National Bank of the Republic of North Macedonia
Financial Stability, Banking Regulations and Resolution Department

REPORT ON THE RISKS IN THE BANKING SYSTEM OF THE REPUBLIC OF NORTH MACEDONIA IN 2018

April 2019

CONTENT

Summary

In 2018 the Macedonian economy faced with various external risks related to the growing global trade protectionism, enlarged geopolitical problems in certain regions of the world, uncertainty associated with the monetary policy normalization pace of the central banks in the developed countries, as well as to the current developments concerning the announced UK exit from the European Union. However, the domestic risks lowered, the domestic environment remained stable, the economic activity revived (especially since the second quarter), and in the absence of imbalances in the economy, favorable external position and stable expectations of the economic agents, the National Bank reduced the policy rate on three occasions. In such conditions, the activities growth in the domestic banking system significantly increased and the profitability improved, with the higher performances being realized in conditions of prudent risk management that contributed to the improvement of the banks' risk profile, as well. Given the growth of the sources of funds (both on deposits and capital positions), the lending activity was mainly directed towards the households, although a solid annual growth rates and credit support to the corporate sector were also registered. The depreciation process continued in 2018, perceived through the reduced share of loans and deposits with currency component in total loans and deposits. Deuroisation was more pronounced on the side of the loans, but is somewhat slower compared to 2017.

The materialization of the credit risk, measured through the trend of non-performing loans, decreased in 2018, as the non-performing loans decreased by 12% (as opposed to 2017, when these loans increased by 2%). The share of the non-performing loans in the total loans of the non-financial entities also improved and went down to the level of 5.2% (6.3% as of 31 December 2017). The decrease in non-performing loans was fully concentrated in non-financial companies, where these loans decreased by 16.1%, mostly due to the sale of a significant amount of non-performing claims from one client (in the first quarter of 2018), and the effects of the compulsory write-offs of non-performing loans to this sector. Thus at the end of 2018 after a longer period, the share of the non-performing in the total corporate loans reduced to a one-digit level of 8% (10% at the end of 2017). In the credit portfolio composed of households, the non-performing loans grew faster compared to the preceding year (7.4% in 2018 and 1.4% in 2017), which is a result of the increase in the non-performing consumer loans. However, in conditions of accelerated and solid growth of the households' lending activity, the share of the non-performing loans in the total household loans improved and reached 2.3% at the end of 2018 (2.4% on 31 December 2017). The high coverage of the non-performing loans with impairment was preserved also in 2018, which in conditions of satisfactory scope and quality of own funds, limits the negative effects on the banks' solvency, from the possible full uncollectability of these loans.

Most indicators of the liquidity of the banking system registered improvement, in conditions of solid annual growth of the banks' liquid assets, of 12.7% (0.8% in 2017), which accounted slightly over 40% of the total assets growth of the banking system. The liquid assets make up roughly one third of the banks' total assets, covering more than half of the short-term liabilities and nearly 60% of the total household deposits. Positive trends in the deposit base of the banking system provide stable sources for financing the credit growth, which is better seen by the movements of the loan to total deposit ratio, which aggregately moves around 86%.

The profitability of the banking system improved in 2018. ROAA and ROAE reached solid levels of 1.7% and 16.0%, respectively (in 2017, these indicators equaled 1.4% and 13.5%, respectively). In conditions of annual decrease in the net interest income, the main generator of the improved profitability included lower costs for impairment that reflected the banks' activities for collection of nonperforming loans, primarily in the first and the second quarter of 2018. In addition, in the same period the realized capital gain from the sale of a capital investment in another financial institution, as well as the intensified sale of previously foreclosed property, had a positive impact on the higher profitability. The operational efficiency of the banking system has been improving for several years now, evident through the downward trend of the cost-to-income ratio, which reached 46.2% at the end of 2018 (48.7% in 2017).

The solvency of the banking system also improved in 2018. The reinvestment of the gains in the banks' own funds, the new issues of shares and the issued new subordinated instruments contributed the most to the annual growth of the capital positions. The capital adequacy ratio of the banking system equals 16.5% (15.7% as of 31 December 2017), while the ratio between the most quality layer of the banking system's own funds (common equity Tier 1 capital) and risk weighted assets equals 15.0% (14.2% at the end of 2017). Aggregately, the banking system has capital available above the regulatory[1] and supervisory requirement of 8.6% of the total own funds (6.8% as of 31 December 2017).

The direct exposures of the banking system to currency risk and interest rate risk are small and account for 3.8% and 4.9%, respectively, in the total own funds. However, the indirect exposure to these risks, considering the presence of loans with a currency component and loans with adjustable and variable interest rates in the banks' portfolios, should also be taken into consideration. Thus, the share of loans with currency component in the total credits mainly shows a downward trend, while the presence of variable interest rates (variable and adjustable interest rate) with loans is inconsistent, and in 2018 it registers a growth.

The recent unblocking of the Euro-Atlantic integration processes for our country gives a new positive impetus to the domestic economic activity and the financial system, which would have lasting, positive effects on the overall economic flows. One of the initial effects of the revival of these integrative processes is the transition in the second stage of the Stabilization and Association Agreement concluded between the Republic of North Macedonia and the European Union and its member states (just before the end of 2018). The transition in the second stage of this agreement brings changes in the business environment of domestic banks, which should increase the degree of integration of the domestic with the global financial system and strengthen the competitive pressure on domestic financial institutions (given the expansion of the possibilities of the domestic entities for investments in foreign real estate, securities abroad, purchase of derivative instruments on foreign markets, etc.), to which they should respond with an enriched offer of products and services for its customers. The surge of FinTech activities and the announced adoption of the Law on Payment Services and Payment Systems are challenges domestic banks will cope with in the forthcoming period.

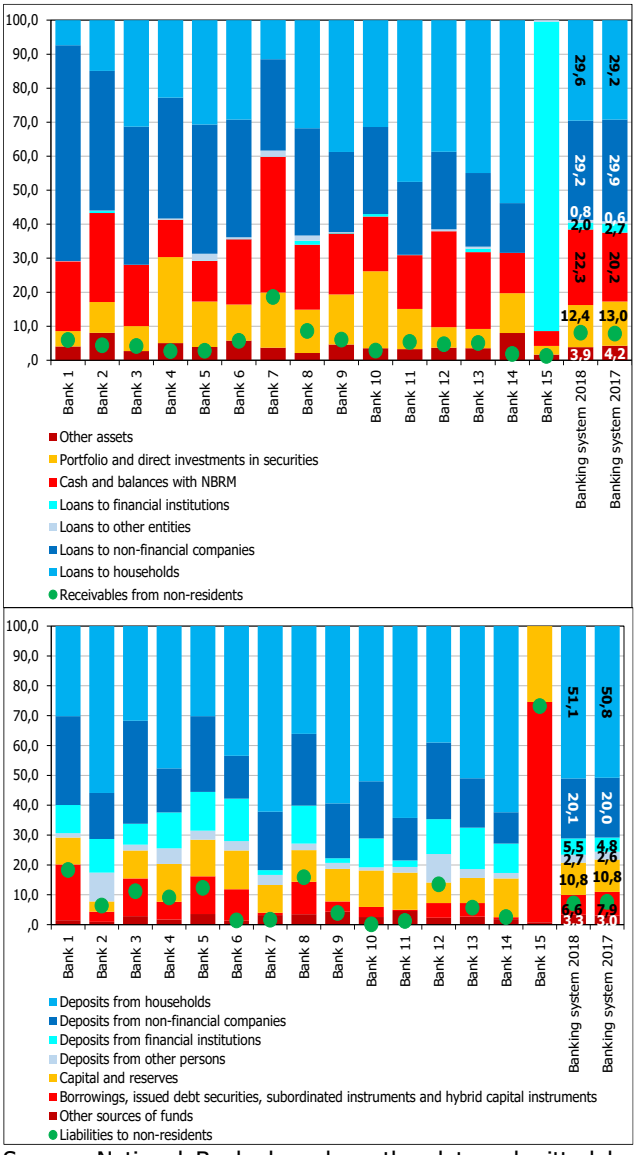
[1] Including capital buffers.

I. Structure of the banking system

1. Structure of the banking system

1.1 Main features of the business models of banks

Chart 1
Structure of the assets (top) and liabilities (bottom) of banks and the banking system, as of 31 December 2018
in %

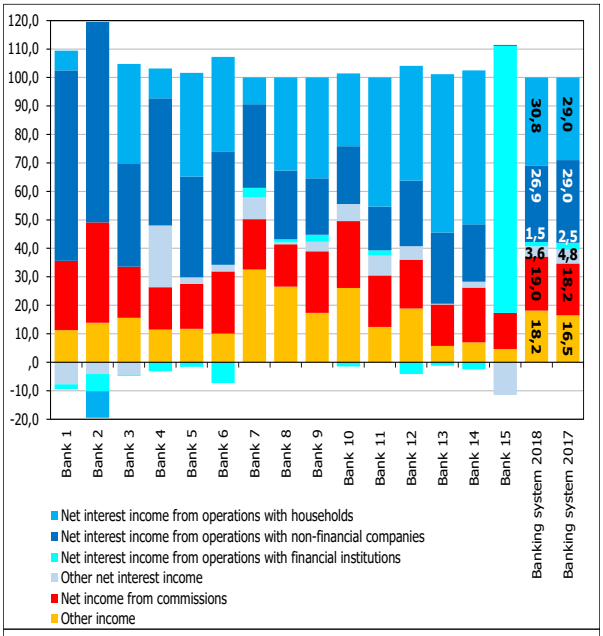


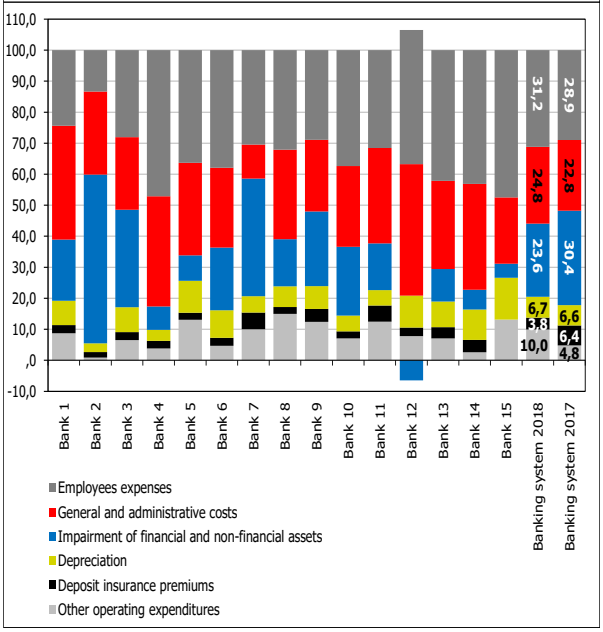
Source: National Bank, based on the data submitted by banks.
The order of banks is random.

The main business model of the Macedonian banks, collecting deposits and approving loans, registered no changes in 2018. Household deposits, as the most important source of funding for banks, prevail in the total liabilities of the banking system, with a share of 51.1% (which is by 0.3 percentage points more compared with 31 December 2017). Analyzed by individual bank, household deposits have the highest share in the total sources of funds with eleven banks. In three banks, the shares of deposits from households and from non-financial companies are similar (i.e., the difference between the shares of these two sources of funding does not exceed 5 percentage points), while the liabilities of one bank are predominated by the credit lines from the international financial institutions, which it places to end users through the other banks in the country.

In the assets, the share of loans to the non-financial sector (59.6%) is the highest. In conditions of a constantly faster growth of loans to households, compared with loans to non-financial companies, for the first time this year, the share of loans to households (29.6%) exceeded the share of loans to non-financial companies (29.2%) in total assets. Analyzed by individual bank, seven banks are more oriented towards lending to non-financial companies, and six banks lend more to the households. In one bank, the share of the lending to the two sectors is almost the same, and in one bank, loans to domestic banks prevail.

Chart 2
Structure of total income (top) and total expenditures (bottom) of banks and the banking system, in 2018
in %





Source: National Bank, based on the data submitted by banks.
The order of banks is random.

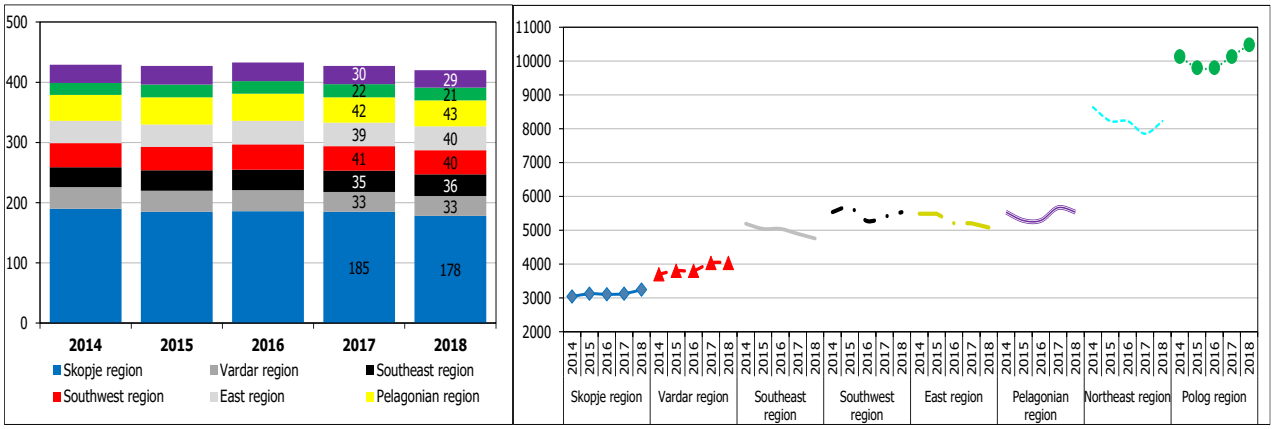
The structure of total banks' income corresponds to the application of the traditional business model. Thus, net interest income, with a share of 62.9% is the most important in the structure of total income, despite the reduction of its share of 2.1 percentage point compared to 2017. At the same time, net fee income increased the share in total income, by 0.8 percentage points, and the share of other income increased by 1.7 percentage points. Similar to the movements in the structure of assets, this year the share of net interest income from the operations with households (30.8%) exceeded the share of net interest income from the operations with enterprises (26.9%) in total income.

Staff costs are the most important expenditures at a level of the banking system, followed by general and administrative expenses and impairment of financial and non-financial assets. Compared to last year, when impairment costs had the highest share in total expenditures, this year, staff costs prevailed. Such change in the structure of the expenditures of the banking system primarily results from the annual fall in the impairment cost, which caused a reduction of its share in total expenditures, of 6.8 percentage points. At the same time, staff costs and general and administrative expenses increased the shares in total expenditures by 2.3 percentage points and 2 percentage points, respectively.

1.2 Number of banks and access to banking services

As of 31 December 2018, seventeen depository institutions operate in the Republic of North Macedonia, i.e. fifteen banks and two savings houses[2]. The number of banks and savings houses is unchanged compared to the previous year.

Chart 3
Bank network (left) and number of inhabitants per business unit (right), by region in the Republic of North Macedonia

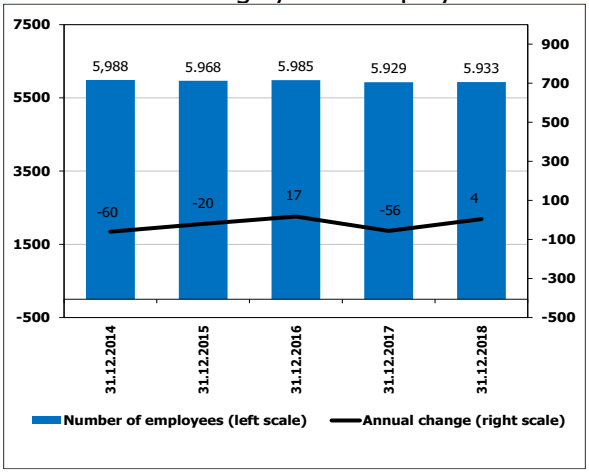


Source: The National Bank, based on data submitted by banks, State Statistical Office of the Republic of North Macedonia according to official data of the 2002 census.

The banking network is spread across almost all cities in the Republic of North Macedonia and consists of 420 business units[3]. The total number of business units decreased by seven (three new business units were opened and ten were closed). Around 42% of the total number of business units are concentrated in the Skopje area, where the **access to banking services,** as measured by the number of inhabitants per business unit, is still the best, despite the reduction of the number of business units (by seven) in 2018. As for the rest of the country, the region of Pelagonija, the east and southeast parts of the country registered a slight improvement of the access to banking services, while the Polog region, the southwest and northeast parts of the country registered slight deterioration.

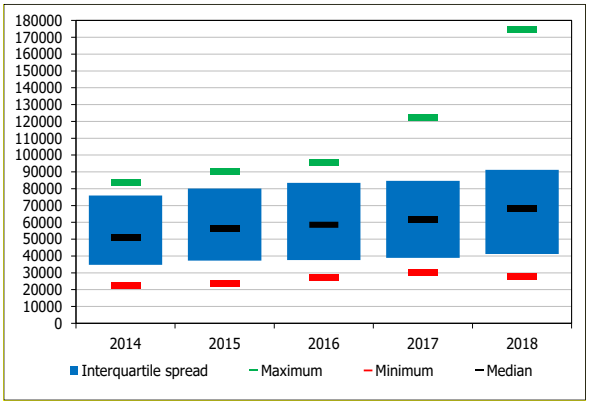
[2] The share of savings houses in total assets of depository financial institutions (banks and savings banks) is 0.4%, in total loans to non-financial entities 0.5% and 0.4% of total household deposits. Given the insignificant share of savings houses in the total banking system, they are subject to analysis only in the Reports on the Financial Stability of the Republic of North Macedonia.
[3] The number of business units includes the headquarters of banks, but excludes banks' windows.

Chart 4
Number of banking system employees



Source: National Bank, based on the data submitted by banks.

Chart 5
Assets per employee*
in thousands of denars



Source: National Bank, based on the data submitted by banks.
*The MBDP is not included in the analysis due to the type of its operations.

1.3 Employment in the banking system

In 2018, the number of bank employees insignificantly changed (increased by 4 persons) and equals 5,933. Qualification structure of employees in the banking sector registers a further improvement. The share of employees with at least university education continues to increase, reaching 81% of the total number of employees in the banking system, which is an annual growth of 2.2 percentage points.

Banking system productivity continues to improve. The growth of assets in 2018 significantly accelerated, amid insignificant change in the total number of employees. However, analyzed by individual bank, the differences in productivity of the individual banks are significant and further deepened in 2018, largely as a result of the improvement in the banks with higher productivity. The increase in the amount of the assets per employee is especially significant in the bank with the highest productivity in the sector, resulting from the solid annual growth of the assets of this bank (23.6%), amid simultaneous reduction of the number of employees (-13.4%).

1.4 Ownership structure and concentration of the banking system

Table 1 Structure of the number of banks and major balance sheet positions, by banks' majority ownership (as of 31 December 2018)
in millions of denars and in %

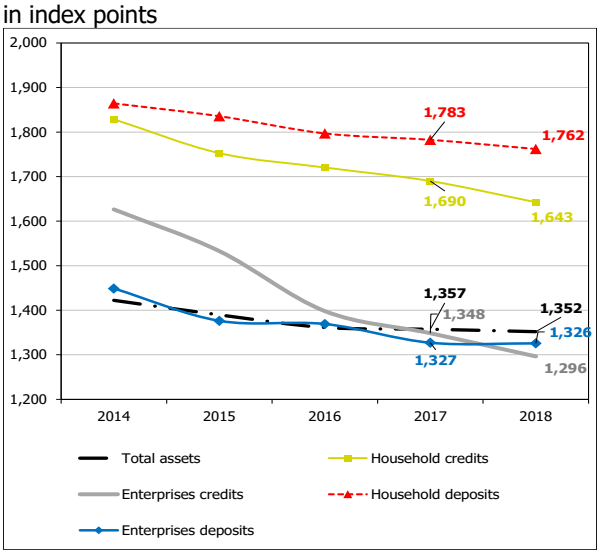
Type of ownership	Number of banks	Capital and reserves		Assets		Loans to non-financial sector		Deposits from non-financial sector		Total reven
		Amount	In %	Amount	In %	Amount	In %	Amount	In %	Amount
Banks in dominant ownership of foreign shareholders	**11**	**38,800**	**71.4%**	**360,324**	**71.6%**	**255,868**	**80.0%**	**261,593**	**71.8%**	**18,329**
- subsidiaries of foreign banks	*6*	*33,407*	61.5%	*291,255*	57.8%	*208,394*	65.1%	*214,089*	58.8%	*15,515*
- Austria	1	2,269	4.2%	21,422	4.3%	14,797	4.6%	13,350	3.7%	984
- Bulgaria	1	1,201	2.2%	9,214	1.8%	6,382	2.0%	6,879	1.9%	370
- Greece	1	11,459	21.1%	91,817	18.2%	66,539	20.8%	73,810	20.3%	5,503
- Slovenia	1	8,976	16.5%	82,021	16.3%	56,258	17.6%	65,446	18.0%	4,849
- Turkey	1	5,787	10.7%	47,176	9.4%	34,026	10.6%	27,631	7.6%	2,046
- France	1	3,714	6.8%	39,605	7.9%	30,392	9.5%	26,973	7.4%	1,763
- other banks in dominant foreign ownership	*5*	*5,393*	9.9%	*69,068*	13.7%	*47,474*	**14.8%**	*47,504*	13.0%	*2,813*
- Bulgaria	2	2,012	3.7%	22,680	4.5%	15,472	4.8%	15,905	4.4%	1,079
- Germany	1	2,546	4.7%	28,307	5.6%	20,458	6.4%	17,381	4.8%	952
- Switzerland	2	835	1.5%	18,081	3.6%	11,543	3.6%	14,218	3.9%	783
Banks in dominant ownership of domestic shareholders	**4**	**15,532**	**28.6%**	**143,145**	**28.4%**	**64,149**	**20.0%**	**102,652**	**28.2%**	**6,129**
- private ownership	*3*	*12,977*	23.9%	*133,093*	26.4%	*64,129*	20.0%	*102,652*	28.2%	*6,009*
- state ownership	*1*	*2,555*	4.7%	*10,053*	2.0%	*20*	0.0%	*0*	0.0%	*121*
Total:	**15**	**54,332**	**100.0%**	**503,469**	**100.0%**	**320,017**	**100.0%**	**364,245**	**100.0%**	**24,458**

Source: National Bank, based on the data submitted by banks.
*Total income and financial result refer to 2018.

In 2018, the number of foreign owned banks (eleven), as well as the number of foreign bank subsidiaries (six) remained unchanged compared to the end of 2017.

The banking system of the Republic of North Macedonia is predominated by banks in predominant ownership of foreign shareholders, in all major balance sheet positions. Their dominance is most pronounced in the credit activity (80.0%) and in the financial result (76.5%). In 2018, the share of foreign shareholders in the total capital and reserves decreased by 3.9 percentage points, mostly due to the changes in the ownership structure of one bank, where foreign shareholders (predominantly investment funds) sold their shares to several domestic non-financial companies. Hence, the share of financial institutions in the ownership structure of the banking system decreased by 4

Chart 7
Herfindahl index*
in index points



Source: National Bank, based on the data submitted by banks.
*Herfindahl index is calculated according to the formula $HI = \sum_{j=1}^{n} (S_j)^2$, where S is the share of each bank in the total amount of the analyzed category (e.g., total assets, total deposits, etc.), where *n* denotes the total number of banks in the system. When the index ranges from 1,000 to 1,800 points, the concentration ratio is considered to be acceptable.

Table 2
Indicators of concentration of major balance sheet positions in the three and the five largest banks
in %

Position	31.12.2017		31.12.2018	
	CR3	CR5	CR3	CR5
Total assets	57.8	74.6	57.3	74.5
Loans to households	61.5	78.8	60.3	77.7
Loans to non-financial companies	53.0	73.4	49.9	72.3
Deposits from households	70.1	80.0	69.6	80.0
Deposits from non-financial companies	51.1	76.6	50.7	75.5
Financial result*	76.1	89.7	79.6	94.4
Total revenues*	63.2	77.6	62.6	78.2

Source: National Bank, based on the data submitted by banks.
*Total income and financial result refer to 2018.

percentage points, as is the approximate increase in the share of non-financial companies. According to the country of origin of foreign shareholders, the highest share is that of the shareholders from Greece and Slovenia, whose share in the total capital and reserves is 19.5% and 14.8%.

In terms of size, several banks are key for the total banking sector and the domestic economy, and the growth of medium-sized banks increasingly reduces the importance of the three largest banks in the system. According to the Herfindahl index, the concentration in the banking system in 2018 continued with the trend of decrease, which is most pronounced in the part of lending. All values of this index are within the interval for its acceptable values. CR5 and CR3 indicators[4] also registered an annual decline in almost all segments of banking operations, except for the financial result, where the indicators for the shares of the three and five largest banks in the financial result increased. The spread between the bank with the largest (22.7%) and the bank with the lowest share in the assets (0.5%) of the system is almost at the same high level of the last year, and seven banks constitute less than 2.5%.

[4] CR5 indicator, i.e. CR3 shows the share of a certain analyzed category (e.g. assets) of the five, i.e. the three banks with the highest value of that category in the total amount of that analyzed category (e.g. in the total assets) in the banking system.

II. Bank risks

"Heat" map for the stability of the Macedonian banking system

On the cut-off date of this Report, most indicators used to monitor the stability of the banking sector have the best values in the last five and ten years. An exception is registered in profitability, which is in the "pink zone", i.e. among the lower levels achieved in the last five years, due to the reduced interest margin as of 31 December 2018.

The affiliation to the percentile coverage is determined on the basis of quarterly data set for the indicators in the last 10 years (from 31 December 2008 to 31 December 2018)

Component	12/31/2017	3/31/2018	6/30/2018	9/30/2018	12/31/2018
Insolvency risk					
Credit risk					
Liquidity risk					
Market risks and indirect credit risk					
Profitability					

The affiliation to the percentile coverage is determined on the basis of quarterly data set for the indicators in the last 5 years (from 31 December 2013 to 31 December 2018)

Component	12/31/2017	3/31/2018	6/30/2018	9/30/2018	12/31/2018
Insolvency risk					
Credit risk					
Liquidity risk					
Market risks and indirect credit risk					
Profitability					

Legend (percentile ranks):

0-10 percentiles	Historically high level of risk - the realized level of risk is among the 10% worst realized levels in the last 5/10 years
10-20 percentiles	Realized level of risk is between 10% and 20% worst realized levels in the last 5/10 years
20-40 percentiles	Realized level of risk is between 20% and 40% worst realized levels in the last 5/10 years
40-60 percentiles	Realized level of risk is between 40% and 60% worst (best) realized levels in the last 5/10 years
60-80 percentiles	Realized level of risk is between 20% and 40% best realized levels in the last 5/10 years
80-90 percentiles	Realized level of risk is between 10% and 20% best realized levels in the last 5/10 years
90-100 percentiles	Historically low level of risk - the realized level of risk is among the 10% best realized levels in the last 5/10 years

The banking system stability heat map includes five components: insolvency risk, credit risk, liquidity risk, market risks and profitability. For each component, a sum of the normalized values of selected indicators is calculated, by using the method of a so-called empirical normalization on quarterly data set covering the last ten (31 December 2008 - 31 December 2018) and the

last five years (31 December 2013 - 31 December 2018). Afterwards, taking into account the calculated aggregate values for each component, its affiliation to appropriate percentile coverage has been determined (seven percentile coverages are introduced), for each date, separately. Each percentile coverage has its own colour, and the spectrum of colours varies from green (that, in historical sense, corresponds to lower levels of risk) to red (that, in historical sense, corresponds to higher levels of risk). The preparation of the presented "heat" maps takes into account 23 indicators, arranged by individual components as follows:

Insolvency risk	Credit risk	Liquidity risk	Market risks	Profitability
Capital and reserves / assets	Default rate of credit exposure to non-financial sector	Liquid assets / total assets	Open FX position / regulatory capital	Return on average assets
Capital adequacy ratio	Restructured and prolonged loans / total loans to households and non-financial companies	Liquid assets / short-term liabilities	Gap between interest-rate-sensitive positions / regulatory capital	Net interest income / average assets
Tier 1 ratio	NPL ratio (non-financial sector)	Loans / deposits	Net-weighted position / regulatory capital	Operating expenses / total regular income
Non-performing loans net of loan loss reserves for non-performing loans (non-financial sector) / regulatory capital	Total loan loss reserves / non-perofming loans (non-financial sector)	Liquid assets / household deposits	Loans with currency component / total loans	Impairment losses and special reserves / net-interest income
	Average level of riskiness of total credit exposure		Loans with adjustable and variable interest rate / total loans	
	Impairment losses and special reserves (income statement)/ loans to non-financial sector			

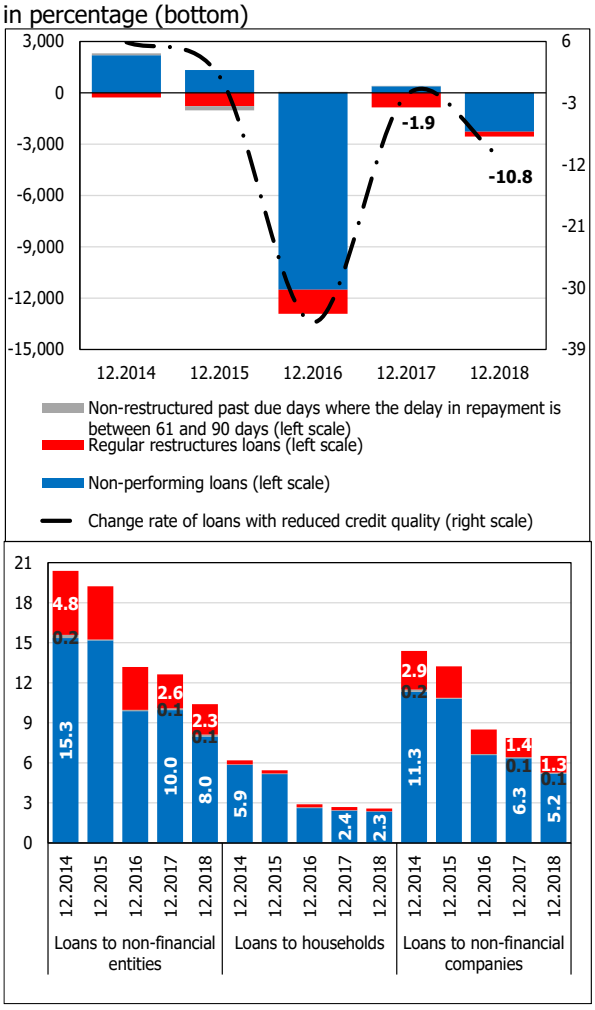
1. Credit risk

In 2018, non-performing loans decreased significantly, whereby their share in the total loans to the non-financial sector reduced to 5.2%. In the portfolio comprised of non-financial companies, non-performing loans decreased as a result of selling of non-performing claims from one non-financial company, conducting mandatory write-offs by banks, and to a lesser extent due to foreclosures. In contrast, non-performing loans to households registered an annual growth, as a result of the increase in non-performing consumer loans, amid simultaneous fall in non-performing housing loans. Regular loans with lower credit quality register divergent movements, i.e. regular restructured loans decreased, while past due loans where the delay in the repayment is between 61 and 90 days (and still have regular status) increased, whereby they minimally reduced their share in the total loans, to the level of 1.3%. The write-off is the most frequent and most extensive form of reduction of non-performing loans in the banks' balance sheets. The high coverage of the non-performing loans with impairment (76.3%) was also maintained in 2018, which, in conditions of satisfactory scope and quality of own funds, facilitates the management of non-performing loans and limits the negative effect on the banks' solvency, from the possible complete default on these loans.

Credit support to households registered a relatively high and steady growth given the greater preference of banks to finance this segment of the loan portfolio due to the positive effects of the larger dispersion of the risks in terms of the amount of loans and number of clients. However, lending to households includes and combines several characteristics that may represent a potential source of materialization of credit risk: the long maturities and the more frequent extensions of the repayment term, the still high share of loans with a currency component, the application of variable and adjustable interest rates in credit contracts, easing of the requirement for the amount of the ratio between the monthly obligation for repayment of the loan and the income of natural persons (in some of the banks), the greater concentration of the debt with the households with lower incomes etc. Banks manage these potential risk factors relatively well in this portfolio.

The growth of loans to non-financial companies accelerated, but still quite lags behind that of the households. The quality of this part of the loan portfolio is largely conditioned by the operational success and results of the business activities of the three most important economic activities. Despite some improvements in the performances of companies, the risks of the lending to non-financial companies should be carefully monitored due to the relatively high share of bullet loans, loans with an approved grace period and loans with prolonged maturity, as well as the still poor liquidity and efficiency indicators of the domestic corporate sector.

Chart 8
Non-performing loans and regular loans to non-financial entities with reduced credit quality*, annual growth (top) and share in total loans to non-financial entities (botom)
in millions of denars (top) in percentage
in percentage (bottom)



Source: NBRNM's Credit Registry, based on data submitted by banks.
*For the purposes of this analysis, regular loans with reduced credit quality denote regular restructured loans and regular non-restructured loans where the delay in the payment is between 61 and 90 days.

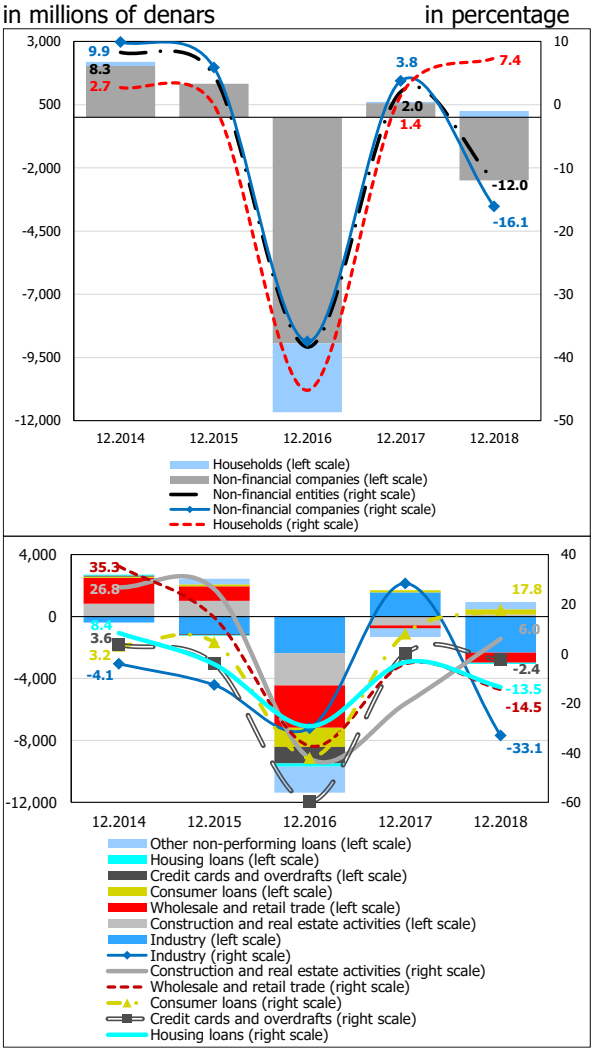
1.1 Materialization of credit risk in banks' balance sheets

In 2018, the total non-performing loans to the non-financial sector decreased by 12.0% (by Denar 2,269 million), which is a strong decline compared with the small upward movement registered in the previous year. Analyzed by individual credit subportfolios, non-performing loans register divergent movements. The non-performing credit portfolio comprised of households increased by 7.4% or by Denar 247 million, which is the largest growth after the period of the global financial crisis. Namely, this growth is entirely attributed to non-performing consumer loans (which increased by Denar 329 million, or by 17.8%[5]), which can be an indicator of a certain materialization of the risks of the faster growth and eased terms of consumer lending in the past period[6]. In contrast, non-performing housing loans decreased in 2018, by Denar 66 million (or by 13.5%[7]).

[5] The growth of non-performing consumer loans in 2017 was Denar 139 million, or 8.1%.
[6] Source: Bank Lending Survey. Changes in the individual credit terms of consumer lending are explained in details at the beginning of the section 1.2 Potential sources of future materialization of credit risk.
[7] In 2017, non-performing housing loans decreased by only Denar 18 million, or by 0.02%.

Chart 9
Annual growth of non-performing loans to non-financial entities, by individual sectors (top) and individual activities and credit products (bottom)

in millions of denars in percentage



Source: NBRNM's Credit Registry, based on data submitted by banks.

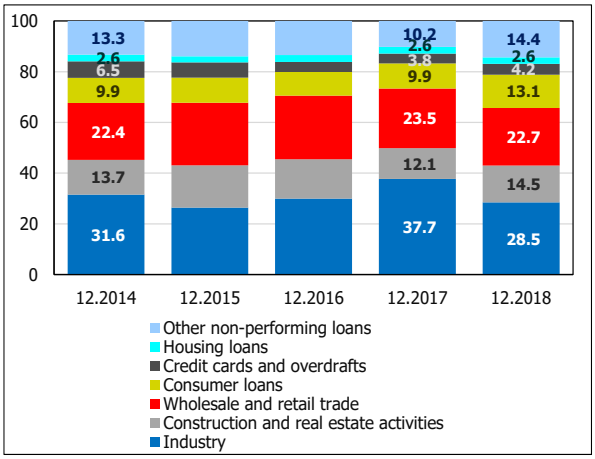
Following the growth in 2017, non-performing loans to non-financial companies decreased significantly during 2018 (by Denar 2,494 million, or by 16.1%), mostly due to the sale of non-performing claims from one non-financial company by three banks. The remainder of the reduction of the "bad" loans is an effect of the mandatory write-offs, and to a lesser extent results from the closing of some uncollected claims by the means of foreclosure. Analyzed by individual activities, the regulatory write-offs and the sale of non-performing claims from one non-financial company conditioned most of the downward movement of non-performing loans in the activities "wholesale and retail trade" (which decreased by Denar 639 million, or 14.5%), "manufacturing industry"[8] (whose non-performing loans decreased by Denar 3,071 million, or almost 50%)[9] and "information and communication" (by Denar 133 million, or 37.9%). In contrast, in 2018, non-performing loans registered an increase in "construction" (by Denar 411 million, or by 22.1%), "electricity, gas, steam and air-conditioning" (by Denar 545 million, or by 61.1%) and in "transport and storage" (by Denar 222 million, or by 56.8%)[10] which arises from the shift to a non-performing status with several clients from the individual activities.

[8] The annual reduction of non-performing loans of the activity "production of metals, machines and equipment", in addition to the sale of non-performing claims from one non-financial company, is also caused by the write-off of a loan of a company under bankruptcy. These two events condition about 85% of the reduction of non-performing loans in the "manufacturing industry".

[9] In 2017, non-performing loans of the clients from the trade activity decreased by only Denar 192 million, or by 4.2%, while non-performing loans of the clients from the manufacturing industry increased by Denar 1,612 million, or by 35.4%.

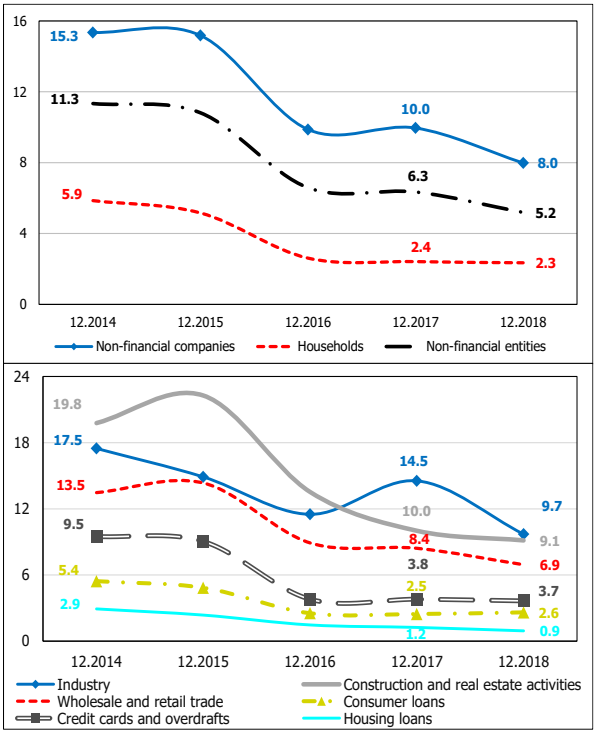
[10] In these activities, non-performing loans registered a downward movement at the end of 2017, in the amount of Denar 537 million, or 22.4% in "construction", Denar 263 million, or 40.2% in "transport and storage" and Denar 47 million, or 5.0% in "electricity, gas, steam and air-conditioning".

Chart 10
Structure of non-performing loans to the banking system, by individual activities (non-financial companies) and credit products (households)
in %



Source: NBRNM's Credit Registry, based on data submitted by banks.

Chart 11
Rate of non-performing loans to non-financial entities, by individual sectors (top) and by individual activities and credit products (bottom)
in %

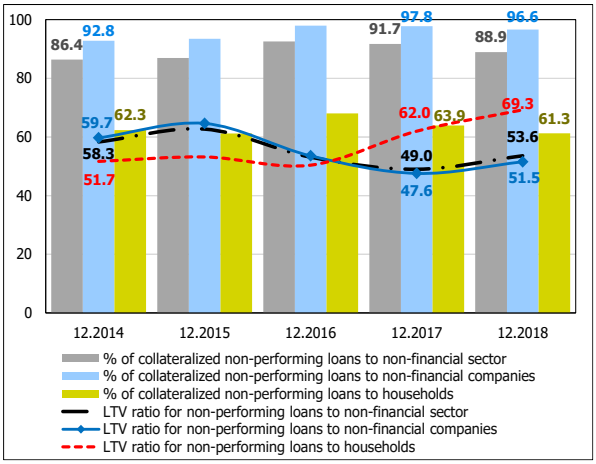


Source: NBRNM's Credit Registry, based on data submitted by banks.

Regular loans with reduced credit quality[11] decreased during 2018. Namely, regular restructured loans (which likely would have received a non-performing status if the banks had not changed the credit conditions of the clients who face financial challenges) decreased (by Denar 294 million, or by 6.8%), while regular loans where the delay in the repayment is from 61 to 90 days increased by Denar 30 million, or by 12.0%. Analyzed by sectors, the movements in this segment of the banks' loan portfolio were mostly concentrated in non-financial companies. Namely, the growth of banks' claims in which the period of the delay in the repayment of principal is between 61 and 90 days, as another possible "source" of new non-performing loans, is registered only in non-financial companies[12]. At the same time, the reduction of restructured regular loans is almost entirely concentrated in non-financial companies and is a consequence of the shift to a non-performing status of several major clients[13] predominantly from the "wholesale and retail trade". This indicates that some of the previous restructurings have not enabled regular debt servicing by clients, and with some delay, the claim has become non-performing.

[11] For the purposes of this analysis, regular loans with reduced credit quality denote regular restructured loans and past due regular non-restructured loans where the delay in the repayment is between 61 and 90 days.
[12] Given the fact that only 1.3% of past due loans between 61 and 90 days of non-financial companies have received a non-performing status in January 2019, the collection of the loans with past due part of 61 to 90 days is considered to be solid. As for households, this percentage is higher and amounts to 4.1%, while for the overall non-financial sector it amounts to 1.6%.
[13] Shift to a non-performing status is also registered in some other restructured claims of clients from "construction" and "food industry".

Chart 12
Non-performing loans for which collateral and LTV ratio have been established, by individual sectors
in %

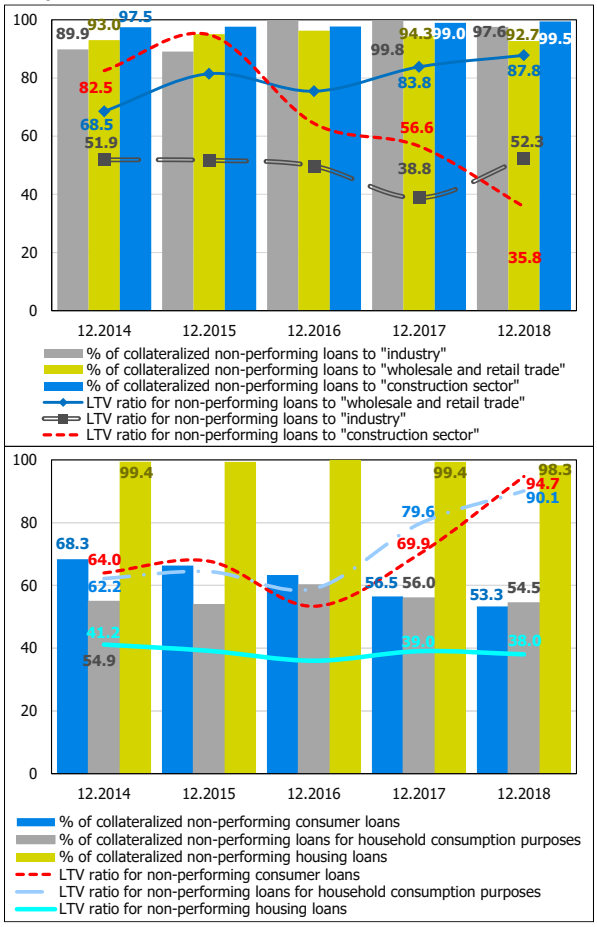


Source: NBRNM's Credit Registry, based on data submitted by banks.
Note: Banks do not report amount of the collateral, in cases when the collateral is in the form of a guarantor and/or bill of exchange or co-borrower, which contributes to the higher value of the LTV ratio for households. This is especially relevant to the credits intended for consumption (including credit cards and overdrafts), where a guarantor and/or bill of exchange is a relatively frequent type of collateral.

The quality of the banks' loan portfolio improved in 2018. The share of non-performing loans in total loans to the non-financial sector decreased by 1.2 percentage points to 5.2%[14] at the end of 2018. If the amount of non-performing loans is increased by the amount of regular loans with reduced credit quality, then their share in total loans to non-financial entities is 6.5% (7.9% at the end of 2017). The improvement of the share of non-performing loans in total loans was especially pronounced in the portfolio of non-financial companies, where 8.0% of total loans are non-performing (10.0% as of 31 December 2017). Analyzed by individual activities, there is an especially noticeable improvement of almost 5 percentage points, of the share of non-performing loans in total loans to the clients from the "industry"[15] (9.7% as of 31 December 2018 and 14.5% as of 31 December 2017)[16]. Downward trend, but weaker, is also present in the other activities whereby this share is no longer double-digit in any of the activities. The reduction of the rate of non-performing loans to non-financial companies also results from their accelerated lending[17], which is associated with the increased demand for loans by the corporate sector, primarily in the area of long-term lending due to the increased needs for investments in inventories and working capital, the need for restructuring debt and loans from other banks. In the loan portfolio of households, the share of non-performing loans in total loans decreased by only 0.1 percentage point, but this is also the lowest level of the indicator within this sub-portfolio. This ratio increased by minimal 0.1 percentage point in consumer loans (and reached a level of 2.6%), while in the segment of housing loans, the share of non-performing loans in total loans improved by 0.3 percentage points and reduced to an extremely low level of 0.9%.

[14] The historically lowest level of this indicator of 5% is registered at the end of the third quarter of 2018.
[15] Industry includes manufacturing industry, quarrying and electricity, gas, steam and air-conditioning.
[16] The share of non-performing loans in total loans in the "industry" for the first time reduced to a one-digit level at the end of August 2018.
[17] Source: Bank Lending Survey conducted on a regular quarterly basis by the National Bank.

Chart 13
Non-performing loans for which collateral and LTV ratio have been established, by individual activities of non-financial companies (top) and credit products to households (bottom)
in %



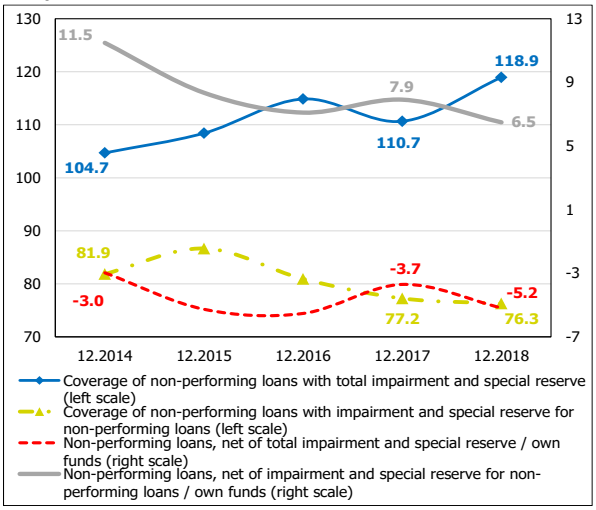
Source: NBRNM's Credit Registry, based on data submitted by banks.
*Banks do not enter amount of the collateral, in cases when the collateral is in the form of a guarantor and/or bill of exchange or co-borrower.

Loans to non-financial companies occupy a dominant part (78.2%) of the non-performing loan portfolio of banks. In this segment of the loan portfolio, the shares of non-performing loans to non-financial companies from the "industry" and "wholesale and retail trade" are the highest, which account for slightly more than half of the total amount of non-performing loans. However, their share decreased by almost 10 percentage points compared to the previous year as a result of the write-offs conducted by banks and sale of some non-performing claims. The same banks' activities also reduced the share of non-performing loans to non-financial companies in the total non-performing loans by almost 4 percentage points[18]. In contrast, an increased share in the total non-performing loans is registered in "construction and activities related to real estate" (from 12.1% to 14.5%), "transport and storage" (from 2.1% to 3.7%) and "agriculture, forestry and fishing" (from 1.1% to 3.4%). From the households' portfolio, non-performing consumer loans have the highest share in the total non-performing loan portfolio of banks (13.1%)[19].

The negative effects of the possible complete default on non-performing loans, i.e. the volume of unexpected losses on this basis, have a limited impact on the solvency position of the banking system. Namely, non-performing loans are already solidly provisioned in the banks' balance sheets (with 76.3%), and the remaining part, assuming its complete default, would "impair" only 6.5% of the total own funds of the banking system. The coverage of non-performing loans is slightly higher in the loan portfolio of non-financial companies (76.8%), and is especially high in wholesale and retail trade (81.9%), while housing loans are characterized by the lowest provisioning (60.4%), which corresponds to the lower risk of this credit product. In addition, for about 88% of the non-performing loans, some collateral has been established, whose estimated value is almost twice

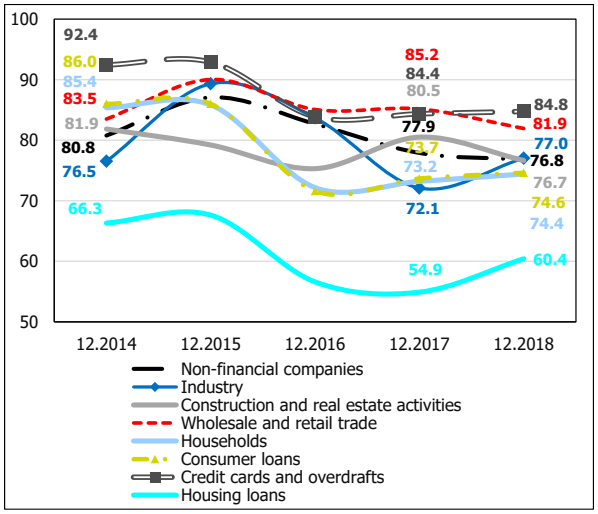
[18] At the end of 2017, loans to non-financial companies accounted for 82.0% of the total non-performing loans.
[19] Compared to the end of 2017, consumer loans register an increase in the share in the non-performing loan portfolio of banks of 3.3 percentage points.

Chart 14
Coverage of non-performing loans with impairment
in %



Source: National Bank, based on the data submitted by banks.

Chart 15
Coverage of non-performing loans with impairment by individual activities and credit products
in %



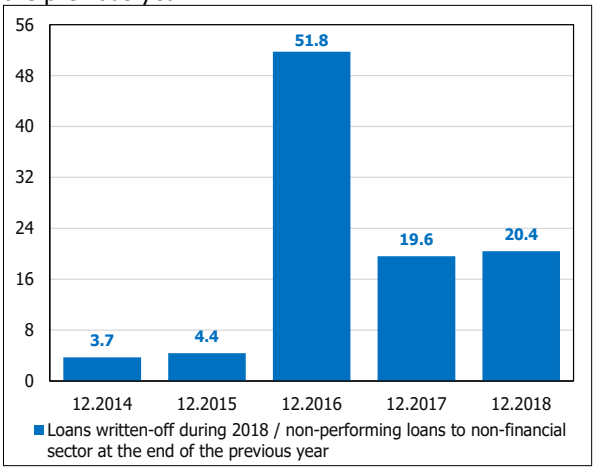
Source: NBRNM's Credit Registry, based on data submitted by banks.

higher than the amount of the non-performing loans for which the collateral has been established. The high coverage of non-performing loans with collateral is mainly a feature of the portfolio of non-financial companies, while in households, for about 60% of the non-performing loan portfolio, certain collateral has been established. The weaker collateralization of this segment of the loan portfolio results from non-performing consumer loans, where the share of collateralized[20] loans is slightly above 50% of the total non-performing consumer loans. However, the coverage of these loans with impairment is at a solid level of 74.6%, which is almost identical to the total loan portfolio of households.

The write-off of non-performing loans is the most frequent and most significant form of reduction of these loans from the banks' balance sheets in the past three years. At the beginning of 2018, four banks made sales of non-performing loans. However, these activities are usually of an irregular character, which is associated with the weak development and the functioning of the market of non-performing claims. The foreclosed property based on uncollected claims registered a decline in the banks' balance sheets (reduction of almost 35% at the end of 2018), which is partly a result of the sales of this property, but it is largely a consequence of the absence of new foreclosures (in conditions of mandatory impairment of 20% annually). Almost 40% of non-performing loans to non-financial sector are loans where the banks have tried to help their clients overcome their current financial challenges by changing the contractual terms and characteristics of approved loans. In the past three-year period, restructured non-performing loans registered a strong decline (of 20.4% or Denar 1,325 million only in the last year), which is mostly a consequence of the conducted write-offs of these claims. Hence, the mandatory write-offs of non-performing loans, that are fully provisioned at least in the last two years, are the most frequent and most extensive

[20] Collateralized loans are the loans in which there is some collateral (including a guarantor, bill of exchange, etc.).

Chart 16
Written-off non-performing loans
in percentage of non-performing loans at the end of the previous year

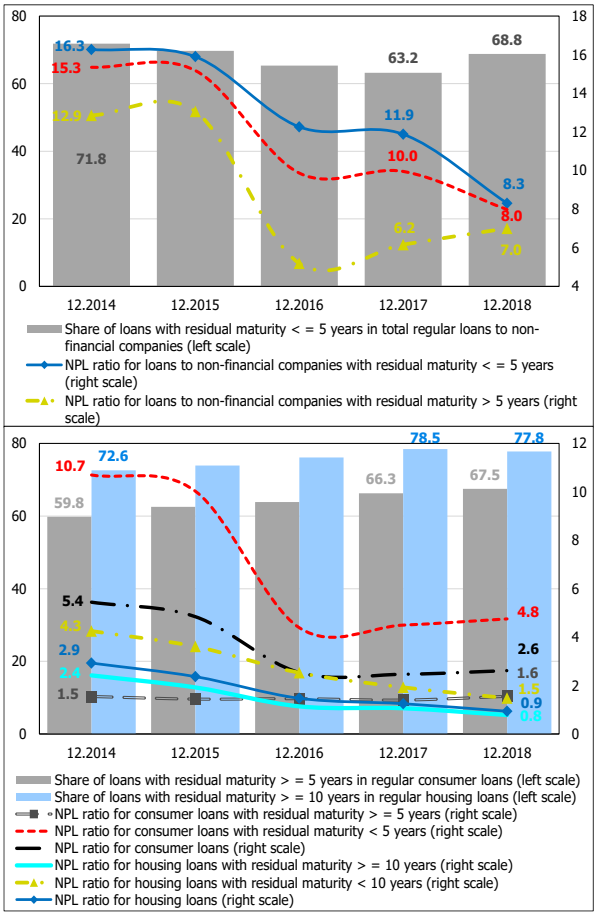


Source: National Bank, based on the data submitted by banks.

form of reduction of these loans in the last three years. During 2018, banks wrote off Denar 3,825 million, i.e. 20.4% of total non-performing loans at the end of 2017[21]. Given the fact that 35.0% of non-performing loans as of 31 December 2018 are fully covered by impairment, the mandatory write-off of non-performing loans will also continue in the next period. Namely, the loans that are fully provisioned in the next two years (i.e. one year, after 1 July 2019, according to the new regulation on credit risk management) will be written off, if they are not paid off in the meantime.

[21] Of the total written-off loans to the non-financial sector, 89.6% account for mandatory write-offs of non-performing loans that are fully provisioned, at least in the last 2 years.

Chart 17
Share of loans with selected residual maturities in total regular loans and NPL ratio for non-financial corporations (up) and housing and consumer loans (down)
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

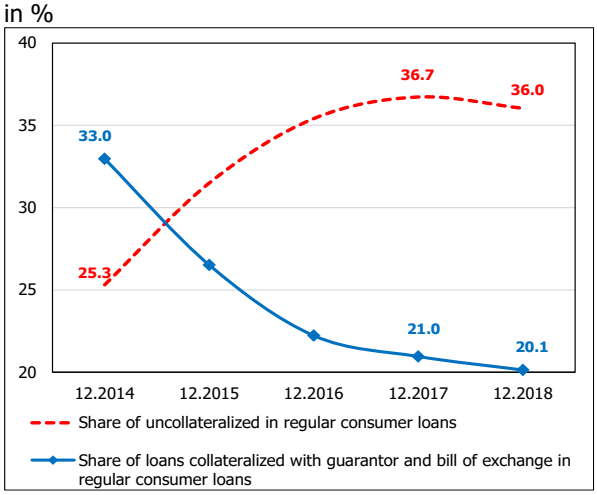
1.2 Potential sources of future credit risk materialization

Household lending has registered relatively high and stable growth (averaging about 10% a year) in the last 6-7 years, prompted by several factors, both on the supply and on the demand side of these loans. Most household loans have been intended to finance consumption of natural persons[22], accounting for about 70% of the total loans in this sector. However, since mid-2015, housing loans have been the fastest growing segment of the household loan portfolio with annual growth rates currently ranging around 15% and a few percentage points higher than the annual growth of consumer loans as a credit product with the highest share in the loans to this sector (54.4% as of 31.12.2018). Also, the increased housing loans rose their share in total household loans to almost 30% as of 31.12.2018 (for comparison, this share was 25% at the beginning of 2015). Higher banks' propensity for household lending results from the positive effects of greater risk dispersion in terms of the amount of loans and the number of clients, as well as from the further improvement of the banks' expectations and assessments of the risk profile of credit demand amid still low indebtedness of this sector and favorable labor market performance. Significant factor for the intensified lending to this credit market segment is the solid household discipline in settling their due liabilities.

However, one should not neglect some of the relatively unfavorable features that may represent a potential source of credit risk materialization Thus, growth is largely generated by longer-term[23] household loans where clients' creditworthiness is less certain, especially considering the still high (yet falling) share of loans with currency component[24] and loans with variable and

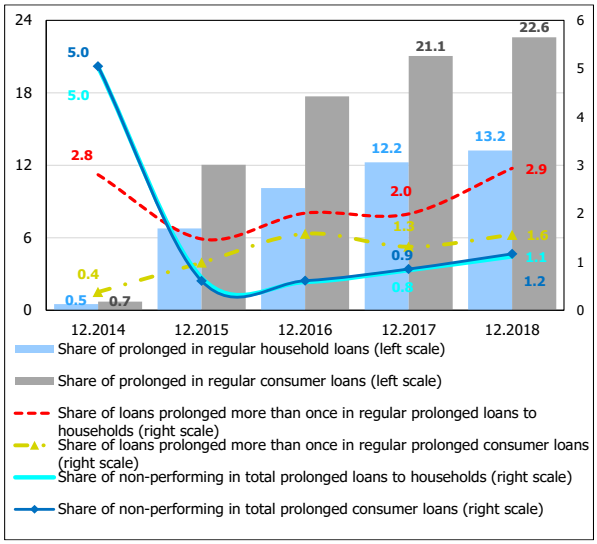
[22] Besides consumer loans, these include credit card loans and overdrafts, car and other loans.
[23] At the end of 2018, long-term household loans accounted for 91.1% of total household loans, while at the end of 2014, their share was 86.1%.
[24] At the end of 2018, regular loans with a currency component approved to households accounted for 45.3% of total regular loans in this sector (46.3% at the end of 2017). For comparison, this share in regular loans to non-financial corporations is lower and amounts to 37.8% (38.5% at the end of 2017). Compared to the end of 2014, the share of regular loans with currency component in the total regular loans of non-financial corporations decreased by 11.2 percentage points, while in the regular credit portfolio of households, this share decreased by 2.5 percentage points.

Chart 18
Uncollateralized consumer loans backed only by sureties and promissory notes
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

Chart 19
Prolonged household loans
in %



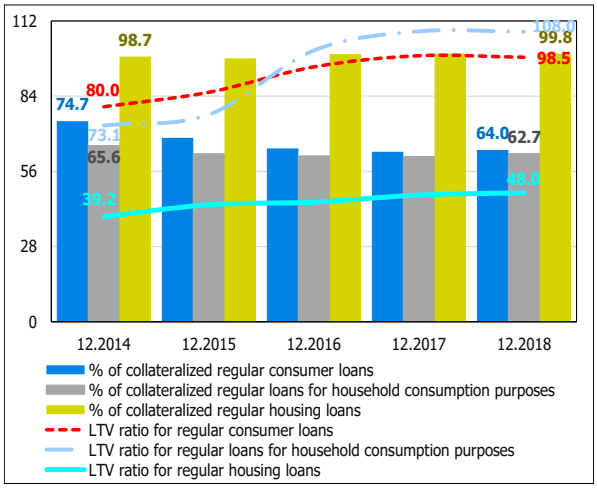
Source: National Bank's Credit Registry, based on data submitted by banks.

adjustable interest rate[25]. Analyzing by credit product, about two-thirds of regular consumer loans have residual maturity longer than or equal to 5 years, and almost 80% of housing loans have maturity longer than 10 years. However, the quality of consumer loans with residual maturity over 5 years is relatively solid[26], while consumer loans with residual maturity up to 5 years are marked by twice as high, yet moderate rate of non-performing loans (4.8%) compared to total consumer loans (2.6%). Although the structure of consumer loans is dominated by loans that are poorly backed[27], the fact that both the surety and the promissory note are a solid source of collection in case of default, as well as the executive clause in loan agreements[28] should not be overlooked.

In the last two years, some banks have seen a slight easing of banks' requirement for the ratio between monthly loan installment and natural persons' income. Slightly more than a third of the total credit exposure to households is concentrated in households with a net wage equal to or less than the average net salary for 2018. This percentage is even higher in consumer loans (45.5%). However, the potential high debt risk in this segment is reduced by the fact that households with a net wage equal to or less than the average net wage for 2018 have had the lowest average household indebtedness. On the other hand, the real creditworthiness of households can be obscured by the intensified trend of prolonging the maturity[29] of household loans, which is particularly pronounced in consumer loans[30]. However, the share of non-performing loans prolonged to total prolonged household loans is low (1.1%)[31].

[25] As of 31.12.2018, regular loans with variable and one-sided adjustable interest rate make up 22.6% and 28.0%, respectively, of total regular household loans (22.1% and 35.9%, respectively, as of 31.12 .2017).
[26] At a rate of non-performing loans of 1.6% as of 31.12.2018.
[27] Poorly secured loans are loans where there is no secondary source of loan repayment or it is uncertain in the event of default (for example, in cases where the loan is secured by a surety and a promissory note).
[28] Under the Law on Executions and the Law on Notaries. The National Bank does not have any data on the amount of loans with such clause included in the agreements.
[29] At the end of 2018, 13.2% of regular household loans were prolonged (for comparison, at the end of 2014, this share was 0.5%, and in 2017 it was 12.2%).
[30] At the end of 2018, regular extended consumer loans recorded an annual growth of 19.0%, while the share of these loans in total regular consumer loans was 22.6% (i.e. 0.7% at the end of 2014). This share is by almost 10 percentage points higher than the regular household loan portfolio.
[31] This share is similar in the prolonged consumer loans (1.2%).

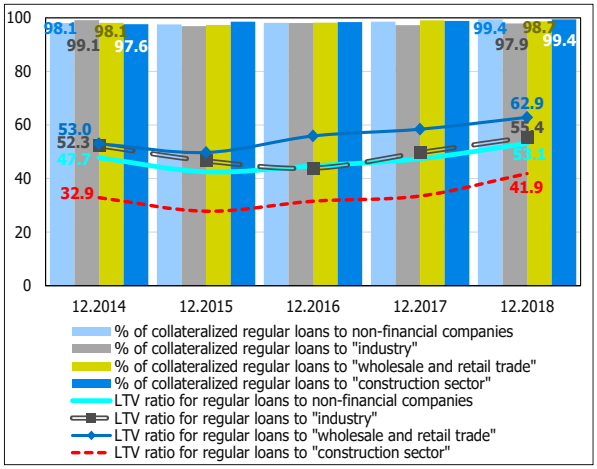
Chart 20
Regular household loans, by credit products with collateral and LTB ratio
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

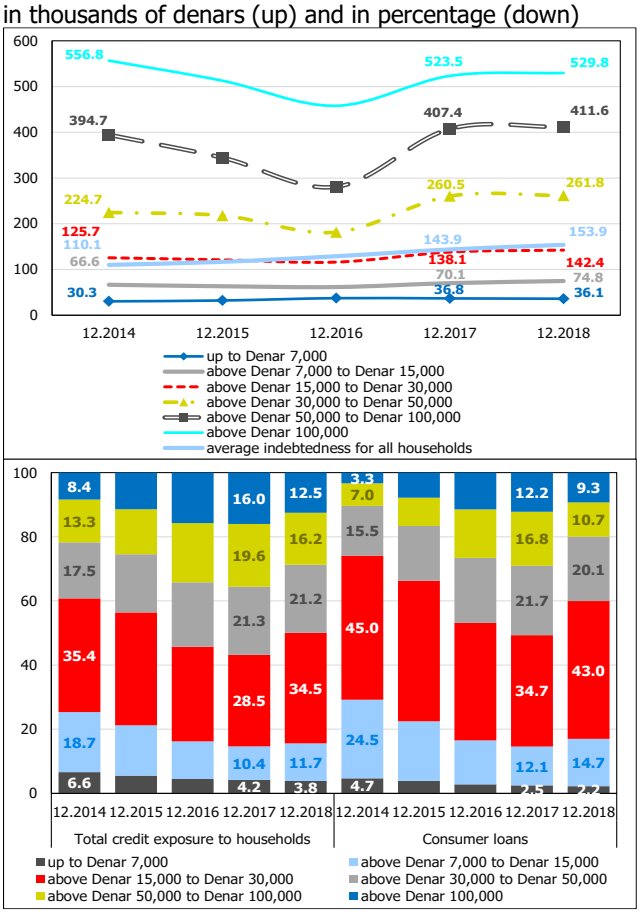
Banks do not enter the amount of the collateral, in cases when the collateral is in the form of sureties or promissory notes or co-borrower, which contributes to the higher LTV ratio for consumer loans, consumer financing loans and housing loans.

Chart 22
Regular loans to non-financial companies, by activity with collateral and LTB ratio
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

Chart 21
Average debt by household (up) and structure of credit exposure to households and consumer loans (down), by monthly income
in thousands of denars (up) and in percentage (down)

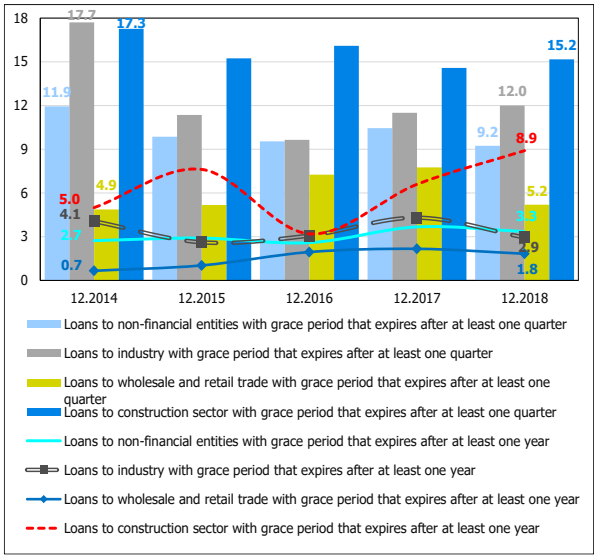


Source: National Bank, based on data submitted by banks.

Growth of loans to non-financial corporations accelerated and doubled compared to the previous year, but still lags behind the growth of household loans. Loans to non-financial corporations still constitute almost half of the total regular non-financial sector loans. About 80% of total loans to non-financial corporations have been extended to three sectors (industry, wholesale and retail trade, and construction and real estate activities)[32], whose operating and business performances are particularly important for the quality of the banks' loan portfolio. Moreover, non-performing loan to total loan ratio is the

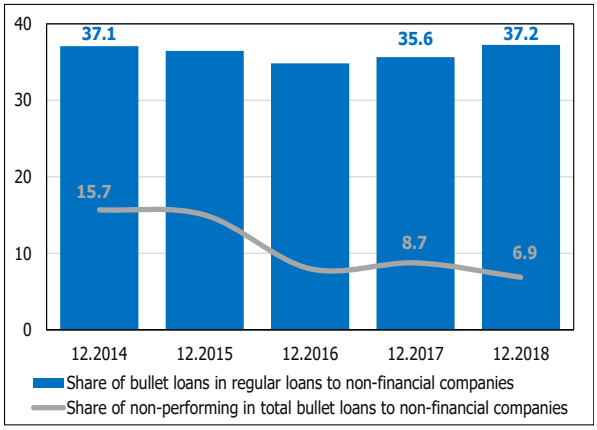
[32] In 2018, as well, most of the credit support was directed to these activities, which constitute 68.6% of the total growth of loans to non-financial corporations.

Chart 23
Loans with ongoing grace period of non-financial corporations, by activity
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

Chart 24
Bullet loans to non-financial corporations
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

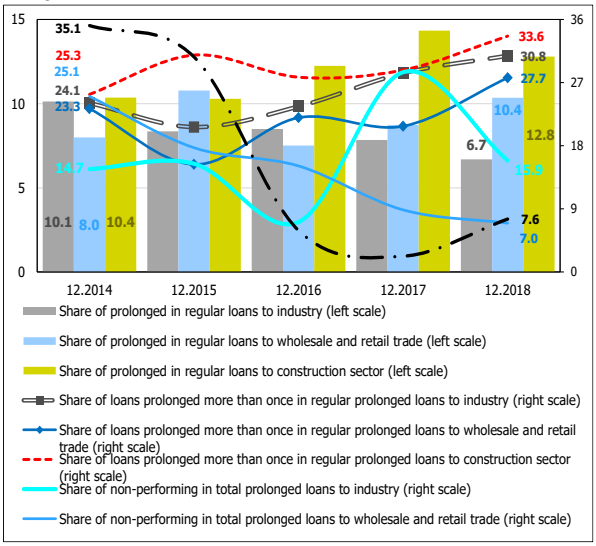
highest in the credit portfolio comprised of banks' clients from these sectors[33], despite the improvement in 2018.

Banks usually "back" the credit support for this sector by establishing collateral (99.4% of regular loans to non-financial companies have been collateralized), whose appraisal is usually more complicated and imprecise (in particular, compared to the appraisal of apartments), given the specificity of the collateral offered by domestic companies (equipment, machinery, facilities, warehouse, etc.), that is, no functional market for this type of assets and property. In the Strategy[34] for better non-performing loans management, one of the priorities is to take measures and actions to harmonize assessment methodologies with the international and European standards in this area, as well as to facilitate the process of alienation of real estate foreclosed by banks by establishing a special register of properties owned by banks that have been foreclosed and put on sale. These activities, as well as other activities included in the strategy, aim to improve the process of assessing property value when establishing collateral, as well as to facilitate the sale of collateralized property in case of default. The ratio between the amount of regular loans to non-financial corporations and the estimated value of the established collateral is relatively solid, i.e. the estimated value of collateral is twice as high as the amount of loans backed by collateral.

Of the other structural features of lending to non-financial corporations, the most noticeable is the residual maturity which is more than two thirds of the total regular loans of non-financial corporations, and relatively short of less than 5 years (41.4% of the regular loans of non-financial corporations have a residual maturity of less than 1 year). Usually, the sources of assets with shorter maturities are more used to finance working

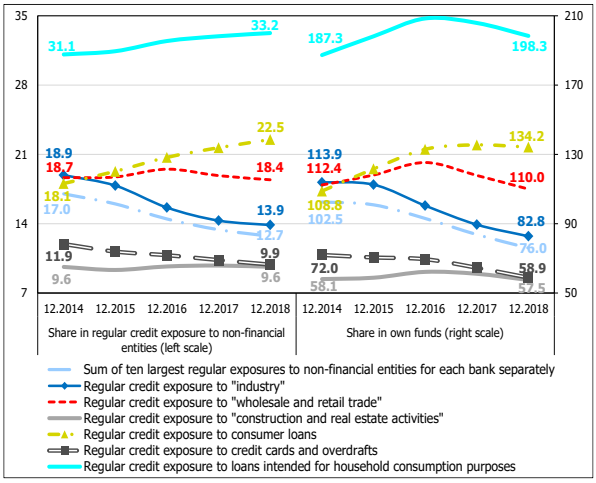
[33] The share of non-performing loans is the highest in the total loans in some manufacturing branches (for example, in other manufacturing activity, this indicator was 15.1% as of 31.12.2018), supply of electricity, gas, steam and air conditioning (17.4%), mining and quarrying (15.1%) and construction (11.2%).
[34] The Strategy was adopted by the Government of the Republic of North Macedonia in December 2018.

Chart 25
Prolonged loans of non-financial corporations, by activity
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

Chart 26
Concentration of regular credit exposure to non-financial corporations and by selected activities and credit products
in %



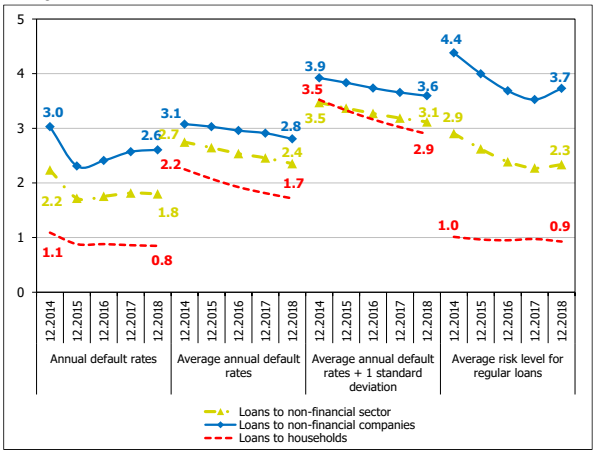
Source: National Bank's Credit Registry, based on data submitted by banks.

capital and ongoing activities of domestic companies, rather than to invest in and support larger projects. Regarding the other features of loans to non-financial corporations, we should also highlight the relatively high share (slightly below 40% of regular loans) of bullet loans (for more details on this type of loans see the annex to this report, on the structural features and quality of bullet loans). Relatively high, yet reduced in 2018 (from 10.4% to 9.2%), is the share of loans with a grace period that expires after at least one quarter in the total regular corporate loans. The share of these loans is slightly higher in the construction sector, and in industry (15.2% and 12.0%, respectively as of 31.12.2018). If we add the relatively solid share of loans with prolonged maturity (slightly less than 10% of the total regular loans to non-financial corporations), it can be concluded that banks take into account the needs of companies in structuring credit features, although consciously accepting probably greater uncertainty about the timely repayment of loans.

Regarding the concentration by activity, 42.0% of the total regular credit exposure to the non-financial sector is to the industry, wholesale and retail trade, and construction and real estate activities, but at the same time, these are the activities that have the greatest added value to the overall economic activity in the country. Most of the regular credit exposure to natural persons is for consumption, but it is quite diversified and consists of a number of smaller credit agreements.

The ten largest regular exposures to the non-financial sector of ea ch bank account for 12.7% of the total regular credit exposure. Given the high credit quality of the largest regular credit exposures, banks reported impairment of only 2.2% of the value of these exposures, due to which the net amount of these exposures accounts for about 75% of the banking system's own assets.

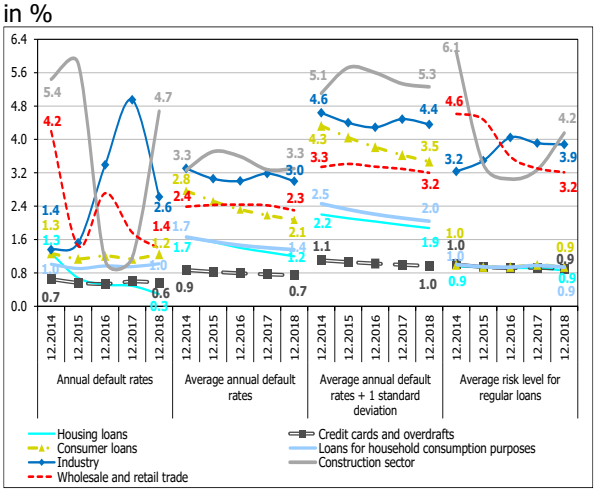
Chart 27
Annual rates of default and average risk level of regular loans, by sector
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

The annual rate of default is calculated as a percentage of performing credit exposure, which for a period of one year transforms into exposure with non-performing status. The average annual default rates and the standard deviation are calculated from the annual default rates registered from 31.3.2009 to the date of calculating the average i.e. the standard deviation.

Chart 28
Annual rates of default and average risk level of regular loans, by sector and credit product
in %

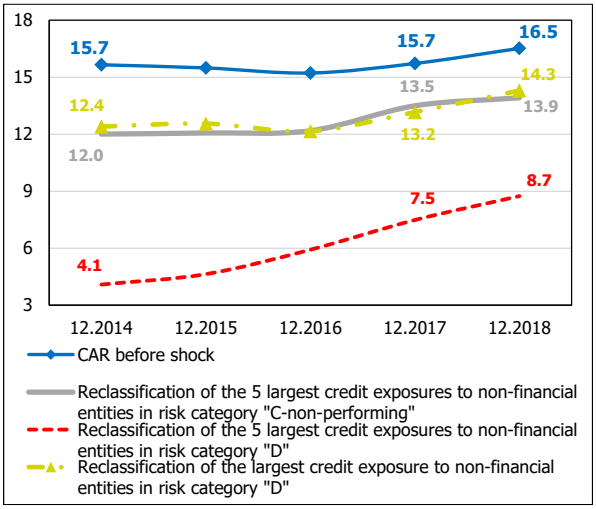


Source: National Bank's Credit Registry, based on data submitted by banks.

In 2018, the annual default rate of regular credit exposure to non-financial corporations remained unchanged and decreased intangibly in households. In general, the annual default rate of regular credit exposure to households is significantly lower (especially in housing loans). Analyzed by activity, the annual default rate generally improved, with the exception of the construction sector (to 4.7%) and transport and storage (to 2.0%)[35] where this rate deteriorated. Banks responded to this deterioration with greater provisioning of regular loans to these sectors. The average risk level of regular loans is quite stable and higher than the annual default rates of these loans[36] over the last one-year period, which shows that banks are more prudent and make higher impairment of regular loans[37] compared to the current default rate of these claims.

[35] As a result of the transition to non-performing status of some credit exposures that at the end of 2017 had performing status.
[36] With the exception of consumer loans and loans to the construction sector where the average risk level is lower than the annual default rate.
[37] In households, the average risk level of regular loans is similar to the annual default rate, while in consumer loans, the current default rate (1.2%) is higher than the impairment for regular consumer loans (0.9%).

Chart 29
Effects on the capital adequacy ratio from reclassification of the largest credit exposures to non-financial entities (including the connected entities) in a higher risk category in %

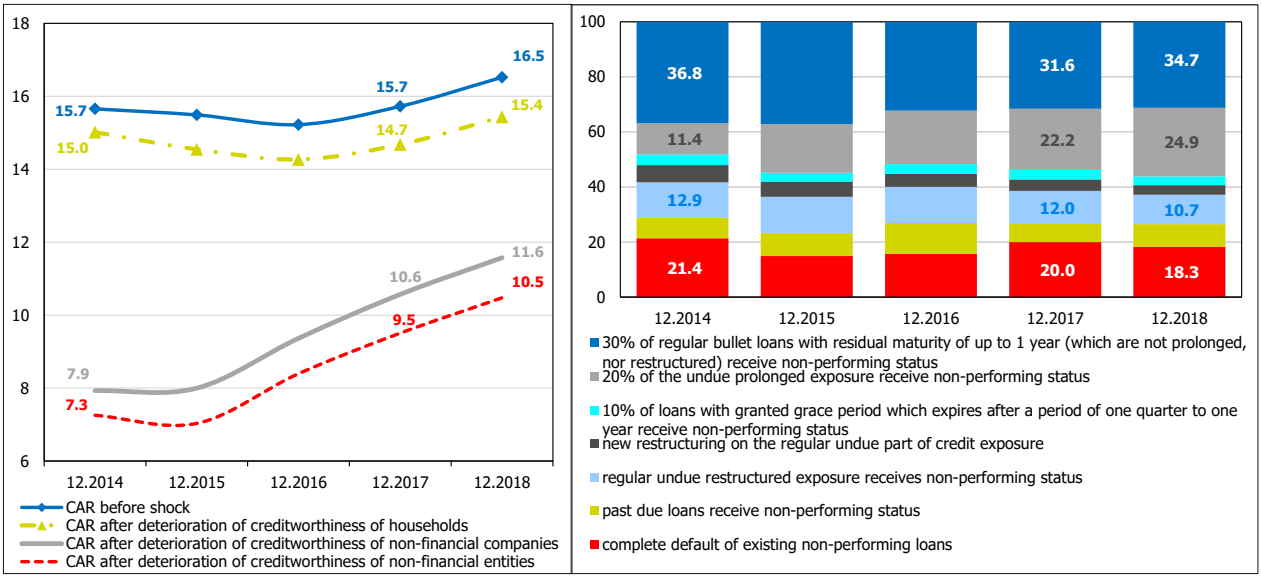


Source: National Bank's Credit Registry, based on data submitted by banks.

1.3 Stress-testing of the resilience of the banking system to increased credit risk

The results of stress testing confirm the resilience of the banking system to the simulated shocks and show improvement compared to the previous year. The capital adequacy ratio of the banking system does not fall below 8% at any of the simulations. Assuming a migratio n of 30% of the credit exposure to non-financial corporations, from the existing categories to the following two higher risk categories, the capital adequacy ratio of the banking system is reduced to 11.4%, which is identical reduction (measured in percentage points compared to the initial level of capital adequacy ratio) as a the result of the same simulation carried out at the end of the previous quarter. Analyzed by activity, the simulated deterioration of the creditworthiness of the clients dealing with activities with the highest credit exposure has the largest effect on the capital adequacy ratio. Thus, the capital adequacy ratio reduces to 15.6% in the case of worsened quality of credit exposure to wholesale and retail trade (14.8% as of 31.12.2017) i.e. to 15.8% in the case of worsened creditworthiness of industry sector (14.8% as of 31.12.2017) and to 16.1% in the ca se of reduced creditworthiness of construction companies (15.3% as of 31.12.2018). Amid assumed migration of 30% of the credit exposure to households from the existing categories to the following two higher risk categories, the greatest negative impact on the capital adequacy ratio is made by consumer loan exposure that makes up most of the total loan exposure to households (48.8%). Thus, in the case of simulated worsening of the quality of only this segment of exposure to natural persons, the capital adequacy ratio reduces to 15.4% (14.7% as of 31.12.2017).

Chart 30
Capital adequacy ratio before and after hypothetically combined shocks of various credit exposure segment (left) and contribution of individual shocks to the reduction of the capital adequacy ratio (right)
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

The banking system resilience is also examined by extreme simulation based on a combination of seven hypothetical shocks of worsening the quality of the credit portfolio to the non-financial sector[38]. In this simulation, the capital adequacy ratio of the banking system reduces by 6 percentage points, to 10.5%, which is a better result in comparison with the result of the same simulation carried out at the end of the previous year (9.5%). The highest negative effect on the capital adequacy ratio is that of the assumed deterioration in the quality of bullet loans, which contributes to one third of the total reduction of capital adequacy amid combined shock. In addition, the negative effect of the hypothetical worsen ing of the quality of prolonged loans (accounting for 24.9% of the total reduction of the capital adequacy ratio of the banking system) is also high, as well as the assumed complete default on non-performing loans to non-financial sector (18.3% of the total decline in capital adequacy in the combined shock).

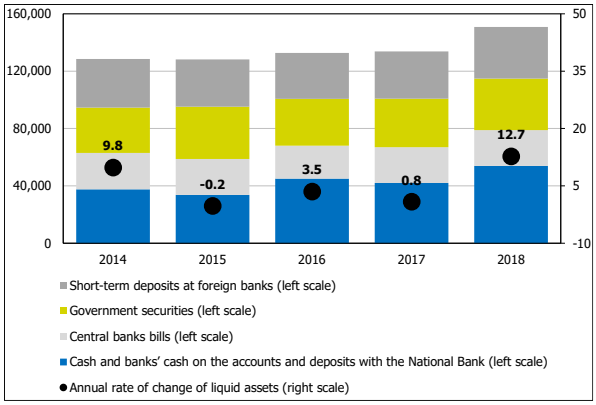
[38] The seven hypothetical shocks are the following: 1. Complete default of the existing non-performing loans; 2. The total due loans receive non-performing status; 3. The total regular undue restructured exposure receives non-performing status; 4. Banks are conducting new restructuring of the regular undue part of the credit exposure, which according to the volume corresponds to the amount of restructured exposures that have received a non-performing status, from the previous item; 5. 10% of loans with granted grace period which expires after a period of one quarter to one year receives a non-performing status; 6. 20% of the undue prolonged exposure receives a non-performing status; 7. 30% of regular bullet loans with residual maturity of up to 1 year (which are not prolonged, nor restructured) receives a non-performing status.

2. Liquidity risk

In 2018, the exposure of the banking system to liquidity risk registered no significant changes and remained satisfactory and stable. Banks continued to manage liquidity risk appropriately, maintaining a stable and solid liquidity position that ensures smooth operation. Amid constant growth of the deposit base, which in 2018 was higher than the banks' credit growth, the total liquid assets continued to grow, significantly faster than the previous year, achieving the highest relative and absolute growth in the last eight years. Observing the liquid assets structure, the largest growth was recorded in cash and cash on accounts and deposits with the National Bank, and slightly lower contribution of increased banks' investments in domestic long-term government securities, as well as increased short-term foreign currency of banks in foreign banks. Such movements also affected most liquidity ratios that registered an upward trend, but also the composition of assets and liabilities by residual maturity, where the gaps in almost all mature segments widened. Simulations for combined liquidity shocks confirm that the domestic banks maintain a satisfactory level of liquidity assets which enables proper management with the liquidity risk and satisfactory resilience to the suspected extreme liquidity outflows.

2.1 Dynamics and composition of liquid assets

Chart 31
Liquid assets, structure and growth
in millions of denars and in %

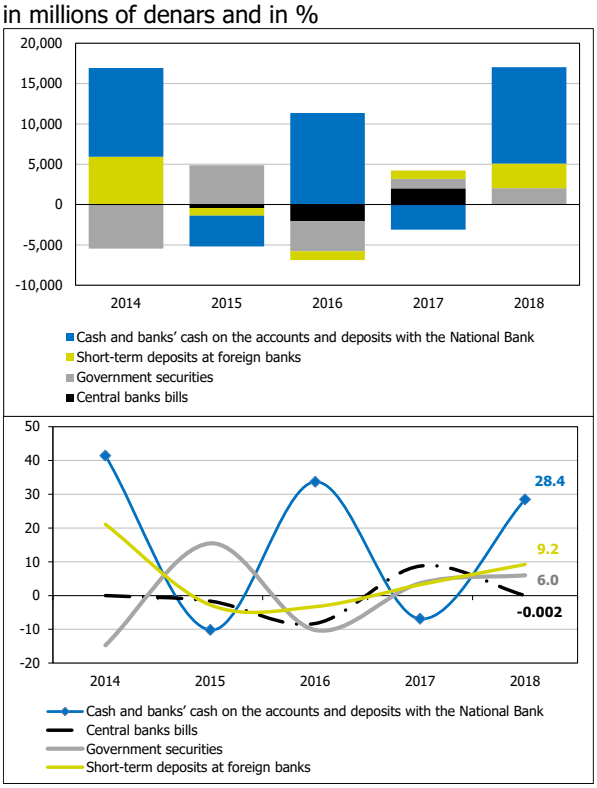


Source: National Bank, based on data submitted by banks.

At the end of 2018, the liquid assets[39] of the banking system amounted to Denar 150,800 million, which is an increase of Denar 17,016 million, or 12.7% on an annual basis. During 2018, except for the banks' investments in CB bills (that remained the same), all other liquid assets components grew, with different contribution to the total growth of liquid assets. More than two thirds of the annual growth of liquid assets account for the growth of cash and bank assets with the National Bank, which reached Denar 11,944 million, or 28.4%. On an annual basis, the banks' placement in government securities increased, as well as in short-term foreign currency assets in foreign banks (by Denar 2,032 million or 6% and Denar 3,041 million or 9.2%, respectively).

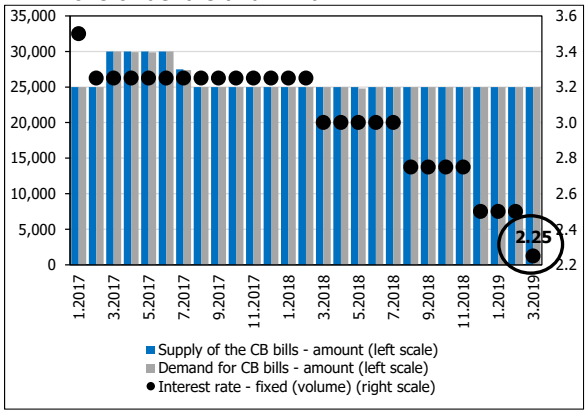
[39] The liquid assets encompass: 1) assets and claims on the National Bank, which include cash, assets on the accounts of banks with the National Bank, deposit facility with the National Bank and CB bills; 2) short-term deposits with foreign banks, including the assets of the banks on their correspondent accounts abroad and 3) carrying amount of investments in securities issued by central governments, i.e. government securities issued by the Republic of North Macedonia and issued by foreign countries. For the purposes of analyzing the liquidity, assets and liabilities in denars with foreign exchange clause are considered denar assets and liabilities.

Chart 32
Annual growth of liquid assets b component, absolute (up) and relative (down)
in millions of denars and in %



Source: National Bank, based on data submitted by banks.

Chart 33
CB bills
supply, demand and interest rate
in millions of denars and in %



Source: National Bank.

The main driver of the annual growth of the **cash and banks' cash on the accounts and deposits with the National Bank** in 2018 were the funds on the Denar account with the National Bank, in particular the banks' placement in overnight deposit facilities of the National Bank[40] (amid reduced investments of banks in 7-day deposit facilities of the National Bank), which at the end of 2018 increased almost tenfold compared to the previous year. Their growth accelerated especially in the second half of 2018, when supply in the primary government securities market declined, while banks' investments in CB bills remained unchanged throughout 2018. In 2018 as well, the CB bill auctions were held with volume tender (which during the year remained unchanged at Denar 25,000 million) and a fixed interest rate (which was cut during the year by a total of 0.75 percentage points[41]).

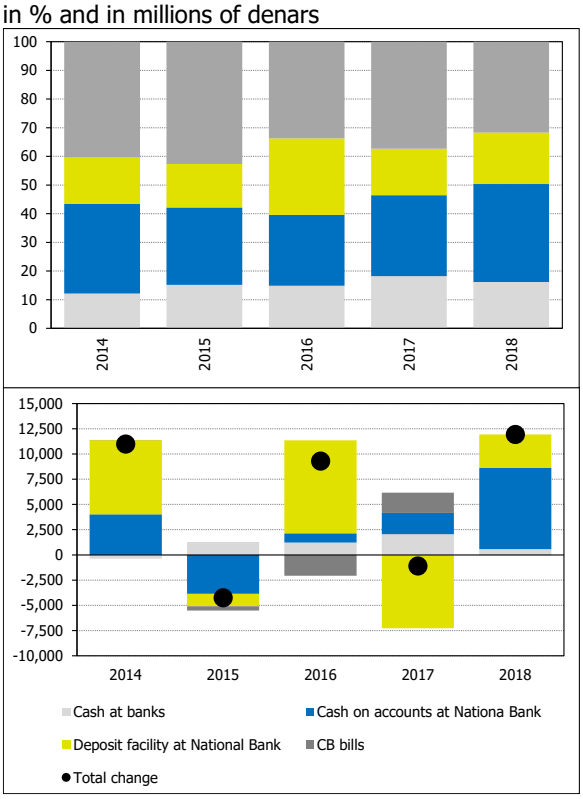
As a result of these movements, the structure of banks' liquid assets registered an annual increase in the share of banks' cash and placements in National Bank instruments (from 50.1% to 52.3%)[42], at the expense of the reduction of the share of government securities (from 25.3% to 23.8%) and short-term deposits in foreign banks (from 24.6% to 23.9%).

[40] According to the Decision on deposit facility (Official Gazette of the Republic of Macedonia No. 49/12, 18/13, 50/13, 166/13 and 35/15), the banks could place deposits with the National Bank every working day with a maturity of one business day and once a week with a maturity of seven days. These deposits are placed without the possibility of partial or full early withdrawal. Interest rates on these deposits until 14.3.2018 amounted to 0.25% for overnight deposits and 0.50% for seven-day deposits, and on 14.3.2018, the interest rates on these deposits were reduced by 0.10 and 0.25 percentage points, to 0.15% and 0.30%, respectively.

[41] The National Bank assessed that, given the sound economic fundamentals and absence of imbalances (amid constantly favorable movements in the foreign exchange market and favorable shifts in the banks' deposit base, which is a sign of stable expectations and confidence of economic agents), there is room for easing of the monetary policy and cut the CB bill rate from 3.25% to 3.00% in March 2018, to 2.75% in August 2018 and to 2.50% in December 2018. In March 2019, the National Bank again reduced the policy rate by 0.25 percentage points, so that, currently, the interest rate has been 2.25%.

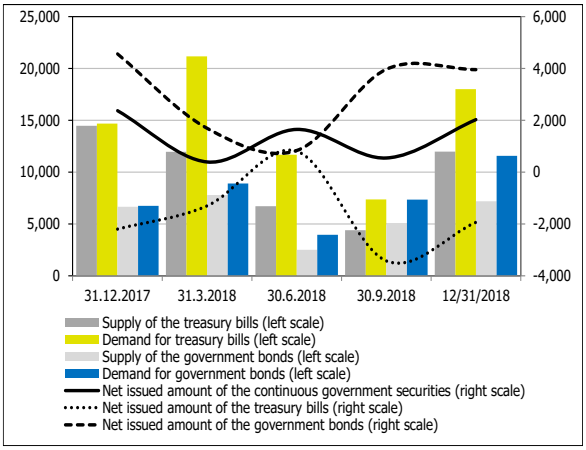
[42] The cash and placement of banks in the National Bank instruments are commonly the most represented component of liquid assets of the banks, within which, for the first time in a long time, the largest amount is made up by the cash on accounts with the National Bank.

Chart 34
Assets and claims of banks from the National Bank, by instrument, structure (up) and annual growth (down)
in % and in millions of denars



Source: National Bank, based on data submitted by banks.

Chart 35
Net issued amount and supply and demand of domestic government securities
in millions of denars



Source: Ministry of Finance and National Bank.

Investment in government securities are a significant option for banks in managing their liquidity position. However, in 2018, the share of banks in the primary market of government securities continued decreasing, and the total net issued amount[43] of government securities increased by Denar 4,624 million.

The structure of government securities owned by banks registered certain maturity extension i.e. less investment in treasury bills, and more investment in government bonds, mostly with shorter maturities (share of government bonds in the structure of banks' government securities portfolio as of the end of 2018 reached more than a half). Namely, the annual growth of banks' placements in continuous government securities[44] of 5.5% (December 2018 - December 2017, according to their face value), for the second year in a row, has been solely determined by the increase in the placements in domestic government bonds (of Denar 6,941 million, or by 55.9%, December 2018 - December 2017). On the other hand, investments in treasury bills decreased (by Denar 5,104 million, or 24.5%, December 2018 - December 2017), which corresponds to the smaller supply of this type of government securities. Bank-owned government bonds are mainly continuous government bonds issued by the Republic of North Macedonia, with almost half being two-year bonds, while the rest are with longer maturity (three, five, ten and fifteen years). The structure of treasury bills is dominated by twelve-month treasury bills.

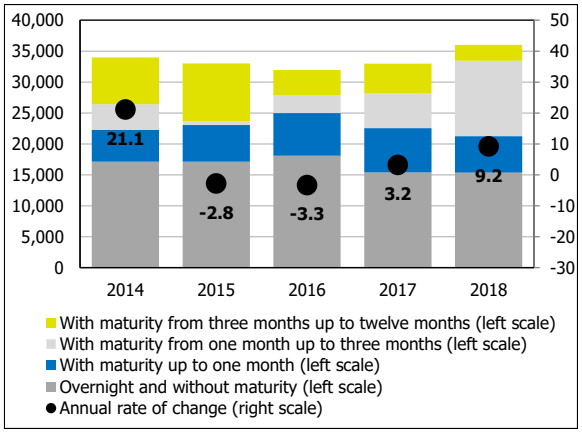
Investments in government bonds issued by foreign countries have a modest share of only 2% in the total portfolio of government securities of banks.

Short-term assets placed in foreign banks still account for the bulk of the for-

[43] Net issued amount of government securities is calculated as the difference between the amount at the government securities auctions over a certain time period and the amount of government securities that falls due in the same time period.

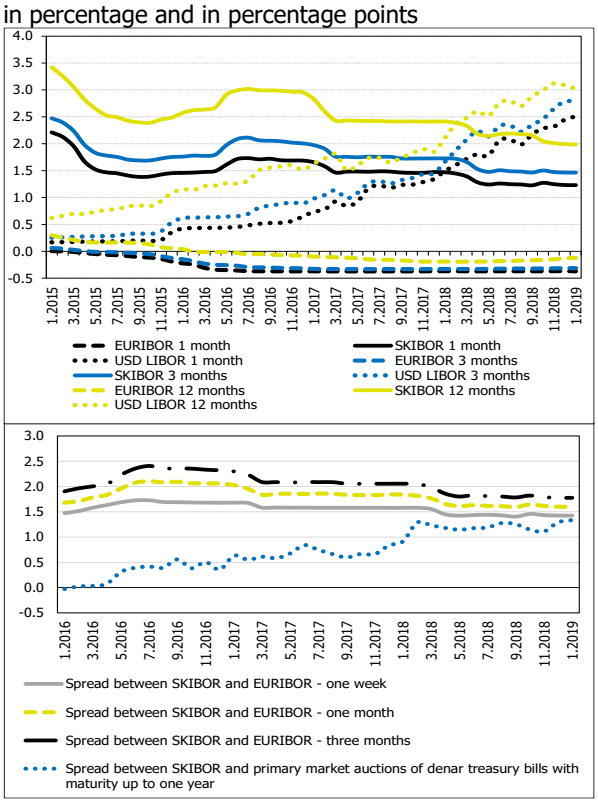
[44] Continuous government securities include treasury bills and government bonds issued in the domestic financial market, but exclude structural securities, i.e. denationalization bonds.

Chart 36
Accounts and short-term deposits with foreign banks, structure and growth
in millions of denars and in %



Source: National Bank, based on data submitted by banks.

Chart 37
Movement of SKIBOR, EURIBOR and LIBOR for US-dollar (up) and the spread between SKIBOR and EURIBOR, for selected maturities (down)
in percentage and in percentage points



Source: The National Bank and the website of the European Money Markets Institute for Euribor and the website of the Federal Reserve Bank of St. Louis (so-called FRED) for LIBOR for US dollars.

eign currency component of banks' liquid assets[45]. In 2018, these funds recorded solid growth, which allows banks to use them both for operational purposes and for managing primarily liquidity and currency risk. In 2018, the trend of changes to the contractual maturity of short-term assets in foreign banks continued, namely the increase in the share of assets with maturity from one to three months. Particularly the increased funds from one to three months of maturity were the only driver of the total growth of the funds placed in foreign banks with a contract maturity of less than a year, which on an annual basis reached Denar 3,041 million, or 9.2%. Thus, the already high share of these funds in the total foreign exchange liquid assets increased further (from 83.3% at the end of 2017, to 86.1% at the end of 2018). The largest portion of short-term assets invested in foreign banks are placed overnight i.e. are on the corresponding accounts of the domestic banks abroad, notwithstanding the annual fall.

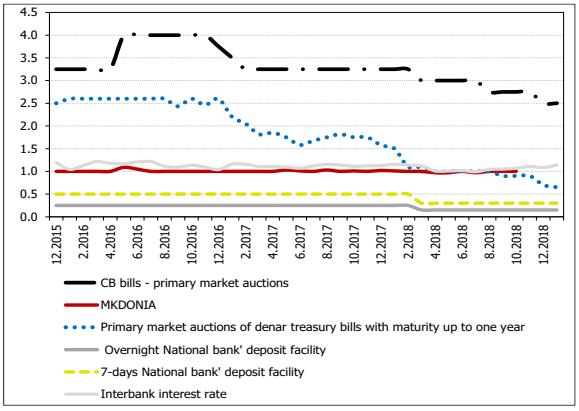
The yield borne by liquid financial instruments of banks is directly dependent on interest rates fluctuations. In 2018, following the National Bank monetary relaxation, the banks reduced the interbank offered rate (SKIBOR)[46], while money market interest rates in the Republic of Macedonia (MKDONIA and MBKS)[47] remained relatively stable.

[45] Foreign currency liquid assets comprise short-term deposits with foreign banks, including assets on corresponding accounts, investments in foreign government securities, foreign currency cash and foreign exchange account with the National Bank and placements of foreign currency deposits with the National Bank.

[46] SKIBOR (Skopje Interbank Offered Rate) is the reference interest rate on the denar money market and is an interbank interest rate at which one reference bank is ready to sell denar liquidity to another reference bank. Pursuant to the new Rules on Selection and Obligations of the Reference Banks Setting the Interest Rates for the Calculation of SKIBOR and the Calculation Process of SKIBOR, adopted on 22 August 2018 by the Macedonian Banking Association and effective from 1 October 2018, reference banks are required to quote interest rates for: one week, one month, three months, six months and twelve months.

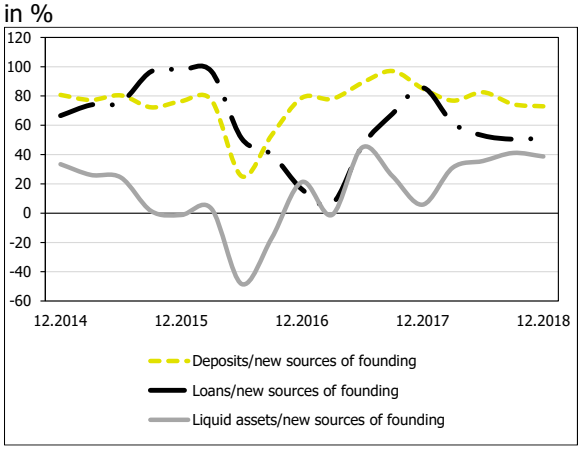
[47] MKDONIA is the interbank interest rate for concluded overnight transactions by reference banks as sellers of denar deposits. It is calculated as the weighted average interest rate, so the interest rate on each transaction is weighted by the appropriate amount of cash. MBKS is the interbank interest rate for trading on the interbank deposit market.

Chart 38
Movement of domestic interest rates
in %



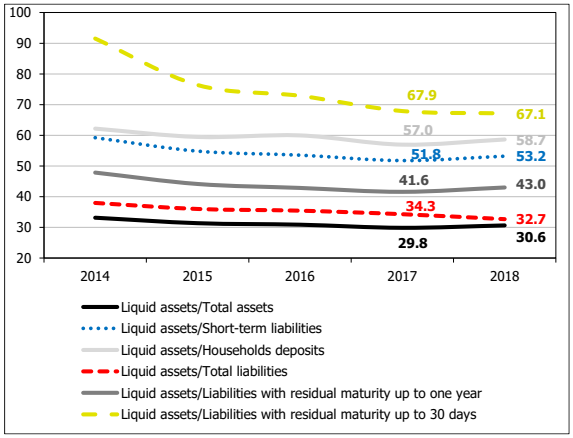
Source: National Bank.

Chart 39
Share of new sources of founding, annually
in %



Source: National Bank, based on data submitted by banks.

Chart 40
Liquidity ratios of the banking system
in %



Source: National Bank, based on data submitted by banks.

Interest rates on the euro area interbank markets remained extremely low or even negative for some maturities, which corresponds with the unchanged setup of the ECB's monetary policy throughout 2018. In contrast, as a result of the normalization of the US monetary policy[48], LIBOR for US dollars continues to rise.

In 2018, there was a major growth in the volume of new sources[49] of bank financing, compared to last year. The increase was primarily due to the more pronounced dynamics of deposits of non-financial corporations as the main source of financing for Macedonian banks[50].

In 2018, banks' risk-taking was relatively high. Banks used more than a half of the new sources of funding for lending purposes, while around one third were directed to liquid assets.

2.2 Liquidity ratios

In 2018, the liquidity of the banking system remained satisfactory, as seen through the relatively stable share of liquid assets in total assets and the satisfactory coverage of household short-term liabilities and deposits with liquid assets. Namely, amid accelerated growth of liquid assets of the Macedonian banking system[51], the liquidity ratios of the banking system improved, but without major departures from their usual level. The liquid

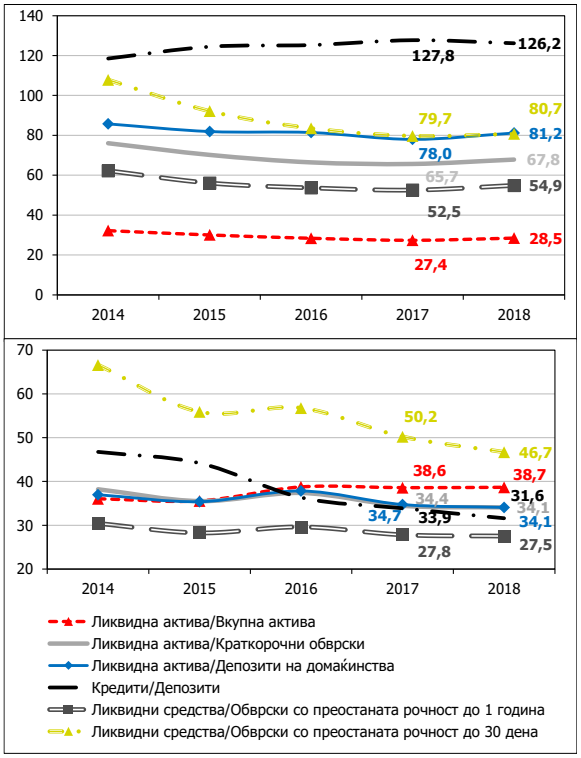
[48] At the meeting in December 2018, the Fed made decision on new increase in the target range of the policy rate by 25 basis points which now equals 2.25% - 2.5%. This is fourth consecutive rise in the policy rate in 2018 and ninth in the last three years.

[49] The new sources of funding for banks and their use are obtained indirectly, i.e. by changing the balances of individual accounts of the banks' balance sheet. The effect on the banks' cash flows, which is due to the income and expenditures that do not represent cash outflow or inflow (e.g. loan write-offs, revaluation of securities available for sale or held for trading, depreciation of fixed assets, net foreign exchange differences, etc.) is an integral part of the change in the corresponding balance sheet items, the respective inflow or outflow refers to, while the effect of the impairment of loans and other assets is included in the total sources of funding. The effect of domestic interbank claims and liabilities is excluded from the calculation.

[50] During 2018, the annual growth in deposits of non-financial corporations accounted for almost three quarters in the structure of the new sources of bank financing.

es not include resident interbank assets and liabilities.

Chart 41
Banking system liquidity ratios, according to currency structure - Denars (up) and foreign currencies (down)
in %



Source: National Bank, based on data submitted by banks.

assets still make up roughly one third of the banks' total assets, covering more than half of the short-term liabilities and nearly 60% of the total household deposits[52].

Analyzing the **currency features of liquid assets and liabilities**, the improvement is **present mainly in denar liquidity ratios**[53], considering that the denar liquid assets were the main driver of the annual growth of liquid assets in 2018. On the other hand, most of the foreign exchange liquidity ratios slightly worsened. At the same time, denar liquidity ratios remain at a higher level compared to the foreign currency liquidity ratios, due to the higher structural share of denars liquid assets in the banks' total liquid assets. The lower level of foreign exchange liquidity ratios is "mitigated" by the possibility of the banks to provide the required foreign currency liquid assets at any time through the National Bank interventions on the foreign exchange market.

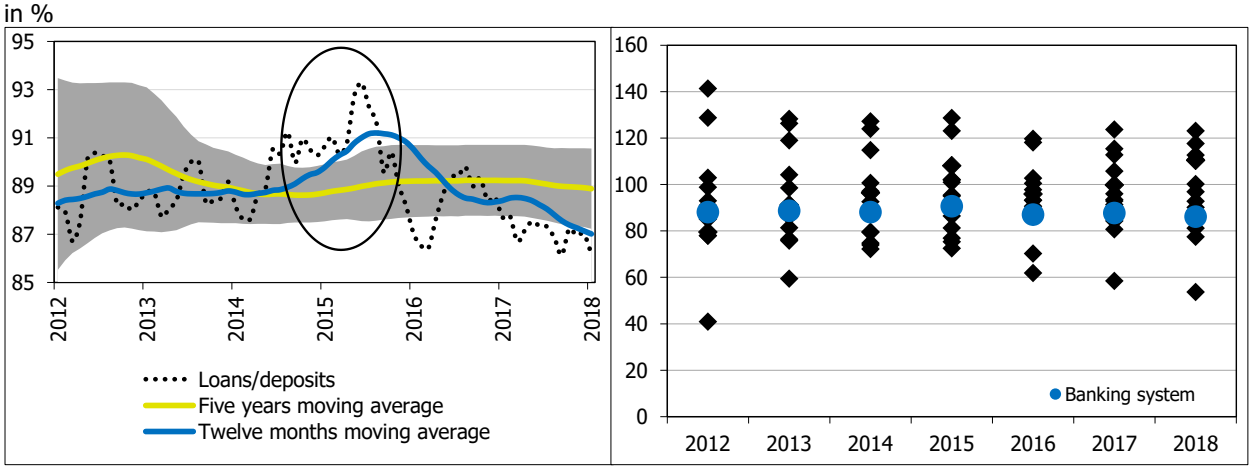
Regulatory liquidity ratios of the banking system, presented as ratios between assets and liabilities that mature in the next 30 days and 180 days, are above the minimum requirement of 1 at the end of 2018, thereby confirming the sufficient amount of liquidity available to the Macedonian banking system, which allows banks to carry out their liabilities.

Loan to deposit ratio of non-financial corporations

Loan to deposit ratio of non-financial corporations is one of the ratios used to assess the structure of banks' sources of funds and liquidity position. This ratio is expressed as a percentage and shows the extent to which the bank's lending is financed by deposits of the non-financial sector. If the ratio is too high, it could be a sign that the bank is probably financing much of its lending from non-traditional sources of funding (primarily those raised from financial markets) that can be quickly withdrawn or not revolving, especially in times of crisis, which jeopardizes the bank's liquidity. Conversely, if the ratio is too low, it may signal that the bank has room to increase its lending and subsequently improve profitability.

[52] Analyzed by bank, as of 31.12.2018, the share of liquid in total assets ranges between 21.2% and 49.6%, with a median of 26.7% (December 2017: between 14.7% and 45.5%). The coverage of short-term liabilities with liquid assets ranges between 40.2% and 82.5%, with a median of 51.4% (December 2017: between 30% and 109%), the coverage of liabilities with residual contractual maturity up to 30 days between 47.4% and 135.9% with a median of 62.7% (December 2017: between 33.9% and 214.2%). "MBDP" AD Skopje was excluded from this analysis.
[53] Claims and liabilities with FX clause are considered denar claims and liabilities, since their cash flow is in denars.

Chart 42
Loans/deposits, banking system (left) and by bank (right)
in %



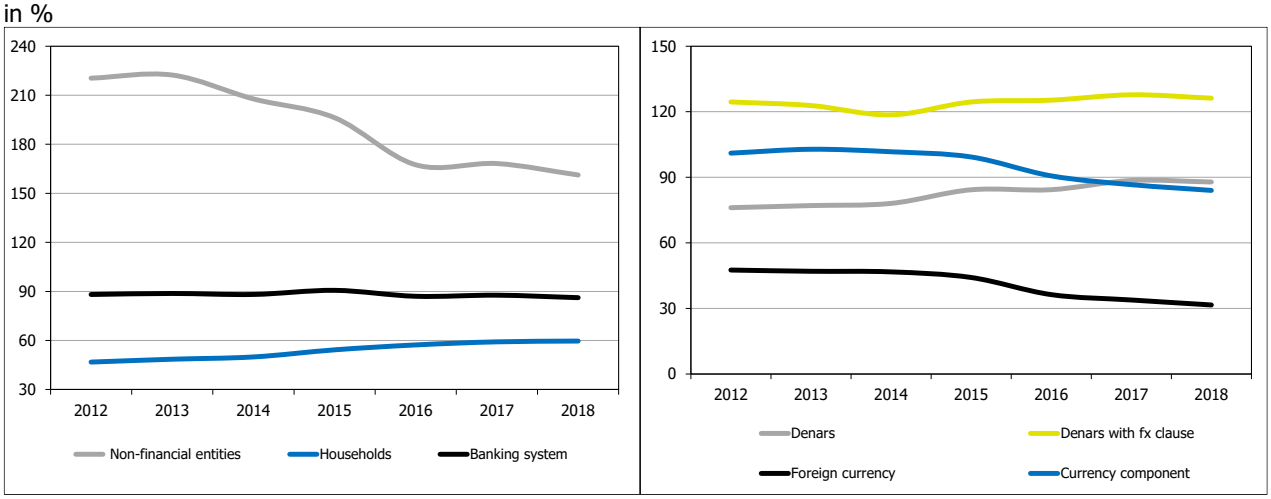
Source: National Bank, based on data submitted by banks.
Note: The shaded part in the chart (left) denotes range of one standard deviation above and below the five-year moving average of the indicator.

In the Macedonian banking system, over the past seven years, the loan to deposit ratio of non-financial corporations of the overall banking system has been relatively stable around its average of 88% (86.2% as of 31.12.2018). Over the entire period under observation, this ratio was lower than 100%, which indicates an insignificant imbalance in favor of deposits, and the highest value of loan to deposit ratio of non-financial corporations was reached in 2015 and early 2016. Namely, the environment in which the banks operated during this period was strongly influenced by non-economic factors, primarily the pronounced domestic political turmoil and the debt crisis in Greece, which complemented by low interest rates, limited the stronger growth of sources of bank funding. Thus, the increase in the value of loan to deposit ratio in the first half of 2016 was caused mainly by the slow growth and even reduction of deposits in some months, determined by the psychological response of the households.

Analyzed by bank, there are large differences in the loan to deposit ratio. Thus, as of 31.12.2018, this ratio ranges from 53.7% to 123.1%. The market share in the total banks' assets where this ratio is higher than 90% is 53.7%, while the banks' assets where this ratio is over 100% constitutes 29.6% of the total assets of the banking system. A large bank reported the lowest level of loan to deposit ratio of the overall banking system. If this bank is excluded from the analysis, as of 31.12.2018, the loan to deposit ratio of the banking system would be significantly higher (than 86.2%) and would be 97.8%.

Analyzed by sector, loan to deposit ratios of non-financial corporations and households show divergent movements. For households as the most important creditor of the banking and overall financial system and whose behavior largely determines the liquidity of banks and their scope of activities, the loan to deposit ratio over the past seven years has been relatively stable at about 50%. A larger increase in this ratio has been observed in the last three years (almost 60%). This movement is largely supported by the growing tendency of banks to lend to households, given the lower risk and higher yield compared to the corporate lending, which has been particularly noticeable in the last three or four years. In contrast, non-financial corporations' role of a net debtor of the banking system is much more significant, so that the loan to deposit ratio of non-financial corporations is significantly higher, i.e. constantly above 100%.

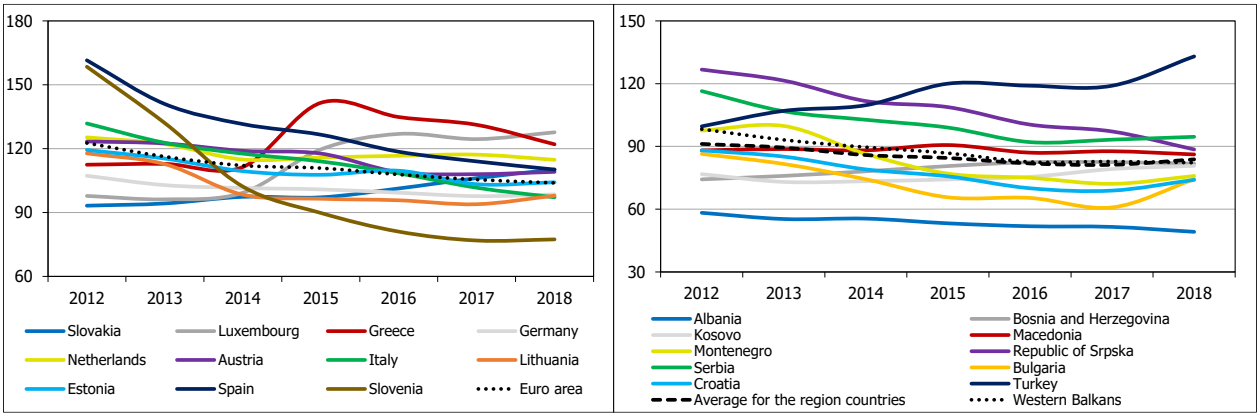
Chart 43
Non-financial corporations loan to deposit ratio, by sector (left) and by currency (right)
in %



Source: National Bank, based on data submitted by banks.

Analyzed by currency, there are significant differences between the loan to deposit ratio in foreign currency and the loan to deposit ratio in denars and in denars with foreign currency clause, which have further enhanced in the past three years. Namely, the loan to deposit ratio in foreign currency is significantly low (currently around 30%), unlike the loan to deposit ratio in denars and in denars with foreign currency clause, which in the past few years has exceeded 120%. Such movements only confirm the currency transformation by the banks, when due to the coverage of open currency position given the collected foreign currency deposits, foreign currency inflows are transformed into denar outflows (through loans in denars and in denars with foreign currency clause). The picture is different if we look at the loan to deposit ratios in denars and with a currency component. In the past few years, the loan to deposit ratio in denars is at a relatively similar level (85-90%), same as the loan to deposit ratio with currency component (in foreign currency and in denars with foreign currency clause).

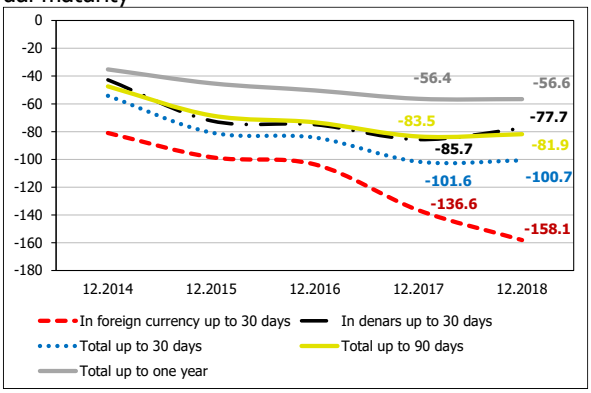
Chart 44
Loans/deposits, by country from the euro area (left) and country from the region (right)
in %



Source: Websites of the ECB (Statistical Data Warehouse) and the central banks.

The loan to deposit ratio in the euro area has recorded a steady downtrend (from 122.6% in 2012 to 103.9% in 2018), which is largely caused by the significant increase in household deposits. On the other hand, the average of loan to deposit ratio of non-financial corporations for the countries of the region and the Western Balkans, over the period under observation, is quite stable and ranges from 80% to 90%, which largely corresponds to the movement of this indicator of the Republic of North Macedonia.

Chart 45
Relative importance of the difference between banks' assets and liabilities, by contractual residual maturity
percentage of assets with the same contractual residual maturity



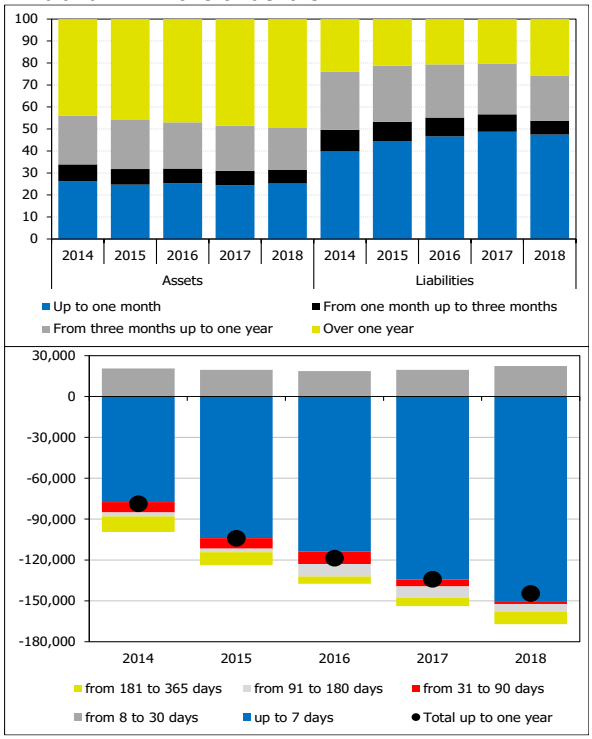
Source: National Bank, based on data submitted by banks.

2.3 Maturity structure of assets and liabilities

In 2018, in the composition of assets and liabilities by residual maturity, the share of assets and liabilities with residual maturity over one year increased. At the same time, the share of assets with residual maturity up to three months and up to one year in total assets decreased annually, similar to the share of liabilities with residual maturity up to one month, up to three months and up to one year in total liabilities.

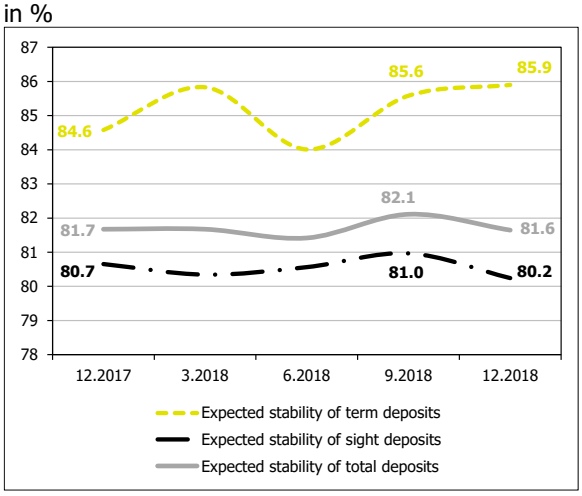
The maturity mismatch between banks' assets and liabilities is significant, and in 2018 further enhanced. The largest maturity mismatch has been observed between the aggregate negative difference of the foreign currency component of assets and liabilities with residual maturity up to 30 days (whose ratio with foreign currency maturities up to 30 days, on an annual basis, increased by 21.5 percentage points). The greater mismatch between the

Chart 46
Composition of assets and liabilities of banks according to their contractual residual maturity (up) and the gap between assets and liabilities, with contractual residual maturity of up to one year (down)
in % and in millions of denars



Source: National Bank, based on data submitted by banks.

Chart 47
Expected stability of deposits with residual maturity up to three months by the banks
in %



Source: National Bank, based on data submitted by banks.

assets and liabilities with foreign currency component compared to the denar one mainly arises from the accepted business model of the domestic banks, which is based, *inter alia*, on the currency and maturity transformation of foreign currency deposits of domestic non-financial corporations in placements with denar component.

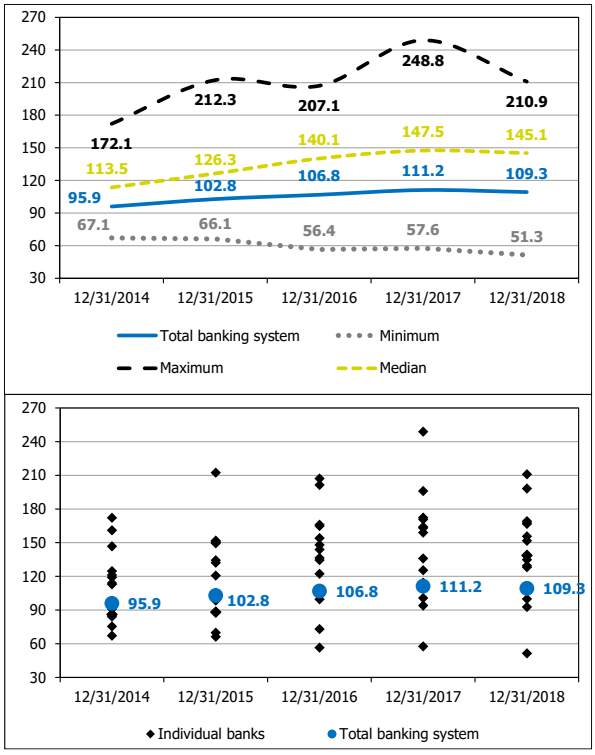
In 2018, the banks expected high deposit stability, as main funding source. Thus, as of 31.12.2018, banks expected that 85.9% of time deposits with residual maturity up to three months (84.6% as of 31.12.2017) would be stable, i.e. remain in the banks, while for total deposits and demand deposits, the percentage of expected stability is somewhat smaller (81.6% and 80.2%, respectively), registering a slight deterioration compared to the previous year. In 2018, banks maintained the expectations for a positive gap between assets and liabilities, according to their residual maturity, both aggregately and by individual maturity segments (for more details see the annexes to this Report).

2.4 Stress-simulations for liquidity shocks

Simulations of liquidity shocks carried out as of 31.12.2018, confirm the stable liquidity position and resilience of the Macedonian banks to liquid shocks, mainly due to the satisfactory level of available liquid assets. The liquid assets would be fully used (or 109.3% as of 31.12.2018) amid extreme simulation of liquidity shock, that includes combined outflows[54] from banks on a multiple bases. Considering the extremity of assumption, for the purpose of this simulation, the usual coverage of liquid assets also included other financial

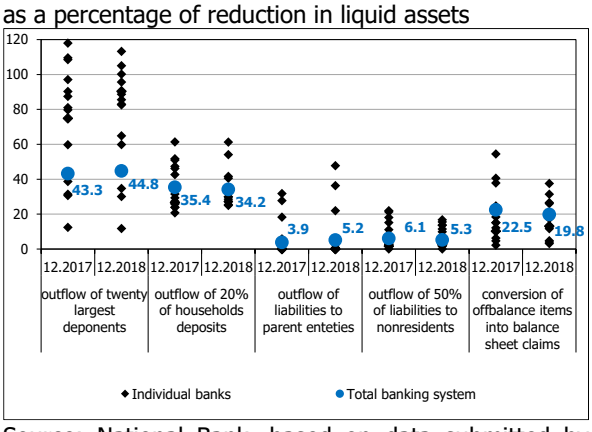
[54] The simulation assumes outflow of deposits of the twenty largest depositors, 20% of household deposits, liabilities to parent entities (liabilities on subordinated instruments and hybrid capital instruments are excluded from the simulation as, according to the regulations for calculating capital adequacy, their repayment is regulated), 50% of the liabilities to non-residents (excluding liabilities to non-resident parent entities of banks which are already covered by one of the previous simulations) and conversion of certain off-balance sheet liabilities of the banks (uncovered letters of credit, irrevocable credit lines and unused limits based on credit cards and approved overdrafts on transaction accounts) into balance sheet claims. The simulations of liquidity shocks exclude MBPR AD Skopje.

Chart 48
Reduction of liquid assets after the simulation for combined liquidity shocks (after all shocks), total banking system (up) and by bank (down)
in %



Source: NBRM calculations, based on data submitted by banks.

Chart 49
Contribution of shocks to the decline in liquid assets in the simulation of a combined liquidity shock, by bank
as a percentage of reduction in liquid assets



Source: National Bank, based on data submitted by banks.

instruments[55] owned by banks, for which it is estimated that banks will quickly and easily collect or turn into cash. In such a case, the banking system would have sufficient liquid assets, i.e. the reduction of liquid assets at the level of the banking system would be lower (98.5%) (which means that after such extreme shocks, there would be a certain amount of liquidity, analyzed across the banking system).

Simulations of liquidity shocks show that banks hold sufficient liquid assets to finance simulated outflows. Liquid assets decline the most amid outflow of deposits of the twenty largest depositors; yet the importance of this simulation to individual banks is different, given the differences in deposit concentration. On the other hand, simulated materialization of reputational risk and loss of public confidence in the banks represented by an outflow of 20% of household deposits shows a significantly greater similarity in the results for individual banks, thereby confirming the importance of deposits to the financing of the banks' activities.

Hence, the sustainability of banks' liquidity position, as well as the potential growth of their activities, are directly dependent on the movements and the banks' share in the deposit market and the maintenance of the confidence of domestic depositors in Macedonian banks. In the case of assumed conversion of certain off-balance sheet liabilities of the banks into on-balance sheet claims[56], the banks would spend about 20% of their liquid assets, which although lower compared to the simulations of outflow of deposits[57], can be considered significant.

[55] Financial instruments that comprise liquid assets, also include the following financial instruments: assets in the guarantee fund in KIBS, long-term deposits in foreign banks, money market instruments issued by foreign non-government issuers, loans with contractual residual maturity of up to 30 days and the effect of reducing the reserve requirement for foreign currency liabilities of banks, which is allocated in foreign currency due to the simulated outflow of households' foreign currency deposits.

[56] Outflow is assumed as a result of the migration of some banks' off-balance sheet liabilities (uncovered letters of credit, irrevocable credit lines and unused limits based on credit cards and overdrafts) into on-balance sheet claims.

[57] During the simulation of outflow of deposits of the 20 largest depositors, the liquid assets of the banking system reduce by

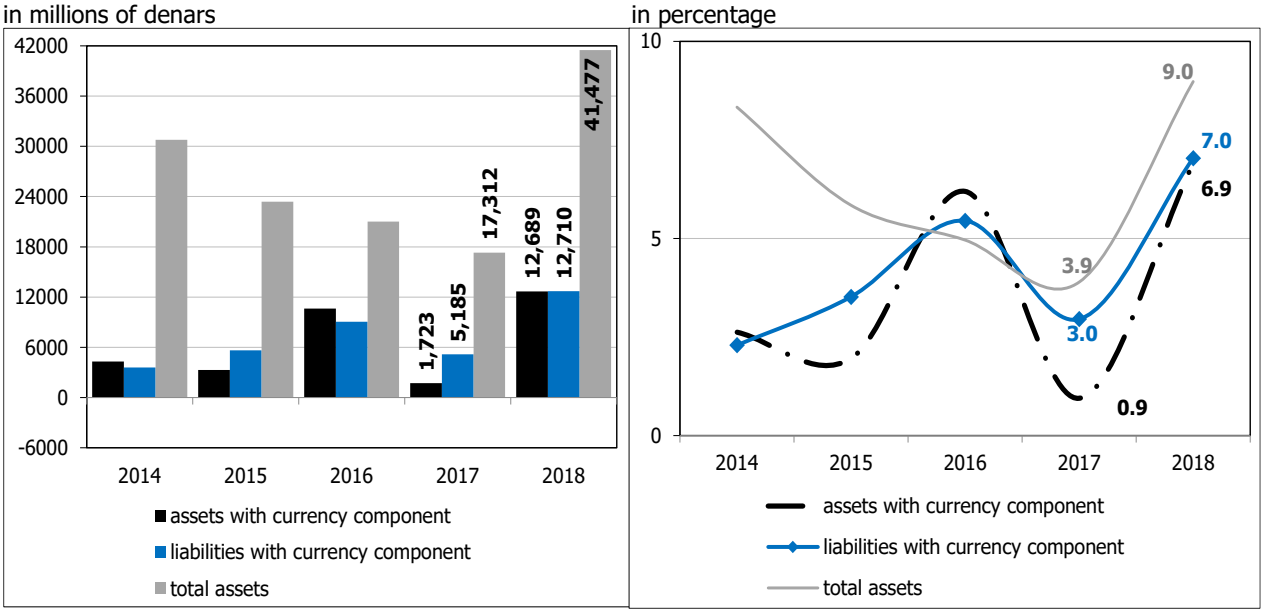
The small share of liabilities to non-residents and to parent entities in the structure of banks' total sources of funding causes moderate impact of the shocks associated with them on the overall result of this simulation.

44.8%, while in the case of assumed outflow of 20% of household deposits, the liquid assets reduce by 34.2%.

3. Currency risk

In 2018, the banking system reduced the already low direct exposure to currency risk.The gap between assets and liabilities with currency component narrowed further in 2018, reducing its ratio with own funds to 5.7%.On the other hand, the ratio between the open currency position and own funds of the banking system is even lower and as of 31.12.2018 it amounts to 3.8%[58].Share of assets and liabilities with currency component in the total assets and liabilities of the banking system decreased in 2018 as well.However, the indirect exposure to currency risk arising from the presence of loans with FX component in the banks' credit portfolio remains significant but declines.The euro is the most common foreign currency in the banks' balance sheets, which contributes to maintaining a low probability of the materialization of direct or indirect exposures of banks to currency risk, given the application of the strategy for maintaining stable nominal exchange rate of the denar against the euro.Observed by banks, as of 30.12.2018, all banks complied with the prescribed limit for the aggregate currency position, which should not exceed 30% of the banks' own funds.

Chart 50
Annual change of assets and liabilities with currency component



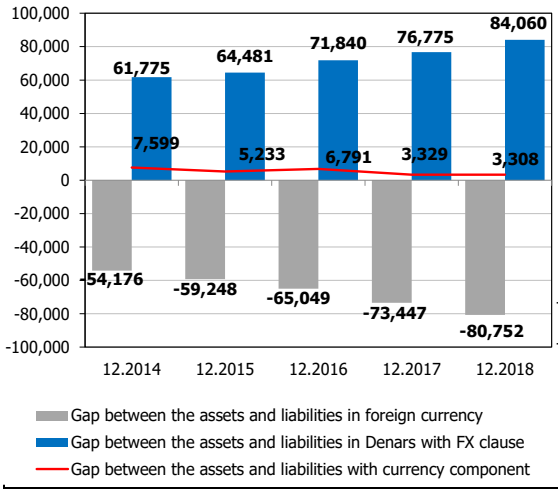
Source: NBRNM, based on data submitted by banks.

[58]The reduction of the open currency position arises from the gap between off-balance sheet assets and liabilities with currency component (which as of 31.12.2018 is negative).

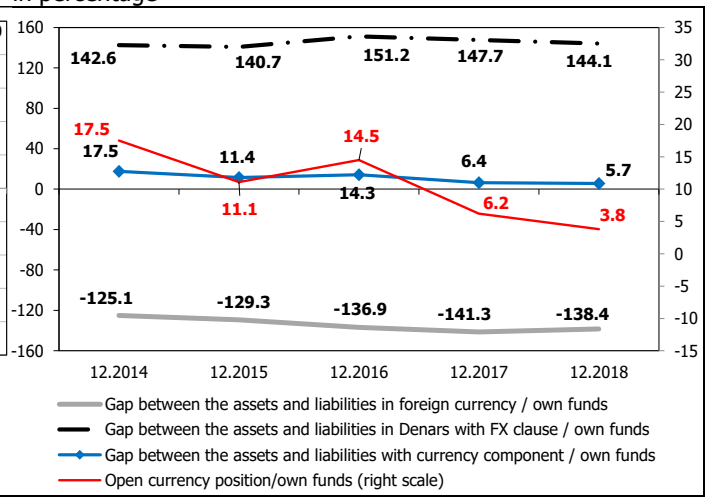
Chart 51

Structure of the gap between assets and liabilities with currency component (left) and share of the assets and liabilities with currency component in own funds (right)

in millions of denars



in percentage



Source:NBRNM, based on data submitted by banks.

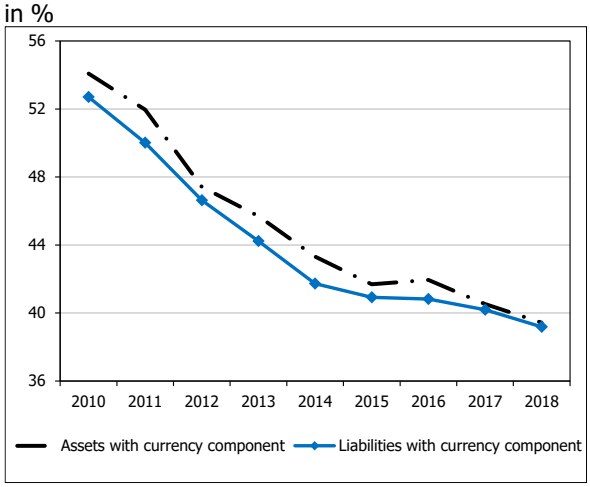
*MBDP AD Skopje is not included.

The open currency position also includes the gap between off-balance sheet positions with currency component.

Chart 52

Share of the assets and liabilities with currency component* in the total assets of banks

in %



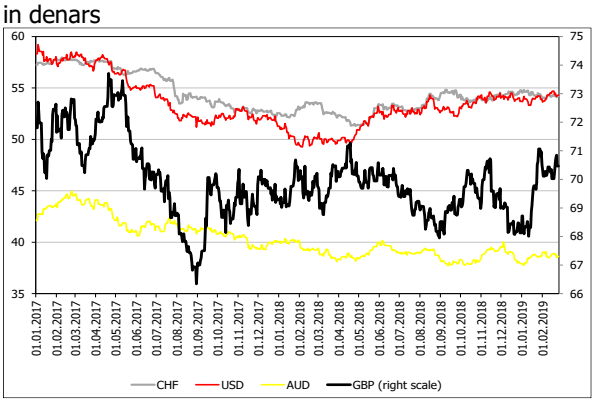
Source: NBRNM, based on data submitted by banks.

In 2018, the positive gab between assets and liabilities with currency component registered a slight narrowing of Denar 21 million or by 0.6%. The narrowing of the gap arises from the slightly higher growth of liabilities relative to the growth of assets with currency component.Liabilities with currency component increased by Denar 12,710 million[59], or by 7.0%, while assets with currency component registered a growth of Denar 12,689 million[60], or by 6.9%.The reduced gap between assets and liabilities with currency component, amid simultaneous increase of own funds (Denar 6,367 million) led to its reduced share in own funds (by 0.7 percentage points), which at the end of the year reached 5.7%.Banks' cover the negative gap in foreign currency (which mostly derives from foreign currency deposits) with the positive gap of the currency clause (mainly denar loans with FX clause).According to the sector, banks maintain a long foreign currency positions in opera-

[59]The annual increase of liabilities with currency component is mostly due to the growth of foreign currency current accounts of households, and non-financial corporations to a lesser extent.Also, deposits of natural persons (sight deposits and term deposits) in foreign currency increased significantly.

[60]On the assets side, denar loans with FX clause (most of them households) registered the largest growth.Foreign currency deposits termed abroad, also, contributed to the growth of assets with currency component.

Chart 53
Exchange rate of the denar against the US dollar, Swiss franc and the British pound and Australian dollar
in denars



Source: NBRNM.

tions with enterprises, and a short foreign currency positions with natural persons.

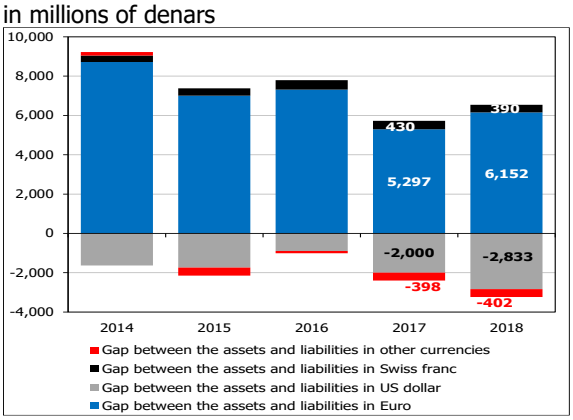
Amid slower growth in assets (6.9%) and liabilities (7%) with foreign component, compared to the annual increase of assets (9%), their share in total assets (liabilities) continued to decline.

Table 3
Currency structure of assets and liabilities with currency component
in %

Currency	31.12.2017		31.12.2018	
	Assets	Liabilities	Assets	Liabilities
Euro	88.7	87.4	88.4	86.8
US dollar	6.6	7.8	6.8	8.4
Swiss franc	2.1	1.9	2.2	2.0
Australian Dollar	0.9	1.1	0.8	1.0
British pound	0.7	0.8	0.7	0.7
Other	1.0	0.9	1.1	1.0
Total	**100.0**	**100.0**	**100.0**	**100.0**

Source: NBRNM, based on data submitted by banks.

Chart 54
Dynamics and structure of the gap between assets and liabilities with currency component, by currency
in millions of denars



Source: NBRNM, based on data submitted by banks.

Analyzed by currency, the growth of the negative US dollar gap had the greatest impact on the narrowing of the gap between assets and liabilities with currency clause. This gap widened by Denar 833 million or by 41.6% as a result of the higher annual growth of liabilities in US dollars (Denar 2,056 million or by 14.5%) compared to the annual growth of assets in US dollars (Denar 1,223 million or by 10.1%).[61]However, the narrowing of the gap between assets and liabilities with currency components is small due to the simultaneous growth of the positive gap in Euros by Denar 855 million or by 16.1%[62].The Euro continues to dominate in the structure of assets and liabilities with curren-

[61]The growth of liabilities in US dollars is conditioned by the growth of current accounts, while the growth of assets in US dollars is due to foreign currency deposits.

[62]The growth of liabilities in Euros is mostly due to the growth of current accounts in Euros, but also the growth of deposits (sight or term deposits) of natural persons.Assets in Euros increased primarily due to the growth of loans with currency component in euros, but deposits placed abroad also have some contribution.

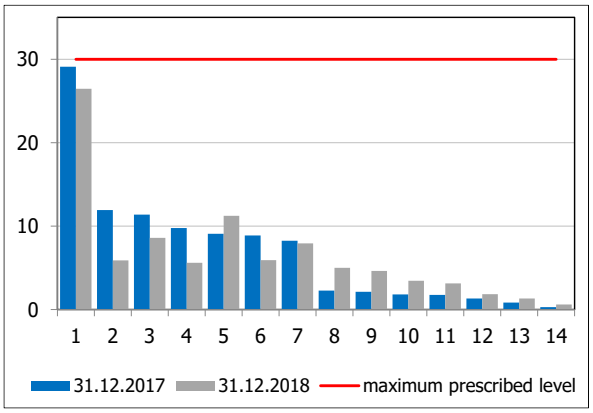
cy component.However, given the application of the strategy of maintaining a stable nominal denar exchange rate against the euro, the probability of currency risk materialization is kept low.The movements in the value of other currencies have no significant effect on the functioning of the domestic banking system, due to their low share in the banks' balance sheets.

Table 4
Distribution of banks by share of open currency position, by currency and the aggregate currency position in own funds

Items	Number of banks										
	Open currency position by currency /own funds										Aggregate currency position / own funds
	Euro		US Dollar		Swiss franc		Australian Dollar		Other		
	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	
under 5%	7		10	4	10	3	6	3	10	4	6
from 5% to 10%	3	1									6
from 10% to 20%											1
from 20% to 30%	1										1
over 30%											

Source: NBRNM, based on data submitted by banks.

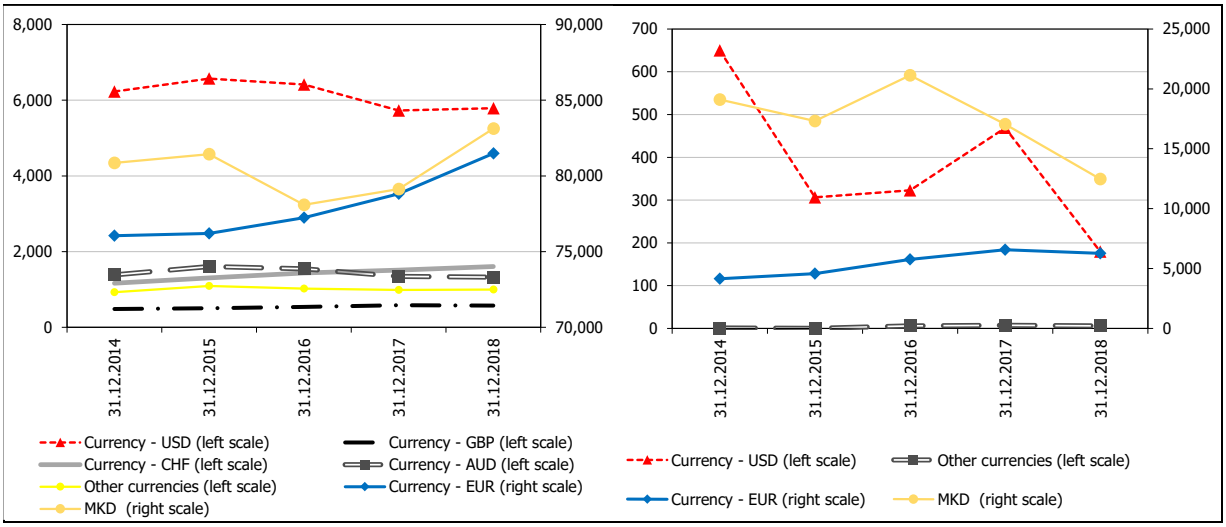
Chart 55
Aggregate currency position to own funds ratio, by bank
in %



Source: NBRNM, based on data submitted by banks.

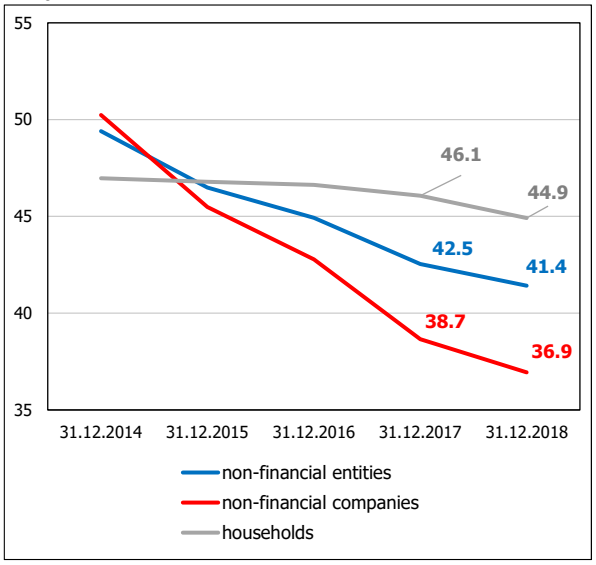
As of 30 December 2018, all banks were in line with the prescribed limit for the aggregate currency position, which equals 30% of own funds. Banks mostly maintain long position by individual currencies.

Chart 56
Deposits in denars and with currency component of the natural persons (left) and non-financial corporations (right)
in millions of denars



Source: NBRNM, based on data submitted by banks.
Deposits do not include transaction accounts of the natural persons and non-financial corporations.

Chart 57
Share of loans with currency component in total loans of non-financial entities
in %



Source:NBRNM, based on data submitted by banks.

The indirect exposure to currency risks, which arises from the presence of loans with currency component in the banks' portfolios, is significant, though decreasing. At the end of 2018, the share of loans with currency component in total loans of non-financial entities remained solid, 41.4%, which is a decrease of 1.1 percentage points on an annual basis.However, the probability of the materialization of this risk is also low, given the fact that more than 99% of loans with currency components are denominate in Euros or Dollars with Euro clause, given the application of fixed nominal exchange rate of the denar against the euro.

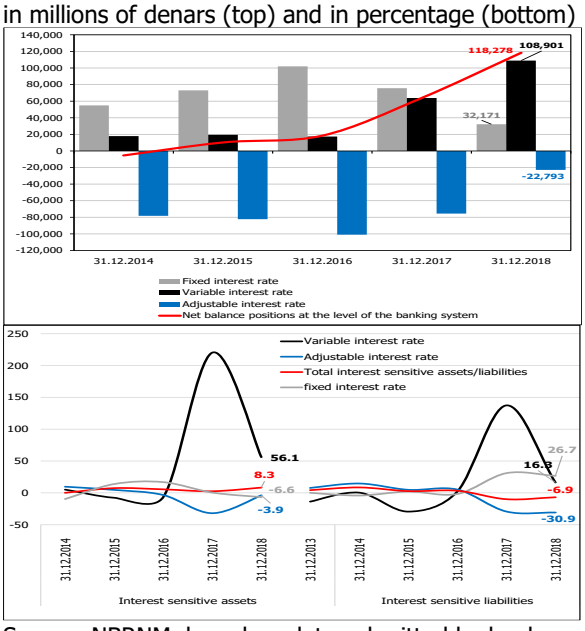
4. Interest rate risk in the banking book

The weighed value of the banking book, as a measure of exposure to interest rate risk, registered a decline in 2018, both in absolute amount and own funds of the banking system.The decrease is entirely due to the narrowing of the gap between interest-sensitive assets and fixed interest rate liabilities, which is a result of amendments made to the regulation which enabled a more accurate presentation of loans which envisage a different type of interest rate in different time periods until the maturity date, but also is a result to the increase in term deposits with fixed interest rate.The positive gap (net, unweighted position) between interest-sensitive assets and liabilities widened, which is mostly due to the narrowing of the negative gap in positions with adjustable interest rates, as a result of the reduction of deposits with interest rates of this type.On an aggregate basis, the banking system is exposed to the risk of lowering interest rates, which could be achieved in a relatively short period, given the high positive gap between assets and liabilities positions where the period until the next interest rate revaluation is up to 1 month.

Chart 58

Interest-sensitive assets and liabilities by type of interest rate, gap (top) and annual growth (bottom)

in millions of denars (top) and in percentage (bottom)



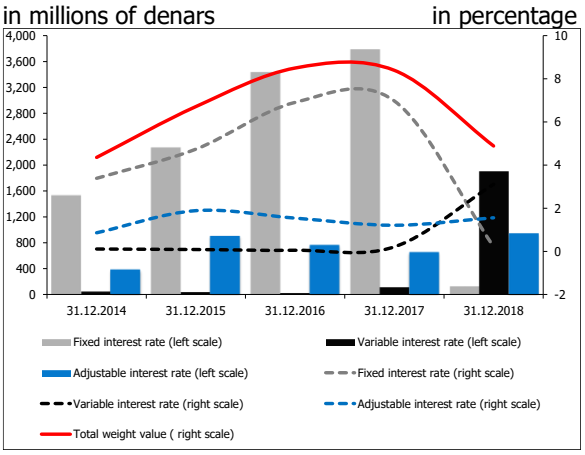
Source: NBRNM, based on data submitted by banks.

The total weighted value of the banking book[63] decreased by Denar 1,589 million or by 34.9%, which is entirely conditioned by the significant decline of the weighted value of the banking book with fixed interest rates (by Denar 3,653 million or by 96.5%).Such developments are as a result of the narrowing of the gap between position with fixed interest rates in loans offered by banks which envisage the application of a different type of interest rate in different time periods until maturity, and is primarily due to the amendments to the existing regulation for interest rate risk management in the banking book[64].

[63]The total weighted value of the banking book shows the change of the economic value of this portfolio as a result of the assessment of the change in the interest rates using a standard interest rate shock (parallel positive or negative change in interest rates by 200 basis points).The total weighted value of the banking book of the banking system is obtained by aggregating the weighted values of the banking book of individual banks.

[64]As of 1 January 2018, for the purposes of determining the total weighted value of the banking book, changes were made to the manner of presenting positions where the application of a different type of interest rate in different time periods until maturity was agreed.Most often refers to loans which which envisage the application of a different exchange rate in the first several years after of the loan approval and application of a different type of interest rate, after the expiration of the initial period.Until the end of 2017, banks presented these positions (loans) depending on the type of the interest rate applied on the reporting day and maturity block corresponding to the residual maturity of the entire loan.With the amendments to the Instructions for enforcing the Decision on managing the interest rate risk in the banking book (Official Gazette of the Republic of Macedonia No.154/17), as of 2018, banks shall divide the amount of these loans into a part for which fixed interest rates are applied (and shall present this part in the maturity block which corresponds to the period in which the fixed interest rates are applied) and the part where a different interest rate type is applied (mostly floating interest rates) and this part shall be presented in the respective maturity block after the fixed interest rate period has expired, according to the time period until the next interest rate revaluation.Thus, the time period until the next floating interest rate revaluation are usually much shorter than the residual maturity of loans, with the remainder of the loans often listed in the shorter maturity blocks, for which lower weights are envisaged when calculating the weighted value of the banking book.

Chart 59
The total weighted assets of the banking book*, by interest rate type, in absolute amount (left scale) and relative to own funds (right scale)



Source: National Bank, based on data submitted by banks.

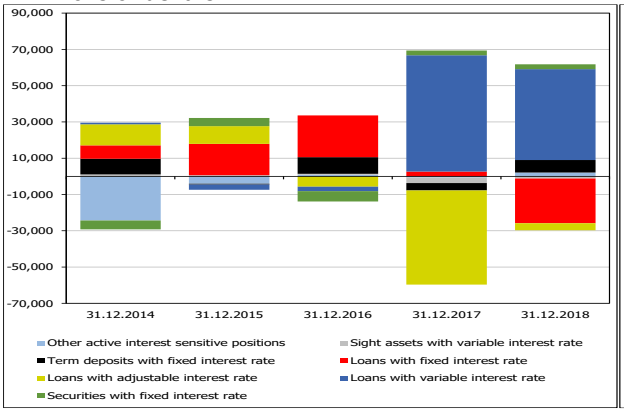
In addition to this, the growth of term deposits with fixed interest rate (due to replacing the adjustable with a fixed interest rate on a part of banks' term deposits, after their maturity), further contributed to narrow the gap in positions with fixed interest rates and subsequently decreased the weighted value of the banking book with fixed interest rates.The weighted value of the banking book with floating and adjustable interest rates registered an annual growth, from Denar 1,775 million and Denar 289 million, respectively, which is insufficient to cancel the reduction of this value in the fixed interest rates portfolio.Amid the annual growth of own funds, the ratio between the total weighted value of the banking book and own funds of the banking system decreased by 3.5 percentage points and as of 31 December 2018 equaled 4.9%.Analyzed by bank, the ratio between the total weighed value to own funds ranges from 0.6% to 9.7%, which is far below the 20% level[65].

In 2018, the gap i.e. net weighted position between interest-sensitive assets and liabilities widened by Denar 54,419 million or by 85.2%. This is mainly due to the narrowing, by Denar 52,740 million, of the negative gap of positions with adjustable interest rates.Such developments in the gap with adjustable interest rates mostly arise from the reduction of term deposits with adjustable interest rate (application of fixed instead of adjustable interest rates after maturity) and sight deposit liabilities with this interest rate type (due to the decision of some banks not to pay more interest on these liabilities).At the same time, the gap between interest-sensitive assets and liabilities with floating interest rates also registered a growth of Denar 45,119 million, while the positive gap between positions with fixed interest rates registered a decrease of Denar 43,440 million.The similar annual absolute changes, but with opposite sign, in

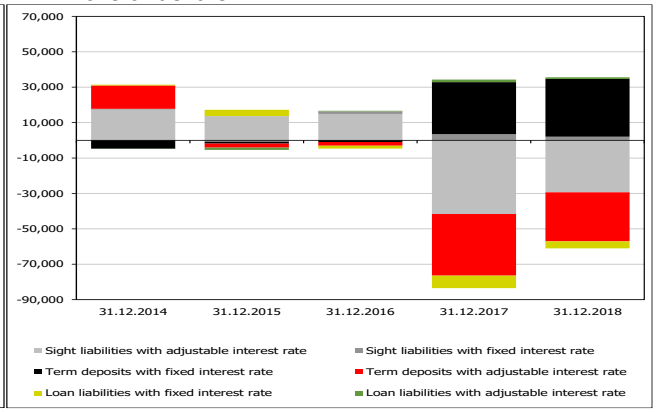
[65]According to the Decision on managing interest rate risk in the banking book (Official Gazette of the Republic of Macedonia No.163/2008 and 144/2009), when the ratio between total weighted value to own funds ratio exceeds 20%, the bank is required to propose measures to reduce this ratio, and the National Bank may also require allocation of appropriate amount of capital for the interest rate risk in the banking book.

Chart 60
Annual changes of the interest-sensitive assets (left) and liabilities (right), by type of instrument and interest rate type

in millions of denars



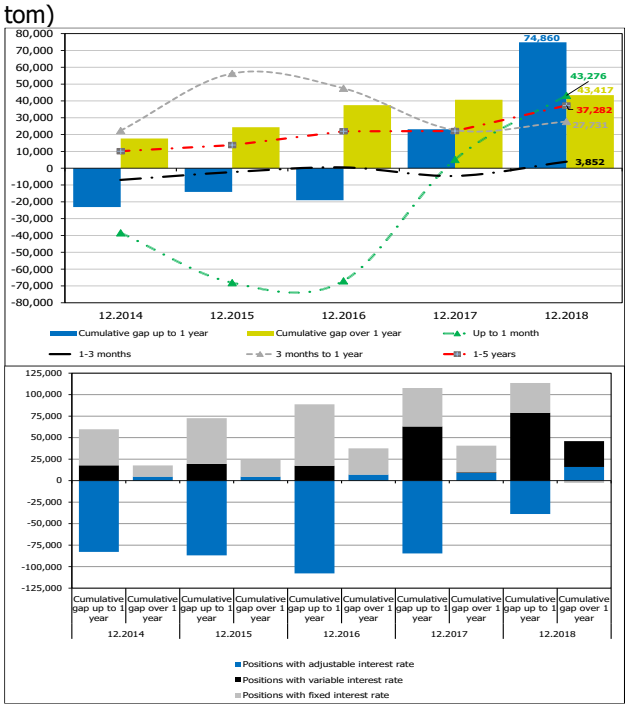
in millions of denars



Source: National Bank, based on data submitted by banks.

Chart 61
Asset-liability gap, by period until next interest rate revaluation (left) and gap structure by interest rate type (right)

in millions of denars (top) and in millions of denars (bottom)



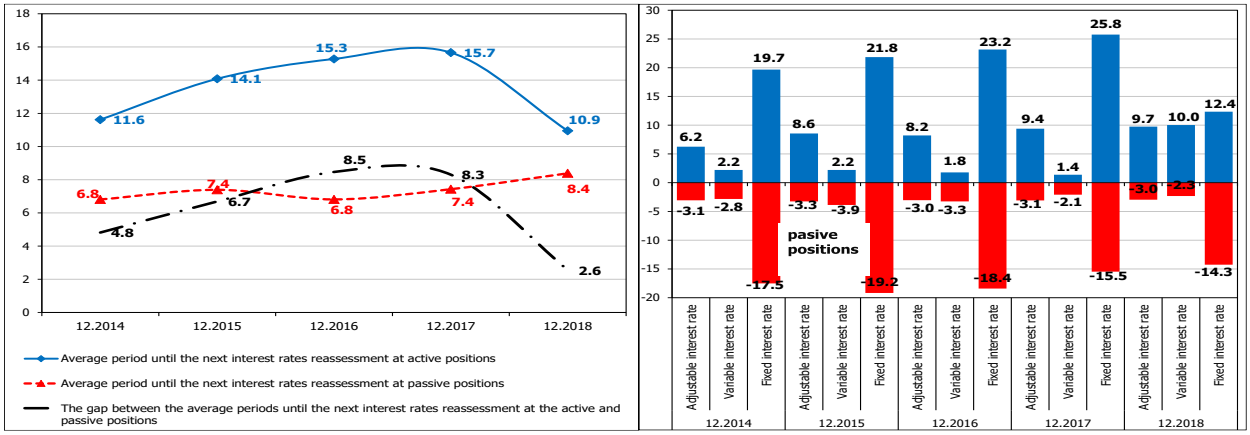
Source: National Bank, based on data submitted by banks.

the gaps with fixed and floating interest rates mostly arise from the aforementioned amendments to the regulation that caused the reassignment of part of loans with fixed interest rates, in positions with floating interest rates.Also, in 2018, term deposits with fixed interest rate registered an annual increase, due to the aforementioned replacement of the adjustable with fixed interest rate in some term deposits, which also contributed to narrow the positive gap in the positions with fixed interest rates.

According to the time period until the next revaluation of the interest rate (i.e. residual maturity in positions with fixed interest rate), **the gap until 1 year mostly contributed to widening the total gap between interest-sensitive assets and liabilities.**The gap until 1 month had the largest contribution to the increase of the gap until 1 year, whose increase arises from the narrowing of the negative gap between positions with adjustable interest rate, primarily due to the decrease of sight liabilities with this interest rate type (aforementioned decision of some banks not to pay interest on these liabilities).The negative gap until 1 year between positions with adjustable interest rate, theoretically exposes the banking system to risk of interest rate increase, but generally this interest rate type does not expose banks to interest rate risk from the banking book, due to the agreed possibility for their unilateral change.The gap between interest-sensitive assets and liabilities with float-

ing interest rate is positive (up to and over 1 year), exposing the banking system to risk of interest rate cuts.Finally, the positive gap in positions with fixed interest rates which, being mainly concentrated in the maturity block of up to 1 month exposes the banking system to risk of interest rate cuts.Given that, on an aggregate basis, the total gap between interest-sensitive assets and liabilities is positive, the banking system is exposed to risk of interest rate cuts.However, given that most of the gap is concentrated in the time period up to 1 month, the risk of interest rate cuts would be materialized in a relatively short period of time.

Chart 62
Average period until the next interest rates revaluation*, total (left) and by interest rate type (right)
in number of months



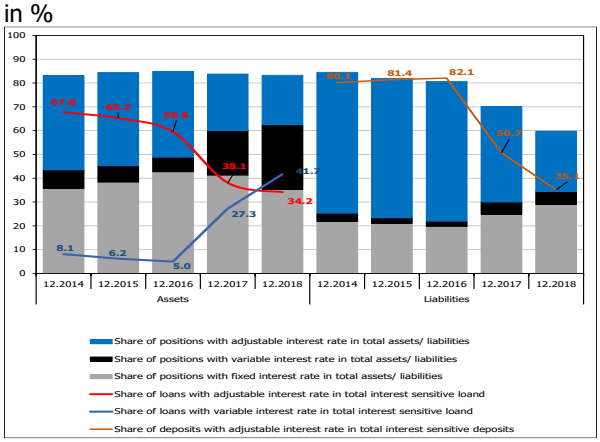
Source: National Bank, based on data submitted by banks.

In 2018, banks reduced the average period until the next interest rate revaluation in assets, and increased the average period until the next interest rate revaluation in liabilities, which led to the reduction of the gap between average period until the next interest rate revaluation in assets and liabilities.Such changes in the average period until the next interest rate revaluation in assets and liabilities, are usually done amid anticipating future interest rate increases.However, the aforementioned amendments to the regulation should be kept in mind (which are effective as of 1 January 2018), as well as the present trend of abandoning the application of adjustable[66] interest rates by banks (both in deposits and loans) have a large impact on calculating the average period until the next interest rate revaluation.

[66]In October 2016, the NBRNM in a letter recommended banks to exclude the application of unilaterally adjustable interest rates in new loan and deposit agreements with customers.

The indirect exposure to interest rate risk which arises from the presence of loans with adjustable and floating interest rates is significant. As of 31 December 2018, the cumulative share of these loans in total loans was 75.9%, whereby 41.7% of total loans have a floating interest rate, while 34.2% have an adjustable interest rate.The significant share of floating interest rate (including the adjustable interest rates) in household loans agreements, emphasizes the significance of the indirect exposure of banks, amid increasing interest rates.

Chart 63
Assets and liabilities structure, by type of interest rate
in %



Source: National Bank, based on data submitted by banks.

Over the past few years, there has been a downward trend in the share of loans and deposits with adjustable interest rate in the total loans and deposits.This trend is largely as a result to the National Bank recommendations' to bank for abandoning the application of this interest rate type due to the potential reputational and legal risk they carry for banks. Hence, banks' activities to abandon this interest rate type in loan and deposit agreements are evident, especially after the maturity date, after which floating (in loans) or fixed interest rates (in deposits) are applied to newly concluded agreements.The trend of reduced application of adjustable interest rates is more pronounced in deposit agreements, whereby the share of deposits with this interest rate type in total deposits registers a higher decline compared to the share of loans with adjustable interest rates in total loans.

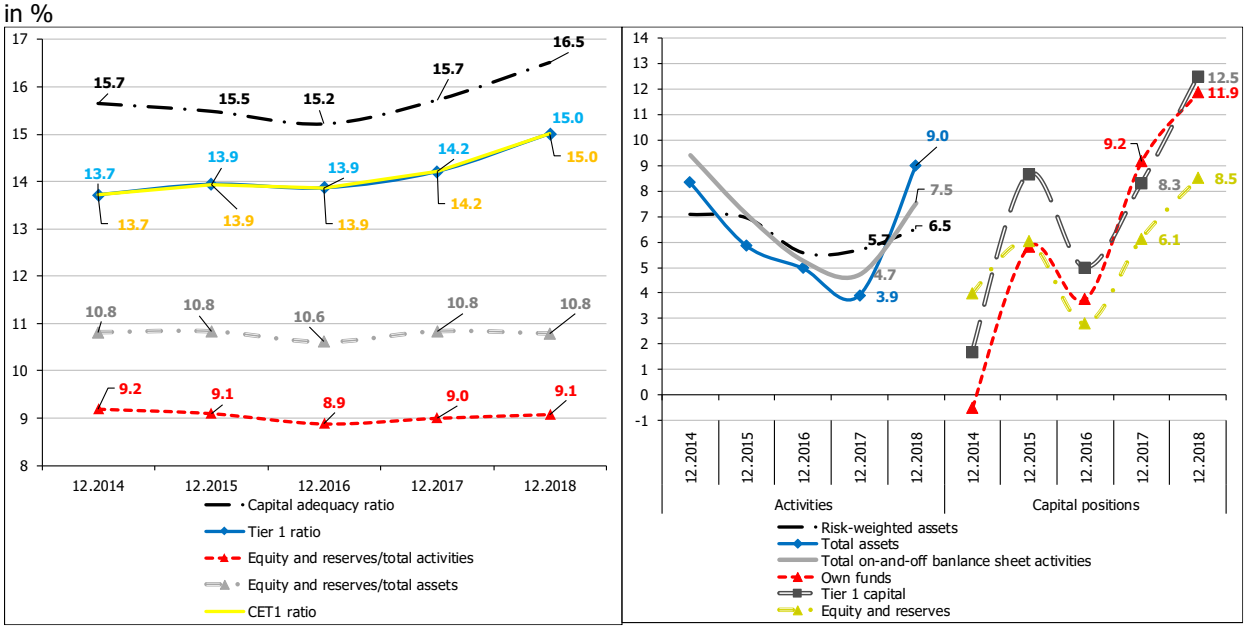
More details about the structure of the interest-sensitive items of the banks are provided in Annexes to this report.

5. Insolvency risk

The Macedonian banking system ended 2018 with higher solvency and capitalization ratios compared to the previous year. The higher growth of banks' own funds in relation to risk exposure led to improved solvency, and thus improved capacity to handle unexpected losses. The growth of own funds is due to the retained profit, ordinary share emission and emissions of new subordinated instruments, while the growth of risk weighted assets was mostly concentrated in assets weighted by credit risk. Most of the growth of own funds was used to meet the capital buffers and meet the capital requirements for credit risk coverage, but part of this growth remains free, above the minimum regulatory and supervisory requirements. The stress testing of the resilience of the banking system and individual banks in the Republic of Macedonia to simulated shocks shows improved results at the end of 2018, compared to the previous years.

5.1. Solvency indicators and capitalization of the banking system and risk level of the activities

Chart 64
Indicators for solvency (left) and annual growth rates of their components (right)
in %

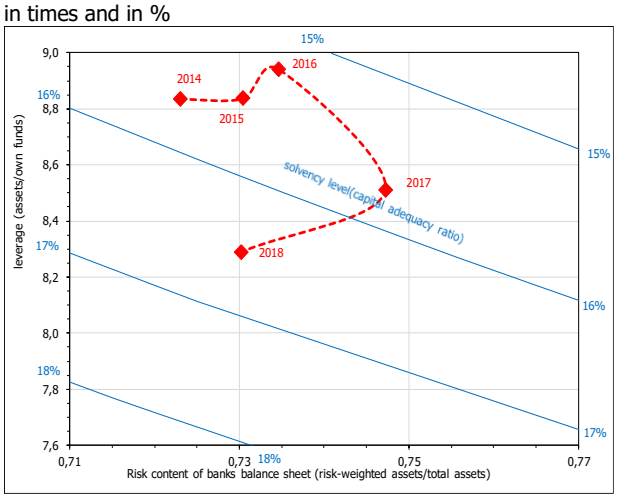


Source:National Bank, based on data submitted by banks.

In 2018, solvency and capitalization ratios of the banking system registered certain upward shifts. Capital adequacy increased by 0.8 percentage points, given the almost double higher relative growth of own assets compared to risk weighted assets.The annual growth of own funds was mostly due to retained profit, new emissions of shares and issued subordinated instruments.On the other hand, credit risk weighted assets, as so far, mostly contribute to the growth of total risk weighted assets.Braking down the capital adequacy ratio to its components points to simultaneous decrease of the so-called leverage (measured as the ratio between assets and own funds) and their risk to banking

activities (measured as the ratio between risk weighted assets and total assets), which cumulatively contributed to the increase of the capital adequacy ratio in 2018.

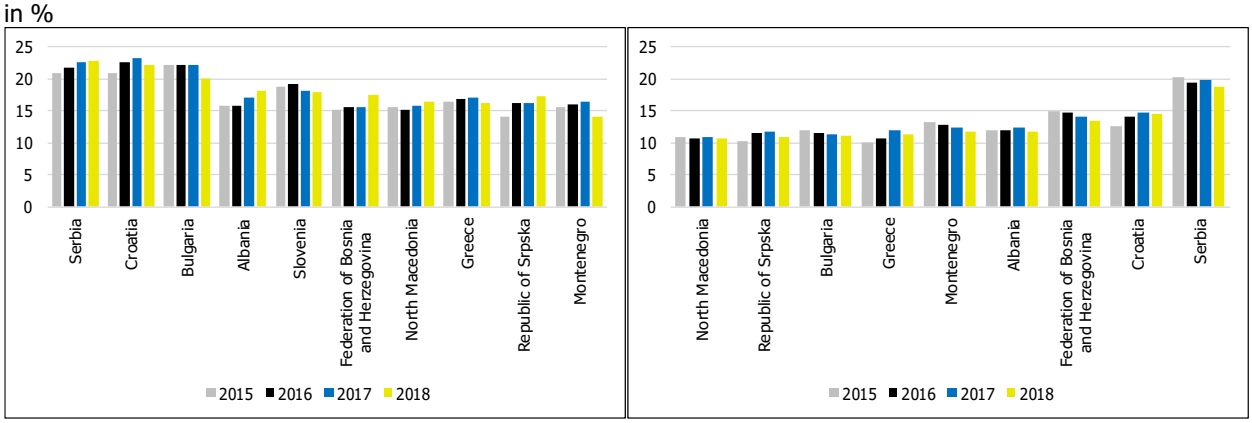
Chart 65
Leverage, risk and solvency of the banking system
in times and in %



Source:National Bank, based on data submitted by banks.

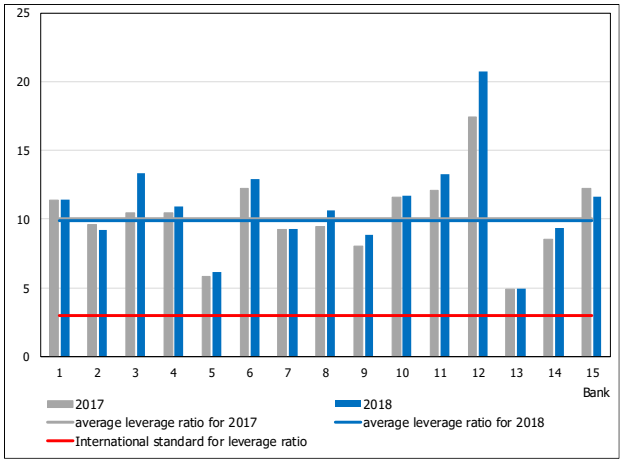
Analyzed by bank, the capital adequacy rate and Tear 1 capital rate registered an annual growth in most banks. Only one bank in the system has additional Tier 1 capital, therefore at the level of the banking system, Tier 1 capital ratios and Common Equity Tier 1 capital ratios are almost equal and equal to 15% as of 31 December 2018.Compared to the countries in the region, with the exception of few countries where the capital adequacy ratio is over 20%, the Macedonian banking system is in the second part of the list where the banking systems have capital adequacy between 14% and 18%.The share ratio of capital and reserves in total assets is similar.

Chart 66
Capital adequacy ratio (left) and share of capital and reserves in total assets (right) in the banking system of selected countries
in %



Source:IMF and central banks' Internet sites.

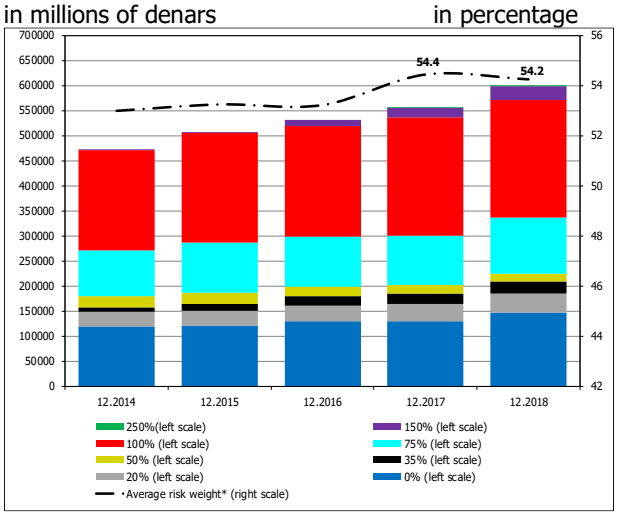
Chart 67
Average leverage ratio
in %



Source:National Bank, based on data submitted by banks.
*The leverage ratio represents the ratio between Tier 1 capital and exposure (on-balance sheet and off-balance sheet) of the bank.Banks' calculate this ratio on a monthly basis, and the graph shows the average levels of the ratios for each month.

In order to provide adequate levels of capital and prevent excessive borrowing, the Macedonian banks are obliged to determine and monitor the leverage rate[67]. The average leverage rate calculated for 2018 is 9.9%[68] and is lower by 0.2 percentage points compared to the average leverage rate for 2017.

Chart 68
Stock and structure of the total on-balance sheet and off-balance sheet exposure, by risk weight**
in millions of denars in percentage

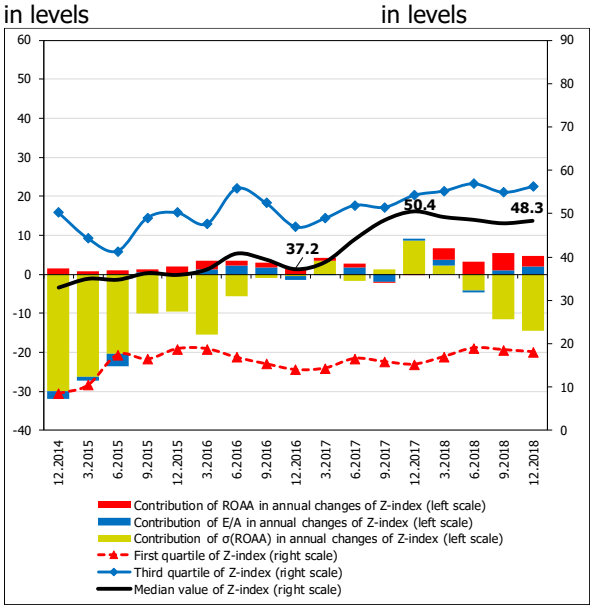


Source:National Bank, based on data submitted by banks.
**The average risk weight is calculated as a ratio between the credit-risk-weighted assets and the total balance sheet and off-balance sheet exposure of the banking system.

Total risk weighted assets increased by 6.5% (5.7% in 2017) or by Denar 22,408 million, which was almost entirely due to the growth of risk weighted assets credit risk weighted assets which increased by 7.2% or by Denar 21,834 million. As a result of the increase of banks' liquid assets, the largest increase in the total on-balance sheet and off-balance sheet exposure of the banking system was registered in activities that bank include with 0% risk weight.Exposures included in the portfolio of small loans for which risk weights of 75% and 150% are envisaged also register a solid annual growth.**Such developments in risk weighted assets contributed to a certain decrease in the risk lave of the banking activities (or average risk level of the banking activities), calculated as a ratio between risk weighted assets and total on-balance and off-balance exposure (54.2% as of 31 December 2018).**

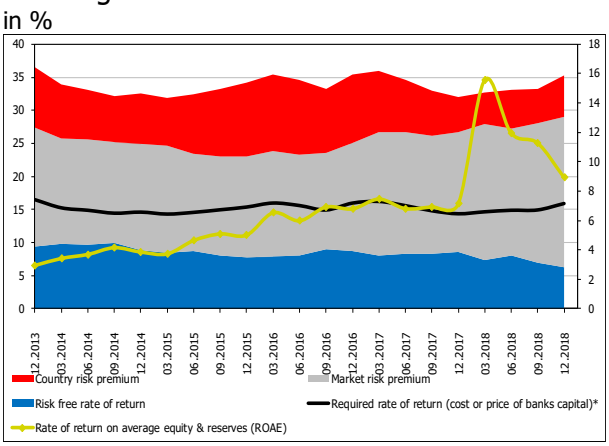
[67]The Decision on the Methodology for Managing Leverage Risk (Official Gazette of the Republic of Macedonia No.26/17).
[68]The average leverage ratio calculated for the first half of 2018 amounts to 9.3%, and for the second half of the year amounts to 10.5%.

Chart 69
Z-index



Source:National Bank, based on data submitted by banks.
*Higher levels of this index indicate lower risk exposure.

Chart 70
Level and structure of the cost (price) of the capital* of the banks whose shares are listed on the official market of the Macedonian Stock Exchange



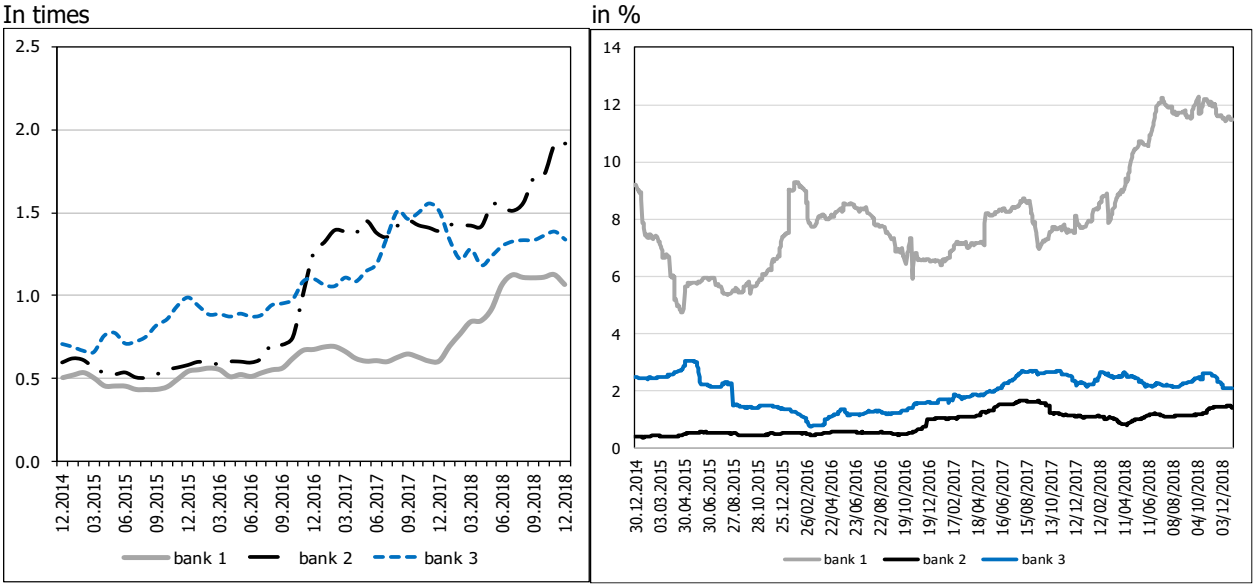
Source:National Bank, based on data submitted by banks.
*Calculated using the so-calledCapital-Asset Pricing Model (CAPM) where the price of equity is the sum of:1) risk free yield rate (determined as the average of the yields to maturity of bonds listed on the Macedonian Stock Exchange), 2) the product of beta coefficient per share and the difference between the market rate of return and risk free rate on return (or premium market risk) and 3) the premium for country risk (defined as the difference between the yields of the Macedonian Eurobonds and comparable German bonds).

Banks' stability, measured through the so-calledZ-index[69], is relatively high. On an average, it requires a negative shock of at least 48.3 standard deviations from the rate of return on assets to fully exhaust the capital potential of the banking system.During 2018, there was a decrease in the average value of the Z-index, primarily due to the increased volatility of banks' profits during the year, calculated through the standard deviation from the rate of return on average assets.

The cost of capital, i.e. required rate of return of investors in banks' shares, calculated using the so-called CAMP model, on sample of eight banks whose shares are listed on the official market, registered an annual increase. Namely, the cost of the capital, calculated using this model, increased by 1.5 percentage point and reached the level of 15.9% at the end of 2018.That is higher by 3.9 percentage points compared to the return of return on capital realized by the banks included in this analysis.The higher required rate of return on banks' shares stems from the increased market risk premium, which registered an increase of 2.0 percentage points, as a result of the increased average market return on stocks that make up the MBI 10 (in 2018, MBI 10 registered an annual growth of 36.6%).

[69]The Z Index is calculated as follows:$Z = \frac{ROAA+E/A}{\sigma(ROAA)}$, where *ROAA* is the rate of return on average assets, *E* is equity and reserves, *A* is assets and *σ(ROAA)* is the standard deviation of the rate of return on average assets, calculated for the last three years.The formula shows that this measure as such, combines several indicators:banks' performance and profitability indicator (*ROAA*), bank risk indicator (σ (*ROAA)*) and banks' soundness and solvency measure (*E/A*).Calculated as such, the Z Index measures the bank's "distance" from full depletion of its capital potential, expressed in number of standard deviations from the rate of return on assets and as such, it is a measure of the banks' capacity to absorb losses.The index at the banking system level is determined as the average of the index value calculated for each bank.Higher levels of this index indicate lower risk levels and higher overall stability of the banks.The Z Index is usually presented in a logarithmic form (natural logarithm of the previously given formula), but it is easier to interpret and more indicative when presented in levels.

Chart 71
Price-to-book ratio for the shares of the three largest banks in the system (left) and percentage of turnover ratio for the previous one-year period, for the four largest banks in the system (right)



Source:National Bank, based on data submitted by banks.

In 2018, the price-to-book ratio for the shares of the three largest banks registered an increase, with one of the banks approaching to 2. The improved performances and profitability of the banks, followed by the growth of banks' share prices i.e. mostly positive developments of the Macedonian Stock Exchange in 2018, mainly contributed to the increase of the price-to-book ratio of the shares of the three largest banks.

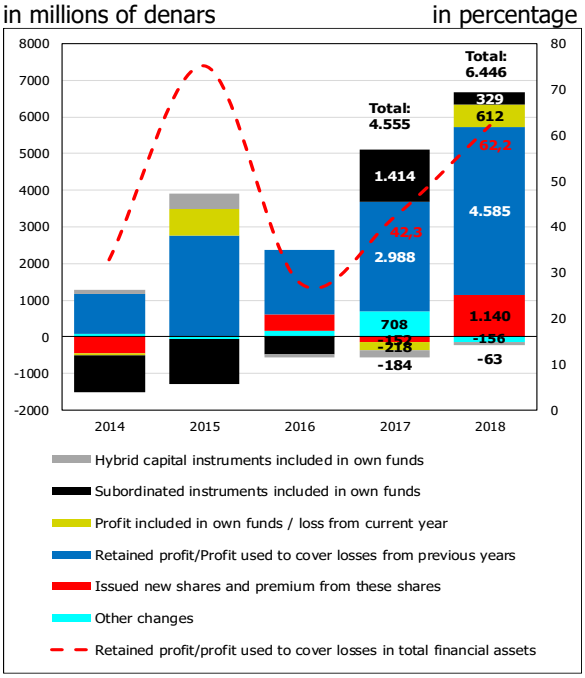
5.2. Movement and quality of the own funds of the banking system

Banks' own funds registered a faster annual growth of Denar 6,446 million or by 11.9% (in 2017, the growth of own assets was Denar 4,555 million or 9.2%), which mostly arises from the retained profit in the banks' capital positions, new issues of ordinary shares and newly issued subordinated instruments.

Chart 72

Structure of annual changes in own funds

in millions of denars in percentage



Source:National Bank, based on data submitted by banks.

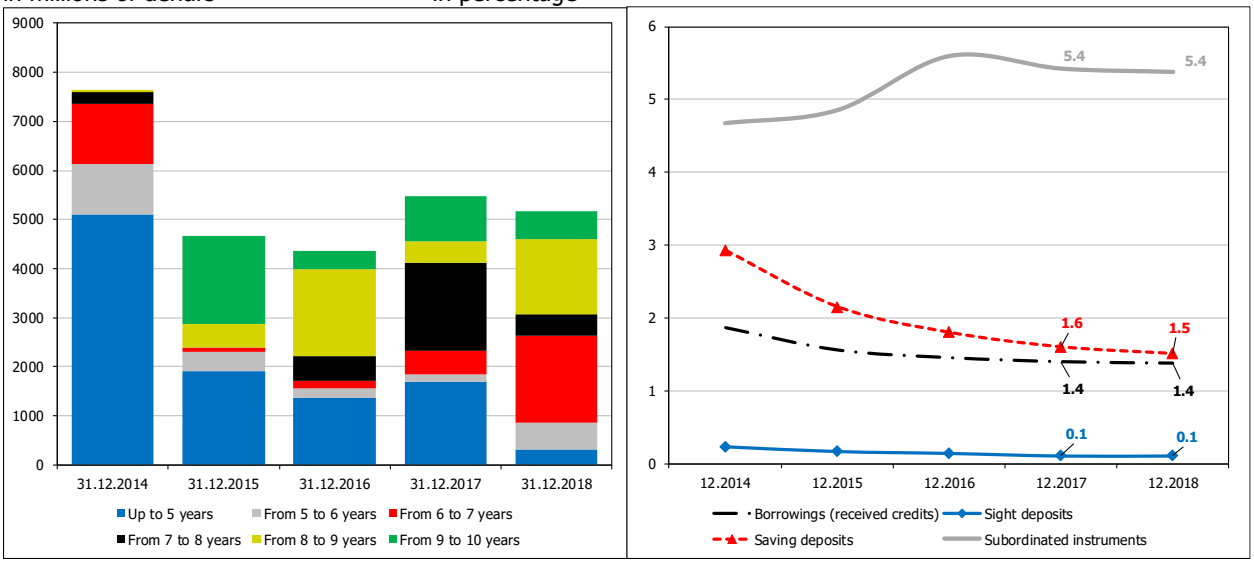
The structure of the subordinated instruments in terms of their maturity significantly improved as a result of the newly issued subordinated instruments in 2018[70]. The share of instruments with a residual maturity shorter than 5 years decreased to 5.3% at the end of 2018 (compared to 30.9% as of 31 December 2017).On the other hand, the cost of subordinated instruments, measured as interest expense rate (reduced annually) that banks make for these instruments, remained at the same level as in 2017 (5.4%).

The quality of own funds is high with a share of Common Equity Tier 1 capital (the highest quality component of own fund) in total own funds of 90.8% (90.3% as of 31 December 2017).

Chart 73

Amount and structure of total banks' liabilities based on subordinated instruments*, by residual maturity (left) and interest expenses**, for individual sources of funding (right)

in millions of denars in percentage



Source:National Bank, based on data submitted by banks.

*Total banks' liabilities based on subordinated instruments are expressed according to the net carrying amount, from the balance sheet.

**The interest expenses rate is calculated as a ratio between the amount of interest expenses realized during the year, and the average amount of sources of funds, calculated for the last five quarters.

[70]Refers to replacing the existing subordinated instruments that were in the last five years until maturity, with new longer maturity instruments.Although the new subordinated instruments are at a lower nominal value, in terms of instruments that have been replaced, still, due to the regulatory rule for discounting the value of subordinated instruments in the last five years, the total amount of subordinated instruments increased at the end of 2018, which I included in the calculation of own funds, compared to the previous year.

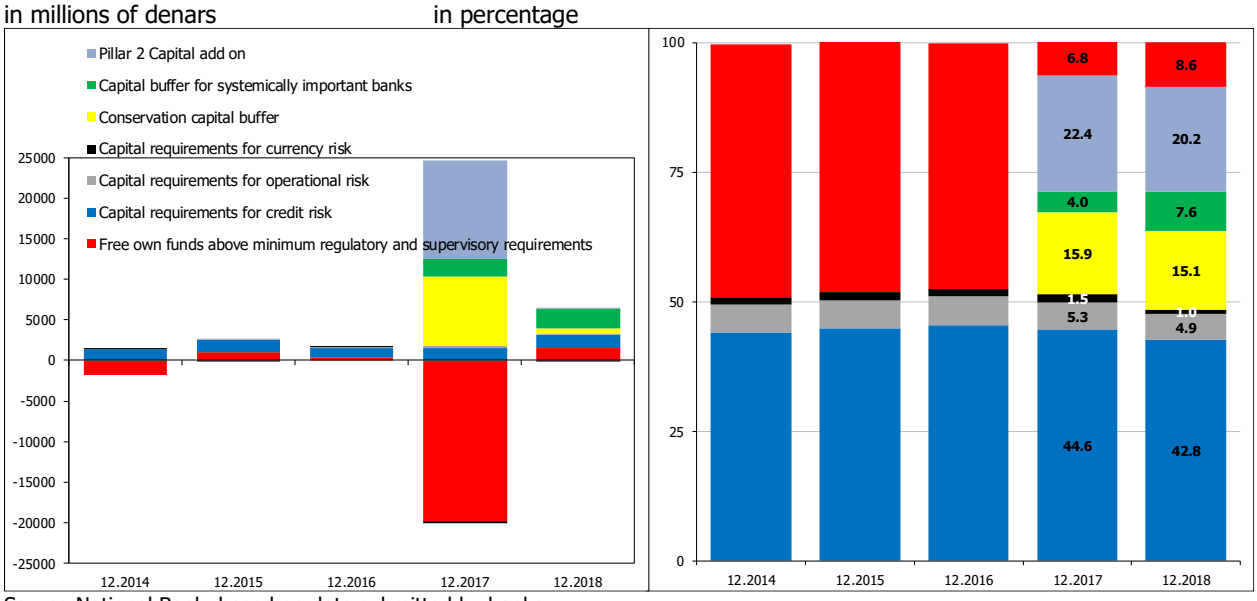
5.3. Movements and structure of capital requirements, capital buffers and available capital of the banking system

Most of the annual growth of own funds was used to cover the capital buffers of the systematically important banks[71] and for covering the capital requirements for credit risk. A smaller portion of their growth was used for covering the capital conversion buffer[72] and for increasing the available own funds above the minimum statutory and supervisory requirements (available capital registered an annual growth of Denar 1,505 million or 40.4%). Thus, the increased amount of own funds needed for covering the credit risk and covering the capital conversion buffer solely arises from the increased volume of banks' activities in 2018.

Chart 74

Structure of annual changes (left) and stock (right) of own funds, by capital requirements

in millions of denars in percentage

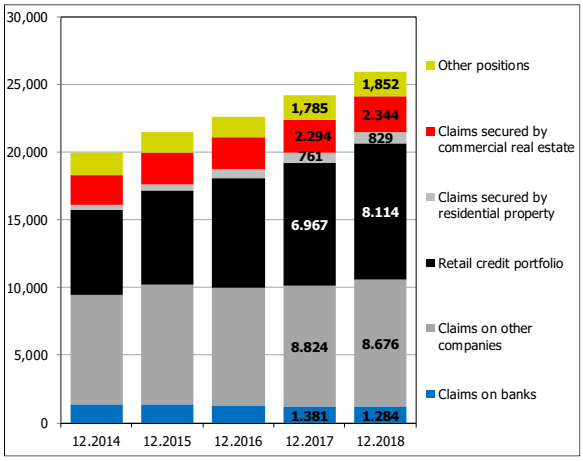


Source: National Bank, based on data submitted by banks.

[71] The list of systemically important banks determined in 2018 remained the same as in the previous year, with one bank identifying the need for higher amount of capital buffer. For more information regarding the Methodology on identifying systemically important banks and their list see the following link:
http://www.nbrm.mk/ns-newsarticle-zastiten-sloj-na-kapitalot-za-sistemski-znacajni-banki.nspx
Thereby, the systemically important banks in this list shall be obligated to meet the prescribed amount of capital buffer by 31 March 2019 at the latest.

[72] The gives the opportunity of activating both the countercyclical and systemically important capital buffer, but current assessments show that the conditions for imposing these capital buffers are not met.

Chart 75
Stock and structure of capital requirements for credit risk, by category of exposure
in millions of denars

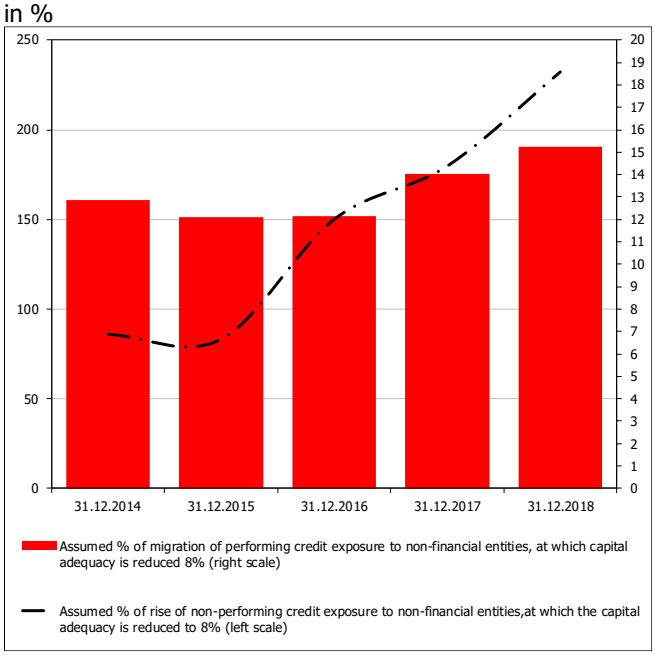


Source:National Bank, based on data submitted by banks.

Total capital requirements for covering risks register an increase (by Denar 1,793 million or 6.5%), which arises from the growth of the capital required for covering the credit risk (by Denar 1,747 million or 7.2%).On the other hand, the already low capital requirement for covering the currency risk registered an annual decrease of Denar 29 million or 5.7%. The increase of capital buffers for credit risk arises from the increase of the claims which are part of the small loan portfolio.On th other hand, the decline of the capital requirement for currency risk arises from the decrease of the open currency position of the banking system in 2018.

For more details on the capital requirements for covering risks and on the capital adequacy ratio, by group of banks, see annexes to this report.

Chart 76 The credit exposure quality has to deteriorate for the capital adequacy of the banking system to drop to 8%.
in %



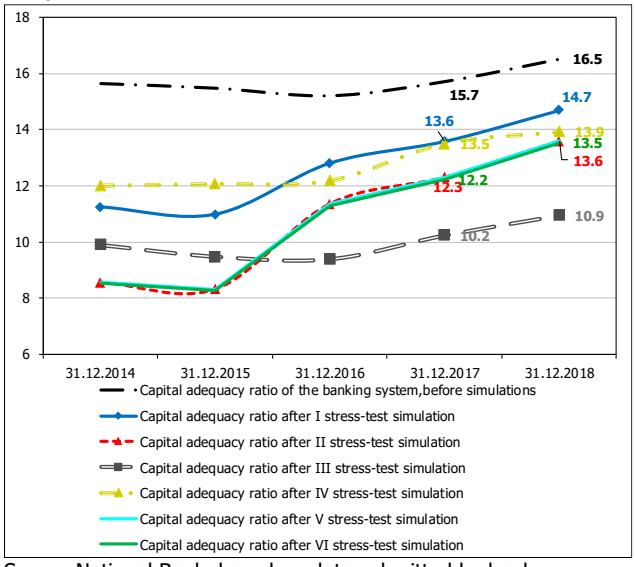
Source:National Bank, based on data submitted by banks.

5.4. Stress-testing of the banking system resilience to hypothetical shocks

The performed stress testing of the resilience of the banking system and Macedonian banks to simulated shocks for 2018 indicated improved resilience of the banks compared to 2017. The capital adequacy of the banking system does not go below 8%, in none of the simulations.This is due to the higher capital adequacy of the banking system before the simulations, but also to the less pronounced sensitivity of some banks to the assumed shocks.

Hypothetical shocks on the part of the credit risk had the greatest impact on the stability of the banking system.Within the credit exposure to non-financial entities, the simulations show that the capital adequacy of the banking system would drop to 8% only if the non-performing loan exposure rises

Chart 77
Comparison of results from simulations of credit and combined shocks
in %



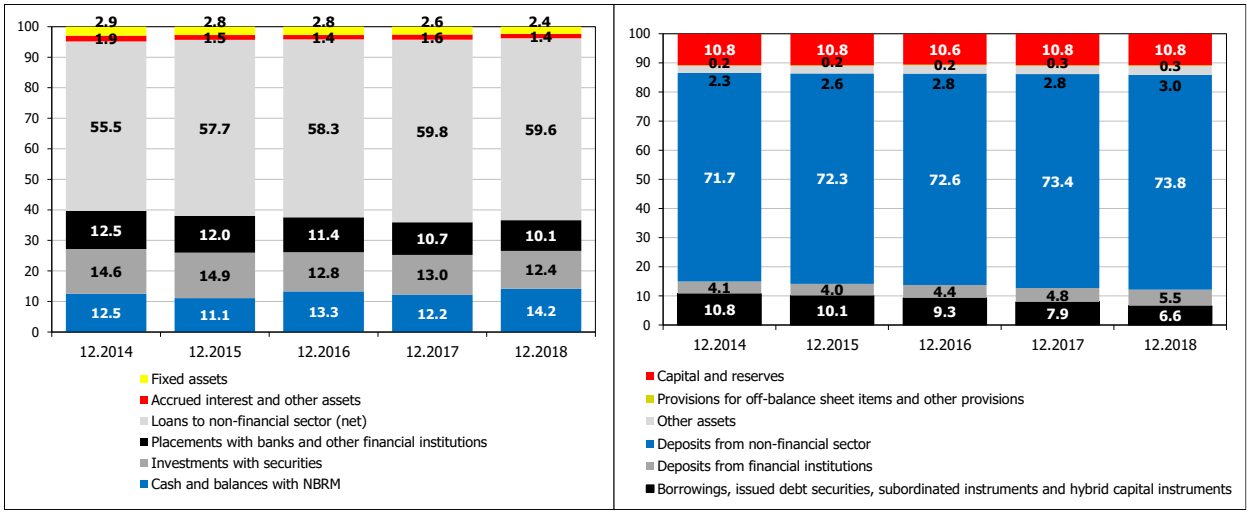
Source:National Bank, based on data submitted by banks.
*Stress testing includes the following simulations:
I simulation:Increase in non-performing loan exposure to non-financial entities by 50%;
II simulation:Increase in non-performing loan exposure to non-financial entities by 80%;
III simulation:Migration of 10% of the regular to a non-performing credit exposure to non-financial entities;
IV simulation:Reclassification in "C - non-performing" of the five largest credit exposures to non-financial entities (including related entities);
V simulation:Increase in non-performing loan exposure to non-financial entities by 80% and increase in interest rates from 1 to 5 percentage points;
VI simulation:Increasing the non-performing credit exposure to non-financial entities by 80%, depreciation of the Denar exchange rate by 30% and increase in interest rates from 1 to 5 pp.;
by 232.2%, i.e. in case of migration of 15.3% from regular to non-performing loan exposure.These simulations would lead to a three-fold increase in the rate of non-performing loans.In comparison, during 2018, non-performing credit exposure decreased by 7.3%, while only 1.8% of regular credit exposure became non-performing.

III. Major balance sheet changes and profitability of the banking system

1. Bank activities

In conditions of stable expectations of the domestic economic entities, sound economic fundamentals and absence of imbalances in the economy[73], the total activities of the banking system in 2018 intensified. The growth of banks' assets stems most from the accelerated deposit growth and is reflected by the rapid growth in lending to non-financial entities and liquid assets. The increased lending is mostly a result of the denar loans to households. The increased credit support to corporate clients, which still contributes slightly to the overall credit growth, is of particular importance for the economic activity. The growth in banks' deposit potential stems most from the increase in denar household deposits, primarily demand deposits, with larger contribution of deposits from financial institutions, in particular, from pension funds, being registered. In addition, in 2018 banks increased their capital and reserves and profits, which also made a significant contribution to the increase in the resources of the banking system.

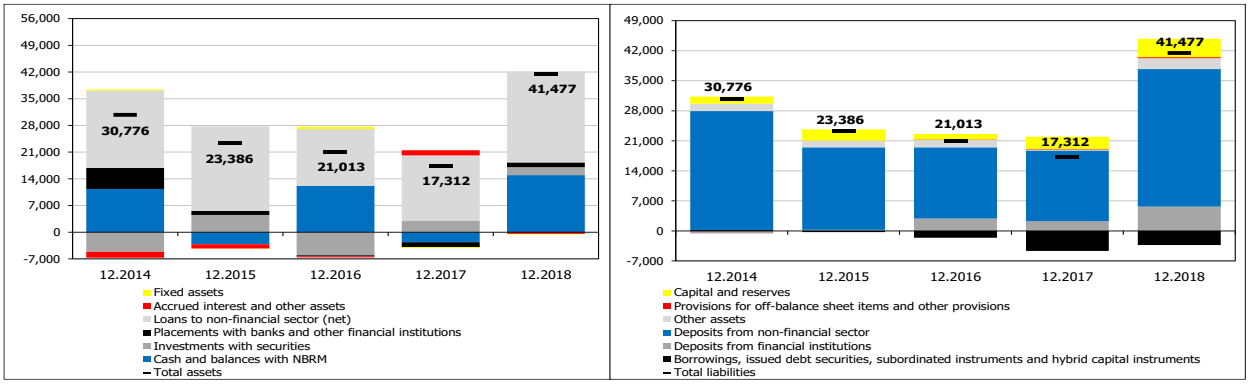
Chart 78
Structure of the assets (left) and liabilities (right) of the banking system
in %



Source: National Bank, based on the data submitted by banks.

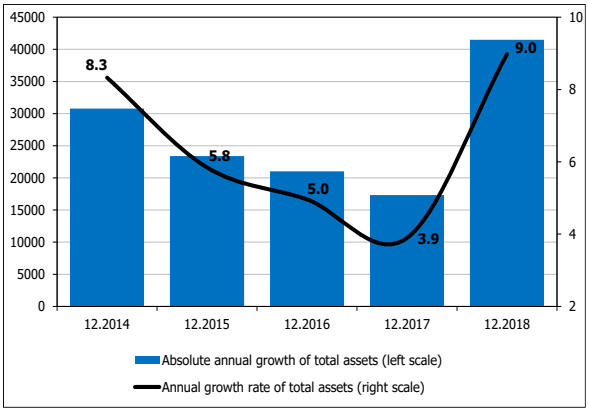
[73] In 2018, the National Bank estimated that there is a room for monetary policy relaxation and reduced the interest rate on the CB bills from 3.25% to 3.00% in March 2018, to 2.75% in August 2018 and 2.50% in December 2018. In March 2019, the National Bank adopted a decision on additional reduction of the interest rate on CB bills (from 2.50% to 2.25%). The bid amount remained at Denar 25,000 million.

Chart 79
Annual growth of components of assets (left) and liabilities (right) of the banking system
in millions of denars



Source: National Bank, based on the data submitted by banks.
Note: The loans are presented on net basis, reduced by impairment.

Chart 80
Assets of the banking system
in millions of denars and in %



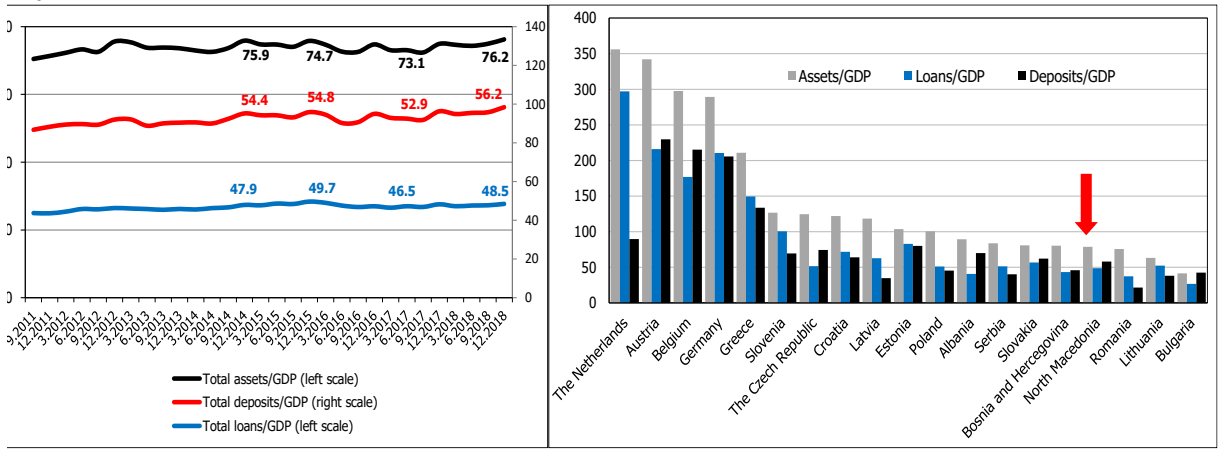
Source: National Bank, based on the data submitted by banks.

As of 31 December 2018, total assets of the banking system was Denar 503,469 million, which is an annual increase of Denar 41,477 million, or 9%. Asset growth has more than doubled compared to 2017 and is mainly driven by the accelerated growth of lending to non-financial entities and liquid assets growth (primarily cash and funds on the accounts and deposits with the National Bank and placements in short-term assets in foreign banks and domestic government bonds). The driving force of the banks' assets growth was the deposit activity with non-financial entities, which grew rapidly compared to the previous year. More significant growth was registered also with the deposits of financial corporations, mostly as a result of the increase in the pension funds' deposits. Higher financial result registered in the previous and during the current year was significant source to finance the increased activities of the banking system. After the registered fall in the previous year, the liabilities towards the banks' parent entities registered more significant increase in 2018.

Chart 81

Financial intermediation in the Republic of North Macedonia, EU countries and the region

in %



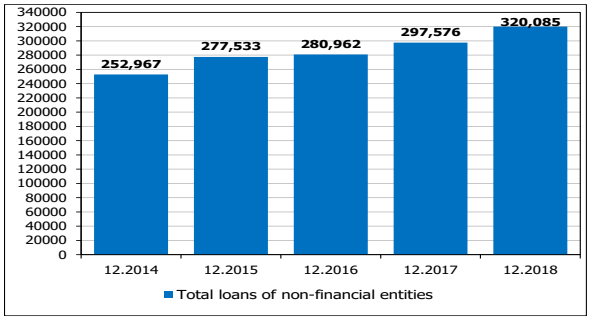
Source: NBRM, based on data submitted by banks, websites of IMF, ECB and central banks.

Note: The data in the right chart refer to December 2017, except to Macedonia, Austria and Germany (December 2018).

Chart 82

Amount of loans to non-financial entities

in millions of denars

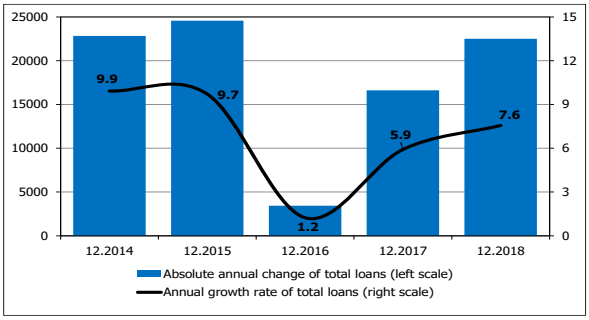


Source: National Bank, based on the data submitted by banks.

In 2018, the indicators point to larger role of the banking system as finanial intermediary. Compared with most EU countries under observation, financial intermediation in the Republic of North Macedonia is lower, but similar to that of the countries of the region.

Chart 83 Growth of loans to non-financial entities

in millions of denars and in %



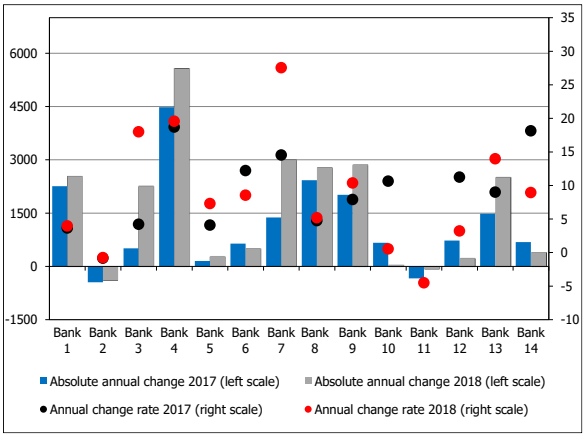
Source: National Bank, based on the data submitted by banks.

1.1 Loans to non-financial entities

In conditions of stable expectations of the economic agents and absence of imbalances in the economy, the growth of lending to non-financial entities accelerated in 2018. Loans to non-financial entities[74] increased by Denar 22,510 million, or by 7.6% (Denar 16,613 million, or 5.9% in the second quarter of 2017). Analyzed by bank (two in the group of large and one in the group of medium-size banks) contributed 50.7% to the total annual change of loans to non-financial entities.

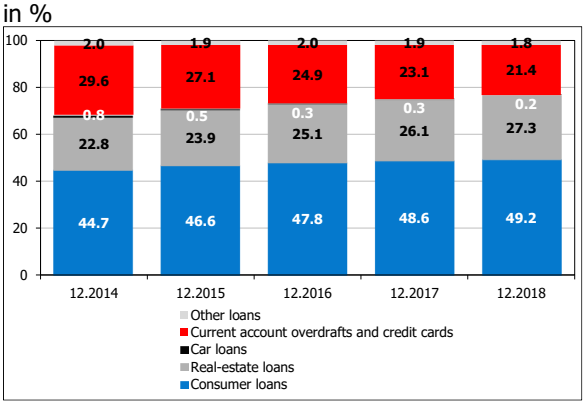
[74] Loans to non-financial entities include loans to resident and non-resident non-financial entities, including loans to private and public non-financial companies, central government, local government, non-profit institutions serving households (loans to other clients), sole proprietors and natural persons (loans to households).

Chart 84
Annual growth of the total lending to non-financial entities, by bank
in millions of denars and in %



Source: National Bank, based on the data submitted by banks.
"MBDP" AD Skopje was excluded from this analysis.

Chart 85
Structure of loans to natural persons, by product
in %



Source: National Bank, based on the data submitted by banks.

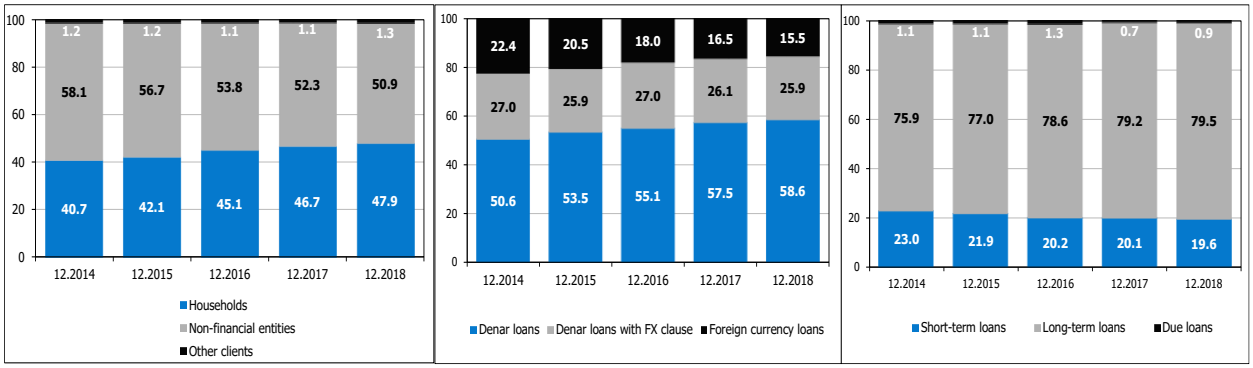
Lending to households made the largest contribution of 64% to the annual growth of lending to non-financial entities. However, their contribution to the total credit growth in 2018 is lower compared to the previous year (when it was 73.7%), due to the accelerated growth of the loans to non-financial corporations. Loans to households grew at a solid growth rate of 10.4% (9.7% in 2017), while growth rates on corporate loans were twice lower, compared to households, accounting for 4.7% (2.9% in 2017).

Banks continue to have greater propensity for lending to households, with the last several years **showing a steady approximation of the structural participation of the structural shares of households and corporate clients in total bank lending** (as of 31 December 2018, 47.9% and 50.9%, respectively[75]). In six of the fourteen banks[76], the share of household loans in the banks' loan portfolio is higher than the share of corporate loans.

By purpose, 70.7% of the loans to natural persons are intended for financing the non-identified consumption by natural persons (consumer loans, overdrafts and credit cards).

[75] 46.7% and 52.3% respectively at the end of 2017.
[76] MBDP AD Skopje was excluded from this analysis.

Chart 86
Structure of total loans, by sector (left), currency (middle), and structure of regular loans, by maturity (right)
in %

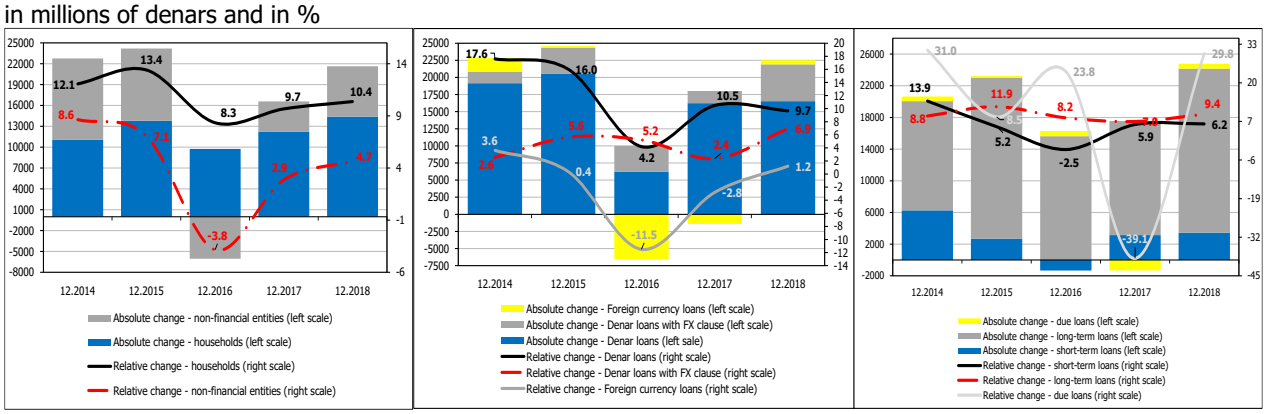


Source: National Bank, based on the data submitted by banks.

In 2018, denar loans contributed the most (73.5%) to the growth of total loans to non-financial entities, although the contribution of currency component lending increased significantly (from 2.3% in 2017 to 26.5% in 2018). Denar loans[77] increased more with households (growth of Denar 9,523 million or 12.7%), compared to the corporate loans (growth of Denar 7,230 million or 7.6%). The increase in denar loans with currency clause and foreign currency loans [78] is once again mainly stirred by households. Denar loans kept the leading role in the loans' currency structure with a share of 58.6%, and additionally increased compared to the previous year.

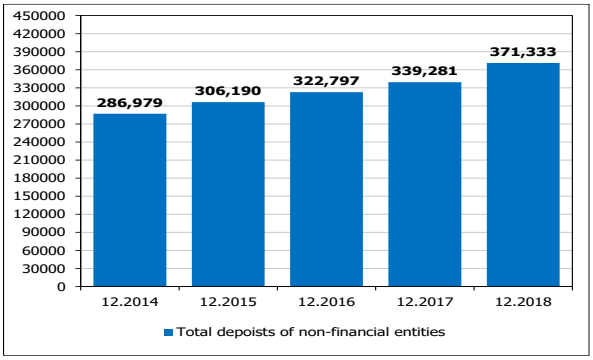
[77] Denar loans increased annually by Denar 16.535 million, or 9.7%.
[78] Denar loans with FX clause increased by Denar 5,381 million (or 6.9%), with contribution of household loans of 69.8%. Foreign currency loans grow by Denar 594 million (or 1.2%) annually, whereby household credit growth equals Denar 1,122 million (or 12.9%).

Chart 87
Annual growth of loans by sector, currency and maturity
in millions of denars and in %



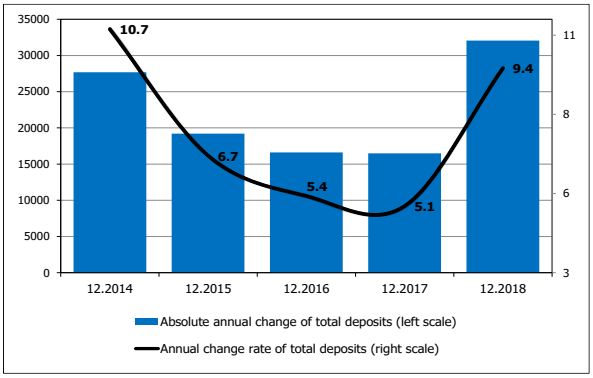
Source: National Bank, based on the data submitted by banks.

Chart 88
Stock of deposits of non-financial entities
in millions of denars



Source: National Bank, based on the data submitted by banks.

Chart 89
Growth of deposits of non-financial entities
in millions of denars and in %



Source: National Bank, based on the data submitted by banks.

In 2018, the increase in the loan portfolio maturity continued. Long-term lending registered an annual growth of 9.4%, thus further strengthening its share in the structure of total loans (79.5%). Most (65.8%) of the growth of long-term loans was due to household loans[79]. Short-term lending contributed less (15.3%) to the growth in total lending. Thereby, the growth of short-term loans was mostly due to non-financial corporations[80]).

1.2. Deposits of non-financial entities

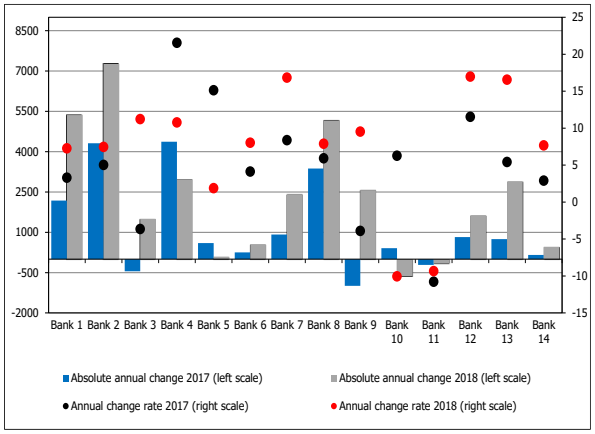
The deposits of the non-financial entities in 2018 continued to grow faster (especially since the second quarter), still being the main source of financing the bank activities (73.8% of total sources of funds, which is almost unchanged compared to 2017). The annual growth of the banks' deposit base amounted to Denar 32,052 million, or 9.4%, being significantly faster compared to the end of 2017 (when it accounted for 5.1%). Households, which are traditionally the most important depositor in the domestic banking system, in 2018 increased their assets in banks by Denar 22,278 million, or 9.5% (6.2% in 2017). **Deposits of non-financial corporations** experienced more

[79] Long-term loans to households registered an annual increase of Denar 13,640 million, primarily reflecting the growth of long-term denar loans to households (about Denar 8,676 million), mainly consumer and housing loans.
[80] Short-term loans of non-financial corporations increased by Denar 2,746 million (or 5.8%) on an annual basis, which was almost entirely due to the growth of denar loans to households (by Denar 2,720 million, or 2.4%).

modest annual growth (of Denar 8,488 million or 9.2%), which is almost three times less than the growth of household deposits, but significantly higher than in 2017 (when it was 2.4% or 2,158 millions).

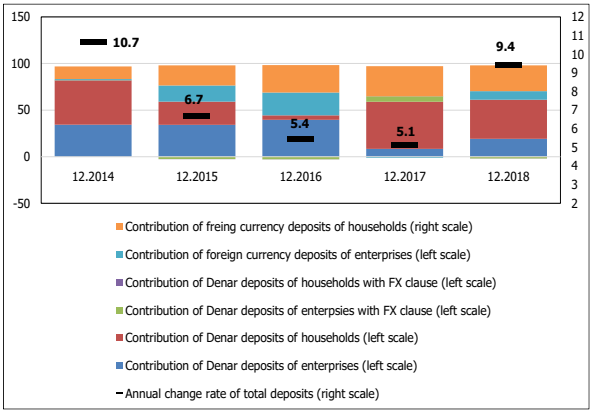
By bank, three banks from the group of large banks contributed 55.5% to the total annual change in the deposits of non-financial entities.

Chart 90
Annual growth of total deposits of non-financial entities, by bank
in millions of denars and in %



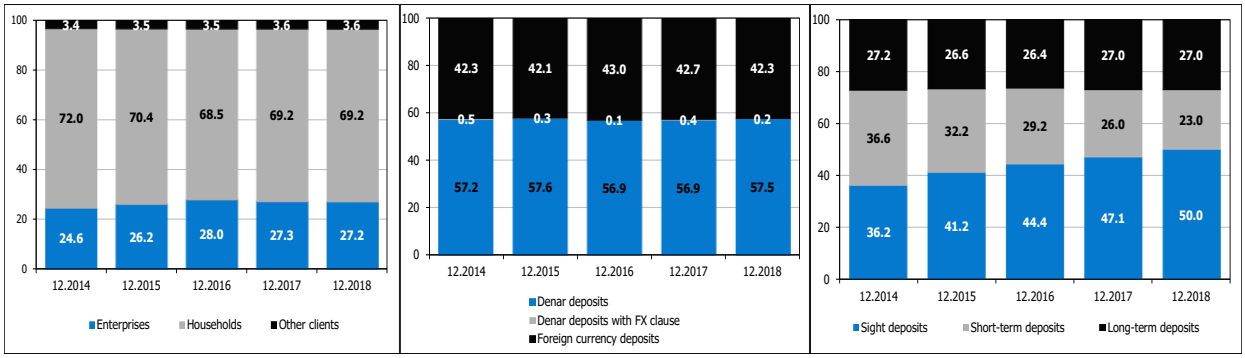
Source: National Bank, based on the data submitted by banks.

Chart 91
Contribution of individual components to the annual growth of total deposits of non-financial entities
in millions of denars and in %



Source: National Bank, based on the data submitted by banks.

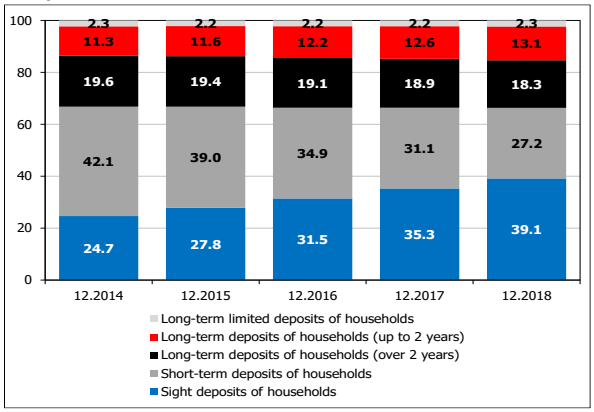
Chart 92
Structure of total deposits, by sector (left), currency (middle) and maturity (right)
in %



Source: National Bank, based on the data submitted by banks.

Analyzing the currency structure, denar deposits had the largest share in the annual growth of total deposit, increasing by Denar 20,368 million (or 10.5%). Household deposits contributed significantly (66%) to the growth of denar deposits compared to the contribution of the deposits of non-financial corporations (30.3%). The largest share of the total deposit base remains with the Denar deposits, whose share in the currency structure of the deposits increased (57.5% as of 31 December 2018, compared to 56.9% as of 31 December 2017). Foreign currency deposits registered annual growth of Denar 12,315 million, or 8.5%, while 71.8% accounted for the household deposits.

Chart 93
Maturity structure of household deposits
in %



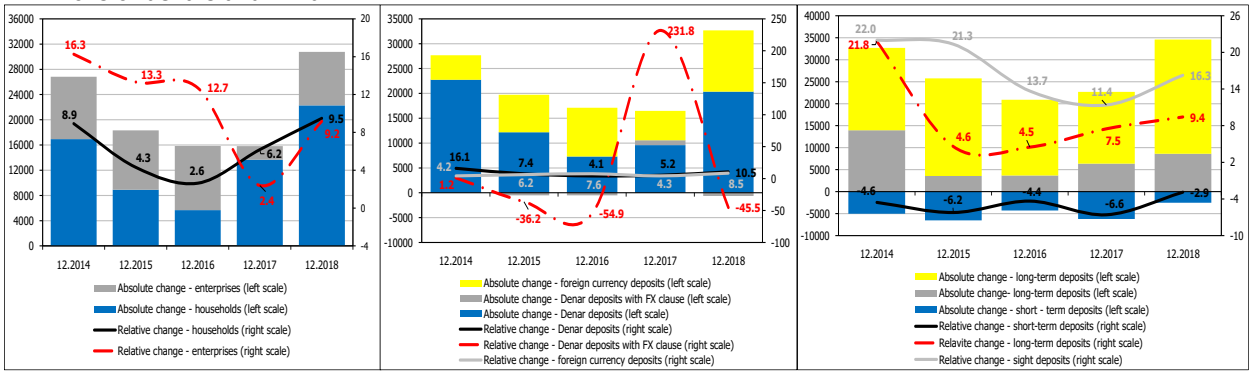
Source: National Bank, based on the data submitted by banks.

In 2018, the maturity transformation of the deposit base of non-financial entities continued. At the end of 2014, demand deposits took the lead in the growth of deposits of non-financial entities, thus remaining the fastest growing component in the maturity structure of total deposits. Demand deposits reached half of the total deposit base and almost 40% in household deposits. However, long-term deposits registered solid annual growth, while the contribution of the short-term deposits in the deposit growth remainednegative. In 2018, **the short-term[81] deposits** registered fall of Denar 2,545 million, or of 2.9%. **Demand deposits** increased by Denar 25,970 million (or

[81] The annual decline in the short-term deposits was mostly (72.6%) due to the decrease of household deposits in foreign currency.

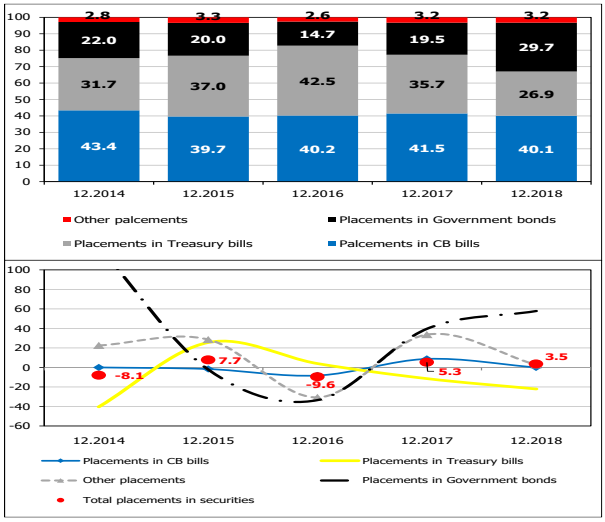
16.3%), which was largely driven by denar deposits[82], primarily household deposits. **Long-term deposits** experienced annual growth of Denar 8,627 million (or 9.4%), whereby the contribution of denar deposits (55.6%) was slightly higher than the contribution (51.3%) of the foreign currency deposits.[83].

Chart 94 Annual change of deposits of non-financial entities, by sector, currency and maturity
in millions of denars and in %



Source: National Bank, based on the data submitted by banks.

Chart 95
Structure (top) and annual growth rate (bottom) of securities portfolio and investments in associated companies
in %



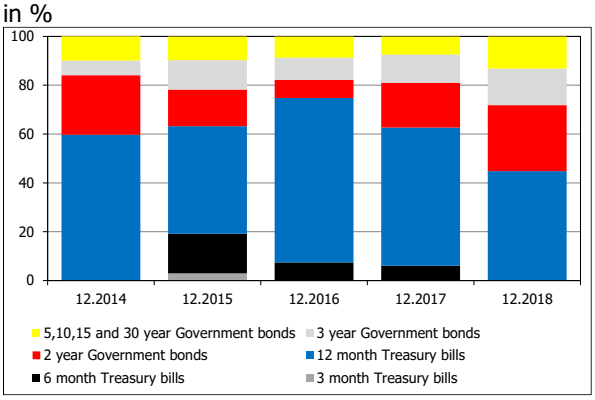
Source: National Bank, based on the data submitted by banks.

1.3. Other activities

At the end of 2018, banks' investment in securities[84] (by net book value) increased by Denar 2,079 million (or 3.5%), while their share in the total assets of the banks amounted to 12.4% (13% as of 31 December 2017. The annual growth of the total securities portfolio is entirely a result of the significantly increased banks' investments in domestic long-term debt securities (by Denar 6,778 million, or 57.8%), mostly in two-year and three-year government bonds. Banks' investments in treasury bills fell annually by Denar 4,751 million (or 22.1%). The banks' investment in CB bills are almost unchanged compared to 2017 (given unchanged supply).

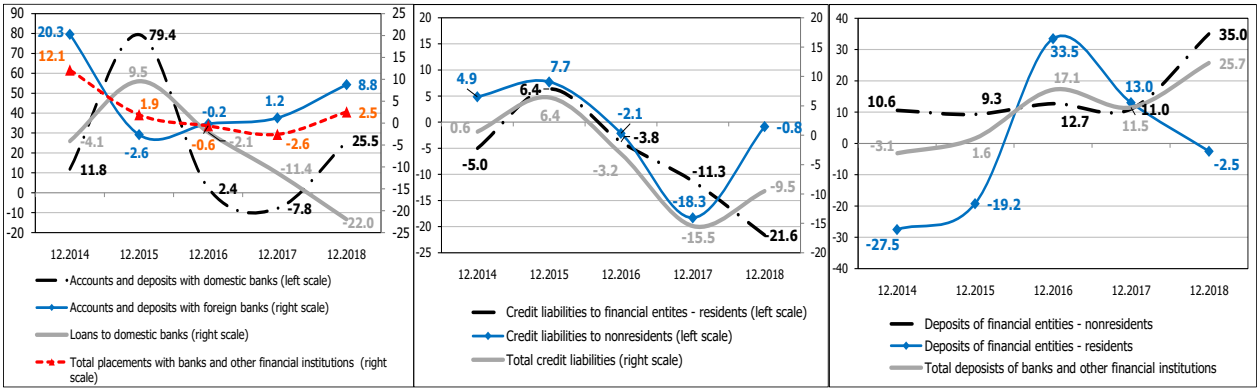
[82] The annual growth of demand deposits largely (59.9%) resulted from the growth of denar deposits (out of which, household deposits increased by Denar 10,297 million, while deposits of non-financial corporations increased by Denar 4,972 million) and to a smaller extent (40.5%) of the growth of foreign currency deposits (the growth of household deposits amounted to Denar 7,408 million, and the growth of deposits of non-financial companies amounted to Denar 3,227 million).
[83] The annual growth of long-term denar deposits amounted to Denar 4,798 million, largely due to the growth of household deposits. The annual growth of long-term foreign currency deposits amounted to Denar 4,425 million, and the largest part (76.2%) of this growth arises from household deposits.
[84] Including investment in associated companies.

Chart 96
Maturity structure of banks' investments in government securities
in %



Source: National Bank, based on the data submitted by banks.

Chart 97
Annual change in the placements with financial institutions (left), loan liabilities (middle) and deposits of financial institutions (right)
in %



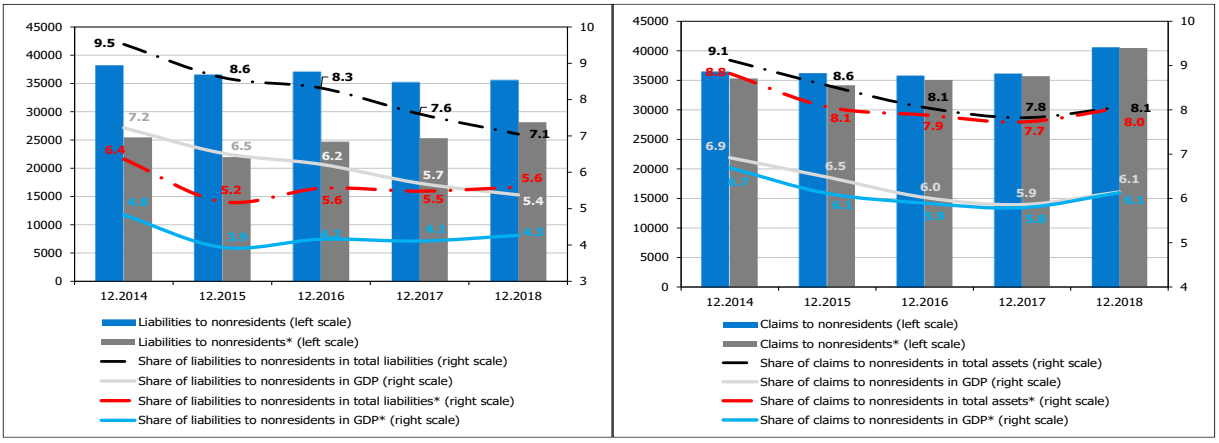
Source: National Bank, based on the data submitted by banks.

In 2018, placements with banks and other financial institutions increased (by Denar 1,253 million, or 2.5%), which is entirely due to the growth of short-term time deposits of domestic banks abroad. On the other hand, the loans extended to the domestic banks decreased as a result of the reduced long-term foreign currency loans extended to domestic banks through MBDP AD Skopje. The volume of inter-bank operations in the domestic banking system is still small (placements with domestic banks account for only 2.3% of total banks' assets). Within liabilities, the reduced **liabilities based on loans** (by Denar 2,908 million, or 9.5%) arise from the reduced liabilities based on short-term denar loans and reduced liabilities based on long-term foreign currency loans to domestic banks (due to deleverage of domestic banks to MBDP AD Skopje) and to non-resident financial institutions (due to MBDP AD Skopje deleverage to international financial institutions).

Bank and other financial institutions' deposits are still a very small source of financing for the banks, although their share in total liabilities in 2018 increased slightly (and equals 5.5%). Bank and other financial institutions' deposits increased by Denar 5,667 million, or 25.7%, largely due to the growth of current account balances and long-term denar deposits of pension funds. The short-term deposits from domestic banks and long-term deposits from insurance companies also increased.

In2018, the banking system's claims on non-residents exceeded its liabilities to this sector. The volume of domestic banks' activities with non-residents is still relatively insignificant. Banks' claims on non-residents increased by Denar 4,451 million or 12.3%, and their share in total assets of the banking system reached 8.1%[85]. This increase stems from the increase in banks' placements in short-term foreign currency deposits abroad. Long-term loans to non-financial non-resident entities also registered some increase. On the other hand, the banks' liabilities to non-residents registered a slight increase of Denar 369 million (or 1%), which is a result of the growth of liabilities to banks' foreign parent entities, while MBDP AD Skopje .simultaneously repaid debt to international financial institutions. The share of liabilities to non-residents in total liabilities decreased and equaled 7.1%[86].

Chart 98
Liabilities to (left) and claims on (right) non-residents
in millions of denars and in %



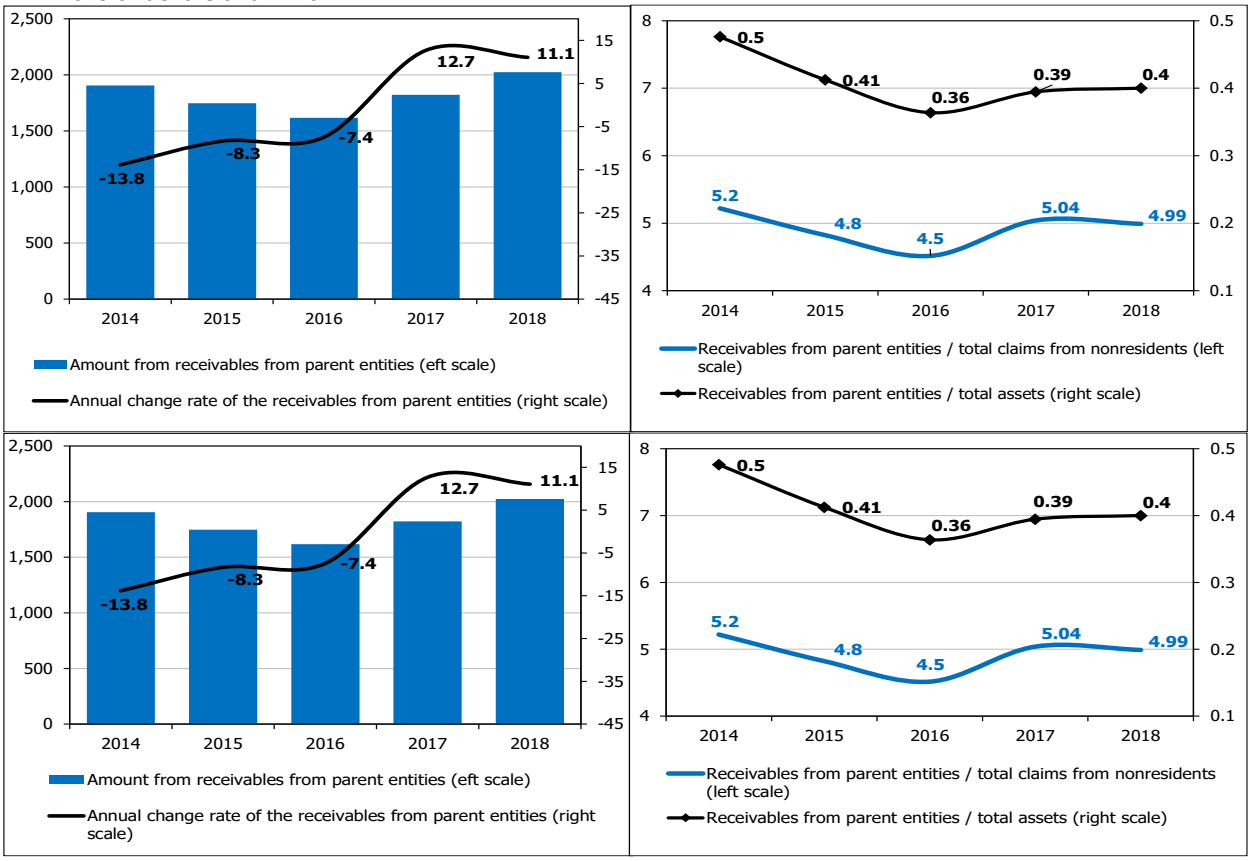
Source: National Bank, based on the data submitted by banks.
MBDP AD Skopje is not included.

The funding sources by parent entities have little significance for the Macedonian banks. However, in 2018, banks' liabilities to their parent entities increased by Denar 3,276 million (or 36%), largely as a result of the growth of short-term deposits from financial entities and the growth in liabilities based on borrowings with a medium-sized bank.

[85] Analyzing by bank, the share of banks' claims on non-residents in total assets ranged from 1.8% to 18.6%. "MBDP" AD Skopje was excluded from this analysis.
[86] Analyzed by bank, the share of banks' liabilities to non-residents in total liabilities ranged from 0.1% to 18.3%. "MBDP" AD Skopje was excluded from this analysis.

To a lesser extent, the growth of liabilities towards parent entities is due to the increased liabilities based on subordinated instruments and the growth of short-term deposits with two large banks. Thus, the share of banks' liabilities to parent entities (including subordinated liabilities and hybrid capital instruments) in total liabilities of the domestic banking system, and in liabilities to non-residents increased to 2.6% and 34.8%[87], respectively (2.2% and 25.9%, respectively as of 31 December 2017). The sources of banks' financing from parent entities often include short-term deposits and liabilities based on loans and subordinated instruments. **Banks' claims on parent entities** participate with only 0.4% in the total assets of the domestic banking system, while their share in the total claims on non-residents is 5%. Compared to 2017, the claims on parent entities registered an increase of Denar 202 million, or 11.1%.

Chart 99
Liabilities to parent entities of banks
in millions of denars and in %



Source: National Bank, based on the data submitted by banks.

[87] Analyzing by bank, the share of banks' liabilities to parent entities in total liabilities to non-residents ranged from 9.7% to 79.5%. Analyzing by bank, the share of banks' liabilities to parent entities in total liabilities ranged from 0.1% to 12.6%.

2. Profitability

During 2018, banks registered high profit from their operations, which significantly improved the indicators used for monitoring the profitability and efficiency of the banking sector. Return on equity and assets reached pre-global crisis levels, with operational efficiency also being improved. Such movements are mainly a result of the one-off factors in the first quarter of the year[88], with the regular bank activities also contributing mainly through the segments that generate non-interest income. The net interest income decreased moderately on annual basis, thus contributing negatively to the annual growth of the banking sector's profit for the first time since 2010. Namely, in conditions of stable domestic environment and revival of the economic activity, banks increased their volume of activities, but this was not enough to support the growth of interest income, which is in the zone of annual decline for the second consecutive year. This year as well the banks managed to compensate some of the decrease in interest income through downward adjustments on the expenditures side, but that gap is getting narrower and additionally constrained by the accelerated growth of the total deposit base. Hence, the capacity of the domestic banks to generate interest income will be an important challenge for maintaining the profitable operations of the banking sector in the period ahead. Most banks expect profitability to increase also in 2019[89]. However, for maintaining such trends, it is important for the banks to continue incrementing their loan portfolio, as the most profitable portfolio of banking activities, as well as to develop new competitive products, with further adequate risk management and effective control of operating costs.

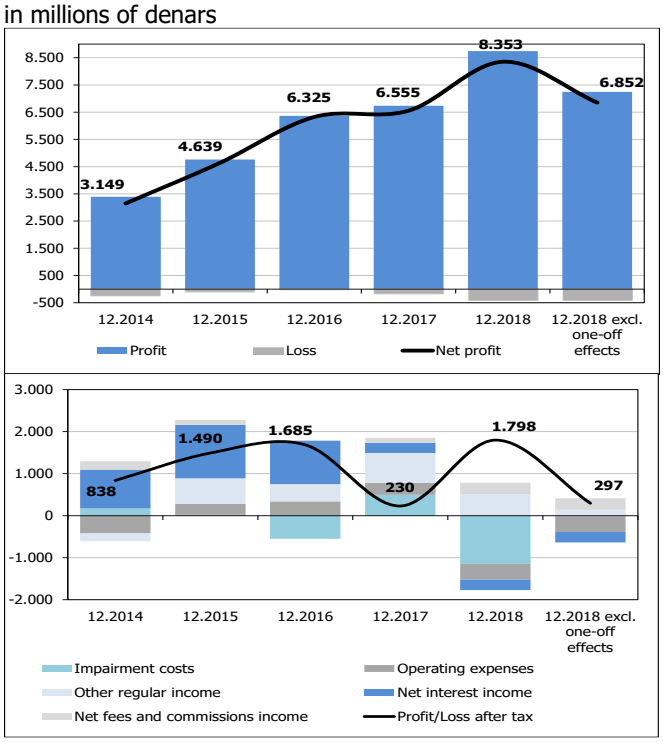
5.1 Profitability and efficiency indicators of the banking system

In 2018, the banking system generated profit from their operations of Denar 8.4 billion, which is by 27.4% higher, or Denar 1.8 billion, compared to the previous year. The main reason for the high increase in banks' earnings were few irregular events in the first quarter of the year, when a larger amount of non-performing claims from one non-financial corporation was collected by several banks and capital gains were generated from the sale of equity stake by one bank. The impact of these one-off factors explains about 83% of the banking sector's profit growth. Excluding their effect, earnings would be within the financial result of the previous year with moderate annual growth of 4.5%.

[88] In the first quarter of 2018, a larger amount of non-performing claims from one larger non-financial company was collected by several banks and capital gains were realized from the sale of equity stake. These are irregular events that contributed to the profitability increase of the banking sector.

[89] Pursuant to the Survey on banks' perceptions of risks stemming from their surrounding and planned business activities in 2019.

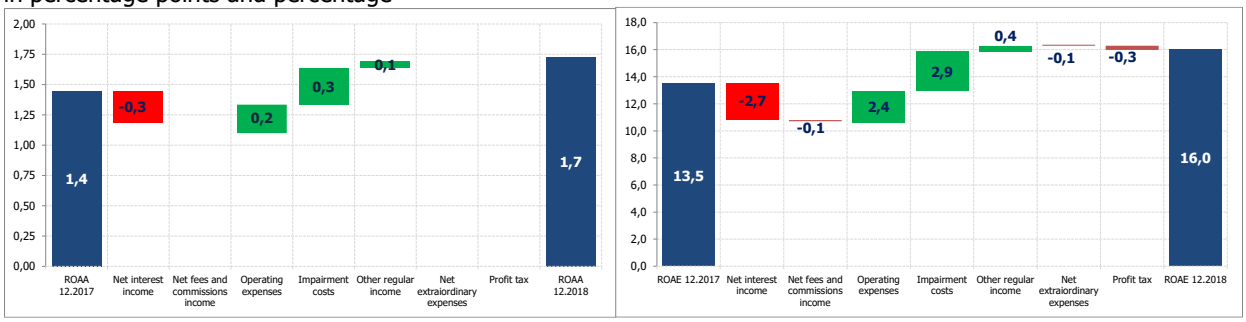
Chart 100
Net profit after taxation (top) and annual change in main income and expenses (bottom)
in millions of denars



Source: National Bank, based on the data submitted by banks.

The one-off factors influenced profitability by reducing the cost of impairment, as a category contributing most to the growth of the banking system's profits and increasing other regular income. From the other categories reflecting the regular operations of the banks, the improved operating efficiency contributed to the increase in the profit amid lower operating costs, as well as the increase in net fees and commissions income. Net interest income, as a leading component of banks' total revenues, declined on an annual basis in 2018, and for the first time since 2010, it had a negative contribution to the annual growth of the banking sector's profit. Bank-by-bank analysis showed high concentration of the profit (more than 90%) in the group of large banks, while the group of small banks registered a significant improvement showing profitable operation compared to the previous year when it operated at a loss from its operations.

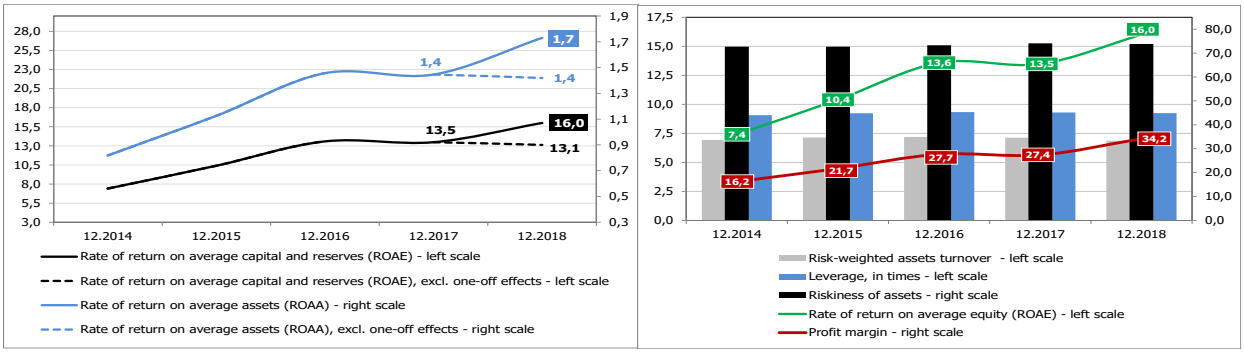
Chart 101
Breakdown of the rates of return on average assets (left) and average equity (right) in 2018
in percentage points and percentage



Source: National Bank, based on the data submitted by banks.
Note: The chart shows the changes in individual components of profitability expressed as a share in average assets i.e. average equity. The green and red bars indicate a positive and negative contribution to the growth of ROAA/ROAE, respectively, in percentage points. ROAA and ROAE are given in percentages.

The high increase in banks' earnings in 2018 contributed for significant improvement in the profitability indicators of the banking system. The rates of return on average assets and average capital and reserves[90] equaled 1.7% and 16%, respectively, which is at the level registered in 2007, when the banking sector was in a high-growth stage. Excluding the effect of one-off factors, both indicators would be at the level of the previous year, which is higher than the level that most banks consider appropriate to ensure sustainable operations in the long run. Namely, according to the results of the Survey of Banks' Perceptions of Risks Stemming from their Surrounding and Planned Businesses Activities in 2019[91], most banks in the long run consider the sustainable ROAE at a rate below 10% (five banks), i.e. within the interval of 10-12% (4 banks). The analysis of the rates of return by components[92] realized in 2018, shows that the improved profitability is mainly due to the higher profit margin, which is an indicator of the increased ability of banks to transform their realized income into profit, with the main contribution being made from irregular income. The leverage level of the banking sector decreased minimally, with slightly more pronounced, but moderate decrease being also observed in the turnover of risk weighted assets and the level of risk taken. Such developments in individual components indicate that the profitability growth in 2018 was registered in conditions of prudent risk management, which contributed to the improvement of the banks' risk profile, which is in favor of maintaining the stability and safety of the banking sector in the following period. Profitability and efficiency indicators of the banking system and individual bank groups are presented in Annexes to this Report.

Chart 102
ROAA and ROAE (left) and their components (right)
in %



Source: National Bank, based on the data submitted by banks.

At the level of the banking system, the improvement in the profitability indicators in 2018 is significant, but observed at a micro level, there are evident differences among banks. Thus, two banks registered return on equity and assets that is higher than the one at the level of the banking system, the performance of three banks is at the

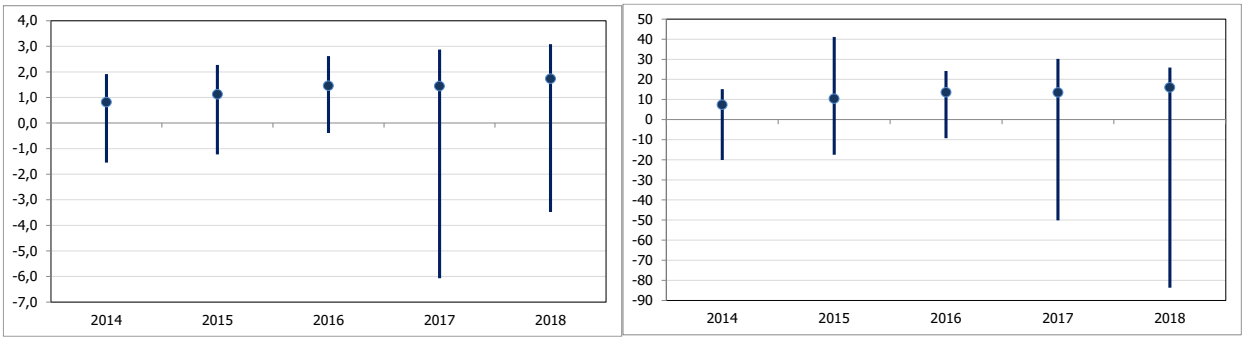
[90] Average assets and average equity and reserves are calculated as the balance of assets i.e. equity and reserves as of 31 December 2018 and 31 December 2017.

[91] According to the results of the Survey, five banks assess that even with ROAE lower than 10% they would achieve sustainable operations in the long run. Four banks assess the sustainable ROAE rate in the interval of 10 to 12%, while only three banks estimate ROAE higher than 14% for long-term operations. The Survey on banks' perceptions for the risks stemming from their surrounding and the planned business activities in 2019 is published on the web site of the NBRNM.

[92] The rate of return on average equity and reserves can be shown this way: $\text{POAE} = \frac{P}{CR} * \frac{S}{S} * \frac{A}{A} * \frac{RWA}{RWA} = \frac{P}{S} * \frac{S}{RWA} * \frac{A}{CR} * \frac{RWA}{A} = PM * RWAturnover * L * RBAratio$, where: P = profit after taxation, CR = average capital and reserves, S = total regular income, A = average assets, RWA = risk-weighted assets, PM = profit margin, RWAturnover = risk-weighted assets turnover, L = leverage, RBAratio = ratio of risk assumed.
Profit margin is operating profit (loss) to total regular income ratio.

system level, while nine banks operated profitably, but with results below the banking system level. Only one bank ended the year at a loss from its operations. Such developments point to the need of restructuring the less profitable banks in order to increase efficiency of capital and assets engaged thus ensuring their long-term stability and sustainability. Another possibility is through consolidation of the domestic banking sector, which, according to theoretical and empirical research, has a positive impact on banks' performance by reaping the benefits of economies of scale and the synergy effect of merging complementary operations.

Chart 103
Rates of return on average assets - ROAA (left) and on average equity and reserves - ROAE (right) by banks
in %

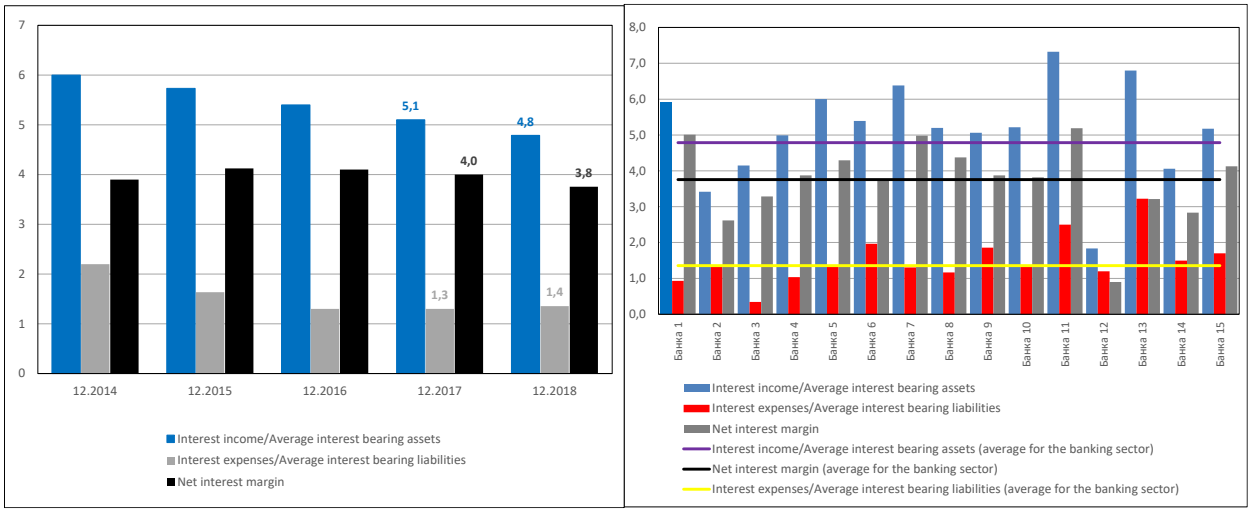


Source: National Bank, based on the data submitted by banks.
Note: The charts show the highest value of the respective indicator registered by a particular bank, the value of the indicator at the level of the banking system and the lowest value of the respective indicator registered by a particular bank.

The net interest margin that the banks realize from the financial intermediation decreased moderately also in 2018 (by 0.2 percentage points) to the level of 3.8%, which was realized in conditions of moderate decrease of the net interest income (of 1.6%), given simultaneous increase in the average interest-bearing assets (by 5.5%). The lower level of net interest income results from the decline in interest income, which was only partially compensated by the lower level of interest expenses. Namely, in the context of low interest rates, the banks in the previous few years managed to increase the net interest income mainly through rationalization of the deposit costs, in conditions when the interest income registered slower growth or decrease on annual basis. Given that the interest rates on deposits are already reduced to a very low level, the room for their further reduction is limited, and thus the possibility of maintaining net interest income by adjusting the expenditure side. Additional factor is the increase in the banks' total deposits, which in 2018 accelerated[93] thus additionally decelerating the downward adjustment of the interest expenses.

[93]In 2018, banks' total deposits grew on an annual basis with an average rate of 8.7% (or average absolute change of Denar 27,957 million), compared to the same period last year when the average growth rate was 5.7% (or average absolute change of Denar 17,409 million).

Chart 104
Net interest margin as of 31 December 2018 of the banking system (left) and by bank (right)
in %



Source: NBRM, based on the data submitted by banks.

In such conditions, the total interest expenses in 2018 are lower by Denar 84 million or 1.9%[94] on an annual basis, compared to the previous year when the decline was 9.9%[95]. On annual basis, the interest income was lower by Denar 336 million, or 1.7%, which is a moderate deepening of the decrease compared to the previous year.[96] However, such movements are a product of more intensive decrease in revenues from financial institutions,[97] or more specifically, revenues from Central Bank, given that the National Bank has reduced the CB bills interest rate by 0.75 percentage points during the year.[98] Amid monetary policy easing, a stabilized domestic environment, and vigorous economic activity, the growth of banks' lending activity accelerated significantly in 2018[99], contributing by about 75% to the growth of interest-bearing assets. In line with previous years, banks allocated a larger portion of the loan portfolio to the households sector[100], which, given the slower growth in net interest income from households (compared to the growth of regular household loans), had small contribution to the decrease in the net interest margin of the banking system[101]. However, in addition to households, in 2018, banks significantly increased the volume of lending to the corporate sector as well[102], thus slowing the

[94]The decrease in interest expenses was mostly due to the lower interest expenses for the household sector which decreased by Denar 97 million, or 4.4% on an annual basis. Non-financial corporations also reported lower interest expenses (by Denar 34 million or 6.5%). Interest expenses from financial companies increased on annual basis (by Denar 46 million or 6%), while other interest expenses remained almost stable (minimal increase of Denar 1 million or 0.2%).

[95] For comparison, interest expenses in 2016 decreased by 14.7% on annual basis. The decrease in 2015 and 2014 was 21.5% and 10.2%, respectively.

[96]In 2017, interest income was lower on annual basis by Denar 229 million, or 1.1%.

[97]In 2018, the interest income from financial institutions decreased by Denar 188 million or 13.8% on annual basis, compared to the previous year when the decrease was Denar 9 million, or 0.7%.

[98] During 2018, the National Bank reduced the interest rate on CB bills on three occasions (March, August and December) by 0.25 percentage points, reducing the policy rate from 3.25% in December 2017 to 2.5% in December 2018.

[99]In 2018, banks' total loans grew on an annual basis with an average rate of 7% (or average absolute change of Denar 19,872 million), which is an increase twice higher compared to the previous year, when the average growth rate was 3.3% (or average absolute change of Denar 9,040 million).

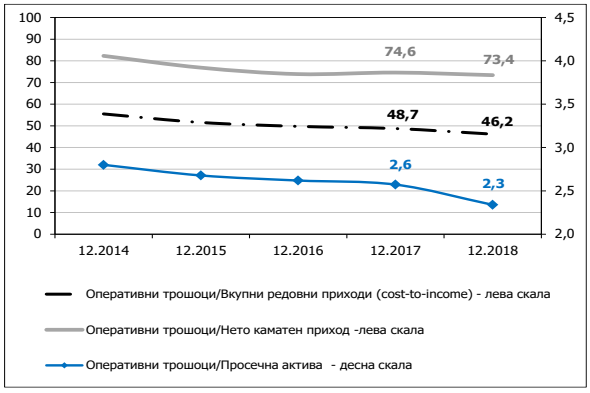
[100]In 2018, total banks' loans granted to the households sector increased on an annual basis with an average rate of 10.3%, which is moderate acceleration compared to the average of the previous year, which equaled 9.1%. Thus, households loans contributed 69%, on average, to the average annual growth of total loans to non-financial entities in 2018.

[101]The ratio between the net interest income from households and the average amount of regular loans to this sector equaled 5.4% in 2017 and 5.3% in 2018.

[102] In 2018, total bank loans to non-financial corporations grew at an average annual rate of 4% (or average absolute change of Denar 5,885 million), compared to the previous year when average annual growth was negative and amounted to - 1.3% (or

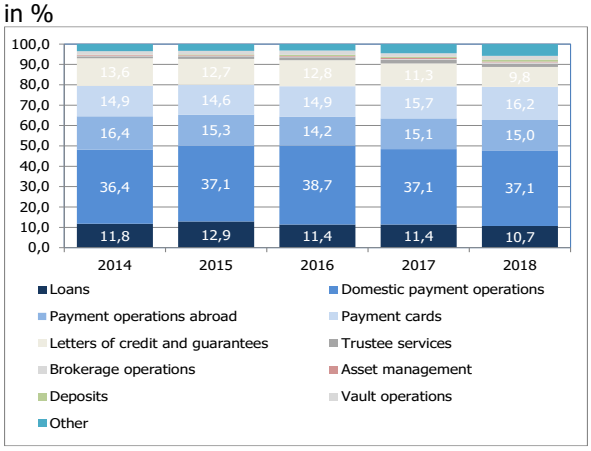
decline in interest income from non-financial corporations. **Deposit and lending activity with non-financial corporations continues to contribute to reduce the net interest margin, although the decrease is somewhat smaller compared to the previous year, which highlights the importance of banks' lending activity for maintaining stable net interest income.**[103]

Chart 105
Bank operating efficiency indicators
in %



Source: National Bank, based on the data submitted by banks.

Chart 106
Structure of net income based on fees and commissions
in %



Source: National Bank, based on the data submitted by banks.

In 2018, the banking system improved the cost efficiency, supported by lower operating costs, as well as the growth of banks' regular income. The amount of operating costs decreased by both, per unit of net interest income and per unit of average assets. The decrease in operating costs (by Denar 372 million, or 3.2% on an annual basis) comes after a three-year period of their growth and is mainly due to regulatory changes, i.e. the reduction of the deposit insurance premium[104], which almost halved the cost for this purpose and the exclusion of the special reserve[105] for off-balance sheet exposure from the structure of the operating costs[106]. On the other hand, staff costs and general and administrative costs, as the categories with the highest individual share of total operating costs, continued to increase and in 2018 further boosted their growth, achieving annual change rates of 6.6% and 7.5%, respectively[107]. **The increase in cost efficiency was further supported by the growth of total regular income** [108] (of Denar 533 million, or 2.2% on an annual basis), with the largest contribution of 96% accounting for other regular income (realized capital gain).[109]. Net fees and commissions income increased (by 6.3%), while the contribution of net interest income was negative.

average annual reduction in the absolute amount of Denar 2,038 million). Increased lending activity to non-financial corporations contributed about 30% to the growth of total interest bearing assets in 2018.

[103] The ratio between net interest income from non-financial corporations and the average amount of regular loans to this sector was 5.8% in 2016, 5.2% in 2017 and 4.7% in 2018.

[104] As of November 2017, the deposit insurance premium decreased from 0.5% to 0.25%.

[105] The special reserve for off-balance sheet exposure in 2018 equaled Denar 876 million. If not taken into regard the effect of excluding the special reserve for off-balance sheet exposure, the total operating costs in 2018 would be 4.3% higher compared to the previous year.

[106] Starting from 1 January 2018, the special resrves for off-balance sheet exposure (including reversal of these reserves) is recorded as part of the impairment costs, not the operating costs of the banks.

[107] In 2017, the annual growth of staff costs and general and administrative costs equaled 2.3% and 4.1%, respectively.

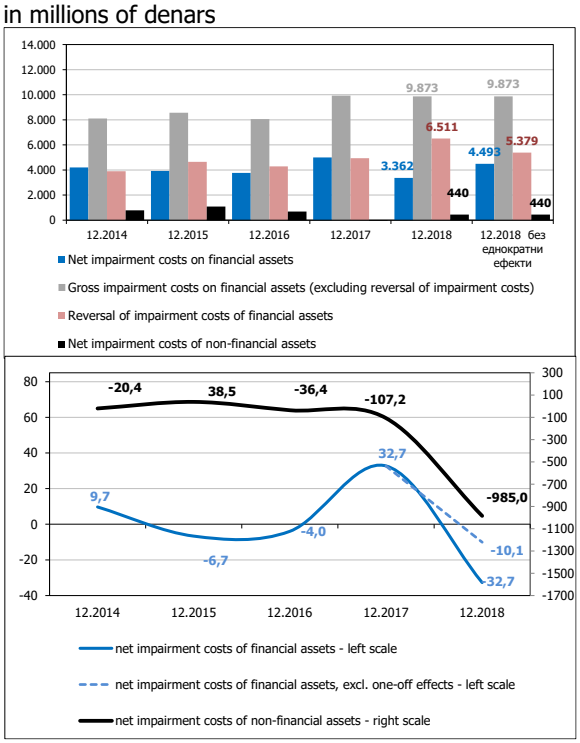
[108] Total income from regular operations includes net interest income, net income from fees and commissions and other regular income.

[109] Capital gain derives from the sale of foreclosed property and capital investment.

Chart 107

Amount (up) and annual growth rates (down) of impairment costs of financial and non-financial assets

in millions of denars



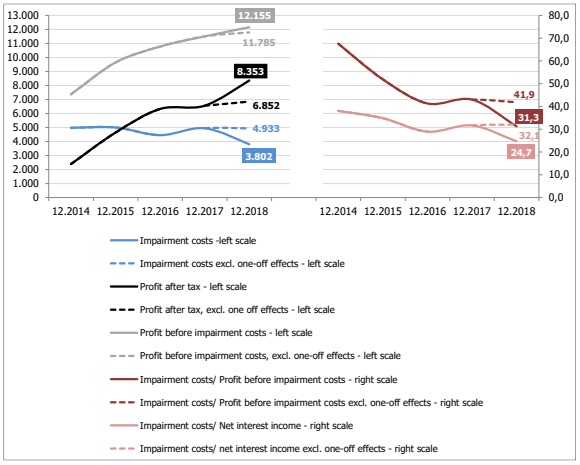
Source: National Bank, based on the data submitted by banks.

Note: * Net impairment of non-financial assets was positive for 2017 and negative in 2018 (and in all other years presented in the charts). Hence, although the net impairment of non-financial assets declined mathematically in 2018, the cost of impairment of non-financial assets increased annually.

Chart 108

Impairment costs to gain and net interest income ratio

in %



Source: National Bank, based on the data submitted by banks.

Net fees and commissions income is an important revenue item related to regular banking activities, which accounts for about 19%, on average, of the total regular income over the last five years. The analysis of the structure of the net fees and-commissions income shows that banks generate most of their income on the basis of commissions and fees from the payment operations in the country, which account for 37.1% of the total net fees and commissions income and have the largest contribution to their growth in 2018 (of 37.2%). Next in importance are the commissions from card operations and from international payment operations, which contribute 24.2% and 13%, respectively, to the annual growth in total net fees and commissions income. Revenues from more sophisticated, investment activities, such as asset management, have a marginal impact on the income of domestic banks. This structure is in line with the traditional business model applied by domestic banks, which apart from credit-deposit activity, as the main activity of its operations, mainly relies on the provision of payment services and card operations.

In 2018, net impairment costs of financial and non-financial assets decreased significantly on an annual basis (by 23.2% or Denar 1,146 million) and were the main driver of the growth of the banking sector's profit with a contribution of 63.7%. The one-off events from the first quarter, when several banks collected a significant amount of non-performing loans, contributed the most to such performances. However, even without such events, 2018 can be observed as a year of mainly effective collection of non-performing loans by domestic banks. Net impairment of financial assets, after excluding the effect of one-off factors, registers again an annual decreases (of 10.1% or Denar 504 million), thus contributing to the growth of the banking sector's profit. During the year, banks also performed several sales of foreclosed property, which contributed to reversal of impairment on non-financial assets. However, net impairment of non-financial assets registers an increase on an

annual basis, which is due to the regulatory obligation to gradually "impair" the foreclosed assets, in a five-year period.

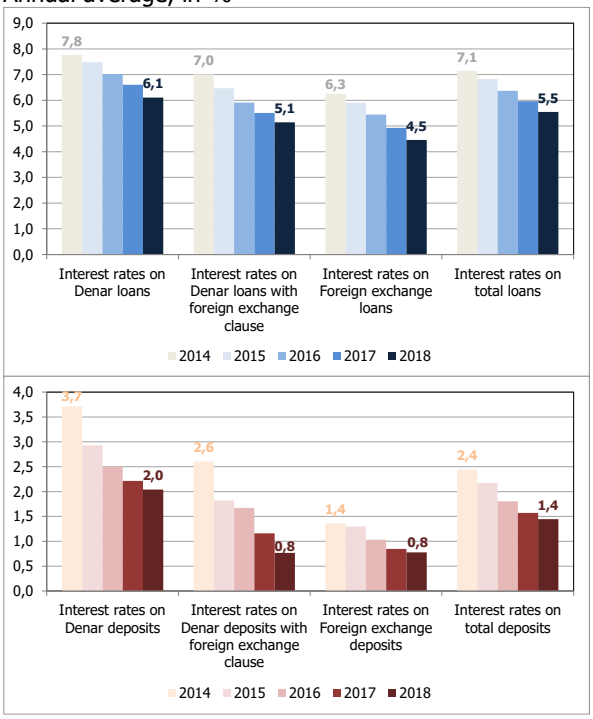
According to the Survey of banks' perceptions of risks stemming from their surrounding and planned bussiness activities[110], most banks expect profitability growth to continue in 2019. Most banks expect that profitability growth will be supported by the increase in fees and commissions income, followed by interest income, expecting further improvement in operating efficiency and reduction in impairment costs. Given the current performance and low interest rate environment, banks' ability to maintain a sustainable level of net interest income and reduce the operating costs will pose a significant challenge to banks' profitable operations in the coming period.

5.2 Movements in interest rates and interest rate spread

The downward trend of the banks' lending and deposit interest rates[111], characteristic for the post-crisis period, continued during 2018, amid lower policy rate of the National Bank[112] and basically stable level of reference interest rates on international markets.[113] The decrease was more pronounced in the lending interest rates (by 0.4 percentage points on average, compared to the previous year), with the total average lending interest rate in 2018 being 5.5% on average. The total deposit interest rate decreased minimally (by 0.1 percentage point) and for 2018 it equaled 1.4%, on average.

Chart 109 Lending (top) and deposit (bottom) interest rates

Annual average, in %



Source: National Bank, based on the data submitted by banks.

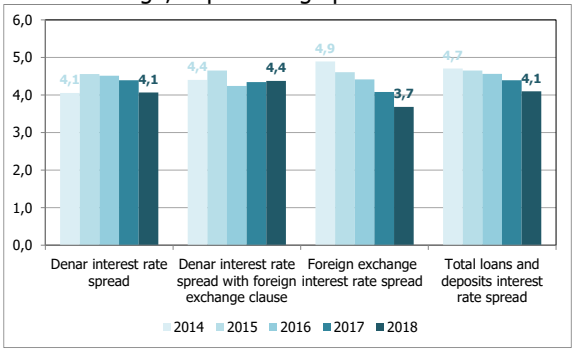
[110] The Survey on banks' perceptions risks stemming from their surrounding and planned business activities in 2019 is published on the web site of the NBRNM.

[111] As of January 2015, data on interest rates of banks and savings houses have been collected under the new interest rate methodology. The data under the new and previous methodology are not fully comparable, so that the changes in the relevant interest rates as such also include the effect of methodological changes which are described in more details on the website of the National Bank and within the Report on the risks of the banking system of the Republic of Macedonia in the third quarter of 2015, page 70. The new interest rate methodology mainly affected the level of deposit interest rates because interest rates on sight deposits and overnight deposits are no longer included in the calculation of interest on total deposits.

[112] During 2018, the National Bank reduced the interest rate on CB bills on three occasions (March, August and December) by 0.25 percentage points, bringing the key interest rate by 3.25% in December 2017 to December 2018 reduced to 2.5%.

[113] Interest rates EURIBOR remained basically stable throughout the year, with the exception of the last two months, when there was a tendency of moderate growth in certain maturities, primarily at 6-month and 12-month EURIBOR.

Chart 110
Interest spread, by currency
annual average, in percentage points



Source: National Bank, based on the data submitted by banks.

The analysis of the structure of the lending interest rates shows the strongest decrease in the interest rates on the foreign currency loans (by 0.5 percentage points on average compared to the previous year average), while on the deposits side, the banks most significantly lowered the interest rates on the denar deposits with a currency clause (by 0.4 percentage points on average, compared to the previous year average).

In line with the larger decrease in lending compared to deposit interest rates, the interest rate spread moderately narrowed and in 2018 it was 4.1 percentage points, on average, compared to the average of 4.4 percentage points in 2017.

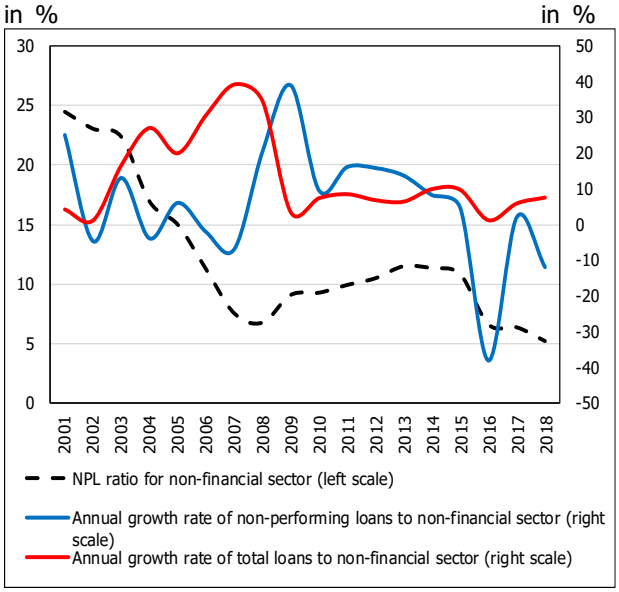
ANNEXES

ANNEX 1

Managing and resolving non-performing loans in the Macedonian banking system

Non-performing loans are a fairly researched category, given the fact that the efficient management and timely resolution of these loans is a necessity, especially for banks and banking systems that are burdened with high levels of non-performing loans. These loans carry losses for banks, "damage" the capital position and increase financing costs. In addition to bank managers, macroeconomic policy makers are also concerned with non-performing loans. Researches (Klein,2013)[114] show that large amounts of non-performing loans reduce economic growth, increase unemployment, hamper monetary policy transmission to real economy and demotivate private sector credit supply, especially in economies where banks are the main financial intermediary between people with excess and those with a shortage of funds. In addition, several researches confirm that the existence of high levels of non-performing loans signal banking crises (Demirgüç-Kunt and Detragiache, 2005)[115] which jeopardize the financial stability of the country and cause significant losses for the economy (Laeven and Valencia, 2012)[116].Hence, assessing the overall quality of assets and credit exposure of the banking system is an important element of the macro-prudential analyses of the central banks, including the National Bank.

Chart 1
Movement of non-performing and total loans to non-financial entities



Source: National Bank, based on data submitted by banks.

In the Macedonian banking system, credit risk plays the most important role and is extremely important for the performances of Macedonian banks, which is closely linked to the application of the traditional business model of their operation - collecting deposits from the domestic private sector and placing loans for the domestic non-financial sector. Until 2002-2003, the credit supply in the Macedonian banking system was relatively modest, while the credit market was poorly developed, especially in the segment of household loans. Namely, during the period of ownership transformation and privatization in the domestic economy and immediately after it, banks faced high levels of non-performing loans, which resulted in reduced risk appetite and application of conservative credit policies by the domestic banks. However, by the mid-2000s, amid stable macroeconomic environment and complete transformation of the ownership structure of the banking system (entry of foreign financial institutions in the

[114] Klein, Nir, 2013, - "Non-Performing Loans in CESEE: Determinants and Impact on Macroeconomic Performance", IMF working paper 12/72, International Monetary Fund, Washington DC, March 2013
[115] Demirgüç-Kunt, Asli and Detragiache, Enrica (2005), "Cross-Country Empirical Studies of Systemic Bank Distress: A Survey", IMF working paper 05/96, International Monetary Fund, Washington DC, May 2005
[116] Laeven, Luc and Valencia, Fabián (2012), "Systemic Banking Crises Database: An Update", IMF working paper 12/163, International Monetary Fund, Washington DC, June 2012

banks' ownership structure), domestic banks managed to build modern risk management systems, improve their efficiency and financial positions (Report on the operations and activities of the National Bank of the Republic of Macedonia in the period May 2004 - May 2011)[117], increased the credit supply and reduced the share indicators of non-performing in total loans. Thus, the period from 2004 to the last quarter of 2008 was characterized by high, double-digit, annual credit growth rates (higher than 30% on an average), amid simultaneous, almost continuous, reduction of the share of non-performing loans in total loans, which was reduced down to a minimum 6.6% (at the end of the third quarter of 2008). However, starting in September 2008, the month when Lehman Brothers collapsed, and the financial crisis beginning in USA gained global dimensions, until the end of 2015, non-performing loans in the Republic of North Macedonia registered almost continuous growth. Thus, in the period from 2008 to 2015, the amount of non-performing loans registered a threefold increase, and the share indicators of non-performing loans in total loans of non-financial entities reached 10.8% at the end of 2015 (in the period between 2008 and 2015, the highest level of the share indicators of non-performing loans in total loans was reached on 31 December 2014 and amounted to 12.6%).

The empirical research of the National Bank from that period (Vaskov, 2015)[118] indicates a relatively high concentration of non-performing loans, in many respects (when a small number of loans or clients account for relatively high amounts of non-performing loans). In addition, it was observed that the so-called persistence of non-performing loans in banks' balance sheets i.e. high amounts of non-performing loans have been observed dating to earlier times in the credit portfolios ("old" non-performing loans), and banks apparently have failed to efficiently resolve and a good portion of them have been reduced (in banks' balance sheets) to zero. Hence, the National Bank, as a responsible regulatory and supervisory authority for the domestic banks, adopted measures, effective as of 1 January 2016, to mandatory write-off non-performing loans, which have been fully reserved for at least two years on the banks' balance sheets (without losing the right to later repay the non-performing loans). Since then, banks have written-off almost Denar 20 billion of non-performing loans, in line with the requirement of this measure (more specifically, in 2016, 44.2% of the non-performing loans were written-off as of 31 December 2015, in 2017, 17.6% of the non-performing loans were written-off as of as of 31 December 2016, and in 2018, 18.3% of the non-performing loans were written-off at the end of 2017). At the same time, the share indicator of non-performing loans in total loans registered a drastic downward trend and amounted to 5.2% as of 31 December 2018. Thus, the adopted measure significantly contributed to the reduction of the amount of gross non-performing loans, without having any effect on the income statements, given the fact that these are fully reserved loans over a period of 2 years. Designed to do so, the measure encourages a fast "resolution" of old, fully reserved non-performing loans, as well as a shift of banks' attention and resources to newly created, newer non-performing loans, whose flows are also not to be underestimated. Taking into account the positive effects of this measure, the same is still in force, and starting from 1 July 2019, pursuant to the new Decision on the credit risk management methodology (Official Gazette of the Republic of Macedonia No. 149/18, banks shall be obligated to write off non-performing loans which have been fully reserved in the last 1 year (this period is shortened, from the previous two years, for only a year).

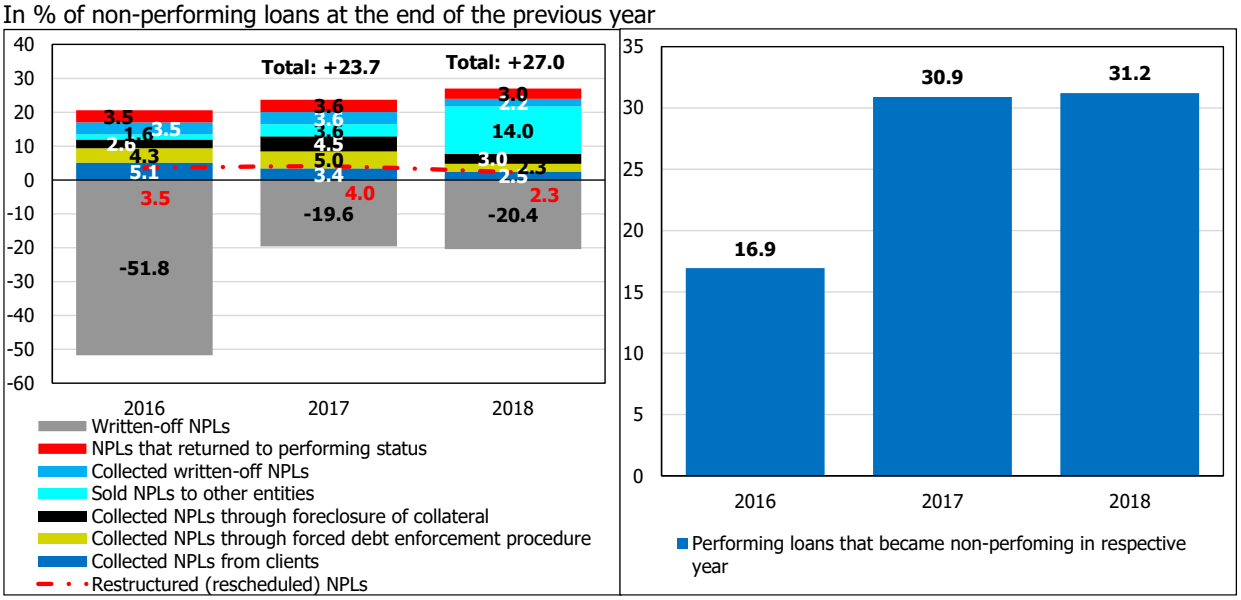
[117] May, 2011.

[118] Vaskov, Mihajlo, 2016, "Concentration level and structural characteristics of non-performing loans in the banking system of the Republic of Macedonia", National Bank analysis, October 2015.

In line with the Euro-integration process recommendations, and given the great importance of efficient management and resolution of non-performing loans, the National Bank has recently prepared a Strategy to encourage and improve the management of non-performing loans (bad loans). After the inter-institutional reviews and drafting of the final version, the strategy was adopted by the Government of the Republic of North Macedonia, whereby in the following period several institutions in the country will undertake measures (each in its area of competences) for its implementation. The Strategy aims to improve the conditions and increase the efficiency of non-performing loan repayment, as well as create condition for improving the business practices amid trading with the claims. Thus, the National Bank is already undertaking activities to strengthen the supervision of banks' non-performing loans and is actively working for further improve the credit registry set-up and functioning. By involving other relevant institutions, inter alia, actions will be taken to improve the financial reporting and companies' corporate governance. Given the importance of managing non-performing placements, activities are already in progress for improving the provisions of the legislature in the area of enforcement, notary, bankruptcy, and also significant reforms in the field of property valuation are foreseen. In addition, activities are provided to create conditions for the development of the market of non-performing claims, as a specific market segment.

Despite the obviously needed regulatory and other simulations, that will "press" or enable banks to resolve non-performing loans faster and more efficiently, the role of the bank management in the process is crucial. Namely, managing the non-performing loans is nevertheless an internal process in the banks, which should be adequately addressed in their internal acts, implemented in their daily activities and management and finally, carefully supervised by the National Bank. Hence, the new Decision on credit risk management (Official Gazette of the Republic of Macedonia No.149/18), which will be applied starting in 1 July 2019, stipulates that the organizational structure of the banks, inter alia, shall cover individual staff/organizational unit for managing non-performing loan exposures, and the internal acts for credit risk management shall define indicators for non-performing loan exposures on the basis of which they will develop a plan for undertaking actions for their collection and/or sale, as well as a manner of monitoring the fulfillment of the plan. Furthermore, in the procedure and rules for restructuring claims (which will become non-performing if not restructured due to the client's financial difficulties), banks shall anticipate the manner of managing and valuating the performance and effect of the restructuring. Finally, banks, in their credit risk management policies shall determine the procedure and rules for buying and selling credit exposures and/or loan portfolios, which could also contribute to improve the process of the resolution of non-performing exposures.

Chart 2
Collection and write-offs of non-performing loans (left) and new non-performing loans * (right)
In % of non-performing loans at the end of the previous year



Source: National Bank, based on data submitted by banks.
Note: Abbreviation "NPLs" denotes non-performing loans.

The analysis of banks' performance in managing the non-performing loan portfolio indicates that in each of the previous three years, banks have managed to collect around 20-27% of the amount of non-performing loans at the end of the previous year. Thus, the cumulative share of non-performing loans which have been collected by the banks' active management of the non-performing loan portfolio, i.e. by enforced collection, by selling the receivables, by foreclosing assets set as collateral or charged after the implemented write-off, ranges from around 11.9% (in 2016) to 21.5% (in 2018). On the other hand, the share of non-performing loans paid by the client (without enforced collection or foreclosing assets) and those that have returned to regular status during the year, ranges from 5.5% to 8.6% of the amount of non-performing loans at the end of the previous year. Banks have also tried to restructure their credit terms in 2-4% of the total amount of non-performing loans, and thus meet the financial difficulties of the clients, so they can overcome the non-performing status in their banks.

Contrary to the described examples of successful resolution of non-performing loans, the amount of non-performing loans that banks have failed to collect and write-off in each of the three previous years are relatively high and account for 15-52% of the amount of non-performing loans at the end of the previous year[119].

Along with the flows of managing non-performing loans (successful and unsuccessful), in the past three years, banks' loan portfolios also register flows of new non-performing loans (switching from regular to non-performing loans), whose amounts account for 16.9-31.2% of the non-performing loans at the end of the previous year, where banks will have yet to commit resources and undertake activities to properly manage these loans and their eventual successful resolution (collection). Hence, banks should continue their efforts to further improve the internal

[119]At the same time, the largest portion, around 87% of the write-offs are mandatory write-offs of non-performing loans which have been fully provisioned, at least in the last two years.

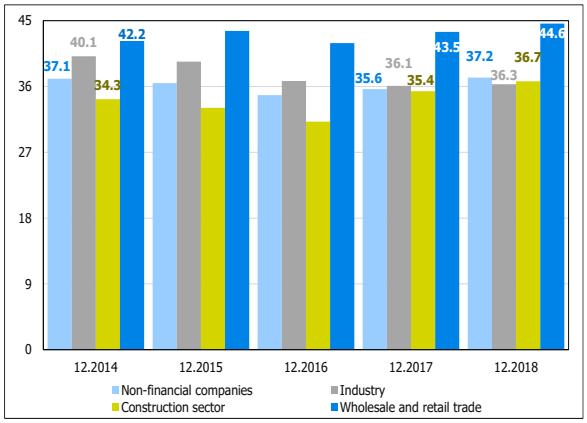
processes for non-performing loan management, which combined with the activities that will be undertaken pursuant to the Strategy to encourage the management and improve the management of non-performing placements (bad loans), should in the medium term enable faster and more efficient resolution of non-performing loans, and thus more efficient financial intermediation provided by banks.

ANNEX 2

Structural features and quality of bullet loans

Bullet loans are a potential source of loan losses, due to the higher inherent risk. The potentially higher risk of these loans arises from the fact that banks charge interest only during the loan agreement, while the loan principal is paid at the end of the agreed term. In this way, banks consciously accept greater risk related to the client's capacity to repay the entire loan principal at once, at the end of the agreed term. However, it should be borne in mind that the presence of such structured loans also implies greater banks' flexibility to meet the specific customer needs, their business model, or a project they are willing to finance with the loan, which on the one hand contributes to the financial intermediation process, and on the other hand, increases the probability of settling total loan liabilities. Hence, the presence of a bullet repayment clause in credit agreements, in itself, does not necessarily mean frequent credit risk materialization, and is directly related to the banks' capacity to properly assess credit demand.

Chart 1
Share of bullet loans in total regular loans to non-financial corporations, and by activity
in %



Source: National Bank's Credit Registry, based on data submitted by banks.
* Note: In the charts, bullet loan will denote a loan where a payment of the entire principal is due at the end of the loan term.

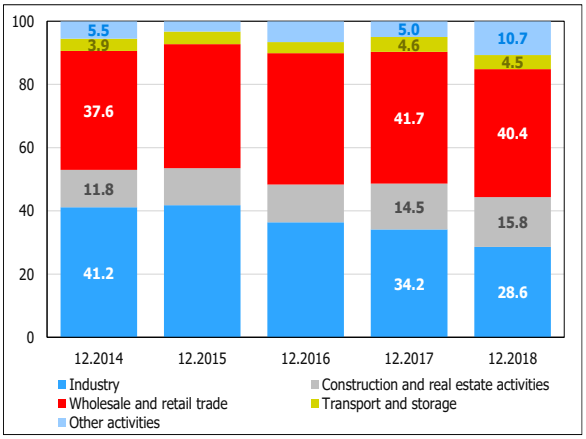
At the end of 2018, 36.8% of the total, i.e. 37.2% of the regular and 31.6% of the non-performing loans of non-financial corporations[120] have a bullet repayment clause. This share was relatively stable in the analyzed period, which shows that bullet loans are constantly approved by banks with dynamics similar to that of total loans to non-financial corporations. Analyzed by activity, most of the regular bullet loans have been approved to clients from the wholesale and retail trade (40.4% of total regular bullet loans), industry[121] (28.6%) and construction and real estate activities (15.8%). The need for customers of these activities to be financed by bullet loans probably arises from the specifics of their business models.

In the non-performing loan portfolio of the banking system, composed of non-financial corporations, the share of bullet loans is about 30%, and again most of the non-performing bullet loans is approved to clients from wholesale and retail trade (35.9%), industry (32.4%) and construction (25.4%).

As of 31.12.2018, the shares of the ten and the twenty largest borrowers of

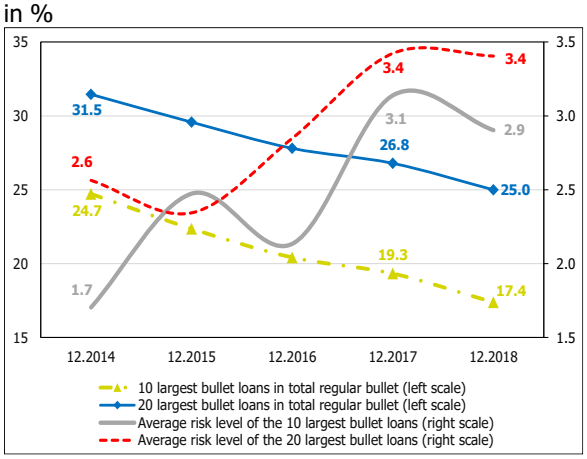
[120] Bullet loans are usually approved to non-financial corporations. Hence, the focus of this analysis is on the loans approved to non-financial corporations. For illustration, the share of bullet loans in total regular household loans is only 0.3% as of 31.12.2018.
[121] Most of the regular bullet loans approved to the industry are to clients from the metal manufacture, machinery, tools and equipment and food industry.

Chart 2
Structure of total regular bullet loans to non-financial corporations, by activity
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

Chart 3
Concentration of regular bullet loans exposure to non-financial corporations
in %



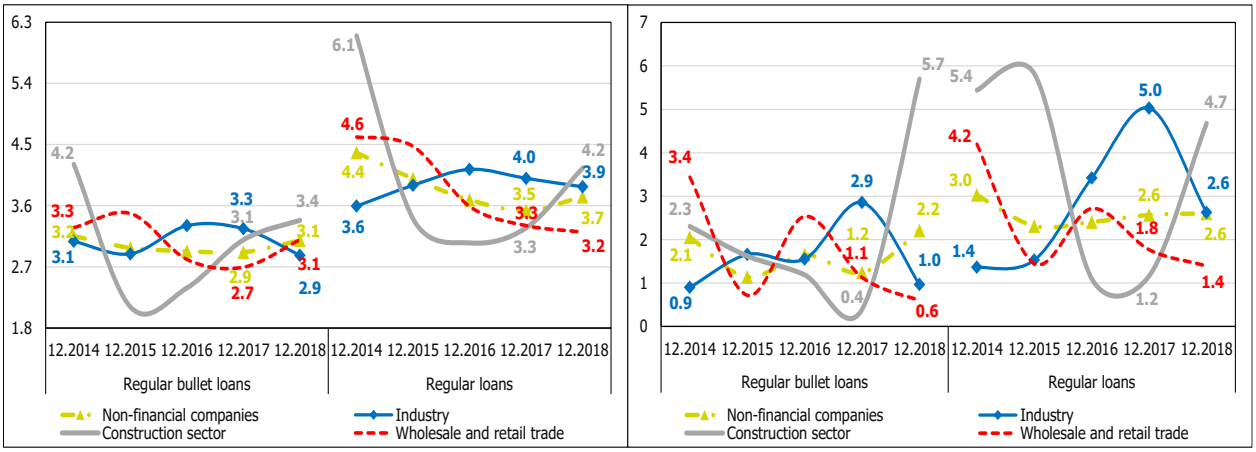
Source: National Bank's Credit Registry, based on data submitted by banks.

regular bullet loans in total regular bullet loan s were 17.4% and 25%, respectively, and in the past five years they have been steadily declining. The loan quality of the largest regular bullet loan exposures is solid, i.e. the banks reported impairment of 2.9% and 3.4% of the value of the ten and the twenty largest regular bullet loan exposures, respectively. By sector, most of these borrowers belong to trade and industry sectors[122].

In terms of concentration by bank, almost two-thirds of regular bullet loans are concentrated in four banks. Observed by activity, the share of these four banks ranges from 57.9% in bullet loans to the construction sector to 72.8% to the industry. The concentration is even higher in the portfolio of non-performing loans, i.e. 57.5% of the total non-performing bullet loans are concentrated in two banks. However, risks arising from non-performing bullet loans are not considerable, given that banks mostly cover them with impairment (72.4% in the segment of non-financial corporations[123]), thus their default would not deteriorate banks' solvency.

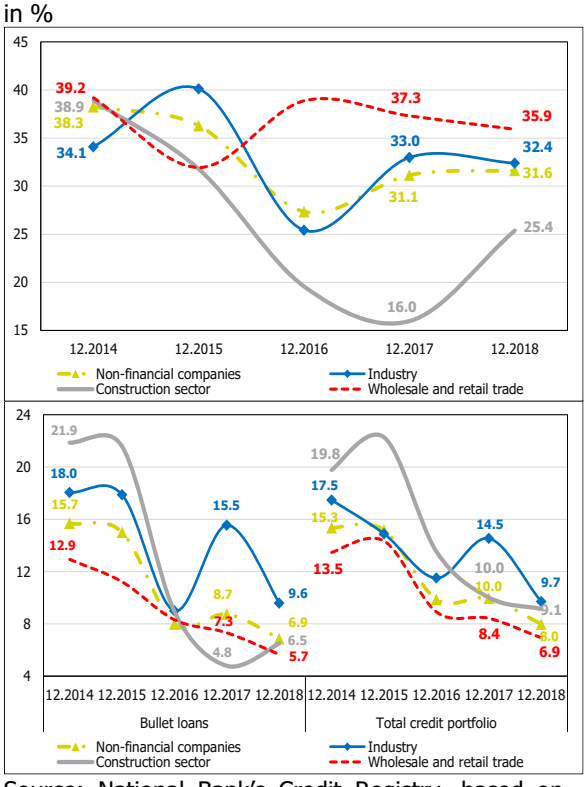
[122] Clients from industrial branches such as metals manufacture, machinery, tools and equipment and other manufacturing industry
[123] However, the coverage of non-performing bullet loans approved to non-financial corporations with impairment is slightly lower compared to the coverage of total non-performing loans to non-financial corporations with impairment (which as of 31.12.2018 is 76.3%).

Chart 4
Average risk level (left) and annual default rates (right) of regular loans to non-financial corporations, and by activity
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

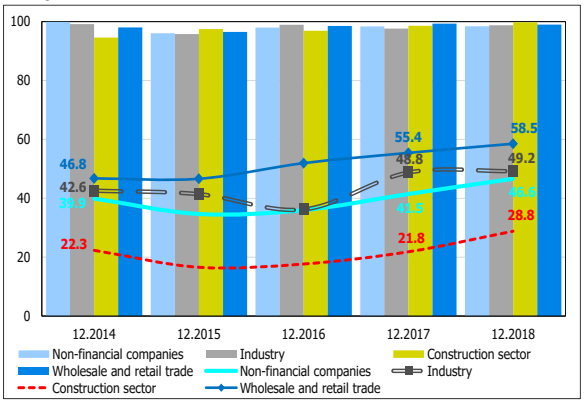
Chart 5
Share of non-performing bullet loans to total non-performing loans (up) and NPL ratio (down), by activity
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

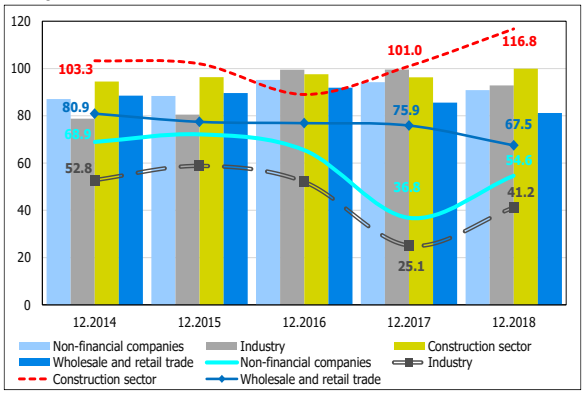
The materialization of credit risk in bullet loans is mainly lower compared to the total loan portfolio of the banking system (in the segment of non-financial corporations and by activity). Hence, the percentage of impairment determined by the banks for these loans is also lower compared to the total loans to the non-financial corporations. Namely, non-performing to total bullet loans ratio, as well as the annual rates of regular bullet loans are lower compared to the total loans to non-financial corporations. At the same time, the average risk level of these loans is lower compared to the total loans of non-financial corporations. However, it should be borne in mind that in the period before 2016 (after the application of the mandatory write-off of fully provisioned non-performing loans), non-performing to total bullet loan ratio was higher compared to the corresponding shares in the total loan portfolio of banks (composed of non-financial corporations). Hence, apparently in the past, the materialization of credit risk in bullet loans was slightly higher and/ or the resolution of bad loans in this portfolio was less frequent (or less successful). This confirms the need for careful monitoring of bullet loans, as banks charge interest only during the loan agreement, while the loan principal is paid at the end of the agreed

Chart 6
Share of regular bullet loans backed by collateral and LTV ratio, by activity
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

Chart 7
Share of non-performing bullet loans backed by collateral and LTV ratio, by activity
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

term. Banks are cautious, and similar for the total regular loans and regular bullet loans, mainly determine higher percentage of impairment than what is indicated by the annual default rates, except in the construction sector.

Restructuring rarely applies to regular bullet loans (only 0.1% as of 31.12.2018, as opposed to the total loan portfolio of non-financial corporations where it is 2.4%), while 6.6% of the regular bullet loans to non-financial corporations are prolonged (9.4% of the total regular loans of non-financial corporations as of 31.12.2018).

Observed by maturity[124], regular bullet loans have an average weighted maturity[125] of 2.1 years, while total regular loans to non-financial corporations are approved for more than twice as long (5.6 years as of 31.12.2018).

With respect to collateral, secured loans to total bullet loans ratio is high, both within the regular and non-performing loan portfolio. In addition, most of the bullet loans are backed by real estate (residence, office, warehouse, production facilities and other real estate)[126]. Almost all regular bullet loans are backed by collateral (more precisely, 98.4% of the regular bullet loans are backed). Regular bullet loan to estimated collateral value is also solid and does not exceed 60%. In non-performing bullet loans, the share of secured loans is slightly lower (compared to regular bullet loans), but it is also solid and amounts to 90.8% in non-financial corporations (by activity, this share ranges from 81.1% in wholesale and retail trade to 100% in construction). The non-performing bullet loan to estimated value of collateral is slightly higher (compared to those calculated for regular bullet loans) and ranges from 41.2% in industry to 116.8% in construction.

[124] The maturity analysis refers to the original maturity of the loan agreements on the date of approval.
[125] The loan maturity is weighted by the share of each loan agreement to total regular loans.
[126] Specifically, loans secured by real estate account for 61.9% and 76.9% of the total regular and non-performing bullet loans of non-financial corporations, respectively.

ANNEX 3

Review of the developments in relation to the international reforms for the determining of the interest rate benchmarks for the contracts in euros in 2018

Interest rate benchmarks are essential for the smooth functioning of the financial market and of the individual financial institutions, and through their business relations with non-financial entities, also for the financial activities of the entire economy[127]. Interest rate benchmarks are of great importance also for central banks, including the European Central Bank (hereinafter: the ECB), in the operationalization of the monetary policy and the subsequent monitoring of its transmission mechanism. At a level of the European Union, in June 2016, a special EU Benchmarks Regulation – BMR[128] was adopted, which entered into force in January 2018, which also refers to interest rate benchmarks, and which establishes a single sum of rules for the preparation, publication and use of financial benchmarks in the EU member states, including for those interest rates that serve as interest rate benchmarks. In practice, the interest rate benchmark that serves to set the level of the contractual interest rate according to the predetermined period of new setting of its level (repricing frequency), for all products of the banks (but also of any other creditor) that has variable contractual interest rate, to set and present the level of the contractual interest rate, and thus the cash obligation arising from such contract (mostly in the form of a contractual interest rate), is subject to regulation of this European regulation. In this Regulation (specifically in Article 3, paragraph 1, item 22), the interest rate benchmark is defined as a benchmark which is determined on the basis of the rate at which banks may lend to, or borrow from, other banks, or agents other than banks, in the money market. Review of the financial products where the interest rate benchmarks are used, is given in Table 1 and 3.

Currently, the two most used interest rate benchmarks for the contracts in euros on the uncollateralized interbank market are EURIBOR (Euro Inter-bank Offer Rate)[129] and EONIA (Euro Over Night Index Average)[130], which are administrated by the European Money Markets Institute – EMMI, hereinafter: the EMMI)[131]. However, the uncertainty about the further application of these interest rate benchmarks in the euro area is growing, since in their current form, these interest rates do not correspond to the requirements of the EU Benchmarks Regulation – BMR. Namely, the current interest rate benchmarks face two general problems, firstly, the drastic reduction of the number of banks in the last few years, that participate in the panels for formation of EONIA and EURIBOR and secondly, the significant decline in the volume of concluded overnight transactions among reference banks from the panel, and which contribute to EONIA, amid increased excess liquidity in the system. For that reason, and in order to harmonize with the new EU Benchmarks Regulation – BMR, the EMMI has initiated a process of substantial reforms of the existing interest rate benchmarks.

Regarding EURIBOR, the EMMI in the past few years prepared a plan for its gradual reformation, in order to determine this interest rate benchmark, as much as possible, on the basis of data on concluded

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[127] The National Bank regularly monitors the interest rate benchmarks as a type of financial benchmark, as well as the global initiatives for the reforms in terms of their determining and use, which were already covered within the "Report on the Risks in the Banking System of the Republic of Macedonia in the Third Quarter of 2017", for which more information is available at http://www.nbrm.mk/content/Regulativa/Kvartalen_30_09_2017.pdf.

[128] This Regulation has a working title "Regulation (EU) 2016/1011 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds", and it is available on the following link: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016R1011.

[129] EURIBOR is an interest rate at which reference banks on the Euro area money market are ready to sell deposits to another reference banks. This interest rate is calculated as the average of the quoted interest rates of selected panel banks (at the moment a total of 19 banks, which participate on a voluntary basis, with a head office in EU countries and banks that are not with a head office in the EU but have a substantial volume of operations in the euro area). EURIBOR is available in several maturities (one week, one, three, six and twelve months). It is calculated on a daily basis and is published every day at 11:00.

[130] EONIA is a one-day interbank interest rate on the Euro area money market, i.e. a rate at which banks lend to each other with maturity of 1 day. It is a weighted average of the interest rate on all overnight credit transactions concluded on the interbank market, by the panel of banks from the European Union and the European Free Trade Association - EFTA) - at the moment 28 banks. EONIA is published every day until 19:00.

[131] The EMMI is a non-profit association with a head office in Brussels and is responsible for the methodology for the formation, as well as for the implementation of the operational aspects in the process of obtaining these interest rates.

transactions, and as little as possible on the basis of quotations of interest rates. The methodology (developed by the EMMI, in cooperation with the ECB) based on data on concluded transactions was tested by the EMMI during 2016 and in May 2017 it was concluded that in the current market conditions, determination of EURIBOR, that will be fully based on data on concluded transactions, is not possible. As a result, the EMMI decided to examine the possibility of applying a so-called hybrid model, that will enable the determination of EURIBOR to be based on the data on concluded transactions whenever it is possible, but also the determination of this rate to rely on other appropriate market sources of prices. For this purpose, a new working group has been formed, used to collect feedback from the market participants, who will help in the development of the new methodology for EURIBOR. During 2019, the Belgium Financial Services and Markets Authority - FSMA, as a responsible supervisor and regulator of the EMMI, will assess whether the new methodology is in accordance with the EU Benchmarks Regulation – BMR and, if the result of this assessment is negative, may prohibit the use of EURIBOR, pursuant to Article 51 (4) of the EU Benchmarks Regulation – BMR. For illustration, the British competent supervisory authority for the possibly most used financial benchmark in the world - LIBOR (Financial Conduct Authority - FCA), gave the market participants around the world to understand that the further maintaining and publishing of the LIBOR rates are impossible, after the end of 2021[132]. Hence, a process of transition of the markets and market participants to the so-called risk-free interest rates is under way, i.e. a process that terminates the utilization of the so far used financial benchmarks. The metaphor given in the quarterly report of the Bank for International Settlements from March 2019[133], that "for the global financial system this is something that resembles performing operation on an open heart", is a very good illustration for the importance of this process of transition and the global reforms related to the interest rate benchmarks in general.

Regarding EONIA, after the completion of the first phase of the revision of this interest rate, which consisted of definition of the regulatory framework in accordance with the new regulatory requirements, the EMMI implemented the second phase that referred to market analysis and review of the applicability of the revised EONIA. However, in February 2018, the EMMI concluded that if the market conditions remain the same, there is a very likely possibility that EONIA will not meet the criteria of the EU Benchmarks Regulation – BMR by January 2020 and thus limit its use from 1 January 2020.

Along with the reforms of the existing interest rate benchmarks, the ECB started to form a new interest rate benchmark for non-collateralized overnight transactions for the contracts in euros, on the basis of the already available data of the European System of Central Banks (Eurosystem). This new rate, as an alternative of (close to) the risk-free interest rate benchmark, aims to supplement the existing interest rate benchmarks and it should cover the transactions in euros of the banks that meet pre-established criteria[134]. The new interest rate benchmark, which was initially called ESTER, and from recently rebranded in €STR, is expected to contribute to greater transparency. Namely, in September 2017, the Belgium Financial Services and Markets Authority - FSMA, together with the European Securities and Markets Authority and the European Commission formed a working group with representatives from the private sector, which, by voting (from offered three alternative interest rate benchmarks), chose ESTER as the most appropriate, future risk-free interest rate benchmark for the contracts in euros. The selection of ESTER was mostly based on four main elements: (1) it refers to non-collateralized transactions, which makes it similar to EONIA, and thus easily understandable and easier for communication with clients; (2) the calculation methodology, that will be based on daily data on each transaction of the banks that report according to the statistical reporting regulation (MMSR), i.e. on data that meet pre-established criteria;

[132] More information is available on the formal speech by Andrew Bailey, Chief Executive of the Financial Conduct Authority – FCA), i.e. on the following link: https://www.fca.org.uk/news/speeches/the-future-of-libor.

[133] The section of this Report that refers to interest rate benchmarks, under the working title of "Beyond LIBOR: a primer on the new benchmark rates", is available on the following link: https://www.bis.org/publ/qtrpdf/r_qt1903e.htm.

[134] The criteria are an integral part of the current regulation on the ECB's money market statistical reporting – MMSR. The Money Market Statistical Reporting - MMSR is regulated by the Regulation No. 1333/2014 of the ECB of 26 November 2014 (ECB/2014/48) and covers the statistical data that refer to the money markets. The collection of daily data by the ECB, in cooperation with several national central banks, started in July 2016 and its main aim is to provide comprehensive, detailed and harmonized statistical data on the money markets in the euro area.

(3) the higher stability of the rate; and (4) the fact that ESTER will be administrated by the ECB, which represents a public institution of the EU, with a high reputation. Namely, in the process of designing the rate, and in order to ensure transparent communication, the working group conducted two public consultations, and the conclusions and feedback from the public obtained through them were published and taken into account in the selection and development of the methodology for the new interest rate. One of the recommendations of this working group, published on 14 March 2019[135], is the new interest rate benchmark ESTER to be a replacement for EONIA.

The transition from EONIA to ESTER should be completed by 1 January 2020, and it is a complex challenge, which requires a significant engagement from both the direct market participants and the entities that provide the financial market infrastructure, and all concerned market regulators or supervisors of institutions. On the global financial markets, only derivative contracts and securities, whose valuation or payments are based on application of EONIA, are currently estimated to have a value higher than Euro 20 trillion[136]. Given that the time period for transition to ESTER is rather short, timely preparation and extensive coordination between market participants and users of interest rate benchmarks is necessary in the preparations for transition to ESTER, from both legal point of view (ensuring continuity of contracts) and from technical perspective (adjustment of trading systems to the new interest rate benchmark). On the other hand, the avoidance of possible operational risks of the excessively fast transition to ESTER requires a sufficient testing period, that will ensure that the technical setup provides a high degree of reliability and smooth application of the new interest rate benchmark. Hence, the working group carries out technical analyses and assessments of the different ways and scenarios for transition to ESTER. More specifically, the group focuses on two broader options, as follows: scenario of a so-called "transition led by the market" (in this scenario, the derivatives market, whose prices are related to ESTER, will develop in parallel with the existing market of derivatives based on EONIA, in order to avoid interruption in the application of the rates) and scenario of a so-called "successor" (this scenario provides for all existing contracts to apply the new interest rate benchmark, from the date of commencement of the use of this interest rate benchmark). Regardless of the scenario that will be chosen, the ultimate aim is to minimize the risks that may arise from the transition to utilization of the new interest rate benchmark. To fulfill this aim, the ECB published the so-called rate before ESTER rate, as a series of data calculated by using the same methods as those defined for ESTER, of transactions that are currently carried out. These data allow market participants to assess the appropriateness of the new rate and to start with the preparations for its use in the contracts, as well as in the risk management processes. In conditions of a high level of liquidity, the levels of the before ESTER rate are relatively stable. On average, around 30 banks (out of a total of 52 banks that meet the pre-established criteria of the statistical reporting regulation (MMSR) and which are determined to participate in the formation of ESTER) publish data every day, which guarantees existence of sufficient data to calculate the rate. Therefore, it will not be necessary for the calculation methodology to be enriched with historical data or to rely on data from some other market segments.

The ECB will start to publish ESTER by October 2019. The rate will be available by 09:00 CET (central European time) every TARGET2 working day (Trans-European Automated Real-time Gross Settlement Express Transfer System), on the basis of the transactions of the previous day (reporting date T, with maturity date of T+1). It will be published on the ECB's website, via the MID platform of the ECB and the Statistical Data Warehouse.

The reformation of the existing interest rate benchmarks is not an activity that is carried out only by the ECB, but it is also a global trend. Namely, the administrators of the interest rates that are formed on the interbank markets of non-collateralized deposits (IBOR), in numerous jurisdictions, have also taken

[135] This recommendation is available on the link: https://www.ecb.europa.eu/press/pr/date/2019/html/ecb.pr190314_1~af10eb740e.en.html.
[136] Source: The European Central Bank (Update on quantitative mapping exercise, Working Group on Euro Risk-Free Rates 17 May 2018).

measures to strengthen the methodologies for determining the existing interbank interest rates and for developing new interest rate benchmarks (Table 2).

However, what one should bear in mind in the process of reformation and transition to the new interest rates is that most of the currently valid contracts, especially for the so-called market of non-derivative financial instruments (cash market), i.e. all securities, loans, deposits and other financial instruments that refer to use of some of the existing interest rate benchmarks (EURIBOR, LIBOR, EONIA, etc.), have no clear provisions that unambiguously indicate and define the mechanism of application of an alternative interest rate benchmark, if the existing one ceases to exist, to be published or to meet defined conditions (so-called fallback provisions). In addition, there are also contracts that already provide for such provisions in the part of the interest rate benchmarks, but they do not point clearly to application of some of the new interest rate benchmarks, which may only create even more difficulties and cause fragmentation of the markets for individual instruments. Hence, most of the contracts that refer to use of some interest rate benchmark will require concluding of annexes to the contracts, which will unambiguously point to the application of some of the new interest rate benchmarks. The Bank for International Settlements in its work materials[137] has already stated its opinion that the transition of the so-called IBOR to the new risk-free interest rates would be the most challenging with the financial instruments on the market of non-derivative financial instruments, including the credit market, because they are mostly so-called private transactions with flexible nature, i.e. imply concluding in direct contracts between each creditor and each user. In other words, unlike the global OTC market for derivative contracts where there is an internationally non-profit centralized practitioner association i.e. the ISDA - International Swaps and Derivatives Association[138], which is in position to make provisions that will serve as an amendment to the existing contracts that will determine a mechanism of application of an alternative interest rate benchmark, and thus to coordinate the transition of the global financial industry, there is no such a body on the retail credit market.

At global level, the International Swaps and Derivatives Association, in December 2018, published a report which presents the results of the consultations conducted with the global market participants, and in relation to certain technical issues related to the formulation of the new fallback provisions in the derivative contracts that refer to certain interbank interest rates (so-called IBOR)[139]. Namely, given that risk-free rates are overnight rates, and the relevant IBOR ones have different maturities, in order to enable their mutual comparability, the relevant ISDA contracts need to include relevant fallback provisions, which would practically adjust risk-free interest rates to the new circumstances. Market participants were offered a choice between four options for adjusted risk-free rates, in order to provide their comparability with the adequate maturity of the current interbank interest rates, as follows: spot overnight rate, convexity-adjusted overnight rate, compounded setting in arrears rate and compounded setting in advance rate[140]. Also, the market participants were supposed to make a choice between three options in relation to the preference for spread adjustment, with which the relevant adjusted risk-free interest rates would be comparable with the relevant IBOR, given that they are almost risk-free, while IBOR also includes credit risk premiums for the banks, and is also under the influence of many other factors (such as liquidity, changes in demand and supply, etc.). These three possible choices were the following: forward approach, historical mean/median approach and spot-spread approach between the relevant IBOR and the adjusted risk-free interest rate on the day preceding the relevant announcement or

[137] More information is available in the quarterly report of the Bank for International Settlements for March 2019 under the working title of "Beyond LIBOR: a primer on the new benchmark rates", which is available at: https://www.bis.org/publ/qtrpdf/r_qt1903e.htm.

[138] The ISDA is an international swaps and derivatives association that exists since 1985. It has more than 900 members, institutions from 69 different countries, and the work is carried out in three main areas - reducing central counterparty risk, increasing transparency and improving the operational infrastructure of the industry, thus showing the strong commitment of the association to achieve its primary goals: developing stable financial markets and a prudent financial regulatory framework.

[139] More information can be found on the website of the ISDA: https://www.isda.org/2018/12/20/isda-publishes-final-results-of-benchmark-fallback-consultation/.

[140] More details about these methods for obtaining adjusted risk-free interest rates can be found at: http://assets.isda.org/media/f253b540-193/42c13663-pdf/ (page 7-11), as well as in Annex A to this document.

publication that activates the provisions for the mechanism of application of an alternative interest rate benchmark, if the existing one ceases to exist, to be published or to meet appropriate conditions[141]. The report showed that the vast majority (almost 90%) of the market participants at global level, in relation to the manner of adjusting risk-free interest rates, prefer application of a compounded setting in arrears rate, while a substantial majority (almost 70%) of the market participants at global level, in relation to the spread adjustment that is added to the adjusted risk-free interest rate, prefer the historical mean/median approach[142]. The International Swaps and Derivatives Association in the second half of 2019 should analyze and publicly disclose the relevant fallback provisions that would be included in its standard definitions, which would be based on the compounded setting in arrears rate and the historical mean/median approach, including the setting of all necessary parameters and similar technical issues needed to apply the appropriate formula for spread adjustment. There is a serious possibility for these methods to serve as a basis for formulation and application of relevant fallback provisions also on the markets for non-derivative financial instruments, i.e. for the necessary annexes that should be concluded in the existing credit agreements, deposits, prospectuses of the issued securities or other financial instruments etc.

According to some estimates, the joint amount of loans for business purposes, consumer loans, debt securities with variable interest rates and products which arise from securitization, and which present LIBOR in US dollars and which have a contractual maturity over 2022, exceeds Dollar 2 trillion[143]. Fundamentally, several basic ways are possible to practically carry out the transition at global level, for example through conversion of the instruments with variable interest rate into instruments with fixed interest rate according to the last valid interest rate before the conversion, through amendments to the contracts, or ultimately, through purchase or revocation of the instruments by the issuers and their replacement with newly issued ones. Any of these alternative activities actually creates a great impact on the manner of asset liability management, on the portfolio management, on the manner of functioning of the units for administering finances in enterprises (corporate treasuries), and ultimately, perhaps on the manner of setting the operational objectives of the monetary policies of some of the central banks in the countries with more developed financial markets.

Given that the transition to the new interest rate benchmarks is not a simple process that comes down to insertion of a new price into the contract or its annex, the banks need to estimate the costs and assess the risks on time. Also, the regulatory competent authorities should increase their involvement in these processes through their responsibilities for ensuring reliability of the banking system and monitoring of systemic risks, help banks and other market participants in the process of a smooth and timely transition to the new interest rate benchmarks.

[141] More details about these methods for obtaining adjusted risk-free interest rates can be found at: http://assets.isda.org/media/f253b540-193/42c13663-pdf/ (page 11-14), as well as in Annex B to this document.
[142] A detailed review of the results of this research is available at: http://assets.isda.org/media/04d213b6/db0b0fd7-pdf/.
[143] Source: Blackrock 2018, available at: https://www.blackrock.com/corporate/literature/whitepaper/viewpoint-libor-the-next-chapter-april-2018.pdf.

Table 1
Review of financial products in which interest rate benchmarks are used

Derivatives	• Swaps • Swaptions • Options	• FX forwards • Swap futures • Eurodollar futures
Loans	• Commercial loans • Syndicated loans • Floating rate bank loans • Term loan market • Leverage facilities • Intercompany loans	• Agricultural loans • Student loans • Credit card loans • Home equity loans • FHLB advances
Structured Products	• Asset backed securities - ABS • Mortgage backed securities - MBS • Commercial mortgage backed securities - CMBS	• Collateralized loan obligations - CLOs • Collateralized mortgage obligations - CMOs • Hybrids
Short-term	• Foreign office deposits • Time deposits • Checking accounts • Money market deposit accounts • Demand deposit products • CDs	• Commercial paper • Medium-term notes (MTNs) • Securities lending • Repo • Reverse repo
Bonds / Other	• Corporate bonds • Auction rate securities • Agency notes • Non-US government bonds • Affordable housing bonds • Trust preferred securities • Covered bonds • Solvency II liabilities reference rate definition • Subordinate debt	• Senior notes • Capital leases • Trade finance • FA-backed notes • Direct fund agreements • Commercial leases • Interest calculations on I/C accounts of group companies • Pricing and accounting of money market, debt and derivatives • Benchmarks for asset management mandates

Source: The Financial Stability Board – FSB, a report under the working title of "Market Participants Group on Reforming Interest Rate Benchmarks" available on the following link: http://www.fsb.org/wp-content/uploads/r_140722b.pdf.

Table 2
Review of alternative interest rate benchmarks for selected currencies

	United States	**United Kingdom**	**Euro area**	**Switzerland**	**Japan**
Alternative rate	**SOFR** (secured overnight financing rate)	**SONIA** (sterling overnight index average)	**ESTER** (euro short-term rate)	**SARON** (Swiss average overnight rate)	**TONA** (Tokyo overnight average rate)
Administrator	Federal Reserve Bank of New York	Bank of England	ECB	SIX Swiss Exchange	Bank of Japan
Data source	Triparty repo, FICC GCF, FICC bilateral	Form SMMD (BoE data collection)	MMSR	CHF interbank repo	Money market brokers
Wholesale non-bank counterparties	Yes	Yes	Yes	No	Yes
Secured	Yes	No	No	Yes	No
Overnight rate	Yes	Yes	Yes	Yes	Yes
Available now?	Yes	Yes	Oct-19	Yes	Yes

FICC = Fixed Income Clearing Corporation; GCF = general collateral financing; MMSR = money market statistical reporting; SMMD = sterling money market data collection reporting.

Source: The quarterly report of the Bank for International Settlements for March 2019 under the working title of "Beyond LIBOR: a primer on the new benchmark rates", which is available at: https://www.bis.org/publ/qtrpdf/r_qt1903e.htm, and it is based on data from the European Central Bank - ECB; the Bank of Japan; the Bank of England; the Federal Reserve Bank of New York; the Financial Stability Board – FSB; the Bank of America Merrill Lynch; the International Swaps and Derivatives Association.

Table 3
Examples for financial products in which interest rate benchmarks are used, which are expected to be subject to transition to the new alternative risk-free interest rates

Benchmark by currency	Product	Product examples	Market participants	
• GBP LIBOR	• Over-the-counter (OTC) derivatives	• Interest rate swaps, forward rate agreements (FRAs), cross-currency swaps	• Central counterparties (CCPs)	• Pension funds
• USD LIBOR	• Exchange-traded derivatives (ETDs)	• Interest rate options, Interest rate futures	• Exchanges	• Hedge funds
• EURO LIBOR, EURIBOR	• Loans	• Syndicated loans, business loans, mortgages, credit cards, auto loans, consumer loans, student loans	• Governmentsponsored enterprise (GSE)	• Regulated funds
• CHF LIBOR	• Bonds and floating rate notes (FRNs)	• Corporate and non-US government bonds, agency notes, leases, trade finance, FRNs, covered bonds, capital securities, perpetuals	• Investment banks	• Insurance/ Reinsurance
• JPY LIBOR, JPY TIBOR, EUROYEN TIBOR	• Short-term instruments	• Repos, reverse repos, time deposits, credit default swaps (CDS), commercial paper	• Commercial banks	• Corporations
	• Securitized products	• Mortgage-backed securities (MBS), asset-backed securities (ABS), commercial mortgage-backed securities (CMBS), collateralized loan obligation (CLO), collateralized mortgage obligation (CMO)	• Retail bankso	• Non-bank lenders
	• Other	• Late payments, discount rates, overdraft	• Asset managers	• Others

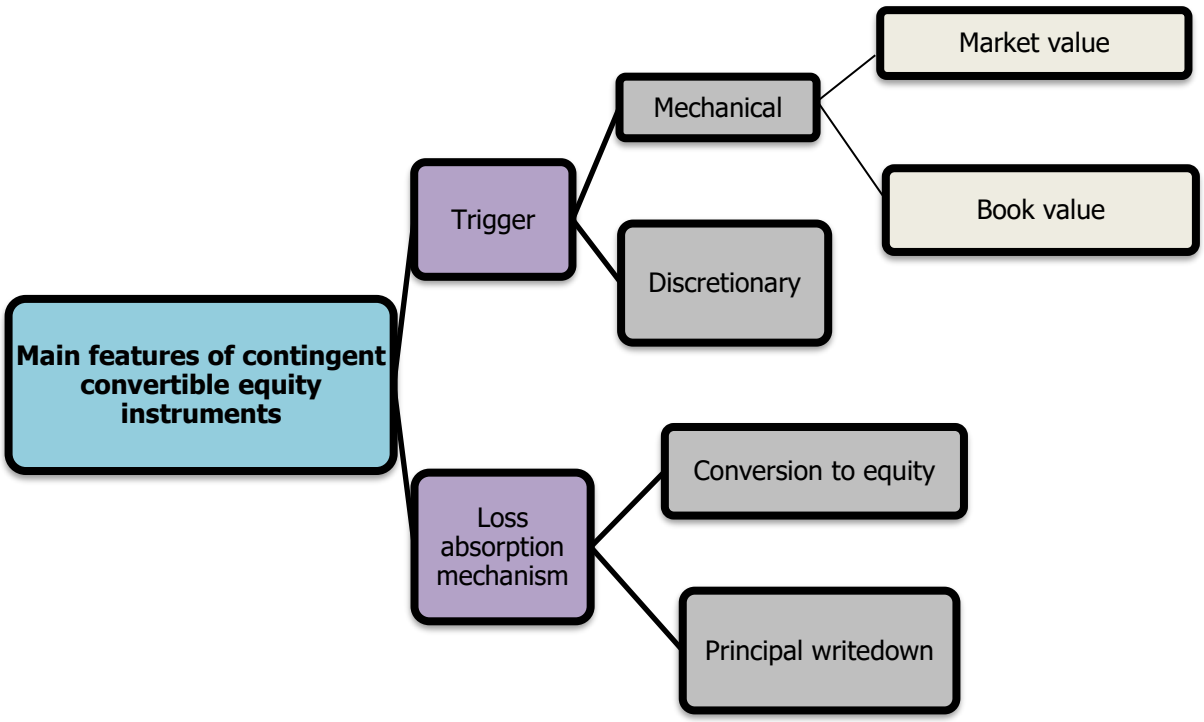
Source: The International Swaps and Derivatives Association – ISDA, a report under the working title of "ISDA Global benchmark survey 2018 transition report" available on the following link: https://www.isda.org/a/g2hEE/IBOR-Global-Transition-Roadmap-2018.pdf.
* According to the definition of the Bank for International Settlements – BIS, available on the following link: https://www.bis.org/publ/qtrpdf/r_qt1612c.pdf, hedge funds denote unregulated investment funds and various types of money managers, including commodity trading advisers (CTAs) – usually registered portfolio fund managers who invest in futures whose value depends on the movement in commodities) that share (all or a combination of) the following characteristics: 1) often follow a relatively broad range of investment strategies that are not subject to borrowing and leverage restrictions (with many of them therefore using high levels of leverage); 2) often have a different regulatory treatment from that of institutional investors and typically cater to high net worth individuals or institutions; 3) often hold long and short positions in various markets, asset classes and instruments; and 4) frequently use derivatives for position-taking purposes.

ANNEX 4

Contingent convertible capital instruments

Contingent convertible capital instruments - CoCos are securities that, in accordance with the contractual terms for their issuance, can be converted into equity instruments and used to absorb losses from the issuer's operations, especially in stressful situations. It is a debt instrument, a bond, that offers coupon interest to investors, but the payment of that interest can be canceled (without the possibility of accumulation of unpaid interest), if the capitalization indicators of the institution drop to a low level (usually determined with the contractual terms for their issuance). What is more important is that if the issuer's financial and capital positions deteriorate to a level that could jeopardize its normal operating, these instruments may be converted into shares (which directly increases the most quality capital) or may partially or fully reduce their value (thereby reducing the issuer's total debt). In this manner, the investors in this type of debt instruments participate in the loss coverage. With the emergence of these instruments, the concept of bail-out in the period of the global financial crisis is replaced by the bail-in concept, which is of particular importance in cases where the issuer is a bank or other financial institution. Therefore, such contingent convertible equity instruments are being accepted by banks' supervisors and regulators as equity instruments that are part of regulatory capital (i.e. in own funds).

Figure 1
Outlook of different alternatives about both basic features of contingent convertible equity instruments



Source: Adjusted by Avdjiev Stefan, Kartasheva Anastasia, Bogdanova Bilyana, 2013, "CoCos: a primer", BIS Quarterly Review, September 2013.

Thus, the first financial institution to issue such bonds (at the end of 2009) was the Lloyds Banking Group, and later similar bonds were issued by Rabobank, Credit Suisse and the Bank of Cyprus. Contingent convertible equity instruments are particularly characteristic for the European banking market (the largest issuers are Barclays, BNP Paribas, HSBC or Santander, for example), although these instruments are also used in Asia. Such instruments are not encountered in the United States, although there are securities with similar characteristics, usually structured as prospective non-cumulative priority securities (this type of instrument is issued, for example, by JP Morgan or Wells Fargo).Often, investors in contingent convertible equity instruments are the "retail" investors or smaller private banks.[144]

The two basic features of contingent convertible equity instruments relate to determining the event that will trigger the activation of this mechanism, the so-called **trigger and determining loss absorption mechanism**.

The event triggering the loss absorption mechanism may be in the form of a mechanical rule or may be at the discretion of the supervisor. The mechanical rule usually defines the level of the chosen (contracted) equity indicator, which, if achieved, will trigger the activation of the loss absorption mechanism. Equity indicator can be determined on the basis of internal indicators, mostly as a correlation between the regular core capital and the risk weighted assets[145], or to be based on certain market indicator on the issuer, such as the correlation between the market capitalization of issuer's shares and the amount of its assets. In addition, the supervisor may have the discretion to decide whether and when the loss absorption mechanism should be activated, based on its assessment of current or future movements in the bank's capital position (point of non-viability trigger.)[146].

The loss absorption mechanism can envisage conversion of the debt into equity instrument or decrease (write-off) of its value. The conversion in equity instruments can be made taking into account the current market value of the issuer's share or its predetermined price (for example, market price or the price determined by the prospect for issuing the debt instrument). When converted at the current market price of the share, it is very likely that the issuer's existing shareholder structure of the convertible bond will be diluted due to the fact that the current market price of its shares may have a lower value under stress conditions. Hence, the conversion is often carried out at a predetermined price, which may or may not be the prevailing market price at the time of issuance of conditional conversion bonds. An additional possibility is to foresee a partial or total reduction in the nominal value of the issued bond, thus reducing the issuer's current debt and potential future interest repayments based on these instruments.

[144] One of the reasons for the lower interest by institutional investors is the fact that these instruments often do not have credit ratings, due to the variety in their characteristics (depending on the jurisdiction), the potential opportunity (given the features) to disrupt the ranking of the investor and the creditors of the bank, when absorb losses and the uncertainty about their valuation, especially those where the conversion may be triggered by the decision of the supervisor.

[145] The Basel Capital Accord, which specifies the manner of defining own funds and instruments that may be part of the own funds, stipulates that a particular equity instrument may be part of the bank's additional Tier 1 capital, provided that its contractual terms provide for activation of the loss absorption mechanism, at least in cases where the ratio between regular core capital and risk-weighted assets declined below 5,125%.

[146] Discretion is usually exercised by resolution authorities.

Contingent convertible equity instruments are usually issued as perpetual bonds[147], although the expectations for the interested parties are that the issuer will be interested to purchase them as soon as possible, having in mind that they are one of the more expensive instruments. Given the aforementioned features of these instruments, it is quite clear that they are offered at higher prices (in some cases they absorb losses even to shareholders) than other securities issued by the same issuer (their price does not depend only on the features of the issuer). The yields on the contingent convertible equity instruments are similar to the yields on the issuer's subordinated bonds, and less on the premiums on credit default swaps spreads or prices on equity instruments of the particular issuer.

Despite the fact that these are relatively "new" financial instruments whose markets have not yet undergone a more serious and stronger downturn, few conclusions can be drawn regarding the advantages and disadvantages of issuing such instruments. The most significant advantage of contingent convertible equity instruments is that they provide greater stability of banks' own funds and increase in their quality. In conditions of problems in bank operating, it has an additional loss absorption mechanism and improve its balance sheet, whether converting these instruments into shares or reducing their value. This increases the resistance of each bank to shocks, and thus the resistance of the entire banking system. Also, their presence reduces the risk of using budget funds to cover bank losses which, as noted, were particularly present during the global financial crisis.

On the other hand, because of the higher price offered by these instruments, they can strain the issuer's profitability, which has to pay higher interest on the issued instruments to protect against a crisis that may never happen. Such a feature requires both the issuer and the investor to have a proper knowledge in risk assessing risks and the benefits of these instruments.

In addition to the advantages these instruments offer for each issuing bank, their issuance can have a positive impact on the expansion of investment options in the financial market, which may be of particular importance for the development of the domestic capital market. Thus, due to the increase in the amount of own funds, improvement of their structure, as well as expansion of funding sources, in the Macedonian banking system, there have recently been two cases of successful issuance of convertible bonds. In the first case[148] we are dealing with perpetual bonds[149], which provide for their total or partial (temporary) depreciation when a critical event occurs (when the bank's regular fixed capital ratio drops below 5,125%). In addition, there is a possibility of termination of the payment of interest on the instrument (on a non-cumulative basis), on several grounds: the issuer's discretion, the National Bank's discretion, if the payment of interest violates legal requirements regarding capital requirements or if the above critical event occurs. Bonds are subordinated to the liabilities to depositors and other creditors of the bank, and include a purchase option that entitles the issuer to redeem or repay to holders (after five years of issue and with prior consent from the National Bank). The contractual terms on which these bonds are issued fully meet the requirements for their inclusion in the bank's own funds as part of the additional fixed capital.

[147] The reason for the perpetuation of these instruments (with no maturity) with the banks should be sought in the requirements of the Basel Capital Accord as reflected in the domestic capital adequacy regulation. Namely, one of the requirements that the instrument has to fulfill in order to be part of the bank's additional Tieer1 capital is to have no maturity.

[149] They were issued as private bid in January 2019, and as of 1.3.2019 are listed on the Macedonian Stock Exchange. http://www.unibank.com.mk/files/attachments/Prospekt.pdf

In the second case, we are dealing with subordinated bonds[150] (with respect to the obligations of depositors and other creditors of the bank), which entitles the holder / investor to convert the bonds into shares.[151]. These bonds have a maturity of seven years, but have an embedded call option, which entitles the issuer (after five years of issue) to repurchase or repay the holders (with prior payment consent of the National Bank). Due to maturity, these instruments are part of the bank's Tier 2 capital.

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[150] The bidding process was completed in March 2019, followed by the CSD registration application. https://www.mse.mk/Repository/Reports/%D0%88%D0%B0%D0%B2%D0%BD%D0%B8%20%D0%BF%D0%BE%D0%BD%D1%83%D0%B4%D0%B8%20%D0%B7%D0%B0%20%D0%BF%D1%80%D0%B5%D0%B7%D0%B5%D0%BC%D0%B0%D1%9A%D0%B5%202018/CKB%20AD%20Skopje%20-%20javna%20ponuda%20obvrznici/%D0%9F%D0%A0%D0%9E%D0%A1%D0%9F%D0%95%D0%9A%D0%A2%20%D0%A6%D0%9A%D0%91.pdf

[151] That is why the bank (more precisely the bank's shareholders assembly) has already made a decision on conditional increase of the principal in order to convert the bonds into shares.