposit funding moderately increased compared to the previous Report period, whereas its share in overall external funding fell slightly. A comparison with selected countries reveals that Turkey, which registered the highest increase in the banking sector's non-deposit funding between 2012 and 2014, has a non-deposit funding/external funding ratio that is above other countries' averages (Chart III.2.3 and III.2.4).

The escalation in non-core liabilities corresponds to a significant trend observed in emerging economies in recent years. Although non-core funding introduces several advantages for banks such as financing flexibility, it increases the sensitivity of banks to liquidity shocks spread over the market, due to its short-term and unstable nature. The Turkish

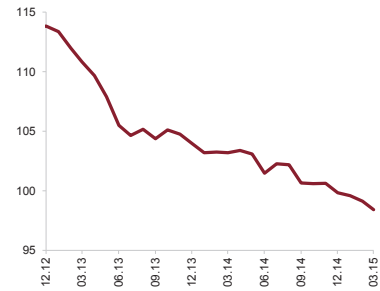
banking sector has had a growing interest in non-core liabilities in recent years, backed by the favorable external borrowing facilities. In fact, the ratio of deposits and equity to loans, which is accepted as the core liabilities ratio of the sector, has long been in a downtrend. It is critical for financial stability that banks follow a balanced growth path with stable funding sources. Following the October 2014 announcement by the CBRT regarding the remuneration of TL required reserves to encourage core liabilities, the deposits and equity to loans ratio of some banks increased. However, these increases have not been at a high enough level to change the ratio of the sector yet (Chart III.2.5 and III.2.6).

Though it does not have a standard definition in academic literature or global practices, the core liabilities ratio that can be calculated as the ratio of deposits and equity to loans, may vary depending on the economic structure and the financial development level of countries. An analysis of selected countries shows that this ratio displayed a downward movement in the majority of countries between 2012 and 2014. On the other hand, this ratio has posted a more significant decline in Turkey than in other countries. Meanwhile, the core liabilities ratio has been in an uptrend in advanced economies in the last two-year period (Chart III.2.7).

The average maturity of TL deposits, which shortened after the volatility in exchange rates and interest rates picked up again in the second half of 2014, has slightly increased in recent months. Although an important portion of TL deposits is still composed of deposits with maturities between 1 and 3 months, depositors have had an increased inclination for demand deposits in recent months. Unlike the case in TL deposits, the share of demand deposits in FX deposits has dropped and there has been a shift from demand deposits to time deposits. Nevertheless, the shortening in the average maturity of FX deposits was driven by the marked drop in the share of deposits with relatively long-term maturities of 3 to 6 months (Chart III.2.8 and III.2.9).

Chart III.2.5

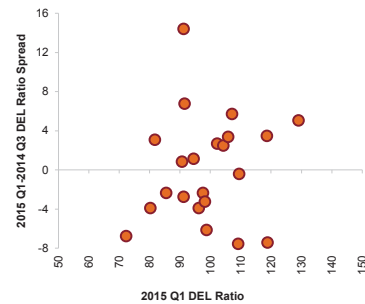
(Deposits+Equity)/Loans Ratio^{1,2}
(Percent)



(1) Official deposits excluded.
(2) Development and investment banks excluded.
Source: CBRT, BRSA

Chart III.2.6

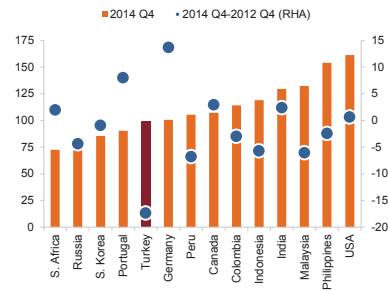
(Deposits+Equity)/Loans Ratio by Banks^{1,2}
(Percent, Percentage Points)



(1) Outliers excluded.
(2) Development and investment banks excluded.
Source: CBRT

Chart III.2.7

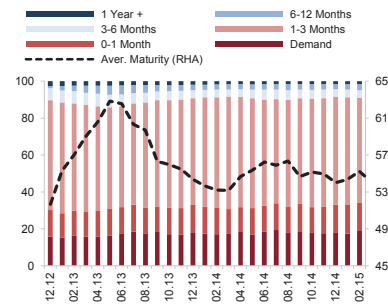
(Deposits+Equity)/Loans Ratio in Selected Countries^{1,2}
(Percent, Percentage Points)



(1) For S. Africa, S. Korea and Portugal, 2014Q2 data; for the US and Russia, 2014Q3 data; for Turkey, March 2015 data; for other countries, 2014Q4 data have been used.
(2) In FSI data, deposits are customer deposits.
Source: CBRT, BRSA, IMF-FSI

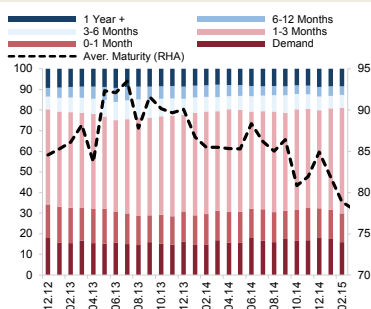
Chart III.2.8

Breakdown of Maturity of TL Deposits¹ and the Average Maturity² (Percent, Days)



(1) Banking sector deposits and precious metal deposit accounts excluded.
(2) Participation banks excluded.
Source: CBRT, BRSA (Latest Data: 03.15)

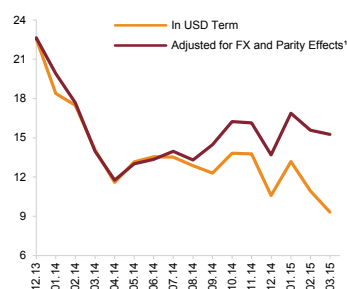
Chart III.2.9
Maturity Breakdown of FX Deposits¹ and the Average Maturity²
(Percent, Days)



(1) Excluding banking sector deposits and precious metal deposit accounts.
(2) Participation banks excluded.
Source: CBRT, BRSA (Latest Data: 03.15)

The USD-based growth rate of funding obtained by banks from banks abroad displayed a weak trend, whereas the growth adjusted for the exchange rate and the parity effect was more robust in the same period (Chart III.2.10). The appreciation of the USD and the sliding euro/dollar parity in recent months have exerted a decreasing effect on the USD equivalent of the banking sector's external debt amount. The external debt amount, which was on the rise for a long time, decreased in the first quarter of 2015. In this period, the banking sector reduced its short-term external debt and continued to obtain medium and long-term funding.

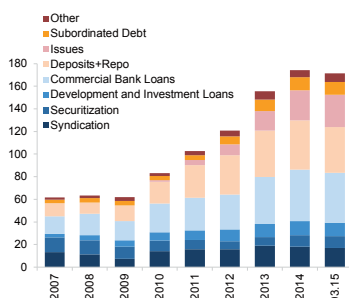
Chart III.2.10
Growth in Banks' External Liabilities
(Annual Percentage Change)



(1) Calculated based on the EUR/USD parity in December 2013.
Source: CBRT, BRSA, CMB, PDP

Commercial bank loans and issues continue to predominate the external funding obtained by banks. The share of relatively long-term securitization loans and issues has grown compared to September 2014, whereas that of repo, deposits and syndicated loans has dropped. Securitization loans slumped to USD 6 billion in June 2013 following a prolonged downtrend and then bounced back to USD 11 billion by February 2015. The sliding euro/dollar parity also had a downward effect on the share of syndicated loans, which are predominantly euro-denominated unlike other borrowing instruments, in overall external loans. However, banks continued to access funding through syndicated loans by rolling over their matured syndicated loans by 100 percent or above. In light of these developments, banks do not show any difficulty in accessing syndicated and securitization loans. Banks' repo transactions with banks and other similar institutions abroad decreased in terms of both amount and share in the first quarter of 2015. The decline in short-term transactions was instrumental in the decrease in amount. Moreover, in addition to banks' short-term repo transactions, short-term commercial bank loans also weakened (Chart III.2.11).

Chart III.2.11
Composition of Banks' External Liabilities
(Billion USD)



Source: CBRT, BRSA, CMB, PDP (Latest Data: 03.15)

Having no difficulty in accessing new external funding sources and rolling over its due debt despite the uncertainties in global financial markets, the banking sector has a sufficient amount of buffers against likely external liquidity shocks. The banking sector has a total of around USD 96 billion external liabilities due within the upcoming one-year period. Euro liabilities and TL liabilities correspond to USD 24 billion and USD 4.5 billion

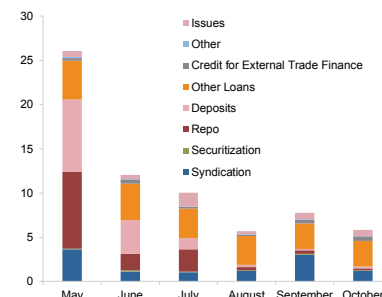
portions of these external liabilities, respectively, as they build up together 30 percent of the external debt. The majority of external liabilities that is due in a short time period is composed of repo, deposits and other loans, whereas syndicated loans mature predominantly in May (Chart III.2.12).

Approximately 47 percent of banks' external liabilities are of a short-term nature. As of March 2015, this percentage dropped by 6.4 points compared to end-2013 and by 4.3 points compared to end-2014. This drop was mainly triggered by the fall in the share of borrowings with 3 months to 1 year maturities (Chart III.2.13). The average maturity of the external debt of banks, which do not have any difficulty in accessing long-term external funding, extended to approximately 4 years in the first quarter of 2015 from 3.8-3.9 years in 2014 (Chart III.2.14). Thus, the share of short-term liabilities in total decreased with the effect of the change that the CBRT introduced in its reserve requirement implementation to extend the maturity of non-deposit FX sources (Chart III.2.15). The upward effect of this change on the maturity of banks' external funding is expected to continue in the upcoming period as well, and the decline in the share of short-term liabilities in banks' external funding sources may ease the sector's sensitivity to external liquidity shocks.

Banks' external debt rollover ratio has been in a downtrend since July 2014, and stood at 101 percent in March 2015. However, the short-term external debt rollover ratio has fallen to 96 percent in the last one-month period. The fact that the total external debt rollover ratio has remained above 100 percent while the short-term external debt rollover ratio has fallen below shows that banks do not have any difficulty in rolling over their debt and have started cutting their short-term external borrowing. Sector-wide, rollover ratios for syndicated loans that have matured recently also remain above 100 percent. Costs of revolving syndicated loans have improved by up to 20 basis points, with variations depending on banks. Banks are estimated to continue to roll over syndicated loans at high rates in the upcoming period as well (Chart III.2.14).

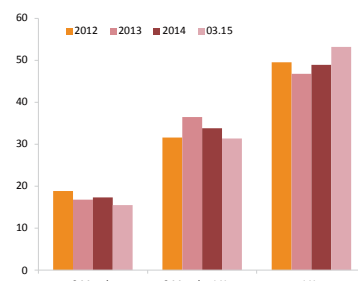
Despite the ECB's asset purchase program, capital flows to emerging economies are still likely to fluctuate in the upcoming

Chart III.2.12
Payment Plan of Banks' External Liabilities in the Near Future
(Billion USD)



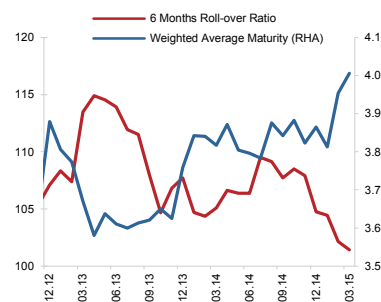
Source: CBRT, BRSA, PDP, CMB (Latest Data: 30.04.15)

Chart III.2.13
Maturity Composition of Banks' External Liabilities
(Percentage Share)



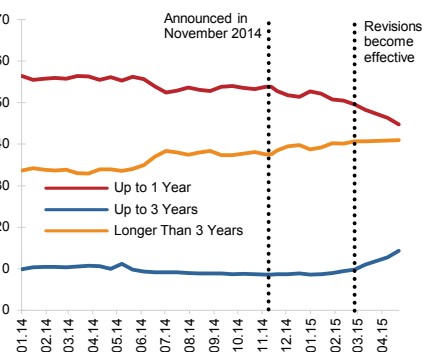
Source: CBRT, BRSA, PDP, CMB

Chart III.2.14
External Debt Rollover Ratio of Banks and the Average Maturity¹
(Percent, Year)



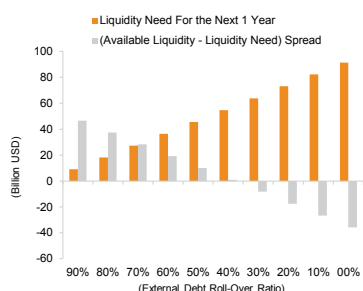
[1] Calculated based on 6-month moving totals of borrowings and repayments of total external liabilities including securities issued abroad.
Source: CBRT, BRSA, PDP, CMB

Chart III.2.15
Maturity Breakdown of Non-Deposit FX Liabilities
(Percentage Share)



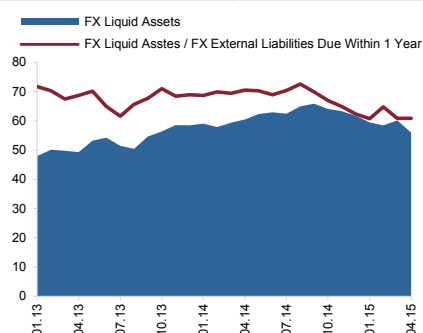
Source: CBRT (Latest Data: 08.05.15)

Chart III.2.16
FX Liquidity Need of Banks Based on External Debt Roll-Over Ratio Assumptions^{1,2} (As of April 2015)



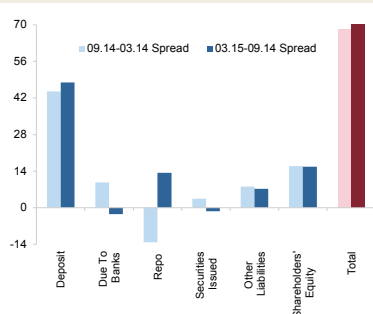
(1) Selected FX Liquid Assets: Cash+Foreign Banks (free)+Required Reserves held within the ROM facility
(2) Liquidity Need: FX external debt due within 1 year x (1 - external debt roll-over ratio)
Source: CBRT, BRSA, PDP, CMB

Chart III.2.17
Ratio of Selected FX Liquid Assets to FX External Debt Due Within One Year¹ (Billion USD, Percent)



(1) Selected FX Liquid Assets: Cash+Foreign Banks (free)+Required Reserves held within the ROM facility
Source: CBRT, BRSA, PDP, CMB (Latest Data: 30.04.15)

Chart III.2.18
Periodical Change in the Banking Sector's TL Funding Sources (Billion TL)



Source: CBRT, BRSA

period due to the uncertainties regarding the Fed's interest rate hike policy and the downturn in global economic activity. Therefore, to manage the liquidity risk, it is crucial for banks to have adequate buffers to cover short-term external liabilities. The level of banks' FX liquid assets suggests that the banking system will not face any problem even if the external debt roll-over ratio falls to 39 percent from its current level of above 100 percent in case of stress. Moreover, banks have a portfolio of approximately TL 17 billion equivalent of FX-denominated unencumbered government debt securities that is not included in the calculation of their liquid assets due to increased price fluctuations in times of stress. The ratio of selected liquid assets to external debt due within one year decreased by 11 points from August 2014 to January 2015, due to the fall in FX required reserves held within the ROM facility and the surge in the external debt due within one year. This ratio has been relatively flat in the recent period (Chart III.2.16 and III.2.17).

TL deposits continue to be the primary funding source of the banking sector. Although especially legal person depositors have preferred FX deposits in the recent months due to increased exchange rate volatility, the uptrend in TL deposit amounts has accelerated in the last six-month period. In addition to TL deposits, funding from repo transactions has also increased in the same period, whereas other TL funding sources have weakened slightly. These changes in amounts point to a shift from other funding items to TL deposits in the TL funding composition. The increasing importance of deposits as a stable funding source strengthens the liquidity risk outlook in the Turkish banking sector. In recent months, there has been a deceleration in TL security issues that banks have used as an alternative source. Accordingly, the share of TL issues in TL liabilities has fallen (Chart III.2.18).

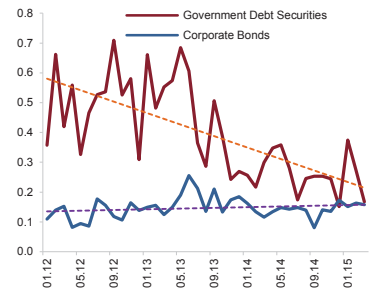
Investors holding the issued debt instruments can sell these instruments in the secondary market in case of any liquidity need. The rise in the transaction volume in the secondary market exerts a downward pressure on the securities-driven liquidity risk. For the last two years, the depth of the Government Domestic Debt Securities (GDDS) secondary market has been decreasing, whereas the corporate sector securities market has

been deepening in relative terms. The ratio of the corporate sector secondary market transaction volume to stock security issues, which had declined from April 2014 to September 2014, moved parallel to the recent years' trend in the immediate past (Chart III.2.19).

The amount of FX reserves held within the ROM facility has eroded since mid-2014; however, the FX ROM facility utilization has picked up again particularly since end-2014. The main determinant of this development was the new regulations that raised the coefficients for the upper tranches and reduced the coefficients for the lower tranches of ROM. In addition, the remuneration of TL required reserves and the year-end reconciliation of accounts with foreign correspondents have also been effective in banks' ROM utilization preferences. The total amount of FX and gold reserves held at the CBRT via the ROM facility was around TL 118 billion as of April 2015 (Chart III.2.20).

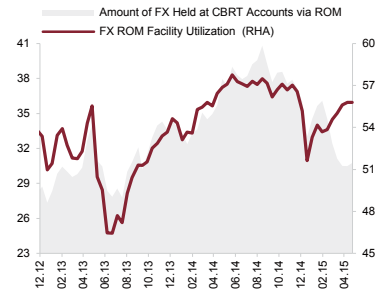
The coverage ratio of FX and gold reserves held via the ROM to banks' short-term liabilities has been in a downtrend since mid-2014 and stood at 16 percent as of end-March 2015. This trend originated overwhelmingly from the slump in banks' ROM reserves following the change in ROCs. For banks to smoothly use these reserves, they have to replace their withdrawal from reserves with their TL liquid assets. Currently, the banking sector's TL unencumbered GDDS portfolio after deductions is adequate to cover the whole of TL required reserves held via the ROM (Chart III.2.21). Moreover, banks have a maximum FX deposit transaction limit of a total of USD 21.6 billion for one-week maturity borrowings from the CBRT. The CBRT cut the foreign exchange deposit interest rates by 50 basis points in April in line with global interest rate developments.

Chart III.2.19
Ratio of the Average Volumes of Secondary Market Security Issues¹ to Stock Security (Percent)



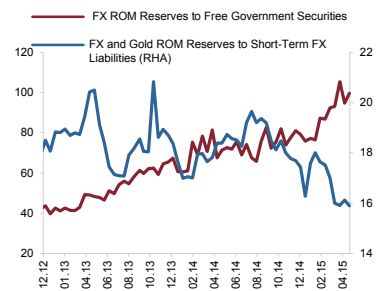
(1) BIST Outright Purchases and Sales Market Private Sector Security Issues for the public sector, it has been calculated based on bonds traded on the BIST. Source: CBRT, BIST, PDP, CMB (Latest Data: 31.03.15)

Chart III.2.20
Amount of FX Held at CBRT Accounts via the ROM Facility and the FX ROM Facility Utilization (Billion USD, Percent)



Source: CBRT (Latest Data: 24.04.15)

Chart III.2.21
Ratio of FX Reserves to Short-Term FX Liabilities¹ and Ratio of ROM Reserves to Free Government Securities (Percent)



(1) FX reserves maintained via the ROM and the banking sector's on-balance sheet FX liabilities up to 12 months have been compared. Source: CBRT, BRSA (Latest Data: 24.04.15)

Box
III.2.1

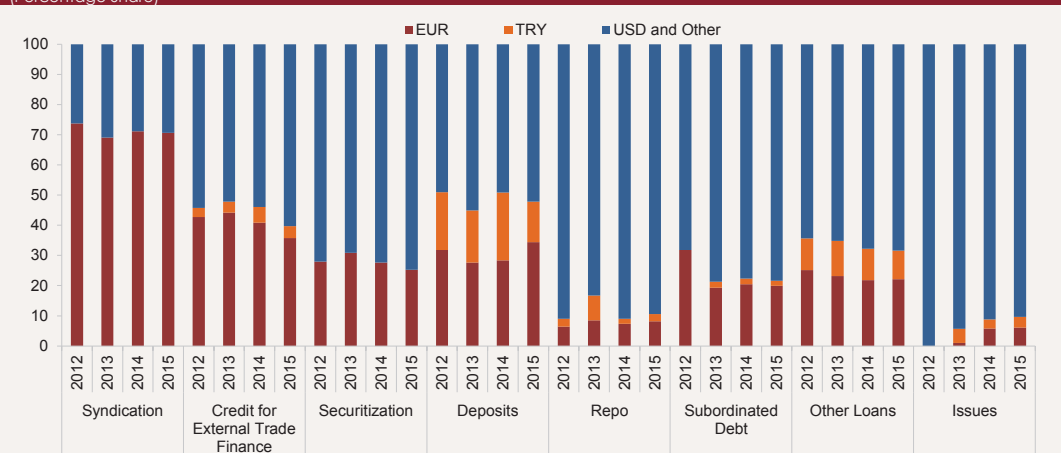
Developments in Financing Structure by Currencies

Steps to be taken by the Fed towards a rate hike are closely monitored in terms of their likely effects on the dollar liquidity and borrowing costs. On the other hand, since mid-2014, the euro liquidity has abounded and euro-denominated borrowing costs have significantly decreased due to expansionary monetary policies of the ECB. At this point, an important question emerges as to what extent the expansionary policies of the ECB can offset the impact of Fed policies. This box analyzes the effects of the divergence in Fed's and ECB's monetary policies on the Turkish banking system.

The banking sector obtains a significant amount of funding from abroad due to the insufficiency of domestic savings and the cost-effectiveness of external funding. As of March 2015, the USD, euro and TL make 67 percent, 25 percent and 6 percent of this funding, respectively. The remaining part is composed of other currencies. Average maturities of euro borrowings and USD borrowings are close to each other, hovering around 3 to 5 years. In terms of types of borrowing instruments, the USD prevails in all instruments except syndicated loans. In repo transactions and issues, the share of euro borrowings is very low compared to other financing instruments. Nevertheless, the share of euro-denominated issues has grown compared to end-2013. In addition, compared to end-2013, the share of euro in credits for external trade finance has retreated, whereas its share in other borrowing instruments has not changed significantly (Chart III.2.1.1).

Chart III.2.1.1

Breakdown of External Debt Instruments by Currency Units¹
(Percentage Share)

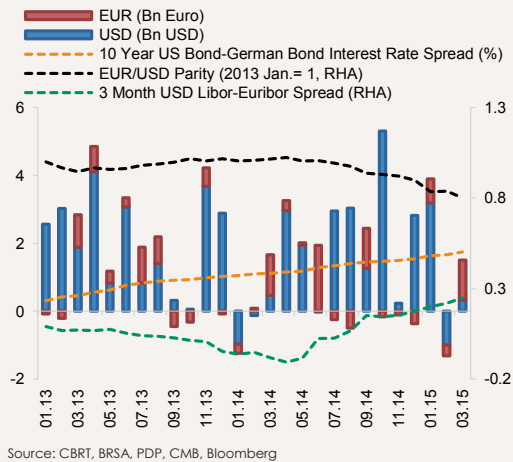


(1) Adjusted for the exchange rate and parity effect.
Source: CBRT, BRSA, PDP, CMB (Latest Data: 03.15)

The USD Libor-Euribor spread has increased and the euro has depreciated against the USD since May 2014. From May 2014 to the end of Q1-2015, banks' euro-denominated funding climbed by EUR 3.3 billion at a rate of 11 percent, while their USD-denominated funding swelled by USD 18.1 billion at a rate of 17 percent (Chart III.2.1.2 and III.2.1.3). Banks' euro borrowings are not very strong despite the expansionary policies of the ECB and the cut in the euro borrowing cost. Meanwhile, the average maturity of euro debt shortened until the second half of 2014 in which relative borrowing costs started decreasing but has extended since then.

Chart III.2.1.2

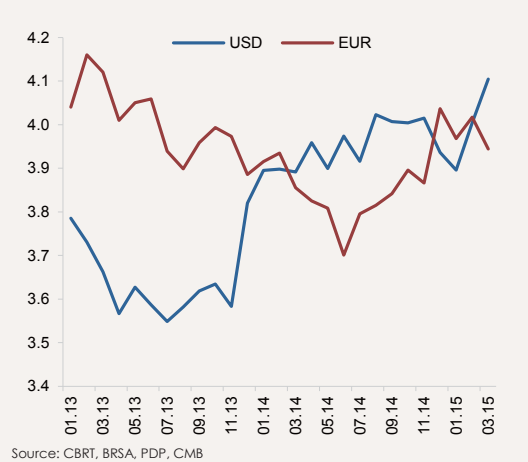
Monthly Amount Changes in Euro and USD External Debt and Parity and Interest Rate Developments



Source: CBRT, BRSA, PDP, CMB, Bloomberg

Chart III.2.1.3

Change in the Average Maturity of Euro and USD External Debt (Year)



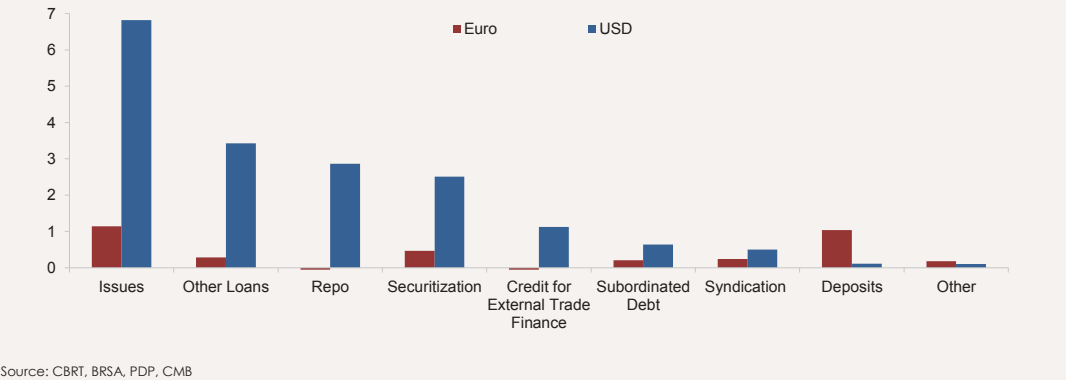
Source: CBRT, BRSA, PDP, CMB

Compared to May 2014, banks have slightly boosted their euro-denominated external debt stocks predominantly via issues, deposits and securitization. Yet, not shifting to euro borrowing, banks have opted for USD borrowings in security issues, securitization loans, other loans based on bilateral agreements, secured repo transactions and credits for external trade finance (Chart III.2.1.4).

Chart III.2.1.4

Change in Borrowing Instruments Between 2015Q1 and May 2014

(Billion Euro, Billion USD)

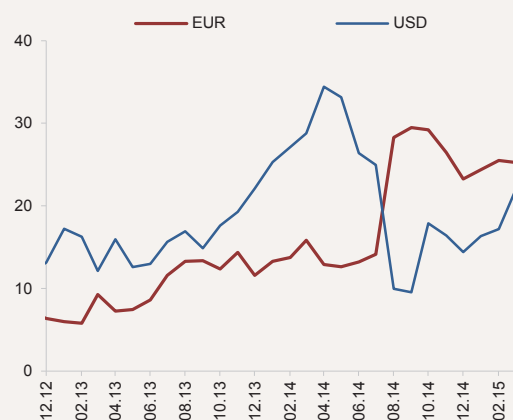


Source: CBRT, BRSA, PDP, CMB

The lack of a shift towards euro in external borrowing despite reduced costs may be attributed to the developments on the assets and liabilities front. A shift towards euro in external borrowing while the balance sheet structure remains intact would mean that banks will have a short cross currency position. As a matter of fact, although there was not a significant change in euro-denominated external borrowing, the on-balance sheet euro short position jumped in mid-2014 and stood at a higher level (Chart III.2.1.5). A close look at the changes in USD and euro denominated assets and liabilities in banks' balance sheets during the period between May 2014 where euro interest rates started to decline and March 2015 reveals that as opposed to the decline in the USD deposit amount, the euro deposit amount has grown and its share in total deposits has increased. On the asset side, the increase in euro loans outpaced that in USD loans. Meanwhile, the amount of decline in the euro-denominated portion of other assets, which are largely composed of foreign exchange held within the ROM facility, has approximated the increase in loans. Consequently, changes in items other than external debt have increased the on-balance sheet euro short position.

Chart III.2.1.5

On-Balance Sheet Euro-USD Short Position
(Billion Euro, Billion USD)



Source: CBRT, BRSA (Latest Data: 03.15)

Table III.2.1.1

Change in Amount of On-Balance Sheet Euro-USD Items
(May 2014 - March 2015, Billion Euro- Billion USD)

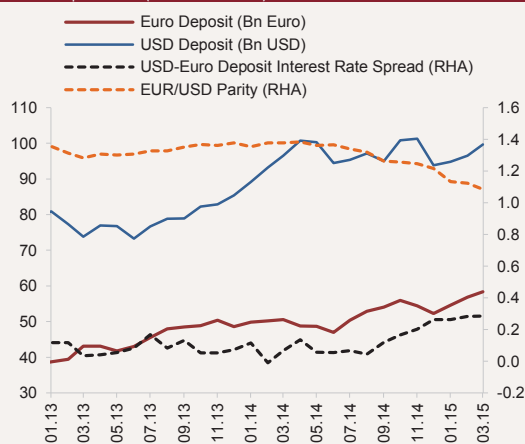
Asset		Liability	
Δ EUR Loan	+9.6	Δ EUR Deposit	+9.7
Δ USD Loan	+8.0	Δ USD Deposit	-0.7
Δ EUR Sec. Portf.	+0.2	Δ EUR External Debt	+3.3
Δ USD Sec. Portf.	+4.0	Δ USD External Debt	+18.1
Δ EUR Other	-9.2	Δ EUR Other	+0.3
Δ USD Other	+15.8	Δ USD Other	-1.1
Δ EUR Total	+0.6	Δ EUR Total	+13.3
Δ USD Total	+27.7	Δ USD Total	+16.3

Source: CBRT, BRSA

It is remarkable that there has not been any weakening in the inclination of depositors towards euro deposits despite the interest rate advantage of the US dollar and the depreciation trend in the euro (Chart III.2.1.6). An analysis of currency swap transactions that the depositors have preferred as an alternative to TL deposits in the recent period suggests that only a 10-percent portion of the growth in euro deposits has originated from these transactions.⁴ The ongoing interest in euro deposits is believed to be mainly related to the expectations of depositors regarding cross rate movements. In recent years, depositors who want to take advantage of exchange rate movements have taken an opposite position against exchange rate movements with the impulse of making a profit, shifting to FX deposits when the TL appreciates and vice versa. Probably, the same motivation was in place in the preferences for euro and dollar deposits. Actually, when the monthly rate of increase in the EUR/USD parity and the monthly rate of increase in the amount of euro deposits since early 2003 are analyzed together, a relation appears in the negative direction (Chart III.2.1.7).

Chart III.2.1.6

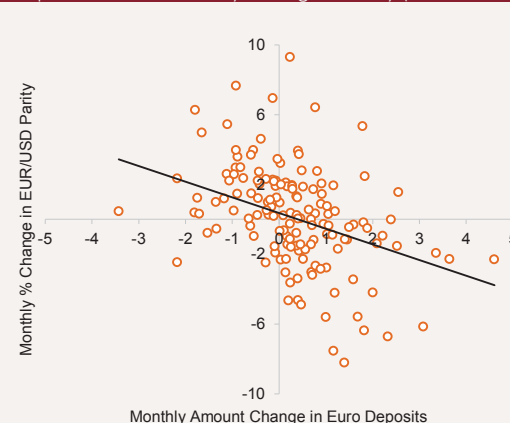
Euro and USD Deposits and Parity and Interest Rate Developments (Billion, Percent)



Source: CBRT, BRSA

Chart III.2.1.7

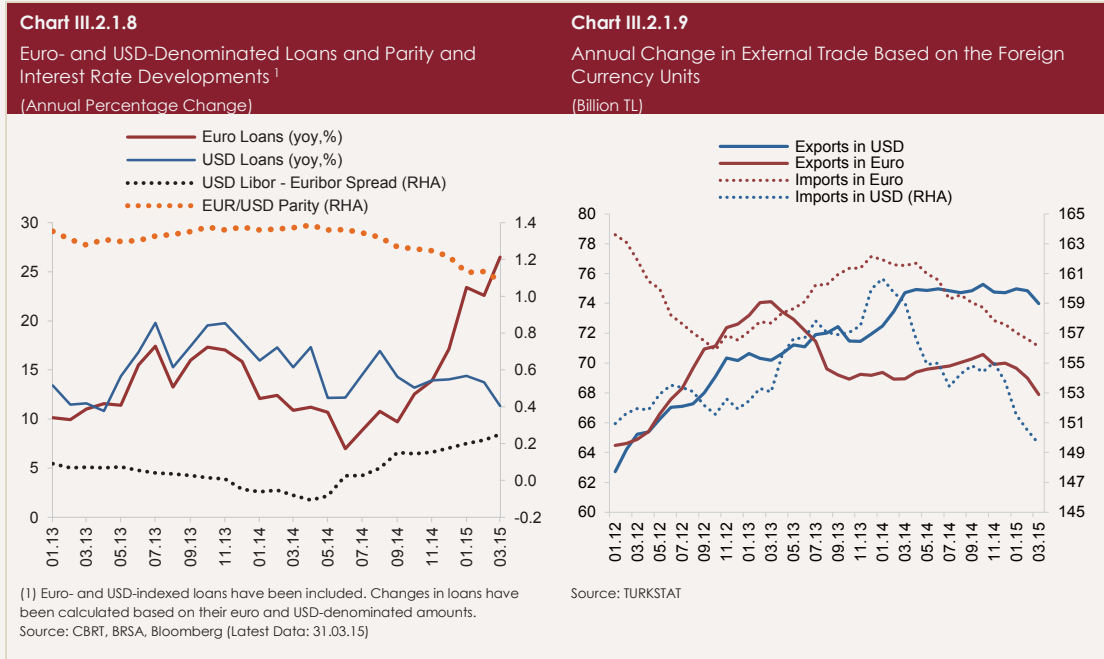
Relation Between the Monthly Amount Change in Euro Deposits and the Monthly Change in Parity (Billion, Percent)



Source: CBRT, BRSA (Latest Data: 03.15)

⁴ For a detailed explanation of currency swap transactions, see Financial Stability Report Issue: 18, Box II.1.1: The Impact of Resident Real Persons' Currency Swap Transactions on FX Savings Deposits.

Unlike the case with banks, firms are rapidly shifting to euro-denominated loans. Following the widening in the gap between USD Libor and Euribor in mid-2014, the growth rate of euro-denominated loans has accelerated, whereas the growth rate of USD-denominated loans has slightly decelerated (Chart III.2.1.8). Taking into account that the currency-based developments in external trade have not changed in a direction that will affect firms' loan preferences, it can be asserted that this was largely based on developments in relative borrowing costs (Chart III.2.1.9). At this point, it is important to emphasize the need to closely monitor the cross exchange rate risk that firms have born due to the advantage in borrowing costs.



To conclude, the relative advantage seen in euro borrowing costs as a result of the Fed's and the ECB's monetary policies has not affected banks' external borrowings yet. This has originated largely from the changes in other asset and liability items of the balance sheet. The CBRT's allowing for only USD maintenance within the ROM facility has also been influential. However, this implementation is believed to have its effects already observed. Hence, if the euro tendency in corporate loans continues in the upcoming period, banks' borrowings are also expected to slightly change in the euro direction.

Box
III.2.2

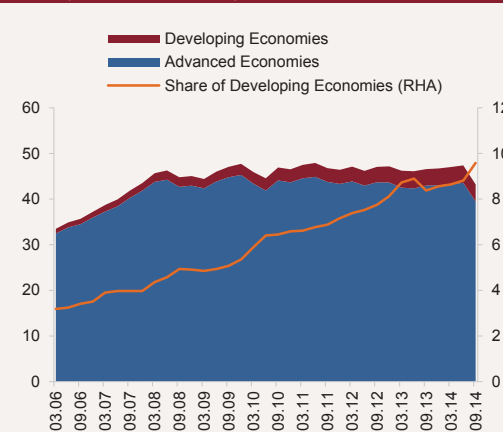
Developments in the Securities Market

In emerging economies, the private sector's borrowing through security issues has been increasing for a long time (Chart III.2.2.1). Security issues offer relatively longer term unsecured alternative funding sources for these institutions. Growing investor interest in these securities contributes to the development of the financial markets in emerging countries as well. On the other hand, investments in these instruments have increasingly come from portfolio management companies and this may expose issuers to more volatile funding conditions in times of stress.⁵ This Box presents detailed information regarding the Turkish banking sector's security issues which have had an increased weight in total funding in recent years.

In Turkey, private sector's security issues are conducted predominantly by banks. While the security issues by the non-bank sector are in a rather limited amount, TL security issues by the banking sector account for 65 percent of the private sector's TL issues. This ratio is even higher in FX-denominated security issues abroad (Chart III.2.2.2). The contribution of security issues to the banking sector funding has grown in recent years; security issues by the banking sector has accelerated since the second half of 2010 reaching 5.2 percent of total funding sources (Chart III.2.2.3).

Chart III.2.2.1

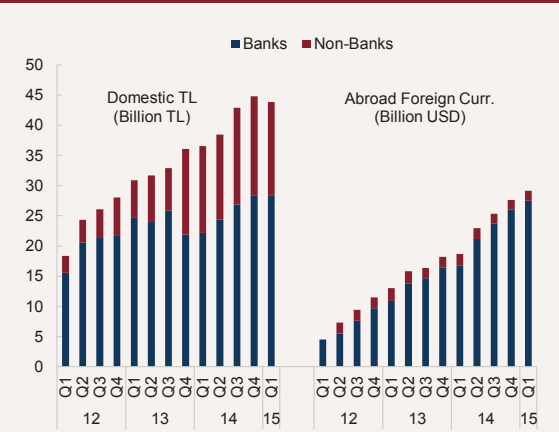
Banking and Non-Bank Sectors' Security Issues in Global Terms (Trillion dollar, Percent)



Source: BIS

Chart III.2.2.2

Banking and Non-Bank Sectors' Security Issues in Turkey



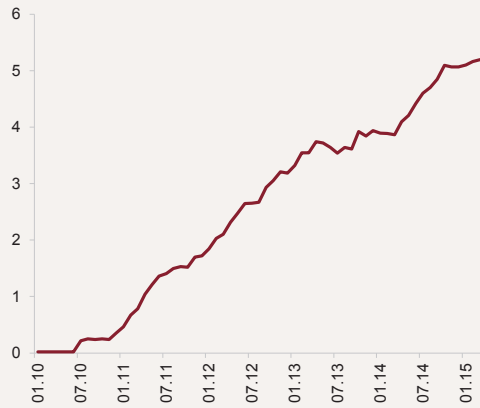
Source: PDP, MKK, CBRT

The banking sector's security issues are mostly FX issues abroad and only a small portion is composed of domestic issues (Chart III.2.2.4).

⁵ IMF Global Financial Stability Report, April 2015, BIS Quarterly Review, "Asset Managers in Emerging Market Economies", September 2014.

Chart III.2.2.3

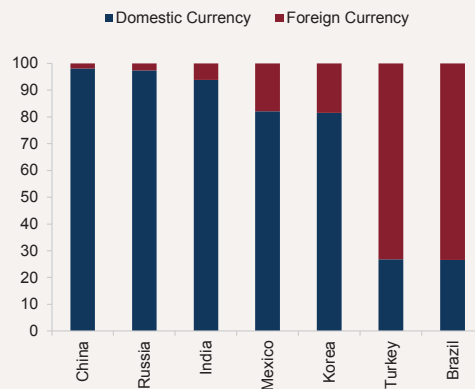
Share of Security Issues in Total Liabilities (Percent)



Source: BRSA, CBRT (Latest Data: 03.15)

Chart III.2.2.4

Share of Domestic and Foreign Currency Security Issues in Total Issues (Percent)

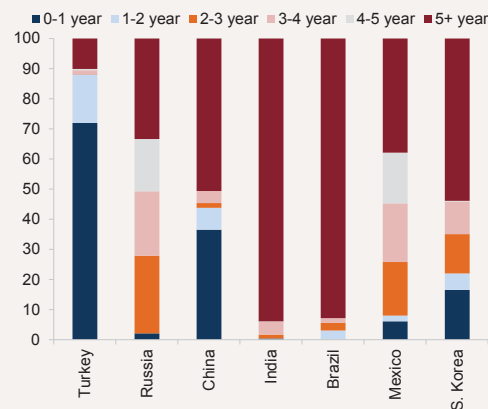


Source: Bloomberg, CBRT (Latest Data: 05.15)

A breakdown of maturities of domestic currency security issues in the Turkish banking sector reveals that most of the securities are issued with a maturity of 3 to 6 months. Although the maturity of domestic issues are longer than the average maturity of TL funding sources, it is shorter compared to other emerging economies. A large portion of domestic currency security issues in selected emerging countries other than Russia is composed of issues with a maturity of 5 years and longer (Chart III.2.2.5). As for FX-denominated issues, the Turkish banking sector's security issues, like those of other emerging countries, are predominantly made of securities with a maturity of 5 years and longer (Chart III.2.2.6).

Chart III.2.2.5

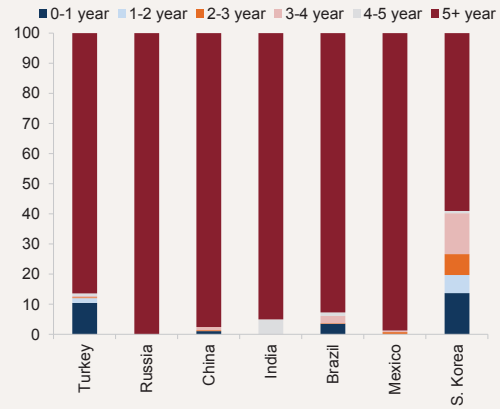
Maturity Breakdown of the Banking Sector's Domestic Currency Security Issues (Percent)



Source: Bloomberg, CBRT (Latest Data: 05.15)

Chart III.2.2.6

Maturity Breakdown of the Banking Sector's Foreign Currency Security Issues (Percent)



Source: Bloomberg, CBRT (Latest Data: 05.15)

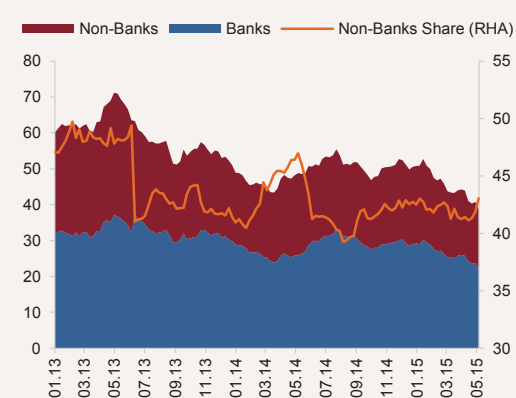
Data on international capital flows show that the share of portfolio management companies in emerging countries' securities has significantly increased in the aftermath of the global financial crisis. Recent studies claim that the flow of funding from portfolio management companies to emerging economies can follow a considerably unstable track in times of stress.⁶ Being a support for this claim, in May 2013 when the FED signaled that it would taper off its asset purchases, non-bank foreign investors withdrew from GDDS, in which a change in the investor profile can be seen as a

⁶ IMF, *ibid.*, BIS, *ibid.*

time series, in a faster and stronger manner than foreign banks (Chart III.2.2.7). On the other hand, behaviors of these two groups of investors did not significantly differ in times of more moderate fluctuations in countries' risk premiums (Chart III.2.2.8).

Chart III.2.2.7

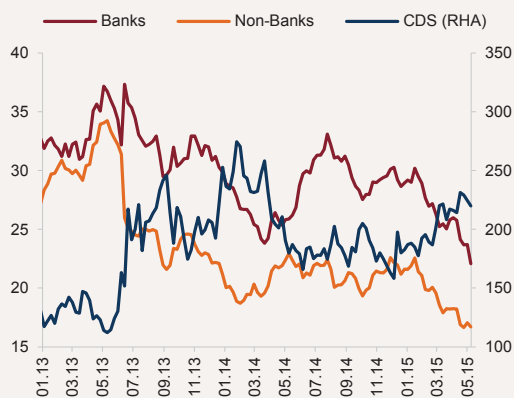
Changes in Non-Resident Holdings of GDDS (Billion USD, Percent)



Source: CBRT (Latest Data: 08.05.15)

Chart III.2.2.8

Changes in Non-Resident Holdings of GDDS and Turkey's 5-Year CDS (Billion USD)

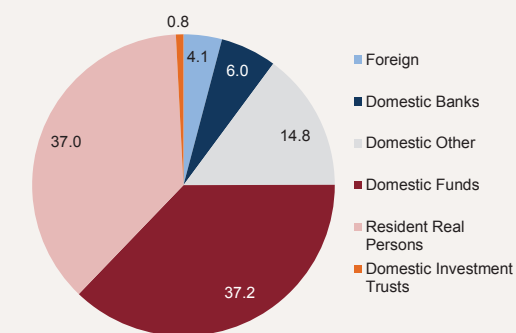


Source: Bloomberg, CBRT (Latest Data: 08.05.15)

According to up-to-date data, domestic issues of banks are mostly held by residents, whereas issues abroad are mainly held by portfolio management companies (Chart III.2.2.9 and III.2.2.10).

Chart III.2.2.9

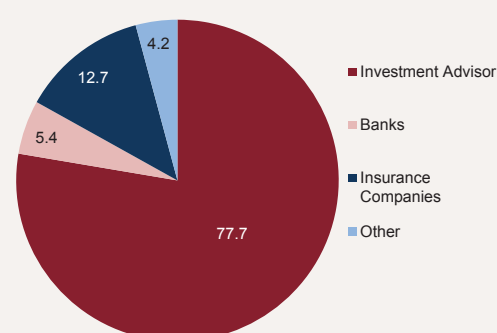
Breakdown of Holdings of the Banking Sector's Domestic Currency Security Issues (Percent)



Source: MKK, CBRT (Latest Data: 04.15)

Chart III.2.2.10

Breakdown of Holdings of the Banking Sector's Foreign Currency Security Issues ¹ (Percent)



(1) The breakdown of holdings of over-the-counter traded issues is not available.
Source: Bloomberg, CBRT (Latest data: 05.15)

In sum, there has been a steady growth in the share of funding through security issues in the banking sector's total liabilities, particularly stemming from foreign currency security issues abroad. Unlike domestic issues, issues abroad have longer maturities, which is likely to increase the resilience of the banking system to short-term fluctuations in financial markets. On the other hand, an important portion of securities issued by the banking sector is held by portfolio management companies which are able to change the investment composition in a fast and strong manner in times of stress. Therefore, potential risks of reliance on these security issues abroad should be taken into account.

III.3. Interest Rate Risk and Exchange Rate Risk

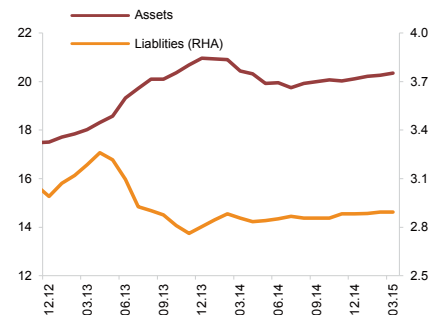
Global divergences in monetary policy and the lingering uncertainties regarding the normalization process in the US urge a close monitoring of the banking sectors' exposure to interest rate risks. It was anticipated that the Fed's interest rate decisions and related expectations would directly affect both USD and TL funding costs. The current signals from the Fed for a rate hike have reverberations on the money markets of emerging economies. The interest rate risk has been analyzed in the framework of the impacts due to the re-pricing resulting from the maturity mismatch between the banking sector's assets and liabilities and due to the re-valuation in the securities portfolio.⁴

The maturity mismatch between banks' TL assets and liabilities has not changed much in the last one-year period. The uptrend seen in maturities of both TL assets and TL liabilities since mid-2014 has remained at very limited level (Chart III.3.1). The extension in maturities of TL assets was mainly triggered by the rise in the share of fixed-rate assets that are relatively long-term, in overall assets. Meanwhile, maturities of floating-rate assets slightly increased, adding to the extension in the average maturity of assets.

With the impact of regulations introduced in early 2014 to limit the maturities of consumer loans except housing loans, the shortening trend in the maturity of fixed-rate TL installment loans continues. Nevertheless, the notable increase in the share of fixed-rate TL installment loans has led to a moderate extension in the average maturity of assets (Chart III.3.2).

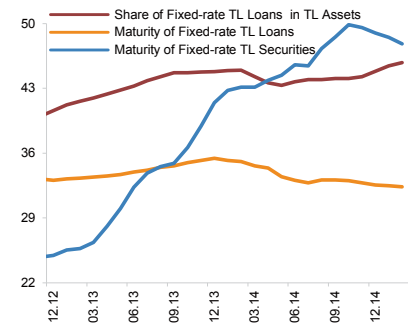
On the other hand, the extension in the maturities of fixed-rate liabilities, particularly of derivatives liabilities, was instrumental in the extension in maturities of TL liabilities. The ratio of fixed-rate TL derivatives liabilities to housing loans' outstanding balance lingers above 2013 and 2014 values and banks continue to hedge against interest rate exposures by cross-currency and interest rate swaps. Converting the FX-denominated long-term external funds to fixed-rate TL funds via

Chart III.3.1
Maturities of TL Assets and Liabilities
(Sum of Interest Sensitive Items, 3-Months Moving Average, Months)



Source: CBRT, BRSA

Chart III.3.2
Breakdown of Fixed-Rate TL Assets
(3-Months Moving Average, Percent, Months)



Source: CBRT, BRSA

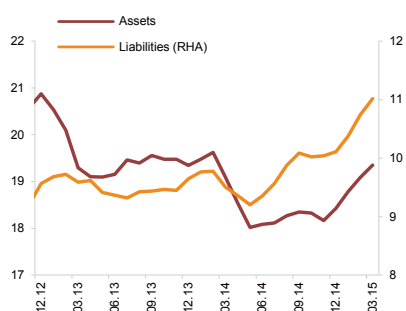
Chart III.3.3
Ratio of Fixed-Rate TL Liabilities to TL Housing Loans
(3-Months Moving Average, Percent)



Source: CBRT, BRSA

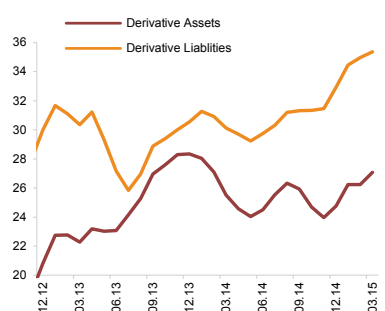
⁴ In this section, participation banks have been excluded from the study. Maturity means remaining term to repricing.

Chart III.3.4
Maturities of FX Assets and Liabilities
(3-Months Moving Average, Months)



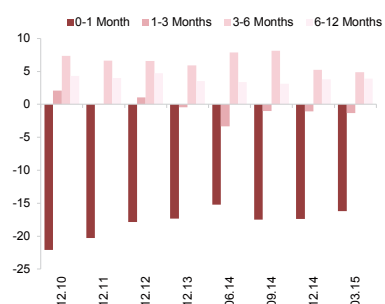
Source: CBRT, BRSA

Chart III.3.5
Maturities of Fixed-rate FX Derivative Assets and Liabilities
(3-Months Moving Average, Months)



Source: CBRT, BRSA

Chart III.3.6
TL Assets-Liabilities Position / Total Liabilities
(Interest Sensitive Assets-Liability Difference, Percent)



Source: CBRT, BRSA

Chart III.3.7
FX Assets-Liabilities Position / Total Liabilities
(Interest Sensitive Assets-Liability Difference, Percent)



Source: CBRT, BRSA

cross-currency swap transactions by banks continue to curb the interest rate exposure originating from long-term and fixed-rate consumer loans, primarily housing loans (Chart III.3.3).

The maturity mismatch between banks' FX assets and liabilities displayed a trend similar to that on the TL side. On the FX side, the average maturity of both assets and liabilities has slightly extended (Chart III.3.4). Similar to the case on the TL front, the extension in the maturity of FX assets stemmed from the growth in the share of fixed-rate assets that are relatively longer-term, and the extension in the maturity of floating-rate assets.

The increase in share and maturity of the marketable securities portfolio and derivatives instruments on the fixed-rate assets front, together with the increase in share and maturity of installment loans and the increase in maturity of derivatives instruments on the floating-rate assets front, has brought about an extension in the average maturity of FX assets. On the other hand, the rise in the share and maturity of fixed-rate derivatives instruments and of debt to banks has been influential in the maturity extension in FX liabilities (Chart III.3.5).

In recent months, there has been a modest improvement in the interest rate-sensitive TL position subject to repricing. The narrowing in the short position has mainly resulted from the decline in the short position in the maturity bracket up to one month. The position with a maturity of six-to-twelve months has also improved moderately. Conversely, there has been a slight deterioration in positions with a maturity of one-to-three and three-to-six months (Chart III.3.6).

Contrary to the case in the TL position, in recent months, there has been a limited increase in interest rate-sensitive FX short position subject to repricing. The FX position has deteriorated in one-to-three and three-to-six month maturities, whereas it has improved in other maturity brackets (Chart III.3.7).

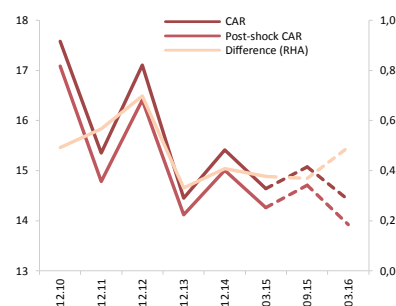
In the quantitative analysis made towards measuring interest rate exposure, based on banks' balance sheets at the

beginning of the specified period, their interest rate-sensitive TL and FX assets and liabilities with maturities of zero-to-one, one-to-three, three-to-six and six-to-twelve months have been repriced according to assumed interest rate hikes of 500 basis points and 250 basis points on each side, respectively. The losses, emerging due to repricing of interest rate-sensitive assets and liabilities under the assumption that interest rate shocks would last for one year, have been deducted from the regulatory capital amount of the subsequent year, and the Capital Adequacy Ratios (CARs) have been re-calculated. The difference between the actual CARs and the re-calculated CARs has been analyzed by periods. Asset and liability values for March 2015 have been used to calculate losses due to interest rate risk exposure for March 2016 and the last three years' average growth figures of the regulatory capital and risk weighted assets have been used to estimate the March 2016 CAR.

Under the interest rate shock assumed to last for a year and in an up-to-one-year term, the banking system's sensitivity to interest rate risk is believed to be rather limited and the current CAR level of the system makes it robust in the face of interest rate shocks. For the period analyzed, the impact of TL interest rate shock was stronger than that of FX interest rate shock. TL and FX interest rate shocks led to a decline of around 38 basis points and 11 basis points in the CAR, respectively. Almost half of this difference in the size of the impact results from the difference in the severities of the interest rate shocks that interest rate-sensitive TL and FX assets and liabilities are exposed to, while the remaining half stems from the difference between the absolute magnitudes of interest rate-sensitive short positions. In the last six-month period, losses due to the TL interest rate shock and the FX interest rate shock have increased by 10 basis points and 2 basis points, respectively. Thus, the total impact of shocks on the CAR has remained limited and has shown no significant change in the last six-month period (Chart III.3.8).

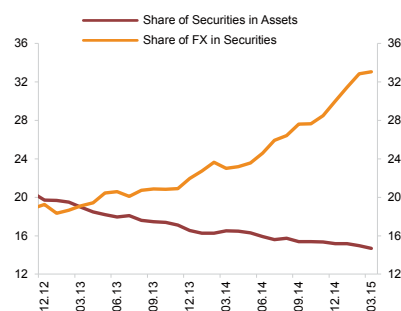
The share of securities in total assets of the banking sector has been in a downtrend in recent years. The share of FX securities, which build almost one third of the securities portfolio, in total securities has grown markedly since 2013 (Chart III.3.9).

Chart III.3.8
CAR after TL and FX Interest Rate Shocks⁽¹⁾
(Percent, Points)



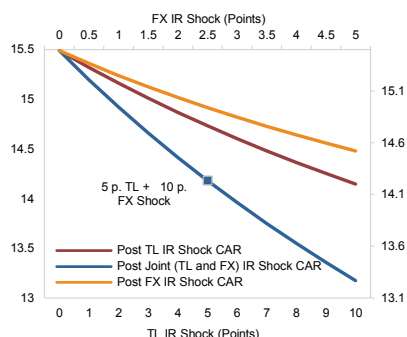
(1) Banks with assets over 6 billion TL (excluding Eximbank and İller Bankası) are considered in calculations.
Source: CBRT, BRSA

Chart III.3.9
Securities Portfolio
(Percent)



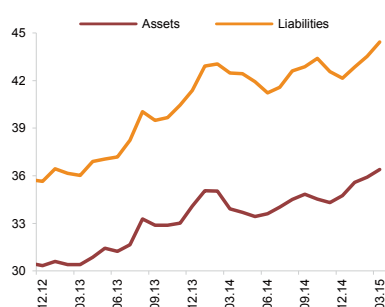
Source: CBRT, BRSA

Chart III.3.10
Effect of TL and FX Interest Rate Shocks on CAR¹
(Percent)



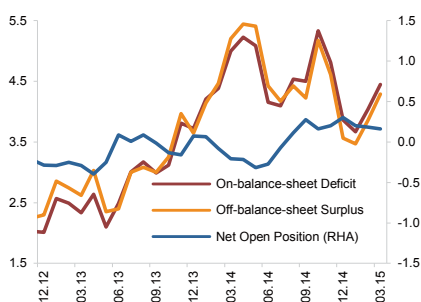
Source: CBRT, BRSA, Bloomberg

Chart III.3.11
Share of FX in Banking Sector Assets and Liabilities
(Percent)



Source: CBRT, BRSA

Chart III.3.12
Ratio of FX Positions to Total Assets
(Percent)



Source: CBRT, BRSA

More than half of the securities portfolio, which still has a significant weight in banks' balance sheets, is composed of fixed-rate securities. This may affect banks' balance sheets via profit/loss accounts in case of negative shocks to both TL and FX interest rates.

Of banks' fixed-rate TL and FX securities, the interest rate risk analysis has been applied to Treasury bills and bonds, foreign government bonds and corporate sector bonds for which the market interest rates and current value data are accessible. In terms of amount, this sub-group of securities constitutes 98 percent and 92 percent of banks' fixed-rate TL and FX securities, respectively.

The banking sector's sensitivity to securities portfolio-based interest rate shocks is believed to be limited and the sector with its current capital level is not expected to suffer significantly from an interest rate shock. A TL interest rate shock of up to 1000 basis points will have up to 134 basis points of a negative effect on the sector's CAR, whereas an FX interest rate shock of up to 500 basis points will have up to 97 basis points of a negative effect on it. When 500 basis points of TL and 250 basis points of FX interest rate shocks mentioned in the repricing section are imposed simultaneously, the CAR of the sector drops by 131 basis points (Chart III.3.10).

Lingering uncertainties regarding the Fed's interest rate decisions also lead to exchange rate fluctuations. Therefore, exchange rate risks that banks are exposed to because of the exchange rate volatility and their FX positions should also be monitored.

The share of FX assets and liabilities in the banking sector has assumed an apparent uptrend since 2011 (Chart III.3.11). Meanwhile, the on-balance sheet FX position has fluctuated on the back of assets and liabilities movements. However, the uptrend observed in the on-balance sheet position throughout 2013 reversed in 2014 and the on-balance sheet short position shrank. On the other hand, banks have hedged their on-balance sheet FX short positions via off-balance sheet

transactions to a large extent. In light of on-balance sheet and off-balance sheet FX positions, the net short position has been on a balanced track in terms of its size (Chart III.3.12).

Under the assumptions that balance sheet is stable and the short-position loss is directly deducted from equity, the effects of upward movements in the exchange rate on the CAR were analyzed. According to this analysis, an up-to-100-percent hike in the exchange rate gradually triggers down the CAR by up to 19 basis points via the net short position channel (Chart III.3.13). For the banking sector which has a high CAR, the risk directly originating from the exchange rate short position remains very limited. Banks have briskly hedged their FX short positions with derivative transactions, which makes the Turkish banking sector more resilient to exchange rate risks.

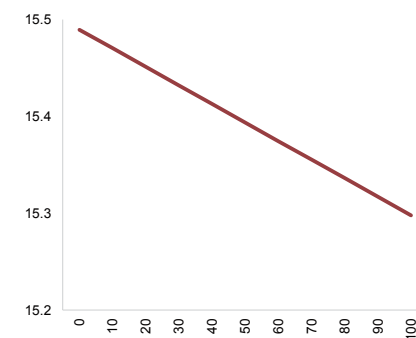
III.4. Capital Adequacy, Profitability and Resilience to Shocks

The annual net profit of the banking sector started to increase again in the second half of 2014 and stood at TL 25.5 billion as of March 2015 (Chart III.4.1). The escalation in the net profit amount stemmed from the increase in the net interest income. On the other hand, the rise in non-interest expenditures and special provisions for non-performing loans has curbed the growth in net profit amount (Chart III.4.2).

The downtrend in return on assets and return on equity which is at historically low levels halted in the second half of 2014. As of March 2015, the return on equity and the return on assets were 11.4 percent and 1.3 percent, respectively (Chart III.4.3). The fact that the annual net profit of the sector increased while the return on assets remained unchanged suggests that the increased profitability has resulted from the growth in assets of the sector.

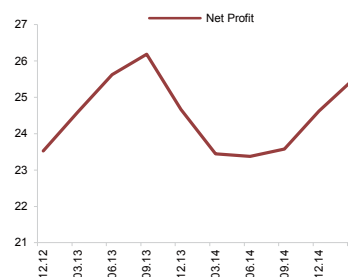
An analysis of the components of the return on assets reveals that the downtrend in the return on assets ceased in tandem with the halting contraction in the net interest margin. The interest rate hike in early-2014 led to a contraction in the net interest margin of banks. Changes in interest rates have more

Chart III.3.13
Effects of Various Depreciations of TL on CAR
(Percent, Horizontal axis shows percent changes in FX rate)



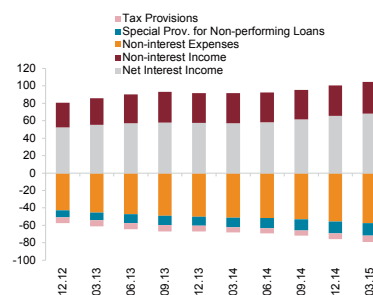
Source: CBRT, BRSA

Chart III.4.1
Net Profit Developments
(12-Month Cumulative, Billion TL)



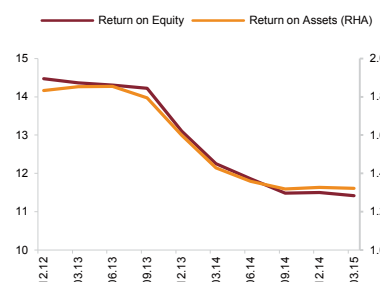
Source: CBRT, BRSA

Chart III.4.2
Components of Net Profit
(12-Month Cumulative, Billion TL)



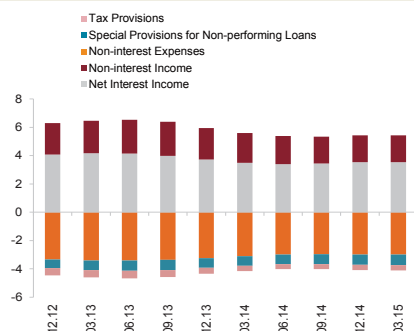
Source: CBRT, BRSA

Chart III.4.3
Return on Assets and Return on Equity
(Percent)



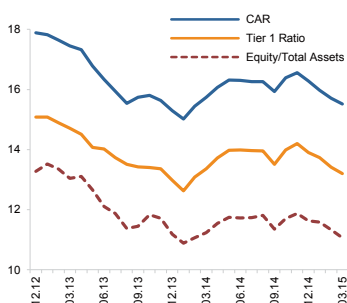
Source: CBRT, BRSA

Chart III.4.4
Components of the Return on Assets
(Percentage of Annual Average Assets)



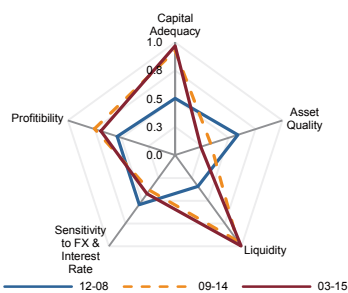
Source: CBRT, BRSA

Chart III.4.5
Capital Indicators
(Percent)



Source: CBRT, BRSA

Chart III.4.6
Banking Sector Stability Map¹



[1] A sub-field of the "Financial Stability Map"
Source: CBRT, BRSA

immediate effects on costs of liabilities and lagged effects on return on assets due to the difference in maturities. In time, an interest rate hike affects the asset portfolio as well, leading to an improvement in the net interest margin in the subsequent periods. An analysis of components other than the net interest margin indicates that there has not been critical worsening in operational expenses and credit risk costs (Chart III.4.4).

In the March 2015 period, the capital adequacy ratio (CAR) of the banking sector declined to 15.5 percent and the Tier 1 capital ratio to 13.2 percent (Chart III.4.5). In the first quarter of 2015, the regulatory capital and total risk-weighted assets increased by 1.6 percent and 6.7 percent, respectively, compared to end-2014. The value at credit risk, which builds 89 percent of total risk-weighted assets, rose by 5.8 percent compared to end-2014, while the values at market risk and operational risk climbed by 17.6 percent and 15 percent, respectively. The rise in the exchange rate stimulates a surge in the TL value of banks' FX assets and accordingly in the amount subject to credit risk, thus negatively affecting the CAR. Since the value at operational risk is re-calculated every new year, it may post significant increases at the start of the year.

An analysis of the development in banking sector risk indicators shows that the asset quality and the profitability have improved compared to the previous report period, whereas there has not been any significant change in liquidity and capital adequacy indicators or in exchange rate and interest rate sensitivity indicators (Chart III.4.6).

IV. Special Topics

V.1 FX Short Positions of Corporate Sector Firms

Summary

The excessive volatility in exchange rates observed in recent periods has raised a question about the risks of FX short positions of firms. This study offers an examination of these risks based on different data sets. Data suggest that the share of firms with FX debt in the total number of firms has decreased in recent years and the total FX borrowing has increasingly concentrated in large firms. Meanwhile, on the part of firms that borrow predominantly in FX and have low or no export revenue, there has been little inclination to hold FX assets to hedge against the exchange rate risk. Firms with a high FX short position have low import ratios and their FX debt is largely of a long term nature. This is believed to constrain the short-term effects of exchange rate volatilities on firms. In addition, firms have been categorized in groups based on the ratio of the short-term FX short position to total short-term liabilities with a view to identifying the extent of the short-term effects of exchange rate volatilities on firms. According to this categorization, the number of firms whose cash flows may significantly change due to exchange rate movements corresponds to 7 percent of total firms and these firms are relatively smaller-sized firms. In other words, the liquidity positions of large firms with a high FX short position are subject to a moderate level of sensitivity to exchange rate volatility.

IV.1.1 Introduction

Excessive volatility in exchange rates observed in recent periods have raised a question about the risks of FX short positions of firms for the corporate sector and indirectly for the banking sector. In this study, the exchange rate risk that firms in Turkey bear is analyzed with two different data sets (BAT-Risk Center data, FX positions of firms in the scope of CBRT Sectoral Balance Sheets). In this framework, the study includes views on issues such as FX loan use and FX short positions of firms and the capability of firms to cover exchange rate risk-based losses.

Findings suggest that 95 percent of a total of approximately 550 thousand firms included in the analyses do not have any FX debt. Moreover, a large portion of total FX loans are used by large firms that are considerably small in number and these loans are mainly long-term loans. On the other hand, approximately 4500 firms, whose financial information is obtained based on a breakdown by currency unit in the scope of CBRT Sectoral Balance Sheets, have been categorized and analyzed according to the ratio of net FX positions to net sales.

Finally, firms have been categorized in 4 groups according to their short-term FX short positions to total short-term liabilities to assess the sensitivity of firms' liquidity position to the exchange rate. The analyses reveal that the number of firms whose cash flows may significantly change due to exchange rate movements corresponds to 7 percent of total firms in the sample.

IV.1.2 FX Loan Debt of Corporate Sector Firms

Data compiled by the BAT-Risk Center present almost all loans extended by the domestic banking system in a breakdown of firms, currency units and maturities. Firms' borrowings from abroad are also included in this data set as these loans are intermediated by domestic banking system. The sum of all FX loans of firms in the data set is very close to the amount of firm FX loans calculated from banks' balance sheets.^{5,6}

The Risk Center data cover almost all the FX loans on a firm basis but the Center's database do not include any data regarding the financial structure of firms. The database includes information on loan's area of use only. For this reason, deriving from these data, it is not possible to identify the FX short positions of firms and to what extent they have a natural hedge. Hence, statistics produced from this database offer general information about FX indebtedness. Statistics produced from the database of the Risk Center that cover credit information of approximately 550 thousand firms as of end-2014 are summarized below.

5 However, because data regarding loans in which the total credit utilization and/or amount of credit limit remains below a specified level are consolidated and then reported, a firm-based breakdown of low-amount credit utilization is not available. Therefore, the total of firm-based TL loans in the data set is below the total TL credit volume of Turkey's banking system.

6 FX loan figures analyzed in this study consist of loans extended in FX and FX-indexed loans extended in TL.

Taking all the firms in the database, the share of the number of firms having FX debt in the total number of firms has been on the decline and stands at around 5 percent according to the latest data (Chart IV.1.1). Considering that the data set covers a large number of micro firms, this ratio has been calculated as approximately 14 percent for only 192 thousand firms having a total debt of more than TL 50 thousand.

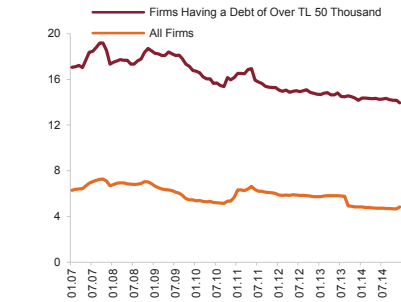
To get a breakdown in terms of firm size, firms have been categorized into 5 groups according to their total credit balances with the assumption that this can be an indicator of firm size. In this categorization, limit values for total indebtedness have been determined as TL 1 million, TL 10 million, TL 50 million and TL 150 million for each group, respectively. In the scope of the analysis, the following variables have been produced for these groups:

1. The share of FX indebted firms,
2. The share of total FX loans of the group in total FX loans,
3. Debt dollarization ratios of firms using FX loans,
4. The ratio of long-term FX loans to the total credit balance.

Moreover, to get an insight into the change in variables in time, the same statistics have also been calculated for end-2010 in addition to end-2014.

The first indicator used in the analysis identifies how common the FX credit utilization is on the basis of firm size, whereas the second indicator identifies the quantitative distribution of total FX loans extended by the banking system (including loans directly obtained by firms from abroad) according to firm size groups (where total indebtedness used as a proxy for firm size). Debt dollarization ratios have been calculated as an indicator for the sensitivity of firms' balance sheets to exchange rate risk,⁷ under the assumption that firms' credit accounts for a sizable portion of firms' total liabilities. Finally, the data regarding the maturity structure of loans has been produced to understand how long it takes firms to feel the effects of exchange rate movements.

Chart IV.1.1
The Ratio of Firms with FX Debt According to BAT- Risk Center Data (Percent)



Source: BAT – Risk Center, (Latest Data: 12.14)

⁷ According to 2013 balance sheet data of firms included in the scope of the CBRT Sectoral Balance Sheets study, the ratio of total liabilities to total assets is approximately 70 percent.

Table IV.1.1

The Number of Firms Having FX Debt and Their Debt Dollarization Ratios According to the Total Indebtedness Level (Percent)

Total Indebtedness Level	(1) The Number of Firms in the Group / Total Number of Firms	(2) The Number of Firms Using FX Loans / The Number of Firms in the Group	(3) FX Debt of Firms in the Group / Total FX Debt	(4) Debt Dollarization Ratio of Firms Using FX Loans	(5) Long-Term Share of FX Debt
2010					
Below 1 Million	90.9	5.0	1.6	67.8	49.1
1-10 Million	7.8	45.4	11.4	63.1	53.9
10-50 Million	1.0	84.7	21.1	78.5	68.6
50-150 Million	0.2	92.1	21.1	84.5	78.8
Above 150 Million	0.1	96.4	44.8	84.2	82.0
2014					
Below 1 Million	84.2	3.8	0.6	71.5	55.0
1-10 Million	13.4	28.3	6.8	62.4	49.4
10-50 Million	1.9	71.9	16.7	73.0	63.7
50-150 Million	0.4	89.5	17.9	81.8	75.6
Above 150 Million	0.2	94.9	57.9	86.2	82.5

On the basis of the grouping according to firms' total loan debt, firms with a higher amount of total loans are significantly more inclined to use FX loans (Table IV.1.1, Column 2). Accordingly, a large portion of the total FX loans is used by large firms that are considerably small in number relative to the size of the sample and this share is significantly higher compared to 2010 (3). On the other side, debt dollarization ratios reveal that firms with FX credit tend to have more than half of their total credit in FX. This tendency seems to be strengthened as the firm size grows (4).

An analysis of the maturity structure of FX and total loans as of 2014 (5) reveals that FX loans of large firms that have the largest share in total FX loans are mainly long-term loans. For the firms with a total loan debt of less than TL 10 million, nearly half of FX debt is composed of short-term loans. In general, the prevalence of longer-terms in FX loans is a favorable development as it means that the depreciations in the TL will have limited effects in the short run.

IV.1.3 Firms According to FX Revenues

The extent of the effect of the depreciation in TL on firms varies depending mainly on the level of the natural hedge they have. The Risk Center data analyzed in the previous section do not provide information about to what extent firms have a natural hedge against exchange rate risk. Hülagü and Yalçın (2014) assessed the exchange rate riskiness of firms based on the FX-denominated debt/exports ratio of approximately 9

thousand firms by consolidating the Sectoral Balance Sheets and the Risk Center data. In this section of the study, FX assets and liabilities of firms were studied and the extent of the exchange rate risk that these firms bear was analyzed by using a sample of the same data set composed of around 4500 firms.

In Hülalagü and Yalçın's (2014) study, FX-denominated loans in the Risk Center was used as a proxy for total FX liabilities. As FX assets of firms were not reported by all the firms in the sample, firms' export revenues were assumed to be the only means of hedging against FX liabilities. Their study suggests that debt dollarization ratios of particularly the small and medium sized firms have dropped over time. Firms with high FX debt that do not have any export revenue operate predominantly in sectors such as manufacturing, energy, construction and tourism and the FX debt of these firms is largely composed of long-term loans. Moreover, with a medium-term perspective, these firms have registered a high rate of foreign exchange profit in times of strong TL and these profits have significantly offset the foreign exchange losses in times of depreciations in the TL. On the other hand, the fact that some firms operating especially in sectors such as energy, construction and tourism price their sales in FX in the domestic market is believed to constrain the exchange rate riskiness of those firms.⁸

Table IV.1.2
Main Balance Sheet Indicators Based on the Ratio of Firms' Net FX Position to Net Sales
(2010, 2013)

Risk Level* Net FX / Net Sales	(1) Number of Firms	(2) Exports / Gross Sales	(3) Imports / Gross Sales	(4) Net Exports / Net Sales	(5) Debt / Equity	(6) Debt Dollarization	(7) FX Long- Term Share	(8) Current Ratio	(9) Return on Assets (RoA)
2010									
>0.01	552	0.22	0.11	0.11	1.91	0.41	0.40	7.04	0.08
[-0.39,0.01]	3198	0.09	0.06	0.03	4.62	0.30	0.54	2.34	0.06
[-1.47,-0.39]	258	0.14	0.16	-0.03	8.71	0.85	0.75	2.12	0.01
<-1.47	249	0.06	0.06	0.00	10.63	0.89	0.91	2.03	-0.01
2013									
>0.01	447	0.24	0.17	0.07	1.72	0.52	0.50	4.37	0.11
[-0.39,0.01]	3612	0.06	0.07	-0.01	5.93	0.24	0.65	1.92	0.05
[-1.47,-0.39]	199	0.19	0.18	0.01	6.94	0.82	0.62	1.87	-0.01
<-1.47	251	0.03	0.04	-0.02	9.43	0.94	0.91	1.36	-0.04

*Moving down the Table, the exchange rate risk level increases.

8 As an addition, firms' FX data are also compiled in the scope of the Sectoral Balance Sheets study. However, every firm's FX data is not accessible at a reliable level. In this respect, the consistency of firms' FX data has been cross-checked with balance sheet and income statement data. In the study, information belonging to 4510 firms having a reliable level of data according to the cross-check was used.

Table IV.1.3
Breakdown of Firms with a High Exchange Rate Risk by Sectors

Sector	2010		2013	
	Number	Percent	Number	Percent
Agriculture	2	0.8	2	0.8
Mining	0	0	2	0.8
Manufacturing	26	10.44	17	6.77
Energy	44	17.67	67	26.69
Water Supply	0	0	1	0.4
Construction	51	20.48	41	16.33
Trade	21	8.43	10	3.98
Transportation	15	6.02	11	4.38
Tourism	35	14.06	53	21.12
Informatics	6	2.41	1	0.4
Holding companies	19	7.63	15	5.98
Real Estate	12	4.82	15	5.98
Professional Activity	2	0.8	3	1.2
Administrative Support	13	5.22	7	2.79
Health	1	0.4	5	1.99
Other	0	0	1	0.4
Total	249		251	

Different from the study of Hülügü and Yalçın (2014), this study employs detailed information regarding the FX positions of firms included in the Sectoral Balance Sheets since 2006. The ratio of firms' net FX positions to net sales was used as a criterion of exchange rate riskiness and accordingly firms are divided into percentiles.⁹

According to the findings of the study, exports/ total sales ratios of firms drop (2 and 4) as the net FX short position increases (i.e. as you move down the Table IV.1.2). This observation is consistent with the finding of Hülügü and Yalçın (2014) which shows that a significant number of highly FX indebted firms have no export revenues. As new information, figures imply that firms with no or limited export revenues which have mainly FX debt have showed little inclination to hold FX assets. Also, firms with a high FX short position have low import ratios (3). Moreover, the weighted average debt dollarization ratio of firms, which are in the upper 5th percentile according to their ratios of net FX short positions to net sales, is very high (6). This ratio has climbed from 89 percent to 94 percent in the last 3-year period. Although these firms' debt / equity ratios are high (5), the maturities of loans are longer compared to the average maturity (7). Yet, their liquidity indicators (current ratio, (8)) are less favorable relative to other firms. Imports of the firms in the same percentile are at a modest level, which may be deemed a positive factor in terms of the exchange rate risk. Lastly, profitability ratios of firms bearing high exchange rate risk are also at relatively low levels.

Consistent with the study of Hülügü and Yalçın (2014), 251 firms standing in the upper 5th percentile in terms of net FX short positions, operate in sectors such as energy, tourism and construction (Table IV.1.3).

IV.1.4 The FX Short Position and the Liquidity of Firms

The depreciation of TL create adverse effects in the balance sheets of firms with FX short positions. For instance, in

⁹ Table 2 shows firms in percentiles of 1 percent, 5 percent, 10-90 percent and 95 percent.

such firms, the equity capital amount will decrease and the ratio of financial expenses to profit will significantly increase following the negative exchange rate shock. These negative changes in balance sheets may occur regardless of the maturity of FX liabilities or even whether the firm with FX debt has FX revenues. Even if the firm has long-term FX debt and is able to cover this debt with export revenues in a few years, the depreciation in TL may negatively affect the balance sheet outlook. On the other hand, the maturity of FX loans is important in terms of the short-term effects of the depreciation in TL. In cases where the FX debt is composed of adequately long term loans, even if the firm's equity turns into negative and/or the profit before financial expenses drops below financial expenses in the short run, this may not have any reflections on firms' cash flows in the short term. Therefore, unless the firm faces a liquidity problem in the short term, it might have enough time to absorb the adverse effects of depreciation (such as adjusting its prices). In cases where FX liabilities are of a short term nature, even if the firm's equity and profitability are strong, it may have difficulties due to the rise in short-term cash outflows triggered by the depreciation in TL.

In this context, to better understand the implications of exchange rate movements on firms' liquidity position, we analyzed firms' short-term net FX liquidity position and the relative importance of this in firms' total liquidity position. Since the analysis focuses only on exchange rate-related risks, it is centered upon the extent of the impact of exchange rate movements on firms' liquidity instead of the overall liquidity risk that firms bear.

Accordingly, a criterion has been devised to show the sensitivity of firms' liquidity position to the exchange rate. Firms have been categorized into 4 groups based on the ratio of short-term FX short position to short-term total liabilities. In this categorization, firms having no short-term net FX position or having FX long position are included in the first group, whereas other three groups are composed of firms in which the ratio of net FX position to short-term loans is higher than zero percent

and lower than 25 percent, between 25 percent and 50 percent, and higher than 50 percent, respectively.¹⁰

Table IV.1.4
Riskiness of Firms Based on Short-Term FX Position
(Median Value, 2013)

Net Short-Term FX Pos. / Short-Term Loans	(1) The Number of Firms in the Group/ Total Number of Firms	(2) Net Volume of Sales (Million TL)	(3) Current Ratio	(4) Short-Term Debt / Net Sales (Percent)	(5) Profit/Net Sales (Percent)
<0	84.3	14.5	1.3	45.0	1.4
[0, 0.25]	8.8	26.0	1.2	54.8	1.5
(0.25, 0.50]	3.5	32.8	1.1	58.3	0.5
>0.50	3.4	20.8	1.0	84.9	-0.8

Figures in Table IV.1.4 indicate that approximately 84 percent of the firms in the sample will not be negatively affected by a sudden depreciation in TL in the short run, whereas nearly 9 percent will be influenced moderately (1). The number of firms whose cash flows may significantly change depending on exchange rate movements corresponds to 7 percent of the number of total firms. Excluding the last group, there is a correlation between the susceptibility to exchange rate risk and the firm size in (2), whereas the riskiest group is composed of relatively smaller firms. These firms are also in a disadvantageous position in terms of other liquidity indicators (4,5).

Previous analyses show that FX loans are concentrated rather in large firms. However, in terms of short term cash flows, relatively smaller firms are found to be more vulnerable to a depreciation of TL. This finding is consistent with the previous analysis utilizing Risk Center data, which implies that a greater share of larger firms' FX loans are in long-term.

¹⁰ It is possible to materialize what these ratios mean for firms' liquidity with an example. In case of a 20 percent depreciation in TL, short-term liabilities of a firm whose short term net FX position to total short-term liabilities ratio is 25 percent (in other words, cash outflows expected in the short run) will increase by 5 percent.

IV.2. The 2008-2009 Global Financial Crisis and the Credit Channel

Summary

During the 2008-2009 global financial crisis, capital inflows to emerging market economies considerably weakened and accordingly there were significant fluctuations in the real economic activity and financial aggregates. Also named "sudden stop" in the literature, this development was analyzed in a number of studies by using macro data. However, as far as it is known, the number of studies analyzing the sudden stop at a micro level by using bank-firm data is limited. This study presents an analysis of the impact of the sudden stop on the credit channel in Turkey via detailed micro data from banks-firms. Empirical findings suggest that banks which had concentrated mainly on external funding before the crisis and specifically have a high amount of external debt, cut their loan supply more. Moreover, banks with a high level of loan portfolio exchange rate risk and banks with a high liquidity ratio also curbed their loans more. As for banks having a high capital adequacy ratio, the decline in the loans they extended was smaller as they were stronger when the 2008-2009 global crisis hit. The study also shows that the decline in the loan level was related to firms' balance sheets as well. For instance, the contraction in the loan market had a bigger effect on small and highly indebted firms. The effect of this contraction shock in loan supply was smaller for firms concentrating on exports or having a high amount of fixed assets.

IV.2.1 Introduction

During the 2008-2009 global financial crisis, capital inflows that are very important for emerging market economies decelerated and there were even capital outflows from these economies. Also named "sudden stop" in the literature of emerging market economies, this development was analyzed in a number of studies (Mendoza, 2006; Korinek and Mendoza, 2014). Sudden stops usually start with a strong reverse movement in capital inflows to emerging market economies and continue with severe capital outflows from these economies. In addition, external borrowing conditions get harder under

these circumstances and emerging market economies cannot obtain external funding. This leads to stagnation and fragility in a country's economy. Mendoza and Terrones (2012) claim that this situation increases the fragility of particularly the banking sector in emerging market economies.

The 2008-2009 global financial crisis can also be referred to as the banking crisis because the banking sector experienced great difficulties in that period. Contractions in the banking sector caused loan supply to be largely curbed. This also affected the real economy to a great extent, leading to problems in the access of firms to loans and urging firms to delay their planned investment decisions.

This case called the "credit channel" in the literature may vary according to bank types and firm types. Firms with limited access to financial markets are more sensitive to these shocks due to information asymmetry (Mishkin, 1995; Bernanke and Gertler, 1995). Economic impacts of the credit channel vary depending on firm types (Gertler and Gilchrist, 1994; Kashyap et al., 1994) and bank types (Kashyap and Stein, 2000). Khwaja and Mian (2008) find that there is a higher decline in the loans of small firms in the face of negative shocks. Iyer et al. (2014) show that small banks reduce their loan supply more in times of crisis.

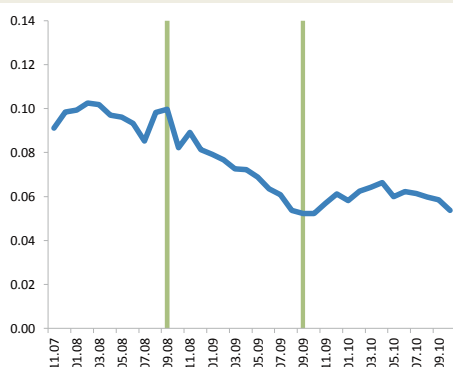
The 2008-2009 global financial crisis can be seen as an external negative sudden stop shock for Turkey. In that period, there was a sharp decline in commercial loan growth (Chart IV.2.1). Moreover, banks' external loans also dropped rapidly (Chart IV.2.2).

Chart IV.2.1
Commercial Loan Growth



Source: CBRT

Chart IV.2.2
External Loans / Total Assets Ratio



Source: CBRT

This box presents an analysis of the effects of this external negative sudden stop shock on the loan supply via firms'-banks' loan growth data at the micro level and in a transaction basis. In particular, reactions of the banks, which had a high amount of external loans before the crisis, to external shocks have been analyzed. The hypothesis of the study was that banks had difficulty in accessing external financing during the global crisis and consequently their loan supply decreased. The result of the study confirm the hypothesis.

IV.2.2 Data and Methodology

Three different data sets were used in the study. These are data from the Banks Association of Turkey - Risk Center that include loan information at the firm-bank level, the CBRT data that cover many different variables such as banks' balance sheets and income statements and lastly the CBRT sectoral balance sheet data composed of detailed balance sheets and income statements of approximately 10 thousand firms. Loan information belonging to firms-banks was matched with sectoral balance sheets and bank data. The data set consists of a total of 48 thousand firm-bank observations, 40 banks and approximately 9 thousand firms. Loans extended to these firms constitute approximately 60 percent of total loans. In this respect, the representativeness of the sample is very high. Table IV.2.1 shows descriptive statistics.

Table IV.2.1
Descriptive Statistics

	Number of Observations	Average	Minimum	Median	Maximum	St. Deviation
Loan Growth	47302	-0.33	-13.23	-0.15	7.50	1.79
The Ratio of Loans That the Firm Obtains from the Related Bank to Its Total Loans	46159	0.32	0.00	0.19	1.00	0.32
Ratio of the Bank's External Loans	40	0.14	0.00	0.12	0.53	0.13
Loan Portfolio Exchange Rate Risk of the Bank	40	0.40	0.03	0.41	0.98	0.24
Capital Adequacy Ratio of the Bank	40	0.31	0.12	0.17	0.98	0.26
Total Assets of the Bank (log)	40	15.09	11.83	15.31	18.28	2.00
Liquidity Ratio of the Bank	40	0.19	0.05	0.11	0.62	0.17
Non-Performing Loan Ratio of the Bank	40	0.02	0.00	0.02	0.07	0.02
Return on Assets Ratio of the Bank	40	0.02	-0.02	0.02	0.05	0.01
Total Assets of the Firm (log)	9218	9.64	6.37	9.58	13.66	1.41
Number of Employees in the Firm (log)	8902	4.22	0.00	4.19	7.70	1.43
Ratio of the Firm's Total Loans to Total Assets	9218	0.65	0.07	0.67	1.26	0.24
Ratio of the Firm's Fixed Assets to Total Assets	9218	0.26	0.00	0.21	0.91	0.23
Exports/Sales Ratio of the Firm	9093	0.15	0.00	0.00	0.99	0.27

This data set also includes information on the number of banks that the firm works with and the amount of loans extended to the firm by each one of these banks. This comprehensive data set makes it possible to analyze the effects of the negative external shock on loan supply through a decomposition of supply and demand effects. For example, using this data set, we can identify for the same firm how change in credit supply differs across different types of banks, e.g. banks with a high ex-ante exposure to sudden stop may be willing to cut back lending more. The sharp fall in loan growth in the period between September 2008 and September 2009 points to the sudden stop in September 2008. In this framework, the data set, which was initially a panel data set, was converted to a cross-section data set for the pre-crisis period and the crisis period to

solve the potential endogeneity problems between firm growth and loan demand. In other words, the analysis of firm-bank loan growth between September 2008 and September 2009 was based on bank information belonging to the September 2008 period and firm information belonging to 2008.

In the study, the following model was used to analyze the effects of the negative sudden stop shock on firms' loan growth.

$$KB_{ib} = \beta_0 + \beta_1 BYDBO_b + \beta_2 W_b + \beta_3 BYDBO_b * X_i + \beta_4 LS_{ib} + \alpha_i + \varepsilon_{ib},$$

Here, KB_{ib} shows the loan growth of the firm i in the bank b between September 2008 and September 2009, $BYDBO_b$ shows the ratio of bank b 's external loans in the September 2008 period to its total assets, W_b shows the bank-specific variables of the bank b in September 2008, X_i shows the firm-specific variables of the firm i in September 2008, LS_{ib} shows the ratio of the loans that the firm i obtained from the bank b to the firm's total loans, α_i shows the fixed effect variable of the firm i and ε_{ib} shows the residual term.

The loan portfolio exchange rate risk, the capital adequacy ratio, total assets, the liquidity ratio, the non-performing loan ratio and the return on assets ratio were used as bank-specific variables.

The loan portfolio exchange rate risk varies depending on (i) the amount of FX revenues of the firms to which banks extended FX loans (measured as the weight of exports in firms' total sales), and (ii) the share of FX loans in banks' total loans. For instance, for bank b , the loan portfolio exchange rate risk was calculated using the following formula:

Loan Portfolio Exchange Rate Risk_b

$$= \left\{ \left(1 - \frac{Exports}{Sales}_i \right) \times \frac{FX\ Loan_{ib}}{\sum_i FX\ Loan_{ib}} \right\} \times \left\{ \frac{\sum_i FX\ Loan_{ib}}{\sum_i Loan_{ib}} \right\}$$

Total assets, the total number of employees, the ratio of total loans to total assets, the ratio of fixed assets to total assets and the Exports/Sales ratio were used for firm-specific variables.

IV.2.3 Results

Table IV.2.2 displays three different estimation results. The first model covers all firm-bank loans, whereas the second model addresses firms which have a loan relationship with at least two banks. In the third model, on the other hand, variables specific to other banks were also added as control variables. The constant term and the firm fixed effect variables were included in all regressions. As seen in the results, banks with a high level of external loans before the crisis curbed their loans more. The estimated coefficient was statistically significant at 1 percent level. Here, as the demand side was controlled with firm fixed effects, it was possible to decompose the supply-side effect of the sudden stop.

Table IV.2.2

Loan Growth and Bank-Specific Variables

	Loan Growth		
	1	2	3
Bank's External Loan Ratio	-1.077*** (0.110)	-1.077*** (0.102)	-0.786*** (0.129)
Loan Portfolio Exchange Rate Risk			-0.463*** (0.072)
Capital Adequacy Ratio			0.577*** (0.219)
Total assets			0.025*** (0.009)
Liquidity Ratio			-0.682*** (0.166)
Non-Performing Loan Ratio			0.131*** (0.010)
Return on Assets Ratio			-0.071*** (0.019)
The Ratio of Loans That the Firm Obtains from the Related Bank to Its Total Loans			-0.936*** (0.030)
Constant Term	-0.070*** (0.013)	-0.074*** (0.013)	-0.294** (0.144)
Number of Observations	46,734	40,619	39,873
The Number of Banks That the Firm Works with >1	No	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes
Adjusted R ²	0.13	0.10	0.14

Note: ***, **, * refer to levels of significance of 1%, 5% and 10%, respectively. Standard errors have been grouped at a bank level (cluster).

The unfavorable and significant effect of banks' external loans on firms' loan growth did not change even when the bank-specific control variables were added. The effect of banks' loan portfolio exchange rate risk on loan growth was negative and statistically significant at 1 percent level. Banks with a high level of loan portfolio exchange rate risk cut their loan supply more to avoid further exposure to exchange rate risk. Larger banks, banks having a higher capital adequacy ratio or a high non-performing loan (NPL) ratio during the pre-crisis period reduced their loan supply only moderately in the sudden stop period. Larger banks and banks having a higher capital adequacy ratio issue more loans. Banks with a high NPL ratio had to extend more loans to collect their loans. Banks having a high liquidity ratio and a return on assets ratio tightened their loan supply

more. This development may imply that banks having a higher amount of liquidity preferred to hold a higher amount of liquid assets in their portfolios during the crisis period.

Table IV.2.3
Loan Growth and Firm-Specific Variables

	1	2	3	4	5
Bank's External Loan Ratio (BELR)	-5.336*** (0.907)	-2.154*** (0.481)	-0.678*** (0.161)	-1.095*** (0.224)	-0.811*** (0.175)
Total Assets of the Firm x BELR	0.459*** (0.087)				
The Number of Employees in the Firm x BELR		0.339*** (0.099)			
Ratio of Total Loans to Total Assets x BELR			-0.088** (0.042)		
Ratio of Fixed Assets to Total Assets x BELR				1.609*** (0.568)	
Exports/Sales Ratio x BELR					1.230** (0.597)
Constant Term	-0.411** (0.186)	-0.456** (0.187)	-0.474** (0.186)	-0.444** (0.186)	-0.441** (0.186)
The Number of Observations	23,403	22,740	23,403	23,403	23,307
The Number of Banks That the Firm Works with >1	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.15	0.15	0.14	0.14	0.14

Note: ***, **, * refer to levels of significance of 1%, 5% and 10%, respectively. Standard errors have been grouped at a bank level (cluster).

Table IV.2.3 presents results obtained after adding the firm-specific variables. Firms which have a high amount of total assets or a high number of employees recovered from the contraction in the credit market more easily than small firms (the fall in the loan amount was moderate for these firms). This result strongly supports the hypothesis that it was more challenging for small firms to access loans especially in the crisis period. In this period, the value of collaterals also declined and banks re-valued collaterals. Firms with more collaterals (fixed assets) were affected less by this shock. Firms with a high exports/sales ratio were also affected less, which shows that banks were selective. Conversely, the contractionary shock had a bigger impact on firms with a high total loans/total assets ratio and heavily indebted firms had difficulty in obtaining financing during the crisis period. In general terms, the supply shock affected the small and indebted firms with a lower amount of collaterals the most.

IV.2.4 Conclusion

This study presents an analysis of the impacts of the sudden stop in the 2008-2009 global financial crisis on the credit channel in Turkey by using micro data at bank-firm level. Consequently, banks with a high level of external loans before the crisis cut their loan supply more. Banks having a high level of loan portfolio exchange rate risk and banks having a high liquidity ratio also reduced their loans more. As for banks having a high capital

adequacy ratio, the decline in the loans they extended was more moderate. On the other hand, the contraction in the loan market had a bigger effect on small and heavily indebted firms. The effect of this contraction shock in loan supply was rather limited for firms concentrating on exports and firms having a high amount of fixed assets.

References

Bernanke, B. S. M. Gertler. (1995). "Inside the black box: The credit channel of monetary policy transmission." *Journal of Economic Perspectives*. 9: 27-48.

Gertler, M. and S. Gilchrist. (1994). "Monetary Policy, Business Cycles, and the Behavior of Small Manufacturing Firms." *Quarterly Journal of Economics*. 109(2): 309-40.

Iyer, R., J. Peydro, S. da-Rocha-Lopes A. Schoar. (2014). "Interbank Liquidity Crunch and the Firm Credit Crunch: Evidence from the 2007--2009 Crisis." *Review of Financial Studies*. 27(1): 347-372.

Kashyap, A. K., O. A. Lamont, J. C. Stein. (1994). "Credit Conditions and the Cyclical Behavior of Inventories," *The Quarterly Journal of Economics*. 109(3): 565-92.

Kashyap, A. K. J. C. Stein. (2000). "What Do a Million Observations on Banks Say about the Transmission of Monetary Policy?" *American Economic Review*. 90(3): 407-428.

Khwaja, A. I. A. Mian. (2008). "Tracing the Impact of Bank Liquidity Shocks: Evidence from an Emerging Market." *American Economic Review*. 98(4): 1413-42.

Korinek, A. E. G. Mendoza. (2014). "From Sudden Stops to Fisherian Deflation: Quantitative Theory and Policy." *Annual Review of Economics*. 6(1): 299-332.

Mendoza, E. G. (2006) "Lessons from the Debt-Deflation Theory of Sudden Stops." *American Economic Review*. 96(2): 411-416.

Mendoza, E. G. M. E. Terrones. (2012). "An Anatomy of Credits Booms and their Demise," *Journal Economía Chilena*. 15(2): 4-32.

Mishkin, F. (1995). "Symposium on the monetary transmission mechanism." *Journal of Economic Perspectives*. 9(4); 3-10.

IV.3. Testing Macroprudential Policy with Micro Data: The Effect of Loan-to-Value Restrictions on Car Sales in Turkey

Summary

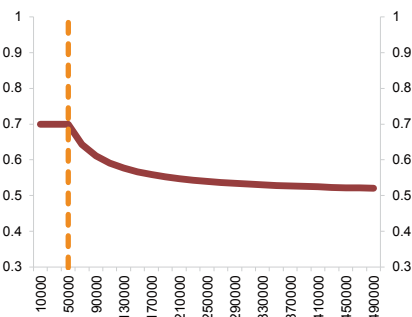
This study analyzes the effect of loan-to-value restriction on automobile loans using primary market car sales in Turkey. The impact of the policy is identified through varying nature of the loan-to value restriction for different prices. Car sales in the high price-range category dropped significantly after the introduction of the new arrangement.

IV.3.1 Introduction

In November 2013, the Banking Regulation and Supervision Agency announced the new arrangements governing consumer loans that took effect on 1 February 2014. The Regulation that the BRSA put into effect introduced limitations on the number of installations applied to personal loans for various sectors. Moreover, an overall maturity limitation as well as loan-to-value ratio were introduced for automobile loans. The objective of these arrangements is to "help household indebtedness develop in a healthier way and contribute to achieving high and stable growth in the Turkish economy".

The LTV ratio introduced with this regulation varies according to the price of the vehicle. Defined in figures, the upper limit for the vehicle loan amount shall be 70 percent of the total value of vehicles with a billing value up to TL 50,000; for vehicles with a billing value above 50.000, the loan limit will be 70 percent for the TL 50,000 part of the billing value and 50 percent for the amount exceeding 50,000 TL. Therefore, the loan amount that can be drawn for vehicles decreases gradually as the price of vehicle increases. As shown in Chart IV.3.1, the LTV, which is 70 percent, converges to 50 percent for vehicles with higher prices. This study evaluates the impact of the LTV implementation introduced for automobile loans.

Chart IV.3.1
LTV According to Prices of Automobiles



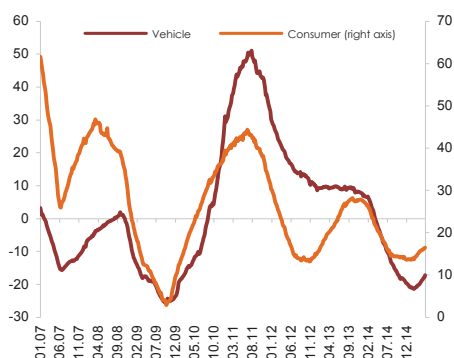
Source: CBRT

IV.3.2 Implementation in Other Countries and Policy Impacts

Globally, the LTV is usually implemented for housing loans. In several Asian countries like Hong Kong, Singapore and China, policy makers are implementing the LTV without being referred to as a macroprudential measure. Studies based on these countries reveal that the LTV measures taken for housing loans have proved to be effective. The analysis by Funke and Paetz (2012) on Hong Kong housing markets indicated that cyclical loan-to-value policy decreased the possibility of the formation of a bubble in housing markets and contained the effect of the volatility in housing prices on the real economy. According to Igan and Kang's (2011) study on the Korean housing markets for the 2001-2010 period, tightening in the LTV and debt-to-income ratio (DTI) decreased buying and selling activities in housing markets at a significant rate. Following the tightening, buying and selling activities declined within 3 months and deceleration of prices takes up to 6 months. The reaction of price movements to LTV tightening is stronger. Wong, Fong, Li and Cho (2011) assessed the effectiveness of the LTV policy using panel data for 13 countries and found that in countries implementing the LTV policy, fall in prices significantly diminishes the effect of the delinquency rate in housing loans. Kuttner and Shim (2013) used a panel data for 57 countries to assess the impact of various macroprudential measures on housing loans and concluded that LTV and DTI policies had a significant impact in decreasing the housing loan growth.

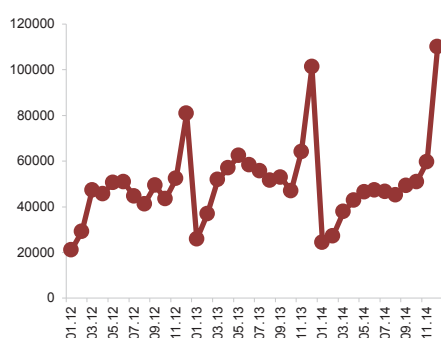
Although more limited compared to the LTV implementation in housing loans, LTV limitation in automobile loans is used in several countries as well. In June 2012, Bank Indonesia introduced LTV ratios ranging between 70-80 percent for automobile loans to decrease automobile loan delinquency ratios. After the implementation, first the annual growth rate of automobile loans decreased and then it became negative. In 2014, two years after the LTV implementation, automobile loan growth reassumed the pre-limitation rates. The Central Bank of Brazil raised capital adequacy ratios of automobile loans in 2010 to achieve a healthier credit growth rate. As an outcome of the regulation, the share of automobile loans

Chart IV.3.2
Automobile and Consumer Loans
(Annual Percentage Change)



Source: CBRT

Chart IV.3.3
Monthly Sales of New Automobiles
(Units)



Source: Automotive Distributors Associations (ADA)

with a maturity longer than 5 years in overall automobile loans decreased. Likewise, the Monetary Authority of Singapore introduced LTV implementation for automobile loans to reduce inflation and slow credit growth. According to the regulation, 60 percent of the value of automobiles with a price up to USD 20,000 and 50 percent of the value of automobiles with a price higher than 20,000 shall be paid in cash. Six months after the implementation, the automobile loans credit stock decreased by USD 1 billion and according to the latest data, the annual growth rate of auto loans is minus 20 percent. These country experiences suggest that the chances of the BRSA's measures towards automobile loans being effective are high. As illustrated in Chart IV.3.2, after the implementation, while the growth rate of consumer loans is positive, the stock value of automobile loans has decreased.

IV.3.3 Data

This study used primary dealers' monthly car sales data from the Automotive Distributors Association (ADA). The data set includes information about the make, model, segment, version, equipment, engine size, transmission type, fuel type, engine capacity and country of manufacture. The detailed sub-categories facilitate detecting the details of vehicles sold to the consumers. The data set for 2014 comprises 42 makes, 362 models and 2972 unique car models. Ten percent of these automobiles were manufactured in Turkey. An analysis of the monthly sales figures reveals that December had the highest sales figures (Chart IV.3.3). By annual cumulative figures, 556,276 automobiles were sold in 2012; 664,653 in 2013 and 587,196 automobiles were sold in 2014. The price data reflect prices by end-2014 and the prices were retrieved from the price lists announced on the companies' web sites. When price data and car sales data for 2014 are matched and automobiles with 0 sales are excluded, 1148 unique car models remain in the data set.

IV.3.4 Empirical Findings

The objective of this study was to discover whether there has been a significant change in car sales since the inception

of the BRSA's regulation on automobile loans. The following estimation model has been used for this purpose:

$$\Delta SG_i = \beta_0 + \beta_1 \log P_i + \beta_2 P_{i50} + \beta_3 P_{i50} \log P_i + X_i + Y_i + \varepsilon_i$$

Here, the dependent variable, ΔSG_i , is defined as the percentage change in sales growth for a particular car model. The calculation is based on the logarithm of the total sales of 9 months from February to October.¹¹

The $\log P_i$ variable represents the end-2014 price of each unique car model. Although it is quite possible that since the inception of the policy the prices have changed due to several factors such as changes in domestic demand, credit conditions, exchange rates etc., we argue that it will not directly affect our results since the LTV policy by BRSA discriminates the credit availability for different price ranges in a certain way. P_{i50} is an indicator variable defining automobiles with a price higher than TL 50,000. $P_{i50} \log P_i$ is the main variable of interest which tests the additional impact on the relation between automobile prices and sales growth for passenger cars with a price higher than TL 50,000. This definition is based on the BRSA's implementation which stipulates a higher LTV ratio for automobiles with a price higher than TL 50,000. A negative coefficient for this variable implies a decline in sales driven by an increased LTV ratio. The constant variable represents factors that equally affected sales growth for all car models in 2014. The price variable represents the change in sales growth for different price values.

X_i includes the initial sales shares of car models based on their make and segment and the change in this data within the time period defined by the regression. The objective of using these variables is to control excessive volatility based on each particular car model. Y_i denotes the make, segment, domestic/foreign manufacture distinction and engine size. These variables control the impact of price changes that might occur due to supply shocks on car sales.

This model is estimated for car models whose price data is available and which were sold on the market in 2012, 2013 and

¹¹ The BRSA's arrangement was announced in November 2013 and took effect on 1 February 2014, therefore data for November, December and January have been excluded.

2014. To enhance the precision of the model, automobiles with a price tag higher than TL 500,000 were excluded. The model is estimated by using the weighted least squares method. The weight of each original automobile is based on sales of the respective car in 2014. Accordingly, outlier observations for automobiles in the 10 percent percentile of the total sales distribution were excluded.

Table IV.3.1 shows the results of our main model. In the first column, the model is estimated by price and volatility variables. Accordingly, there is a positive correlation between the price of the automobile and the change in sales growth. Meanwhile, a negative coefficient for the constant variable indicates a decline in the sales growth. The variable that we used to measure the impact of the Regulation is negative and significant. Accordingly, a price increase of 1 percent for cars with a price higher than TL 50,000 decreases sales growth by 2.5 percent. In the second column, the constant variables of make and segment were included. Albeit with some decline, the coefficient of the main variable is negative and significant. In the last column, the model is estimated based on the total sales from February through December. The additional impact over TL 50,000 is positive but insignificant.

Table IV.3.1
Regression Results

	(1)	(2)	(3)
1-Logprice	3.336*** (0.842)	2.862*** (0.927)	-0.192 (1.108)
2-Price>50	27.493*** (9.381)	22.353** (10.192)	-9.154 (12.854)
3-Price>50*Logprice	-2.584*** (0.866)	-1.998** (0.950)	0.889 (1.200)
4-Constant	-37.12*** (9.098)	-33.58*** (9.972)	0.901 (11.915)
5-Volatility Factors	Yes	Yes	Yes
6-Fixed Effects	Yes	Yes	Yes
7-No of Observations	469	469	514

To analyze the impact of the Regulation over time, sales in 2014 were divided into three periods: 1- Change in 4 month total sales growth through February-May, 2- Change in 4 month total sales growth through June- September, 3- Change in 3 month total sales growth through October-December. Table IV.3.2 shows the results for these three periods. The policy effect is significant only in the February-May period. In this period, a price rise of 1 percent for cars with a price higher than TL 50,000 led to a 4 percent fall in the sales growth. This result suggests

that the impact of the policy was stronger in the first couple of months, however the impact diminished as of mid-year.

Table IV.3.2
Regression Results

	(1)	(2)	(3)
1-Logprice	4.106*** (1.564)	2.126 (1.352)	-0.045 (1.120)
2-Price>50	43.674*** (16.605)	14.945** (15.450)	5.671 (13.079)
3-Price>50*Logprice	-4.111*** (1.573)	-1.313 (1.423)	-0.435 (1.214)
4-Constant	-45.17*** (16.801)	-24.508* (14.626)	0.396 (12.141)
5-Volatility Factors	Yes	Yes	Yes
6-Fixed Effects		Yes	Yes
7-No of Observations	337	365	373

Lastly, we estimate the impact of the BRSA Regulation on car sales growth using the model predictions. This analysis is based on predicted values estimated using the sales data for February-September. First, the model, the definition of which is provided below, was estimated, and then β_2 and β_3 values were equaled to zero to exclude the policy impact.

$$\Delta SG_{it} = \beta_0 + \beta_1 \log P_i + \beta_2 P_{i50} + \beta_3 P_{i50} \log P_i + X_i + Y_i$$

The difference between these two estimations identifies the additional impact of the policy for each car. To calculate the total impact, the sales volume of the cars in the respective period was used as weight. We find that of the 59 percent drop in sales growth change for cars with prices higher than 50.000 TL, 19 percent is due to the policy. Note that by design we estimate the effect of the additional downpayment restriction gradually increasing after 50.000 TL.

IV.3.5 Conclusion

In this study, the impact of the Regulation involving the downpayment requirement introduced by the BRSA for automobile loans on primary market car sales was evaluated. The BRSA introduced higher ratios of downpayment requirement for cars with higher prices. The results confirm that the decline in sales growth was higher for cars with higher prices.

References

- Arslan, Y., Kabaş G., and Taşkın A.A. (2015). "Testing Macroprudential Policy with Micro Data: The Effect of Loan-to-Value Restrictions on Car Sales in Turkey", Forthcoming study
- Brazil: Technical Note on Macroprudential Policy Framework, 2013.
- Funke, M., Paetz, M., (2012), "A DSGE-Based Assessment of Nonlinear Loan-to-Value Policies: Evidence from Hong Kong", BOFIT Discussion Paper No. 11/2012.
- Financial Stability Review, Bank Indonesia, March 2013.
- Financial Stability Review, Monetary Authority of Singapore, 2013.
- Igan, Deniz and Heedon Kang (2011), "Do Loan-to-Value and Debt-to-Income Limits Work? Evidence from Korea", IMF working paper WP/11/297, December.
- Kuttner and Shim (2013). "Can Non-Interest Rate Policies Stabilize Housing Markets? Evidence From a Panel of 57 Economies", NBER Working Paper.
- Singapore Staff Report for the 2013 Article IV Consultation.
- Wong, Eric, Tom Fong, Ka-fai Li, and Henry Choi, 2011, "Loan-to-Value Ratio as a Macroprudential Tool: Hong Kong's Experience and Cross-Country Evidence", Hong Kong Monetary Authority Working Paper No. 01/2011.

IV.4. Is There a Housing Bubble or a Quality Boom in Turkey? Evidence from Hedonic Price Adjustment

Summary

In the 2010-2014 period, housing prices increased more than 50 percent in Turkey, which raises concerns over a potential property bubble. This increase is widespread across the country where prices are even doubled in some regions. Our study performs a hedonic price adjustment for the housing market in Turkey, where we control for the price effects of increases in observed house characteristics in time. Results show significant increases in quality of houses sold, which in turn suggests that identifying all the price increase as real appreciation may be misleading. In particular, we estimate that one fourth of nominal price changes stems from quality improvements.

IV.4.1 Introduction

Housing market is inherently heterogeneous in terms of its characteristics. Because of the heterogeneity, property prices are affected not only by the location of the house, but also by other characteristics of the dwelling like gross area of use, number of rooms, and heating type. Even the prices of two flats having the same quality of construction in the same building can vary depending on the floor level and/or the view the flat has. Due to rapid changes in household preferences and improvements in technology, differences occur in quality across such properties and it may be challenging to control these differences because of high heterogeneity. Therefore, changes in property prices can reflect pure price changes as well as changes in quality of houses. Increase in a property price index might result from at least one of these two factors, hence identifying big changes as a bubble may be misleading if the main driver of the increase is the latter.

Several approaches have been proposed in the literature to distinguish these two factors, such as hedonic methods,

repeat-sales methods and hybrid methods.¹² The hedonic price model is first developed by Griliches (1961, 1971) and Rosen (1974). Later, hedonic regression method has been extensively used to measure the effect of observed characteristics of a property on property price as well as price effects of quality changes.¹³ Hedonic methods, on the other hand, include time dummy and characteristic prices approaches. In this study, we propose a residential property index by using the hedonic method with characteristic prices approach which considers price of a good as a bundle of its characteristics.¹⁴

As part of our study, appraised value of the house is used as the dependent variable whereas other characteristic variables such as type of dwelling, parking lot, structure of construction are used as the explanatory variables in our regressions for each stratum and period. According to regression results, the most important variable that effect housing price is gross area of use that is followed by quality of construction, elevator and security service, respectively. Besides, year of construction, number of bedrooms, bathrooms and balconies are also statistically significant variables for most of the strata. Indexes for each stratum are produced according to average characteristics kept constant in the base period January 2012 and estimations obtained from the regression analyses. Our results show that residential property prices in Turkey has increased by 75.2 percent from 2010 to February 2015, while 17.0 percentage point of this increase has been caused by the quality changes in property characteristics and the rest has been caused by pure price changes. Even though some discrepancies across regions are observed, one fourth of nominal price increases can be attributed to quality improvements in general.¹⁵

12 Since houses in Turkey still don't have unique ID, repeat-sales method is not applicable. On the other hand, quality changes often occur for the exact same house and hence repeat-sales method is still prone to the same issue. Therefore, we use another widely accepted method that is hedonic prices.

13 For more detailed information, please refer to Straszheim (1973, 1974), Wilhelmsson (2008) and Widlak and Tomczyk (2010).

14 As the time dummy variable method uses one regression for all periods, it requires new regression estimation for every new incoming data in every period and requires a backward looking revision. On the other hand, statistical agencies prefer characteristic prices mainly because of its simplicity as well as the fact that the time dummy approach needs revisions in past data every time new data arrives (Eurostat, 2011).

15 In the Turkish case, using the same dataset we have in this paper, Kaya (2012) employs the time dummy approach in analyzing Turkish housing market for the period between December 2010 and June 2012. Her findings suggest that of the 18.9 percent change in property prices, pure price changes contribute to 6.2 percent whereas we compute that as 14.5 percent by using the characteristic prices approach.

IV.4.2 Data and Methodology

House Price Index for Turkey (THPI) by CBRT Statistics Department is compiled from valuation reports prepared by real estate appraisal companies at the stage of approval of individual housing loans extended by banks. In this study, we use monthly THPI data which cover the period from January 2010 to February 2015. Mentioned dataset is rich in variety of observable property characteristics.¹⁶ This rich dataset enables us to identify shadow prices of each quality component and to compute pure price changes by keeping average characteristics constant.

THPI uses the (geographically) "Stratified Median Price Method" to measure price movements in Turkish housing market.¹⁷ In the current THPI implementation, properties are grouped together to form homogenous strata and the median unit price for each stratum is weighted by number of residential properties sold to reach the overall price index. In this analysis, we use the same strata and weights that are used for THPI for aggregating the strata to produce the hedonic house price index.

In particular, our log-linear regression model to obtain estimates of willingness to pay the different characteristics of a house is as follows:¹⁸

$$\ln p_n^t = \beta_0^t + \sum_k \beta_k^t z_{nk}^t + \varepsilon_n^t, \quad \forall i, t, \quad (1)$$

where p_n^t is the price of property n at time t , z_{nk}^t is characteristic k of the property. β_k^t is willingness to pay for the characteristic and ε_n^t is the error term of the regression. Then, we run separate regressions for all periods and keep estimates of regression coefficients, $(\widehat{\beta_k^t})$. To compute fixed-characteristics prices, we use $(\widehat{\beta_k^t})$ along with average characteristics for the base period, $(\overline{z_k^t})$. From this perspective, average characteristics for the base period resemble "standardized property with fixed

16 In particular, dataset has information about buildings including location (city, sub-city, neighborhood and block information), year of construction, quality of construction, availability of an elevator and a 24/7 security service. Moreover, it also has information about the apartment in the building such as gross area of use, heating type, and number of rooms, bathrooms and balconies.

17 For detailed information, see the "Methodological Information on the House Price Index" at CBRT website, www.tcmb.gov.tr

18 For alternative models and characteristics please see Eurostat (2011).

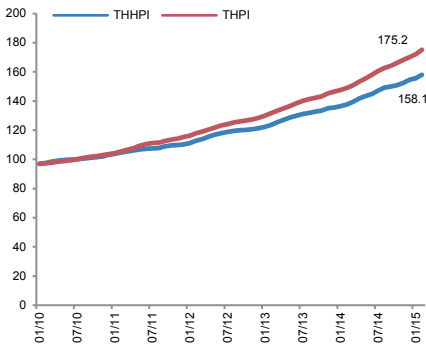
characteristics". In other words, the Hedonic House Price Index for Turkey (THHPI) is calculated by keeping the quality constant in base period.¹⁹

$$P_t^t = \frac{\exp(\widehat{\beta}_0^t) \exp[\sum_k \beta_k^t z_0^k]}{\exp(\beta_0^0) \exp[\sum_k \beta_k^0 z_0^k]} \quad (2)$$

IV.4.3 Regression Results

An example of the results of the regression equation (1) applied to each stratum and period is shown in Table IV.4.1. According to results given in the table, keeping other physical characteristics constant, a 100 square meters larger house is 50 percent more expensive than average. For this stratum, security is another important characteristic, meaning that if a house receives a 24/7 security service within a gated community then one would expect its price to be 33.3 percent higher on average. On the other hand, higher quality houses are valued at a 10.9 percent higher price on average while an elevator in the building adds 13.3 percent to its value.

Chart IV.4.1
THPI and THHPI Comparison
(January 2010 – February 2015)



As is the case with THPI, regression results for the HHPI are weighted by using the number of houses sold in the related stratum in the previous year registered by the General Directorate of Land Registry and Cadaster (LRC). Then, THHPI is produced for the 26 regions at NUTS-2 level as well as for Turkey in general. Chart IV.4.1 shows that, THHPI has increased by 58.1 percent while THPI has increased by 75.2 percent in almost five years.²⁰ These findings suggest that, 17.0 percentage point of the increase is emerged from quality improvements in housing characteristics in Turkey. In real terms, the increase in THHPI in the 5-year period has become 33.8 percent, one half of real increase can be attributed to quality improvements and the rest can be attributed to pure price changes.

General tendency of hedonic prices in the three largest cities in Turkey, i.e. Istanbul, Ankara and Izmir, diverges the same pattern by January 2013, but following this period, prices

¹⁹ In order to avoid effects of potential problems in initial data points on the whole index, we carefully choose January 2012 as the base period ($t = 0$) to construct our hedonic price index. As a robustness check, we also computed a similar index with 2012=100 but differences are negligible.

²⁰ THHPI is rebased into 2010 from January 2012 to make a comparison with THPI.

in Istanbul show a faster pace and dissociated from the others (Chart IV.4.2). Over the last five years, the highest increase is seen in Istanbul by 90.3 percent, while increases in Ankara and Izmir are noted as 51.1 and 61.2 percent, respectively. These numbers are not surprising because respective official THPI increases are 116.7, 57.2 and 72.5. For these three largest cities, quality change is observed 20.6, 3.1 and 8.7 percentage points respectively.

Chart IV.4.2
Hedonic Price Indices for Three Turkish Metropolitans
(January 2010 – February 2015)

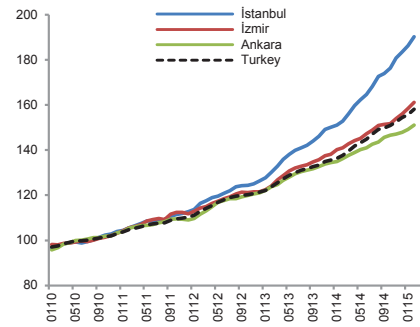


Table IV.4.1
Sample Hedonic Regression Result

Characteristics	Coefficients
Gross Area of Use	0.005 (0.000)***
Quality of Construction	0.109 (0.022)***
Year of Construction	0.003 (0.001)**
Number of Rooms	0.033 (0.017)**
Number of Bathrooms	0.084 (0.029)***
Number of Balconies	0.071 (0.017)***
Security Service	0.333 (0.032)***
Heating	0.118 (0.045)***
Elevator	0.133 (0.028)***
Constant Term	5.655 (2.040)***
Number of Observations	621

Notes: (1) Dependent variable $\ln P_t$ is the logarithm of the appraisal value in Turkish liras. (2) The numbers in parenthesis are standard errors while (**) and (***) denotes significance at 5% and 1% level, respectively. (3) Quality of construction is a dummy variable equal to 1 for higher quality houses and 0 for lower. (4) Security service is a dummy variable equal to 1 if the house resides in a gated community. (5) Heating denotes central heating and wall hung gas boiler systems. (6) Elevator denotes whether the building has an elevator or not. (7) Sample regression covers Küçükçekmece that is one of the sub-cities of Istanbul with one quarter data.

IV.4.4 Conclusion

Property price movements are monitored closely for financial stability because houses are considered as the largest part of household wealth. Quality improvements occur in the housing market mostly due to rapid changes in household choices, technology and innovation. Therefore, calculating quality adjusted indexes would contribute to conduct more reliable analyses.

Since Turkish house price index computed by CBRT does not distinguish quality changes and pure price increases, we construct a quality adjusted property price index by using hedonic regression. According to our results, one fourth of nominal property price increase can be attributed to quality improvements in general.

References

- Eurostat (2011). Handbook on Residential Property Price Indices. <http://ec.europa.eu/eurostat/en/web/products-manuals-and-guidelines/-/KS-RA-12-022>.
- Griliches, Z. (1961). Hedonic Price Indexes for Automobiles: An Econometric Analysis of Quality Change. National Bureau of Economic Research and University of Chicago.
- Griliches, Z. (1971). Price Indexes and Quality Change. Harvard University Press, Cambridge, Massachusetts.
- Kaya, A. (2012). Determining Factors Affecting House Prices in Turkey by Using Hedonic Price Model (Available in Turkish only). CBRT Dissertation, Ankara.
- Rosen, S. (1974). Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition. *The Journal of Political Economy*, 34-55.
- Straszheim, M. R. (1973). Estimation of the Demand for Urban Housing Services from Household Interview Data. *Review of Economics and Statistics*, 55, 1, 1-8.
- Straszheim, M. R. (1974). Hedonic Estimation of Urban Housing Market Prices: A Further Comment. *Review of Economics and Statistics*, 56, 3, 404-406.
- Straszheim, M. R. (2010). Measuring Price Dynamics: Evidence From The Warsaw Housing Market. *Review of Economics and Statistics*, 3, 3, 203-227.
- Straszheim, M. R. (2008). Construction and Updating of Property Price Index Series: The Case of Segmented Markets in Stockholm. *Property Management*, 27, 2, 119-137.

IV.5. Federal Reserve Policies and the Banking Sector's External Borrowing

Summary

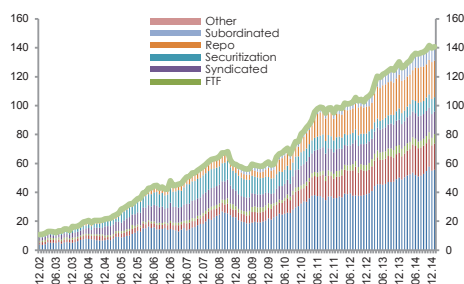
This study presents an analysis of the effect of the changes in the Fed's balance sheet size as an indicator of monetary expansion - in other words, the expansionary monetary policies on the external loans and loan types of banks operating in Turkey. The analysis shows that expansionary monetary policies significantly increase external loans, while the largest effects in terms of loan types are seen in credit, repo, deposit, syndicated and securitization groups, respectively. Moreover, small banks with a weak capital structure and relatively low ratios of return on assets and liquid assets which cannot adequately borrow in periods when the global liquidity is rather scarce are able to borrow more under easing liquidity conditions driven by the monetary expansion.

V.5.1 Introduction

Financial integration has deepened as global banks and financial institutions have significantly improved their international activities especially over the last twenty years. The consequences of increased globalization and integration in the banking sector have triggered various discussions. An important number of these discussions focuses on the effects of fund flows from advanced economies to emerging economies. Particularly until the emergence of the global financial crisis in the third quarter of 2008, the inclusion of foreign banks in the domestic banking system was inarguably believed to bring some advantages in terms of the rebalancing of domestic markets and more efficient use of sources. However, this process completely reversed during the crisis period and fragilities in global financial markets spilled over to emerging economies due to acute changes in fund flows.

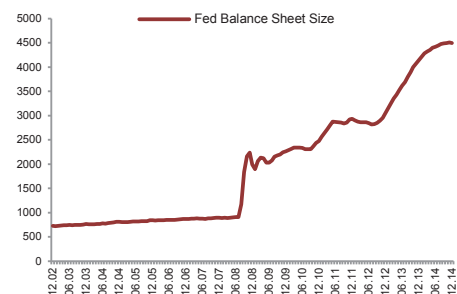
Fund flows to emerging economies, including Turkey, may be in the form of direct investments, portfolio investments, bank loans and debt securities. There were significant upswings in capital inflows to emerging countries in Asia, Latin America and Europe especially up to 2007. However, critical declines

Chart IV.5.1
Composition of Banks' External Loans
(Billion TL)



Source: CBRT, BRSA

Chart IV.5.2
Fed's Balance Sheet Size
(Billion TL)



Source: Fed

were registered in all fund types during the 2008 crisis. The most severe decline among loan types was seen in international bank loans (Cetorelli and Goldberg, 2011). Therefore, the IMF's World Economic Outlook report released in April 2009 stated that the global links between banks played a great role in the transmission of the global crisis to emerging economies (World Economic Outlook (WEO), 2009).

From 2002 to this date, there has been a regular uptrend in the external loans of banks operating in Turkey. In this period, the total external loans of the banking sector increased approximately by a factor of thirteen, jumping from USD 10.8 billion in December 2002 to USD 139.9 billion as of end-2014.²¹ However, during the global crisis, the uptrend in external loans was negatively affected and external loans contracted by 17.8 percent (Chart IV.5.1).²²

To mitigate the effects of the global financial crisis that broke out in 2008, in the framework of the conventional monetary policy theory, central banks of emerging economies cut interest rates at first but these measures proved inadequate, so they decided to start a quantitative easing process. As the leading actor during this period, the Federal Reserve (Fed) employed non-conventional monetary policy measures and injected an abundant amount of liquidity to the markets, buttressing these measures also with various asset purchase programs (Table IV.5.1). After these steps, the balance sheet size of the Fed - an indicator of monetary expansion - reached record-high levels (Chart IV.5.2).

In sum, effects of the non-conventional expansionary monetary policy measures that the Fed introduced during and after the global financial crisis on capital flows to emerging economies and the external debt of the banking sector in these economies have been an increasingly important subject of debate in the recent period. This special topic offers a summary of the results of Alper et. al.'s (2015) study that deals

21 Securities issues abroad have not been included in the study.

22 They decreased from USD 68.11 billion in September 2008 to USD 55.99 billion as of April 2009.

with the effects of the Fed's balance sheet size (which changes significantly due to expansionary monetary policies) on the external debt of banks operating in Turkey.

Table IV.5.1
Quantitative Easing Packages Announced by the Fed

Date	Federal Reserve Policies	Announcement
November 2008	QE 1	The 1st Quantitative Easing Package that included a Treasury securities purchase of USD 600 billion
March 2009	QE 1 Extension	As a continuation of the QE 1, a mortgage-backed securities purchase of USD 750 billion and a Treasury securities purchase of USD 300 billion
November 2010	QE 2	The 2nd Quantitative Easing Package that included a Treasury securities purchase of USD 600 billion in total, with monthly Treasury securities purchases of USD 75 billion
September 2011	Operation Twist	The Maturity Extension Program that aimed to replace USD 400 billion of Treasury securities with remaining maturities of 3 years or less with an equal amount of Treasury securities with remaining maturities of 6 years to 30 years
June 2012	Operation Twist Extension	The purchase, as well as the sale and redemption, of an additional USD 267 billion in Treasury securities, in the framework of the Maturity Extension Program
September 2012	QE 3	The 3rd Quantitative Easing Package that included a mortgage-backed securities purchase at a pace of USD 40 billion per month and a Treasury securities purchase at a pace of USD 45 billion per month, amounting to a monthly securities purchase of USD 85 billion in total
May 2013	QE 3	Announcement by the Fed Governor Ben Bernanke that the quantitative easing would be reduced until the end of 2013 and might be terminated in 2014
October 2014	QE 3	Termination of the QE3

IV.5.2 Data Set and Methodology

The analysis conducted via the fixed effect panel data methodology is based on data covering the December 2002-December 2014 period obtained from 19 deposit banks that have an important role in the sector.²³ The direction and the extent of the effect of the Fed's balance sheet policies or expansionary monetary policies on external loans received by these banks were analyzed. The following model was used in the analysis: One-period lagged explanatory variables were included in the regression.

$$L_{icb,t} = \beta_0 + \beta_1(\text{FED})_{t-1} + \beta_2(\text{TR_Macro})_{t-1} + \beta_3(\text{Bank})_{i,t-1} + \gamma_i + \alpha_c + \delta_b + \varepsilon_i$$

$L_{icb,t}$: the logarithmic value of the external debt in loan type b that bank i obtained from country c in time t

FED_{t-1} : the logarithmic value of the Fed's balance sheet size in time t-1

$(\text{TR_Macro})_{t-1}$: value of the macro indicators of Turkey's economy in time t-1

$(\text{Bank})_{i,t-1}$: value of bank-based variables in time t-1

γ_i : Fixed effect of bank i

α_c : Fixed effect of country c

δ_b : Fixed effect of loan type b

23 Covers 96.21 percent of the total asset size of the banking sector as of December 2014.

IV.5.3 Empirical Findings

In all regressions in Table IV.5.2, the Fed's asset size is used as the basic variable. The first model does not include any fixed effect, whereas fixed effects were controlled on a time, borrower bank, lender country and loan type basis, respectively, in other models. In the fifth regression in which all fixed effects were included in the model, all shocks seen in country-based supply and loan types were controlled. In this respect, this model allows for a decomposition of supply and demand variables. An increase in the Fed's balance sheet triggers a strong rise in the external loans of the banking sector. This effect was found statistically significant at a 1 percent level.

Table IV.5.2
Fed Balance Sheet Policy and Banks' External Loans

Dependent Variable: Independent Variables	Logarithmic Value of Banks' External Loans					
	(1)	(2)	(3)	(4)	(5)	(6)
Log(Fed Asset Size)	0.81*** (0.13)	1.40*** (0.19)	1.66*** (0.19)	1.93*** (0.18)	2.03*** (0.17)	0.23 (0.28)
Constant Term	3.97*** (0.81)	0.11 (1.24)	-2.46* (1.29)	-1.81 (1.23)	-1.79 (1.16)	7.38*** (1.75)
Fixed Effect	No	Time	Time and Bank	Time, Bank, Country	Time, Bank, Country, Loan Type	Time, Bank, Country, Loan Type
The Number of Observations	89,636	89,636	89,636	89,636	89,636	89,636
R ²	0.01	0.01	0.09	0.38	0.55	0.59

In Table IV.5.3, the Fed's balance sheet size as well as the macroeconomic indicators related to Turkey's economy that have the potential to affect the external loans of banks and the bank-based indicators were included in the analysis as the control variable, respectively. The constant term and fixed effects on a borrower bank, lender country and loan type basis were included in the model in all regressions. Likewise, the positive effect the Fed's balance sheet size on banks' external loans is significant at a 1 percent level. The symbols of all indicators used as a control variable in the models are in the expected direction. According to the results of the seventh regression in which all variables were analyzed together, in addition to the Fed's balance sheet size, the real effective exchange rate and the BIST overnight interest rate also affect banks' external loans. The appreciation of the TL and the hike in interest rates put an upward pressure on banks' external loans. Large banks and banks with a high level of return on assets borrow more. Moreover, banks having a higher amount of loans in their portfolios borrow more from abroad. While banks with a high NPL ratio borrow less, there is a negative relation

between deposits and external borrowing. All these relations are significant at a 1 percent level.

Table IV.5.3
Fed Balance Sheet Policy and Banks' External Loans

Dependent Variable:	Logarithmic Value of Banks' External Loans						
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log(Fed Asset Size)	1.17*** (0.03)	0.20*** (0.05)	0.10** (0.05)	0.12** (0.05)	0.19*** (0.06)	0.19*** (0.06)	0.30*** (0.06)
TR Macro Variables							
Real GDP Growth	0.01*** (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Inflation	-0.02*** (0.00)	-0.01*** (0.00)	-0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Real Effective Exchange Rate	0.01*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
BIST Overnight Interest Rate	0.03*** (0.01)	0.01** (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)
Bank-Based Variables							
Log(Real Asset Size)		0.48*** (0.03)	0.51*** (0.03)	0.50*** (0.03)	0.49*** (0.03)	0.49*** (0.03)	0.37*** (0.04)
Credits/Assets		1.35*** (0.11)	1.22*** (0.11)	1.31*** (0.12)	1.19*** (0.12)	1.42*** (0.22)	1.20*** (0.22)
Deposits/Assets			-1.15*** (0.13)	-1.06*** (0.14)	-0.98*** (0.14)	-1.01*** (0.14)	-1.18*** (0.15)
Return on Assets				0.03*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.03*** (0.01)
NPL Ratio					-0.07*** (0.02)	-0.06*** (0.02)	-0.06*** (0.02)
Liquid Assets/Assets						0.00 (0.00)	0.00 (0.00)
Capital/Assets							-1.80*** (0.31)
Constant Term	2.81*** (0.24)	2.89*** (0.30)	3.78*** (0.32)	3.70*** (0.33)	3.52*** (0.33)	3.35*** (0.37)	4.48*** (0.40)
Fixed Effect	iCB 24	iCB	iCB	iCB	iCB	iCB	iCB
Number of Observations	89,013	88,138	88,138	84,500	84,500	84,500	84,500
R ²	0.54	0.55	0.55	0.55	0.55	0.55	0.55

Table IV.5.3 shows that the Fed's balance sheet size affect banks' external loans in a positive direction but does not include any answer as to which loan type is affected to what extent. Therefore, for each loan type, a dummy variable was added to the seventh regression in Table IV.5.3. Moreover, to see the marginal effect of the Fed's balance sheet size, the Fed's balance sheet size variable was included in the model in an interaction with the dummy variable for each loan type (Table IV.5.4).²⁵ Loans were excluded as the control group. B₆ - B₉ coefficients show the extent of the effect of changes in the Fed's balance sheet size on deposit, syndicated, securitization and repo types, respectively, compared to credits. The increases in the Fed's balance sheet size boost the external borrowing on the basis of loan types. Credits, repo, deposit, syndicated and securitization types are affected, respectively.

In Table IV.5.5, these results were statistically tested. The first test determined whether the interactive variables were significant together or not. According to the test result, the null hypothesis was rejected and it was concluded that the changes in the Fed's asset size affected types of bank loans at different

Table IV.5.4
Fed Balance Sheet Policy and Banks' External Loans

Dependent Variable:	Logarithmic Value of Banks' External Loans
Independent Variables	(1)
B ₁ Log(Fed Asset Size)	0.90*** (0.07)
Dummy Variables for Loan Types	
B ₂ Deposit	0.11 (0.47)
B ₃ Syndicated	6.84*** (0.29)
B ₄ Securitization	7.84*** (0.82)
B ₅ Repo	2.74*** (0.81)
Interactive Dummy Variables	
B ₆ Log(Fed Asset Size)*Deposit	-0.47*** (0.07)
B ₇ Log(Fed Asset Size)*Syndicated	-1.09*** (0.05)
B ₈ Log(Fed Asset Size)*Securitization	-1.14*** (0.13)
B ₉ Log(Fed Asset Size)*Repo	-0.34*** (0.13)
B ₀ Constant Term	2.39*** (0.44)
TR Macro Variables	Yes
Bank-Based Variables	Yes
Fixed Effect	iCB
Number of Observations	82,929
R ²	0.56

Table IV.5.5
Sensitivity of Banks' External Loans to Fed Policies

	Null Hypothesis	F Value	p-value
1	B ₆ + B ₇ + B ₈ + B ₉ = 0	70,16	0,0000
2	B ₂ + B ₆ = 0	87,35	0,0512
3	B ₃ + B ₇ = 0	572,22	0,0000
4	B ₄ + B ₈ = 0	95,11	0,0000
5	B ₅ + B ₉ = 0	12,19	0,0005

24 Denotes the fixed effect in the bank, the creditor country and the loan type.

25 Types of banks' external debt are: credits, deposits, credits for external trade finance, syndicated, securitization, repo and subordinated loans. Subordinated loans were not included in the analysis because they did not exist before December 2008. Credits for external trade finance were included in the credits category as they were low in amount.

Table IV.5.6
Fed Balance Sheet Policy and Banks' External Loans

Dependent Variable: Logarithmic Value of Banks' External Loans	
Independent Variables	(1)
Log(Fed Asset Size)	2.43*** (0.34)
Bank-Based Variables	
Log(Real Asset Size)	1.18*** (0.15)
Credits/Assets	1.94*** (0.21)
Deposits/Assets	-1.00*** (0.13)
Return on Assets	0.79*** (0.17)
NPL Ratio	-0.03*** (0.01)
Liquid Assets/Assets	0.07*** (0.02)
Capital/Assets	16.84*** (4.53)
Interactive Dummy Variables	
Log(Fed Asset Size)*Log(Real Asset Size)	-0.13*** (0.02)
Log(Fed Asset Size)*(Capital/Assets)	-2.86*** (0.74)
Log(Fed Asset Size)*(Return on Assets)	-0.13*** (0.03)
Log(Fed Asset Size)*(Liquid Assets/Assets)	-0.01*** (0.00)
Constant Term	-9.85*** (2.04)
TR Macro Variables	
Fixed Effect	Yes
Number of Observations	ICB 94,861
R ²	0.55

levels. In four other tests, the significance of these changes was tested for each loan type. According to the results, the effect on each loan type was significant.

Table IV.5.6 shows the channels through which the Fed's balance sheet size variable affects banks' external loans. To this end, the interaction of the Fed's balance sheet size variable with bank-based variables was respectively included in the seventh regression in Table IV.5.3. Changes in the Fed's balance sheet size more heavily and positively affect the small banks with a weak capital structure and relatively lower ratios of return on assets and liquid assets. Considering that an increase in the Fed balance sheet or a monetary expansion leads to a global liquidity glut, these banks, which cannot obtain external loans as much as they wish in times of a liquidity squeeze, have better access to external loans in a conjuncture created by the global liquidity increase. In this respect, they are affected at a higher level by the monetary expansion.

IV.5.4 Conclusion

This special topic presents a quest to find the answers as to how the changes in the Fed's balance sheet size - expansionary monetary policies in other words - affect the external loans and loan types of banks operating in Turkey and what these channels of influence are. Accordingly, it was found that expansionary monetary policies boosted external loans and the largest effects in terms of loan types were seen in credit, repo, deposit, syndicated and securitization groups, respectively. Moreover, small banks with a weak capital structure and relatively low ratios of return on assets and liquid assets which cannot adequately borrow in periods when the global liquidity is rather scarce were affected more in a positive direction under easing global liquidity conditions.

References

- Alper K., Altunok F. and Çapacioğlu T. (2015) "Fed Policies and External Borrowing of the Banking Sector. (To be published)
- Cetorelli, N., and L. Goldberg, 2011, "Global Banks and International Shock Transmission: Evidence from the Crisis." IMF Economic Review, Vol. 59, pp. 41-76.
- International Monetary Fund, World Economic Outlook April 2009.

IV.6. The New Monetary Policy Framework and the Interest Rate Transmission Mechanism

Summary

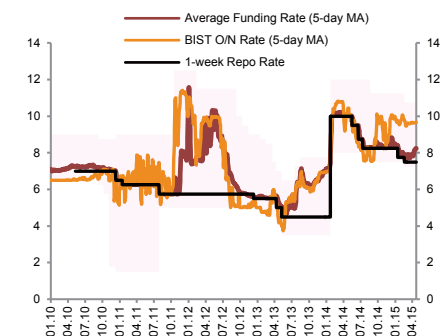
In the aftermath of the global crisis, many central banks in emerging economies designed unconventional policies and intensively employed macroprudential tools to mitigate the trade-off between price stability and financial stability and reduce macrofinancial risks. In this episode, the Central Bank of Turkey also formulated a policy mix composed of the interest rate corridor, the one-week repo rate, reserve requirements, FX interventions and the liquidity policy. This study offers an analysis of the effects of the new policy instruments on loan and deposit rates, using bank-level data. The empirical findings suggest that policy stance reflects a combination of interest rate policy components and required reserves.

IV.6.1 Introduction

The CBRT used various policy instruments in the post-crisis period to contain the negative effects of the increased volatility in capital flows on the domestic economy. The use of more than one instrument simultaneously for price stability and financial stability purposes calls for a re-evaluation of conventional channels in the monetary transmission mechanism. In this respect, it is critical to understand how monetary policy instruments in particular affect the bank behavior. In this special topic, the effects of the CBRT's monetary policy instruments on loan and deposit rates are analyzed.

The CBRT's policy instruments can be categorized into three groups as short-term interest rates, the reserve requirement policy and the liquidity policy. The CBRT's active funding policy plays a central role in the determination of short-term interest rates. For example, if the liquidity is solely provided via the one-week repo rate, then the BIST overnight interest rate and the weighted average funding rate will materialize around the one-week repo rate. However, if a large portion of the liquidity need is provided via the overnight lending rate, then the funding rate and the BIST overnight interest rate will be close to the upper end of the CBRT's interest rate corridor. Depending on

Chart IV.6.1
Short-Term Interest Rates
(Percent)



Source: CBRT

the funding composition of the CBRT, it is possible to reduce or increase the spread between the BIST interest rate and the CBRT funding rate. Both the BIST interest rate and the CBRT funding rate may affect the loan and deposit behaviors of banks. One of the objectives of this study is to analyze the relative effects of BIST interest rates and CBRT interest rates on banks' pricing of loans and deposits, and to provide further evidence on the monetary policy transmission mechanism.

The reserve requirement (RR) ratio and the Reserve Options Mechanism (ROM) have been the other instruments widely used by the CBRT in the post-2010 period. The reserve requirement policy of the CBRT differs from a standard RR policy because of the changes in the remuneration and the introduction of ROM. The remuneration of required reserves and the ROM have an indirect effect on banks' intermediation costs and the effective RR ratios. The effective RR ratio does not change significantly over time in standard practices, whereas it may change both at bank level and over time in Turkey depending on the ROM utilization ratio. The variations in RR both across banks and through time facilitate the empirical identification of the effect of RR policies.²⁶

IV.6.2 Data and Methodology

Bank level data is used in the study to analyze the relation of the policy mix with loan and deposit rates. As the transition to the new policy mix was a gradual process, there is not a precise starting date for it. Yet, the date June 2010, in which the CBRT began to frequently refer to financial stability in its policy texts, was taken as the starting period for the sample and the period between June 2010 and December 2014 is covered. For this period, data from 19 deposit banks having a significant weight in the sector is used. As of end-2014, the share of these banks in the loan market and the deposit market is 88 percent and 91 percent, respectively. Hence, the sample used in the study offers an adequate representation for the banking sector and the monetary policy transmission mechanism.

²⁶ For further details, please see Alper, Binici, Demiralp, Kara and Özlü (2014).

Loan rates were analyzed separately for commercial and consumer loans. In addition, flow data on loan and deposit rates are used to obtain more timely reactions of policy measures in the analyses. Flow rates indicate the interest rates on newly-opened loan and deposit accounts and are actually in weekly frequencies. Because some macro variables in the analyses are announced on a monthly basis, all data were converted to monthly frequency data by taking the averages of loan and deposit rates and other daily market data. For this reason, data in the econometric analyses are in monthly frequency.

To observe the sensitivity of loan and deposit rates to monetary policy variables, the following dynamic panel model is estimated:

$$ir_{it} = \beta_0 + \mu_i + \beta_1 ir_{i,t-1} + \beta_2 PR_t + \beta_3 X_{it} + \beta_4 Y_t + \varepsilon_{it} \quad (1)$$

Here, ir_{it} consists of commercial loans, consumer loans and the deposit rate alternatively, PR_t consists of short-term interest rates (upper end of the corridor, lower end of the corridor, average funding rate, one-week repo rate, BIST overnight interest rate), X_{it} is composed of bank level variables such as the reserve requirement ratio and the non-performing loan ratio, and Y_t is composed of macro and financial indicators for internal or external factors such as inflation, exchange rate, confidence index, which are indicators representing dynamics related with loan supply and demand.

In the period analyzed, there were evident changes in reserve requirement ratios - one of the variables used in the model estimation. The policy developments that triggered the changes in reserve requirement ratios are summarized as follows: the termination of the remuneration of required reserves, the expansion of the scope of required reserves, the diversification of reserve requirement ratios on a maturity basis, the introduction of the facility to hold some percentage of TL required reserves in FX with the reserve options mechanism (ROM) and lastly, the restart of the remuneration of required reserves after October 2014.²⁷ Due to these implementations, reserve requirement

²⁷ For a more detailed analysis, please see Alper et al. (2014).

ratios significantly differed across time and bank level, which provided important advantages in decomposing the effects of required reserves in econometric analyses.

Taking into account all these developments, the following equation is used to calculate the bank level effective reserve requirement ratio in the period analyzed:

$$RR^c \approx RR \frac{i_d - i_{rr}}{i_d} [x * i_d + (1 - x) * ROC * i_{FX}] / i_d \quad (2)$$

Here, RR^c refers to the effective/cost-driven reserve requirement ratio, RR refers to the reserve requirement ratio announced by the central bank, i_d refers to the deposit rate, i_{rr} refers to the interest rate applied to required reserves, x refers to the share of TL required reserves, $(1-x)$ refers to the share of required reserves held in FX or gold, ROC refers to the weighted average reserve options coefficient i_{FX} and refers to the FX-denominated borrowing cost.

The generalized method of moments (GMM) is used as the method for model estimation. This method is used to solve the endogeneity problem originating from the consideration of the gradual adjustments in interest rates and the use of a lagged dependent variable as the explanatory variable.²⁸

IV.6.3 Empirical Findings

Analysis results for the dynamic panel model are shown in Table IV.6.1 - IV.6.3. An overall picture of the results suggests that the effect of the policy variables that the CBRT actively uses (short-term interest rates and the reserve requirement ratio) on both deposit and loan rates is positive and statistically significant.

Table IV.6.1 offers a summary of deposit rate analyses. Findings of the analyses shown in columns 1-4 reveal that short-term interest rates have a significant effect on the deposit rate and banks' sensitivity to the CBRT weighted average funding

²⁸ To address the instrument proliferation problem arising from the fact that the time dimension is bigger than the number of banks in the sample, the lagged values of the dependent variable used in estimations are limited. For related discussions, please see Roodman (2009).

rate is relatively higher when they are pricing the deposit rate. In fact, according to the analysis results in columns 5 and 6, the funding rate has the highest coefficient among other short-term interest rates that have a significant effect on the deposit rate. In addition, required reserves also have a statistically significant effect on deposit rates. Banks are expected to raise deposit rates in times of an increase in required reserves as they are inclined to obtain more long-lasting funding sources in such periods. As a matter of fact, Alper et al. (2014) indicate that for banks, the short-term funding received from the central bank is not a full substitute for deposit. Exchange rate, inflation and risk premium indicators are also macro aggregates affecting the deposit rate. Although the results suggest that the CBRT overnight lending rate also has a statistically significant effect on the deposit rate, the coefficient is much smaller compared to other policy variables.

Table IV.6.1
Deposit Rates

	(1)	(2)	(3)	(4)	(5)	(6)
1. i_{t-1}	0.770*** (0.007)	0.567*** (0.021)	0.646*** (0.016)	0.736*** (0.014)	0.535*** (0.024)	0.541*** (0.023)
2. RR_{t-1}	0.051*** (0.006)	0.063*** (0.009)	0.019*** (0.007)	0.027*** (0.005)	0.047*** (0.009)	0.049*** (0.010)
3. 1-Week Repo Rate _t	0.154*** (0.010)				-0.030 (0.020)	
4. Average Funding Rate _t		0.387*** (0.023)			0.379*** (0.027)	0.359*** (0.022)
5. BIST Overnight Interest Rate _t			0.254*** (0.013)			
6. CBRT Overnight Lending Rate _t				0.152*** (0.011)	0.042*** (0.014)	0.028*** (0.010)
7. BIST Overnight Rate – CBRT Funding Rate Spread _t					0.094*** (0.021)	0.105*** (0.018)
8. Δ USD/TL _{t-1}	0.028*** (0.004)	0.019*** (0.003)	0.021*** (0.004)	0.023*** (0.003)	0.016*** (0.003)	0.017*** (0.003)
9. Δ EMBI Turkey _{t-1}	0.002*** (0.000)	0.002*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
10. Inflation _{t-1}	0.159*** (0.012)	0.088*** (0.015)	0.075*** (0.013)	0.099*** (0.011)	0.072*** (0.011)	0.083*** (0.015)
11. Constant Term	-0.592*** (0.105)	-0.124 (0.153)	0.480*** (0.121)	-0.170* (0.092)	0.207 (0.170)	0.142 (0.184)
12. Number of Observations	1045	1045	1045	1045	1045	1045

Note: Analysis Period is June 2010 – December 2014. Dynamic panel model is estimated with one-step system GMM. Standard errors are given in parenthesis and adjusted for heteroskedasticity. *** p<0.01, ** p<0.05, * p<0.1.

Results of the commercial loan rate analysis are reported in Table IV.6.2. Results for commercial loan rates indicate that funding and BIST overnight interest rates affect commercial loan rates, with the BIST overnight interest rate having a stronger impact. In model estimations in which the funding rate and the overnight market interest rate-funding rate spread are used jointly, the second variable, especially, has a statistically significant and larger positive effect. This observation suggests that the commercial loan rate's pricing behavior is very sensitive to the short-term interest rate in the interbank money market. On the other hand, consistent with the findings in Alper et al. (2014), the reserve requirement policy has a significant effect on commercial loan rates. In addition, the risk premium (EMBI-interest rate spread) and the economic sentiment variable

taken from the Business Tendency Survey also have a significant effect in the expected direction.

Table IV.6.2
Commercial Loan Rates

	(1)	(2)	(3)	(4)	(5)	(6)
1. $i_{s,t}$	0.888*** (0.036)	0.858*** (0.037)	0.821*** (0.034)	0.858*** (0.044)	0.777*** (0.040)	0.820*** (0.037)
2. RR_{t-1}	0.065*** (0.014)	0.064*** (0.014)	0.037*** (0.014)	0.042*** (0.013)	0.022 (0.014)	0.022* (0.013)
3. 1-Week Repo Rate r_t	0.123*** (0.027)				-0.009 (0.041)	
4. Average Funding Rate r_t		0.216*** (0.036)			0.135** (0.057)	0.135** (0.053)
5. BIST Overnight Interest Rate r_t			0.235*** (0.035)			
6. CBRT Overnight Lending Rate r_t				0.186*** (0.042)	0.074 (0.050)	0.074 (0.054)
7. BIST Overnight – CBRT Funding Rate Spread r_t					0.264*** (0.079)	0.276*** (0.075)
8. Δ Overall Economic Sentiment s_{t-1}	-0.036*** (0.008)	-0.035*** (0.009)	-0.035*** (0.008)	-0.032*** (0.008)	-0.035*** (0.009)	-0.034*** (0.008)
9. Δ USD/TL s_{t-1}	0.049*** (0.013)	0.036*** (0.014)	0.023* (0.013)	0.031** (0.014)	-0.003 (0.020)	0.020 (0.013)
10. Δ EMBL Turkey s_{t-1}	0.004* (0.002)	0.004* (0.002)	0.004** (0.002)	0.005** (0.002)	0.007*** (0.002)	0.005** (0.002)
11. Inflation s_{t-1}	0.089** (0.045)	0.020 (0.043)	0.001 (0.046)	0.007 (0.044)	-0.036 (0.050)	-0.003 (0.044)
12. Δ NPL _{Commercial} s_{t-1}	0.083 (0.096)	0.104 (0.096)	0.115 (0.092)	0.078 (0.093)	0.049 (0.090)	0.104 (0.090)
13. Constant Term	-0.555* (0.329)	-0.393 (0.308)	0.240 (0.308)	-0.415 (0.282)	1.437*** (0.525)	0.369 (0.326)
14. Number of Observations	1045	1045	1045	1045	1045	1045

Note: Analysis Period is June 2010 – December 2014. Dynamic panel model is estimated with one-step system GMM. Standard errors are given in parenthesis and adjusted for heteroskedasticity. *** p<0.01, ** p<0.05, * p<0.1.

Consumer loan analyses are shown in Table IV.6.3. Consumer loans are expected to give a lagged and slow reaction to the policy changes and the changes in macroeconomic conditions, depending on the differences in maturity and market structures. Therefore, one-period lagged values of policy rates were used in consumer loan rate analyses. Both the funding rate and the BIST overnight interest rate are influential in consumer loan rates. The slope of the yield curve, the non-farm unemployment rate and the consumer confidence index are macro variables affecting consumer loan rates.

Table IV.6.3
Consumer Loan Rates

	(1)	(2)	(3)	(4)	(5)	(6)
1. $i_{s,t}$	0.893*** (0.037)	0.876*** (0.040)	0.871*** (0.044)	0.865*** (0.040)	0.871*** (0.044)	0.872*** (0.042)
2. RR_{t-1}	0.152*** (0.031)	0.170*** (0.030)	0.136*** (0.025)	0.148*** (0.028)	0.121*** (0.027)	0.122*** (0.027)
3. 1-Week Repo Rate r_{t-1}	-0.010 (0.058)					
4. Average Funding Rate r_{t-1}		0.206*** (0.079)			0.274*** (0.105)	0.284*** (0.086)
5. BIST Overnight Interest Rate r_{t-1}			0.317*** (0.084)			
6. CBRT Overnight Lending Rate r_{t-1}				0.132** (0.061)	0.014 (0.073)	
7. BIST Overnight Rate – CBRT Funding Rate Spread r_{t-1}					0.388*** (0.143)	0.392*** (0.144)
8. 5-Year Market Interest Rate-BIST Interest Rate Spread s_{t-1}	-0.053 (0.074)	0.107 (0.088)	0.282** (0.113)	0.070 (0.082)	0.288** (0.115)	0.286** (0.114)
9. Δ Non-Farm Employment Ratio s_{t-1}	1.498*** (0.337)	1.412*** (0.315)	1.503*** (0.319)	1.352*** (0.310)	1.509*** (0.319)	1.515*** (0.320)
10. Δ USD/TL s_{t-1}	0.036** (0.014)	0.030** (0.015)	0.016 (0.017)	0.035** (0.014)	0.015 (0.017)	0.015 (0.017)
11. Δ Consumer Confidence Index s_{t-1}	-0.05*** (0.016)	-0.05*** (0.015)	-0.054*** (0.015)	-0.056*** (0.015)	-0.053*** (0.015)	-0.053*** (0.015)
12. Inflation s_{t-1}	0.177*** (0.047)	0.176*** (0.055)	0.107* (0.064)	0.172*** (0.051)	0.098 (0.064)	0.099 (0.065)
13. Constant Term	-0.298 (1.093)	-1.798 (1.203)	-2.011** (0.979)	-1.218 (0.970)	-1.689 (1.265)	-1.668 (1.273)
14. Number of Observations	1045	1045	1045	1045	1045	1045

Note: Analysis Period is June 2010 – December 2014. Dynamic panel model is estimated with one-step system GMM. Standard errors are given in parenthesis and adjusted for heteroskedasticity. *** p<0.01, ** p<0.05, * p<0.1.

IV.6.4 Conclusion

Findings of the study show that multiple policy rates used by the CBRT are instrumental in driving the bank's interest rate behavior. The interbank overnight interest rate and the CBRT

average funding rate play a main role in banks' pricing of both loan and deposit rates. Although they have qualitatively similar effects, the quantitative effects of these two policy variables on loan and deposit rates differ significantly. Deposit rates are mainly affected by the CBRT funding rate, whereas the interbank money market interest rate; i.e., the CBRT's liquidity policy, plays a more determining role in loan rates (commercial loan rates in particular). These findings suggest that the interest rate and liquidity policies of the CBRT should be seen as mutually complementary instruments in the current monetary policy framework.

References

Alper, K., Binici, M., Demiralp, S., Kara, H., and Özlü, P.(2014), Reserve Requirements, Liquidity Risk, and Credit Growth, CBRT Working Paper, 14/24.

Roodman, D.(2009), "A Note on the Theme of Too Many Instruments", Oxford Bulletin of Economics and Statistics, 71: 135–158.

IV.7. Determinants of Real Sector Firms' Borrowing Costs in Turkey

Summary

This note studies determinants of real sector firms' borrowing costs in Turkey, using transaction-based loan-level data. The results suggest that firm borrowing costs move in tandem with the short-term interest rates and confirm transmission of policy rates to lending rates. Moreover, the results suggest that firm characteristics such as indebtedness (leverage ratio), asset size, age, liquid asset position and business efficiency affect borrowing costs.

IV.7.1 Introduction

One of the channels in which the monetary policy influences demand conditions and real economic activity is the credit channel by which the policy instruments (such as the policy rate, required reserves and macroprudential measures) affect the credit supply, medium and long-term interests and thus borrowing costs. The existence of this channel relies on the fact that firms are subject to paying an external financing premium proportionate to the vulnerability of their balance sheets, as asymmetric information problem exists between firms and funders, and the monetary policy's ability to influence this premium (borrowing cost). Meanwhile, the monetary policy can influence corporate borrowing constraints by affecting asset prices and thus companies' balance sheets. In this framework, it is important to analyze the impact of policy instruments on corporate borrowing costs and firm-specific and other macro-economic factors.

Empirical and theoretical literature both present many factors affecting corporate borrowing costs. As there are only limited studies on this issue for Turkey, it would be appropriate to start with factors cited in studies carried for other countries:

Leverage Ratio. A rise in firm's indebtedness may indicate that the firm might have difficulty in paying back its debts in the future. As such, a firm will then be regarded as high-risk, and may have to bear higher costs while borrowing. For instance,

financial accelerator models pioneered by Bernanke, Gertler and Gilchrist (1999), define the leverage ratio (ratio of debts to equity capital) as the primary factor affecting borrowing costs. The empirical literature also suggests that an increased level of company indebtedness or leverage ratio pushes up borrowing costs (Aivazian et. al, 2005; Whited and Wu, 2006; Lu et. al, 2010; Mizen and Tsoukas, 2012).

Age. A common argument in financial literature is that companies with a longer history are more resilient to macroeconomic as well as firm-specific developments (Gertler, 1988; Oliner and Rudebusch, 1992). Thus, older firms may have the opportunity to borrow with more favorable credit conditions compared to new companies. As older firms have a long-established lending-borrowing relationship with banks, banks have wider knowledge about these firms and can follow them more closely and effectively which decreases the asymmetrical information problem and thus corporate borrowing costs (Bharath et. al, 2009).

Size. Various studies have shown that small companies are faced with more serious asymmetrical information problem and thus are exposed to higher financing constraints while borrowing; similarly, large companies are able to borrow at lower costs (Gertler and Gilchrist, 1994; Whited and Wu, 2006; Hennessy and Whited, 2007; Mizen and Tsoukas, 2012).

Liquid/ Fixed Assets. There are empirical findings that firms that have low liquid assets or low sales growth rates are regarded as high-risk firms by the banking sector and are exposed to higher borrowing costs (Love, 2003; Whited and Wu, 2006). However, the firm's financing constraints are alleviated if the firm has fixed assets that it can present as collateral (Kiyotaki and Moore, 1997). Similarly, a rise in the price of the fixed assets that the firm presents as collateral may decrease borrowing costs for the firm (Iacoviello, 2005).

Growth Potential. A firm that has a growth potential in the medium/long term is likely to experience fewer difficulties in paying back its debts and therefore to borrow with more

favorable credit conditions. A rise in the firm's stocks or a rise in the ratio of the market value to book value of the firm are indicators of the growth potential of the firm.

Business Efficiency. The way a firm handles its liabilities, claims and stocks is a good indicator of the riskiness of the firm. For instance, firms which are capable of collecting their claims and paying their debts rapidly and effectively, and turning over their inventories rapidly, are firms with high productivity ratios. These firms are expected to borrow with more favorable credit conditions.

Macroeconomic Factors. During periods of boom, companies are able to borrow with lower costs thanks to these factors (such as a rise in company assets, rise in asset prices and in collateral values, high growth potential of companies) and an increase in credit supply. Moreover, during periods of capital inflows, credit supply increases and corporate borrowing costs decrease as banks can find external funds with lower costs in these periods. Lastly, a rise in policy rates, which is an important factor in banks' funding costs, squeezes credit supply and pushes corporate borrowing costs higher.

Other Factors. Another factor affecting corporate borrowing costs is the balance sheets of banks and cost of finding funds (Kashyap and Stein, 2000; Gertler and Karadi, 2011; Gertler and Kiyotaki, 2011). The overall corporate quality level, binding power of debt contracts, rights of funders, effective and rapid implementation of legal regulations, existence of a central authority that can provide information sharing among banks about the strength of borrowers' balance sheets are other factors affecting corporate borrowing costs (Qian and Strahan, 2007).

In this study, the real sector firms' borrowing costs are studied, by using bank-firm credit contracts for firms listed on the BIST and firms' balance sheet data in light of the above-mentioned literature. Specifically, borrowing costs for short-term TL-denominated cash credits with/without collateral and the factors affecting these costs were analyzed. Generalized

methods of moments-GMM were used to estimate dynamic panel models in different specifications and the validity of the results were tested with respect to various aspects.

IV.7.2 Data Set and Methodology

The data set is constructed by merging the consolidated balance sheet and income statement data of non-financial sector firms listed in the BIST for the period between 2003Q1 and 2014Q4 and the CBRT's data set on bank credits. As the data is transaction based, we aggregate the data set. For instance, firms borrow from various banks in different account types in different amounts and maturities, in cash (in different currencies) or non-cash. In this study, only the short-term TL-denominated loans (with weighted average maturity of longer than 90 days and shorter than 366 days) with/without collateral are studied. The loan rates were then aggregated across banks weighted with the principal to obtain firm-specific borrowing costs (interest rate).

Table IV.7.1 presents descriptive statistics on the variables in the data set.

Table IV.7.1
Descriptive Statistics
(2003Q1-2014Q4)

	Average	Median	St. Deviation	Minimum	Maximum	No. of Observations
Borrowing Cost	15.11	13.5	7.61	5.91	53.25	4870
Leverage Ratio	0.50	0.48	0.26	0.07	1.95	11454
Total Assets (million TL)	4.43	1.04	11.79	0.01	135.16	11464
Liquid Assets/ Total Assets	0.34	0.34	0.20	0.00	0.77	11464
Age (Quarter- Year)	32.57	33.75	14.94	0.25	103.75	11464
Sales Growth	0.01	0.01	0.08	-0.25	0.32	9474
Market Value/ Book Value	1.80	1.31	1.57	-0.10	10.27	10811
Price of Stocks	0.01	0.02	0.20	-1.31	0.50	10508
Inventory Turnover	9.71	5.44	11.77	1.13	71.20	9449
Accounts Receivable Turnover	9.17	5.50	12.60	1.47	157.69	9803
Accounts Payable Turnover	8.80	6.89	6.98	1.42	56.37	9739
Real GDP	4.77	5.45	4.98	-16.15	11.90	48
Portfolio Flows/GDP	0.78	0.52	1.87	-0.94	11.91	48
3-month indicative interest rate	15.99	12.56	7.48	6.82	44.97	48

In order to draw an overall picture of the data set, it would be helpful to present the course of aggregated corporate borrowing costs in the respective period (2003-2014) (Chart IV.7.1).²⁹ Borrowing costs, which dropped rapidly in the first quarters of 2003, increased moderately as of mid-2005 and reached the highest level at the end of 2008. Borrowing costs, which continued to decline gradually till the end of 2010

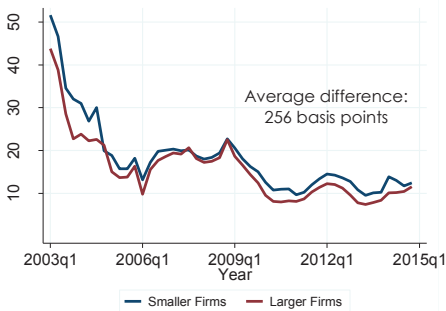
Chart IV.7.1
Firm Borrowing Costs
(Percent, Short-term, TL, Aggregated)



Source: BIST, CBRT, Authors' calculations

²⁹ Corporate borrowing costs have been aggregated by weighing with principle of credits and a single interest rate has been calculated for each period.

Chart IV.7.2a
Firm Borrowing Costs – Preliminary Findings – Size of the Company (Percent, Short-term, TL, Aggregated)



Source: BIST, CBRT, Authors' calculations

Chart IV.7.2b
Firm Borrowing Costs – Preliminary Findings – Impact of the Leverage Ratio (Percent, Short-term, TL, Aggregated)

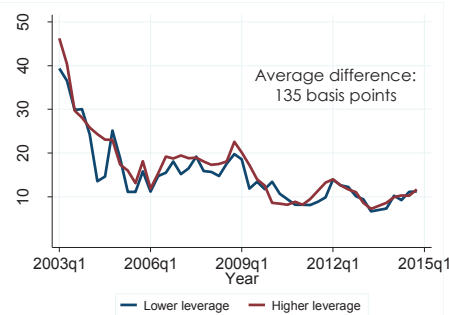
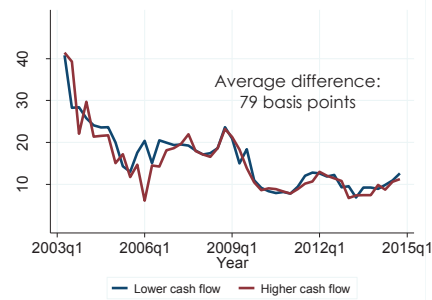
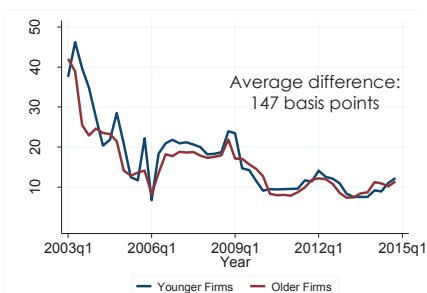


Chart IV.7.2c
Corporate Borrowing Costs – Preliminary Findings – Impact of Cash Flow (Percent, Short-term, TL, Aggregated)



Source: BIST, CBRT, Authors' calculations

Chart IV.7.2d
Corporate Borrowing Costs – Preliminary Findings – Impact of the Age of the Company (Percent, Short-term, TL, Aggregated)



Source: BIST, CBRT, Authors' calculations

in tandem with capital inflows, domestic macroeconomic developments and economic policies, increased in 2011 when tightening policies were implemented and assumed an upward trend again recently due to capital outflows and tight policies.

Before moving on to the econometric model established for analyzing corporate borrowing costs, we would like to present some preliminary findings pertaining to the impact of the potential factors discussed in the second part. Chart IV.7.2a shows borrowing costs of companies in the upper 25 percent-tranche ("large" companies) and companies in the lower 25 percent-tranche ("small" companies). Similarly, borrowing costs of high/low leverage companies, high/low capital flow companies and old/new companies are compared in Chart IV.7.2b-c-d. The preliminary data suggest that old and large companies which at the same time have low leverage ratios and high capital flows bear lower borrowing costs.

IV.7.3 Empirical Results

The dynamic panel model below has been estimated, in light of the literature mentioned in the second part, to analyze the potential factors affecting firm borrowing costs:

$$\begin{aligned} \text{Borrowing Cost}_{i,t} = & \beta_1 \log(\text{Total Assets})_{i,t} + \beta_2 \frac{\text{Fixed Assets}}{\text{Total Assets}}_{i,t} + \beta_3 \log(\text{Age})_{i,t} + \\ & \beta_4 \Delta \text{Sales}_{i,t} + \beta_5 \frac{\text{Market Value}}{\text{Book Value}}_{i,t} + \beta_6 \Delta \text{Stock Prices}_{i,t} + \\ & \beta_7 \text{Productivity}_{i,t} + \beta_8 \Delta \text{Real GDP}_t + \beta_9 \Delta \frac{\text{Portfolio Flows}}{\text{GDP}}_t + \\ & \beta_{10} \text{3-month indicative interest rate}_t + \rho \text{Borrowing Cost}_{i,t-1} + \\ & \gamma_i + \varepsilon_{i,t} \end{aligned}$$

The results can be summarized as follows:

- (1) higher leverage ratios translate into higher borrowing costs,
- (2) large companies can borrow with lower interest rates,
- (3) older companies can borrow with lower costs,
- (4) companies with a growth potential (companies with increasing stock prices or market value) can borrow with lower interest rates,

(5) even when company-specific variables are controlled, real economic growth makes a downward impact on borrowing costs, and finally,

(6) a rise in short-term indicative interest rates (a rise in the market interest rate that is sensitive to monetary policy decisions) increases firm borrowing costs.

A rise in the fixed assets decreases borrowing costs; however, the decrease appears to be insignificant in some regression specifications. A rise in portfolio flows also decreases borrowing costs. However, the impact of portfolio flows is not significant when other factors are taken into account.³⁰

IV.7.4 Conclusion

This note studies factors affecting borrowing costs of firms listed on the BIST by using micro data. The results are compatible with the literature and suggest that company-specific factors such as leverage ratio, size of the company, age of the company, and the growth potential of the company affect borrowing costs. Finally, it is observed that a rise in short-term indicative interest rate makes an upward impact on corporate borrowing costs. The impact of developments on the credit supply side and other policy instrument will be analyzed in a future study.

Table IV.7.2
Dependent Variable: Firm Borrowing Cost
(Percent)

Independent Variables	System GMM	System GMM	System GMM	System GMM	System GMM
Borrowing Cost _t	0.804*** (0.044)	0.805*** (0.044)	0.788*** (0.046)	0.768*** (0.048)	0.535*** (0.068)
Borrowing Cost _{t-1}	0.013 (0.048)	0.014 (0.048)	0.039 (0.049)	0.058 (0.049)	-0.020 (0.037)
Leverage Ratio	0.860*** (0.255)	0.825*** (0.232)	0.773*** (0.236)	0.879*** (0.282)	1.636*** (0.467)
Log[Total Assets]		-0.099** (0.039)	-0.081** (0.039)	-0.093** (0.036)	-0.174** (0.069)
Liquid Assets/ Total Assets		-0.319 (0.320)	-0.634* (0.328)	-0.576* (0.336)	-0.456 (0.536)
Log[Age]		-0.276*** (0.101)	-0.343*** (0.131)	-0.176 (0.121)	-0.478** (0.203)
Sales Growth			-0.753 (0.917)	-0.168 (0.974)	-0.334 (0.899)
Market Value/ Book Value				-0.052 (0.042)	-0.076* (0.045)
ΔPrice of Stocks				-2.559*** (0.301)	-0.997*** (0.301)
Inventory Turnover				0.003 (0.005)	0.024*** (0.008)
Accounts Receivable Turnover				0.022*** (0.004)	0.006 (0.006)
Accounts Payable Turnover				0.007 (0.009)	-0.053** (0.015)
ΔReal GDP					-3.459** (1.408)
ΔPortfolio Flows/GDP					-0.541 (2.066)
3-month indicative interest rate					0.437*** (0.046)
Constant Term	1.690*** (0.334)	4.130*** (0.833)	4.159*** (0.884)	3.551*** (0.828)	4.497*** (1.355)
No. of Observations	3,530	3,530	3,289	3,174	3,174
No. of Firms	224	224	212	207	207
AR[2]-p	0.61	0.62	0.54	0.54	0.16
AR[3]-p	0.41	0.41	0.54	0.61	0.84
Hansen-p	0.71	0.70	0.71	0.87	0.88
No. of Instruments	228	231	225	230	233

30 In order to test the validity of the results, the panel model has been estimated by also using fixed effect least squares method, bias-corrected least squares dummy variable method and difference GMM model. Main findings are by and large robust to such specifications. For further detail, please refer to Altunok and Fendoğlu (2015).

References

- Aivazian, V.A., Ge, Y., Qiu, J. (2005). The impact of leverage on firm investment: Canadian Evidence. *Journal of Corporate Finance* 11, 277-291.
- Altunok, F., Fendođlu, S. (2015). Determinants of Real Sector Firm Borrowing Costs in Turkey (Yazım Aşamasında).
- Bernanke, B. S., Gertler, M., Gilchrist, S. (1999). The financial accelerator in a quantitative business cycle framework. in: Taylor, J. B., Woodford, M. (Eds.), *Handbook of Macroeconomics*, 1(21), 1341-1393.
- Bharath, S.T., Dahiya, S., Saunders, A., and Srinivasan, A. (2011). Lending Relationships and Loan Contract Terms. *Review of Financial Studies* 24(4), 1141-1203.
- Gertler, M. (1988). Financial Structure and Aggregate Economic Activity: An Overview. *Journal of Money, Credit and Banking* 20, 559-596.
- Gertler, M., Gilchrist, S. (1994). Monetary Policy, Business Cycles, and the Behavior of Small Manufacturing Firms. *Quarterly Journal of Economics* 109, 309-340.
- Gertler, M., Karadi, P. (2011). A model of unconventional monetary policy. *Journal of Monetary Economics* 58(1), 17-34.
- Gertler, M., Kiyotaki, N. (2011). Financial Intermediation and Credit Policy in Business Cycle Analysis. In B.J. Friedman and M. Woodford (Eds.), *Handbook of Monetary Economics* Vol. 3A, 547-599.
- Hennessy, C.A., Whited, T.M. (2007). How costly is external financing? Evidence from a Structural Estimation. *Journal of Finance* 62, 1705-1745.
- Iacoviello, M. (2005). House Prices, Borrowing Constraints, and Monetary Policy in the Business Cycle. *American Economic Review* 95(3), 739-764.
- Kashyap, A. K., Stein, J. C. (2000). "What Do a Million Observations on Banks Say about the Transmission of Monetary Policy?" *American Economic Review*. 90(3): 407-428.

Kiyotaki, N., Moore, J. (1997). Credit Cycles. *Journal of Political Economy* 105(2), 211-248.

Love, I. (2003). Financial Development and Financing Constraints: International Evidence from the Structural Investment Model. *Review of Financial Studies* 16(3), 765-791.

Lu, C., Chen, T., Liao, H. (2010). Information uncertainty, information asymmetry and corporate bond yield spreads, *Journal of Banking and Finance* 34, 2265-2279.

Mizen, P., Tsoukas, S. (2012). The response of external finance premium in Asian corporate bond markets to financial characteristics, financial constraints and two financial crises. *Journal of Banking and Finance* 36, 3048-3059.

Oliner, S.D., Rudebusch, G.D. (1992). Sources of Financing Hierarchy for Business Investment. *Review of Economics and Statistics* 74(4), 643-654.

Qian, J., Strahan, P.E. (2007). How Laws and Institutions Shape Financial Contracts: The Case of Bank Loans. *Journal of Finance* 62(6), 2803-2834.

Whited, T.M., Wu, G. (2006). Financial Constraints Risk. *Review of Financial Studies* 19, 531-559.

IV.8. Competitive Structure of the Turkish Banking System

Summary

In a highly competitive banking system, banking services are offered to the customers in a cheaper and more effective way. Moreover, competition contributes to financial stability and rapid monetary policy transmission. In this study, competition in the Turkish banking sector was estimated for each month for a period of more than 10 years and the impact of external financing on competition in the banking system was analyzed. The result of the analysis suggests that external financing induces competition in the banking sector; the banks using the highest amount of external financing compete with other banks to transfer these funds to loans whereas the impact of external financing on competition weakened after the 2008 financial crisis.

IV.8.1 Introduction

In countries like Turkey, where financial activities are predominantly carried out by banks, the competitive structure of the banking system is crucial for the banks to carry out the functions effectively. It is widely accepted that the barriers behind the the competitive structure of the banking system may bring about problems such as high interest rates, moral hazard and adverse selection problems and thus affect the real economy negatively. In markets with more intense competition, these problems would be eliminated to a great extent and customers would have access to high quality services at cheaper cost. A positive correlation is expected between increased competition and growth in the banking system (Levine et. al, 2000; Cetorelli and Gambera; 2001; Collender and Shaffer, 2003; Valverdie et. al, 2003). Competition also contributes to establishment of the financial stability and faster operation of the monetary transmission mechanism (De Jonghe and Vander Vennet, 2008; Schaeck et. al, 2009; Berger et. al, 2009; Turk Ariss, 2010, van Leuvensteijn et. al, 2011). Monitoring the market structure of the banking system and obstacles to more competitive structure has been one of the influential

policy tools recently under the consideration that competition has positive contribution to growth and financial stability.

In this study, first the competitive structure of the Turkish banking system will be estimated by employing the Boone indicator and the impact of external financing on competition will be analyzed. To this end, first the methods analyzing the competitive structure of the banking system in the literature will be presented. Next, the Boone indicator used in estimating the level of competition in the banking system will be described briefly. After discussing the findings, the study will be summarized.

IV.8.2 Methods Analyzing Competition

In the banking literature, competition is generally studied in light of the papers of Bresnahan (1982) and Lau (1982) or calculated by Panzar and Rosse's (1987) H-statistics. Moreover, there are also approaches, e.g. Lerner index, which are based on the price-cost margin and take this margin as a measure of market power. Nevertheless, not only Bresnahan's (1982) and Lau's (1982) works, but also the Panzar-Rosse H-statistics measure the competition in the entire banking system. The Lerner Index addresses this problem but requires a big set of data. Therefore the search for more flexible and easy-to-calculate methods continues. Boone (2001 and 2008) suggested an easily calculable indicator that allows for for measuring product (like the loan market) or sector specific competition measure (like commercial banks, participation and development banks). This approach, which is called the Boone indicator, is widely used in the banking sector to calculate competition in specific sectors and competition in specific product markets.

IV.8.3 Method

The Boone indicator can be interpreted as the measure of the banking sector's sensitivity to marginal cost. Basically, this indicator measures the impact of productivity on banks' profits. This expression is based on the assumption that banks with higher productivity have lower costs. Under this assumption, the profits and market shares of those banks with lower costs would be on an uptrend. The following equation has been estimated

by employing van Leuvensteijn et. al (2011)'s approach to measure the Turkish banking sector's competitive structure.

$$\ln \pi_{it} = \alpha + \sum_{t=1, \dots, T} \beta_t d_t \ln MC_{it} + \sum_{t=1, \dots, T-1} \gamma_t d_t + u_{it} \quad (1)$$

In this equation, π stands for profit, MC for the marginal cost, i for the bank, t for the period for which competition is estimated, d_t for the dummy variable indicating each period and u_{it} for the error term. In the equation, the competition indicator is measured by the banking system's sensitivity to the marginal cost in a certain t period. Therefore, $\partial \pi(.) / \partial MC(.)$ has been estimated for t each period and is equal to the competition indicator β_t in the equation. Banks with low marginal cost and thus high productivity will have high profits β_t and will assume a negative value. Meanwhile, competition will increase directly proportional to the incremental absolute value of the β_t . In this study, the interpretations will be based on the absolute value of β_t and trend of competition will be analyzed by periods.

The following equation has been estimated to analyze the impact of external funds that banks obtain on the competitive structure of the system.

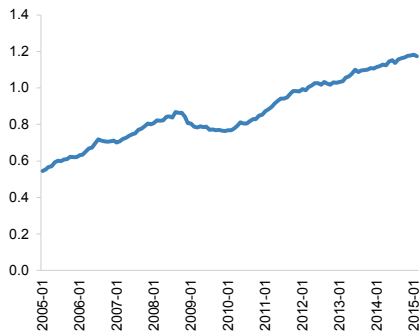
$$\ln \pi_{it} = \alpha + \sum_{t=1, \dots, T} \beta_t * d_t * \ln MC_{it} + \sum_{t=1, \dots, T} \delta_t * d_t * \ln MC_{it} * EF_{it} + \sum_{t=1, \dots, T-1} \gamma_t d_t + u_{it}$$

EF_{it} indicates the external funding at time t by bank i . Thus, the competitive structure of the system is estimated as follows:

$$\frac{\partial \pi(.)}{\partial MC(.)}_{t=1, \dots, T} = \beta_t + \delta_t * \overline{EF}$$

Here, \overline{EF} is the average amount of external financing in period t , and the term $\delta_t * \overline{EF}$ indicates the marginal impact of the external financing on competition. δ_t is estimated for all periods.

Chart IV.8.1
Loan/Deposit Ratio of the Banking System



Source: CBRT

IV.8.4 Findings

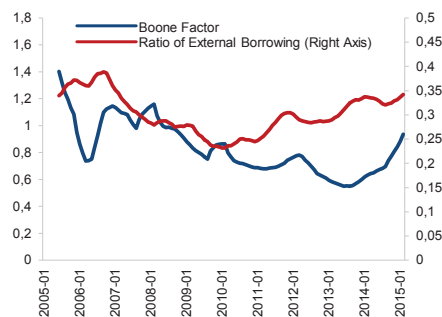
The competitive structure of the Turkish banking system was estimated on a monthly basis from 2005-01 to 2015-02. The aim of our analyses was to observe the general competitive structure in the banking system and how external financing affected the level of competition. The relationship between competition and external financing in a period of increased credit volume may provide important information to policy makers (Chart IV.8.1).

The banking system's competition structure and the ratio of total external financing to total assets are shown together in Chart IV.8.2. In periods of increased external financing facilities, the funds are expected to be transferred to loans and the level of competition is expected to increase. This relationship was strong until 2008, but weakened after the 2008 crisis. According to the results of the estimations, excluding the intense competitive environment that Turkey enjoyed between 2005-2006, competition between 2006-2014 was quite stable. The competitive structure declined significantly in the post-2008 period to rebound again in time to attain the 2008-level. A similar correlation was observed for the amount of external financing of the banking system. Although this ratio was well above the 2008 level at the end of 2014, the competition indicator is below the level achieved in 2008 demonstrating that, the correlation between external financing facilities and competition has weakened recently.

Chart IV.8.3 shows the contribution of external financing to competition. The results suggest that external financing always contribute positively to competition. The more widely the banks use external financing facilities, the more competition will increase throughout the entire sector and banks will compete in lending. Nevertheless, in the post-2008 period, this impact has decreased despite a high external financing amount. This impact has become more stable. The relationship between competition and external financing, which weakened in the post-2008 period, confirms the results presented in Chart IV.8.2. These findings can be attributed to the macroprudential measures that the CBRT introduced after the 2008 crisis towards mitigating the adverse effects of capital inflows. Recently, similar to the practices of other developing countries, the CBRT has introduced several measures to curb the volatility that capital movements may likely cause on the various segments of the markets. These measures have mitigated the transfer of these external financing facilities to loans across the entire banking sector and have thus led to a relative decline in the system's competitive structure.

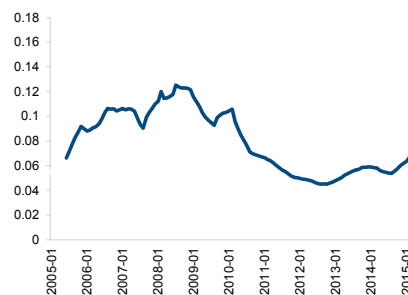
The findings of our analyses were tested with two different robustness tests. First, all banks were grouped across all periods

Chart IV.8.2
Boone Indicator and External Financing



Source: Author's Calculations
Note: Boone indicator and external financing are shown in six-month moving averages.

Chart IV.8.3
Impact of External Borrowing on Competition



Source: Author's Calculations
Note: Impact of the Boone factor on competition is shown in six-month moving averages.

according to their access to external financing facilities. Each group was labelled with values 0,1,2 and 3 in which 0 indicates a bank that uses external financing facilities the least and 3 indicates the most, and then the equation below was estimated:

$$\ln \pi_{it} = \alpha + \sum_{t=1, \dots, T} \beta_t * d_t * \ln MC_{it} + \sum_{t=1, \dots, T} \delta_t * d_t * \ln MC_{it} * G + \sum_{t=1, \dots, T-1} \gamma_t d_t + u_{it} \quad (3)$$

In this equation, the variable indicates the identified groups and assumes the mentioned values. Thus, the competitive structure of the system is estimated as follows;

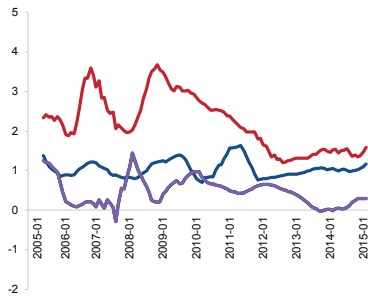
$$\frac{\partial \pi(\cdot)}{\partial MC(\cdot)}_{t=1, \dots, T} = \beta_t + \delta_t * G$$

The results of the estimations confirm our earlier findings.

As a second robustness test, the cross-sections in our analysis were restricted to the groups defined in our previous robustness test and the Boone indicators were re-estimated (Chart IV.8.4). The expectation behind this grouping is that the more a bank uses external financing facilities, the more competitive the system will become. In other words, banks which use external financing facilities more intensely can offer loans with cheaper resources and can compete with other banks more intensely, while other banks which cannot use external financing facilities will fall behind the competition level in the market.

These expectations have been proven valid by our analyses. While the competition level among banks that use external financing facilities more intensely is high, competition among banks that use external financing facilities less is lower (Chart IV.8.4). Competition in the first group that covers the banks that use external financing facilities most intensely displayed a significant rise until the end of 2008. In the years to follow, competition in this group declined gradually and showed a flat trend. The trend of competition in the first and second groups are quite similar. Obviously, lower use of external financing facilities means lower competition. In the third and fourth groups with the lowest use of external financing facilities, competition is below the average level and these banks remain

Chart IV.8.4
Boone Indicator for Groups



Source: Author's Calculations
Note: The Chart shows competition values for different groups of banks that have been grouped based on the criteria of external financing facilities. Competition values are presented in six-month moving averages method. The upper time series indicates competition of the group that enjoys the highest external financing facilities (g4). The time series in the middle belongs to the third and fourth groups (g3-g4), and the lower time series belongs to the first and second groups (g1-g2).

well below the average competition level of the banking system in general.

IV. 8.5 Conclusion

In this study, competition in the Turkish banking sector was estimated on a monthly basis for a period of more than ten years and the impact of external financing on competition in the banking system was analyzed. The impact of external financing system on the competition level was analyzed employing the same approach. The results of the analysis confirmed that external financing increases competition in the banking system. When banks are grouped into four according to their levels of use of external financing facilities, it is observed that banks that use the external financing facilities most intensely tend to compete with other banks more aggressively to transfer these funds into loans. Our study also showed that the upward impact of external financing on competition diminished in the post-2008 period.

References

- Altunok, F., Hacıhasanoğlu, Y. S. and Öztürk, H. (2015). Banking Competition and Capital Flows (Forthcoming)
- Berger, A. N., Klapper L. F. and Turk-Ariss, R. (2009). "Bank Competition and Financial Stability." 35(99): -118.
- Mishkin, F. (1982). "The Oligopoly Solution is Identified." 10: 87-92.
- Cetorelli, N. and Gambera M. (2001). Financial Development and Financing Constraints: International Evidence from the Structural Investment Model. 56(617): -648.
- Collender, R. N. and Shaffer S. (2003). "Local Bank Office Ownership, Deposit Control, Market Structure, and Economic Growth." 27(27): -57.
- De Jonghe, O. and VanderVennet R. (2008). "Competition versus Efficiency: What Drives Franchise Values in European Banking." 32(1820): -1835.
- Lau, L. J. (1982). "On Identifying the Degree of Competitiveness from Industry Price and Output Data." 101-2: 93-99.

Levine, R. E., Norman V. L. and Beck T. (2000). "Financial Intermediation and Growth: Causality and Causes." 46(31): -77.

Panzar, J. C., Rosse J. N. (1987). "Testing for Monopoly Equilibrium." The Journal of Industrial Economics, 46(31): -77.

Schaeck, K., Čihák M. and Wolfe S. (2009). "Are Competitive Banking Systems More Stable?" 41(711): -734.

Valverdie, S. C., Humphrey D. and Fernandez F. R. (2003). "Bank Competition and Financial Stability." 37(3): 227-237.

Van Leuvensteijn, M., Bikker J., Van Rixtel A. and Sorensen C. K. (2011). "A New Approach to Measuring Competition in the Loan Markets of the Euro Area." 43 (23): 3155-3167.

List of Charts

I. Macroeconomic Outlook

I.1. International Developments

Chart I.1.1	Global and Advanced Economies' Growth Rates.....	4
Chart I.1.2	Manufacturing Industry PMI Indices	4
Chart I.1.3	Inflation in Advanced and Emerging Economies and Crude Oil Prices.....	4
Chart I.1.4	US and Germany Treasury Bond Yields	4
Chart I.1.5	EUR/USD Parity and DXY Index	5
Chart I.1.6	Expectations of the FOMC Members and the Market.....	5
Chart I.1.7	Capital Flows to Emerging Economies.....	5
Chart I.1.8	CDS Premiums for Emerging Economies and JP Morgan Exchange Rate Index.....	5
Chart I.1.9	FX Indebtedness of Households and the Corporate Sector.....	6

I.2. Domestic Developments

Chart I.2.1	Contribution to Growth From The Spending Side	6
Chart I.2.2	Price Indices	6
Chart I.2.3	Cumulative Portfolio Flows.....	7
Chart I.2.4	Exchange Rates and Turkey's 5-Year CDS Prices	7
Chart I.2.5	CBRT Rates and BIST Interbank O/N Rates	7
Chart I.2.6	Current Account Deficit and Financing Items	7
Chart I.2.7	Central Government Budget Balances	8
Chart I.2.8	Composition of Central Government Debt Stock and Average Days to Maturity	8

II. Non-Financial Sector

II.1. Household Developments

Chart II.1.1	Household Assets and Liabilities	9
Chart II.1.2	Growth in Household Loans and Deposits	9
Chart II.1.3	Retail Loan Growth.....	10
Chart II.1.4	Retail Loan Growth by Type of Loan	10
Chart II.1.5	Consumer Loan Rates.....	11
Chart II.1.6	Growth of New Retail Loan Extensions and Consumer Spending	11
Chart II.1.7	Individual Credit Card Balances.....	11
Chart II.1.8	Breakdown of Individual Credit Card Spending by Sectors.....	11
Chart II.1.9	Individual Credit Cards and Consumer Loans	12
Chart II.1.10	Supply and Demand for General-Purpose Loans.....	12
Chart II.1.11	Personal Overdraft Account Balance and Its Share in General-Purpose Loans.....	12
Chart II.1.12	Credit Card Cash Advances and Revolving Ratio.....	12
Chart II.1.13	Applications and Extensions for Housing Loans	13
Chart II.1.14	Housing Sales Financed Through Loans	13
Chart II.1.15	Supply and Demand for Housing Loans.....	13
Chart II.1.16	Retail Vehicle Loans	13

Chart II.1.17	Deposits of Resident Real Persons.....	14
Chart II.1.18	Resident Real Persons' FX Borrowing Currency Swap Transactions and the Interest Rate Spread ...	14
Chart II.1.19	Contribution of Resident Real Persons' Deposit Sizes to Growth by Periods	14
Chart II.1.20	Amount of Private Pension System Funds and the Number of Participants in the System	14

II.2. Corporate Sector Developments

Chart II.2.1	Financial Liabilities of the Corporate Sector.....	15
Chart II.2.2	Structure of Corporate Sector Financing Sources	15
Chart II.2.3	Domestic Corporate Loans	15
Chart II.2.4	FX-Indexed Corporate Loan Balances.....	15
Chart II.2.5	TL Corporate Loans Rate and Loan-Deposit Spread.....	16
Chart II.2.6	Supply and Demand Developments in Overall Corporate Loans and SME Loans	16
Chart II.2.7	Contributions to Corporate Loan Demand	16
Chart II.2.8	Activity Ratios of Corporate Sector Firms.....	17
Chart II.2.9	External Debt Roll-Over Ratio	17
Chart II.2.10	Distribution of Corporate Sector's External Liabilities	17
Chart II.2.11	Breakdown of Corporate Sector's External Financial Liabilities by Maturities.....	18
Chart II.2.12	External Loans Due Within One Year	18
Chart II.2.13	Changes in Corporate Sector Loans Extended by Non-Bank Financial Institutions	18
Chart II.2.14	Corporate Sector's Domestic Bond Issues.....	19
Chart II.2.15	Commercial Deposits	19
Chart II.2.16	Resident Legal Persons' FX Borrowing Currency Swap Transactions and the Interest Rate Spread..	19
Chart II.2.17	Contribution of Resident Legal Persons' Deposit Amounts to Growth by Periods.....	19
Chart II.2.1.1	FX Loans and Export Rediscount Credits.....	21
Chart II.2.2.1	Net Financial Worth/ GDP.....	23
Chart II.2.2.2	Non-Financial Corporations' Net Financial Worth/ GDP Ratio Across Countries as of 2014	23
Chart II.2.2.3	Instrument Decomposition of Financial Assets	23
Chart II.2.2.4	Instrument Decomposition of Financial Liabilities	23
Chart II.2.2.5	Maturity Structure of Financial Assets	24
Chart II.2.2.6	Maturity Structure of Financial Liabilities	24
Chart II.2.2.7	Loans Extended by Sector and Maturity.....	24
Chart II.2.2.8	TL and FX Denominated Financial Accounts of Non-Financial Corporations	25
Chart II.2.2.9	Net FX Financial Position of Non-Financial Corporations	25
Chart II.2.2.10	Maturity Structure of FX Denominated Assets and Liabilities	25

III. Financial Sector

III.1. Credit Risk

Chart II.1.1	Loan/GDP Ratio	28
Chart II.1.2	Loan/GDP Change	28
Chart II.1.3	Annual Loan Growth	28
Chart II.1.4	NPL Ratios	28

Chart II.1.5	Flow NPL Development and Loans under Close Monitoring	28
Chart II.1.6	Corporate Loan NPLs and GDP	29
Chart II.1.7	Development of NPL Ratios and Bad Cheque Ratio	29
Chart II.1.8	Development of NPL Ratios by Selected Sectors	29
Chart II.1.9	Corporate Loan Standards.....	29
Chart II.1.10	TL and FX Loan Standards.....	29
Chart II.1.11	TL Commercial Loan Spreads.....	30
Chart II.1.12	FX Commercial Loan Spreads.....	30
Chart II.1.13	NPL Ratios in Retail Loans.....	30
Chart II.1.14	Vintage Analysis in NPL Ratios of General-Purpose Loans.....	30
Chart II.1.15	NPL Ratios of General-Purpose Loans - Quarterly Contributions.....	31
Chart II.1.16	Vintage Analysis in NPL Ratios of Housing Loans.....	31
Chart II.1.17	General-Purpose and Housing Loan Standards.....	31
Chart II.1.18	General-Purpose Loan Rates and Spreads	31
Chart II.1.19	Housing Loan Rates and Spreads	31
Chart II.1.1.1	Corporate NPL Ratios	32
Chart II.1.1.2	Annual Growth in Loans under Close Monitoring and Intra-Period NPL Add-Ons.....	33
Chart II.1.1.3	Annual Growth in Loans under Close Monitoring by Currency Units.....	33

III.2. Liquidity Risk

Chart III.2.1	FX Liquidity Coverage Ratio	34
Chart III.2.2	Total Liquidity Coverage Ratio	34
Chart III.2.3	Ratio of Non-Deposit Funding to External Funding	34
Chart III.2.4	Ratio of Non-Deposit Funding to External Funding in Selected Countries and Its Change.....	34
Chart III.2.5	(Deposits+Equity)/Loans Ratio.....	35
Chart III.2.6	(Deposits+Equity)/Loans Ratio by Banks	35
Chart III.2.7	(Deposits+Equity)/Loans Ratios in Selected Countries	35
Chart III.2.8	Breakdown of Maturity of TL Deposits and the Average Maturity	35
Chart III.2.9	Maturity Breakdown of FX Deposits and the Average Maturity.....	36
Chart III.2.10	Growth in Banks' External Liabilities.....	36
Chart III.2.11	Composition of Banks' External Liabilities	36
Chart III.2.12	Payment Plan of Banks' External Liabilities in the Near Future	37
Chart III.2.13	Maturity Composition of Banks' External Liabilities.....	37
Chart III.2.14	External Debt Rollover Ratio of Banks and the Average Maturity	37
Chart III.2.15	Maturity Breakdown of Non-Deposit FX Liabilities	37
Chart III.2.16	FX Liquidity Need of Banks Based on External Debt Roll-Over Ratio Assumptions.....	38
Chart III.2.17	Ratio of Selected FX Liquid Assets to FX External Debt Due Within One Year	38
Chart III.2.18	Periodical Change in the Banking Sector's TL Funding Sources.....	38
Chart III.2.19	Ratio of the Average Volumes of Secondary Market Security Issues to Stock Security Issues	39
Chart III.2.20	Amount of FX Held at CBRT Accounts via the ROM Facility and the FX ROM Facility Utilization	39
Chart III.2.21	Ratio of FX Reserves to Short-Term FX Liabilities and Ratio of ROM Reserves to Free Government Securities	39

Chart III.2.1.1	Breakdown of External Debt Instruments by Currency Units.....	40
Chart III.2.1.2	Monthly Amount Changes in Euro and USD External Debt and Parity and Interest Rate Developments.....	41
Chart III.2.1.3	Change in the Average Maturity of Euro and USD External Debt.....	41
Chart III.2.1.4	Change in Borrowing Instruments between 2015Q1 and May 2014.....	41
Chart III.2.1.5	On-Balance Sheet Euro-USD Short Position.....	42
Chart III.2.1.6	Euro and USD Deposits and Parity and Interest Rate Developments.....	42
Chart III.2.1.7	Relation Between the Monthly Amount Change in Euro Deposits and the Monthly Change in Parity.....	42
Chart III.2.1.8	Euro- and USD-Denominated Loans and Parity and Interest Rate Developments.....	43
Chart III.2.1.9	Annual Change in External Trade Based on the Foreign Currency Units.....	43
Chart III.2.2.1	Banking and Non-Bank Sectors' Security Issues in Global Terms.....	44
Chart III.2.2.2	Banking and Non-Bank Sectors' Security Issues in Turkey.....	44
Chart III.2.2.3	Share of Securities Issues in Total External Funding.....	45
Chart III.2.2.4	Share of Domestic and Foreign Currency Security Issues in Total Issues.....	45
Chart III.2.2.5	Maturity Breakdown of the Banking Sector's Domestic Currency Security Issues.....	45
Chart III.2.2.6	Maturity Breakdown of the Banking Sector's Foreign Currency Security Issues.....	45
Chart III.2.2.7	Changes in Non-Resident Holdings of GDDS.....	46
Chart III.2.2.8	Changes in Non-Resident Holdings of GDDS and Turkey's 5-Year CDS.....	46
Grafik III.2.2.9	Breakdown of Holdings of the Banking Sector's Domestic Currency Security Issues.....	46
Grafik III.2.2.10	Breakdown of Holdings of the Banking Sector's Foreign Currency Security Issues.....	46

III.3. Interest Rate Risk and Exchange Rate Risk

Chart III.3.1	Maturities of TL Assets and Liabilities.....	47
Chart III.3.2	Breakdown of Fixed-Rate TL Assets.....	47
Chart III.3.3	Ratio of Fixed-Rate TL Liabilities to TL Housing Loans.....	47
Chart III.3.4	Maturities of FX Assets and Liabilities.....	48
Chart III.3.5	Maturities of Fixed-rate FX Derivative Assets and Liabilities.....	48
Chart III.3.6	TL Assets-Liabilities Position / Total Liabilities.....	48
Chart III.3.7	FX Assets-Liabilities Position / Total Liabilities.....	48
Chart III.3.8	CAR after TL and FX Interest Rate Shocks.....	49
Chart III.3.9	Securities Portfolio.....	49
Chart III.3.10	Effect of TL and FX Interest Rate Shocks on CAR.....	50
Chart III.3.11	Share of FX in Banking Sector Assets and Liabilities.....	50
Chart III.3.12	Ratio of FX Positions to Total Assets.....	50
Chart III.3.13	Effects of Various Depreciations of TL on CAR.....	51

III.4. Capital Adequacy, Profitability and Resilience to Shocks

Chart III.4.1	Net Profit Developments.....	51
Chart III.4.2	Components of Net Profit.....	51
Chart III.4.3	Return on Assets and Return on Equity.....	51
Chart III.4.4	Components of the Return on Assets.....	52

Chart III.4.5	Capital Indicators	52
Chart III.4.6	Banking Sector Stability Map.....	52

IV. Special Topics

Chart IV.1.1	The Ratio of Firms with Debt According to BAT-Risk Center Data.....	55
Chart IV.2.1	Commercial Loan Growth.....	62
Chart IV.2.2	External Loans/Total Assets Ratio	62
Chart IV.3.1	LTV According to Prices of Automobiles	68
Chart IV.3.2	Automobile and Consumer Loans.....	70
Chart IV.3.3	Monthly Sales of New Automobiles	70
Chart IV.4.1	THPI and THHPI Comparison	78
Chart IV.4.2	Hedonic Price Indices for Three Turkish Metropolitans	79
Chart IV.5.1	Composition of Banks' External Loans.....	82
Chart IV.5.2	Fed's Balance Sheet Size	82
Chart IV.6.1	Short-Term Interest Rates.....	87
Chart IV.7.1	Firm Borrowing Costs.....	97
Chart IV.7.2a	Firm Borrowing Costs – Preliminary Findings – Size of Company.....	98
Chart IV.7.2b	Firm Borrowing Costs – Preliminary Findings – Impact of the Leverage Ratio.....	98
Chart IV.7.2c	Firm Borrowing Costs – Preliminary Findings – Impact of Cash Flow	98
Chart IV.7.2d	Firm Borrowing Costs – Preliminary Findings – Impact of the Age of the Company.....	98
Chart IV.8.1	Loan/Deposit Ratio of the Banking System.....	104
Chart IV.8.2	Boone Indicator and External Financing	105
Chart IV.8.3	Impact of External Borrowing on Competition.....	105
Chart IV.8.4	Boone Indicator for Groups.....	106



Tables and Diagrams

II. Non-Financial Sector

II.1. Household Developments

Table II.1.1	Household Financial Assets.....	10
Table II.1.2	Household Financial Liabilities.....	10

II.2. Corporate Sector Developments

Diagram II.2.2.1	Sectoral Links for Non-Financial Corporations.....	24
------------------	--	----

III. Financial Sector

III.1. Credit Risk

Table III.1.1	Number of Credit Card and Consumer Loan Defaulters.....	30
---------------	---	----

III.2. Liquidity Risk

Table III.2.1.1	Change in Amount of On-Balance Sheet Euro-USD Items.....	42
-----------------	--	----

IV. Special Topics

Table IV.1.1	The Number of Firms Having FX Debt and Debt Dollarization Ratios According to the Total Indebtness Level.....	56
Table IV.1.2	Main Balance Sheet Indicators Based on the Ratio of Firms' Net FX Position to Net Sales.....	57
Table IV.1.3	Breakdown of the Firms with a High Exchange Rate Risk by Sectors.....	58
Table IV.1.4	Riskiness of Firms Based on Short-Term FX Position.....	60
Table IV.2.1	Descriptive Statistics.....	63
Table IV.2.2	Loan Growth and Bank-Specific Variables.....	65
Table IV.2.3	Loan Growth and Firm-Specific Variables.....	66
Table IV.3.1	Regression Results.....	72
Table IV.3.2	Regression Results.....	73
Table IV.4.1	Sample Hedonic Regression Result.....	79
Table IV.5.1	Quantitative Easing Packages Announced by the Fed.....	83
Table IV.5.2	Fed Balance Sheet Policy and Banks' External Loans.....	84
Table IV.5.3	Fed Balance Sheet Policy and Banks' External Loans.....	85
Table IV.5.4	Fed Balance Sheet Policy and Banks' External Loans.....	85
Table IV.5.5	Sensitivity of Banks' Loans to Fed Policies.....	85
Table IV.5.6	Sensitivity of Banks' Loans to Fed Policies.....	86
Table IV.6.1	Deposit Rates.....	91
Table IV.6.2	Commercial Loan Rates.....	92
Table IV.6.3	Consumer Loan Rates.....	92
Table IV.7.1	Descriptive Statistics (2003Q1-2014Q4).....	97
Table IV.7.2	Dependent Variable: Firm Borrowing Cost.....	99

Abbreviations

ADA	Automotive Distributors Association
BAT	Banks Association of Turkey
BELR	Bank's External Loan Ratio
BIS	Bank for International Settlements
BIST	Borsa İstanbul A.Ş.
BKM	Interbank Card Center
BRSA	Banking Regulation and Supervision Agency
CAR	Capital Adequacy Ratio
CBRT	Central Bank of the Republic of Turkey
CDS	Credit Default Swap
CMB	Capital Markets Board
DTI	Debt to Income
DXY	Dollar Index
ECB	European Central Bank
EMBI	Emerging Market Bond Index
ESA	European System of Accounts
EUROSTAT	European Statistics
FA	Financial Accounts
Fed	Federal Reserve System
FOMC	Federal Open Market Committee
FSI	Financial Strength Indicators
FX	Foreign Exchange
GDDS	Government Domestic Debt Security
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
IMF	International Monetary Fund
LCR	Liquidity Coverage Ratio
LRC	General Directorate of Land Registry and Cadaster
LTV	Loan to Value
MA	Moving Average
MKK	Central Depository Institution of Turkey
NPL	Non-performing Loans
NUTS	Nomenclature of Territorial Units for Statistics
O/N	Overnight
PDP	Public Disclosure Platform
PMI	Purchasing Managers Index
REIT	Real Estate Investment Trust
Repo	Repurchasing Agreement
RHA	Right Hand Axis
ROC	Reserve Option Coefficient



ROM	Reserve Options Mechanism
RR	Reserve Requirement
SME	Small and Medium-Sized Enterprises
THHPI	Hedonic House Price Index for Turkey
THPI	House Price Index for Turkey
TL	Turkish lira
TOKI	Housing Development Administration of Turkey
TURKSTAT	Turkish Statistical Institute
USA	United States of America
USD	US Dollar
WEO	World Economic Outlook