

# DIGITALES ARCHIV

## Periodical Part

## Financial stability report for the Republic of North Macedonia in ... ; 2016

### Provided in Cooperation with:

National Bank of the Republic of Macedonia, Skopje

*Reference:* Financial stability report for the Republic of North Macedonia in ... ; 2016 (2017).

This Version is available at:

<http://hdl.handle.net/11159/1677>

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**National Bank of the Republic of Macedonia**  
Supervision, Banking Regulation and Financial Stability Sector  
Financial Stability and Banking Regulations Department



***FINANCIAL STABILITY REPORT FOR THE REPUBLIC OF  
MACEDONIA IN 2016***

July 2017

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## Summary

**In 2016, the financial system of the Republic of Macedonia and the economy in general faced a strong stability challenge due to the domestic political events which culminated in April and May 2016 and reflected on the banking system flows. However, the Macedonian financial system maintained its stability in 2016. Measures undertaken by the National Bank for maintaining the foreign exchange rate stability played a crucial role aimed to maintain price stability as a primary objective, but also to support financial stability as the second legal objective of the National Bank, along with the appropriate liquidity management by the banks that experienced the consequences of the April and May events the most.**

**International environment remained vulnerable in 2016**, followed with risks in terms of the recovery pace of the euro area and geopolitical risks, Brexit effects, results US presidential elections as well as uncertainty in terms of the prices of primary products in the global markets. Announcements by the new US president for a possible increase of the protectionism level in global trade and referendum decision for Brexit could be a blow to the perspectives for a sustainable and robust expansion of the economies, and investments might be the first victim given their close connection with the trade flows. Despite the increased uncertainty among economic agents, such developments in the international environments had no significant effects on the domestic economy.

**The unstoppable technical-technological development and constant digital innovations present in the economic flows worldwide did not circumvent the finances.** Financial instruments increasingly use complex IT systems and are interconnected through complex data centers, payment systems and settlement systems which facilitate performing financial activities, but at the same time increase the exposure to operational risks and emphasize the need of greater resistance to cyber risks as a special operational risk type. Additionally, the strong upswing and application of the digital innovations in finances (also known as "fintech") "threaten" to entirely change the financial world appearance. The application of digital currencies, as an alternative of the sovereign currencies or financing through initial offers of the so called coins as a substitute for financing through the capital market widens the investment alternatives and possibilities. However, these are private and unregulated, and thus high-risk financial mechanisms and instruments. Previous experiences show that such innovations, although highly profitable in the introductory period, carry a loss creating potential for individual investors, and also "obstacles" for conducting financial system policies. The emergence of digital innovations in banks finances will most likely mean facing disintermediation, important changes in payment mechanisms, savings and lending activity. At the same time, policy makers will need to ensure resilience of the financial systems to the increasingly frequent attacks, breaking into systems and incidents which are sophisticated, targeted and difficult to detect, manage and control. Several organizations whose primary activity is the protection of information and information systems as well as several regulatory bodies have already come up with standards to increase the digital space security. Following these activities, the National Bank prepared a tool based on which banks may self-assess the cyber risks and readiness to tackle potential cyber risks.

The macroeconomic environment in domestic economy was influenced by the domestic political instability which started in 2015 and further deepened in 2016, especially in the second quarter



of the year. The escalation of the domestic political situation in April 2016, accompanied with the speculations for devaluation of the denar exchange rate and stability of the domestic banks and deposits invested in them, resulted in shattering the confidence of the public on the banking system (especially expressed in households) and resulted in withdrawing significant amounts of deposits by the households, especially present in April and May 2016. Deposit withdrawal was also accompanied by increased propensity of households to hold foreign currency, which caused higher demand for foreign currency on the currency exchange market and the foreign exchange market. In the period April-May, the NBRM intervened with net sale of foreign currency, and at the beginning of May increased the policy rate, while reducing the offer of CB bills in line with the liquidity needs of the banks. In addition, the NBRM increased the reserve requirement for denar deposits with FX clause and reactivated the auctions for foreign currency deposits of banks with the NBRM. All these measures, coupled with appropriate liquidity management by the banks, which smoothly met all deposit payment requirements, ensured stabilization of the expectations of the economic agents and subsequently, positive trends on the foreign exchange market, as well as ease of the unfavorable deposit market developments. Considering the stabilization of the movements in the second half of the year and the further retention of the assessments for stability of the domestic economy fundamentals, in October, the National Bank ceased to hold foreign currency deposit auctions, and in December started to normalize the monetary policy by cutting the policy rate on three occasions, thus reversing it to the level from early 2016 (3.25%). Contrary to the uncertainty caused by domestic-political situation and speculative pressures, in 2016, the Macedonian economy registered a real growth of GDP of 2.4% which, although slower compared to the previous year (3.8% in 2015) is solid given the environment. Amid reduction of gross investments, net exports led mainly by new export oriented facilities and favorable price effects in oil import were the main drivers of the growth, as well as private consumption, amid favorable developments in labor market and wages. External debt, as well as public debt increase but the indebtedness is still moderate.

Domestic corporate sector debt continued to grow in 2016 (reaching 66.2% of GDP), with markedly greater utilization of external sources of financing due to lower borrowing by domestic banks. The debt to nonresidents mainly consists of intercompany loans and trade credits. In 2016, the net debt of the corporate sector to domestic banks declined, but it increased towards the external creditors, mainly on the basis of intercompany loans and trade credits. The possible increase of the raw material prices in the world stock exchanges will be a challenge for domestic enterprises, as it would increase corporate sector costs in order to increase the input component prices in the process of operation which could put pressure on the prices of domestic products and create higher inflation expectations among domestic agents. Aggregately, the corporate sector in 2016 demonstrated resilience to the adverse effects from the unstable domestic political environment and retained the operational success, as reflected through the growth of added value, profitability indicators and retained stable dynamics of indebtedness indicators and efficiency funds utilization. The high achievements of the new foreign export oriented facilities and their significant contribution in the export and GDP growth are not a significant factor which conditions the level of the credit risk materialization in the corporate credit portfolio of the domestic banks and their performances. These new production facilities are less indebted in domestic banks, and do not use any significant services from them given their easier access in the international financial markets and the ability to ensure market financing, under generally more favorable conditions of the available financing options in the Republic of Macedonia. On the other hand, the demand increase for loans from the majority of the Macedonian corporate sector is conditioned from the need for restructuring the existing debt or investments in



inventories and working capital which influenced a slower credit support growth from domestic banks. . The poor credit portfolio quality of the banks compared to non-financial companies is perceived by the share of non-performing loans in total loans of the corporate sector, which at the end of 2016 was close to 10% despite the mandatory write-offs conducted during the year. The level of non-performing loans along with the high leverage (higher debt compared to capital) of companies are the main factors for the increasing banks' orientation towards the credit support to households in the past several-year period.

The debt of the "household" sector is not high (23% of GDP). Amid favorable developments in the labor market and wages, household debt continued to grow in 2016 at a faster pace compared to the increase in the financial assets and disposable income, which conditioned significant deterioration of part of the indicators for the indebtedness level, liquidity and solvency of this sector. The introduced regulatory measures by the NBRM, in order to stop the rapid growth of credit exposure based on credit products intended for financing household consumption (credit cards, overdrafts, long-term consumer loans) enabled a certain deceleration of the growth of household debt on this basis, and the annual growth rate of the total debt towards this sector (which, however, continues to be double-digits). Although no significant materialization of the credit risk in the households' portfolio is registered, careful monitoring of the risks is necessary. Banks' lending activity for financing the household consumption registers a solid growth, amid facilitated credit standards (lower, but adjustable interest rates, longer maturity and lower collateral), which amid higher concentration of the debt in households with lower income, imposes the need for carefully monitoring the risks of possible high indebtedness of individual segments in this sector. The increased extension of housing loans, with long maturities, with a currency component and adjustable interest rates, is linked with the intensified construction activity in our country, in the last years, but also with the growth of demand for real estate. Movements in this market have exquisite procyclical character, and potential imbalances in the real estate market are normally linked with impaired financial stability. However, bank in the Republic of Macedonia have a rather prudent approach in housing loans amid requiring a higher collateral value compared to the credit amount.

Households confirmed their key role as the most important creditor of the domestic banking system, from whose behavior, largely depends the liquidity of the banks and the total volume of their activities. Deposits withdrawal by households in the second quarter of 2016 and the intensified currency conversion of savings, regardless of the costs to which they were exposed due to the lost interest from terminated and withdrawn deposits from banks and losses from the exchange rate differences due the conversion in foreign currencies was a real stress test for the banks. Despite the rapid calming conditions in the following months, sight deposits and foreign currency deposits registered the highest increase in the deposit base of the banks by the end of 2016, which was due to the ongoing unstable political situation in the country and low interest rates. The relatively low rate of household savings, aggregately (which was in the positive zone for the last three years, but was significantly reduced down to 0.8% in 2016) is a limiting factor for the potential volume of financing the domestic banks' activities, dominantly oriented towards the application of the traditional professional model of their operation. Household deposits are still the most important individual source for financing the banking activities, with a share of 49.7% in the total liabilities of the banking system.

**The financial system of the Republic of Macedonia** has a relatively simple structure with a minimal interdependence of the activities of the individual segments and absence of complex



financial instruments and services. The stability of the financial system is conditioned by the stability of the banking sector as its dominant segment (it participated with a share of 84.7% in the financial system assets i.e. with 73.2% of GDP for 2016), where the savings of the non-financial sector are concentrated. Ownership connection between individual institutions of the financial system, and the amount of interbank loans and bank loans to non-banking financial institutions are relatively small, and hence, the risk of contagion through these channels is limited. However, deposits of other financial institutions, although almost insignificant in the deposit base of banking system are especially significant for some financial institutions as they are one of their major investments. Thus, brokerage houses and insurance companies, including investment funds, "hold" most of their assets as deposits with banks whose stability is vital to the stability of these non-deposit financial institutions. On the other hand, in some smaller banks, deposits of other financial institutions also represent a significant percentage of the total deposits of those banks which indicate that sudden deposits outflows of other financial institutions might lead to certain liquidity instability in some smaller banks.

*The banking system* successfully surpassed this crisis year, retaining its stability. Only liquidity indicators registered significant changes in the first half of 2016, although they remained at a satisfactory level, and got back on track in the third quarter. At the end of 2016, total deposits with the banking sector increased by 5.4%, and the credit growth, with the exempt of the effect of the regulatory imposed write-offs of non-performing loans fully covered by impairment, remained at a solid level of 6% at the end of the year. In accordance to the regulatory measure, the share of non-performing loans in total loans of the banks decreased from 10.8% at the end of 2015 to 6.6% at the end of 2016. The threat for the banks' own funds from the possible materialization of the credit risk from non-performing loans is not high due to their high coverage with allocated impairment, but also because of the satisfactory volume and quality of banks' own funds. In 2016, banks showed one-third higher amount of operating profit compared with the previous year, which is especially important in terms of internal capital creation amid absence or low amounts of decapitalizations towards issued new shares. The solvency and capitalization ratios of the banking system are high, notwithstanding the decrease in 2016 that mostly stemmed from the faster growth of risk-weighted assets. The new amendments to the Banking Law, which started to apply since March 2017, mean significant modernization of the regulatory framework, by introducing the new rules of the Basel Committee and the European regulations on the so-called capital buffers, whose fulfillment will further support the solvency of banks. Given the historically low levels of interest rates on deposits and reduced space for further greater cuts, maintaining high profitability will be a considerable challenge for banks in the future. This, supplemented by the intention to gradually abandon the application of adjustable interest rates in medium term, will impose the need of changes in banks' performance on the credit and deposits market and in the risk management area.

Although smaller in scale, pension funds are important primarily as institutional investors, and the assets invested in them are an important component of the financial household assets, on which the future disposable income and social security of natural persons depend. Pension funds' assets also increased in 2016 and for several years in a row registered a growth rate of over 20% (assets in private pension funds have a share of 9.4% in the assets of the financial system i.e. with 8.1% of GDP for 2016). Significant part of the placements of mandatory and voluntary pension funds are in domestic government securities, and in the last years, investments of pension funds in the so called exchange traded funds increased which bear a moderate higher risk of investments in debt instruments, but also a higher yield.

Despite the continuous growth of assets and expansion of the range of products of insurance companies and development of distribution channels which offer insurance services, their activities remained modest, especially in the life insurance class (assets of insurance companies had a share of 3.5% in the assets of the financial system i.e. 3% of GDP for 2016). The insurance sector is characterized with a high solvency and solid liquidity position, and prudence when placing free assets (mainly in form of deposits with domestic banks and securities issued by the government).

The remaining segments of the financial system are of a little relevance for the financing system (they account for 2.4% of the total assets of the financial system i.e. 2.1% of GDP for 2016). Investment funds are an exception, whose assets, although still small (share of merely 0.7% in the financial system assets), show permanently high growth rates and are an investment alternative, which, for now, brings alluring returns for investors, especially amid reduced interest rates on bank deposits. On the other hand, a significant portion of investment funds' assets are placed as deposits, thus slowly becoming an important depositor in some domestic banks. In the past three years, the number and assets of financial companies, as "the youngest" segment of the financial sector is continuously growing, but without significant changes in the relative importance of the financial system. The accelerated entry in the financial companies' market which extend loans on small amounts with exceptionally high compensations in the form of interest or provisions and similar compensations, imposed the need for stronger supervision of authorized institutions on this segment of the financial system. The scope of activities of savings houses, leasing companies and brokerage houses registered a multi-year decline, and in 2016, the number of leasing companies and brokerage houses decreased.

The impact of the financial markets in the Republic of Macedonia on the financial stability in the country is lower than the impact typical for the financial markets in developed economies, but their relevance should not be neglected.

The foreign exchange market and the role of the National Bank in terms of maintaining a stable exchange rate of the denar against the euro are crucial not only in terms of the turnover of individual segment of the financial market in the country, but also maintaining the economic balance and stability in the financial system. This is also confirmed through the performed turnover in the foreign exchange market in 2016 which was at a significantly higher level (77% of GDP), compared to the remaining segments of the financial market. The significance and efficiency of this market came to light in April and May 2016, when due to maintaining a stable exchange rate of the denar against the euro, the National Bank intervened in the foreign currency market by selling foreign currencies and provided the banks with the required foreign currency liquidity in the amount which represents 5.3% of the average amount of foreign reserves during 2016. Based on the demonstrated commitment of the National Bank for maintaining a stable exchange rate, the present uncertainty in economic agents decreased in the second half of the year, thus leading to an intervention towards purchasing foreign currencies, which exceeded the amount of performed sale in the first half of the year. Despite the expressed unfavorable effects of the political conditions and pressures in the foreign exchange market, the NBRM's interventions in the foreign currency market in 2016 resulted with a net purchase of foreign currencies in the amount which represents 0.7% of average foreign reserves during the year.



The National Bank and the Ministry of Finance are the most active issuers of securities on the primary markets in the country, thus enabling the implementation of monetary policy objectives, and managing the public debt, respectively. On the other hand, financial institutions (mainly banks and pension funds, insurance companies) are major investors in securities issued in these markets. Hence, developments in the primary market have a great significance for the performance of these institutional segments of the financial system. During 2016, the ratio between the offered and requested amount of instruments in the primary market was generally balanced. Slightly more pronounced oscillations in terms of movements in supply and demand of instruments in the primary markets were registered in the fourth quarter of 2016, when the supply of government securities was reduced given the previous Eurobond issue in the international markets. The corporate sector is almost absent in the primary markets of securities and does not use market financing, which is a limiting factor for the significant growth of the scope of this sector's activities. The total value of new issues of securities performed in 2016 represents 55.2% of GDP, only 0.2 percentage points of them account for issued equity securities (from one bank), while corporate debt securities are absent.

The increased banks' activities to trade in the interbank unsecured deposits market were especially evident in the second quarter of 2016 due to the increased liquidity requirements amid deposits withdrawal by households influenced by the unstable political situation in the country. Despite the increase of the trade in the interbank unsecured deposits market (which reached 8.5% of GDP for 2016), it is still a shallow market with relatively small amounts of traded deposits mostly in the short term (overnight). This, in turn provides a modest systemic risk for the domestic banks i.e. small exposure of the banks to the contagion risk i.e. outflow of potential liquidity problems from one bank to another.

OTC markets are underutilized in terms of secondary trading in debt securities and repo transactions among banks, thus having little potential impact on the financial stability of the country. The turnover in this market increased in 2016 (reaching 1.7% of GDP for 2016), which is mostly due to the increased trade of CB bills, and more moderate yield of trade with treasury bills. Contrary to that, the performed turnover in the interbank repo transactions is more than four times lower compared to the previous year. The turnover from the classic trade in the secondary capital market (Macedonian Stock Exchange) in 2016 is still low (0.4% of GDP for 2016), which confirms the significantly reduced and already marginalized role that this market has in the domestic economy, despite the increased price levels in the previous year and the connection of the stock exchanges in the region.



## I. MACROECONOMIC ENVIRONMENT

### 1. International environment

In 2016, maintaining financial stability was influenced by numerous challenges from the international environment. Long period of low interest rates and low inflation, as well as decelerated economic growth were the basic features of the macroeconomic environment in which the international financial system functioned. Although the global economy is gradually recovering, the uncertainty is high and originates from several sources of different nature. Uncertainty of US policy development related to the facilitation of the fiscal and tightening of the monetary policy, announcements for protectionism and trade restriction measures contribute to the financial stability risks growth. Euro area economy recovered, but at the same time was influenced by various events which resulted to increased geopolitical risks (Brexit, referendum vote on constitutional changes in Italy, political elections in member countries, terrorist attacks) which might negatively impact the future growth. Relatively long time period of low inflation and low interest rates in which the world economy functioned, as well as the accompanied cycle of easing the monetary policy in the developed economies ended or approaches its end. US economy approaches its "new normal", while this is expected to happen slightly later in the euro area economy. This would mean return towards normalization and steepening the yield curves. Therefore, apart from the change in the monetary policy course, it is expected that the structural reforms which are a base for a sustainable economic growth parallel to fiscal consolidation will continue. Both in Europe and internationally, the financial system faces challenges which arise from the new capital and liquidity regulatory requirements and the need for further structural changes for maintaining and strengthening the profitability.

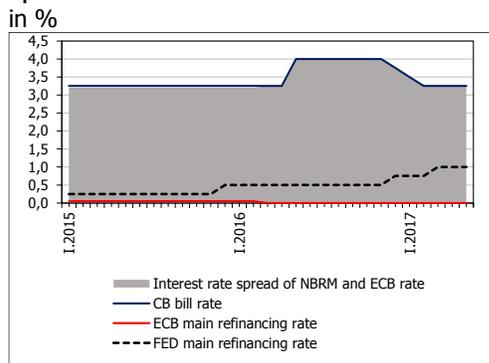
In 2016, euro area had a low but stable economic growth, expecting that this pace will continue in 2017 and 2018 also. Domestic demand was the main growth driver, which was influenced by the relatively low oil prices' level and accommodative ECB monetary policy. Implementing the structural reforms in some member countries, especially in the labor market domain, also represented the recovery which reduced the unemployment rate. Nevertheless, the relatively high unemployment rate and low level of investments question the sustainability of recovery and potential economic growth, which indicate to the need of deeper structural reforms (in the labor market domains, productivity, competition, and of course fiscal policy).

Table 1  
Economic indicators  
in %

	2015	2016	2017 projection	2018 projection
<b>GDP - real annual growth rate</b>				
USA	2,6	1,6	2,3	2,5
EU	2,4	2,0	2,0	1,8
Euro area	2,0	1,7	1,7	1,6
Germany	1,5	1,8	1,6	1,5
<b>Inflation</b>				
USA	0,1	1,3	2,7	2,4
EU	-0,002	0,2	1,8	1,7
Euro area	0,033	0,2	1,7	1,5
Germany	0,1	0,4	2,0	1,7
<b>Unemployment rate</b>				
USA	5,3	4,9	4,7	4,6
EU	9,4	8,5	8,1	7,8
Euro area	10,9	10,0	9,4	9,1
Germany	4,6	4,2	4,2	4,2
<b>Investment / GDP</b>				
USA	20,3	19,7	20,0	20,6
EU	19,7	19,9	20,0	20,0
Euro area	19,9	19,9	20,0	20,2
Germany	19,2	19,1	19,1	19,2

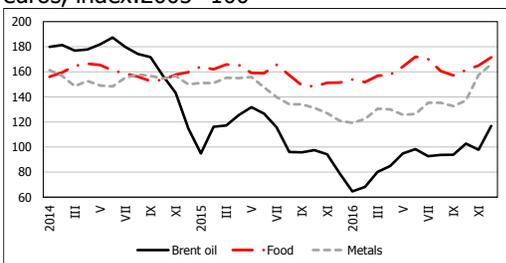
Source: IMF (World Economic Outlook Database), April 2017 and EEF winter 2017.

Chart 1  
ECB and FED key interest rates and spread



Source: ECB and NBRM.

Chart 2  
Monthly movement of prices of crude oil, metals and food  
euros, index:2005=100



Source: IMF

Note: Metals Price Index is a composite index, which includes prices of copper, aluminum, iron ore, tin, nickel, zinc, lead and uranium.

The recovery pace by individual countries in the euro area in 2016 is different and conditioned by several specific factors. Particularly important for the Macedonian economy are the trends in the economic activity of the major trading partners. Germany, as the country with the highest share in the foreign trade<sup>1</sup> of Macedonia in 2016 registered a solid economic growth, and the expectations for the following period are also positive. This should be a positive incentive for the Macedonian export and economy in general, given the importance of the export sector for a small and open economy such as Macedonia<sup>2</sup>.

**In 2016, the international environment was characterized by conducting divergent monetary policies by central banks in the developed countries.** FED continued the normalization of the monetary policy amid solid performances of the US economy<sup>3</sup>, and ECB with its stimulating monetary policy<sup>4</sup>, which improved the economic and financial conditions in the euro area. Given the connection of the Macedonian with the economies of the EU countries, the ECB's policy has an impact on the macroeconomic policy and economic flows through several channels (financial channel, trade channel, foreign exchange rate channel and expectation-confidence channel<sup>5</sup>).

The link of the domestic economy with the euro area countries points to possible overflow of the potential shocks of the euro area towards the Macedonian economy.

<sup>1</sup> Share of FT with Germany in GDP for 2016 was 28.2%.

<sup>2</sup> In 2016, net export contributed with 0.6% in the GDP growth rate.

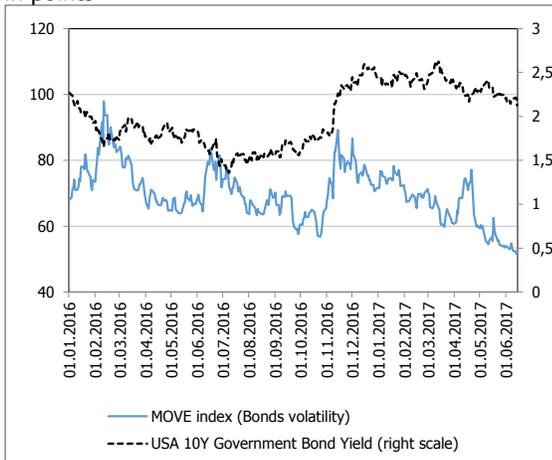
<sup>3</sup>In 2016, FED increased the interest rate target in the money market by 0.25 percentage points (from 0.50% to 0.75%) which was due to the FED estimates for economic growth acceleration as well as possible future inflation pressures.

<sup>4</sup> In March of 2016, the ECB took a set of measures to further loosen the financial conditions in the euro area. It reduced the interest rates (interest rate on the main refinancing operations from 0.05% to 0.00%, the interest rate on deposit facility from -0.30% to -0.40% and the interest rate on marginal lending facility from 0.30% to 0.25%) and took additional measures. A decision was made to implement four additional Targeted Longer-Term Refinancing Operations (TLTRO II) with maturity of 4 years, starting from June 2016, with an interest rate at the level of the ECB's policy rate. Moreover, for banks that will increase their lending activity to a level higher than the set target, a lower interest rate will be applied to the amount above the target, but most up to the level of deposit facility interest rate. Additionally, there was an increase in the monthly purchase of bonds under the quantitative easing program (from Euro 60 to Euro 80 billion) starting from April 2016, including the purchase of non-financial corporate debt securities from the euro area with an appropriate investment rating. However, at the regular meeting held in December, the ECB decided to reduce the amount of backed securities under the quantitative easing program from Euro 80 billion to Euro 60 billion per month (starting from April 2017), but extended its duration period from six to nine months.

<sup>5</sup> Detailed in the analysis „Long period of low interest rates and monetary loosening in the euro area - effects on the region?“ Anita Angelovska Bezovska, Ana Mitreska and Sultanija Bojceva Terzijan, web page of the National Bank, <http://www.nbrm.mk/?ItemID=FF52431A1F645B4D9F25856709D584F6>

**Globally, the inflation gradually strengthened during 2016.** The growth is due to the gradual recovery of the primary commodities prices and especially to the growth of energy prices<sup>6</sup> in the last quarter of the year, after the prolonged annual decline in the first nine months of 2016. However, inflation was kept at a low level in the euro area and below the target of around 2% which was reached in the first quarter of 2017.

**Chart 3**  
Movement of the yields of the government securities and bonds' volatility (in %) in points

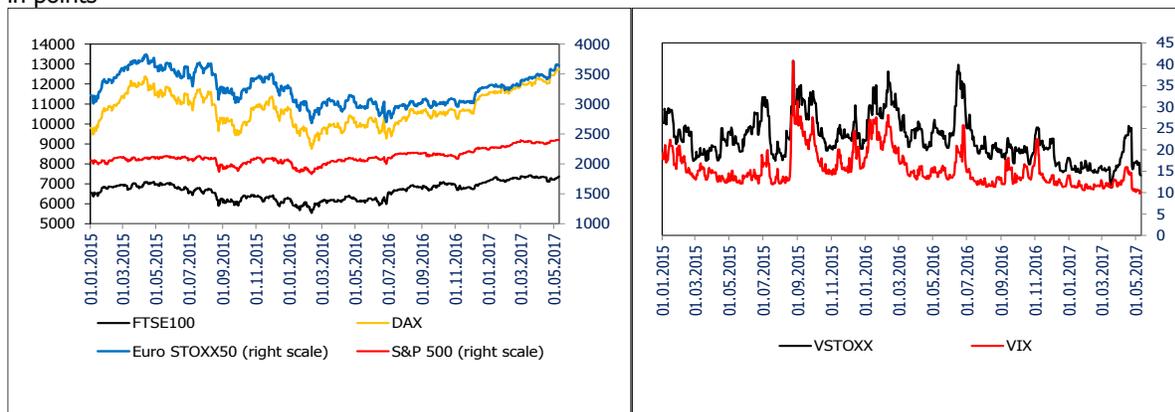


Source: Electronically available international service for publishing information.

Note: Move index is the weighted average of bonds with different maturity and shows the implication of government bonds volatility for the following 30 days period. 10 year bonds have the highest share.

**Great Britain's decision to exit the European Union (Brexit) in mid-June 2016 increased the political uncertainty and impacted financial markets' volatility.** For the time being, Brexit is not a major risk for the financial stability of the euro area given the limited impact on the economy<sup>7</sup>. Nevertheless, the ECB has recommended that banks and financial institutions should timely undertake plans for reallocation of the financial services towards other EU member countries in order to overcome the Brexit process easier. Given the minor relationship of the Macedonian with the British economy, the potential direct effects from Brexit on the domestic economy are small, but possible with the indirect risks from the Brexit influence on the European Union, as our most important trade partner.

**Chart 4**  
Movement of stock indices (left) and indices of implicated stock price volatility (right) in points



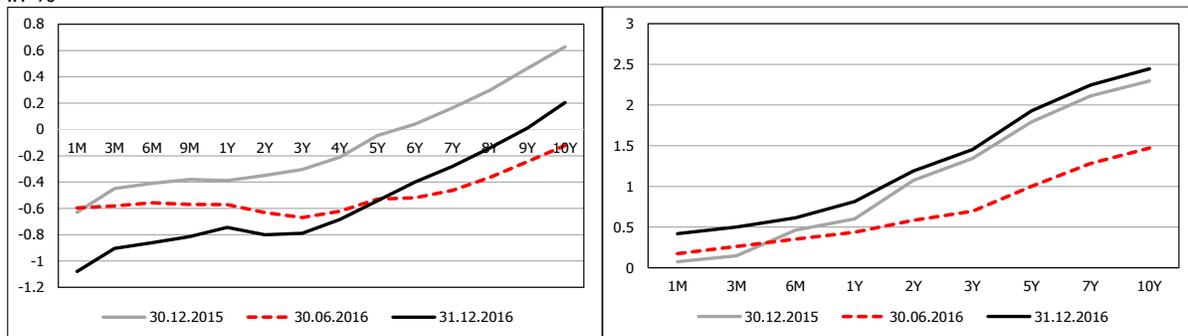
Source: Electronically available international service for publishing information.

<sup>6</sup>The oil prices increase is mainly due to the reached agreement among OPEC countries to cut oil production, and the readiness of Russia (which is not an OPEC member) to support the measures by cutting its own oil production. The agreement was reached on 30 November 2016 in Vienna and started to apply from 01 January 2017. This agreement will be implemented during the first six months of the year with a possibility of extension for another six months.

<sup>7</sup> Source: Financial Stability Report, ECB, May 2017.

In this regard, it should be taken into account that with the Brexit, the free trade agreement between EU and Republic of Macedonia will not be applicable for trading with Great Britain. Hence, the future trade between Macedonia and Great Britain, to a large extent depends on the bilateral free trade agreement which will eventually be reached between both countries. Failure to reach such agreement would mean that trade exchange between Great Britain and the Republic of Macedonia would take place in accordance with the World Trade Organization rules, burdened with custom duties.

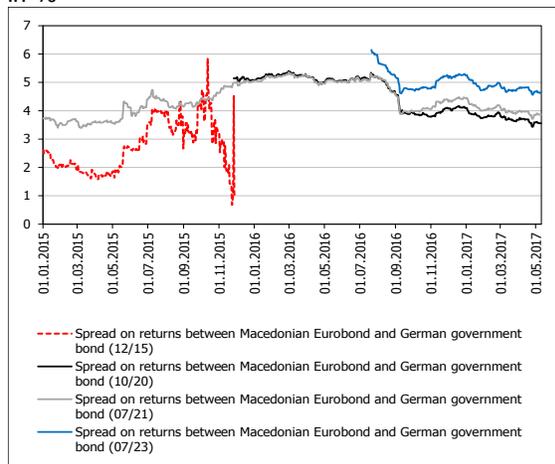
Chart 5  
Government bond yields in the euro area (left) and US (right)  
in %



Source: NBRM

**Despite the positive expectations (in terms of the economic growth, inflation, yields) in the last months of 2016, the international financial markets are still considered as a risk source for the financial stability.** The volatility in the financial markets in 2016 was conditioned by several events (“Brexit”, US Presidential elections, Agreement of OPEC member countries and improved economic indicators in the euro area in the second half of the year) which influenced the propensity of investors to take risks. During the first half of 2016, the pressures on government securities in the US and euro area decreased. This trend was intensified towards the middle of the year with the Decision of the United Kingdom to exit the European Union.

Chart 6  
Interest spread  
in %



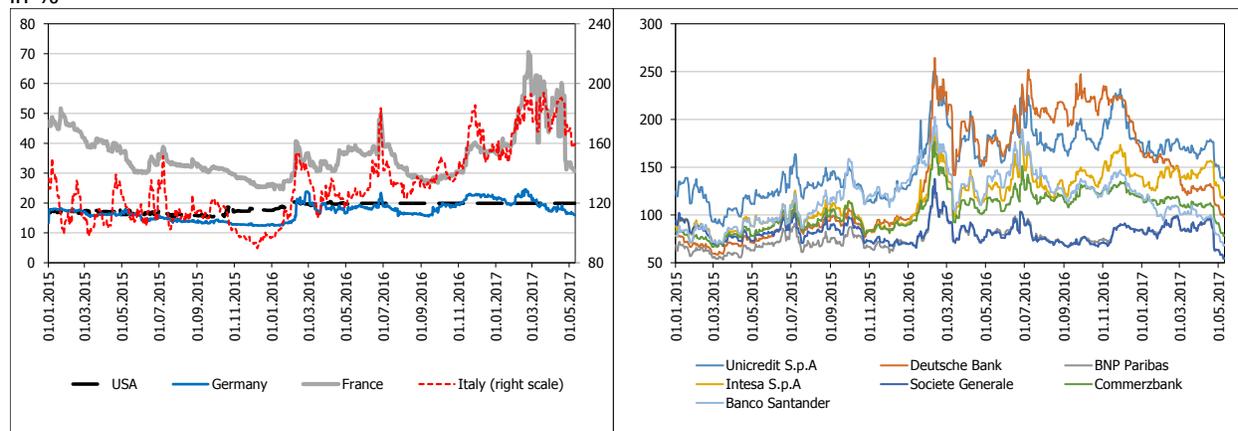
Source: Bloomberg

Euro area yields remained low until the end of the year due to the ECB’s further monetary easing measures. On the other hand, yields of European debt securities (segment from 5 to 10 years) registered an upward correction in the last quarter of 2016, influenced by the growth of yields of US government debt securities conditioned by the continuation of the monetary policy normalization in the US. In this regard, decrease in yields of Macedonian bonds contributed for narrowing the interest spread between the Macedonian and the comparable German bonds towards the end of 2016 and the beginning of 2017.

The increased expectations for further interest rate growth due to the tightening monetary conditions of FED are a potential risk for the existing owners of instruments with fixed yields from the euro area due to the decrease of the market value (prices) of these instruments. Additionally, the restoration of the political uncertainty might also affect the increase of risk premiums of the instruments with fixed yields.

**In 2016, the risks which originated from the high indebtedness of the private and especially public sector (countries) of the EU also increased,** amid low interest rates, low inflation and favorable financial conditions. Despite the general decreasing trend, the share of the government debt in GDP remained high in most EU countries. The sustainability of the debt might be a challenge for some EU countries due to the expected growth of interest rates and risk for increased costs for refinancing governments in future borrowing. A significant portion of the government debt is financed by the banking sector which creates the risk of feedback loop whose materialization depends on the creditworthiness of both sectors.

Chart 7  
 Premiums for certain countries (left) and banks (right)  
 in %



Source: Electronically available international service for publishing information.

**In 2016, euro area banks still face low profitability, high level of non-performing loans and the challenge for finding new sources of capital.** The environment of low interest rates and rates of yields and slow economic growth was an additional burden in the creation of revenues by banks. All this, hinders the financial intermediation role of the euro area banks which thus were facing unresolved global crisis issues and new challenges (due to the high level of non-performing claims, low profitability, need for changing the business model). The modest credit growth had a certain positive impact on the interest margins, but not enough, and the expressed volatility in the financial markets, especially in the first half of 2016 made the recovery process even more difficult. Market pressures decreased towards the end of 2016 with the increase of the yield rates in the US and expectations for inflation growth in the EU. The increase in the price of banks' shares and expected interest rate growth should give the profitability a positive effect through generating higher interest incomes.

Recognition and adequate provisioning of non-performing loans, **as well as finding an effective resolution strategy for solving the high non-performing loans' level**<sup>8</sup> is a priority for the banks. In this regard, are the initiatives for developing an efficient secondary market which will enable solving the problem with non-performing loans through their securization or sale to specialized companies which will manage the non-performing loans. Essentially, these are the main recommendations by the ECB in March 2017 for solving the problem with the high level of non-performing loans<sup>9</sup>.

Amid low profitability, the EU banks continue to face **the challenge for finding new sources of capital** for further adjustment to the requirements on the amount of own funds and capital buffers<sup>10</sup>. Meeting the requirements of the Bank Recovery and Resolution Directive is an additional challenge<sup>11</sup>, pursuant to which, the EU banks should have instruments that, if necessary, will be able to transform them into capital and to strengthen their solvency position. **In November 2016, the European Commission announced the revision of these regulations (in more details in the text in the box) towards increasing the consistency between the current regulatory requirements and strengthen the macroprudential policy in order to increase the stability of systemically important banks and hence the stability of the financial system as a whole.**

**The major and frequent regulatory changes which are introduced in the EU, aimed at increasing the stability of the banks and financial system generally** impose the need to monitor and adjust the national regulation on these new requirements<sup>12</sup>. In the long term, benefits from the strengthened, better capitalized and more stable European banking system is expected. In the short term, the compliance of the new regulatory requirements is a challenge for many countries, especially for the countries of the region including the banks of the Republic of Macedonia. This is due to more specific factors: 1) The trend of reducing the exposure of more European banks towards the countries of the region. The need of finding new sources of capital, amid an ongoing process of deleveraging, might influence the withdrawal of the banks' activities of the euro area from the region; 2) The application of new and tighter credit requirements (standards) on a consolidated (group) level which do not take into account the specific characteristics of the country or market where these banks (subsidiaries) operate; 3) Absence or delay of the assessment of the level of compliance of the supervisory and regulatory framework of the countries in the region with the one which is applied in the EU by the competent authorities in the EU.

**In all the countries from the region, including the Republic of Macedonia, the intention for monitoring the international standards and best practices, primarily the standards which are being applied in the EU is evident.** In this regard, the assessment on the compliance level of the supervisory and regulatory framework is of a particular importance for the countries of the region. Namely, given the credit rating of these countries, in accordance

<sup>8</sup> At the end of the third quarter of 2016, non-performing loans accounted for 5.4% of banks' total assets. But, more than one-thirds of EU member countries have rate of non-performing loans higher than 10%.

<sup>9</sup> Guidance to banks on non-performing loans, European Central Bank, Banking Supervision, March 2017.

<sup>10</sup> Pursuant to the European Directive 2013/36 and European Regulation 575/2013 (Capital Requirements Directive and Regulation).

<sup>11</sup> The European Directive 2014/59 (Bank Recovery and Resolution Directive), which, among others, prescribes the obligation for banks to have minimum requirements for own funds and eligible liabilities (MREL) which might be used to cover losses in case of problems in banks' operations.

<sup>12</sup> More details about advancing the regulatory framework of the banks in the Report on the risks in the banking system of the Republic of Macedonia in 2016, on the NBRM's web page.

with the existing capital requirements in the EU, EU banks which are present in the region, with their consolidated reports are obligated to apply a higher risk weight (100%) for the investments of their subsidiaries in instruments issued by the central government and central bank in the relevant country, until the European Union does not adopt a decision which will verify that the supervisory and regulatory standards of these countries are equal to those which are being applied in the EU. On this basis, higher capital requirements for parent banks have already contributed in limiting the exposure of foreign banks' subsidiaries towards central government and central banks of the countries of the region, which has a negative effect on the financial policy and transmission channel of the monetary policy. **Hence, rapid implementation of the compliance assessments of the domestic regulatory and supervisory framework with the European framework is of particular importance, which shall be conducted by relevant authorities of the EU.**

**Annex 2 - Review of proposed changes and amendments to the EU regulatory framework for credit institutions.**

The new regulatory framework<sup>13</sup> for credit institutions in the European Union which was introduced in 2013 and 2014 as a result to the global financial crisis of 2008 contributed to strengthen the European financial system and increase its resilience towards different shocks and possible financial problems. In order to remove certain problems which were observed during the period of the application of the new regulatory framework, as well as due to further advancing and compliance of the European regulation with Basel standards, in November 2016, the European Commission proposed amendments and changes of the regulatory framework.

The proposed amendments introduce additional measures to reduce the exposure of the banks to different risks and increases the resilience of the European banking system to potential market pressures. The most significant novelties are related to:

- prescribing the leverage ratio, from 3% (as a ratio between Tier 1 capital of the credit institutions and total exposure value), in order to limit the excessive addition of the banks on foreign assets' sources (in the previous regulation, an obligation was for reporting the level of leverage ratio, but not the minimum amount);
- introducing the mandatory rate of net stable funding ratio of at least 100%, in order to improve the manner of banks' financing and strengthen the importance of sources of long-term assets;
- change of the method of calculating the exposures limits, which limit the risk of concentration present in the operations of the banks. With the proposed amendments, the exposure limits would be calculated in terms of Tier 1 capital of the bank, and not in terms of its own fund, as in the practice so far;
- introducing mandatory total loss-absorbing capacity<sup>14</sup> for the global systemically important banks in order to provide greater capacity of these institutions to cover losses and renewing of the capital in conditions of financial crisis.
- change of the manner of calculating the capital requirements for market risks and
- change of the manner of calculating the interest rate changes in the portfolio of banking activities.

The purposed amendments are expected to enter into force during 2019.

<sup>13</sup> EU Regulatory framework for the operation of credit institutions includes: European Parliament Directive and Council No. 2013/36 for operation of credit institutions and prudent supervision of the credit institutions and investment firms (Capital Requirements Directive - CRDIV), European Parliament Regulation and Council No. 575/2013 on prudent claims for credit institutions and investment firms (Capital Requirements Regulation - CRR) and European Parliament Directive and Council No. 2017/59 on introducing the framework on recovery and resolution of credit institutions and investment firms (Bank Recovery and Resolution Directive - BRRD).

<sup>14</sup> TLAC (Total Loss-absorbing Capacity)



## 2. Domestic environment<sup>15</sup>

**Domestic political events and subsequently deteriorated expectations of economic agents increased the macroeconomic uncertainty in the country during 2016. However, domestic economy registered an increase which was slightly slower compared to 2015. The unstable domestic environment followed by the pressures on the foreign exchange market and on deposits in domestic banks, caused a reaction on the monetary policy which quickly influenced the stabilization of the foreign exchange market condition and gradual return of deposits to the banks. Both the external and the public debt increase, but the indebtedness is still moderate. Foreign reserves adequacy indicators are favorable, they enable adequate depreciation of the potential unfavorable shocks, and the monthly coverage of the import of goods and services with foreign reserves are higher in 2016 compared to the previous year.**

**The uncertain political situation<sup>16</sup> and calls for deposits withdrawal from the banks followed with the organized spread of speculations on the denar exchange rate stability are the key factors which in 2016 caused unfavorable effects on household deposits and foreign exchange market.** More specifically, the unfavorable climate was used to spread speculations which resulted in the withdrawal of a part of deposits from the banking system in the period April-May 2016. These events were followed by an increased demand for foreign currencies, making the National Bank intervene in the foreign exchange market with the sale of foreign currencies. These events were the main reason why the National Bank adjusted the monetary policy, through increasing the interest rate on CB bills at the beginning of May 2016, from 3.25% to 4%. The National Bank increased the reserve requirement ratio for the banks' liabilities with a FX clause<sup>17</sup> and activated the possibility of placing foreign currency deposits by the banks<sup>18</sup> at the NBRM, which was a positive reflection on the stock of foreign reserves. The monetary measures contributed to stabilize the deposits' level of the households and movements in the foreign exchange market, which amid the beginning of the currency inflows season enabled net purchase of foreign currencies at the foreign exchange market by the National Bank. The gradual stabilization of the economic agents' expectations enabled the National Bank, by the end of 2016 and the beginning of 2017, to decrease the interest rate on CB bills on three occasions, which returned to 3.25% which was the level prior April events. In addition to this, starting from October 2016, auctions of foreign currency deposits were terminated.

<sup>15</sup> More information on the domestic macroeconomic environment is given in the Annual Report for 2016.

<sup>16</sup> The unfavorable domestic political environment led to a reduction of the credit rating of the country by "Fitch" (from BB+ to BB- with a negative outlook). "Standard and Poor's" confirmed the existing BB- with a stable outlook of the country.

<sup>17</sup> In May 2016, the National Bank Council adopted a new decision on reserve requirement (Official Gazette of the Republic of Macedonia no. 87/16) that increased the reserve requirement ratio for banks' liabilities in domestic currency with FX clause from 20% to 50%. Pursuant to this Decision, the average daily outstanding amounts on the bank account at the National Bank are used to meet the total calculated reserve requirement of banks based on their liabilities in denars and liabilities in denars with FX clause, as well as 30% of the calculated reserve requirements of banks on the basis of their foreign currency liabilities. Banks can fully utilize their assets on the account with the National Bank on a daily basis.

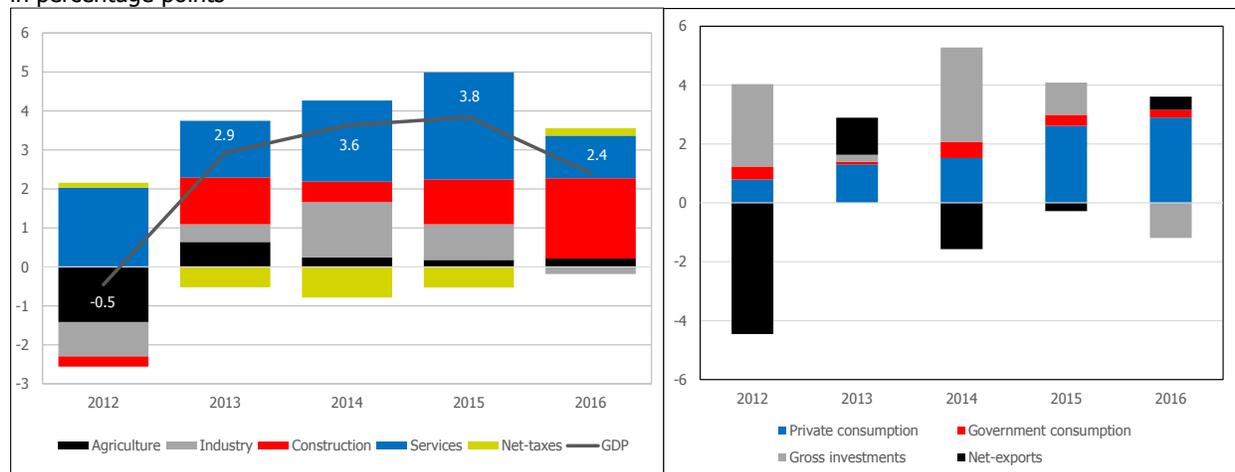
<sup>18</sup> On 05 May 2016, the National Bank Council adopted a new Decision on foreign currency deposit with the National Bank of the Republic of Macedonia (Official Gazette of the Republic of Macedonia no. 87/16), according to which interest rates on deposits in euros which are placed by the banks in the National Bank are determined by the Governor. In accordance with the previous Decision, these interest rates were equal to the interest rates placed in the central banks in the euro area, in the international financial institutions and yields of treasury bills of the member states of the euro area.

**Despite the unfavorable events in the domestic environment, the Macedonian economy registered an increase.** The real GDP growth rate in 2016 was 2.4%, which is a slowdown compared to 2015 when it was 3.8%. Almost all activities have a positive contribution on the growth of the economy in 2016, except for the industry<sup>19</sup>. Construction had the largest individual contribution to the growth with a 1.3 percentage points, mostly as an effect from publicly financed infrastructure projects in the domain of civil engineering. Sectoral growth drivers of the domestic economy suffer certain changes in the past fifteen years, especially after the last financial crises, where a decrease in the contribution of agriculture and service activities was registered, on behalf of construction, which significantly increases its contribution in the growth of the economy, whereas the contribution of industry remained fairly constant with a slight upward trend. Since 2009, the construction sector has become the main growth driver, whereas the contribution of agriculture decreased.

**Analyzed in terms of aggregate demand, the economy growth in 2016 is mostly due to the domestic demand and export activities.** Private consumption in 2016 increased by 4.2% given the favorable movements in the labor market (decline of unemployment and increase of employment), growth of real wages and pensions (nominal growth amid low or even negative inflation rate), solid growth of household lending, as well as private transfers<sup>20</sup> (which although decreasing in 2016, are still a significant category for the formation of the households' disposable income). Unlike the previous year, the contribution of net exports is positive in 2016. The increased contribution of the export sector is mainly due to the new export import component, performances in exports and increased domestic demand reflected in increased imports, but at somewhat slower pace<sup>21</sup>. Given that the value of the Macedonian export has a significant connection and dependence on the import component, performances in exports and increased domestic demand reflected in increased imports, but at

Chart 8

Contribution of individual activities in the annual real growth GDP (left) and contributions of expenditure components in the annual real growth of GDP (right) in percentage points



Source: State Statistical Office.

Note: GDP data for 2015 are preliminary, and data for 2016 are estimated.

<sup>19</sup>Although the volume of the industrial output increased in 2016, the negative contribution to the GDP growth decreased.

<sup>20</sup>Part of the secondary income category of the balance of payments.

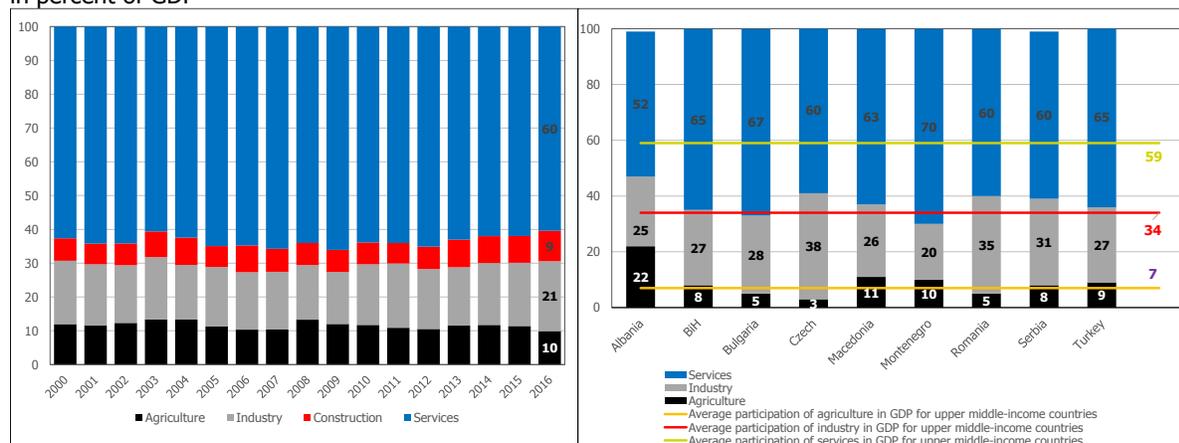
<sup>21</sup>The most significant factor for the growth in 2016 was the crude component required for operational functioning of the new foreign facilities, but investment imports and imports intended for private consumption also had a contribution to the growth.

somewhat slower pace<sup>22</sup>. Gross investments, unlike in the last two years when they had the largest contribution to the GDP growth, in 2016 they had a negative contribution to the growth, which can be explained as a direct consequence of the domestic political instability and subsequently the increased restraint for investments.

If we compare the structure of the domestic economy with the countries from the region with higher middle income<sup>23</sup>, it can be noted that in Macedonia, in the formation of GDP<sup>24</sup>, the share of agriculture is larger, and the share of the industry is smaller than the average share in the mentioned countries (latest available comparable data are for 2015). The aggregate share of the services sector<sup>25</sup> in the creation of the value added is 63% and is higher than the average of the analyzed countries which is 59%. The lower comparable share of the industry in the creation of GDP of the Republic of Macedonia, can be partially explained with the negative consequences of the transition (the break-up of the former single market, the loss of markets from the former socialist countries, the privatization effects) which led to deindustrialization of the countries in the nineties. Based on this comparative analysis of the distribution of GDP of the Republic of Macedonia with the countries of the respective group according to the income, it can be assessed that the multi-year strategy for the development of the industrial sector,

Chart 9

The share of individual activities in the formation of GDP (left) and share of individual activities in GDP in selected countries from the region which belongs to the higher middle income countries for 2015 (right) in percent of GDP



Source: State Statistical Office (left graph) and World Bank (right graph).

In accordance to the World Bank methodology, in each country (right graph), construction is included in industry. GDP data for the Republic of Macedonia for 2015 are preliminary, and data for 2016 are estimated.

Graph by country (right) uses data from 2015 since data for 2016 are not available.

Net taxes are proportionally distributed by activity according to the share in each activity in the creation of the GDP.

<sup>22</sup> The most significant factor for the growth in 2016 was the crude component required for operational functioning of the new foreign facilities, but investment imports and imports intended for private consumption also had a contribution to the growth

<sup>23</sup> Groups of countries according to their income level is taken from the World Bank. Pursuant to this classification, the Republic of Macedonia is classified in the group "higher middle income countries" This group includes 56 economies, such as countries which generate between Dollar 3.956 and Dollar 12.235 GNI per capita.

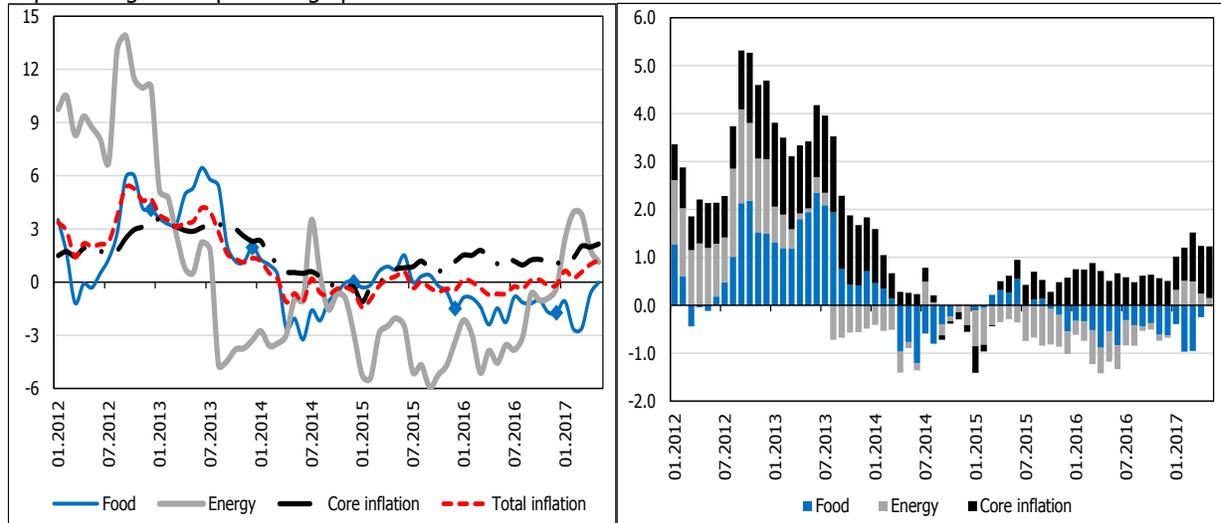
<sup>24</sup> In order to compare the GDP structure of the Republic of Macedonia with the group of higher middle income countries, data from the World Bank which are comparable by country are used. The main difference arises from the classification of activities i.e. World Bank includes construction in the industry services. More details on these data are available on: <http://wdi.worldbank.org/table/4.2#>.

<sup>25</sup> The services sector includes public services and services from the private sector that dominantly are of service character (for ex: trade, transport, storage, information and communications etc.)

Chart 10

Dynamics (left) and contribution in the formation of the annual inflation rate and its components (right)

in percentages and percentage points



Source: State Statistical Office.

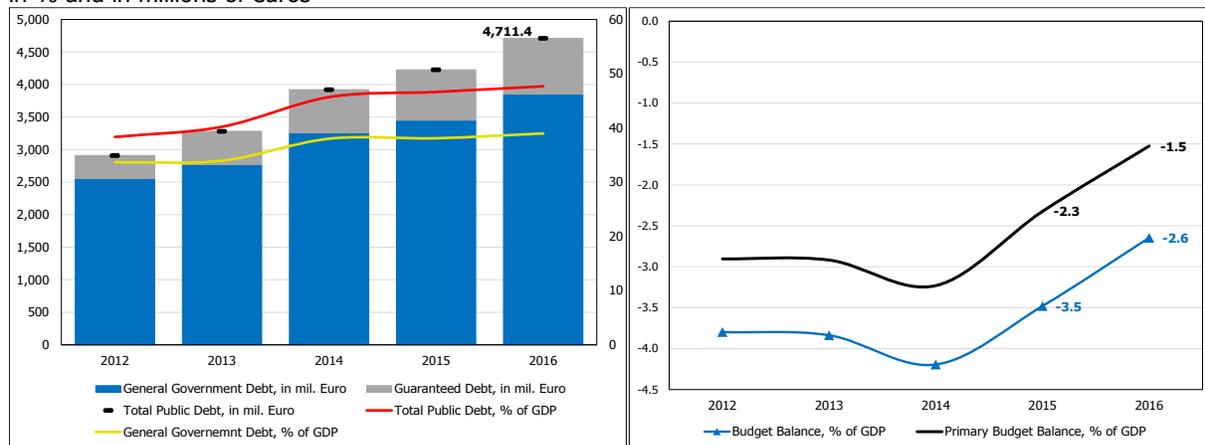
primarily oriented towards export is adequate, and especially in conditions of the selected strategy of targeting the exchange rate, which is reflected the increased yields of net exports in the economic growth. However, the comparative analysis points to the fact that there still is room for structural changes in the domestic economy which shall be directed towards further creation of facilities and production activities with higher level of value added.

The relatively low oil prices in the international market reduced the so called energy import, which coupled with the declining food prices in 2016, for the third consecutive year are factor for the negative annual inflation rate (i.e. deflation). Apart from this, the energy dependence expresses the importance of the risk from “imported” inflation which can directly cause cost pressures on the domestic economic agents and negatively impact the competition on the domestic corporate sector. Core inflation, three and a half years already is higher than total inflation and is the only component which has a positive contribution in its formation.

**Public debt<sup>26</sup> of the Republic of Macedonia in 2016 continued with the growth trend which started in 2009, but with a decelerating pace especially in the last two years.** At the end of 2016, public debt was Denar 289.7 billion (Euro 4711.4 million) or 47.8% of GDP and registered an increase of 1.1 percentage points compared to 2015. In the public debt structure, at the end of 2016, external public debt accounted for slightly more than two-thirds. Its share reached 33.3% of GDP (2015: 31.4% of GDP)<sup>27</sup>, whereas the share of domestic public debt decreased to 14.5% of GDP (2015: 15.2% of GDP).

<sup>26</sup>Public debt is defined under the Law on Public Debt (Official Gazette of the Republic of Macedonia No. 165/14), as a sum of the government debt and the debt of public enterprises established by the state or municipalities, municipalities within the city of Skopje and the city of Skopje, and companies that are entirely or predominantly owned by the state or by the municipalities, the municipalities within the city of Skopje and the city of Skopje, for which the Government has issued a state guarantee. In December 2015, the Republic of Macedonia issued the fourth Eurobond in the nominal amount of Euro 270 million, with a maturity of 5 years, coupon interest rate of 4.875% and estimated yield of 5.125%. In July 2016, the Republic of Macedonia issued the fifth Eurobond in the nominal amount of Euro 450 million, with maturity of seven years, coupon interest rate of 5.625% and estimated yield 5.875%.

Chart 11  
Dynamics and structure of public debt (left) and dynamics of primary and budget balance (right)  
in % and in millions of euros



Source: Ministry of Finance, State Statistical Office and NBRM.

**Government debt<sup>28</sup> prevails in the public debt structure.** In the last several years, the share of government debt in public debt decreases, which at the end of 2016 was 82% (91.1% in 2007). Respectively, the guaranteed debt of enterprises that are fully or partially owned by the government in the last several years registered an increase and by the end of 2016 it reached 18% of the public debt (8.9% in 2007). External debt of the central government accounts for almost two-thirds in the structure of the government debt<sup>29</sup>. Starting in 2011, the indebtedness of local self-government units also increases, which by the end of 2016 was Denar 971.4 million, from which Denar 688.6 million are internal debt, and the rest is external debt. In the last two years, the initial changes are evident in terms of fiscal consolidation, which is presented through reducing the budget deficit in 2016 compared to the previous year from 3.5% to 2.6% of GDP<sup>30</sup>.

**The share of the debt based on the issued continuous government securities increases in the structure of public debt.** The main investors in government securities are the domestic financial institutions (banks are the largest buyers of government securities until April 2017, when pension funds occupied the leading place). Motifs on investing in government securities are based on one hand by the limited available financial instruments in the domestic financial market and low (even negative) yields of debt securities on the global financial market, but on the other hand, these investments are treated as liquid and low risk or no risk placements. There is a possible risk in conducting the monetary and fiscal policy in the countries of the region, including in the Republic of Macedonia due to the regulatory treatment in the EU and claims for higher amount of required capital for investing in instruments of fiscal and monetary policy by the domestic banks which are part of the bank groups based in the European Union, according to their credit rating<sup>31</sup>. Such treatment stimulates the parent entities

<sup>28</sup>Government debt is the sum of debt of the central and the local government.

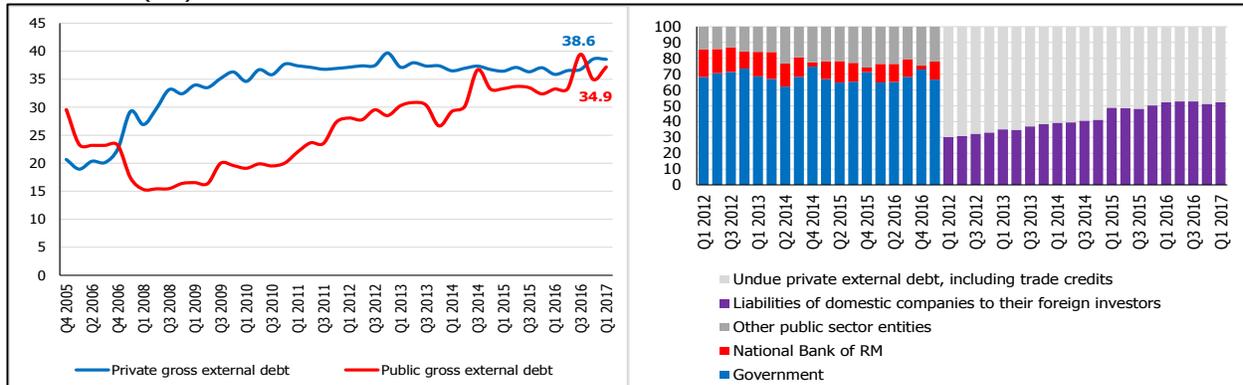
<sup>29</sup>At the end of 2016, 52.2% of the external debt of the Central government arises from the issued Eurobonds.

<sup>30</sup>The deficit is lower compared to the initial Budgeted for 2016 and its two rebalances.

<sup>31</sup>The Basel rules for determining capital adequacy allow the national regulator to apply lower weight for banks' investments in domestic government securities and domestic currency (including a weigh 0%) amid calculating the capital requirements for covering

based in the EU, due to the need of capital adequacy management on a group level, to impose internal limits for the Macedonian subsidiaries for investing in government securities, and even the central bank instruments. Given the domination of bank groups based in the EU, in the countries from our region which are not EU members (including the Republic of Macedonia), such regulatory provisions of the EU create risk for implementing the monetary and fiscal policy in the country.

Chart 12  
Structural features of the gross external debt  
in % of GDP (left) and in %

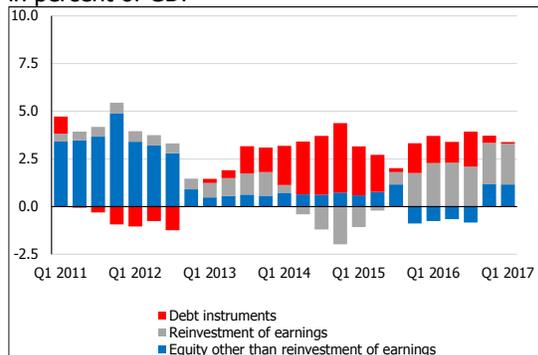


Source: NBRM’s statistical data for gross external debt according to the External Debt Manual, IMF, 2013 and Balance of Payments and International Investment Position Manual, sixth edition (BPM6) IMF, 2009.

**Gross external debt increased by 15.3% on an annual basis and reached 73.5% of GDP. Its growth, despite the public debt growth (for 17.5%) is due to the increase of the private external debt (annual growth of 13.4%).** Public external debt accounts for 47.5% of the gross external debt and increases mainly from the government borrowing in the international markets with the issuance of debt securities, but also from the long-term financial loans of the public enterprises which are used to implement infrastructure projects. More than half or 52.5% of the external debt is private debt, which is mainly connected with the debt financing with the foreign direct investors allow to their Macedonian companies in which they have invested and whose contribution to the growth of private external debt for 2016 amounted to 59.1%.

the credit risk. The National Bank, as a national regulator of the banks based in Macedonia, with the provisions in the Decision on the methodology for determining the capital adequacy (Official Gazette of the Republic of Macedonia no. 47/12, 50/13, 71/14, 223/15 and 218/16) determined a risk weight of 0% for banks’ investments in government securities. Pursuant to the provisions of the Basel documents, foreign regulatory authorities have the opportunity to allow their banks, amid the consolidation to maintain the weigh applied by the subsidiaries. In the case of the banks based in the European Union, in accordance with the EU regulation, in order to allow the application of this opportunity, the European Commission needs to determine the so-called treatment of equivalence for the national prudent supervisory and regulatory standards with those applied within the EU. For Macedonia, despite several interventions, the assessment from the European Commission has not yet been carried out, therefore, in the case of the consolidation of parent companies based in the European Union in the placements of the Macedonian banks in domestic treasury bills, the risk weight applied in the portfolio of banking activities, is not 0% but 100%. In accordance to the provisions of the previously applicable Directive (as of the end of 2013), instead of the European Commission, the competent authority for determining the supervisory and regulatory equivalence of a third country was the supervisory body of the member country where the parent entity - owner of the subsidiary came from.

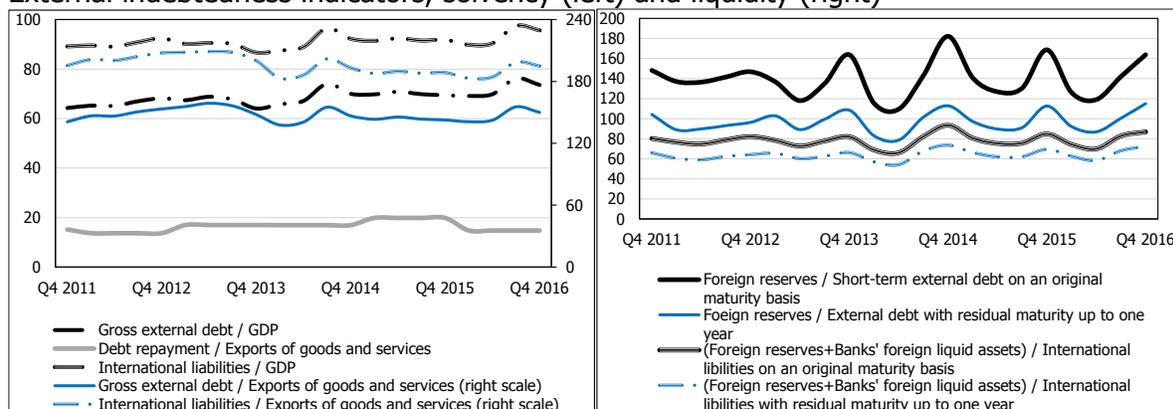
**Chart 13**  
FDI according to the type of financing in percent of GDP



Source: NBRM's statistical data on balance of payments according to the International Investment Position and Balance of payments Manual, sixth edition (BPM6)

Analyzing it over the years, we can note oscillations of the level of foreign direct investments, as well as changes in the method of financing in the last years when intercompany lending was more pronounced at the expense of the equity capital. To mark the positive trend of reinvestment of earnings and in times of unstable macroeconomic environment, which can be considered as a driver of the economic activity in the domestic economy.

**Chart 14**  
External indebtedness indicators, solvency (left) and liquidity (right)



Source: NBRM

Note: Pursuant to the World Bank Methodology, the threshold for high indebtedness of participating in the gross external debt of GDP is 50%. The threshold for moderate indebtedness according to the ratio between gross external debt and export of goods and services is between 156 and 275%, whereas according to the indicator for repayment of debt/export of goods and services, the level of moderate indebtedness ranges from 18 to 30%. The criteria for moderate indebtedness according to the shares in foreign reserves in the external debt with a contractual and residual maturity up to one year is 100%.

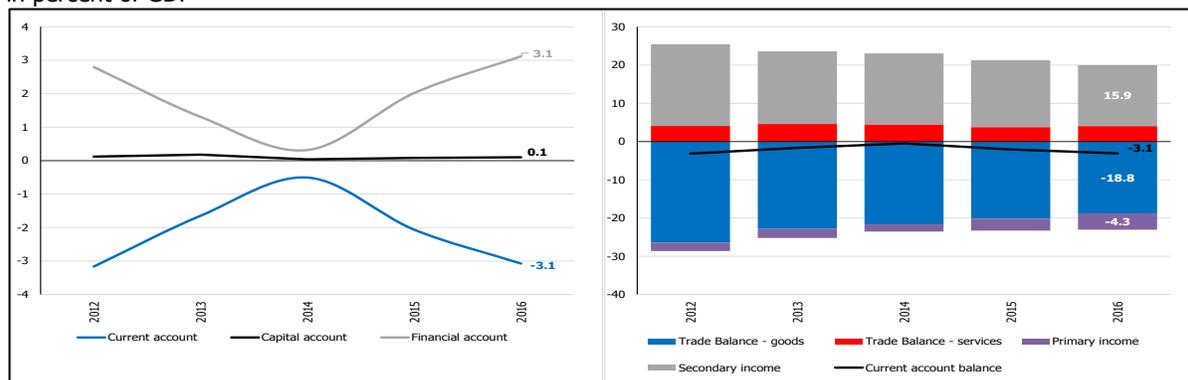
Foreign currency liquid assets comprise the short-term deposits with foreign banks, including assets in corresponding accounts in foreign banks, investments in foreign government securities, foreign currency liquid assets and placements of foreign currency deposits with the National Bank.

Pursuant to the Bank for International Settlements, the definition on international liabilities is given Guidelines for reporting international banking statistics (available in: [www.bis.org/statistics/banstatsguide.htm](http://www.bis.org/statistics/banstatsguide.htm)), where international liabilities besides gross external debt also include foreign currency deposits of the residents.

**Generally, according to the data on external debt solvency and liquidity, it can be assessed that the Republic of Macedonia still has a relatively moderate external indebtedness.** Except for the share of gross external debt in GDP, in all other indicators, the Republic of Macedonia is ranked in the group of moderately indebted countries. Similar to solvency indicators, external liquidity indicators also confirm satisfactory liquidity, although they are deteriorating.

**At the end of 2016, the current account deficit which has been moderate for a longer period, amounted to 3.1% of GDP and registers widening by 1 percentage point on an annual basis.** The deficit is mainly a result of the negative balance of the trade of goods which by the end of 2016 amounted 18.8% of GDP and registered a slight annual narrowing (by 1.4 percentage points). The main factors that influenced this are the net export growth of the new export oriented facilities, decrease of the energy deficit due to the lower global energy prices, but also due to the absence of greater pressures on the import of the domestic demand. Unlike the contribution of trade of goods, the trade of services registers a positive balance in the level of 4% of GDP. Primary income registers a deficit which by the end of 2016 was 4.3% of GDP, and on annual basis registered a widening by 1.1 percentage points and mainly arises from the income transfers by the domestic enterprises owned by foreign investors.

Chart 15  
Structural features of the balance of payments and current account  
in percent of GDP



Source: NBRM's statistical data on balance of payments according to Balance of Payments and International Investment Position Manual, sixth edition (BPM6), 2009, IMF;

Note: Calculations are made with data expressed in euros.

Secondary income shows the current transfers between residents and nonresidents. Different types of current transfers are registered in this account in order to show their role in the process of distribution the income between economies.

Secondary income normally contributes to cover the total current account deficit, which is primarily due to the exchange operations inflows. In 2016, secondary income registers a surplus in the level of 15.9% of GDP, which is lower by 1.5 percentage points on an annual basis. The unstable political environment contributed to the deteriorated expectations of the households, which registered an increased preference for holding foreign currencies, and this tendency was supported by the movements in the foreign exchange and currency exchange market, but also with the change in the dynamics and currency structure of the deposits in the banking system.

On the other hand, the issuance of the fifth Eurobond on the international financial markets contributed that the financial account of balance of payments register a surplus, which by the end of 2016 reached 3.1% of GDP. Direct investments whose level amounts to 3.7% of GDP also contributed in the formation of the surplus of the capital account, which is a growth of 1.2 percentage points compared to 2015. Positive performances in the financial account surpassed the current account deficit and contributed in increasing the foreign reserves in 2016.



## **II. NON-FINANCIAL SECTOR**

### **1. Household sector**

**Households are major creditors of the banking and the overall financial system, and any risk materialization can have adverse effects on the liquidity and the stable operations of financial institutions. The changes in household behavior over the last two years have only confirmed the exceptional significance of this sector for the financial stability. In 2016, the unstable political situation in the country, coupled with speculation on devaluation of the denar exchange rate and the stability of domestic banks, destabilized the household expectations and triggered withdrawal of part of banks' deposits in April and May. Outflow of part of the savings from the banks, accompanied by significant currency conversion, exposed the households to unnecessary loss of interest due to the early withdrawal of savings, and to negative foreign exchange differences due to the conversion into foreign currency in the period of shocks. The second half of the year was marked by stabilization of household expectations and approximation of the level of deposits to the pre-crisis level.**

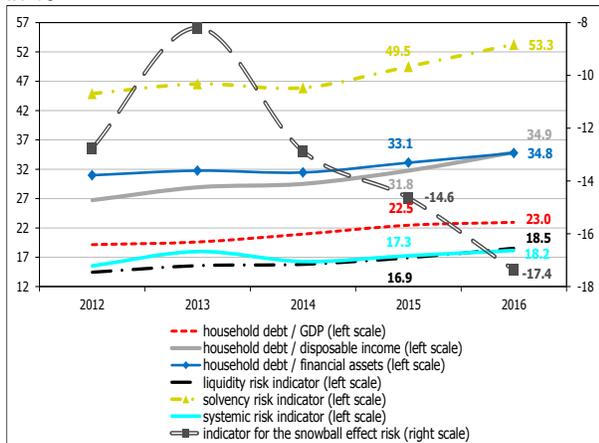
**Over the past few years, there has been a switch in the banks' lending preferences and increased propensity to lend to households, given the lower risk and higher returns compared to the corporate sector. Increasing banks' interest to support this sector is also underpinned by the higher loan demand amid intense private consumption, favorable labor market developments and increased consumption optimism mainly reflecting favorable expectations for the employment rate and financial conditions. Despite the increase in household debt, the debt level of this sector as a whole is not high. Household solvency and liquidity ratios, despite the small deterioration, are satisfactory, indicating a small vulnerability to shocks and lower risks for the financial stability of this sector. This, together with the solid creditworthiness of households and the improved ability to repay the entire debt, indicates that there have still been possibilities for further increase in the household debt. Yet, the debt concentration among lower income households, and the continued growth of debt and its maturity brought about closer monitoring of the risks of high indebtedness of some segments of this sector. Exposure of households to currency risk arises from the high share of debt with currency component, contrary to their income in domestic currency, although almost half of the household savings are in foreign currency. Potentially, households could be exposed to interest rate risk due to the unpredictability of the repayment cost of disbursed loans in the case of increase in banks' interest rates in contracts with adjustable interest rates.**

### 1.1 Household debt and vulnerability

**Household debt indicators signal a certain increase in the debt level in 2016, whose share in disposable income and in financial assets increased. The household liquidity<sup>32</sup> and solvency position<sup>33</sup> also registered certain deterioration.** In conditions

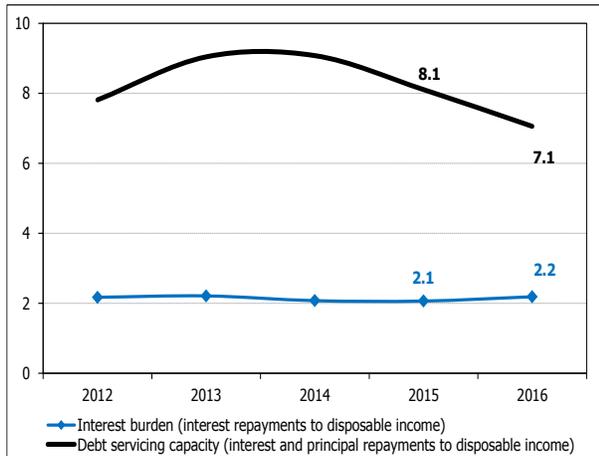
of markedly slower growth of disposable income, the higher household consumption was supported by higher lending and growth of the debt of this sector, with the annual growth rate of financial assets left behind. This caused certain deterioration in the indicators measuring the households' creditworthiness<sup>34</sup>, as well as their solvency. Liquidity deteriorated due to the faster growth of debt compared to that of disposable income, which absorbs most of the disposable income for debt repayment.

Chart 16  
Household Debt and Vulnerability Indicators in %



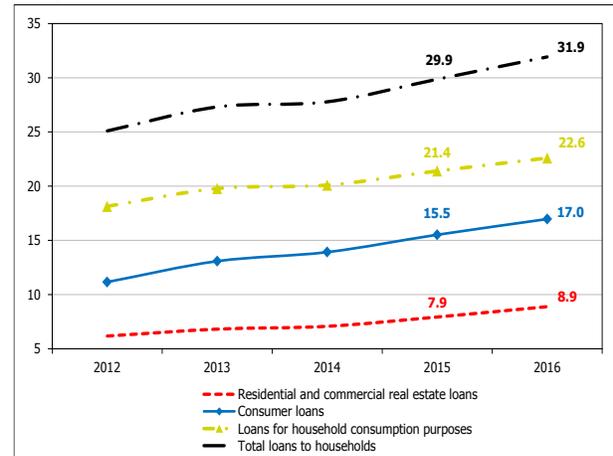
Source: NBRM, based on data submitted by banks and savings houses, MF, CSD, MAPAS, SEC, ISA and SSO.

Chart 17  
Household debt repayment indicators in %



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

Chart 18  
Household debt to disposable income ratio in %



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

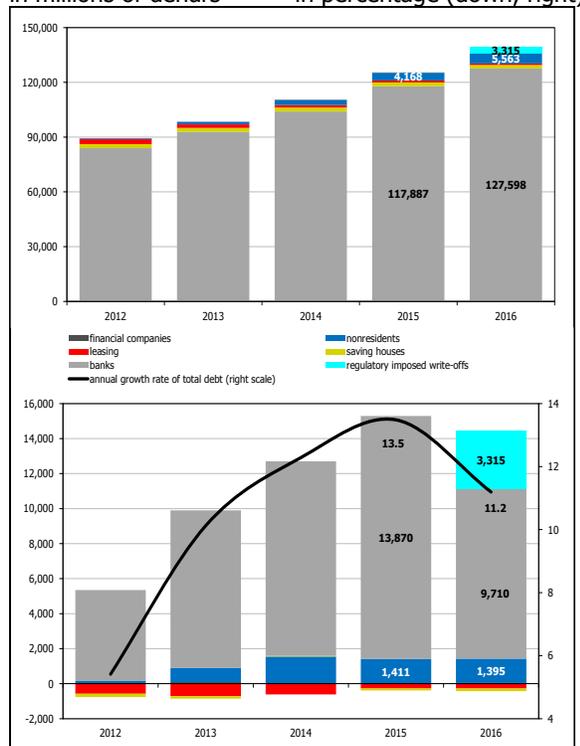
<sup>32</sup> Liquidity risk ratios<sub>t</sub> =  $0,5 \frac{Debt_t}{Disposable\ income_t} + 0,5 \frac{Interest\ payment_t}{Disposable\ income}$ . A higher value of this indicator denotes a higher ratio of debt to household disposable income.

<sup>33</sup> Measured through debt to net financial assets ratio. Net financial assets represent the difference between financial assets and household debt.

<sup>34</sup> Measured through debt to financial assets ratio.

**However, this deterioration of indicators is not concerning.** They are regarded as satisfactory due to the relatively low level of indebtedness of the overall household sector. These movements represented by the aggregate systemic risk<sup>35</sup> indicator actually depict the systemic vulnerability of the household sector, which is high, yet small to cause major risks from the household sector, which is confirmed by the negative value<sup>36</sup> of the snowball effect indicator<sup>37</sup>. In 2016, the share of disposable income used for repayment of interest and principal<sup>38</sup> was lower compared to 2015 (7.9% in 2016 and 8.1% in 2015), which in turn shows that in 2016, the ability of this sector to repay the debt was higher. Considering that repayments account for less than 10% of disposable income, it suggests that this indicator is relatively low.

Chart 19  
Household debt (up) and annual growth (down)  
in millions of denars in percentage (down, right)



Source: NBRM's Credit Registry, based on data submitted by banks, savings houses and the MF.

**The household debt growth<sup>39</sup> reflects higher consumption of this sector, supported by favorable labor market developments and low consumer prices.** The growth in 2016 slowed down, interrupting the trend of accelerated growth of household debt in the previous three years.

**Financial support to households through loans from the banking sector has been increasing at a slower pace.** Banks are the most significant lender to households, accounting for 93.9% of the debt. In 2016, household debt to banks<sup>40</sup> increased the most (by 11.0%), while debt to leasing companies and savings houses decreased. Increased perceptions of risks from the corporate sector over the past few years have made the banks to gradually target their credit strategies towards households as less risky and more yield-bearing sector. An additional stimulating factor for greater lending to households is the higher risk dispersion in terms of the amount of the loan and the number of customers compared to the corporate sector.

<sup>35</sup> The aggregate systemic risk indicator is the average of the analyzed liquidity risk ratios, the insolvency risk and the risk of snowball effect.

<sup>36</sup> The snowball effect indicator has a negative value given the fact that the share of the cost of funds received as debt (interest payments) in the average debt for the last four years is lower than the average growth of disposable income for the same period.

<sup>37</sup> Snowball effect risk ratio =  $\frac{\text{Interest payments}_t}{\text{Debt}_t + \text{Debt}_{t-1} + \text{Debt}_{t-2} + \text{Debt}_{t-3}} - \left( \frac{\text{Disposable income}_t}{\text{Disposable income}_{t-4}} - 1 \right)$ .

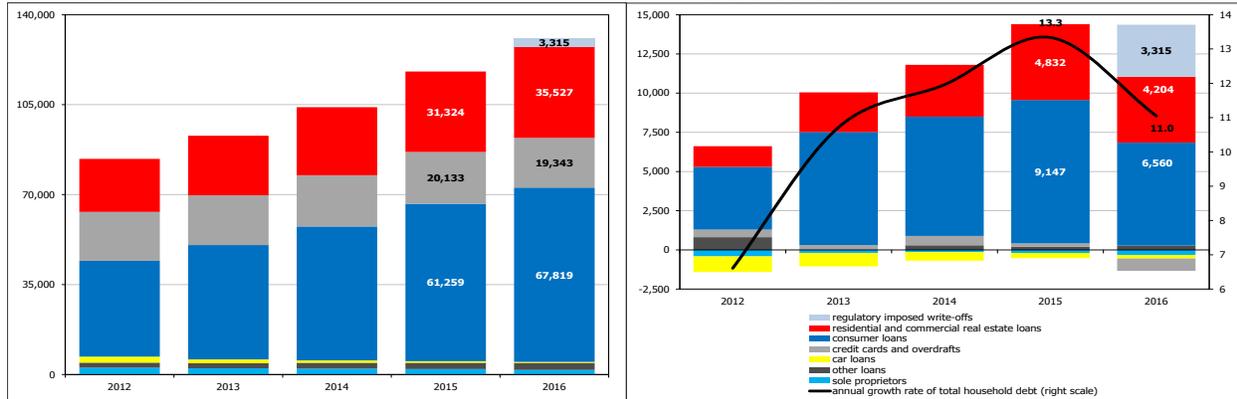
<sup>38</sup> Repayment of principal is the sum of loan balance at an earlier date and the amount of new loans in the relevant year less loan balance at the analysis referring date, written-off loans during the year and loans collected by means of foreclosure.

<sup>39</sup> The total debt of households does not include regulatory imposed write-offs since the debt written off by the banks remains household debt, given the fact that banks reserve the right to collect written off claims. The National Bank holds data on regulatory imposed write-offs only by sector (households and non-financial companies), which makes it impossible to determine the effect of write-offs on the credit products for households. Therefore, the further analysis of household debt to the banking system excludes the effect of write-offs only in the total debt, but not in the analysis by currency, purpose, maturity, etc.

<sup>40</sup> When controlled for the effect of regulatory imposed write-offs of claims on households.

Chart 20

Household debt to banks by type of loan product (left) and annual growth (right)  
in millions of denars



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

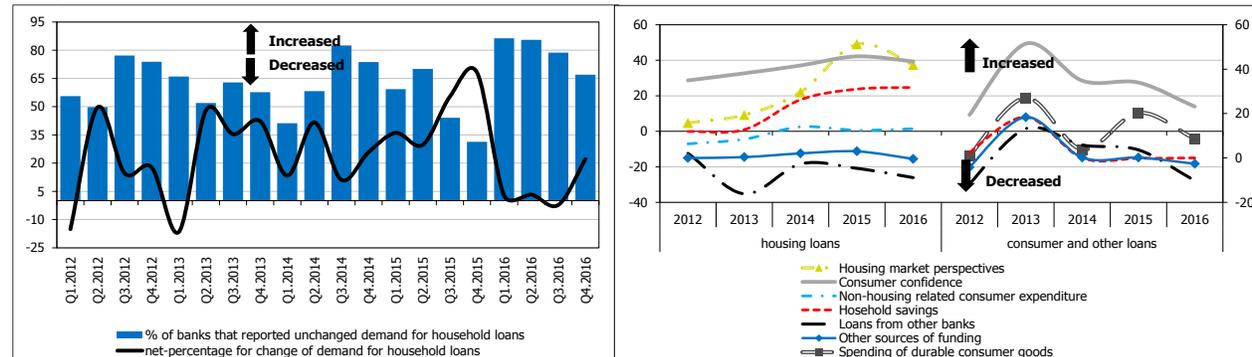
Note: This household debt analysis does not include the written off household debt due to lack of specific information. This applies to the other analyzes in the text below.

According to the **type of debt**<sup>41</sup>, consumer and housing loans registered the highest annual growth, and the structure of debt to banks is dominated by the debt for financing household consumption with 72.2%.

The increased propensity of the banks to lend to this sector is confirmed by the more intensive net easing of the credit standards for households (in the second half of the year), amid moderate net increase in credit demand. The higher loan supply was prompted by the sound solvency and liquidity position of the banks and increased competition in the banking sector. The demand for loans increased amid intensive private consumption, which indicates increased consumer optimism, primarily due to the favorable expectations for unemployment and increase in the financial power/capability.

Chart 21

Assessment of loan demand from household (left) and net-percentage for the effect of individual factors (right)  
in %



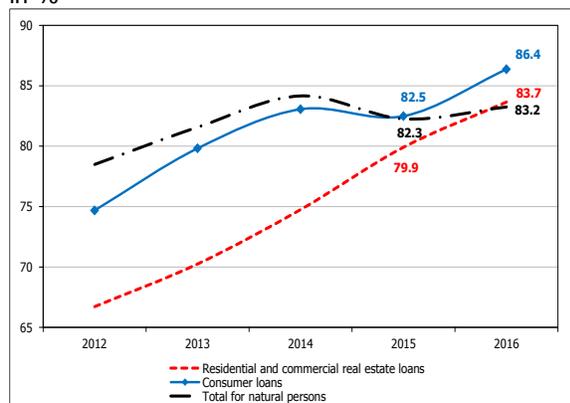
Source: NBRM, based on data in Bank Lending Surveys.

Note: The percentage of banks is weighted by the share of each bank in total household loans on specific dates. Net percentage is the difference between banks that have reported increased demand and reduced loan demand from households.

<sup>41</sup> Debt structure analysis by type of credit product does not exclude the effect of write-offs due to lack of data on write-offs by type of loan product.

Notwithstanding the ease of credit standards in the approval of housing loans, banks have still been relatively prudent. In addition, banks usually approve housing loans to employed persons, with monthly income at least twice as high as the monthly loan repayment (loan-to-income)<sup>42</sup>.

Chart 22  
Share of accepted in received loan applications of households in %

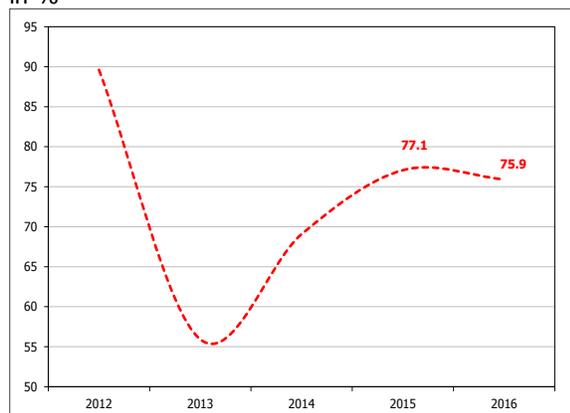


Source: NBRM, based on the data submitted by banks.

The increased approval of loan applications by the banks (increased share of approved versus received loan applications) is yet another indicator for increased propensity to household lending, and easing of credit standards for the households. This trend is present in all types of credit products, with the lowest number of approved applications for housing loans (of the total number of received applications). According to the number of received loan applications, there is the greatest demand for household consumer loans (annual growth of 15.4%), particularly for credit cards and overdrafts, while the number of approved applications for consumer loans decreased (by 9.7%), which can be associated with the macro-prudential measure aimed at slowing down the high growth of long-term consumer loans<sup>43</sup>.

Housing loan quality has improved in recent years, and this segment of banks' loan portfolio composed of households has the highest quality without any sign of change in trend. Housing loans are normally secured with residential property which is bought by the client with the loan assets. Since the client uses the living space to live in or rent it for living, it is considered to provide a higher quality level, under the international and domestic standards in this area. Typically, housing loans in the Republic of Macedonia have relatively favorable loan-to-value

Chart 23  
Loan to value ratio in %



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

ratio, which in the last five years has averaged about 73.5% i.e. 75.9% as of 31 December 2016. This means that the value of apartments should be reduced by around one-fourth, in order match the amount of approved loans.

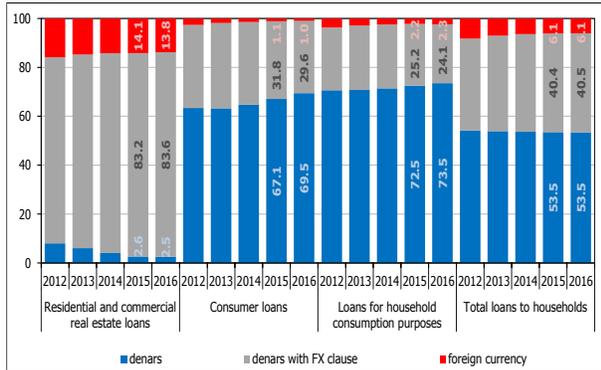
**The households' exposure to currency risk is the major source of risk that may affect their creditworthiness, and consequently, the stability of their creditors.** Although the share of debt with FX clause in total household debt has been the same as in the previous year (while, by dynamics of new loans, it has been shrinking), the fact that households mainly generate income in the domestic currency underlines the **importance of the stability of the Denar exchange rate for the**

<sup>42</sup> The National Bank does not have precise data on the value of this indicator for other types of loans.

<sup>43</sup> Besides increasing the capital requirement for the banks for long-term consumer loans, this measure also introduced a higher capital requirement for higher overdrafts and credit cards compared to the end of 2015.

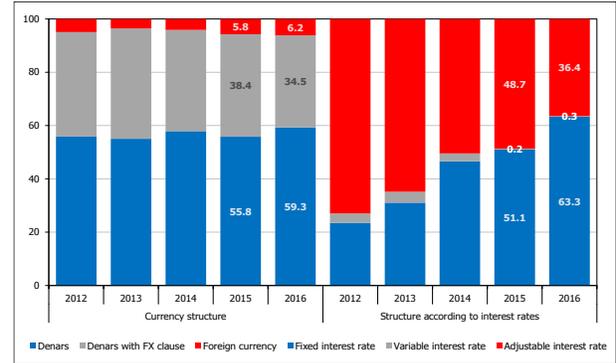
**maintenance of households' creditworthiness.** Although almost half of household deposits are in foreign currency, there is a slight probability that the borrowers are depositors in banks.

Chart 24  
Currency structure of household debt, by credit product  
in %



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

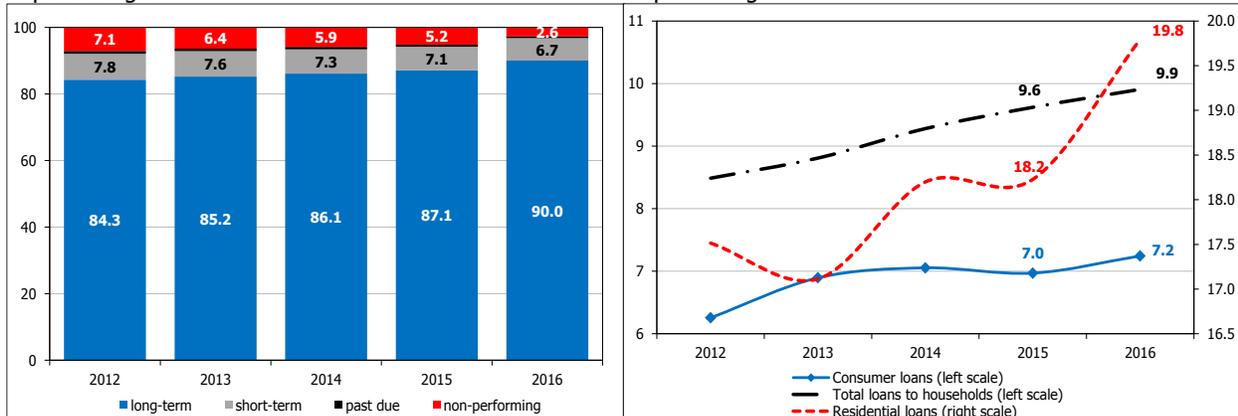
Chart 25  
Structural features of new household loans approved by banks  
in %



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

**Increase in long-term debt enhances households' sensitivity to interest rate and currency risks.** In fact, almost all new loans are long-term (97.7%), thus highlighting the propensity of households to borrow in a long term given the relatively low monthly income, despite the fact that in recent years some banks have eased the requirement for coverage of the monthly loan installment with the monthly income of the borrowers. The average weighted maturity of newly extended household loans, including housing loans, is 9 years and 9 months, which is an increase compared to the previous year. Since the beginning of 2016, a higher capital requirement for consumer loans with maturity of 8 years or more has been applied that stabilized the rapid growth of these loans. Thus, the extension of the average maturity of household loans in 2016 mainly arises from housing loans.

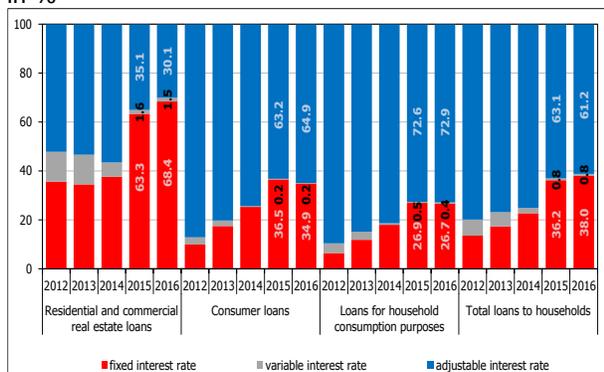
Chart 26  
Maturity structure of household debt (left) and average weighted maturity of new household loans, and by credit product (right)  
in percentage



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

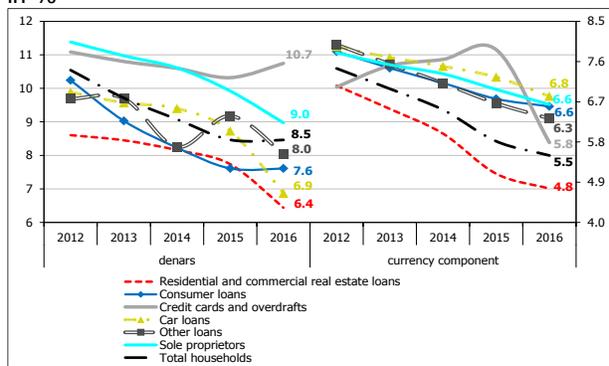
By **type of interest rate**, the share of new loans with adjustable interest rate fell to 36.4%, in favor of new loans with fixed interest rate. The growth of long-term debt with fixed interest rate results from debt (mainly housing loans) where the interest rate is fixed in the first few years of the loan repayment, followed by variable or adjustable interest rate<sup>44</sup>. Adjusting the level of interest rates, banks transfer the interest rate risk to borrowers. This also increases the vulnerability of households given the one-sided increase in bank interest rates, because of the contingency of the repayment costs of the disbursed loans. The banks' intentions encouraged by the National Bank for gradual abandonment of the application of adjustable interest rates and the interest rate fixing or linking the change in interest rates with market factors, will enable greater transparency and awareness of the borrower on the amount of debt arising from the interest.

**Chart 27**  
Structure of household debt by credit product, and by type of interest rate in %



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

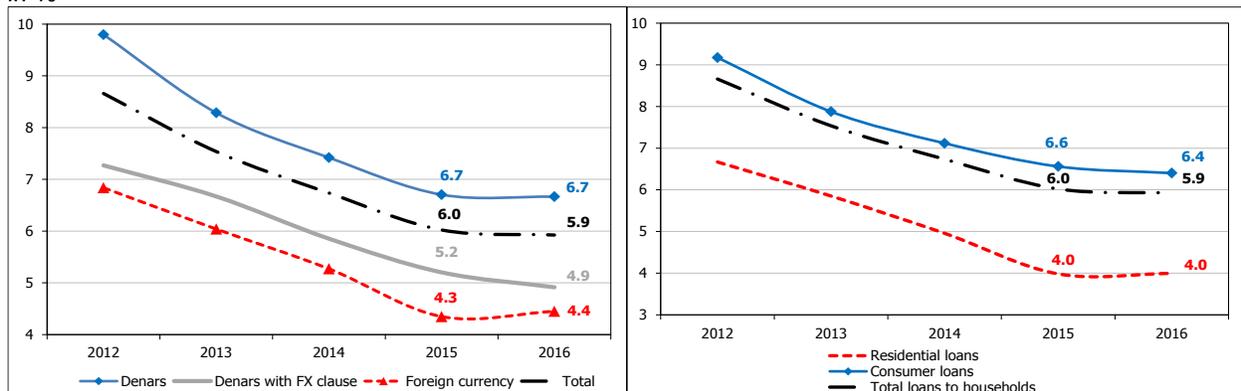
**Chart 28**  
Average interest rate on household loans, by type of credit product in %



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

\*Note: The interest rates are not weighted.

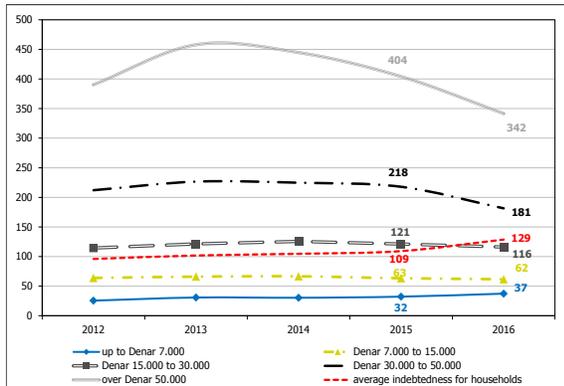
**Chart 29**  
Average interest rate on newly extended household loans, by currency (left) and on major credit products (right) in %



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

<sup>44</sup> The increase in debt with fixed interest rate arises from the reporting rules that require that loans whose interest rates are fixed only in the first few (between three and five) years after their approval (after which period an adjustable interest rates will apply), in the first few years are reported as loans with a fixed interest rate in full amount.

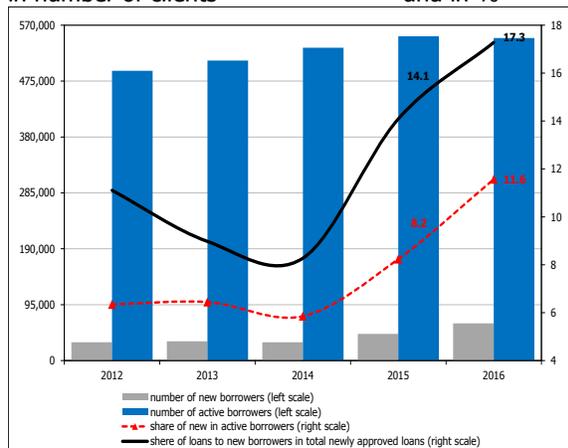
**Chart 30**  
Average debt by household and by monthly income in thousands of denars



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

In 2016, the average weighted interest rates<sup>45</sup> on new and total household loans continued to decrease, whereby **the cost of total loans hit a record low in the post-crisis period.** The decrease in interest rates is more pronounced in loans with FX clause, while it is almost absent in denar loans, whereby the spread between denar loans and the loans with FX component increased for the first time in the post-crisis period, after hitting a record low in the previous year. The increased interest rate difference between denar loans and loans with FX component brings to the fore the significance of cost factor in the selection of the currency of financing by the households.

**Chart 31**  
New borrowers of the household sector and share of loans to these clients in total newly approved loans to this sector in number of clients and in %

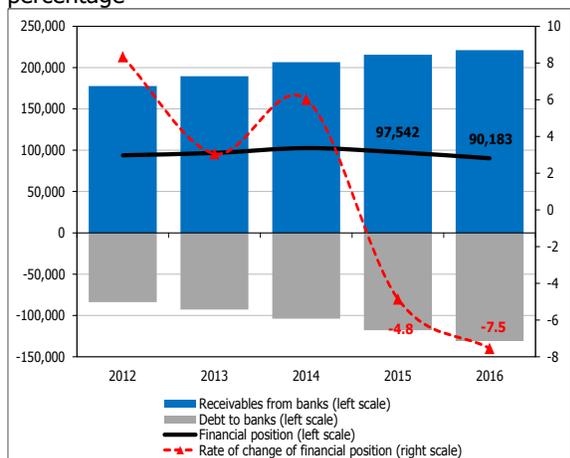


Source: NBRM's Credit Registry, based on data submitted by banks.

**New borrowers pose a higher default risk for creditors as they do not have a credit history.** The number of new borrowers in the banking system continued to increase, and in 2016, it was twice as high as the last five-year average. The favorable credit market and labor market developments (which include lower interest rates, eased terms of lending and eased banks' requirement for the coverage of monthly installment of the loan with the monthly income of borrowers, reducing unemployment, increasing average nominal net wages etc.) increased the number of new borrowers in the banking system, while the number of active borrowers remained almost unchanged. On the other hand, the high share of newly approved loans to existing borrowers (80%) creates the need for more careful monitoring of the new borrowing of existing borrowers, primarily with respect to the risk of exhaustion of their creditworthiness.

<sup>45</sup> Average interest rates are weighted for the share of each type of loans in total household loans.

**Chart 32**  
Financial position of households, composition and growth rate in millions of Denars in percentage



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

**The possibilities for further growth of lending to households have not yet been exhausted, but the risks of high indebtedness of low-income households should not be overlooked.** About one third of the total household debt and consumer spending has been concentrated in households with a net salary equal to or less than the average net salary for 2016, who have also had the lowest average indebtedness by household. Given the downward movement of the level of cost of living by 0.2%, and real growth of the average paid net wages of 2.3%, the part of household assets "spent" for debt repayment has been decreasing i.e. improving.

Stronger growth of debt compared to deposits of households somewhat **deteriorated the positive financial position<sup>46</sup> of the sector as a whole.** The annual growth of

household deposits is almost twice as low as the growth last year due to the withdrawal of deposits by households in the second quarter of the year caused by domestic non-economic factors. At the same time, the financial position of the households has been deteriorating and its negative growth rate has further increased, which, besides the previous year, was last registered in the crisis in 2008 given the extremely high household debt growth (of almost 40%). Amid expectations for full return of deposits to the banking system and further household borrowing in 2017, there should not be any significant change in the financial position of the sector.

## 1.2 Savings rate, disposable income and private consumption of the household sector

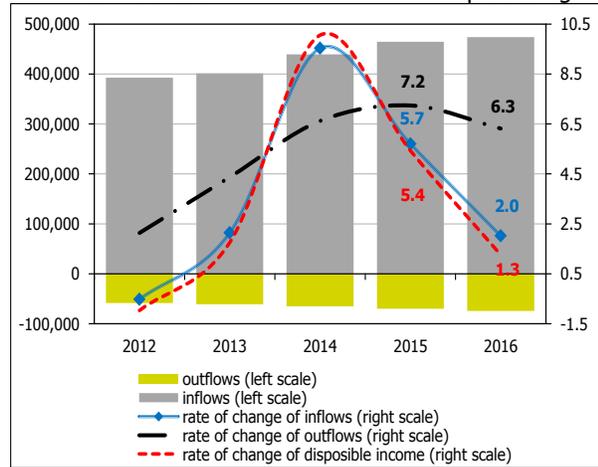
**In 2016, the disposable income<sup>47</sup> of households continued its last year's slower trend and grew by 1.3% or Denar 4,969 million** (four times lower than last year's growth rate). Larger inflows are generally associated with the improved labor market developments, primarily employment growth and the 2.0% growth in average nominal wage. The growth in total inflow slowed down due to the decrease in the income of producers and private transfers. The growth rate of total inflows significantly exceeds the growth of outflows,

<sup>46</sup> Financial position of households is the difference between claims on banks (deposits) and debt (loans) to banks. This debt analysis excludes the effect of write offs as required by regulations.

<sup>47</sup> Due to lack of data on disposable income in the official statistics, since 2007, the National Bank has been preparing data on disposable income of households in the Republic of Macedonia, which is updated annually. For some disposable income components for which there is no official data, estimates are made, so that such prepared data on disposable income may not be comprehensive and may lack other components in its structure. Disposable income is the difference between inflows (funds of employees, income of individual producers, social transfers (pensions, social welfare, unemployment benefits, sick pay), private transfers, interest payments from banks, dividend income, royalties, income from property and property rights, capital gains, revenue from gains from games of chance and other prizes, inflows based on old foreign exchange savings and denationalization, interest payments from treasury bills and workers compensations from abroad) and outflows (interest payments, wage contributions for the Pension Fund, Health Insurance Fund and Employment Fund, outflows based on private transfers and personal income tax) of households. All components of disposable income are nominal.

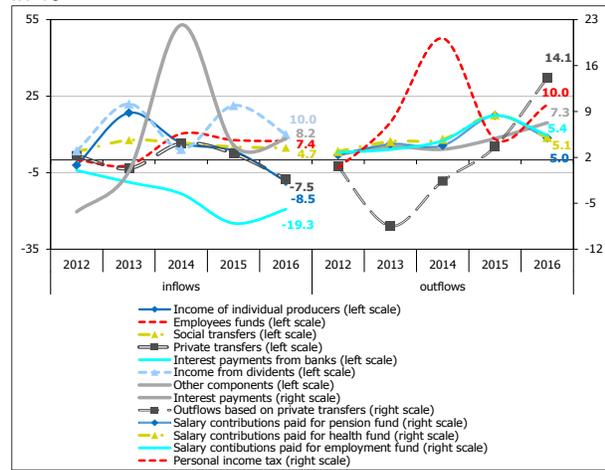
mainly reflecting the larger wage contributions due to the increased number of employed persons and the growth of personal income tax as a result of the higher household income. Taxes towards the government account for most of the total disposable income.

**Chart 33**  
Dynamics of inflows and outflows of disposable income, and annual growth rate in millions of Denars



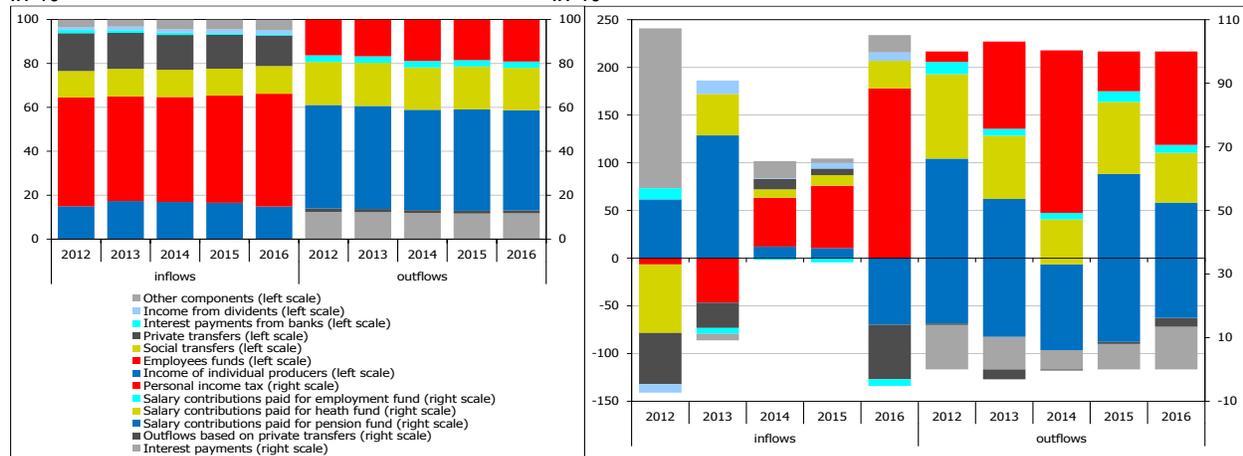
Source: NBRM's calculations, based on data from SSO, MF and CSD.

**Chart 34**  
Annual growth rate of inflow and outflow components of disposable income in %



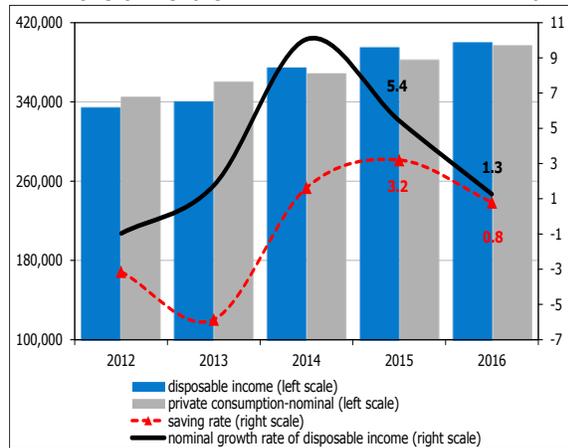
Source: NBRM's calculations, based on data from SSO, MF and CSD.

**Chart 35**  
Structure of inflows and outflows (left) and contribution of inflows and outflows components (right) to disposable income growth in %



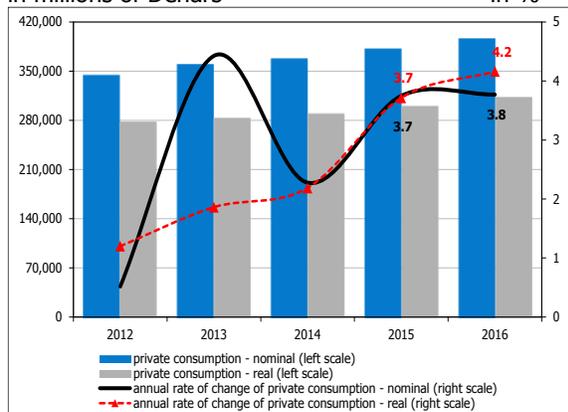
Source: NBRM's calculations, based on data from SSO, MF and CSD.

**Chart 36**  
 Disposable income, private consumption and savings rate of households  
 in millions of Denars in %



Source: SSO and NBRM calculations based on data from SSO, MF and CSD.

**Chart 37**  
 Nominal and real private consumption and their annual growth rates  
 in millions of Denars in %



Source: SSO (State Statistical Office)

Portion of disposable income that remains for saving after settling private consumption represents **savings rate**<sup>48</sup> of households. The saving rate is 0.8% and has registered a positive value for a third consecutive year, indicating that the disposable income is sufficient to cover the total household consumption. The disposable income dynamics determines the household saving capacity, so the reduction of savings rate in 2016 reflects the faster growth of private consumption compared to the growth of disposable income. Accordingly, at the end of 2016, the growth of household deposits in banks slowed down to 2.6% (4.3% in 2015).

**In 2016, household consumption registered a solid annual growth of 3.8%, making the highest contribution among all domestic consumption components to the overall GDP growth.** The private consumption growth reflects favorable trends in the consumption fundamentals. In 2016, there was a further increase in the wage and pension bills, as well as in the import of consumer goods and in the retail trade, with solid growth registered in consumer loans. Also, lower consumer prices have a positive effect on the household consumption optimism. Intensified private consumption is also seen through the increased consumer optimism amid favorable expectations for the unemployment and the financial situation<sup>49</sup>.

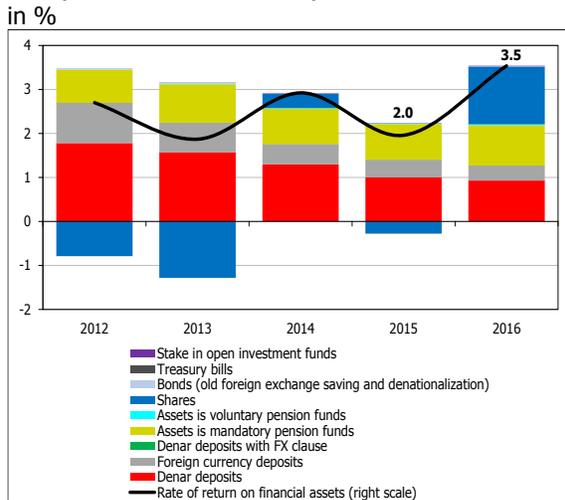
<sup>48</sup> Household savings rate = (disposable income - private consumption) / disposable income.

<sup>49</sup> According to the results of the consumer confidence survey. Source: European Commission's consumer sentiment survey.

### 1.3 Financial assets of the household sector

**Financial assets<sup>50</sup> of the household sector also grew slowly in 2016**, at a growth rate lower than that registered in the crisis period of 2008-2009. In conditions of solid performance of the domestic economy, despite the uncertainty caused by the domestic political situation and speculative pressures, the share of financial assets in GDP declined for the first time in the post-crisis period, to 66.0%. Most of the growth in financial assets was determined by household investments in life insurance policies (41.0%) and assets in private pension funds (37.3%).

Chart 38  
Yield on financial assets and yield on each component in the total yield in %



Source: NBRM, based on data submitted by banks and savings houses, MF, MAPAS, CSD and Macedonian Stock Exchange.

Note: The calculation of the yield on financial assets does not include household investments in continuous government bonds because of their small share (0.002%) in the ownership structure of the bonds.

The contribution of household deposits has decreased for the second consecutive year, mainly due to the destabilization of their expectations, the domestic political turmoil and low interest rates, but also because of the increased importance of other financial assets components. Household investments in life insurance policies are the fastest growing component of financial assets, whose absolute change exceeds the change in household deposits. However, the policy growth is lower than the previous year. Equity investments decreased, which corresponds to the weak capital market activity in the country despite the positive developments in 2016 and the increased investment alternatives for households with the launch of SEE Link<sup>51</sup>.

**The rate of return on financial assets of households increased by 1.5 percentage points** as a result of capital gains<sup>52</sup> from investing in shares, and less from the return on assets invested in mandatory and voluntary pension funds. Despite the cut in interest rates, denar and foreign currency deposits have still played a significant role in

defining the return on total financial assets at the end of the year. Yet, amid decreased deposit interest rates, part of the households seek alternative ways of saving, such as investments in voluntary pension funds, life insurance policies or shares in open-end investment funds. Analyzed by instrument, investments in shares, funds in mandatory and voluntary pension funds<sup>53</sup> and shares in open-end investment funds generated the highest annual rate of return.

<sup>50</sup> For the purposes of this analysis, based on the NBRM calculations, 70% of cash in circulation (outside banks) are included in the households' financial assets. The shares are the sum of shares listed at the stock exchange at par, life insurance is shown by the amount of contracted insured amounts and annual installments (including profits) of life insurance policies.

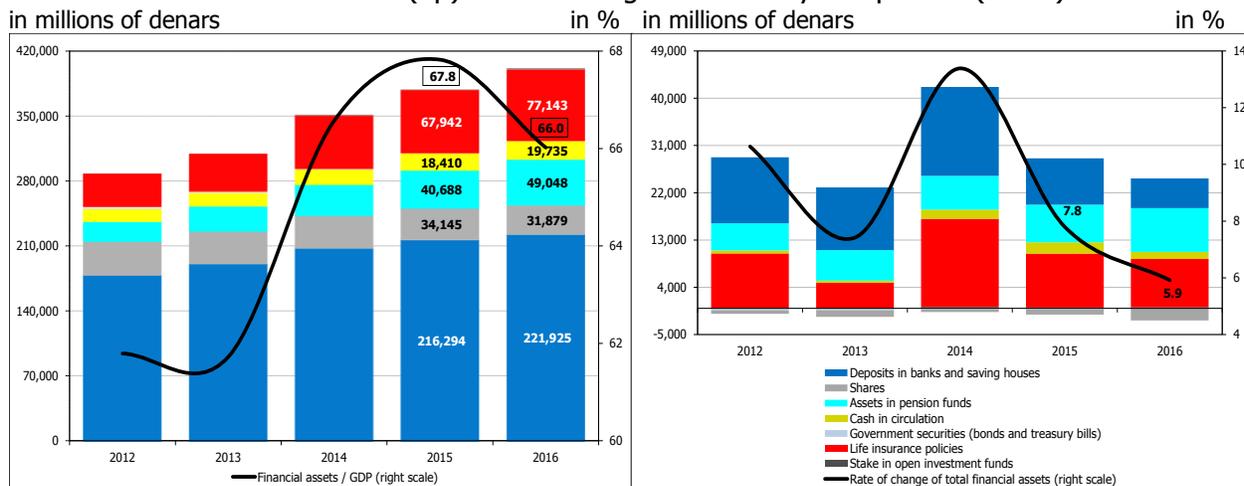
<sup>51</sup> SEE Link currently supports securities trading on the Zagreb, Sofia, Belgrade, Ljubljana Stock Exchanges.

<sup>52</sup> The annual rates of capital gain/loss are calculated on the basis of the annual change in the market capitalization of shares.

<sup>53</sup> The annual nominal rate of return of mandatory and voluntary pension funds is calculated by weighting the rate of return of the individual pension funds to their net assets.

Chart 39

Financial assets of households (up) and annual growth rate by component (down)

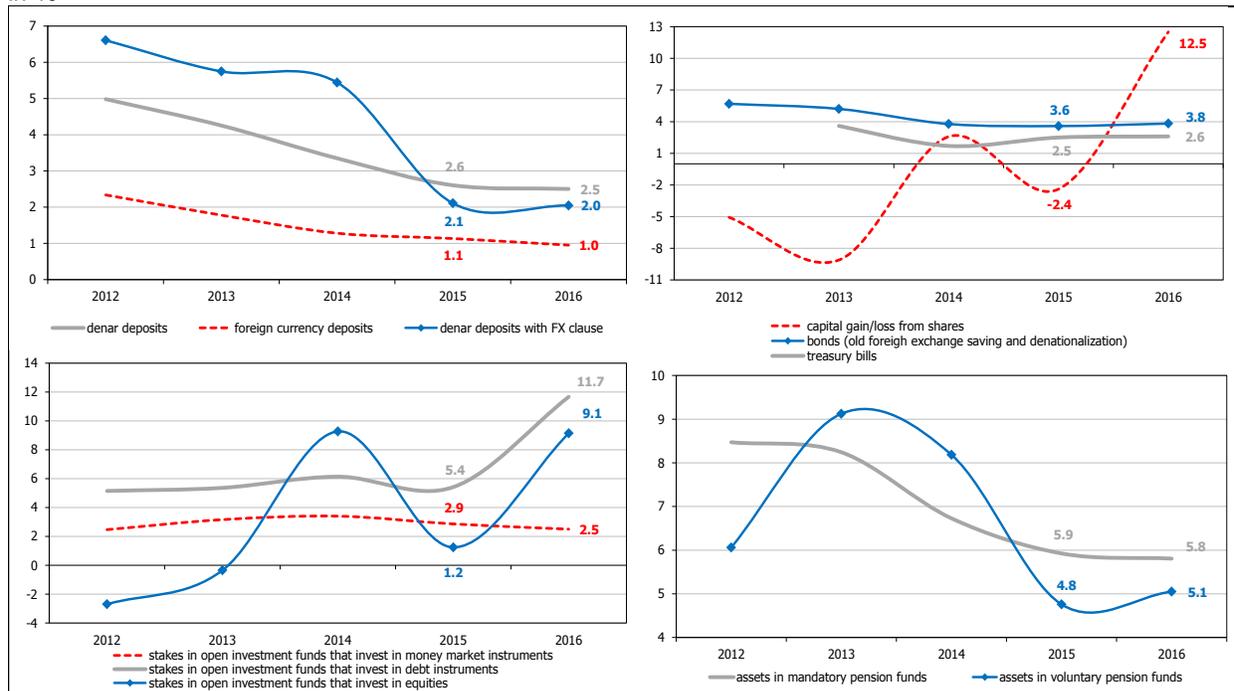


Source: NBRM, based on data submitted by banks and savings houses, MF, CSD, MAPAS, SEC, ISA and SSO.

Chart 40

Annual rate of return, by instrument of financial assets

in %



Source: NBRM, based on data submitted by banks and savings houses, MF, MAPAS, CSD and Macedonian Stock Exchange.

## 2. Corporate sector

The domestic corporate sector in 2016 generally demonstrated resistance to the negative effects of the unstable domestic political environment. The value added of the corporate sector increased but at a slower pace compared to 2015. Profitability ratios improved, unlike the debt and asset utilization ratios. However, there are significant differences in the corporate performance indicators by sub-segment, due to idiosyncratic elements related to the business model of entities, their organizational set-up, management quality and level of operational risk. Maintaining operational performance of the corporate sector is crucial for the dynamics of risk taken by the domestic banks, and hence for their capital position and in general, for the maintenance of financial stability.

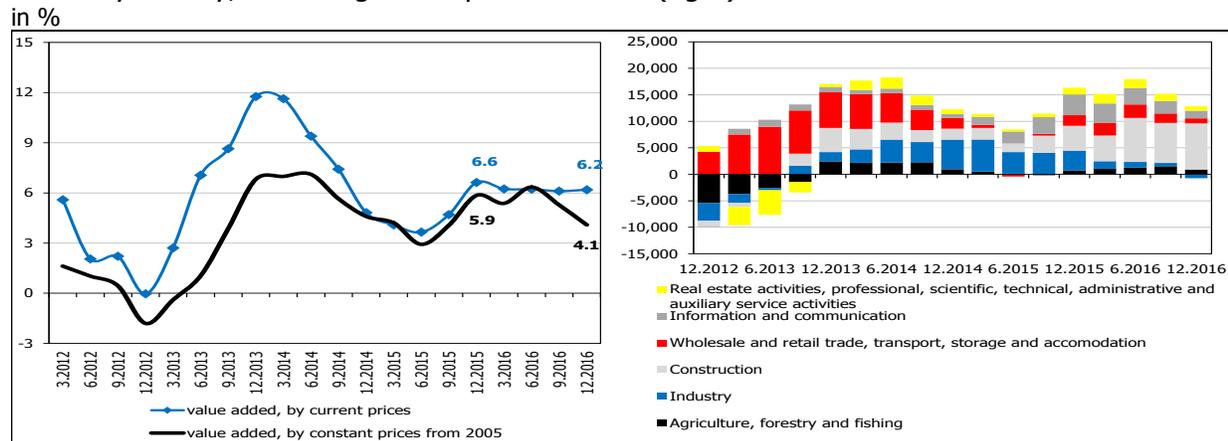
The growth of debt of the domestic corporate sector continued in 2016 with noticeably greater use of external sources of financing and lower borrowing from domestic banks. Hence, in 2016, the corporate sector's net external debt increased, while the debt to domestic banks decreased. Although the growth of external sources of financing for the domestic corporate sector mainly reflects the intercompany loans due to foreign direct investment, it still increases the significance of movements in international financial markets. The domestic corporate sector continued to report short net foreign currency position that emphasizes the important role of currency risk exposure for debt sustainability and corporate sector performance. The trend of cutting interest rates on loans approved by domestic banks continued in 2016. Consequently, the interest rate spreads on loans granted to the domestic corporate sector narrowed compared to the basic interbank interest rates, which suggests that domestic banks embed a lower credit risk premium in the loans to domestic companies.

## 2.1 Corporate performance

**The value added<sup>54</sup> of the domestic corporate sector<sup>55</sup> in 2016, despite the unstable domestic political environment and present uncertainty, still registered moderate annual growth.** The value added of the corporate sector, at current prices and at constant prices since 2005, has been increasing annually by 6.2% and 4.1%, respectively.

Chart 41

Annual growth rate (left) and distribution of the growth of the value added of the corporate sector by activity, according to the prices of 2005 (right)



Source: State Statistical Office.

Note: The calculation is made using annualized data.

Almost all activities made positive contribution to the annual growth of the value added of the corporate sector. However, compared to 2015, their growth is somewhat lower, and only the industrial sector registered a negative real growth rate. Construction made the greatest contribution to the real growth of the value added of the corporate sector, probably due to the implementation of publicly funded infrastructure projects. The contribution of construction industry to the value added of the corporate sector in 2016 also made the greatest positive shift, at the expense of the contribution of other sectors<sup>56</sup>.

<sup>54</sup> The Report uses preliminary data on the value added of the corporate sector for 2015 and estimated data on the value added of the corporate sector for 2016 published by the State Statistical Office in March 2017.

<sup>55</sup> Corporate sector includes companies and sole proprietors whose main activity, according to the National Classification of Activities (NCA), is industry (which includes entities with main activities of mining and quarrying, supply of electricity, gas, steam and air conditioning and water supply, sewerage, waste management and environmental recovery activities), wholesale and retail trade, and repair of motor vehicles and motorcycles, construction, agriculture, forestry and fishing, transport and storage, information and communications, accommodation and food services, real estate activities, professional, scientific and technical activities and administrative and ancillary services. Corporate sector does not include legal entities that have registered prevailing activity in: financial and insurance activities; public administration and defense, compulsory social security; education; health and social care activities; arts, entertainment and recreation; other services; activities of households as employers; activities of households that produce different goods and perform various services for their own needs; and extraterritorial organizations and bodies. The State Statistical Office has disseminated GDP data and the contribution of activities to its creation according to ESA 2010 methodology, which is also used to make categorization of the activities: entities with main activity in wholesale and retail trade and repair of motor vehicles and motorcycles, transport and storage, accommodation and food services are published in aggregate and for the purposes of this report are presented as trade, transport, storage and hotels and restaurants, while entities with main activities related to real estate, professional, scientific and technical activities, and administrative and support services are categorized into one category.

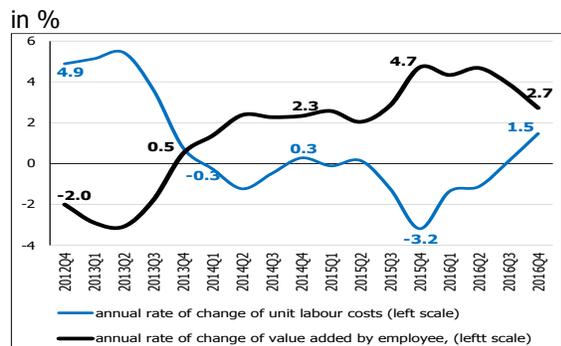
<sup>56</sup> For more details about the contribution of activities to the structure of corporate sector' value added, their absolute and relative growth, and their contribution to the annual growth, both at current and at constant prices from 2005, see Annexes 1 and 2.

**Real sector in the Republic of Macedonia operates in environment of relatively high openness, integration in the international trade flows and insignificant impact on input or output prices, which helps it adequately size the unit labor costs, as one of the main factors of production, important for the operation of the domestic**

**corporate sector.** Considering that domestic companies face strong domestic and international competition and relatively modest differentiation and recognition of products and services, maintaining their competitiveness on the international and domestic market is conditioned by the dynamics of labor productivity measures. The faster annual growth of the average gross wages paid in the corporate sector in 2016 (of 4.2%), compared with the increase in the value added of the corporate sector per employee (of 2.7%) increased the annual labor unit costs. On the other hand, the average number of corporate sector employees showed modest growth in 2016 (1.2%), continuing the uptrend of the value added per employee, although at somewhat slower pace compared to 2015<sup>57</sup>. Maintaining competitiveness of the domestic corporate sector is also important because of its role in the labor market

Chart 42

Annual growth rate of the value added, by corporate sector employee and of the unit labor costs



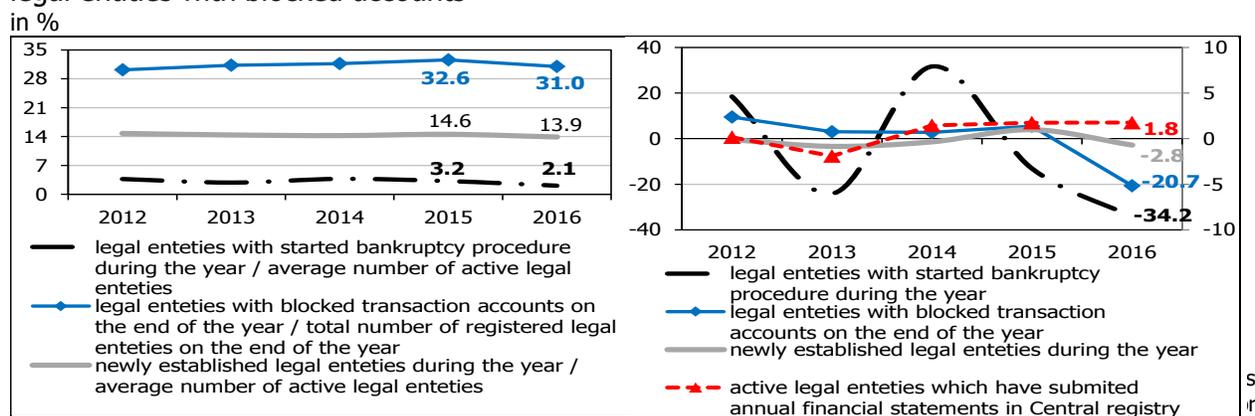
Source: State Statistical Office and calculations of the National Bank of the Republic of Macedonia.

Note: The calculation is made using the average number of employees, obtained as an average of a quarterly frequency of data.

developments and in the formation of the disposable income of the domestic households. Thus, the contribution of the corporate sector to the growth of total number of employed persons in 2016 was about 40%, and its share in the total number of employed persons in the Republic of Macedonia was over 75% at the end of 2016. However, the weighted average gross wages of the employees in the corporate sector<sup>58</sup> in 2016 (of Denar 28,751) were lower than the average gross wage of all employees in the country (Denar 32,821), which is due to the higher wages paid to the employees of the financial institutions and the public sector.

Chart 43

Relative importance (left) and annual growth (right) of newly incorporated, bankrupted and legal entities with blocked accounts



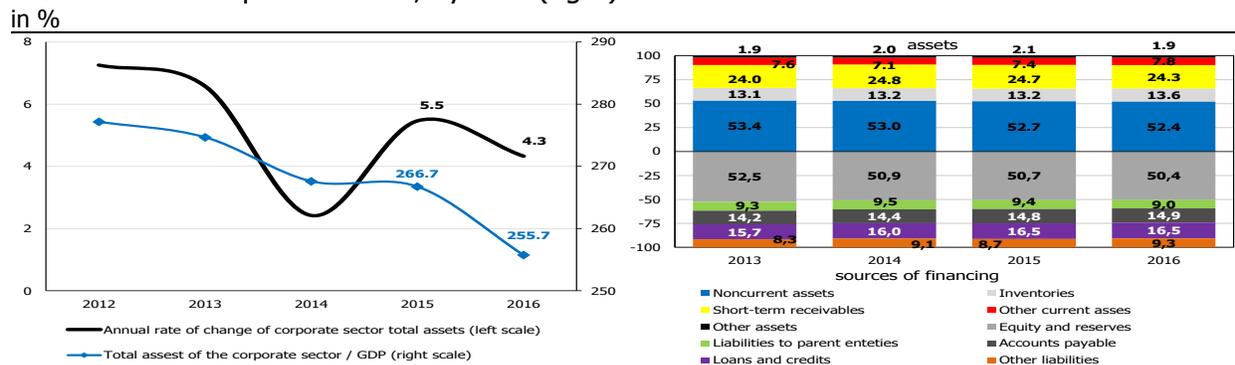
Source: Central Registry of the Republic of Macedonia and National Bank of the Republic of Macedonia for the number of blocked accounts

**Political instability in 2016 did not hit the scope of the entrepreneurial initiative in the Republic of Macedonia.** Namely, in 2016, the establishment of new economic agents slightly increased compared to 2015, and the share of newly incorporated legal entities<sup>59</sup> in the total number of active legal entities shows a steady movement<sup>60</sup>. On the other hand, as a result of the legal provisions for treating inactive entities<sup>61</sup>, in 2016, the number of entities with blocked transaction account reduced. The number of economic agents that no longer operate on the market also decreased, shown through the change in the legal entities that entered into bankruptcy. Hence, the approximate bankruptcy rate<sup>62</sup> decreased from 3.2% to 2.1%.

**The growth of total corporate assets in 2016 was 4.3% and compared to 2015, there was a slowdown, which decreased their share in GDP.** Analyzing by size, most of the domestic corporations are classified as small and micro<sup>63</sup>. The share of these two groups accounts for about 98% of the total number of corporate sector entities who submitted final accounts to the Central Registry in 2016. Given the specific features of legal entities of this size, their financial statements are mainly compiled for the fulfillment of various legal requirements, including tax purposes, which imposes dilemmas about the applied accounting policies and the quality of financial reporting of such legal entities.

Chart 44

Relative importance and growth of corporate assets (left) and structure of assets and funding sources of the corporate assets, by item (right)



Source: Central Registry of the Republic of Macedonia.

<sup>59</sup> At the end of 2016, the total number of non-financial legal entities registered in the Central Registry of the Republic of Macedonia was 113,978 (in 2015: 136,695 entities). Of these legally and formally existing entities, only 59,959 entities (58,920 entities in 2015) submitted annual accounts to the Central Registry, where 53,446 entities (52,556 entities in 2015) are included in the corporate sector activities.

<sup>60</sup> Changes for facilitating legal entities registration procedures made on several occasions over the past years prevent the rate of change of newly incorporated legal entities to show excessive changes in recent years.

<sup>61</sup> Active legal entities in the year are considered those who submitted annual accounts to the Central Registry of the Republic of Macedonia. The Law on Trade Companies prescribes the procedure for determining the status of an inactive entity and the possibility of deregistration of such entities from the records of the Central Registry, including in case of failure to submit annual accounts.

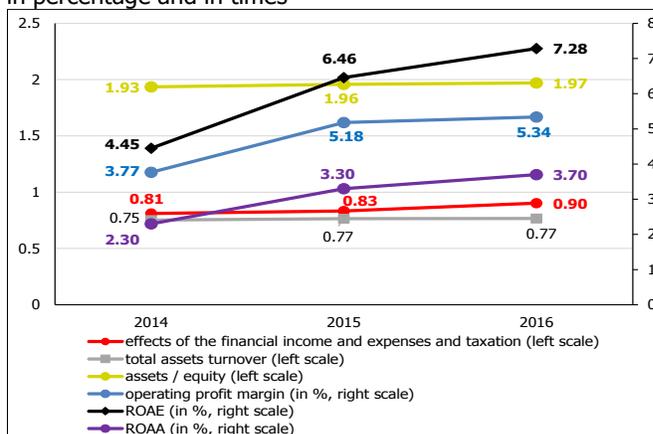
<sup>62</sup> The rate of bankrupted legal entities is the ratio between the number of legal entities that entered into bankruptcy during the year (which is data from the Central Registry of the Republic of Macedonia) and the average annual number of active legal entities, which is the average of the number of active legal entities (registered entities that submitted an annual account to the Central Registry of the Republic of Macedonia) at the end and the beginning of the respective calendar year.

<sup>63</sup> The criteria for classification of entities into large, medium, small and micro legal entities are defined in Article 470 of the Law on Trade Companies. The distribution of the entities by activity, the size and the financial result are presented in Annexes 4, 5, 6, 7 and 8, including the business indicators. In the annexes, indicators that contain income statement and balance sheet items are determined by averaging the balance sheet categories for the current and the previous year.

**In 2016, the structure of funding sources and the structure of domestic corporate assets showed no significant changes.** More than half of the accounting value of the assets of the domestic corporate sector is non-current assets<sup>64</sup>, followed by short-term claims, while almost half of the sources of financing is covered by capital positions. **Income and expense items of the aggregate corporate income statement registered almost equal growth.** Thus, total corporate income<sup>65</sup> and income from sales and operating expenses registered an annual growth of 6.7% and 6.6%, respectively. Such dynamics of income and expense categories influenced the growth of net earnings of the domestic corporate sector and earnings from regular operations (earnings before financial expenses and taxes, as an approximation of operating profit), which in 2016 increased by 15.5% and 8.8%, respectively.

Regardless of the unstable domestic political environment, the corporate sector in 2016 reported improvement in profitability, as confirmed by the **positive changes in the profitability ratios.** Thus, the return on average assets (ROAA) and the return on average equity (ROAE) showed a slight increase in 2016. The main driver of the profitability growth was

Chart 45  
Decomposition of ROAE and ROAA for the corporate sector  
in percentage and in times



Source: Central Registry of the Republic of Macedonia.

the improvement in net profit margin of the corporate sector from 4.3% in 2015 to 4.6% in 2016, while the effect of changes in the turnover of assets and the financial leverage of the corporate sector was modest. In 2016, the net profit margin mainly improved due to the positive effect of the cost of financing and effective taxation<sup>66</sup>. The contribution of the changes in the operational and business performance of the domestic corporate sector, represented by the change in the operating profit margin, was also modest. Hence, it can be concluded that the profitability of the domestic corporate sector in 2016 improved mainly due to the delayed effects of the current low cost of financial

resources and the low effective taxation of profits rather than the changes in the operating leverage or the improvement of selected business models of the companies. As a feature of the profitability ratios of the domestic corporate sector, in 2016, differences remained in the distribution of profits between the entities, both in terms of their size and in terms of their main activity<sup>67</sup>. In 2016, 36.3% of the total number of entities in the corporate sector reported a loss (36.4% in 2015).

<sup>64</sup> Non-current assets include tangible assets, intangible assets, property investment, long-term financial assets and long-term claims.

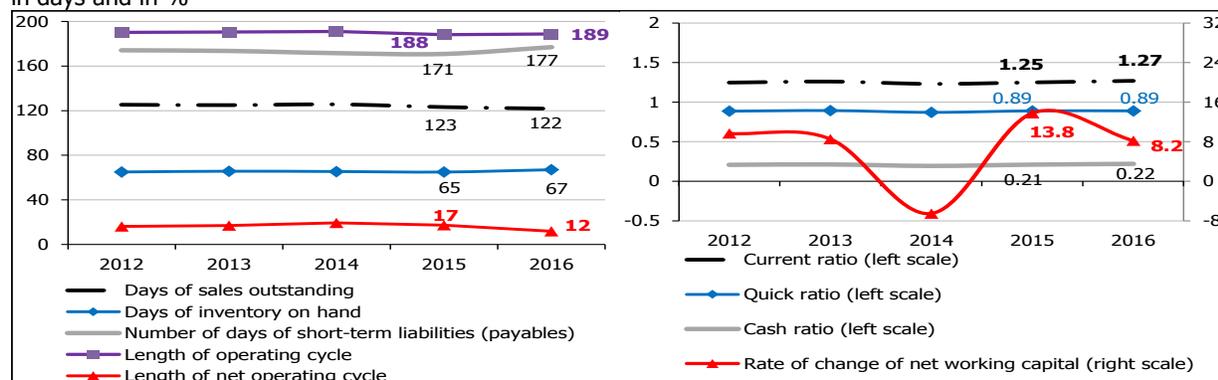
<sup>65</sup> Total income of the corporate sector includes sales income, capitalized own products, other income from regular operations, financial income, share in the profit of parent entities, net profit from discontinued operations (where applicable) and deferred tax income. Sales income has the largest share in the structure of total income (above 95%).

<sup>66</sup> The effect of the costs of financing and taxation is the ratio between the net profit after tax and the approximate operating profit, obtained on the basis of data submitted with the annual accounts to the Central Registry of the Republic of Macedonia.

<sup>67</sup> The corporate operations ratios, as measured by the main activity, by size, by operating result and whether the domestic banks have credit exposure towards them, are presented in Annexes 4-9.

Chart 46

Days required for transformation of the items from net working capital (left) and liquidity ratio (right) of the corporate sector in days and in %



Source: Central Registry of the Republic of Macedonia.

The ratios were calculated using data on a specific date, without averaging of the balance sheet categories

The turnover of various categories of assets in 2016 did not show major changes, which made the **assets utilization ratios remain relatively stable. However, these indicators are relatively low**, which leads to the conclusion that there are certain weaknesses in the operations of business entities, which should seek to improve asset management. In 2016, the net operating cycle was shortened<sup>68</sup>, but this arises primarily from the increase in the days for payment of short-term liabilities. Given that almost half of the short-term liabilities of the corporate sector are trade liabilities (to suppliers), the reduction in net operating cycle through the extension of the payment period to suppliers, signals that the intra-sectoral funding plays an important role in the operations of domestic companies. Analyzing the indicators for the management of asset categories, as a risk factor that can blur the true picture of the corporate performance, the selected accounting policies of the companies play an important role, especially related to whether the presented accounting values truly present the fair value of the different types of assets. In this context, policies for recognizing and valuating current assets, primarily inventories and claims, play a major role, especially if there is an obsolescence of inventories or uncollectibility of claims which is not adequately reflected in the presented value of these assets.

The net working capital<sup>69</sup> of the domestic corporate sector increased by 8.2% in 2016. Various forms of corporate short-term claims are the largest contributors to this growth, followed by the growth in inventories and the increase in cash, whereas short-term liabilities reduced the net working capital. These changes in the various categories of current assets and current liabilities **slightly improved the liquidity ratios of the domestic corporate sector. Yet, the liquidity ratios are still relatively modest**<sup>70</sup>, and there is a high level of inequality in the distribution of liquidity among the corporate entities. Thus, there is a correlation between the liquidity ratios and the operating result of the companies, namely those companies that showed operating loss have significantly lower liquidity. Analyzing the size of

<sup>68</sup> Net operating cycle is the average time from the payment to suppliers to the collection of claims on customers, including the time needed for transforming raw materials into finished products through a production process.

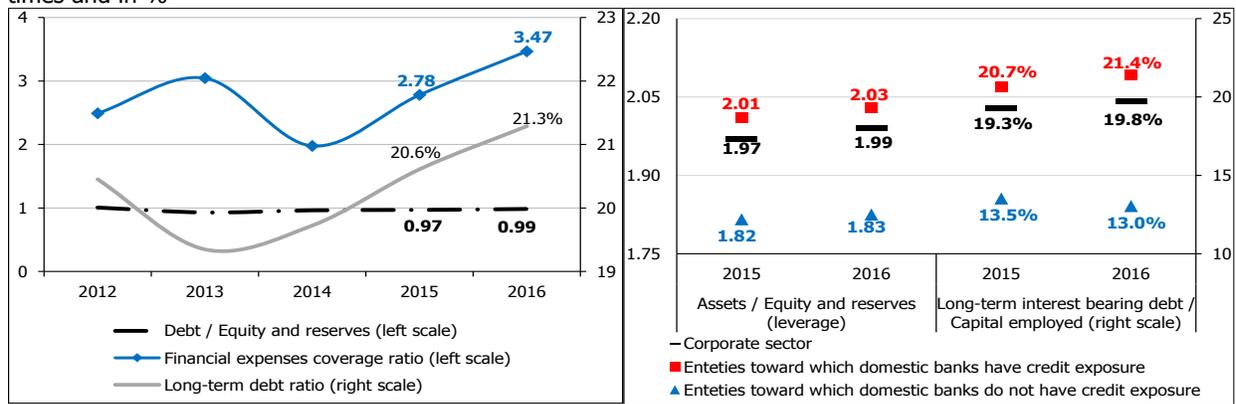
<sup>69</sup> Net working capital is the difference between current assets and current (short-term) liabilities of companies.

<sup>70</sup> The rule of thumb, which is considered satisfactory, usually uses 1 for quick liquidity, 2 for current liquidity.

companies, the lowest liquidity ratios are present in micro companies, which are also the largest group.

**Corporate indebtedness ratios in 2016 remained at a relatively stable level, indicating that changes in the corporate liabilities generally follow changes in its capital position.** Some improvement was noted in the coverage of financial expenses with earnings before interest and taxes<sup>71</sup>, which is due to both the improved corporate profitability in 2016 and the cut in the price of the interest incurring funding sources. Analyzed by activity, construction, and activities related to real estate, professional, scientific, technical, administrative and auxiliary services reported the highest indebtedness ratios, which considering the dependence of the size and dynamics of the income of companies involved in these activities on the real estate market movements, shows a significant influence of the domestic

Chart 47  
Movement of selected corporate debt indicators  
times and in %



Source: Central Registry of the Republic of Macedonia.

real estate market activities on their creditworthiness and consequently, on the dynamics of the credit risk taken by their creditors, including domestic banks. Agriculture, forestry and fisheries reported the smallest indebtedness ratios. Companies that reported operating loss and micro-size companies reported very high indebtedness ratios.

**The analysis of corporate performance indicators, particularly in terms of corporate liabilities to domestic banks, shows the most pronounced differences in the indebtedness ratios<sup>72</sup>.** Corporations that borrowed from domestic banks reported higher indebtedness ratios compared to those that did not borrow from domestic banks. In addition, companies with liabilities to domestic banks tend to have higher profitability, explained to a certain extent by the effect of financial leverage, which corresponds to the use of debt financing. Differences in profitability among companies, depending on whether domestic banks are exposed to them, can be partially explained by the differences in the asset utilization efficiency, in addition to the debt in the financing structure. The turnover of all assets categories is somewhat higher in companies that have liabilities to domestic banks. On the other hand, liquidity ratios do not show major differences in terms on whether the companies borrow from domestic banks.

<sup>71</sup> Earnings before interest and taxes is approximately calculated as the difference between income and expenditures from the regular operations of the domestic corporate sector.

<sup>72</sup> For more details about the indicators of corporations that have liabilities to domestic banks see Annexes 9 and 10.

### Comparison of the performance of new export-oriented production facilities in foreign ownership with the total corporate sector in the Republic of Macedonia

In the past few years, the trend of the favorable developments of the export sector and the positive contribution of the export of goods for both the formation of the gross domestic product and the maintenance of the deficit in the current account at a moderate level largely stems from the functioning of the newly formed production facilities in foreign ownership, mainly in the technological industrial development zones. For illustration, in the past four years, the largest contribution to the annual growth of the export from the Republic of Macedonia was made by the export of machinery and transport equipment, which is mostly due to the operation of these new production facilities. In order to realize the importance of these new export-oriented production facilities to the performance of the entire corporate sector in the Republic of Macedonia, a comparative analysis of their aggregate performance and the performances of the rest of the corporate sector was made. For that purpose, 19 entities were identified, which by their features can be designated as newly established export-oriented companies in foreign ownership.

These enterprises have significant share in the total corporate sector, both in realized results of the operation and in different balance sheet categories. For illustration, although these are only 19 entities of 53,446 entities from the corporate sector with submitted annual accounts, the share of these enterprises in the total assets at the end of 2016 is 4.5%, in sales income it is 9.7%, and in profit after tax it is 15.3%. Some of these entities are part of internationally active companies, which in turn probably means better quality in their management, better organization in the operation and easier access to markets for the sale of products, and consequently lower operational risk in their operations.

New export-oriented facilities registered faster annual growth in 2016 compared to the growth of the domestic corporate sector as a whole, but also with the growth of the rest of the corporate sector without these new facilities. The only item from the balance sheets whose growth in 2016 did not manifest noticeably pronounced differences compared to other entities from the domestic corporate sector, is the interest-bearing debt of enterprises (mainly loans). One part of the differences in the growth, especially those referring to specific types of assets, may also arise because some of these new enterprises have not completed yet the planned investment process.

Table 2

Growth rates of selected balance sheet categories for the new export-oriented production facilities and for the rest of the corporate sector, in %

Items	New export-oriented production facilities	Total corporate sector	Corporate sector, without new export-oriented facilities
Profit after tax	38.9	15.5	12.1
Sales revenues	18.6	6.6	5.5
Total assets	26.3	8.2	7.4
Current assets	27.1	10.2	9.1
Noncurrent assets	14.5	6.4	6.3
Current liabilities	13.9	9.4	9.3
Interest bearing debt	9.9	8.7	8.7

Source: Internal NBRM calculations, based on data submitted by the Central Registry



The comparison of the performance indicators of the new export-oriented production facilities with the indicators of other entities from the corporate sector shows that such entities register better performances in each aspect of their business operation<sup>73</sup>. The new export-oriented production facilities register significantly higher profitability, have a faster turnover of inventories and claims, higher liquidity ratios and a fairly lower indebtedness and burden with interest payments. Accordingly, the differences in the performance indicators of these entities compared with the rest of the Macedonian corporate sector, in some way explain the differences in the successfulness related to the implementation of the business objectives, the functionality of the selected business model and the quality in the management processes.

These new export-oriented entities have relatively small indebtedness to the domestic banks, which, as of 31 December 2016, equals Denar 236 million and makes up only 0.8% of their total liabilities, i.e. 2.6% of their total interest-bearing debt. If we also take into account the off-balance sheet financing that these enterprises use from the domestic banks (guarantees, letters of credit, etc.), which equals Denar 302 million as of 31 December 2016, again the liabilities (total and potential) of these enterprises to the domestic banks are small. Hence, the differences in the indebtedness of these new entities and the rest of the corporate sector are probably due to the fact that these entities are part of international companies and through them have the opportunity to access the international financial markets (including intercompany loans) and to provide financing at usually more favorable conditions than the available financing options in the Republic of Macedonia.

Table 3

Selected financial indicators of the new export-oriented production facilities and of the rest of the corporate sector

Items	New export-oriented production facilities	Total corporate sector	Corporate sector, without new export-oriented facilities
Return on average assets (ROAA)	13.5%	3.7%	3.3%
Return on average equity and reserves (ROAE)	24.3%	7.3%	6.5%
Net profit margin	7.8%	4.8%	4.5%
Current ratio	2.1	1.3	1.2
Quick ratio	1.5	0.9	0.9
Inventories turnover	7.3	5.7	5.6
Receivables turnover	4.6	3.1	3.0
Days of inventories on hand	50	64	65
Days of sales outstanding	79	116	120
Days short-term payable outstanding	80	170	179
Leverage ratio - Assets / Equity	1.78	1.99	2.00
Debt / Equity ratio	0.78	0.99	1.00
Long term debt ratio	15.5%	21.3%	21.6%
Interest bearing debt/equity	0.23	0.42	0.43
Interest coverage ratio	21.0	5.7	5.1

Source: Internal NBRM calculations, based on data submitted by the Central Registry.

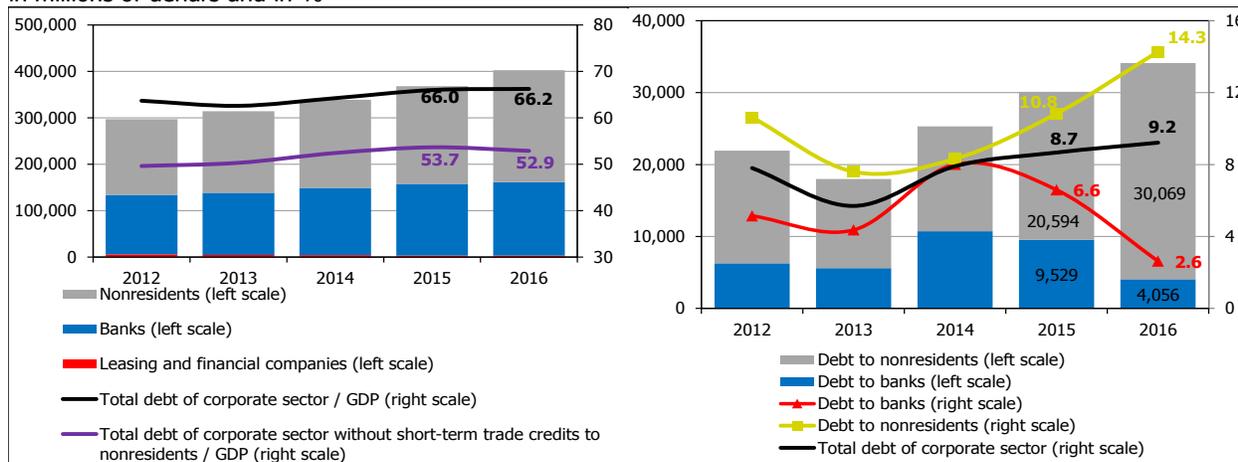
<sup>73</sup> In some of these entities, the different forms of government aid also have a certain impact on the better performance indicators.

## 2.2 Indebtedness of the corporate sector

In 2016, the total debt<sup>74</sup> of the domestic corporate sector registered an annual growth of 9.2%, which is the highest since 2008. However, its share in GDP at the end of 2016 remained at a relatively similar level as last year. The main generator of the growth of the indebtedness of the corporate sector, as in the past few years, was the external debt component, which determined above 88% of the annual growth of the total indebtedness. Unlike the accelerated growth of the debt to non-resident creditors, the indebtedness of the corporate sector to the domestic banks grew at a quite slower pace, compared to the past few years. The accelerated growth of the external indebtedness of the domestic corporate sector increases its sensitivity to changes in the conditions and the cost of financing on the international financial markets, but at the same time, it signals that it is harder for the domestic banks to maintain their lending competitiveness to those domestic enterprises that can provide external financing. The significance of other segments of the domestic financial system in securing financing for the domestic corporate sector is insignificant.

Chart 48

Structure and relative share in GDP of corporate debt (left) and absolute and relative change (right), by type of creditor  
in millions of denars and in %



Source: National Bank of the Republic of Macedonia, Ministry of Finance and State Statistical Office

\*Note: External corporate debt data and GDP data for 2015 are preliminary data, and GDP data for 2016 is estimated data.

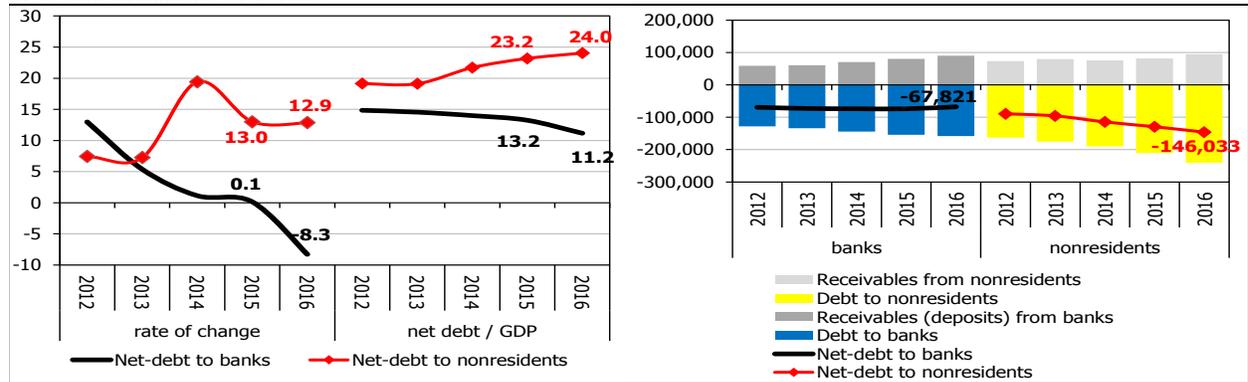
<sup>74</sup> For the needs of this analysis, the total corporate debt includes: liabilities to banks based on loans, interest and other claims of banks, external liabilities (non-residents), value of active lease contracts and liabilities based on active contracts with financial companies.

**Net indebtedness<sup>75</sup> of the corporate sector registered a smaller annual growth (5.2%), compared to the growth registered in the previous year (8%), which is mainly due to the decline in the net indebtedness to the domestic banks. Consequently, its share in GDP decreased by 1.2 percentage points on an annual basis, thereby amounting to 35.2% at the end of 2016.** The decrease in the net indebtedness of the domestic corporate sector to the domestic banks is partly due the changes

Chart 49

Net indebtedness of the corporate sector, components (left) and growth rates and ratio to GDP (right)

in % and in millions of denars



Source: National Bank of the Republic of Macedonia, Ministry of Finance and State Statistical Office

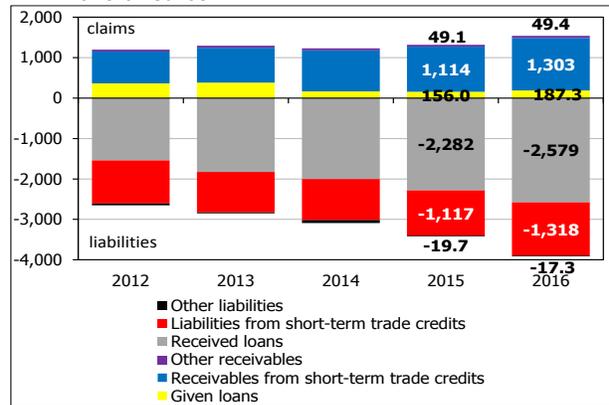
\*Note: External corporate debt data and GDP data for 2015 are preliminary data, and GDP data for 2016 is estimated data. The calculation of the net indebtedness of the domestic corporate sector to the domestic banks excludes the effect of the regulatory obligation of the banks to write off the claims that have been fully provisioned for more than two years.

in the dynamics of the corporate sector debt to the domestic banks (deceleration in the growth of 4 percentage points, from 6.6% in 2015, to 2.6% in 2016), but partially due to the fact that in 2016, the growth of the total corporate deposits in the domestic banking system remained at a similar level as in 2015 (12.7% in 2016, versus 13.3% in 2015).

Net indebtedness of the corporate sector to non-residents was the main generator of the growth of the total net indebtedness, manifesting a similar growth rate as in the last year and increasing its share in GDP by 0.8 percentage points. The unchanged growth rate of the net indebtedness to non-residents is determined by the similar pace of growth of the debt of the domestic corporate sector abroad (of 14.5%) and the claims on non-residents (of 16.5%).

<sup>75</sup> Net debt of the domestic corporate sector shall be the difference between claims and debt of the corporate sector on and to domestic banks and non-residents.

**Chart 50**  
Structure of claims and liabilities of the domestic corporate sector to nonresidents, by instrument  
in millions of euros



Source: the National Bank of the Republic of Macedonia,  
\*Note: Data for 2015 are previous data, and for 2016 are estimated data

The structure of claims and liabilities of the corporate sector on and to non-residents did not register significant changes in 2016. The approved short-term trade credits have the largest share in claims on non-residents, while the structure of liabilities is dominated by liabilities based on loans<sup>76</sup>, mainly intercompany, followed by liabilities based on short-term trade credits<sup>77</sup> which have almost twice smaller share. The annual growth of the liabilities of the corporate sector to non-residents in 2016 was equally determined by the growth of liabilities based on received loans and the growth of liabilities based on short-term trade credits.

**Changes in the structural features of the debt of the domestic corporate sector in 2016**, on the one

hand, are due to the higher growth of the indebtedness to non-residents creditors compared with the modest growth of the indebtedness to domestic banks, but on the other, they are also caused by the effects of the regulatory imposed write-offs by the domestic banks of the exposure that has been fully covered by allocated impairment or special reserve for more than two years<sup>78</sup>. These changes have led to a decline in the share of matured and non-performing indebtedness from 7% in 2015 to 4.3% at the end of 2016. Analyzing the maturity structure, although the relative growth rate of short-term and long-term debt in 2016 was equal, still the long-term debt has almost twice greater share compared to the short-term debt. More than 80% of the total growth of the long-term debt of the corporate sector is due to the growth of the debt to non-residents. Consequently, in the currency structure of the indebtedness in 2016, there was a relatively high growth of the foreign currency debt. However, given that the downward trend of the debt of the domestic enterprises in denars with FX clause continued, the share of the total indebtedness with currency component (foreign currency and denar with FX clause) at the end of 2016 remained at a similar level as at the end of 2015. Denar indebtedness, unlike the last two years when it manifested rapid growth, stagnated during 2016, recording modest growth of 0.5%.

<sup>76</sup> Loans denote relations between residents and non-residents (claims or liabilities) arising from direct borrowing of funds based on credit or loan agreement, including intercompany loans.

<sup>77</sup> Trade (commercial) credits denote relations between residents and non-residents (claims or liabilities) arising from direct loan approval from the supplier (supplier) to the buyer (receiver) on the basis of trade in goods and services, advance payments for trade in goods and services or for performing work.

<sup>78</sup> The Decision on amending the Decision on credit risk management (Official Gazette of the Republic of Macedonia No. 223/15) introduced an obligation for banks, in the period 1 January - 30 June 2016, to start to write off the claims that have been fully provisioned for more than two years. This requirement continues for non-performing claims that will meet the stated criterion.



Table 4  
Structure and changes to components of the domestic corporate debt

Type of debt		Structure (in %)			Absolute change (in millions of denars)			Relative change (in %)		
		2014	2015	2016	2014	2015	2016	2014	2015	2016
currency	Denar debt	21.2	22.7	20.9	11,238	11,804	431	18.5	16.4	0.5
	FX debt	70.5	70.2	70.3	16,606	19,879	24,019	7.5	8.3	9.3
	Denar debt with foreign exchange clause	8.3	7.0	6.1	-2,820	-2,292	-1,294	-9.1	-8.1	-5.0
	Regulatory imposed write-offs by domestic banks	n.a.	n.a.	2.7	n.a.	n.a.	10,807	n.a.	n.a.	n.p.
maturity	Short-term debt	35.4	32.7	33.0	13,437	595	12,037	12.6	0.5	10.0
	Long-term debt	57.4	60.3	60.0	9,028	27,244	19,462	4.9	14.0	10.0
	Other debt (past due and nonperforming)	7.2	7.0	4.3	2,559	1,551	-8,344	11.8	6.4	-34.4
	Regulatory imposed write-offs by domestic banks	n.a.	n.a.	2.7	n.a.	n.a.	10,807	n.a.	n.a.	n.p.
type of interest rate	Debt with fixed interest rate	22.0	24.4	28.0	12,084	5,680	16,583	22.4	8.6	23.1
	Debt with floating interest rate	32.9	29.5	25.6	-956	7,053	-5,946	-1.2	8.8	-6.8
	Debt with administratively reviewable interest rate	41.8	42.0	38.7	8,449	12,331	-1,072	8.2	11.1	-0.9
	Other - debt without interest	3.3	4.0	4.4	1,773	2,087	2,101	22.2	21.4	17.7
	Regulatory imposed write-offs by domestic banks	n.a.	n.a.	3.2	n.a.	n.a.	10,185	n.a.	n.a.	n.p.

Source: The National Bank on the corporate debt to banks and nonresidents, the Ministry of Finance on the corporate debt to leasing companies and financial entities.

Note: In the maturity structure of the debt, the share of other (past due and non-performing) debt is obtained based on the data for the indebtedness of the corporate sector to banks, due to unavailability of data on the non-performing debt to other creditors. The structure of the debt by type of interest rate is obtained according to the debt to the banking system and debt on the basis of principal on loans to nonresidents. The item for the written off indebtedness by the domestic banks presents that part of the indebtedness of the domestic corporate sector, which was written off by banks in the course of 2016, in accordance with the regulatory obligation for write-off of exposure that has been fully covered by impairment and/or special reserve for more than two years.

**The structure of the debt of the corporate sector, in terms of the type of the interest rate that is calculated,** is dominated by the liabilities with an interest rate the amount of which can be changed, either affected by the market movements of a selected reference interest rate (in the volatile, i.e. the variable interest rate), or affected by unilateral and individual decisions of domestic banks (in the administratively reviewable (adjustable) interest rate). Hence, an important role for the corporate sector debt has its exposure to the risk of unfavorable interest rate movements, which becomes especially important considering the completion of the period of relaxed monetary policy on a global level<sup>79</sup>. In 2016, the highest growth of 23.1% is recorded in the indebtedness with fixed interest rate, which determined about three quarters of the growth of the total indebtedness which mostly (about 86%) results from debt relations of the domestic enterprises with non-resident creditors, while the interest-free debt (which is due to the interest-free loans granted by foreign parent entities) also manifested double-digit annual growth rate in 2016 and accounts for 4.4% of the total indebtedness.

**The sensitivity to currency risk is also perceived through the short (negative) net currency position<sup>80</sup> of the domestic corporate sector,** which shows that the

<sup>79</sup> The US Fed has started raising interest rates since December 2015, and on 16 March 2017, it increased the reference interest rate for the second time in three months, from 0.75% to 1%. Also, the European Central Bank, during the second quarter of 2017, discounted the possibility of further reduction of the level of interest rates within its jurisdiction.

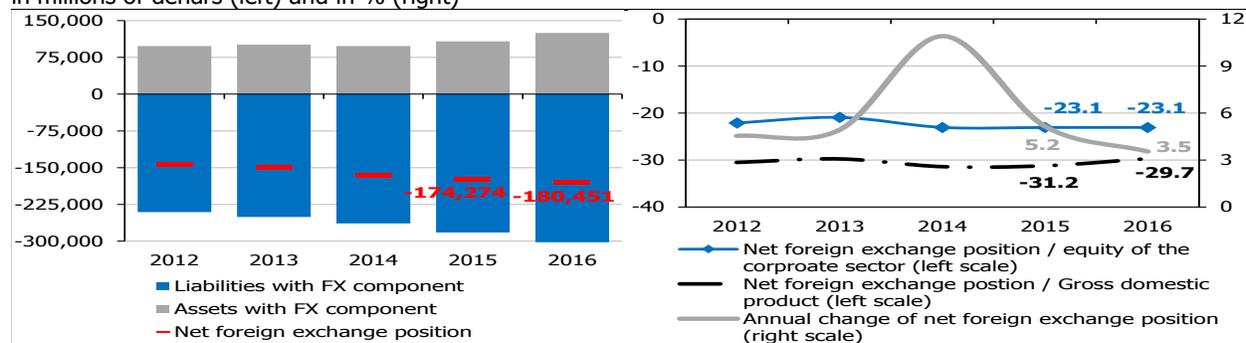
<sup>80</sup> Net currency position is calculated as the difference between assets and liabilities with currency component of the corporate sector, which is positive, i.e. long, when the assets are greater than liabilities, and negative, i.e. short, when the liabilities with currency component exceed assets. Assets with currency component include deposits with currency component, total claims on non-residents including cash on accounts abroad and investments abroad. Liabilities with currency component include: credits with a

corporate sector has greater volume of liabilities than assets with currency component. At the end of 2016, the negative currency position deepened by 3.5% on an annual basis. On the other hand, the share of the negative net currency position of the corporate sector in the gross domestic product registered a slight decrease (of 1.5 percentage points), but its ratio to the capital and reserves of the corporate sector is unchanged compared to the previous year. These developments suggest that the corporate sector exposure to currency risk and, consequently, the sensitivity of its performances from the fluctuations on the international foreign exchange market in 2016 remained similar as in the past years. The implementation of the strategy of *de facto* fixed nominal exchange rate against the euro contributes to limiting the risks to the performances of the corporate sector and the level of its indebtedness, which would arise from possible market cross-currency fluctuations.

Chart 51

Dynamics (left) and relative importance and change (right) of net currency position of the corporate sector

in millions of denars (left) and in % (right)



Source: The National Bank of the Republic of Macedonia and the State Statistical Office for the gross domestic product.

**The results of the Bank Lending Survey, conducted by the National Bank<sup>81</sup>,** show that during 2016, demand for loans from domestic corporate sector by banks was most frequently assessed as unchanged. An exception is the second quarter of 2016, when banks assessed a certain decrease in the demand for loans by domestic enterprises, which corresponds to the uncertainty in the domestic environment and the unfavorable developments on the domestic deposit market in this period of the year. According to the individual factors<sup>82</sup> affecting the demand for loans, banks assessed that, in 2016, the greatest impact on changing the demand for loans by the corporate sector was registered in the need for restructuring corporate debt and in the need for investment in inventory and working capital. These factors increased the demand for loans, although compared to the past few years, the downward trend of their impact continued. Other individually assessed factors, according to banks, have no major effects on the demand for loans in 2016, i.e. they are mostly assessed with unchanged impact.

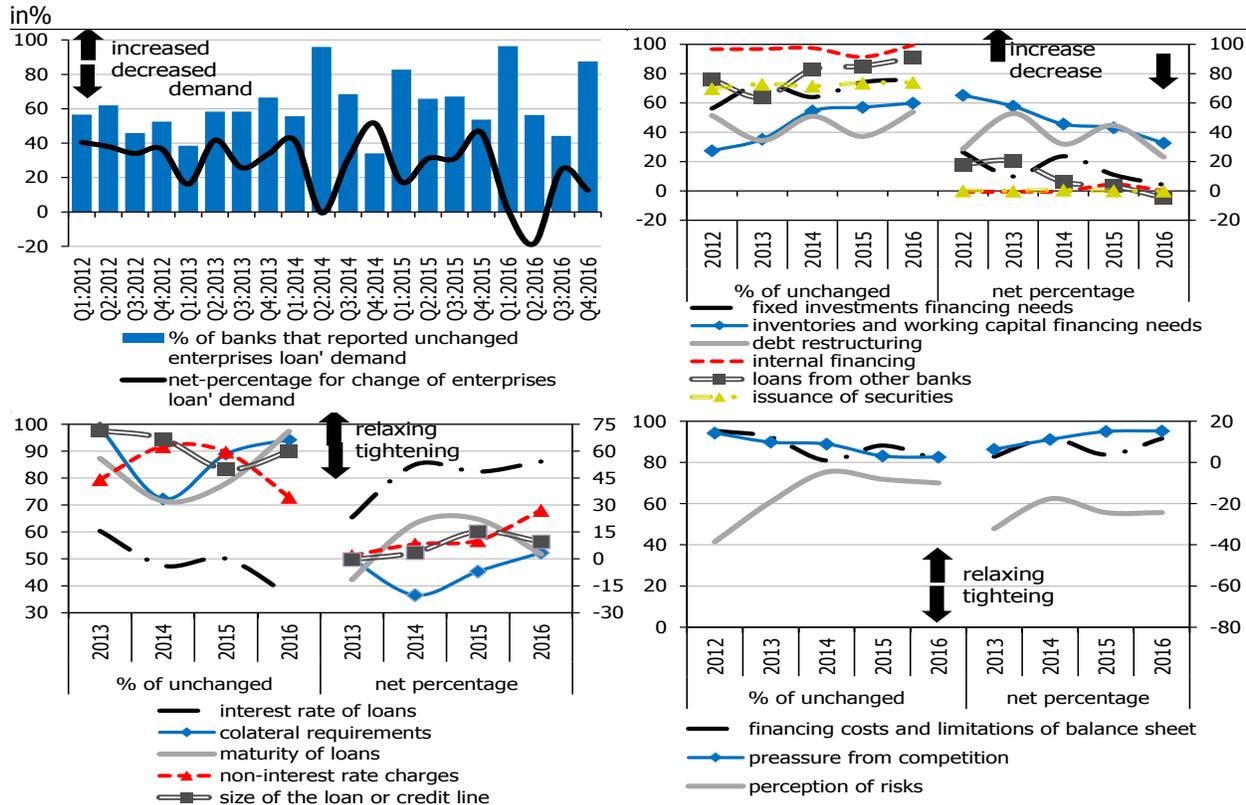
currency component from domestic banks and total liabilities to nonresidents. The stock of investments abroad as of 31 December 2016 is based on data as of 31 December 2015, since the data for 2016 becomes available in the second half of 2017.

<sup>81</sup> Surveys are conducted on a quarterly basis, and among other things, in them, banks give their own perceptions of lending to domestic companies. For the purposes of this section of the Financial Stability Report, the results of these surveys are analyzed as average results of the four quarterly surveys relating to each calendar year. More detailed results of the individual lending surveys are available on the web site of the National Bank.

<sup>82</sup> Factors whose impact on the demand for loans by the corporate sector is assessed by the banks are as follows: fixed investments financing needs, inventories and working capital financing needs, debt restructuring, internal financing, loans from other banks and issuance of securities.

Chart 52

Results of Bank Lending Surveys are as follows: assessment of demand for loans by companies (up, left), assessment of the factors affecting demand for loans (up, right), assessment of the terms of lending to companies (down, left) and assessment of the factors that affect the terms of lending (down, right)



Source: NBRM, based on data in Bank Lending Surveys.

\*Note: The banks' percentage is weighted with the share of each bank in the total loans of corporations on specific dates. Assessment of the factors is presented as average percentage of banks that responded that the given factor maintains the level of demand unchanged in all surveys of the specific year. Net-percentage is the difference between banks that reported increased demand and reduced demand for loans by companies, i.e. between banks that reported easing and tightening of the terms of lending to companies.

Analyzing the terms of lending to the corporate sector, in 2016, banks mainly emphasized their unchangeability. The exception to this is the interest rate on loans, where banks, on average reported relaxation of this credit requirement for four consecutive years. Additionally, there is an increase in the part of the banks that reported relaxation of fees and charges related to loans compared to last year, although the average effect of the relaxation of this requirement is more modest compared to the relaxation of interest rates on loans. According to the banks' responses, factors that change the terms of lending were the pressure of competition<sup>83</sup> and the cost of financing and the limits on their balance sheets<sup>84</sup>, while the banks' risk perceptions associated with borrowers<sup>85</sup>, although during 2016 they are slightly better compared to 2015, still tighten the terms of lending to the corporate sector.

<sup>83</sup> This group includes competition from other banks, competition from non-banking sector and competition from market financing.

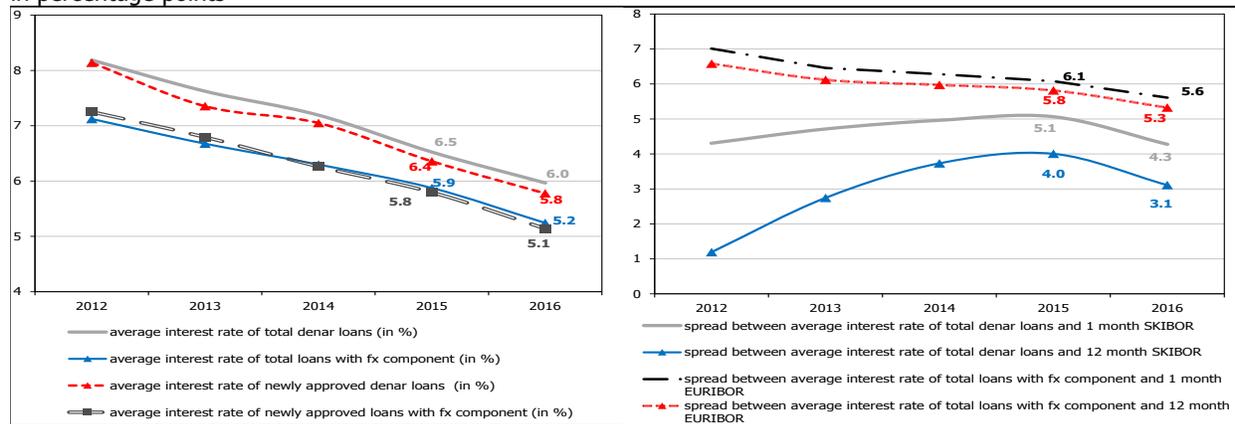
<sup>84</sup> This group includes bank's capital position, bank's access to market financing and bank's liquidity position.

<sup>85</sup> This group includes expectations for total economic activity, expectations for the perspectives of individual industries and corporations and risk associated with the collection of loans' collateral.

**The low interest rate and the relaxed monetary policy contributed to continuing the downward trend in interest rates that banks charge on loans granted to the domestic corporate sector.** Volatility in the domestic deposit market in the first half of 2016 did not affect the movement of interest rates on banks' loans, since economic expectations quickly stabilized after the monetary policy reaction and the increase in the interest rate on CB bills (from December 2016, the interest rate rate on CB bills began to gradually normalize).

Chart 53

Average interest rates on total loans to domestic banks granted to the corporate sector and spread of average interest rates above policy interbank rates (right) in percentage points



Source: NBRM's Credit Registry, based on data submitted by banks and NBRM calculations.

The reduction in the average interest rates on loans was followed by **narrowing of spreads of interest rates on loans granted to the domestic corporate sector in relation to the policy interbank rates, which signals a reduction in the credit risk premium that banks incorporate in their interest rates.** The spread, and thus the implicit credit risk premium, is at a higher level in loans with FX clause, compared to Denar loans, whereby they are relatively more attractive for banks in terms of the expected compensation for the taken credit risk, especially in conditions of using clauses for unilaterally adjusting interest rates, which practically give an opportunity to banks to further reassess the taken risk after the initially made credit analysis when approving loans. The reduction in the average interest rates on loans approved in 2016 was registered in all activities regardless of the currency, which contributed to the narrowing of the spread over the interbank interest rates and a decline in the implicit credit risk premiums<sup>86</sup>.

<sup>86</sup> More details about the average interest rates on loans approved by domestic banks to the domestic corporate sector, by activity, as well as their spread in relation to the policy interbank rates are available in Annex 11.



### III. FINANCIAL SECTOR

#### 1. Structure, level of concentration and profitability of the financial sector of the Republic of Macedonia

In 2016, the total assets of the financial sector grew at a slower pace, and its growth is mostly due to the banking system and mandatory pension funds. Banks account for most of the financial system and are an important factor for the stability of other institutional segments, which keep a significant part of their assets in the form of deposits with banks. Pension funds and insurance companies, which have great potential for further growth, are also important for the financial stability, although in recent years they have operated in unfavorable market conditions for investment and fertilization of assets of their customers, due to the extremely low yields. Pension funds are important in terms of their role as institutional investors, but their stability is particularly important for the overall financial stability due to the "pension savings" of households with them. The insurance sector registered a steady increase in the activities, particularly in the life insurance segment, but also an improvement of the regulation and supervision, in accordance with international standards.

Investment funds slowly impose themselves as significant investment alternative, primarily of smaller investors, and against a background of low interest rates, they are one of the fastest growing segments of the financial system. In the last three years, the number and assets of financial companies, as the "youngest" segment of the financial sector, have constantly increased, but without significant changes in the relative importance to the financial system. The accelerated entry into the market of financial companies that approve loans at small amounts but with extremely high costs for users of these products, in the form of interest or fees and similar commissions, imposes a need for greater attention to these companies by the competent institutions and strengthening of their supervision.

Table 5

Structure of total assets of the financial sector in the Republic of Macedonia

Type of financial institution	Total assets (millions of denars)		Structure %		Change 31.12.2016/31.12.2015		Number of institutions	
	2015	2016	2015	2016	Absolute change	In percent	2015	2016
<b>Depository financial institutions</b>	<b>426.313</b>	<b>447.282</b>	<b>86,4</b>	<b>85,2</b>	<b>20.969</b>	<b>4,9</b>	<b>18</b>	<b>18</b>
Banks	423.668	444.680	85,8	84,7	21.013	5,0	15	15
Saving houses	2.646	2.602	0,5	0,5	-44	-1,7	3	3
<b>Non-depository financial institutions</b>	<b>67.278</b>	<b>77.438</b>	<b>13,6</b>	<b>14,8</b>	<b>10.161</b>	<b>15,1</b>	<b>108</b>	<b>112</b>
Insurance companies	17.562	18.480	3,6	3,5	918	5,2	15	15
Insurance brokers	689	842	0,1	0,2	153	22,2	32	33
Insurance agents	89	116	0,0	0,02	27	30,3	13	14
Leasing companies	3.408	3.287	0,7	0,6	-121	-3,5	8	6
Pension funds*	40.802	49.074	8,3	9,4	8.272	20,3	4	4
- Mandatory pension funds	40.065	48.076	8,1	9,2	8.011	20,0	2	2
- Voluntary pension funds	737	998	0,1	0,2	261	35,4	2	2
Pension fund management companies	773	834	0,2	0,2	61	7,9	2	2
Brokerage houses	153	116	0,0	0,0	-37	-24,2	6	5
Investment funds*	2.882	3.624	0,6	0,7	742	25,7	13	13
Investment fund management companies	49	69	0,0	0,0	20	40,8	5	5
Private equity fund management companies	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Financial companies	871	996	0,2	0,2	125	14,4	10	15
<b>Total</b>	<b>493.591</b>	<b>524.720</b>	<b>100,0</b>	<b>100,0</b>	<b>31.129</b>	<b>6,3</b>	<b>126</b>	<b>130</b>

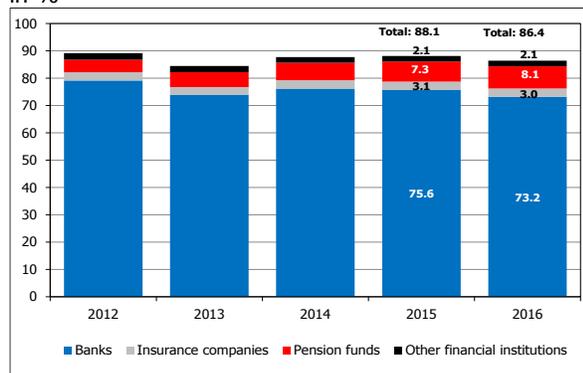
Source: For each institutional segment, the competent supervisory authority (the NBRM, the SEC, the MAPAS, the ASO and the Ministry of Finance).

\*The amounts refer to total gross assets.

Note: According to the regulation, private funds and private fund management companies have no obligation to provide data on the value of their assets and net assets.

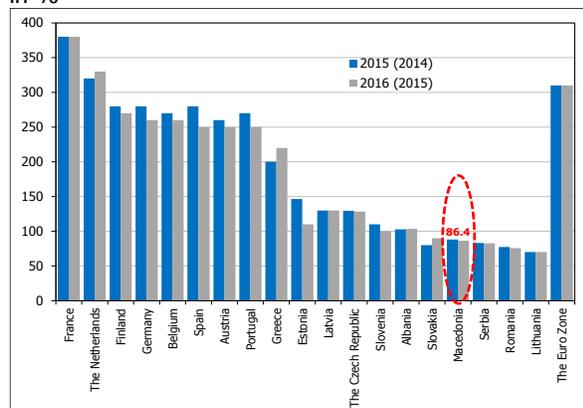
**The scope of activities of the savings houses, leasing companies and brokerage houses registers a multi-year decline (in 2016, the number of leasing companies and brokerage houses has also reduced).**

Chart 54  
Financial sector assets to GDP ratio  
in %



Source: For each institutional segment, the competent supervisory authority (the NBRM, the SEC, the MAPAS, the ASO and the Ministry of Finance).

Chart 55  
Total financial sector assets to GDP ratio, by country  
in %



Source: ECB Report on Financial Structures 2016 and websites of central banks of countries.

Note: Data on Macedonia, Albania, Estonia, Serbia and Ireland are as of December 2016, and on other analyzed countries, they are as of December 2015.

system have a high concentration level which is due to the small number of institutions, which ranges from 2 (pension funds management companies) to 6<sup>90</sup> (leasing companies).

**The growth of the assets of the financial sector in the Republic of Macedonia slowed down** compared to the previous year<sup>87</sup>, mainly due to the slower growth of assets of the banking system<sup>88</sup> and the mandatory pension funds and insurance companies. The reduction in the assets of the savings houses, leasing companies and brokerage houses continued in 2016. On the other hand, the assets of financial companies grew at an accelerated pace compared to the previous year, mainly as a result of the increase in their number.

**Banks kept the dominant position in the financial system and their role of the most significant segment for preserving financial stability**, despite the minimal decrease (of 1.1 percentage point) in the share in the total assets of the financial system, at the expense of the increased share of pension funds.

**The slower annual growth of the total assets of the financial system in 2016 caused a certain decrease (of 1.7 percentage points) in its importance to the domestic economy.** The total assets of the financial system accounted for 86.4% of GDP<sup>89</sup> and compared to the analyzed countries of the region and the European Union, the degree of financial intermediation in the domestic financial sector is among the lower.

The value of the Herfindahl index shows that the concentration in certain segments of the financial system is acceptable and is mainly decreasing. Certain segments of the financial

<sup>87</sup> The growth of assets of the financial system in 2015 equaled 7.1% (2016: 6.3%).

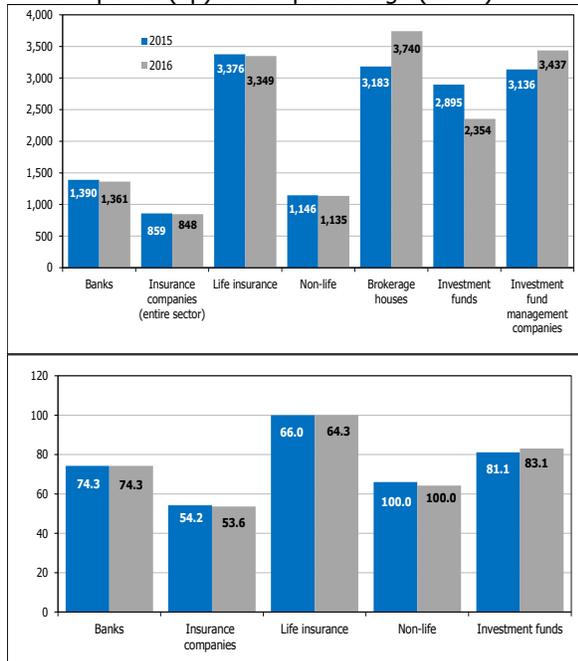
<sup>88</sup> The term "banking system" refers only to banks, while the term "deposit institutions" also includes savings houses.

<sup>89</sup> Data on GDP for 2016 are estimated data.

<sup>90</sup> Larger number of institutions are present in the segment of financial companies (15), insurance and brokerage companies (33) and insurance agencies (14). These institutions do not calculate the concentration indicators due to the absence of available data on the amount of total assets by individual company.

**Foreign shareholders prevail in the ownership structure of banks, insurance companies and pension and investment funds management companies, while savings houses<sup>91</sup> are the only segment of the financial sector that is entirely owned by domestic entities.**

Chart 56  
Herfindahl index (up) and CR5 index (down) for the total assets, by segment of the financial system in index points (up) and in percentage (down)



Source: For each institutional segment, the competent supervisory authority (the NBRM, the SEC, the MAPAS, the ASO and the Ministry of Finance).

**In 2016, against a background of historically low interest rates and in conditions of slower economic growth and domestic political instability, most of the analyzed<sup>92</sup> segments of the financial system registered a positive financial result and realized solid rates of return on average assets and average equity and reserves.** According to certain segments, in 2016, the improvement of profitability<sup>93</sup> and strengthening of the operational efficiency in banks is most significant, in conditions of higher growth of net interest income relative to the growth of operating costs, primarily costs for employees. However, banks face a challenge in terms of the further maintenance of the level of profitability, in conditions of less room for "managing" profitability due to historically very low interest rates and the intention to gradually abandon the application of adjustable interest rates, which in the medium run will impose a need for changes in their participation in the credit and deposit market and in the area of the risk management. Improvement of the profitability and operational efficiency indicators, compared to 2015, is also registered in the pension funds management companies<sup>94</sup>.

<sup>91</sup> The regulation allows only Macedonian nationals to be owners of savings houses.

<sup>92</sup> For which data are available.

<sup>93</sup> At the end of 2016, the profits of the banking system reached Denar 6.3 billion, which is an increase of 36.3% compared to the end of the last year.

<sup>94</sup> According to the business model, the revenues from fees for funds management, which increased by almost 15%, compared to 2015, have the largest share in total income from the regular operations of the companies. Staff costs and costs for contributions paid by the Agency for Supervision of Fully Funded Pension Insurance (MAPAS) prevail in the structure of operating costs. Companies are required to pay "MAPAS" a fee of 0.8% of the overall contributions paid in the month in the funds managed by the companies.



Table 6  
Ownership structure of financial institutions  
in %

Owners	Banks	Saving houses	Insurance companies	Brokerage houses	Leasing companies	Pension fund management companies	Investment fund management companies	Financial companies
<b>Domestic owners</b>	<b>24.6</b>	<b>100.0</b>	<b>7.8</b>	<b>86.7</b>	<b>79.8</b>	<b>49.0</b>	<b>28.5</b>	<b>69.6</b>
Nonfinancial legal entities	8.9	90.3	0.8	52.4	1.3	0.0	0.0	32.3
Banks	0.2	0.0	0.0	0.0	0.7	49.0	20.3	0.0
Insurance companies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other financial institutions	0.7	0.0	0.0	0.0	0.0	0.0	4.4	0.0
Natural persons	9.2	9.7	6.6	34.3	77.7	0.0	3.8	37.3
Public sector	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Foreign owners</b>	<b>75.0</b>	<b>0.0</b>	<b>92.2</b>	<b>13.3</b>	<b>20.2</b>	<b>51.0</b>	<b>71.5</b>	<b>30.4</b>
Natural persons	2.4	0.0	0.1	8.2	0.0	0.0	0.3	4.0
Nonfinancial legal entities	14.2	0.0	0.0	0.0	7.2	0.0	9.9	0.0
Banks	51.7	0.0	0.0	2.6	12.4	0.0	0.0	0.0
Financial institutions	6.8	0.0	92.1	2.5	0.6	51.0	61.3	26.4
<b>Unclassified</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: For each institutional segment, the competent supervisory authority (the NBRM, the SEC, the MAPAS, the ASO and the Ministry of Finance).

Note: The share of domestic and foreign capital in the ownership structure refers to shareholder capital (core capital) of the financial institutions.

The reduction in the rate of return in insurance companies in 2016 is almost entirely due to the decrease in the profit of non-life insurance companies. Despite this, the operational efficiency of insurance companies registered an improvement compared with the last year. The expenditures coefficient decreased compared to 2015, as a result of the faster growth of net earned premium (7.4%) compared to the growth of costs<sup>95</sup> for conducting insurance activities (4%). The improved operational efficiency of insurance companies is also perceived through the decrease in the claims coefficient<sup>96</sup>, as a result of the faster growth of premiums compared to the growth of claims. On the other hand, the debt coefficient<sup>97</sup> of insurance companies increased by 0.4 percentage points.

Table 7  
Indicators of individual financial institutions' profitability  
in %

Type of financial institution	Return on average assets (ROAA)		Return on average equity (ROAE)		Operating expenses / Total regular income (Cost-to-income)	
	2015	2016	2015	2016	2015	2016
Banks	0,8%	1,5%	7,4%	13,6%	55,5%	49,8%
Saving houses	1,9%	1,6%	4,5%	3,5%	80,6%	83,3%
Pension fund management companies	13,9%	19,1%	19,4%	20,1%	64,1%	65,9%
Investment fund management companies	27,2%	30,6%	30,3%	32,0%	66,4%	63,8%
Insurance companies*	3,0%	2,6%	9,1%	7,9%	55,8%	54,5%
Leasing companies	-1,3%	1,7%	-8,0%	9,9%	105,5%	83,5%
Brokerage houses	35,1%	-32,5%	86,9%	-36,35	n.a.	n.a.
Financial companies	1,2%	-0,2%	2,7%	-0,4%	90,7%	94,8%

Source: For each institutional segment, the competent supervisory authority (the NBRM, the SEC, the MAPAS, the ASO and the Ministry of Finance).

\*The operating expenses/total regular income (cost-to-income) indicator for the insurance companies is an expense ratio, which is calculated as the ratio between net costs for conducting insurance activities and net earned premium.

<sup>95</sup> The expenses for conducting the insurance include: staff costs, administrative costs, commissions paid and other expenses for conducting insurance.

<sup>96</sup> The claims coefficient is calculated as the ratio between net claims in the year and net - premium written.

<sup>97</sup> The debt coefficient is calculated as the ratio between total liabilities and total assets of insurance companies.

**Strategic risk is quite significant for leasing companies, savings houses and brokerage houses, which have been reducing their activities for several consecutive years.** Amid further reduction of the scope of activities of the savings houses, their profitability in 2016 reduced as a result of the decrease in net interest income, on which the profitable operation of these institutions is almost entirely based. The operational efficiency of the savings houses also registers a constant deterioration in the past period, which is mainly due to the reduction of the regular operating income (of 8.4%) compared to the decrease in operating expenses (4.6%). The poor operational efficiency of savings houses is primarily a consequence of the limited scope of activities, which simultaneously limits the amount of realized net interest income.

The profit of leasing companies realized in 2016 (compared to the loss for 2015) directly influenced the improvement of the profitability and efficiency indicators of this segment of the financial system. Improvement was also registered in the operational efficiency indicators. The improved profitability in these companies is a consequence of the lowering of the operating costs<sup>98</sup> compared to 2015.

In 2016, brokerage houses and financial companies registered a negative financial result. The high loss in brokerage houses was almost entirely concentrated in one of the five brokerage houses, while the unprofitable operation of financial companies was entirely the result of the significant increase in the costs of impairment of intangible and tangible assets, as well as the impairment of the active balance sheets claims, which indicates an increase in the risk level of the credit portfolio of these institutions. The deteriorated operational efficiency is due to the significant increase in the costs of employees (33.6%), which is associated with the commencement of work of several new financial companies in the course of 2016.

## **2. Cross-sector relation, "contagion" channels and their impact on financial stability**

**The financial system is characterized by a relatively simple structure and small interdependence and dependence of activities of individual segments. With the exception of the increased interest in combining insurance and banking products and services (so-called bank insurance), the volume of which is still small, there is no significant enrichment of the range of instruments and services that would increase the interdependence of the institutional segments. Hence, there is minimal possibility of spillover of risks from one institutional segment to another, limiting the risks of disturbing the financial stability in the country.**

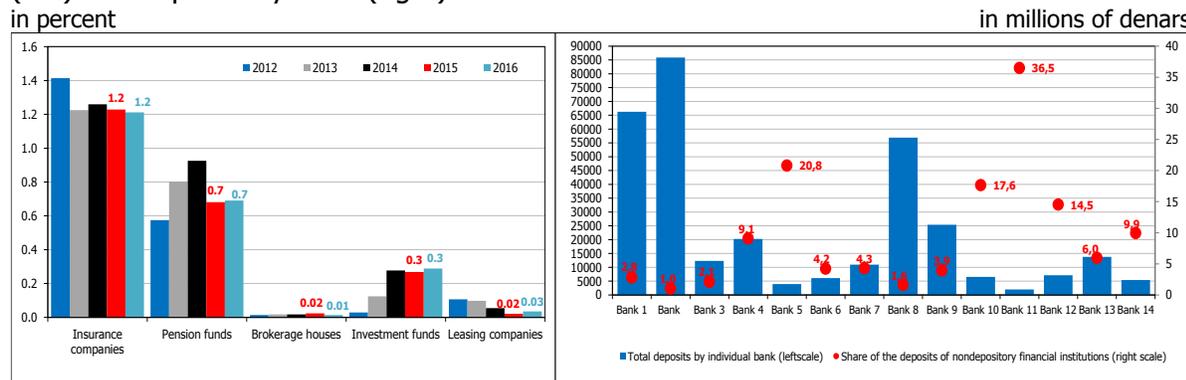
**Banks are the main connection to other financial segments and have a significant impact on the developments in the financial system. Deposits of other financial institutions are almost insignificant for the deposit base of the banking system, but are particularly important for some financial institutions since they are one of the major investment alternatives of those institutions. On the other hand, in some smaller banks, deposits from other financial institutions are an important funding source for their activities. Considering that the savings of the non-financial**

<sup>98</sup> The significant lowering of the operating costs in 2016 results from the reduction of expenditures from other activities (of 93%) of leasing companies.

sector, as well as the assets held for transaction purposes are concentrated in the banking system, the importance of the stability of the banks to the maintenance of the overall financial stability in the country is confirmed.

Chart 57

Share of deposits of non-deposit financial institutions in the assets of the banking system (left) and deposits by bank (right) in percent

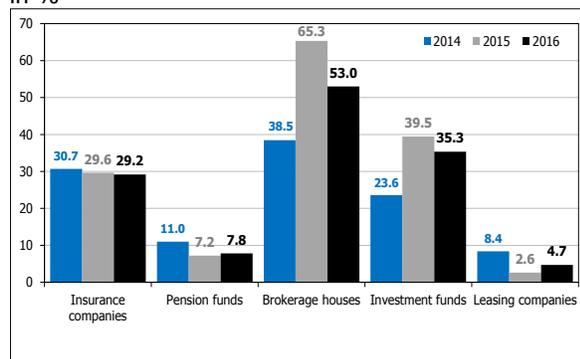


Source: NBRM, based on data submitted by banks.

**Deposits<sup>99</sup> of non-deposit financial institutions placed with the banks** registered an annual increase of 14%, thereby amounting to Denar 12,583 million at the end of 2016. Their share in the total deposit base and total assets of the banking system equals only 3.9% and 2.8%, respectively. The possible deposit withdrawal from the non-deposit financial institutions would not affect the liquidity and stability of the overall banking system. However, the share of invested deposits of the non-deposit financial institutions in the total deposits by individual banks ranges from 1.0% to 36.5%, suggesting that the sudden outflows of deposits of other financial institutions can lead to a certain liquidity instability in some of the banks (primarily smaller banks).

Chart 58

Share of deposits of non-deposit financial institutions in banks in their total assets in %



Source: NBRM, based on data submitted by banks.

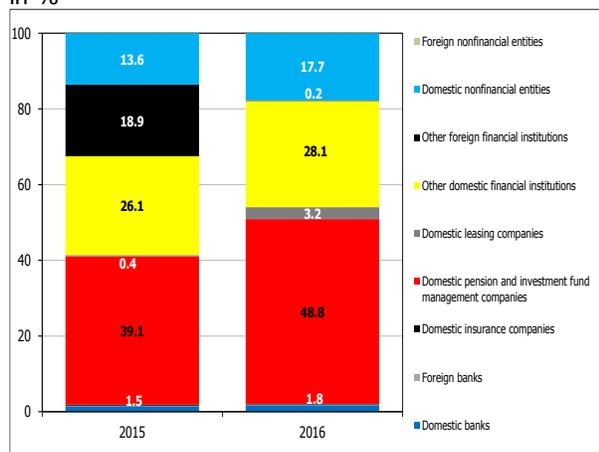
Note: There are no available data on the amount of deposits of financial companies placed with the banks for 2014 and 2015.

Mirroring the nature of the activities of the individual segments of the financial system, but also of the regulatory opportunities / limits, and even the facilities for investment on international markets, deposits placed with the banks have a significant share in the assets of some of the financial institutions (brokerage companies, investment funds and insurance companies). This is also the most important channel for **spillover of risks between banks and non-bank financial institutions**. On the other hand, loans that banks approve to non-bank financial institutions have a minimal share of 0.1% in total loans of banks (by individual bank this share is small and ranges from 0.1% to 2%). The links between banks through interbank loans is also small because these loans account

<sup>99</sup> Deposits also include transaction accounts of other institutional segments in the banks.

for 3% of the total assets of the banking system (by individual bank, this share ranges from 0% to 85.2%, i.e. from 0% to 1.3%, if the analysis excludes MBDP AD Skopje). If we take into account liabilities between banks (based on approved loans and received deposits), their share in the total liabilities of the banking system equals 8.1% (by individual bank, this share ranges from 0% to 83%, i.e. from 0% to 19.6% if the analysis excludes MBDP AD Skopje). Practically, the exposure of Macedonian Bank for Development Promotion AD Skopje to the contagion risk (from other banks) is the highest, because of its main activity to market the loans from international financial institutions through domestic banks.

Table 59  
Structure of banks' investments in equity instruments, in subsidiaries and associates, by type of legal entity in %



Source: NBRM, based on data submitted by banks.

**The threat of spillover of risks due to the capital connection among the individual segments of the financial system is small.**

Banks' investments in equity instruments, in subsidiaries and associates accounted for only 0.3% of the total assets of the banking system. Most (82%) of these investments are in domestic financial entities, of which capital investments in pension and investment funds management companies and investments in other domestic financial institutions (such as MSE, CSD, KIBS, CaSys) stand out as the most important. However, two banks have significant share in the capital of the pension funds management companies. The links between these two segments of the financial sector is significant also due to the fact that these two banks are also the custodians of the assets of the pension funds in

the country. But above all in terms of the level of the reputational risk, given that in accordance with the legislation, the assets of the pension funds are independent of the assets of the banks custodians of the assets of the funds. This links between the two largest segments of the financial system is extremely important for the financial security of the population and for the entire financial stability.

**In 2016, only three banks applied the bank insurance, so that the cooperation between banks and insurance companies based on an agreement for representation in insurance is small.**

In 2016, gross written premiums collected through banks represented only 1.4% of total premiums of insurance companies. For banks, the exposure secured by life insurance policy is still insignificant (1.3% of the total credit exposure or 5.7% of the exposure to natural persons, not taking into account the exposure on the basis of credit cards and current accounts). In addition, only 1.8% of loans approved by banks<sup>100</sup> to non-financial entities are insured with some insurance company (from materialization of credit risk). Another potential channel for connection between the insurance and banking sector is the possible damage to the provision of loans, protected by property insurance policy (as of 31 December 2016, 27.3% of the banks' credit exposure to households has collateral, which is additionally protected by property insurance policy).

<sup>100</sup> Six banks.



### 3. Deposit institutions

#### 3.1 Banks<sup>101</sup>

In 2016, and especially in the first half of the year, the activities of the domestic banking system were strongly influenced by the unstable political situation in the country, accompanied by speculation on the stability of the Denar exchange rate, the domestic banks and the deposits. This situation staggered the public confidence (especially of households) and triggered deposit withdrawal and increased demand for foreign currency in April and May 2016. Unfavorable movements in the foreign exchange and deposit market imposed a need for interventions of the National Bank to calm the situation on the foreign exchange market, as well as an increase in the interest rate on CB bills and the reserve requirement rate for banks' liabilities in denars with foreign exchange clause. Also, the FX deposit auctions of the NBRM were reactivated at favorable contractual terms (interest rate), which made the keeping foreign currency liquid assets in the country compared to abroad more cost efficient for banks. The measures taken by the National Bank, together with the adequate liquidity management by banks, which carried out all the requests for payment of deposits smoothly, yielded the expected positive spillover effects in the second half of the year. Thus, there was a gradual stabilization of the expectations of the economic agents and gradual calming the foreign exchange and deposit market. This in turn created conditions, the banking system to end the year with growth of total assets of 5%, which is by not full percentage point less compared to the increase in assets realized in 2015 (5.8%). Consequences in the dynamics of household deposits, the growth of which in 2016 (which amounted to 2.6%) significantly slowed down (4.3% in 2015), are more significant.

In the second quarter of 2016, the deposit withdrawal from the banking system was a real stress test for the volume adequacy of banks' liquid assets, which declined by more than 10% in just one quarter. However, the relatively high amount of previously accumulated liquid assets of the banks, as well as the National Bank instruments to create liquidity, contributed to successful overcoming of this crisis episode in the domestic banking system. By the end of 2016, the gradual recovery of the deposit activity, combined with the aforementioned measures of the National Bank, contributed liquid assets and liquidity ratios of the banking system to reach levels similar to those from the end of 2015, while the external liquidity indicators of the banking system even registered some improvement. The April developments put the credit risk, which is usually the most important risk in the banks' operations, in the second place, and emphasized the importance of liquidity and reputational risk to the stability of the banking system. These developments also highlighted the importance of the political stability to the maintenance of the financial stability in the country.

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<sup>101</sup> On a regular quarterly basis, the National Bank prepares Reports on the risks in the banking system of the Republic of Macedonia, where more details on the situation, activities and the exposure of the banking system to individual risks are presented. The reports are published on the website, under "Publications" or "Banking Supervision".

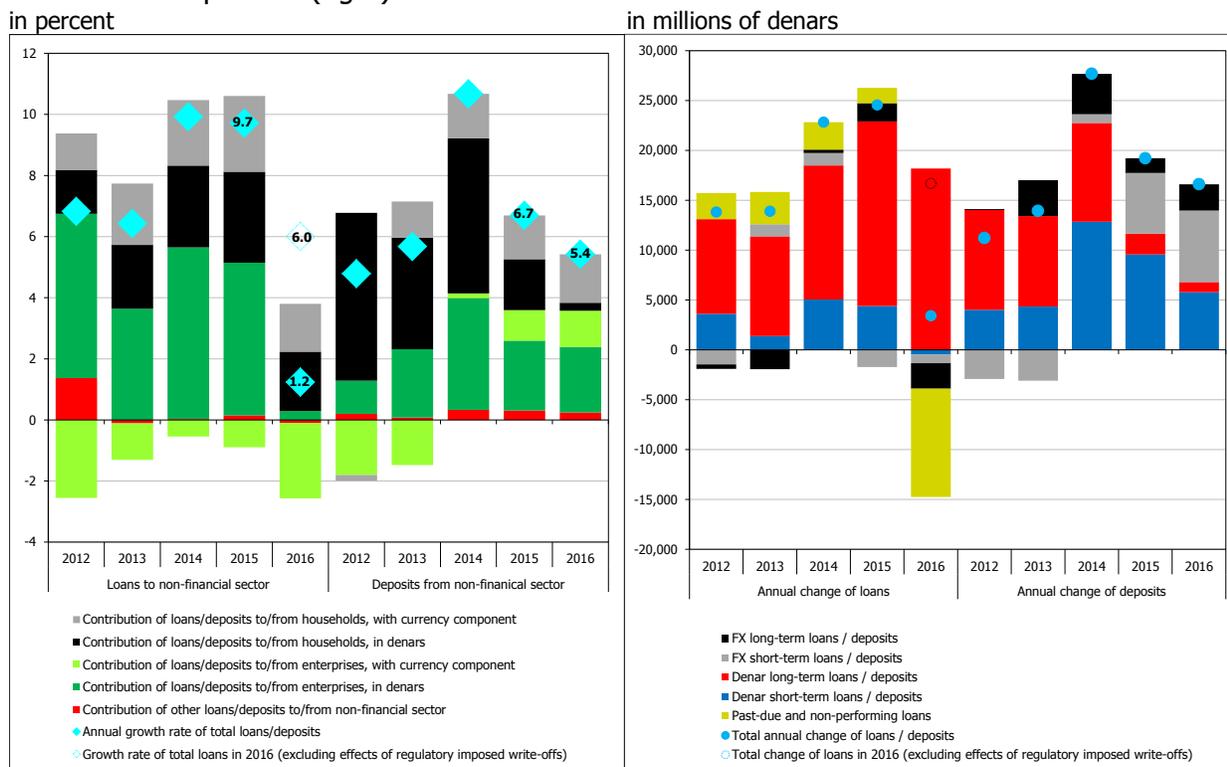


**Movements in loans in 2016 were largely determined by the prescribed compulsory cleansing of credit portfolios of banks from the old and fully provisioned non-performing claims (write-off, i.e. transfer to the off-balance sheet records), which the banks were supposed to start on 1 January, but not later than 30 June 2016. This improved the indicators of the materialization of the credit risk in the banks' loan portfolio, but it should also encourage greater focus on the management of the newer and less provisioned non-performing loans, which could create losses in the future. If we exclude the effects of this measure, the share of non-performing loans in total loans to non-financial entities remained unchanged, given the deterioration of this share in the corporate loan portfolio (primarily because of the reduced lending activity of the banks to these customers) and simultaneous decrease in the share of non-performing loans in total loans to households (due to the increased lending activity to this sector despite the accelerated annual growth of non-performing loans to households). This, prompted by the increased uncertainty in the real sector due to the domestic instability, has caused banks to increasingly direct their credit targets to the households sector.**

**The solvency of the banking system, expressed through the capital adequacy ratio at the end of 2016 is high (it equals 15.2%, versus 15.5%, as of 31 December 2015), and allows enough room to absorb the possible unexpected losses for banks. The amendments to the Banking Law, adopted in October 2016, which started to apply from March 2017, mean significant modernization of the regulatory framework, by introducing the new rules of the Basel Committee and the European regulations on the so-called capital buffers, whose fulfillment will further strengthen the solvency of banks. The amendments to the capital adequacy regulations from December 2016, which increased the significance, but also strengthened the quality of the most important component of the own funds - the Tier 1 capital, are also in this direction.**

Chart 60

Contribution of individual components to the annual growth of total loans and deposits of non-financial entities (left) and maturity and currency transformation of deposits in the financial intermediation process (right)\*



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

\*In the right chart, Denar deposits and loans include also the ones with currency clause. Short-term deposits include also the sight deposits and transaction accounts.

**Deposit withdrawals from banks in April and May 2016 was also followed by their intensified maturity and currency transformation, which usually complicates the liquidity risk management. Gradual stabilization of the movements in the foreign exchange market and deposits, as well as the situation and the perceptions of the economic entities was registered in the third quarter of 2016.** These positive movements in the second half of 2016 were largely fueled by the measures undertaken by the National Bank, but also by the appropriate liquidity management by the banks, which carried out all the requests for payment of deposits smoothly. After the fall in the first half of 2016, deposits from non-financial entities started to move upwards in the second half-year and registered solid growth (of 5.4%) on an annual basis, although somewhat slower compared to 2015 (6.7%). Household deposits kept the role of individually largest source of financing of the activities of the banking system (with a share of 49.7% in the total liabilities), but given the unstable political environment, they were not the driver of the growth of the banks' deposit base. Deposits from non-financial companies made twice higher contribution to the annual growth of deposits compared to households. **Differences in deposit interest rates, in terms of currency and maturity of deposits, were not sufficient motive for depositors to maintain invested assets in the banks, in domestic currency and in the longer run.** The continuous process of denarization of banks' deposits, typical of the past few years, was stopped in 2016, since the unstable domestic environment moderately strengthened the propensity of households to hold foreign currency (in cash or as a deposit). The increased



uncertainty, in addition to the low interest rates, caused a further decrease in the maturity of deposits, whereby the largest contribution to the annual growth of deposits was made by sight deposits<sup>102</sup>, with simultaneous decline in the total term deposits, with the largest contributors being the households. Calming political processes in the country will make a significant contribution to a complete return of household deposits in domestic banks. The rapid currency and maturity transformation of deposits in conditions of satisfactory liquidity provided positive effects in the banks' income statement (lower interest expenses, higher income on the basis of exchange rate differentials), but it complicated the liquidity risk management and confirmed the need for greater vigilance, i.e. keeping larger amounts of liquid assets, which in turn are less yielding.

**Volatility in the domestic environment and the turbulence on the deposit market had gradual spillover effects on banks' credit activity.** Loan movements were largely determined by the amendment to the existing regulation by the National Bank that required from banks to transfer to the off-balance sheet records all claims that have been fully booked for more than two years. Given that the banks were obliged to perform the "first write-offs" by 30 June 2016, the effects of these amendments to the regulation were the strongest in the second quarter of the year, and by the end of the year, there is a gradual depletion of the effects of regulatory change. On this basis, in 2016, there was a write-off of loans in the amount of Denar 13,262 million or 4.8% of the loan portfolio at the beginning of the year. In 2016, loans to non-financial entities recorded an annual growth of just 1.2%, which is significantly weaker performance compared with the previous year (9.7%).

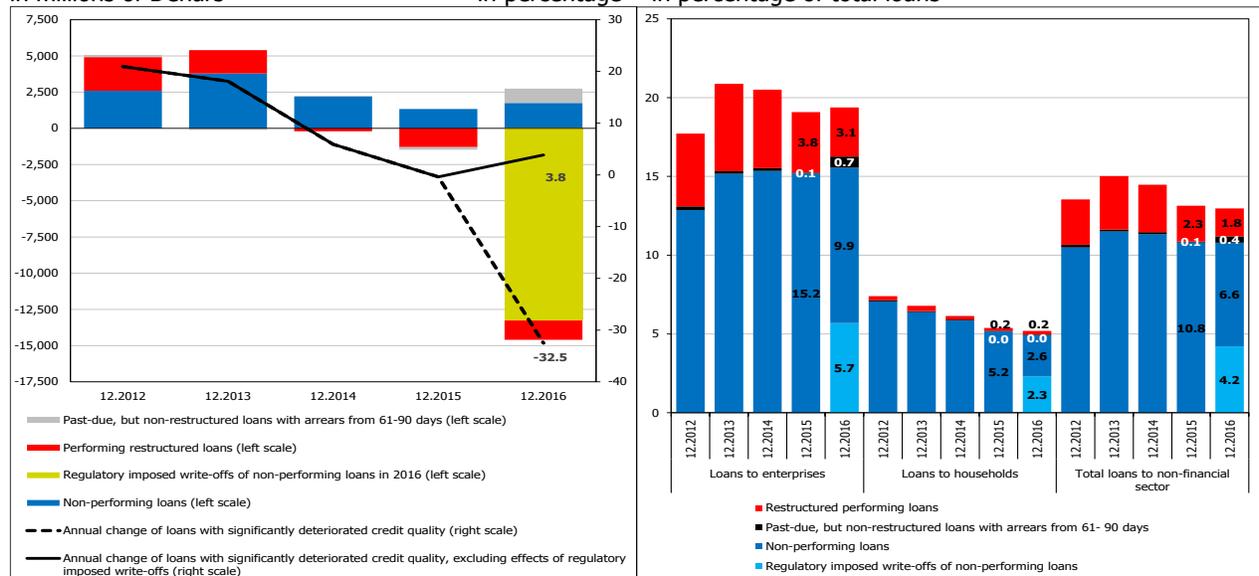
If we exclude the effects of the measure for compulsory "write-off" of fully provisioned non-performing loans, the annual growth rate of banks' credit activity at the end of 2016 is 6%, which is still significantly lower compared with that realized in the previous year. Banks' attention remained focused on lending to households for the purchase and renovation of the residential property or for financing consumption of this sector. In contrast, credit support to the corporate sector declined in 2016, and if we exclude the effects of regulatory changes for obligatory "write-off" of part of non-performing loans, then the loans to non-financial companies register positive (2.6%), but almost three times lower annual growth rate compared to the previous year (7.1%).

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<sup>102</sup> Sight deposits also include transaction accounts in the banks.

Chart 61

Loans to non-financial entities with significantly deteriorated credit quality\*, annual change (left) and share in total loans to non-financial entities (right) in millions of Denars in percentage in percentage of total loans



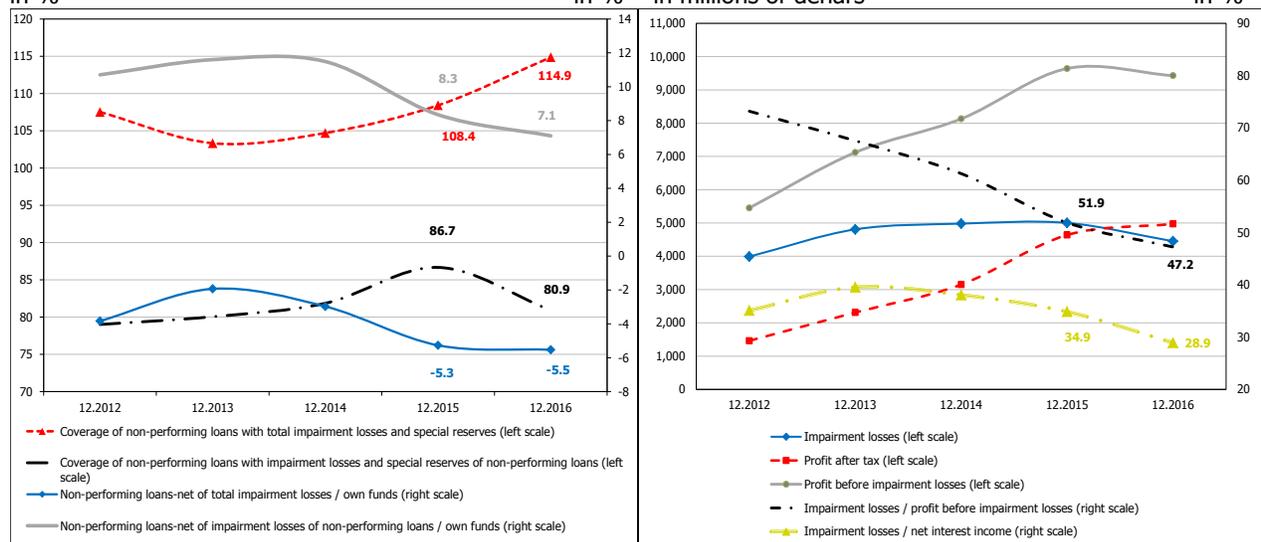
Source: NBRM, based on the data submitted by banks.

\*Loans with significantly deteriorated credit quality include non-performing loans, performing (without arrears) restructured loans and past-due, but non-restructured loans with arrears from 61 to 90 days.

**The obligatory “cleansing” of the loan portfolios from the old and fully provisioned non-performing loans improved the indicators of the materialization of the credit risk in the banks’ loan portfolio.** The share of the non-performing in the total loans dropped to the level of 6.6% as of 31 December 2016, which is significantly lower compared to the end of the previous year (10.8%). If we exclude the effects of this measure,

Chart 62

Coverage of non-performing loans and share of net non-performing loans in banks' own funds (left) and ratio of impairment losses to profit and to net interest income (right) in % in % in millions of denars in %

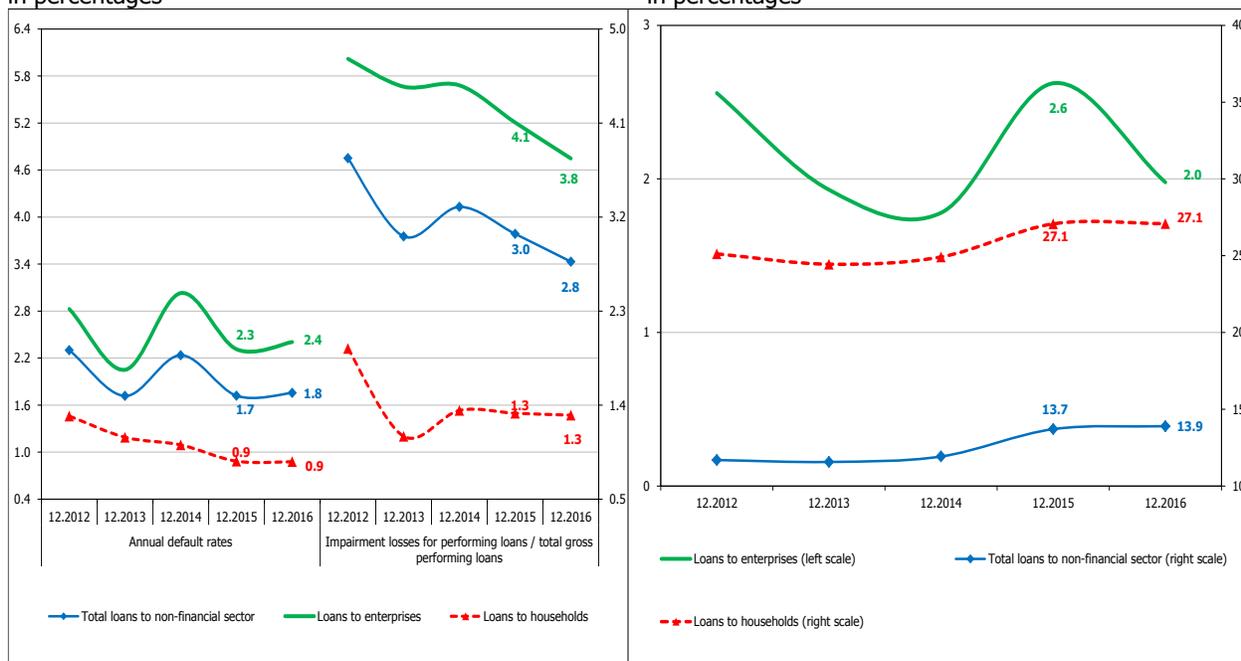


Source: NBRM, based on the data submitted by banks.

the share of non-performing loans in total loans remains unchanged (10.8%). In contrast, the annual growth of non-performing loans to non-financial entities (excluding the effect of the compulsory "write-off" of non-performing loans) accelerated, from 4.7% as of 31 December 2015 to 5.8% at the end of 2016, which is mostly determined by the accelerated annual growth of non-performing loans to households.

**The threats to banks' capital of a possible complete default on non-performing loans are limited**, given the high coverage of these loans with impairment (80.9%). Thus, non-provisioned part of non-performing loans absorbs only about 7% of the total own funds of the banking system, which would cover unexpected losses in a hypothetical extreme case of a full default of these loans. Also in 2016, the banks were engaged in resolving "bad" credit portfolio, which can be perceived through significantly higher amount (by 22.8%<sup>103</sup>) of loans written off (not taking into account the compulsory write-offs of fully provisioned non-performing loans) and substantial annual drop (of 31.2% or Denar 838 million) of foreclosed assets based on uncollected claims (for selling part of this property<sup>104</sup>, as well as because of fewer foreclosures due to loan repayment without activating the foreclosure).

Chart 63  
Annual rate of default\* of the credit exposure and average risk level of the performing (regular) loans (left) and share of the performing (regular) loans which are not collateralized in the total performing (regular) loans (right)  
in percentages



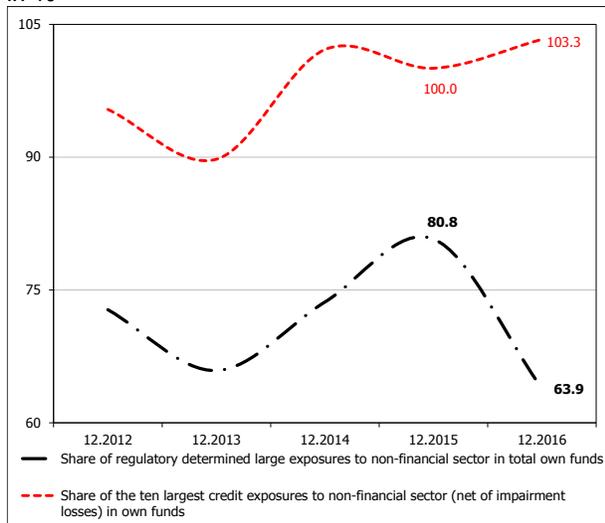
Source: NBRM, based on the data submitted by banks.

\*Note: The annual rate of default is calculated as a percentage of credit exposure with regular (performing) status, which for a period of one year transforms into exposure with non-performing status.

<sup>103</sup> More precisely, in 2016, banks wrote off loans to non-financial entities in the amount of Denar 2,268 million (in 2015, this data equaled Denar 1,847 million).

<sup>104</sup> Part of the sold property, previously foreclosed on the basis of outstanding claims was sold by approving a loan to the buyer, which means establishing new credit exposure for the bank.

Chart 64  
Indicator for the concentration level of the credit exposure to the non-financial sector in %



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

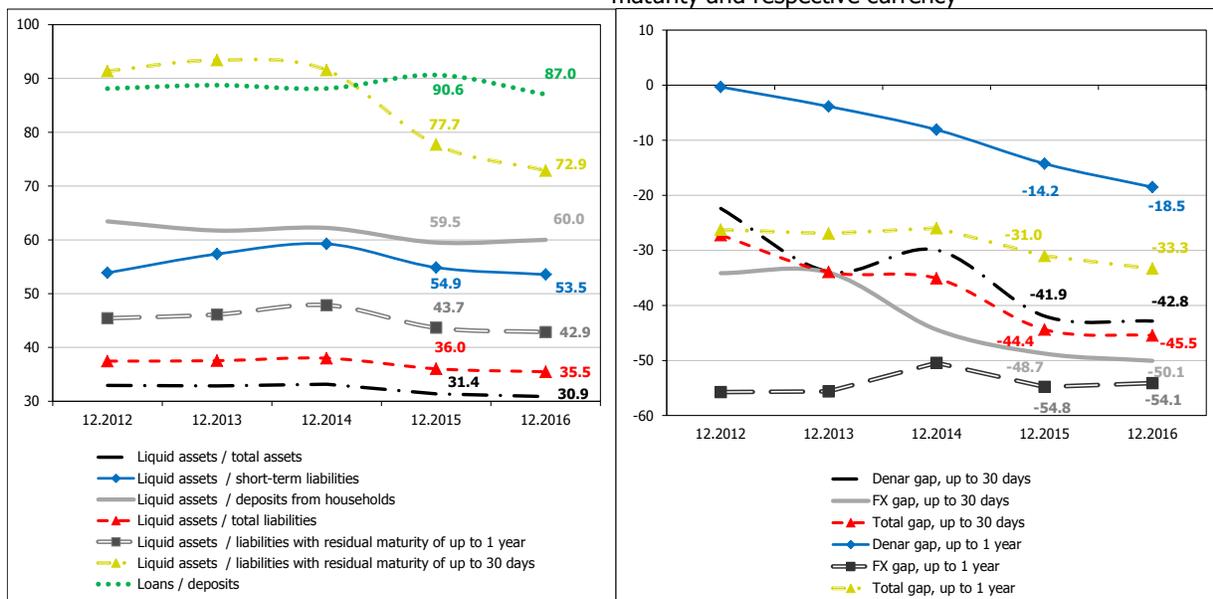
Currently, the percentage of impairment of regular loans (or the average risk level of regular loans) is higher than the (historical) annual rate of default on credit exposure with regular status. However, the losses due to materialization of the credit risk may exceed expected by the banks, especially amid unfavorable business conditions, inter alia, due to the significant concentration in banks' credit portfolios, as well as the high costs or inability to realize the established provision of loans (at favorable price).

In 2016, the annual default rate of the credit exposure with regular status<sup>105</sup> equals 1.8% and is somewhat lower compared to the average risk level of the regular credits extended to non-financial entities, determined

by the banks (2,8%). In addition, on 31 December 2016, 86.1% of the performing (regular) credits to the non-financial sector are collateralized, which "mitigates" the level of the banks' credit risk and consequently reduces the rate of expected losses due to credit exposure with

Chart 65

Banking system liquidity ratios (left) and gap between banks' assets and liabilities that mature in the next 30 days and in the coming year (right) in percentage



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

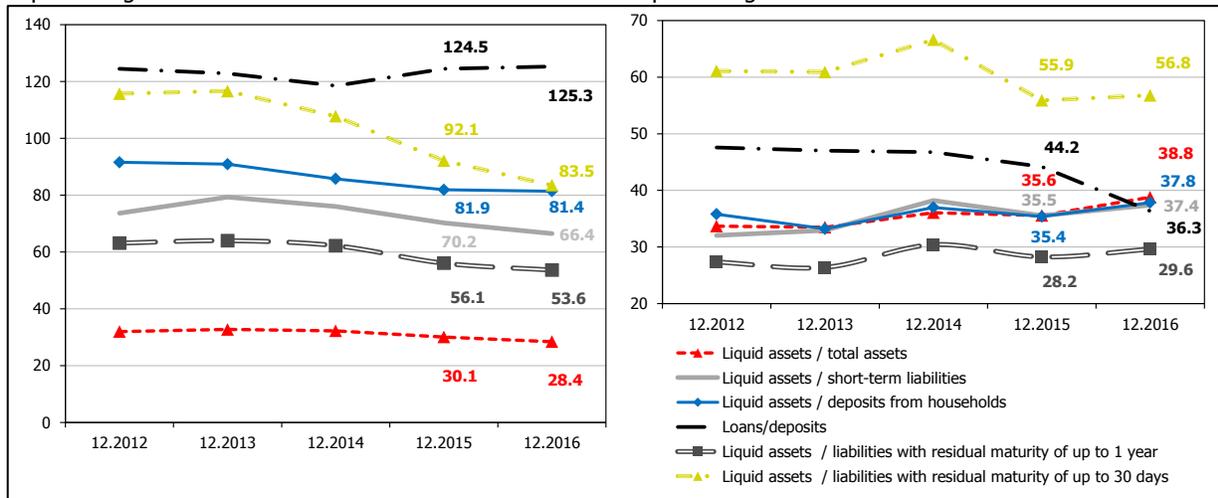
<sup>105</sup> The annual default rate is calculated as a percentage of credit exposure with regular status, which for a period of one year transforms into exposure with non-performing status.

regular status. However, the present relatively high concentration in the credit portfolios of individual banks as by customer and by some other characteristics of the clients (for example, belonging to certain activities), indicates a high level of correlation between "performance" of individual credit agreements, which under unfavorable business conditions may increase losses due to the higher level of materialization of the credit risk than banks' expectations. Finally, despite the relatively high share of the regular loans which are collateralized in the total regular loans, however, the risk of inability to sell the property (at favorable price), that would be possibly foreclosed due to collection of outstanding claims, remains.

**In the second quarter of 2016, banks' liquid assets were under direct "attack" (they decreased by more than 10%) of the deposit withdrawal from the banking system. The higher amount of previously accumulated liquid assets and the National Bank instruments to create liquidity successfully offset this crisis in the domestic banking system and even ensured positive credit growth rates, as the main source of income for the banking system.** By the end of 2016, the gradual recovery of the deposit activity, combined with the given opportunity for placement of the banks' foreign currency deposits with the National Bank at moderately higher interest rates, compared with the rates obtained from foreign banks, led to a greater propensity of banks to invest in liquid financial instruments. Thus, in 2016, the liquid assets of the banking system increased by 3.5%, compared to the slight decline in 2015, which contributed to the maintenance of liquidity indicators at levels similar to those of the end of 2015, and the indicators of FX liquidity of the banking system even registered certain improvement.

Chart 66

Banking system liquidity ratios by currency - Denar (left) and foreign currency (right) in percentage



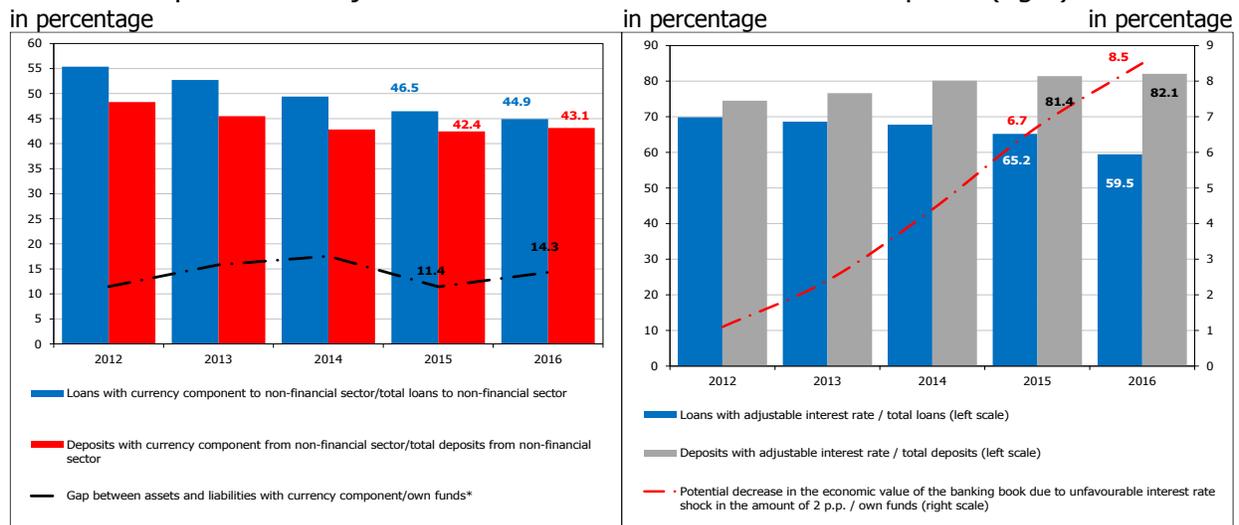
Source: NBRM, based on the data submitted by banks.

**The maturity mismatch between banks' assets and liabilities is high and in 2016 it additionally increased (with the exception of the gap between foreign assets and liabilities with maturity up to 1 year).** Namely, almost 46% of the banks' liabilities falling due in the next 30 days are not covered by assets that have the same residual contractual maturity (up to 30 days), and the gap in the maturity bucket of up to 1 year, although smaller, is still significant as one third of the liabilities with residual contractual maturity of up to 1 year are not covered by assets from the same maturity bucket.

The significance of the direct exposure of the banking system to the movements in market financial variables is small for the time being, given the low probability of materialization of currency risk and still small direct exposure to the risk of changing interest rates in the banking portfolio. However, indirect exposure to these risks, which arises from the presence of loans with currency component and loans with adjustable interest rates (i.e. interest rates that are adjusted unilaterally, by decision of banks' management) in the banks' portfolios is high, though decreasing. Stronger annual growth of foreign currency deposits compared to the increase in

Chart 67

Exposure to currency risk and shares of loans and deposits with currency component in total loans and deposits (left) and exposure to interest rate risk in the banking book and shares of loans and deposits with adjustable interest rates in total loans and deposits (right)

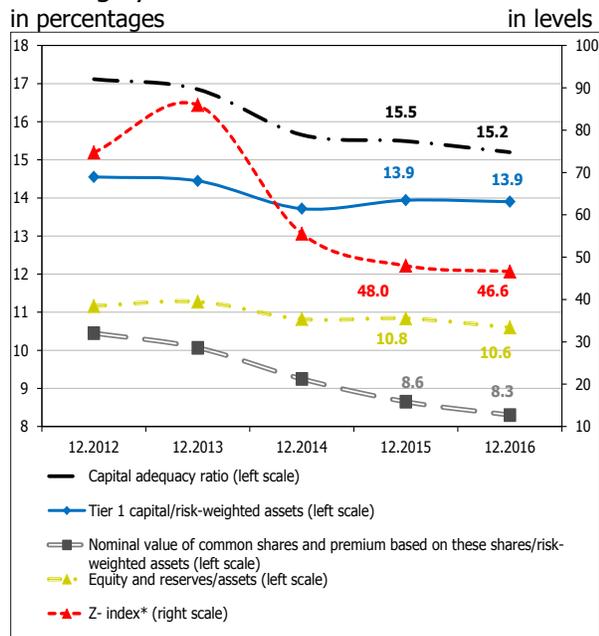


Source: NBRM, based on the data submitted by banks.

Note: \* Data on Macedonian Bank for Development Promotion AD Skopje are not included in the calculation of the gap between assets and liabilities with FX currency component.

denar deposits stopped the process of denarization of deposits, which was present in recent years, while denarization on the loans side is still present. The ratio of the gap between assets and liabilities with currency component and the total own funds rose to a level of 14.3% (11.4% as of 31 December 2015). However, banks' direct exposure to currency risk is at an acceptable level, and the ratio between the aggregate currency position and own funds in each bank separately is within the prescribed regulatory limit (30% of banks' own funds). Increased lending and investments in term deposits with fixed interest rates caused an increase in the potential loss of economic value of the banking book given assumed unfavorable interest rate shock of  $\pm 2$  percentage points. At the end of 2016, the ratio between the potential loss at standard interest rate shock of  $\pm 2$  percentage points and own funds reached 8.5% and is relatively low. The application of the clauses for adjustability of interest rates in credit agreements expose banks to indirect credit risk whose materialization would be realized in case of significant upward movement in interest rates. The intentions of gradually abandoning the application of adjustable interest rates and linking the change in interest rates with market factors will dimension the risk of changing interest rates in the banking book in a more objective manner and reduce the legal and reputational risk, but the banks will have to improve their capacities to manage interest rate risk.

Chart 68  
Indicators of solvency and stability of the banking system  
in percentages



Source: NBRM, based on the data submitted by banks.  
Note: \* 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  $\sigma(ROAA)$  is the standard deviation of the rate of return on average assets, calculated for the last three years.

**Indicators of solvency and capitalization of the banking system registered a certain decrease**, which is mostly due to the faster growth of risk-weighted assets due to the growth of lending, but also due to the introduced higher capital requirement for certain credit products intended for financing of the household consumption (credit cards, overdrafts, as well as consumer loans with maturity equal to or longer than eight years), with application from 1 January 2016. The capital adequacy ratio decreased by 0.3 percentage points and accounted for 15.2%. Despite the new issue of shares in 2016, for the first time in the last three years, banks are still mostly oriented toward internal capital creation (by retaining realized profits in equity funds).

**A significant challenge for the banks in the coming period is the introduction of capital requirements stipulated in the Basel III international framework to domestic regulations, which will start to apply from 2017** (in 2017 banks are required to maintain a capital conservation buffer, and systemically important banks will have to allocate a separate capital buffer).



## Outlook of performance indicators of foreign banks that have subsidiaries in the Republic of Macedonia and their subsidiaries in other countries from the surrounding region

Table 8  
Selected indicators of foreign banks that have subsidiaries in Macedonia, as of 31 December 2016  
in percentages, except credit rating

Bank	% share of Macedonian subsidiary in total assets of banking group	Credit rating (the last published, according to Fitch)	Equity and reserves/ total assets	ROAE	Loans/ deposits	Average level of risk (refers to loans)
NBG S.A. Athens	1.8	RD; RD (restricted default)	8.9	0.1	131.5	22.3
NLB d.d. Ljubljana	9.7	BB-/stable; B	14.4	5.1	82.1	9.3
Steiermärkische Bank und Sparkassen AG Graz	2.2	-	7.1	0.6	107.4*	3.0*
SocGen S.A. Paris	0.04	A/stable; F1	3.0	12.2	75.6	1.5
ЦКВ АД София	5.4	-	8.4	6.7	50.5	4.0
Halkbank A.S. Ankara	0.9	BBB-/stable; F3	9.2	12.6	108.0	2.4

Source: Internet sites of banks.

\*Note: The data marked with an asterisk (\*) are calculated for the banking group. All other data are calculated for the parent bank.

Data from CCB AD Sofia (Central Cooperative Bank AD Sofia), from the first column refers to the percentage share in the subsidiary's assets in Macedonia in the total assets of the foreign bank, and not in the group assets.

parts of the world. The following is an outlook of some significant indicators for the operation of individual banks in the countries of the surrounding region that belong to the same banking groups as the foreign banks' subsidiaries present in the Macedonian banking system. Four banking groups present with their subsidiaries in the Republic of Macedonia were selected for the purposes of this analysis, which in their composition include at least three subsidiaries-banks based in different countries (more precisely, banking groups of National Bank of Greece, Nova Ljubljanska Banka, Steiermärkische Bank und Sparkassen и Societe Generale).

Macedonian banks' position in the analyzed banking groups is different, according to individual performance indicators. Compared to the banks from the surrounding region, two Macedonian banks have the best efficiency indicators (measured through the ratio indicator between operational costs and total income) and liquidity (measured as a ration between liquidity assets and deposits and short-term funding sources) within the banking groups to which they belong. Additionally, one Macedonian banks has the best indicators for capitalization (share of capital and reserves in the total assets), profitability (rate of return of the average assets) and funding sources of the credit activity (ratio between loans and deposits). However, analyzed by almost all indicators, some Macedonian banks have the weakest indicators in terms of the banking groups to which they belong, compared to the banks in the surrounding region which are part of the same groups.

Subsidiaries of six foreign banks are present in the Republic of Macedonia. Although, bank groups to which the subsidiaries of the Republic of Macedonia belong to are relatively small in terms of the size and effect on the total performances of the group, still five of them are determined as systemically important for the domestic banking system, with a share of almost 56% in the total assets of the Macedonian banking sector. Hence, the banking system is influenced by economic and non-economic risk factors, arising from the banks' parent entities and their home countries. Analyzed by country of origin of the foreign bank, Macedonian banks owned by banks based in Greece have the highest market share. Although this neighboring country is facing severe debt crisis and banks there face problems, that still does not substantially affect the operation of the Macedonian bank, which is separate and independent legal entity established in the Republic of Macedonia, with its own capital, own management bodies and policies for risk undertaking and risk management.

The banking groups present in the Republic of Macedonia also have subsidiaries in other countries also, including in the countries of the surrounding region, and some of them with their own subsidiaries and branches are present in different

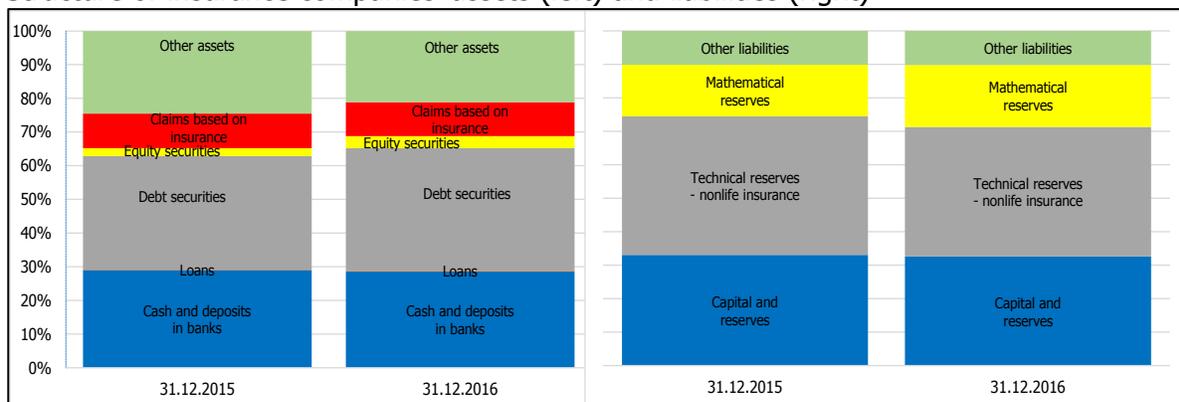
#### 4. Insurance sector

Total activities of the insurance sector in 2016 increased due to the growth of gross written premium, thus maintaining the third position in the overall financial system. The insurance sector continues to have high coverage of the technical reserves, maintains profitable operation, although reduced in volume compared to the previous year and strengthened the high solvency position. The threat of creating and spreading risks to the financial system of the Republic of Macedonia is small, primarily due to the weak links of the insurance sector with other segments of the system, but also due to the absence of complex financial instruments and services in this sector and domestic financial markets in general. The low level of development in this sector, enables further growth through constant enrichment of the products' supply, for which the economy's recovery and increase of the households' disposable income shall have an adequate impact.

##### 4.1 Insurance sector characteristics and risks

Total assets of the Macedonian insurance sector account for 3.0% of GDP, which is a very low level compared to the EU average (around 60%). On 31 December 2016, the assets of the insurance companies were Denar 18,480 million (annual growth of 5.2%), maintaining the third place in the financial system structure. Non-life insurance accounts for almost two-thirds in the total assets of the insurance sector, and the remaining part accounts for life insurance, which is opposite to the insurance sector structure in EU member countries. Such features include the insurance sector of the Republic of Macedonia among small insurance sectors giving enough room for its further increase. On the other hand, its size lowers the risk of potential negative effects on the overall financial stability. Additionally, the link between the insurance sector and other segments of the financial system is still low, which minimizes the danger of spreading risks to other segments in the Macedonian financial system. The link with the banking system is the largest, because insurance companies keep almost one-thirds of their assets in banks in the form of deposits. Hence, the stability of the banking system continues to have the greatest significance for the stability of the insurance sector.

Chart 69  
Structure of insurance companies' assets (left) and liabilities (right)

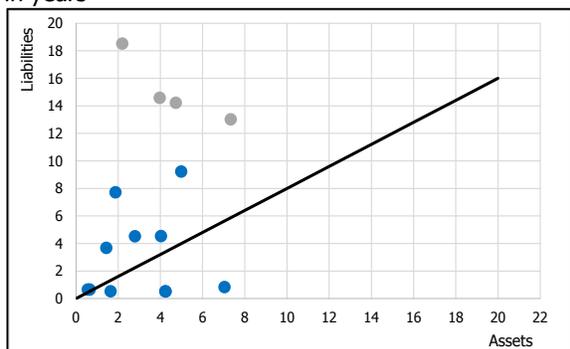


Source: Insurance Supervision Agency of the RM and NBRM's internal calculations

\*Other current assets include positions in the balance sheet which refer to: tangible assets, co-insurance and reinsurance section, small inventory and active time limitations. Other current liabilities include: subordinate liabilities, other reserves, other insurance liabilities, co-insurance and reinsurance and other liabilities.

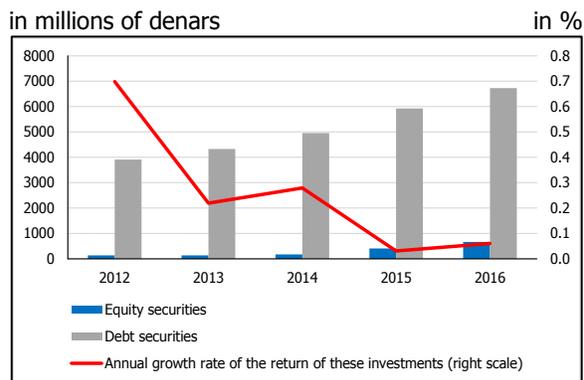
Setting an efficient premium rate is the key aspect of insurance i.e. a premium which on one hand will attract subject to invest in this financial instrument, and on the other hand will guarantee the possibility for fulfilling the obligations of the insurance companies and their profitable operations. Insurance companies should be able to pay the claims at any time, even if the cost for that is higher than the expectation. In this regard, the most significant risks of the insurance companies are the *risk of the premium level* and *risk of insufficiently allocated technical reserves*. The risk level from the premium level i.e. risk that premiums being paid by insurance companies might not cover future costs, measured through the claim coefficient (ratio between net claims in the year and net written premium) decreased by 1.2 percentage points in 2016<sup>106</sup>. Technical reserves coverage also increased. Namely, at the end of 2016, **the assets of insurance companies which covered technical reserves are 106.2% of the total technical reserves (in 2015, 105.4%)**<sup>107</sup>.

Chart 70  
Gap between assets and liabilities' positions, according to their residual maturity, by insurance company in years



\*gray dots - life insurance companies, blue - non-life insurance companies  
Source: Insurance Supervision Agency of the RM and NBRM's internal calculations

Chart 71  
Insurance companies' investments in debt and equity securities

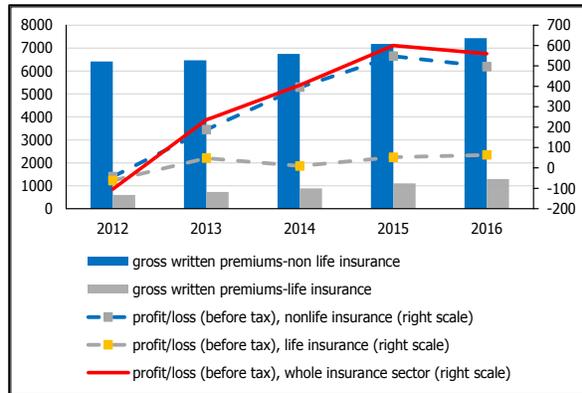


Source: Insurance Supervision Agency of the RM and NBRM's internal calculations

<sup>106</sup>The claims coefficient shows if gross written premiums of the company are enough to cover the unpaid claims. If premiums do not fully cover the claims or this indicator constantly increases, that shows that the company is facing financial problems. The claims coefficient varies depending on the insurance class. This coefficient is higher in life insurances than in the non-life insurance classes. For the Macedonian insurance sector, this coefficient is 46.3% in non-life insurance and 77.3% in life insurance (51.5% on insurance sector level).

According to the Law on Insurance Supervision (Official Gazette of the Republic of Macedonia no. 27/02, 84/02, 98/02, 33/04, 79/07, 8/08, 88/08, 56/09, 67/10, 44/11, 112/11, 7/12, 30/12, 45/12, 60/12, 64/12, 23/13, 188/13, 112/14, 153/15, 192/15 and 23/16), Article 86, insurance companies are obligated to invest assets in an amount at least equal to the technical reserves value i.e. assets for covering the technical reserves and total technical reserves should be minimum 100%.

Chart 72  
Insurance companies' gross written premiums and profit in millions of denars

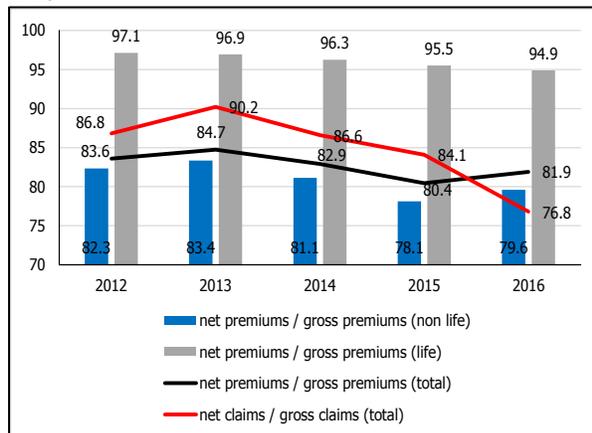


Source: Insurance Supervision Agency of the RM and NBRM's internal calculations

The largest part of the assets are financial assets i.e. investments in debt securities, cash and deposits in banks, which account for 65.0% of total assets of the insurance sector. **Such structure of the balance sheets shows that insurance companies tend to hold high amounts of high-liquidity assets.** Despite the continuous growth of the investment of Macedonian insurance companies in debt and equity securities in the past five years, low interest rates, complemented by legal restrictions<sup>108</sup> of investment alternatives of the insurance companies, contributed to a downward return rate trend of investments in these securities.

**Regarding liquidity risk exposure, liabilities of the insurance companies have a longer average residual maturity (6.2 years), compared to the duration of assets (3.4 years).** This residual maturity gap between assets and liabilities is more pronounced in life insurance companies due to the long-term nature of the concluded insurance contracts.

Chart 73  
Transferred risk to reinsurers in %



Source: Insurance Supervision Agency of the RM and NBRM's internal calculations

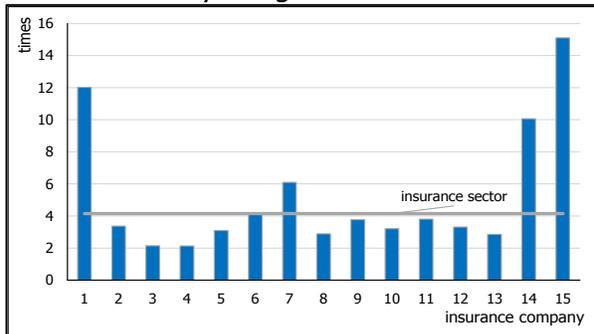
\*net premiums - gross written premiums decreased for the premiums towards coinsurance and reinsurance.

\*net claims - gross paid claims reduced by the coinsurance and reinsurance part.

**In 2016, insurance companies registered a positive financial result, which decreased by 7.47% annually.** That is due to the high amount of liquidated claims which increased by 13.3% in 2016. Despite the higher increase of gross paid claims in life insurance (62.2% or by Denar 80 million more compared to 2015), gross paid claims in non-life insurance which increased by 11.2% or by Denar 342 million have a greater influence on the growth of liquidated claims and on the decreased positive financial result. The main incomes of the insurance sector come from gross written premiums which in life insurance increased by 17.3%, whereas in non-life insurance by 3.5%.

<sup>108</sup>According to the Law on Insurance Supervision ("Official Gazette of the Republic of Macedonia" no. 27/02, 84/02, 98/02, 33/04, 79/07, 8/08, 88/08, 56/09, 67/10, 44/11, 112/11, 7/12, 30/12, 45/12, 60/12, 64/12, 23/13, 188/13, 112/14, 153/15, 192/15 and 23/16), Article 88 and Article 89, there is a limit of investments according to their instrument type as well as their share in total assets which cover technical reserves.

Chart 74  
Capital of the insurance companies / required level of solvency margin



Source: Insurance Supervision Agency of the RM and NBRM's internal calculations

**In order to control the risk exposure, insurance companies, pursuant to their strategy regularly reinsure part of the concluded insurance contracts.** However, insurance companies in Macedonia in the past year registered a decline of 2.3% or Denar 36 million in reinsurance premiums. Amid growth of total gross written premiums (5.4% or Denar 444 million), the share of net premiums in gross premiums is reduced to 76.8%, and the share of net claims of insurance companies in gross claims was also reduced to 79.6%.

**The solvency of the insurance sector continues to be high, which is due to the high capital of the sector which covers the solvency margin (capital requirement) by 4.1 times.** On 31 December 2016, the insurance sector capital increased by around 1% compared to the previous year and reached Denar 5,554 million.

## 5. Fully funded pension insurance

**Lagging largely behind the banking sector, fully funded pension insurance is the second largest segment in the financial system of the Republic of Macedonia and accounts for around 8% of GDP. This is one of the rapidly growing segments in the financial system of Macedonia, although the growth of the assets of private pension funds decelerated in 2016. The largest portion of the assets of pension funds are still placed in domestic government securities, but, in the last years, investments in foreign equity instruments also increased, approaching the legal limit. Pension funds are exposed to several types of risk, such as risk concentration, currency risk, interest rate risk, credit risk and risk of price changes of equity instruments. Companies that manage these funds apply a strategy for investing in traditional assets (shares, bonds and cash equivalents), which is predominantly conditioned by the legal regulation. In 2016, private pension funds registered insignificantly lower rates of return. Nominal and real rates of return converge as a result to the small price level changes.**

### 5.1 Mandatory fully funded pension funds

**In 2016, net assets<sup>109</sup> of mandatory fully funded pension funds continued to increase, but at a slower growth rate due to the lower growth of paid contributions of the funds' members compared to the previous year** (due to the slower growth of the number of funds' members). Traditionally, paid contributions have the most significant role in the creation of the value added of net assets, with a constant share of around 70% in the last five years, whereas the rest of the growth of net assets is due to the profit from managing and investing the assets of the funds. Compared to 2015, contributions register a slower growth of

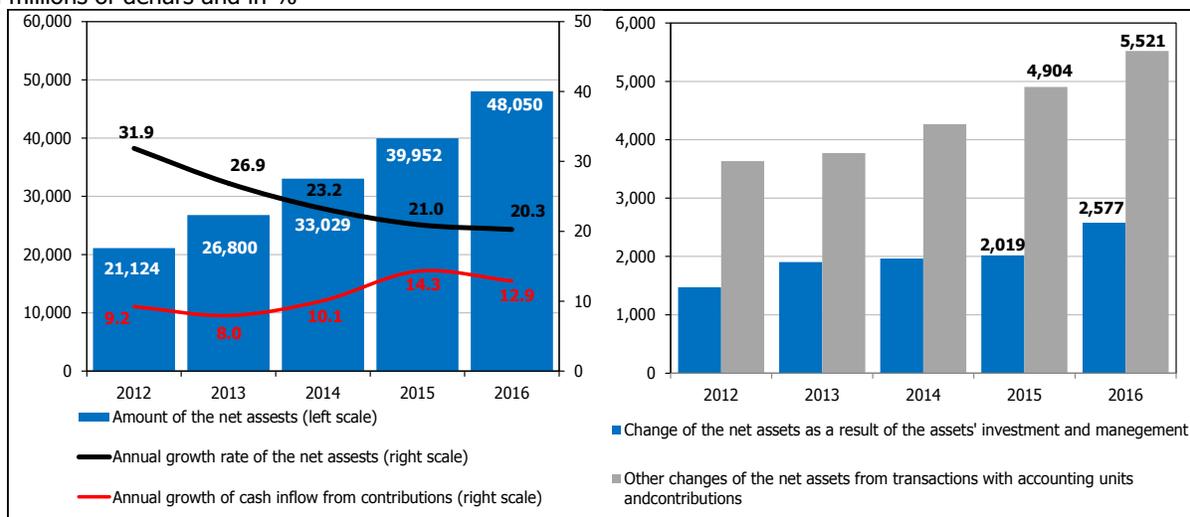
<sup>109</sup>Net assets of the pension fund are determined as the difference between the value of the assets and liabilities of the pension fund.

12.9%<sup>110</sup> or Denar 638 million, but the growth (27.6% or Denar 557 million<sup>111</sup>) of the total profit from investments and fund management considerably accelerated. The accelerated growth of the total profit from investments and fund management is due to the duplication of the unrealized net capital gain (which is by Denar 612 million higher compared to 2015<sup>112</sup>). Investments in stakes of foreign investment funds have the largest contribution in the growth of unrealized net capital gain (unrealized net capital gain of these investments increased by high 138.8% i.e. by Denar 560 million). On the other side, in 2016, net capital loss<sup>113</sup> of mandatory pension funds made a negative contribution in the growth of net assets and contributed for a reduced net profit from investments in securities<sup>114</sup> **and also was the main reason for the decline of their annual and three-year (nominal and real) rates of return.**

Chart 75

Net assets (left) and growth structure of net assets (right) of mandatory fully funded pension insurance funds

in millions of denars and in %



Source: Audited financial statements of mandatory fully funded pension funds.

Note: Transactions with accounting units include: Cash inflows based on paid contributions, cash inflows (outflows) of assets from (to) other pension funds from the change of membership and cash outflows based on paid pension/retirement benefits.

<sup>110</sup> In 2015, the growth totaled Denar 618 million, or 14.3%.

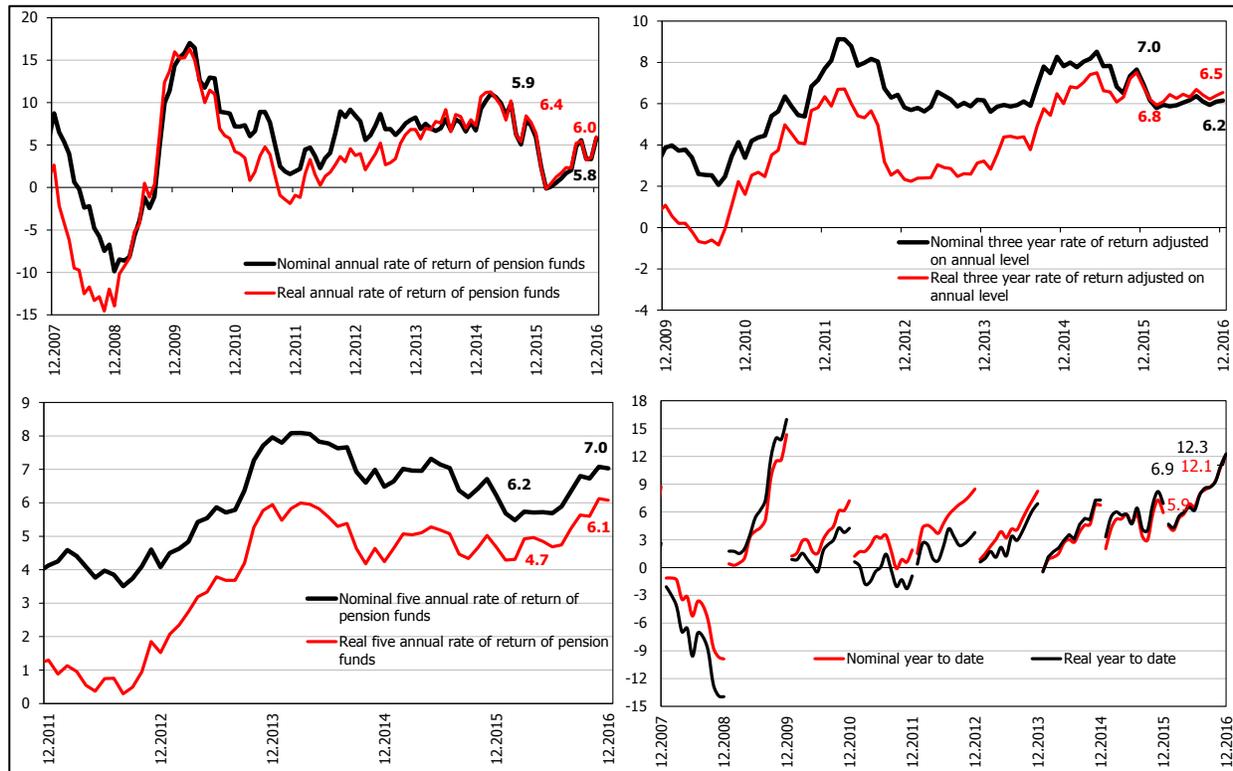
<sup>111</sup> In 2015, the growth totaled Denar 56 million, or 2.8%.

<sup>112</sup> These capital gains also include the net exchange rate differences.

<sup>113</sup> In 2016, mandatory fully funded pension funds registered total losses of Denar 66 million and total profit of Denar 60 million, therefore net losses are Denar 6 million. Contrary to this, in the previous year, funds registered net profit of Denar 170 million. Net losses arise from the stakes of foreign investment funds which registered a loss of Denar 50 million, whereas from foreign shares, funds registered a profit of Denar 40 million.

<sup>114</sup> On 31 December 2016, net profit from investing in securities was Denar 1,389 million and compared to the previous year is lower by Denar 35 million. The increased income from interest (by Denar 117 million) had a positive influence on the net profit from investing in securities, which continues to be the most significant component in the income structure of mandatory fully funded pension funds with a share over 75% (Annex no. 26).

Chart 76  
Rates of return of the fully funded pension insurance funds  
in %



Source: MAPAS, NBRM

Note: The nominal yield is calculated by the percentage change in the value of the accounting unit between two consecutive accounting periods, converted into an equivalent annual rate when the accounting period is greater than one year. The real yield is calculated when the nominal yield will be corrected by the cumulative inflation rate (consumer price index) for the relevant accounting period, expressed on an annualized basis.

**The annual rate of return<sup>115</sup> of mandatory pension funds in the first half of 2016 registered a downward movement with the return of the positive trend in the second half of the year, when it registered certain upward changes.** The positive trend is even more pronounced in the first quarter of 2017. The decline in the value of the accounting unit, and hence the downward movements of the rate of return, in the first quarter of 2016 are due to the decline of prices in the world stock exchanges, and primarily due to the decline of share prices in the European stock exchanges. Furthermore, the depreciation of the US dollar against the Macedonian denar had a significant share in the decline of the rates of return in the first three months of 2016. However, a stabilization period followed and until the end of the year, due to the solid growth in the financial markets and re-appreciation of the US dollar, the rates of return increased, but failed to reach last year's level (with the exception of the five-year yield rate). The three-year rate of return remained stable during the whole 2016, remaining at the same level as in the third quarter of 2015. On the other hand, the five-year rate of return continuously increased and reached a higher level compared to the previous year. The nominal and real rates of return, as well as the one-year and three-year ones converged due to the low change rates in price level.

<sup>115</sup>The return of the mandatory pension fund is a percentage change between the value of the accounting unit on the last day in the month and the value of the unit on the last day of the month that precedes the 12-, 36- or 60-month period, depending on the particular case.

**Table 9**  
Rates of return on invested assets of fully funded pension insurance funds by type of instrument  
in %

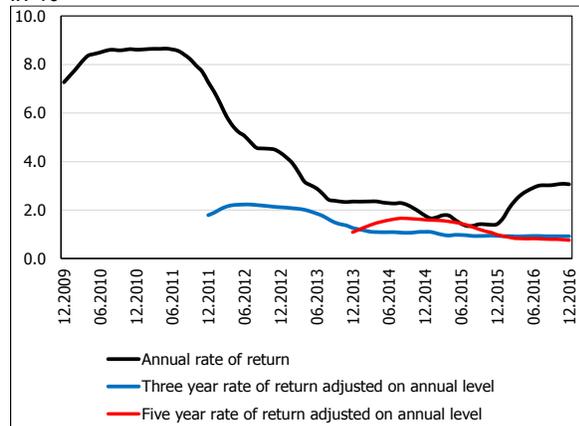
Type of the instrument	2013			2014			2015			2016		
	Net realized gain	Net unrealized gain	Total gain	Net realized gain	Net unrealized gain	Total gain	Net realized gain	Net unrealized gain	Total gain	Net realized gain	Net unrealized gain	Total gain
Stocks issued by foreign issuers	0.6	8.9	9.5	0.4	10.1	10.5	0.5	8.8	9.3	1.7	9.1	10.8
Bonds issued by foreign issuers								-0.3	-0.3	2.8	5.5	8.3
Shares issued by foreign investment funds	0.1	8.3	8.4	0.2	9.7	9.9	1.9	5.0	6.9	-0.5	9.8	9.3
Stocks issued by domestic issuers	0.3	-2.0	-1.7	-1.3	7.3	6.0	-0.3	0.6	0.2	0.0	4.6	4.6
Deposits			6.9			5.3			4.2			3.2
Bonds issued by domestic issuers	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.0	-0.1	-0.1

Source: Audited financial statements of fully funded pension insurance funds for 2015, MAPAS and NBRM's internal calculations.

Higher rates of return from invested funds in the mandatory pension funds are mostly due to the increased net unrealized profit. The highest increase in rates of return is registered in bonds issued by foreign issuers, but the share of these instruments in the assets of mandatory pension funds is marginal, and hence, the high yield of bonds issued from foreign issuers had no significant impact on the overall profit.

Shares of domestic issuers also registered a solid increase of rates of return, which arise from the continuous growth of MBI 10 during 2016. Finally, the significant growth of rates of return in stakes in investment funds and shares of foreign issuers arise from the favorable movements in the world stock exchanges. Contrary to that, the decreasing trend of the return of deposits continued during 2016, which corresponds with the decline of the passive interest rates

**Chart 77**  
Standard deviation of the nominal rate of return  
in %



Source: MAPAS, NBRM

Standard deviation of rates of return is calculated from a series of data on the respective rates of return with a monthly frequency for a reference period of past 36 months.

in the domestic economy, whereas the low negative return rate of investments in bonds of domestic issuers is due to the unfavorable exchange rate differences.

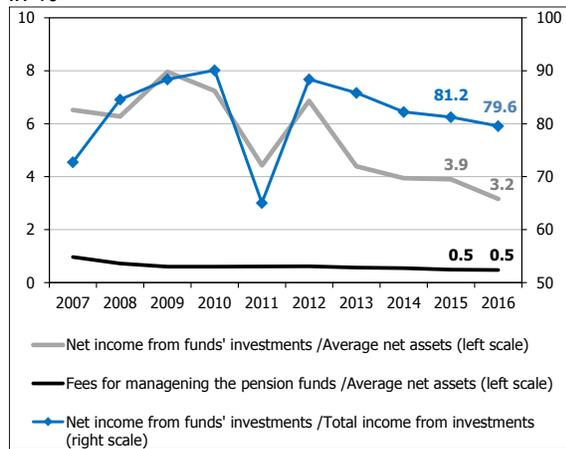
With the exception of the fees indicator for managing the pension funds<sup>116</sup> which remained unchanged, the share of net profit in the average net assets and in total income from fund decreased compared to the previous year. This is primarily due to the low net profit in 2016, but also to the faster growth of average net assets from the growth of net profit from investments.

Companies that manage mandatory pension funds continued the investment policy practice in traditional assets, which is generally conditioned by the regulation on mandatory

<sup>116</sup>Law on mandatory fully funded pension insurance regulates the allocation of fees for managing pension funds and companies that manage them.

Chart 78

Indicators of the results from the investments of mandatory fully funded pension insurance funds in %



Source: Audited financial statements of fully funded pension insurance funds

Note: Total revenues and net profit do not include unrealized gain.

pension funds<sup>117</sup>. Thus, their investment policy is mainly directed towards investments in debt securities, whereby these instruments have a share of over 60% in the net assets of mandatory pension funds. 99.2% of them account to domestic government securities, and mainly due to the low yield, in the past several-year period, only a modest of 0.8% account to government bonds from foreign issuers. However, such investment strategy, where the largest portion of assets are invested in domestic bonds, which are generally considered as less risky instruments, exposes the mandatory pension funds to concentration risks (Annex 24). Given the significant exposure of mandatory pension funds to government securities, the stock of public finances and public debt sustainability are an important stability factor of mandatory pension funds.

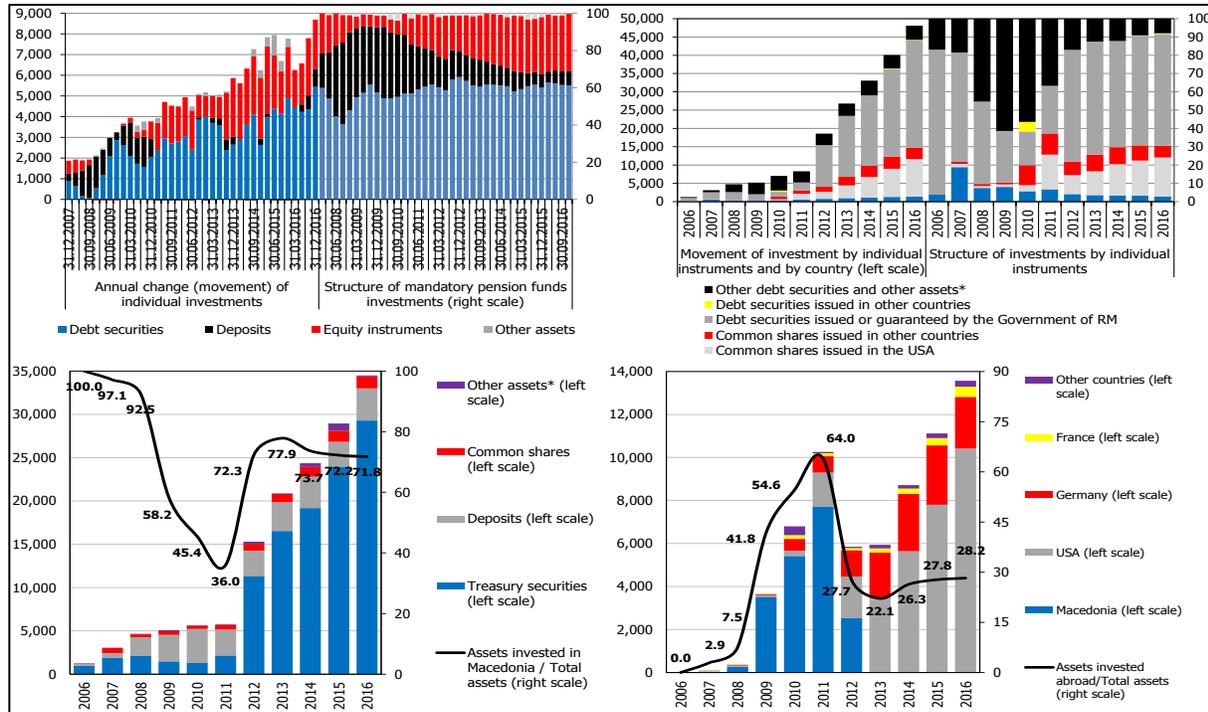
Investments in shares of domestic issuers registered a decline of 12.9% and despite the increased rates of return in 2016, which reduced their share in the mandatory pension fund assets in 2016 to 2.9% which is far below the prescribed legal limit of 30%. In contrast, despite the decline of passive domestic interest rates during 2016, placements in mandatory pension funds registered a high growth of 30.3%<sup>118</sup> and increased their share in the assets by 0.6 percentage points (up to the level of 7.7%). Such investment policy for mandatory pension funds points to preferences for low risk investments, but also to the lack of investment instruments and the need for the development of domestic financial markets.

<sup>117</sup>In accordance to the Law on the Fully Funded Pension Insurance, funds have a right to invest up to 30% of the assets in securities issued by non-government foreign companies, banks or investment funds.

<sup>118</sup>Most present in one of the mandatory pension funds.

Chart 79

The movement and structure of investments of mandatory pension funds (top left), movement and structure by individual instruments and by country (top right), movement of investments in the Republic of Macedonia (bottom left) and movement of investments abroad, by country of origin (bottom right) in % and in millions of denars



Source: MAPAS and audited financial statements of fully funded pension insurance funds.

\* The other assets include cash and claims of funds.

In the past several years, starting from 2010, at the expense of the general decline of the share of deposits in net assets of mandatory pension funds (except in 2016), there is a continuous and significant **increase of the share of foreign equity instruments, which at the end of 2016 had a share of 27.8% in net assets**<sup>119</sup>. **Investments in stakes in investment funds represent a dominant part of foreign equity instruments** i.e. 22.2% of funds' net assets<sup>120</sup>. It should be noted that total placements in stakes of investment funds are conducted with the so called Exchange traded funds (ETF). The attractiveness of these instruments is linked with the fact that their return usually follows the movement of a certain index (of shares, bonds, goods, basket of assets) and at the same time they are traded as shares in the stock exchange. Additionally, compared to government bonds and shares (only 5.5% of net assets of mandatory pension funds are invested in shares of foreign companies with appropriate credit rating)<sup>121</sup>, these instruments offer a more optimal relationship between

<sup>119</sup>At the end of 2016, one of the mandatory pension funds exceeded the legally prescribed limit of 30% of net assets in investment funds in foreign equity instruments and amounted to 30.11%. Such overdrift of the legal regulation is due to the passive (unintentional) operation i.e. resulted from the change of the prices of foreign equity instruments. Pursuant to the legal provisions and deadlines, these investments were harmonized at the end of the first quarter of 2017 and were reduced within the prescribed limit.

<sup>120</sup>One of the mandatory pension funds bases the overall investment in foreign equity instruments in stakes of investment funds, which indicates to a passive strategy of investing in this type of instruments. On the other hand, the other mandatory pension funds practices a half-active investment strategy, with direct investments of part of the assets in shares of foreign issuers.

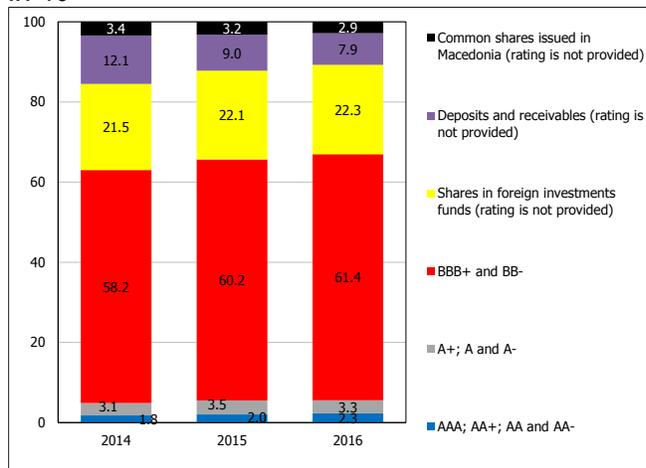
<sup>121</sup>With investments in exchange traded funds, investment funds reach a higher level of diversification, compared to the investments in a single share of a certain company, which is why the risk of these investments is usually lower.

risk and yield. The dominance of investments in investment funds in the total placements of mandatory pension funds in equity instruments indicates the application of mostly passive investment strategy.

Investments in securities issued by issuers based in the US, accounting for 76.8% of these financial instruments<sup>122</sup> prevail in the structure of placements in foreign financial instruments. Among investments in US securities, a dominant share of 84.5%, have the stakes of exchange traded funds, 14.0% are shares and only 1.6% are US government bonds. Through investing in exchange traded funds, a transformation of the geographical exposure is ensured, because their assets continue to be re(invested) in different market sectors and instruments which are traded in global markets, which suggests that their market value does not directly depend from the developments in the US financial markets. Investments in shares and bonds issued in the US have a share of 15.5% in total investments of financial instruments issued in the US, whose price movements directly depend on the events in the US economy and developments in the financial markets of the US.

Chart 80

Structure according to the credit rating of the issuer of instruments in which the assets of mandatory pension funds are invested in in %



Source: MAPAS, audited financial statements of fully funded pension insurance funds and "Bloomberg".

Note: Financial instruments for which no credit rating is prescribed relate to investments in foreign investment fund stakes, deposits in domestic banks and claims of mandatory pension funds.

**The exposure of mandatory pension funds towards credit risk is perceived through the high share of investments in the financial instruments with credit rating estimations of BBB+ (grade for a lower medium credit investment rating) and BB- (grade for non-investment, speculative credit rating),** whereas a small part of the assets of these funds are invested in financial instruments with the highest credit rating (from AAA to AA-), as well as in financial instruments for higher medium investment credit rating (from A+ to A-). In 2016, the credit rating of almost all foreign issuers remained unchanged, except four companies<sup>123</sup> whose credit ratings decreased from one to two levels. Investments in these four companies account for 12.2% of total foreign shares i.e. 2.4% of total assets invested abroad.

**According to the residual maturity of the assets of mandatory pension funds, assets with a residual maturity over five years have the largest share,** which is expected given that domestic government bonds prevail in their portfolios. These assets registered a significant growth in the last two years<sup>124</sup>, which emphasized the existence of

<sup>122</sup>On 31 December 2015, 70.2% of total financial instruments issued abroad were financial instruments issued by issuers based in the US.

<sup>123</sup>Three companies are based in the US, whereas one is based in France.

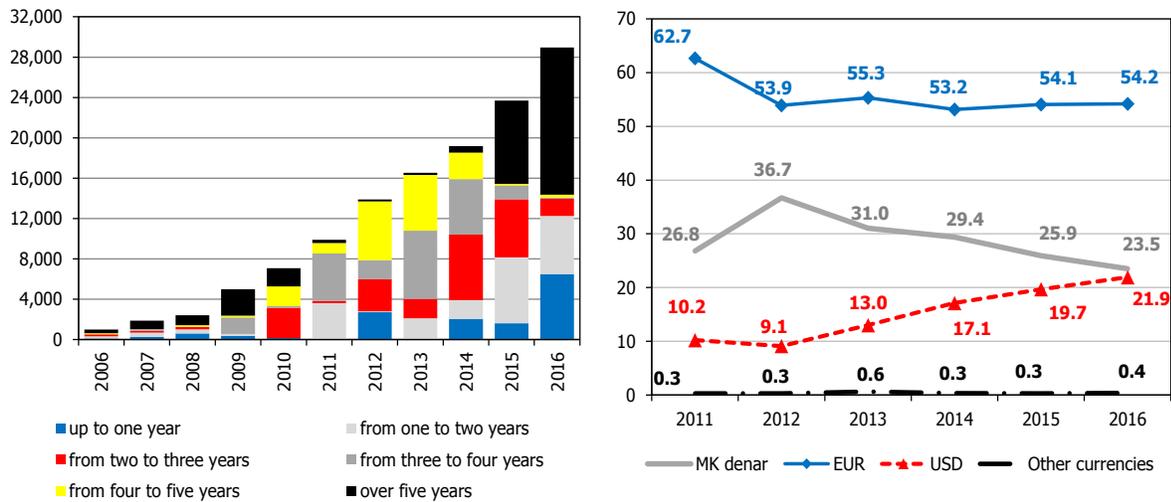
<sup>124</sup>On 31 December 2016, bonds with a maturity longer than five years registered a growth of Denar 6,359 million or by 77.0% compared to 31 December 2015.

interest risk and also the risk from reinvesting these assets. **Investments in debt securities with a maturity of one year register a similar increase**, but that is due to the decrease of the maturity of bonds which in the previous year had a longer maturity<sup>125</sup>.

**The euro prevails in the currency structure of total assets of mandatory pension funds (including positions in denars with euro clause)**, whereby the dominant part or 87.6% of the assets in euros, are domestic bonds in denars with euro clause. In the last years, the US dollar registers an increasing trend of the share in currency structure of total assets, which is mainly due to the continuous growth of investments in investment fund stakes, which accounted for 83.5% of total investments in this currency. The appreciation of the US dollar against the euro had its contribution in this growth, and subsequently against the denar. Although, during the first three quarters of 2016 the value of the US dollar registers fluctuating but relatively stable trend of movement, by the end of 2016, the value of this currency started to increase. The increase of the US dollar value is due to the expectations for the increase of interest rates by FED which were increased in December 2016, and also in the first half of 2017.

Chart 81

Structure of debt securities in which mandatory pension funds have invested, according to residual maturity (left) and currency structure of assets of mandatory pension funds (right) in millions of denars



Source: MAPAS and audited financial statements of fully funded pension insurance funds.

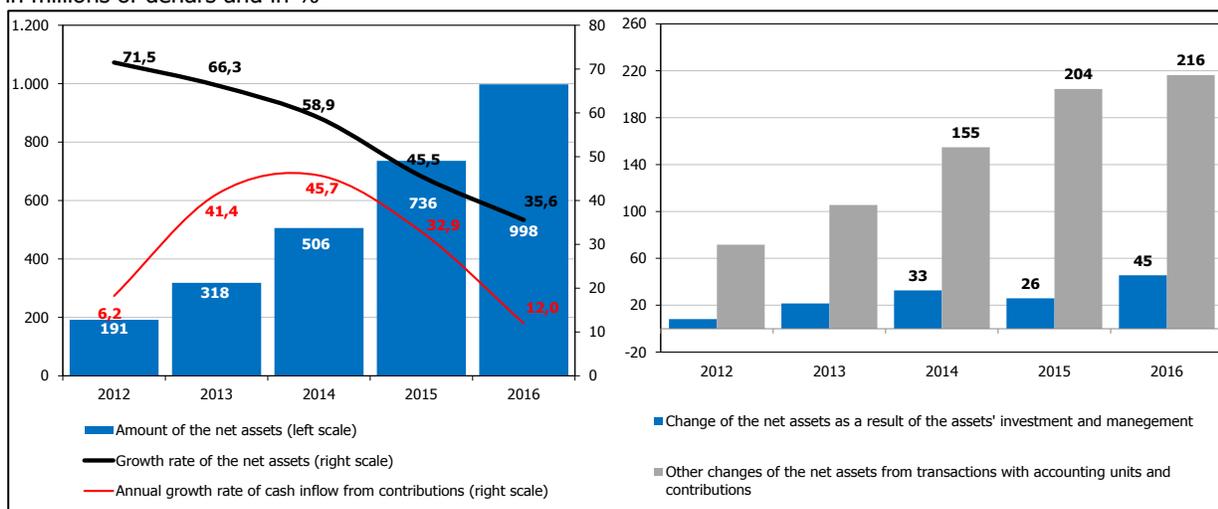
<sup>125</sup>On 31 December 2016, bonds with a maturity up to one years increased by Denar 4,885 million which is a significant increase of 301.8%, whereas bonds from two to three years decreased by Denar 4,048 million or by 70.5%, analyzed compared to the end of 2015.

## 5.2 Voluntary fully funded pension funds

**Net assets of voluntary pension funds (VPF) registered a decelerated growth compared to the previous year and in the end of 2016 their share in GDP<sup>126</sup> increased insignificantly. But the role of these funds in the domestic financial system still remains marginal. Despite the reduced growth rate by almost three times compared to 2015 due to the decelerated growth of new insured persons<sup>127</sup>, cash inflows from paid contributions made the greatest contribution in the growth of net assets of voluntary pension funds.** The profit from fund investment and management<sup>128</sup> which has a significantly lower contribution in the change of net assets compared to the contribution of this profit in mandatory pension funds, registered almost halved growth rate. The increase of retainment benefit costs<sup>129</sup> also had its contribution in the deceleration of the growth of net assets.

Chart 82

Net assets (left) and structure of the growth of net assets (right) of voluntary pension funds in millions of denars and in %



Source: Audited financial statements of mandatory pension funds.

Note: Transactions with accounting units include: Cash flows based on paid contributions, cash flows (outflows) of assets from (to) other pension funds from the change of membership and cash outflows based on paid pension/retirement benefits.

**Similar to the mandatory pension funds, during 2016, the annual (nominal and real) rate of return of voluntary pension funds registered an evident downward trend in the first half of the year, but at the end of the year, this yield registered an increase, it exceeded the last year's yield level and continued to increase in the first quarter of 2017.** Three-year and five-year (nominal and real) rates of return had certain oscillations in 2016 and at the end of the year the first registered a decline, while the latter

<sup>126</sup>On 31 December 2016, voluntary pension funds have a modest share of 0.2% in GDP (0.1% on 31 December 2015).

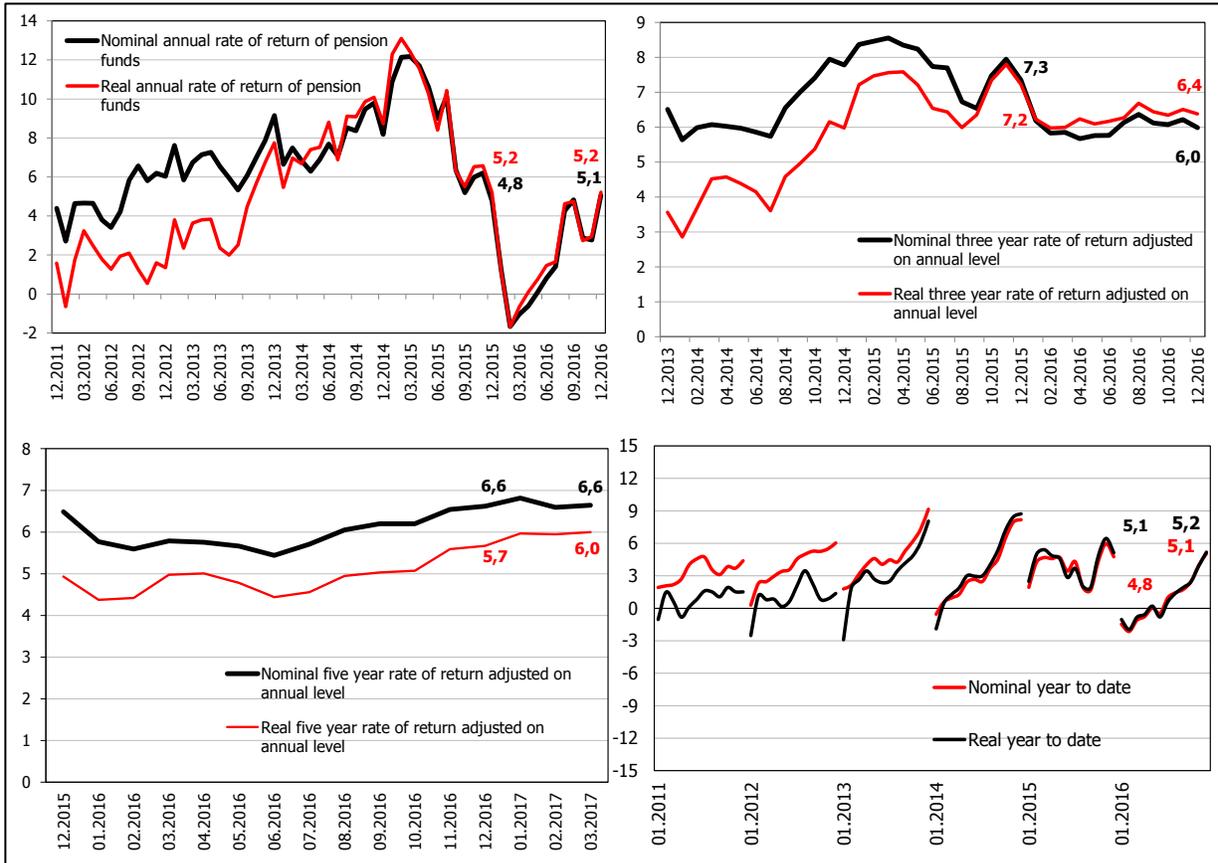
<sup>127</sup>Cash flows from paid contributions are Denar 213 million and Denar 238 million at the end of 2015 and 2016, respectively. The growth rate of paid contributions was 32.9% at the end of 2015, and 12% on 31 December 2016.

<sup>128</sup>On 31 December 2016, the profit from fund investment and management is higher by Denar 3 million or by 15.4% compared to 31 December 2015, whereas at the end of 2015 this profit was higher by Denar 4 million or by 27.7% compared to 31 December 2014.

<sup>129</sup>In 2016, cash outflows based on paid retirement benefits were Denar 22 million, which is more than double from the paid retirement benefit in 2015.

insignificantly increased compared to December 2015. According to the same analogy as in the rates of return of mandatory pension funds, voluntary pension funds registered a convergence of the nominal with the real rates of return. The pressure from deflation is manifested in higher real than nominal rates for the one-year and the three-year yield.

Chart 83  
Rates of return of the voluntary pension funds  
in %



Source: MAPAS, NBRM

Note: The nominal yield is calculated by the percentage change in the value of the accounting unit between two consecutive accounting periods, converted into an equivalent annual rate when the accounting period is greater than one year. The real yield is calculated when the nominal yield will be corrected by the cumulative inflation rate (consumer price index) for the relevant accounting period, expressed on an annualized basis.

**Investment strategies of voluntary pension funds resemble the mandatory pension funds investment policy**, whereby the largest part of investments of voluntary pension funds are in domestic debt instruments (48.6%)<sup>130</sup> which emphasizes the exposure of voluntary pension funds to concentration risk of a significant part of investments towards one issuer. Investments in debt securities issued by foreign issuers is entirely due to the investments of one of the voluntary pension funds in a ten-year US government bond and eleven-year French bond. However, the higher share of equity instruments in the voluntary pension funds' portfolio, at the expense of lower share of domestic government bonds is noteworthy, compared to mandatory pension funds, which might result in higher yields of these

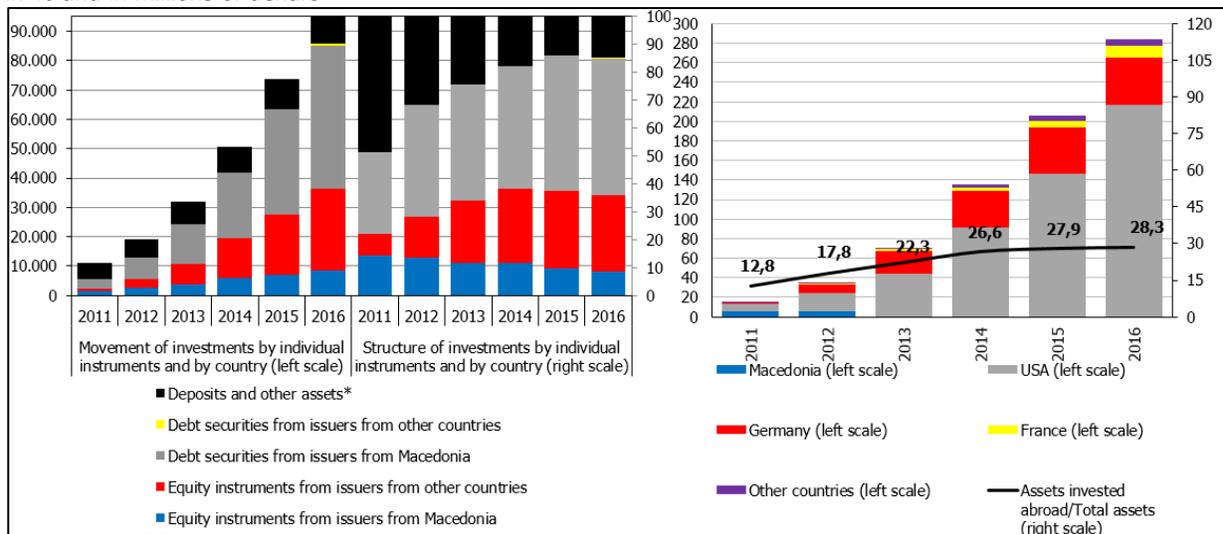
<sup>130</sup>In 2016, for the first time, voluntary pension funds invested in foreign bonds which have a share of 1.3% in total investments in debt securities.

funds, but at the same time carries higher risk. Namely, unlike mandatory pension funds, these funds have higher placements in shares of domestic issuers<sup>131</sup>.

Investments in stakes of investment funds dominate among foreign equity instruments and account for 21.8% of the total assets of voluntary funds. Over 80% of the investments in stakes are in funds based in the US and at the end of 2016 these investments registered an increase<sup>132</sup>. Placements in the US (83.6% stakes in investment funds, 14.6% shares and 1.8% government bonds) prevail in the structure of total assets of voluntary pension funds invested abroad. Compared to last year, investments in instruments issued in France are twice as big (their share in the total net assets of voluntary pension funds is 1.2%, on 31 December 2016) due to the increased investments in shares of companies from this country and in government bond issued by the French Central Government. Investments in other countries remained almost unchanged. Finally, these funds have placed one part of the assets in deposits, whose percent share (13.1%) is somewhat higher compared to that in mandatory pension funds.

Chart 84

Movement and structure by individual instruments and by country (left) and movement of investments abroad, by country of origin (right) in % and in millions of denars



Source: MAPAS and audited financial statements of mandatory pension funds.

\*Deposits and other assets include deposits in domestic banks, cash assets and funds' claims.

<sup>131</sup> The overall investment in domestic shares is conducted by one of the voluntary pension funds.

<sup>132</sup> On 31 December 2016, investments in stakes of investment funds based in the US increased by 44.7% compared to 2015.

## 6. Other financial institutions (savings houses, leasing companies and financial companies)

**Savings houses, leasing companies and financial companies are a very small segment of the financial system which is perceived through their insignificant share in the total assets of the financial system and GDP.**

**Although faced with difficulties in maintaining competitiveness amid the domination of banks in the market to which they provide their products and services, savings houses still have one segment of the credit and deposit market that they serve. Despite the small volume, savings houses are significant for the overall financial stability due to the fact that they collect household deposits. The volume of activities of the leasing companies registers a several-year decline, leading to deteriorating prospects for their survival and development, especially amid difficulties in maintaining competitiveness compared to other segments of the financial system, primarily banks and then savings houses. In the last three years, the number and assets of financial companies, as the "youngest" segment of the financial sector, have constantly increased, but without significant changes in the relative importance to the financial system.**

**The solvency and liquidity of the savings houses, leasing companies and financial companies are at a satisfactory level. Indicators for the credit risk materialization level in savings houses are acceptable, in leasing companies there are certain indications for decreased credit risk materialization, whereas financial institutions register increased risk of the credit portfolio.**

### 6.1 Main developments in 2016

**In 2016, the number of savings houses remained unchanged compared to the previous year, and their assets registered an annual decrease of 1.7%** which is mostly due to one from the three savings houses, as a result of the decrease of household deposits due to their transfer to one domestic bank, during the process of transformation of the saving house into a financial company. Also, decrease of matured loan liabilities is registered<sup>133</sup>. Following the changes in financing sources, decrease of household lending (by 7.0%) is registered on the assets side, and investments of savings houses in government securities decreased by 9.3% (Annex no.16). **The reduced activities continued the process of financial disintermediation in this sector**, whereby total assets represent 0.4% of GDP i.e. 00.6% of total assets of depository financial institutions. Capital and reserves are a significant assets source for savings houses (they have a share of 44.6% in total liabilities), which leads to **a high solvency of this segment** whose capital adequacy ratio exceeds 40% at an aggregate level (Annex no. 18). **Savings houses liquidity is at a satisfactory level**, with the share of liquid assets of around 18% in the total assets, which ensures full (even several-times) coverage of short-term liabilities i.e. coverage of household deposits of over 55% (Annex no. 18). **Credit risk is the most significant risk to which savings houses are exposed**, and in 2016, credit risk exposure indicators register an improvement (Annex no. 18). Non-performing loans registered a more significant decline (by 57.7%), which, almost entirely is due to the transfer of

<sup>133</sup>Loan liabilities decreased by 1.9%.

off-balance records of non-performing loans that are fully provisioned in the last two years (due to the mentioned regulatory obligation which applies to banks and savings houses). Thus, the share of non-performing loans in total loans is almost halved and was reduced to 4.4% on 31 December 2016. If we exclude the effects of this measure, the share of non-performing loans in total loans would amount to 11%. The coverage of non-performing loans with allocated impairment is lower compared to banks (65.4%) but, amid high capitalization, still points to a satisfactory level of savings houses for absorbing the potential credit losses.

**In 2016, the number of leasing companies decreased by two companies compared to the previous year. Additionally, during 2016, a foreign financial institution withdrew from the domestic leasing market and sold the largest leasing company in Macedonia (according to the amount of the basic principle) to two domestic natural persons<sup>134</sup>. Due to the low range of services offered by leasing companies and low competitiveness compared to financial intermediaries with similar business models, as well as the burden of their operations due to the tax regulation<sup>135</sup>, there is a risk of gradual natural extinction of this sector of the financial market. Total assets of the leasing companies in 2016 decreased by 3.5%<sup>136</sup>. Short-term financial leasing claims had the greatest contribution in the decline of the leasing companies' assets which on an annual basis decreased by 31.3%. On the liabilities side, the decline of provision liabilities whose amount was halved is the largest (Annex no. 16). Such movements led to a **further decrease** of the share of this sector in the assets of the overall financial system<sup>137</sup> which at the end of 2016 amounted to 0.6%, whereas the share in GDP<sup>138</sup> was reduced to 0.5%. **The capitalization of the leasing sector, despite its decrease in 2016 is still solid**, with the share of capital and reserves in the total assets amounting to 17.3% (18% on 31 December 2015). On 31 December 2016, cash assets and cash equivalents of leasing companies had a share of around 4% in the total assets and entirely cover short-term liabilities which are seven-times smaller compared to short-term assets, **which leads to a satisfactory liquidity of this sector**. In the absence of adequate data for the credit risk exposure limit, movements in the aggregate income statement of this sector for 2016, point to a several-times decline of the costs for impairment. Also, the number of terminated leasing contracts decreased, which, apart to the decreased volume of activities might also be due to the lower credit risk materialization (Annex no. 16 and 17).**

**In 2016, the number of financial companies has significantly increased (from 10 to 15 companies), and the amount of assets also registered a significant increase of 14.4%.** Despite the apparent rush of this type of intermediaries on the credit market, they still have an insignificant share in the total assets of the financial system and in GDP (0.2% each). The rapid loans' extensions (at a very high price) and evidently more lenient credit standards are the main traits of these financial institutions, through **which they are trying to emerge as a significant competitor in the domestic credit market**. The increase of the assets of financial companies in 2016 is mostly due to the increased short-term claims from

<sup>134</sup> Source: Ministry of Finance.

<sup>135</sup> According to the regulations, the turnover tax in the concluded leasing contracts of immovable objects is paid twice: by the leasing company when purchasing the subject of the leasing, and by the leasing beneficiary after the expiration of the leasing contract and when transferring the property ownership.

<sup>136</sup> In 2015, total assets decreased by 20.9%.

<sup>137</sup> In 2015, the share of leasing companies' assets in the assets of non-depository financial institutions was 5.1%, whereas the share in the total assets of the financial system was 0.7%.

<sup>138</sup> Data on GDP for 2015 are preliminary, and data for 2016 are estimated.



extended loans, factoring and issued credit cards (which register an annual growth of 19.5%), whereas on the liabilities side, the growth of the short-term liabilities from loans and credits (42.3%) is more significant (Annex no.16). **The capitalization ratio of financial companies is high and amounts to 37.1% (44.3% in 2015).** Short-term liabilities are fully covered with short-term assets (around 150%), where cash and cash equivalents have a share of around 18%, which points to a **solid liquidity** of these companies. Similar to the leasing sector, in the financial companies also, there are not enough available data for credit risk exposure<sup>139</sup>, but **the more significant annual growth of impairment costs of active balance sheet claims points to an increase of the risk level** of the credit portfolio in these institutions (in 2016, impairment costs of active balance sheet claims in financial companies increased by seven-times, compared to the annual growth of the assets of these companies by 14.4%) (Annex no.17).

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<sup>139</sup>Ministry of Finance is a competent regulatory and supervisory authority of the financial companies in the Republic of Macedonia.

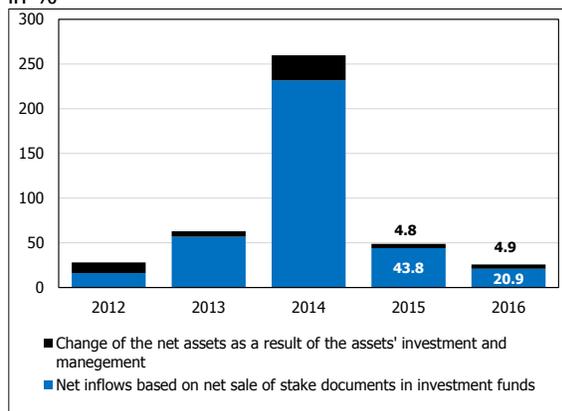
## 7. Investment funds

The significance of investment funds<sup>140</sup> for the Macedonian financial system in 2016 was modest. Despite the upward trend of their share in total assets of the financial system, it was small and equaled barely 0.7%. Investment funds reported positive yield (weighted rate of return) throughout the year, particularly debt and equity (share) funds. The index of the movement of prices of unit documents in open-end investment funds (MOFI) increased during 2016.

Investment funds<sup>141</sup> are the smallest segment among institutional investors. However, their share in total assets of non-banking institutional investors has been steadily increasing, approaching the share of life insurance companies. In 2016, the assets<sup>142</sup> of

Chart 85

Growth structure of net assets of investment funds in %



Source: Securities and Exchange Commission (SEC)

open-end investment funds continued to grow, but at a slower pace than in the previous year. Net inflows from sale and withdrawal of investment fund units during the year were generators of the growth of open-end investment funds' assets, with a share of 80.7%. Much smaller contribution to the growth of open-end investment funds' assets was made by investments in and management of the funds' assets. Moreover, amid unchanged number of investment funds<sup>143</sup>, the growth rate of the funds' assets was almost halved (from 47.8% as of 31 December 2015 to 25.7% as of 31 December 2016). This was due to the smaller net inflows from sale of unit documents<sup>144</sup>, as a result of the lower willingness of domestic investors to take on risks as the main investors in the funds. Also, the net assets<sup>145</sup> of these

funds registered lower growth rate (25.8% in 2016, compared to 48.6% in 2015), which, in addition to the smaller net inflows, was also due to the funds' liabilities<sup>146</sup>, which grew by 18.7% annually. Cash funds<sup>147</sup> continued to account for most of the total value of investment funds' assets, with a share of 73.4%<sup>148</sup>.

<sup>140</sup> The analysis in this section of the Report does not include private investment funds and private funds management companies, since the Law on Investment Funds (Official Gazette of the Republic of Macedonia No. 12/2009, 67/2010, 24/2011, 188/2013, 145/2013 and 23/2016) does not require supervision of private funds, i.e. of the companies authorized to manage private funds, or an obligation for regular reporting to the appropriate authority in the Republic of Macedonia.

<sup>141</sup> Considering the absence of closed-end investment funds in the Republic of Macedonia, the entire analysis in this section of the report refers to open-end investment funds and companies that manage them.

<sup>142</sup> As of 31 December 2016, the assets of the investment funds amounted to Denar 3,624 million, which is Denar 742 million more compared to the previous year.

<sup>143</sup> In 2016, thirteen open-ended investment funds operated in the Republic of Macedonia. In January and April 2017, the Securities and Exchange Commission issued approvals for the establishment of two more open-end investment funds.

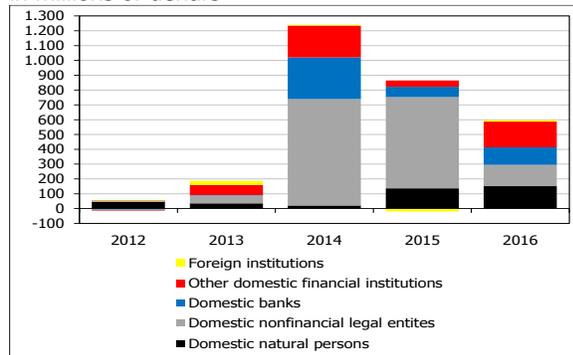
<sup>144</sup> The net inflows from the sale of unit documents in 2016 were lower by Denar 247 million or by 29.2% compared to the previous year.

<sup>145</sup> Net assets of investment funds are obtained by reducing the value of fund's assets by the value of its liabilities.

<sup>146</sup> The funds have liabilities to fund management companies, deposit-taking banks, liabilities based on allowed costs of the funds and other costs. These liabilities exclude net assets of the holders of redeemable units.

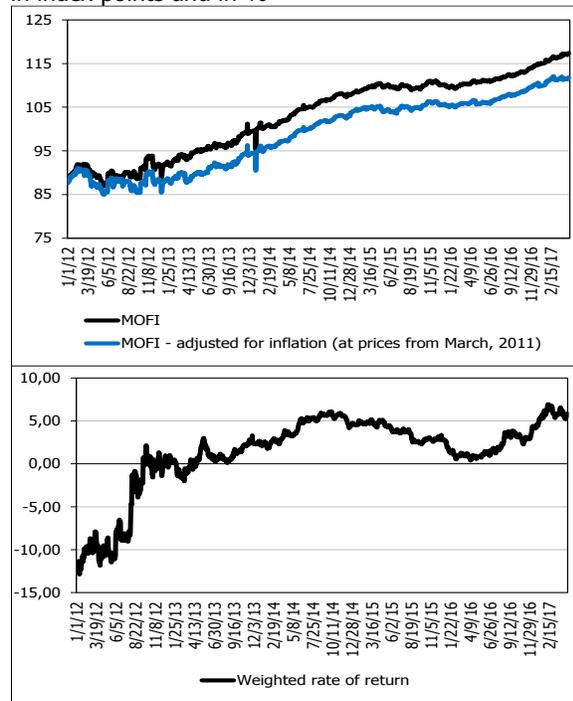
<sup>147</sup> Cash funds are open-end investment funds which invest funds in instruments that can quickly and easily be turned into cash, mainly deposits, and less into government securities. The investment strategy of these funds includes investing in short term

**Chart 86**  
Structure of net inflows from transactions with unit documents  
in millions of denars



Source: Securities and Exchange Commission (SEC)

**Chart 87**  
Movement of MOFI (up) and of the weighted annual rate of return of open-end investment funds (down)  
in index points and in %



Source: Website of the Macedonian Stock Exchange and National Bank calculations.

In 2016, investment funds also demonstrated vigilance when investing assets, especially cash funds. Namely, they invested most of the assets in deposits in domestic banks<sup>149</sup>, which on annual basis were higher by Denar 248 million, or by 14.9%. In addition, shares issued by foreign joint stock companies also increased (by Denar 134 million or by 40.1%), and units and shares from domestic investment funds (93.8% of them belong to cash funds) appeared for the first time among equity financial instruments.

**The largest trade in investment funds' units<sup>150</sup> was further registered in documents owned by domestic entities, despite their decrease in 2016.** The reduced trade in unit document in the investment funds decreased the net inflows from transactions with unit documents by 29.2% compared to the previous year. The net inflows from sale of unit documents in 2016 arise almost equally from the domestic natural persons, domestic non-financial legal entities, domestic banks and other domestic financial institutions.

without a pre-defined period of investment. Domestic and foreign institutional and individual investors who are allowed to invest in accordance with the regulation can be holders of units in these funds.

<sup>148</sup> For more details about the assets of open-end investment funds and the structure of assets of certain categories of open-end investment funds by investment strategy and by type of invested financial instrument, see Annex 37 to this Report.

<sup>149</sup> More than 93% of the time deposits up to one year of investment funds with domestic banks are funds of cash funds, and the remainder of 7% are funds of debt and equity investments funds.

<sup>150</sup> The turnover of investment funds' units includes inflows of funds (payments by unitholders) and outflows (payments to unitholders) to/from open-end investment funds.

**In 2016, MOFI<sup>151</sup> increased**, and its value at the end of 2016 compared to the last day of 2015 was higher by 4.1 %. The weighted nominal annual rate of return on open-end investment funds<sup>152</sup> was moving upward for the most part of the year and was positive throughout the year. Thus, on 31 December 2016, the weighted annual rate of return was 4.4%. Debt investment funds registered the highest annual weighted rates of nominal return in 2016 of 11.7% at the end of the year (5.4% at the end of 2015)<sup>153</sup>. On the other hand, returns generated by equity (share) funds, whose nominal annual rate of return grew from 1.2% at the end of 2015 to 9.1% at the end of 2016, also registered a significant increase. The annual weighted rate of nominal return of cash funds remained almost unchanged, compared to the end of the previous year.

The information ratio - IR of each analyzed fund has been increasing since 2014<sup>154</sup>. This rate is investors' tool select the assets in which they invest. An increase in the information rate suggests that the choice of equity instruments in which it was invested in 2016 improved (and this trend continued in the first few months of 2017).

Table 10  
Information ratio - IR  
in %

	Fund 1	Fund 2	Fund 3	Fund 4	Fund 5	Fund 6
2014	-175.2	-150.1	-166.3	-82.5	-126.9	-87.8
2015	-37.6	-81.9	-85.8	-14.2	-63.0	-36.7
2016	25.6	-19.8	-13.0	105.9	-28.4	11.6

Source: Website of the Macedonian Stock Exchange, MSCI index and NBRM calculations.

Note: The information rate for each investment fund for each year is calculated as the ratio between the three-year average active return of the fund and the standard deviation of the active return of the last three years. The active return of the funds is the difference between the nominal annual return, by fund (calculated using the selling price of a unit) and the annual change in the selected benchmark index in the MSCI World Index case. The funds for which the calculation was made are equity (share) funds, that is, funds that, according to their investment strategies and policies, can invest and actively manage portfolios of equity financial instruments.

## 8. Domestic financial markets

**In 2016, the significance of the domestic financial markets for the financial flows in the country and for the manner and conditions of financing the real sector remained at a relatively modest level, despite the fact that the banks had**

<sup>151</sup> The index for the movement of prices of unit documents in open-end investment funds (MOFI) is designed by the National Bank, as a price index weighted by the value of the net assets of individual funds. MOFI is constructed as a weighted average of the value of the individual indices for the movement in the prices of unit documents in each fund. Such calculated MOFI value is corrected by the so-called correction factor determined at each change in the number of funds which ensures time comparability of the index. 25 March 2011 is taken as a base for MOFI, with value of 100, which is the date when the data necessary for its calculation became available.

<sup>152</sup> Calculated as the weight of nominal annual rates of return on each type of investment funds (cash, equity and debt). The nominal annual rate of return is calculated using the weighted average daily selling price of units of each investment fund, grouped by type. The weight is the share of each fund in the net assets of the investment funds.

<sup>153</sup> Holding of units in debt investment funds bears more secure and regular income, as these funds are less susceptible to the everyday changes on the capital market.

<sup>154</sup> Due to the availability of data required for the calculation, the information ratio (IR) is calculated only for open-end investment funds that have been operating in the Republic of Macedonia for more than five years. All six funds for which an assessment ratio was calculated are equity (share) funds.

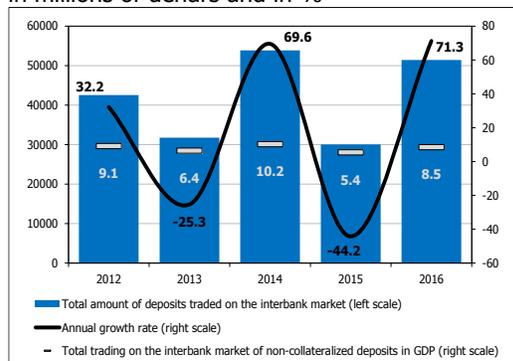
significantly higher activity on the money markets, which is largely explained by the reduced liquidity in the first half of the year. Traditionally, the interbank market of unsecured deposits is the segment that reported the highest turnover of all financial markets. Moreover, in spite of the growth in the turnover and the frequency of trading on the unsecured deposit market, this market segment was generally aimed at meeting the liquidity needs in the shorter term, which emphasizes the significance of the refinancing risk. In 2016, the repo market continued registering decrease in the both concluded transactions and volume of trading. Positive developments in the secondary trade in securities (over-the-counter markets) were mainly prompted by increased trade in CB bills and less by trade in treasury bills. In 2016, the value of new long-term debt securities on the primary capital market declined, mainly due to the reduced issuance of government bonds, while secondary trading was higher than the previous year.

The foreign exchange market and the role of the National Bank are crucial for maintaining stable exchange rate of the denar against the euro not only in terms of the turnover of certain segments of the financial market in the country, but also for the maintenance of the economic balance and stability in the financial system. The foreign exchange market turnover in 2016 was at a significantly high level (77% of GDP), compared to other financial market segments, which was particularly present in the second quarter of 2016, when the households' preferences to hold foreign currency instead of denars significantly increased.

### 8.1 Uncollateralized deposit market

In 2016, the significance of the interbank market for unsecured deposits, which is the basis for the functionality of all other financial market segments, further increased. The total trade in unsecured deposits reached Denar 51,447 million, which is almost twice as high as in 2015. The increased activities of the banks for trading on this

Chart 88  
Trading volume and annual growth of the interbank unsecured deposit market, and its share in GDP in millions of denars and in %



Source: NBRM.

market were particularly evident in the second quarter of 2016 due to the increased liquidity needed for the withdrawal of deposits by households caused by the unstable political situation in the country. Increased unsecured deposit market turnover rose its share in GDP from 5.4% in 2015 to 8.5% in 2016<sup>155</sup>. Despite the increased turnover of the unsecured interbank deposit market, it is still thin, with relatively small amounts of traded deposits, mostly in the short term (overnight). This in turn poses a modest systemic risk for domestic banks, i.e. low exposure of banks to contagion risk, i.e. spillover of liquidity problems from one bank to another.

<sup>155</sup> The GDP data was taken from the press release of the State Statistical Office of the Republic of Macedonia of 9 March 2017, for 2015 it is preliminary data, and for 2016 the data is estimated.

In 2016, the interest rate movements on the unsecured deposit market in the Republic of Macedonia were influenced by changes in the interest rate on CB bills as the main monetary instrument. Namely, due to the April developments, and in order to maintain the foreign exchange rate stability, in May 2016, the CB bill interest rate was increased by 0.75 percentage points (from 3.25% to 4.0%), where banks moderately increased the indicative interest rate on interbank trade in deposits (SKIBOR<sup>156</sup>) and the interbank interest rate on overnight transactions (MKDONIA<sup>157</sup>). The stabilization of the economic agents' expectations and the significant improvement of banks' denar liquidity created conditions for gradual normalization of the monetary policy. Thus, in December 2016, the CB bill interest rate was cut (from 4.0% to 3.75%), which caused gradual and moderate decrease in the interbank interest rate - SKIBOR, while the interbank interest rate on overnight transactions - MKDONIA returned to the level of 1.0%. In 2016, certain changes were registered in the policy rates of international interbank markets. After FED's decision to increase the key interest rate in December 2015 and the expectations for another increase (that took place in December 2016 and March 2017), LIBOR<sup>158</sup> for US dollars increased during 2016. In contrast, EURIBOR<sup>159</sup> and EONIA<sup>160</sup> remained in the zone of negative values, which even further deepened. European Central Bank sent signals for additional measures to further loosen the monetary policy, which during March 2016 were translated into decisions (cut in the interest rate on the main re-financing operations from 0.5% to 0.0%, on the main monetary policy instrument - overnight deposit facility from -0.30% to -0.40% and on the overnight credit facility from 0.30% to 0.25%). Given this interest rate policy setup, in 2016, the interest rate spread between market indicative interest rates in the Republic of Macedonia and in the euro area widened in the first half of 2016, while in the second half of the year, it slightly narrowed.

The spot-curve movement of the interbank interest rate on the deposit market - SKIBOR indicated an increase in the interest rates on the interbank market in 2016. The SKIBOR spot yield curve had a small positive slope, which has seen a downward trend in the past few years - a gradual correction, i.e. it showed expectations for an increased uncertainty in the economy. The gradual strengthening of risk perceptions in the economy (related to the domestic political developments and the risks from external environment) was confirmed by the movements of the slope of the implicit forward curves<sup>161</sup> of SKIBOR, which in 2016 showed an increase in forward interest rates<sup>162</sup> for all three maturities. Given that forward yield curves

<sup>156</sup> SKIBOR (Skopje Interbank Offer Rate) - interbank interest rate for selling unsecured denar deposits, calculated as an average of the quotations of reference banks, for the following standard maturities: overnight, one week, one month, three months, six months, nine months and twelve months.

<sup>157</sup> 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.

<sup>158</sup> LIBOR for US dollars (London Interbank Offered Rate) - interest rate at which reference banks on the London money market are ready to sell US dollar deposits to other reference banks and it is calculated using the average of the quoted interest rates of selected banks.

<sup>159</sup> EURIBOR (Euro Interbank Offered Rate) - interest rate at which reference banks on the euro area money market are ready to sell deposits to other reference banks and it is calculated using the average of the quoted interest rates of selected banks.

<sup>160</sup> EONIA (Euro OverNight Index Average) - interest rate on the euro area money market calculated as a weighted average of the interest rate on all overnight transactions where reference banks are deposit sellers. The interbank interest rate EONIA fluctuates in the spread between the marginal lending and deposit rates of the ECB.

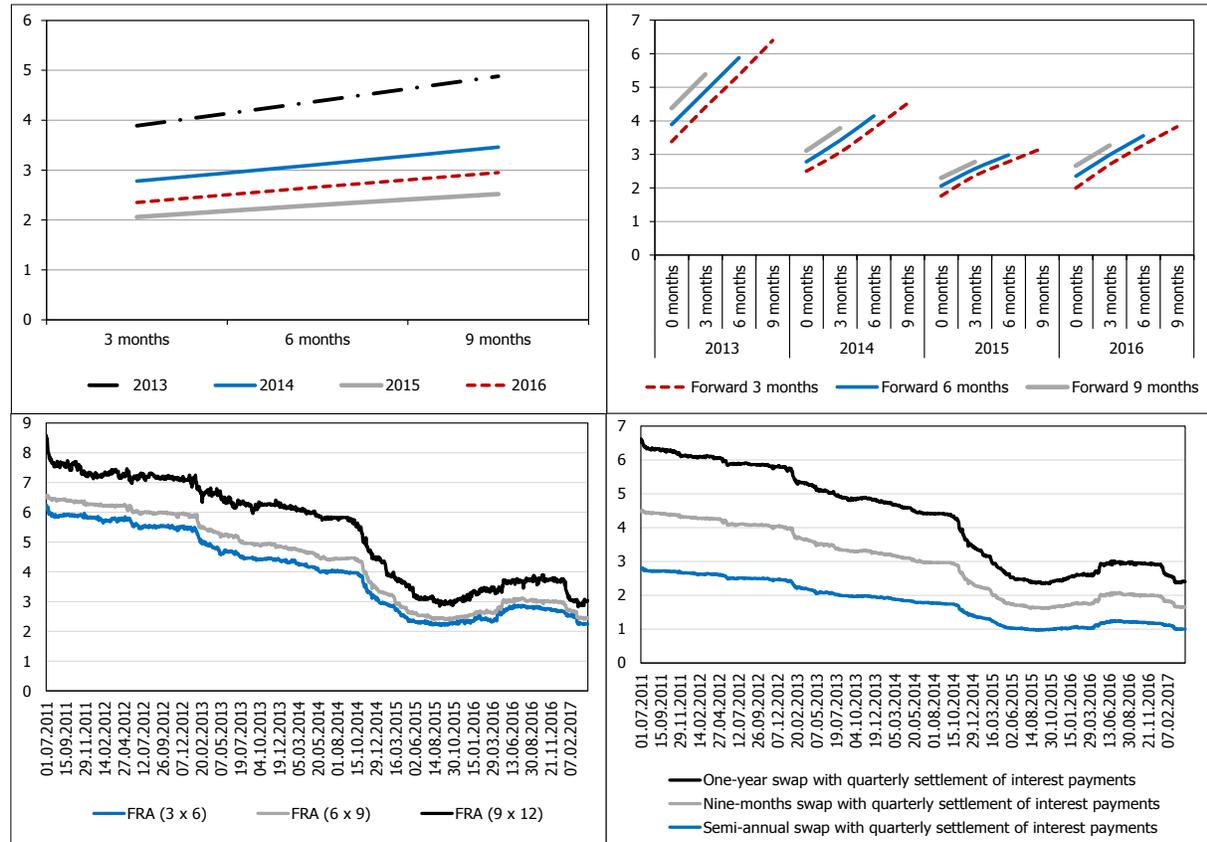
<sup>161</sup> Forward-forward yield curve is the ratio between the forward rates and the corresponding periods to maturity.

<sup>162</sup> Forward interest rates are calculated using the current spot rates through mathematical principles that reflect the amount of rates which do not allow for arbitrage and which relate to an expected period in the future. The general formula used to calculate forward-forward rates is as follows:  $F_{m_1, m_2} = \frac{(1 + \text{spot for } m_2)^{m_2}}{(1 + \text{spot for } m_1)^{m_1}} - 1$ , where  $m_1$  is the number of months in the future when the forward-forward rate is calculated (shown on the horizon axis of Chart 89), and  $m_2$  is the maturity in months of the forward-forward (three, six or nine months). The current spot yield curve should incorporate all available current information, both economic

Chart 89

Spot (upper left) and implicit forward (upper right) curve on the interbank interest rate on the deposit market - SKIBOR and movement of forward rates on 3-month SKIBOR (down left) and forward swap rates on SKIBOR with quarterly settlement of interest payment (down right)

in %



Source: NBRM internal calculations.

Note: Forward rate agreement for 3-month SKIBOR - an agreement between two parties wishing to protect themselves against any future interest rate movements (the buyer to be protected against any increase, and the seller from any interest rates reduction in the future) constitutes a forward rate agreement SKIBOR when a party pays a fixed interest rate and receives a variable interest rate (i.e. when it has a long position of SKIBOR), while the counterparty receives a fixed interest rate and pays a variable interest rate (i.e. when it has a short position of SKIBOR). FRA is designated as FRA (X x Y), where X and Y are designations of the number of months, where X signifies the period (in months) in which the agreement expires, and Y-X indicates the maturity of SKIBOR (in months) to which the SKIBOR refers (for example: FRA (9x12) denotes FRA of SKIBOR of 3 months (obtained as 12-9), which is settled in 9 months (X = 9)). The forward interest rates are calculated using the standard calendar number on the days of the month and actual/360), which is used to calculate SKIBOR (to simplify, the calculations assume that each month has 30 days, i.e. actual = 30). Forward-forward curves begin with spot rates for each appropriate maturity, followed by the forward-forward rates calculated for each maturity. The implicit swap rates for SKIBOR are rates that could, without arbitration, be used to conclude interest rate swaps between two contractual parties, with a future date of swap submission and future periodic settlement of interest payments. A party will pay a fixed rate - an estimated swap rate, the movement of which is presented on the chart, and the counterparty will pay SKIBOR as the reference variable interest rate at which the swap transaction was concluded.

and political, from domestic or external sources, to show the consensus of market participants (for interbank interest rates - consensus among banks). This current information is, in fact, incorporated in the calculation of the forward rates and for obtaining forward yield curve.

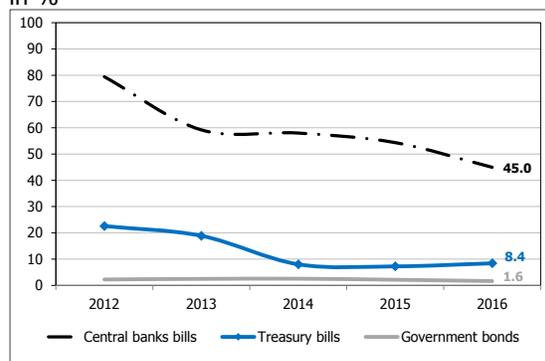
are used to perceive the market expectations (banks) for the level of interest rate in the future, the rectification of forward yield curves signals that banks will in the future expect low inflation for the analyzed period, which actually corresponds with the minimum inflation rates. It should be noted that forward interest rates are not a prediction of the level of future spot rates<sup>163</sup>, which means that the banks' expectations at the given moment of observing forward yield curve does not have to be accurate.

## 8.2 Primary market

**The main financial instruments issued on the primary market in the Republic of Macedonia include short-term securities of the National Bank (CB bills - available only for banks) and government securities available for the investment public (treasury bills and government continuous and structural bonds). The private sector shows no interest to finance itself from financial markets, which is why the issuance of non-government bonds and shares is rare and incidental. In 2016, domestic banks and pension funds were the main investors in issued government securities. Hence, primary market movements have great significance for the performance of these institutional segments of the financial system. In 2016, the bid-to-cover ratio of the primary market instruments was generally balanced. Slightly more pronounced oscillations in the bid-to-cover ratio of the primary market instruments occurred in the fourth quarter of 2016, when the offer of government securities was reduced, given the previously issued Eurobond on the international markets.**

Besides the National Bank<sup>164</sup> interventions on the foreign exchange market and the increase in the CB bill interest rate by 0.75 percentage points (from 3.25% to 4.0%), the National Bank also reduced the offered amount of CB bills from Denar 25,500 million to Denar 22,000 million, thus offsetting the reduced liquidity of banks in that period.

Chart 90  
Share of realized amount of each primary market instrument in GDP  
in %



Source: NBRM.

The stabilization of economic agents' expectations and the increase in deposits in the banking system, in December 2016, January and February 2017, urged the National Bank to cut the policy rate on three occasions by 0.25 percentage points, restoring it to 3.25%, at the level prior to the April events and turbulence on the deposit and foreign exchange market<sup>165</sup>. As a result, the offered amount of CB bills during 2016 was by 8.8% lower compared to 2015, and the average monthly demand of the banks was lower by 26.4%.

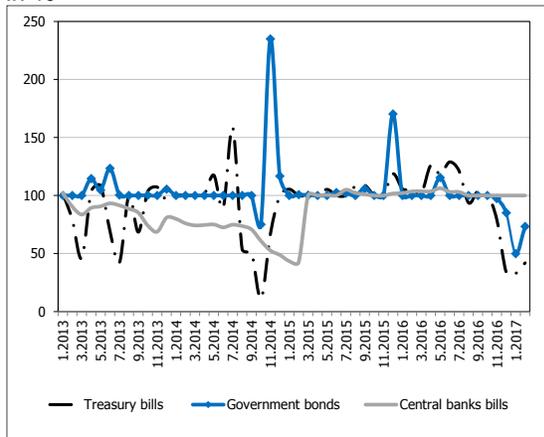
<sup>163</sup> For a period of three, six or nine months, to which the respective forward yield curves relate, there will be new information and events that will change the market participants' perceptions and cannot be known in the calculation of forward interest rates.

<sup>164</sup> For more details on monetary policy and undertaken policy measures see the Annual Report of the NBRM in the monetary instruments section.

<sup>165</sup> The changes in CB bills interest rate were followed by multiple increases in the offered amount of CB bills as follows: in December 2016 - an increase from Denar 22,000 million to Denar 23,000 million, in January 2017 - from Denar 23,000 million to Denar 25,000 million, and in March 2017 - to Denar 30,000 million.

In 2016, the total amount of issued **treasury bills** (Denar 50,990 million) was higher by Denar 10,619 million, or by 26.3%, compared to the last year. Thus, the banks' investments in treasury bills also increased annually (by Denar 1,309 million or 5.7%). The structure of total treasury bills remained almost unchanged, dominated by 12-month bills in domestic currency<sup>166</sup>. Treasury bills auctions were held with volume tender and fixed interest rate set by the issuer, which in 2016 ranged from 1.5% to 2.6%, depending on the maturity and the currency component of the offered treasury bills.

Chart 91  
Bid-to-cover ratio, by month  
in %



Source: NBRM.

The government is the most active (currently, the sole) issuer of long-term securities, through the issue of **government bonds**. The newly issued amount in 2016 was lower compared to the previous year. Thus, the new issues of long-term securities made in 2016 totaled Denar 10,958 million, or by Denar 1,057 million or 8.8% less, compared to the previous year. Almost all issued long-term securities were continuous government bonds with different maturities (two, ten and fifteen years), and traditionally, denationalization bonds were issued<sup>167</sup>. The total amount of issued government bonds during 2016 constituted 4.2% of the total government debt as of 31 December 2016, i.e. 11.5% of the central government debt<sup>168</sup>.

In 2016, somewhat more significant movements in the primary capital market were registered in the segment of issuing **equity securities** (Denar 1,111 million, compared to Denar 120 million in 2015), mostly issued by banks. However, the amount of issued equity securities in 2016 was low, making up only 0.2% of GDP. In 2016, there were no new issues of corporate bonds and shares through a public bid<sup>169</sup>.

<sup>166</sup> Almost all treasury bills were issued in domestic currency (93.6%).

<sup>167</sup> Denationalization bonds are securities that are named, denominated in the euros currency and are unlimitedly transferable. The bonds bear an interest rate of 2% per annum, and the nominal value and interest are paid for a period of 10 years. The denationalization bonds of the fifteenth issue were issued on 20 June 2016, in denar equivalent of Euro 12 million.

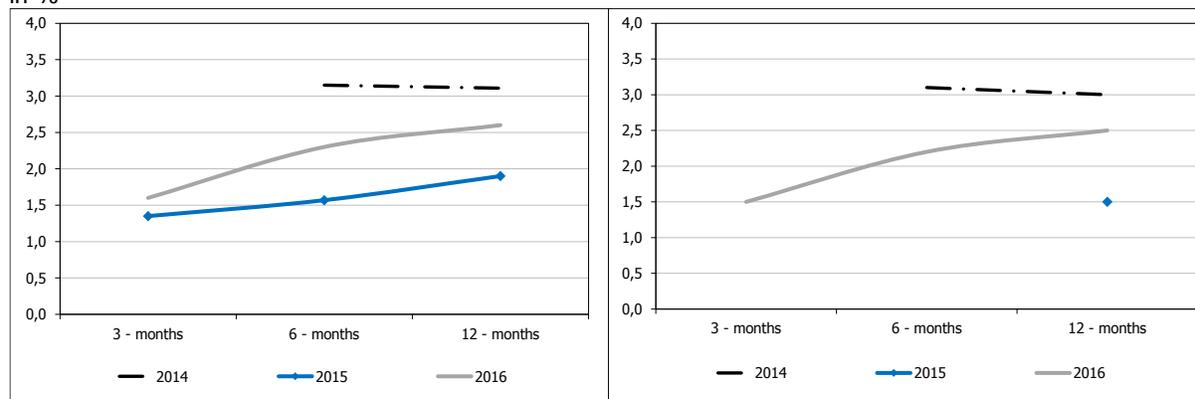
<sup>168</sup> The total government debt includes debt of the central government, public funds and municipalities, and the National Bank debt is not included. Ministry of Finance is the source of data on the total government debt and the central government's internal debt.

<sup>169</sup> In 2016, there was a public offering of corporate bonds of Stopanska Banka AD Bitola, which was not successful.

Chart 92

Interest rate on treasury bills on the primary market set by the issuer, in denars (left) and FX clause (right)

in %



Source: NBRM.

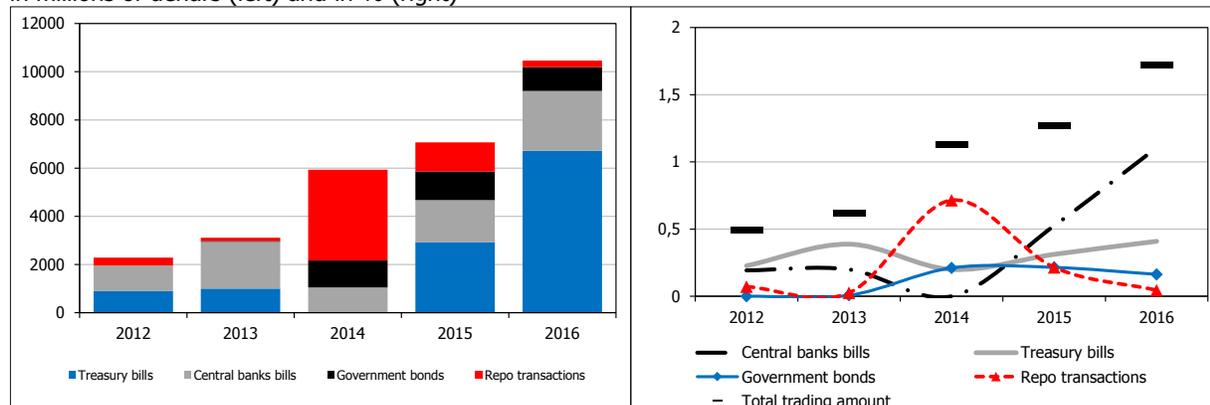
### 8.3 Secondary trade in securities (Over-the-Counter)

**Trade activity of economic agents on the secondary securities market (over-the-counter market) was prompted mainly by the need for liquidity management, and although it showed growth in 2016 (almost double compared to the previous year), it is still relatively modest (1.7% of GDP).** Positive developments in 2016 mostly arise from the increased trading in CB bills, with moderate contribution of trading in treasury bills, generally in the first half of the year. This is due to the fact that the banks participated in CB bills auctions with maximum amounts (based on the share in the denar liabilities of the banking system), and later, during the reserve requirement period they were financed through outright sale of CB bills to other banks. However, despite the increased share of traded amount of short-term securities on the OTC markets in GDP (from 0.8% in 2015 to 1.5% in 2016), this ratio remains very low, reflecting the low activity on the secondary market. Contrary to the upward movements on the secondary market of short-term securities, in 2016, secondary

Chart 93

Traded amount of securities on the OTC markets (left) and share in GDP (left)

in millions of denars (left) and in % (right)



Source: NBRM.

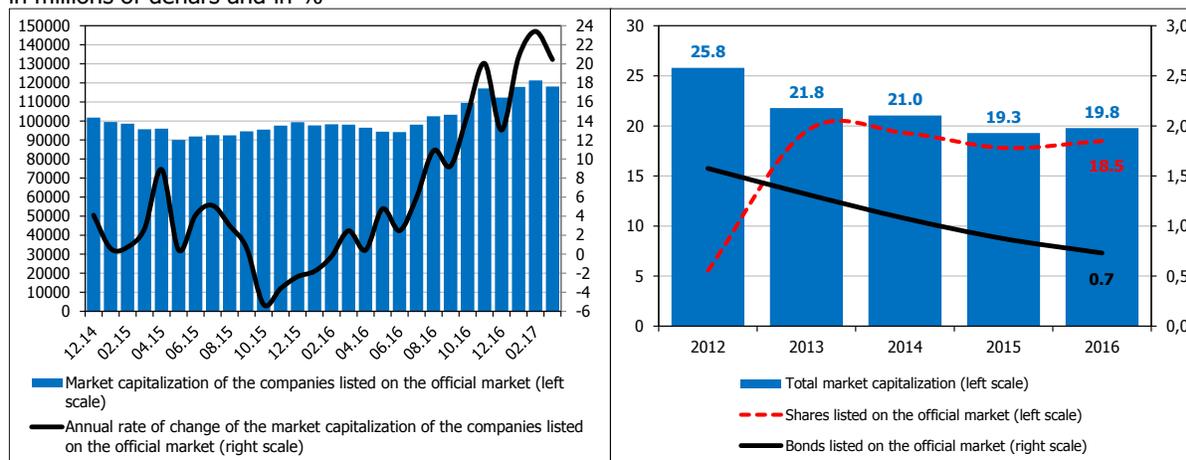
trading in long-term securities (government bonds) declined. Also, the turnover of interbank repo transactions is more than fourfold lower than in the previous year. Banks were not interested in using funds through repo market<sup>170</sup>, so in 2016, the main role of this market was played by transactions between the banks and the National Bank, which in 2016, due to the developments in the second quarter of the year, were almost twice as high as in the previous year. Despite the positive market developments, this market segment is still marked by insufficient liquidity, compared to its potential, which is generally due to the high liquidity in the banking system, as well as giving priority to other instruments in liquidity management.

### 8.4 Secondary trading on institutionalized segments

**In 2016, notwithstanding the increased turnover, the secondary trading on the Macedonian capital market remained low. This market segment continued to be characterized by modest investment alternatives and low liquidity, and low interest of the wider domestic investment public, as well as absence of foreign institutional investors.** In circumstances when the country's environment was strongly influenced by factors of non-economic nature, the turnover from standard trading (stocks and bonds) on the secondary capital market<sup>171</sup> increased and reached Denar 2,332 million, which is an increase of Denar 251 million, or 12.0%, compared with the previous year. This is due to the increased trade in shares, while the annual trade in bonds declined. **However, the significance of the secondary trading in long-term securities in the total financial system, measured through the share of the turnover of the standard stock market trading in GDP,**

Chart 94

Market capitalization of listed companies on the official stock market (left) and its share in GDP (right) in millions of denars and in %



Source: Website of the Macedonian Stock Exchange and National Bank calculations.

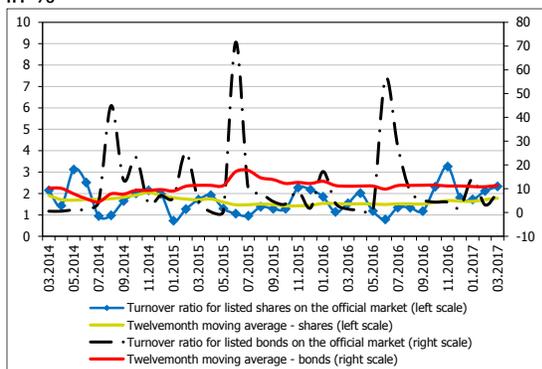
Note: The total market capitalization covers the shares listed on the official market, the shares on the market of joint stock companies with special reporting obligations and bonds listed on the official market.

<sup>170</sup> Since the establishment of the repo market in the Republic of Macedonia in 2005, this market segment has reported extremely low activity. By 2012, transactions included only National Bank's monetary interventions with the banks, after which repo-transactions have been concluded among banks.

<sup>171</sup> The turnover in standard trading does not include block transactions, turnover on public stock exchange auctions and public offerings of securities.

remained very low of 0.4%. The increased stock market turnover had a corresponding influence on the movements of the stock market indices<sup>172</sup>. Namely, at the end of 2016, the Macedonian MBI-10<sup>173</sup> reached 2,134.91 index points, which is an increase of 16.5% compared to the level at the end of the previous year. In 2016, MBI-10 did not show high volatility and generally ranged within its average value. Domestic legal entities<sup>174</sup> continued to be the only net buyers of securities, and thus the major long-term investor in the capital market in the Republic of Macedonia.

Chart 95  
Securities trade ratios in standard trading in %



Source: Website of the Macedonian Stock Exchange and National Bank calculations.

Note: The larger deviations of the turnover index of bonds listed on the official market from its twelve-month moving average relate to the months when the denationalization bonds were issued.

The share of **market capitalization** of securities listed on the official market of the Macedonian Stock Exchange in GDP slightly increased in 2016. As of 31 December 2016, the market capitalization of shares of companies listed on the Macedonian Stock Exchange was Denar 112,314 million, which is an increase of Denar 12,955 million, or 13.0% compared to the same period in the previous year. The market capitalization of bonds decreased on an annual basis (by 9.1%), mainly due to the fact that the denationalization bonds are depreciating bonds (i.e. on a regular annual basis, 10% of their principal is due). The project for regional linking of the Macedonian Stock Exchange with other stock markets in the region in the long run should provide a positive impact on the liquidity and the trading volume as well as more investment opportunities for the domestic investors abroad.

In 2016, the value of **turnover indicators of shares and bonds listed** on the official stock market generally ranged within their twelve-month moving average. However, the value of these indicators was relatively low, which confirms the limited liquidity of the Macedonian secondary capital market (which in turn prevents rapid and easy sale of securities), as well as the survival of some **brokerage houses**<sup>175</sup> on the market, amid absence of sufficiently attractive investment alternatives.

<sup>172</sup> The methodologies for calculating indices and information on their structure are available on the website of the Macedonian Stock Exchange - <http://www.mse.mk/en/>

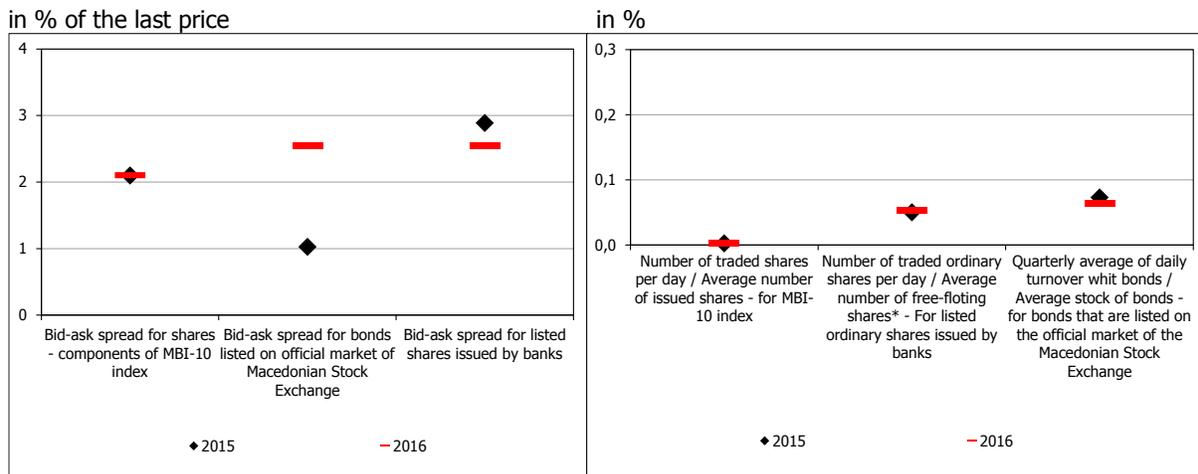
<sup>173</sup> On 15 December 2016, the MBI-10 index was revised, and as of 3 January 2017, the index includes: Alkaloid AD Skopje; Stopanska Bank AD Skopje; Granit AD Skopje; Komercijalna Bank AD Skopje; Makpetrol AD Skopje; Stopanska Bank AD Bitola; Macedonian Telecom AD Skopje; Makedonijaturist AD Skopje; NLB Bank AD Skopje and Ohridska Bank AD Skopje.

<sup>174</sup> For more details about the volume and annual change in the stock exchange turnover in standard trading, its share in GDP, structure of the total turnover of the stock exchange by type of investors, as well as the concentration ratio on the secondary capital market in the Republic of Macedonia, see Annex 41 to this Report.

<sup>175</sup> In 2016, the number of brokerage houses decreased by one. In 2016, brokerage houses reported a loss of Denar 27 million, which is almost three times more than the loss reported for 2015 (Denar 10 million). The total assets of the brokerage houses continued to decline (at the end of 2016 they were reduced to Denar 116 million), same as the capital and reserves of the brokerage houses (down by Denar 35 million, on an annual basis). The total income was by Denar 18 million lower than the income generated in 2015.

Chart 96

Annual average of the bid-ask spread (left) and of the turnover ratio (right) of shares that constitute MBI-10 index, of bonds listed on the official market and of shares issued by banks listed on the official market



Source: Web site of the Macedonian Stock Exchange and National Bank calculations.

\*Shares owned by shareholders that hold more than 5% of the total number of issued shares with voting rights are excluded from the calculation.

Note: The annual averages of the spread between the last bid and ask price are obtained from the weighted average of MBI-10 (the share of trade in each stock in the total trade in stocks is used as a weight), the weighted average for all bonds (the share of trade in each bond in the total trade in bonds is used as a weight) and the weighted average for all stocks issued by banks (the share of trade in each stock in the total trade in stocks is used as a weight) for the dates for which there are quotations.

## 8.5 Foreign exchange market

**In 2016, the total turnover on the foreign exchange market<sup>176</sup> accounted for 77% of GDP, making this segment of the financial market the most significant for the economy as a whole. The turnover on the foreign exchange market in 2016 of Denar 7,615 million<sup>177</sup> was by 4.1% (Denar 300.1 million) higher than the turnover in the previous year.** The movements on the foreign exchange market in the Republic of Macedonia in 2016 were influenced by a series of challenges posed by the environment. The response of the public, primarily natural persons, to the increased uncertainty from the political situation in the country, caused pressure on both the foreign exchange and the currency exchange market (conversion of denar deposits into foreign currencies, increased demand for foreign currency cash from natural persons, etc.). In order to maintain the stability of the denar exchange rate against the euro<sup>178</sup>, in April and May 2016, the National Bank intervened on the foreign exchange market with foreign currency sales and supplied the banks with foreign currency liquidity in the amount of Euro 129.1 million, which is 5.3% of the average amount of foreign reserves during 2016. In the second half of the year, the uncertainty of the economic

<sup>176</sup> The total turnover on the foreign exchange market encompasses the banks' transactions with the companies and natural persons and the interbank transactions, including the net-interventions of the National Bank with the market makers.

<sup>177</sup> This turnover on the foreign exchange market includes banks' transactions with companies and natural persons, and interbank transactions, and excludes net-interventions of the National Bank with the market makers.

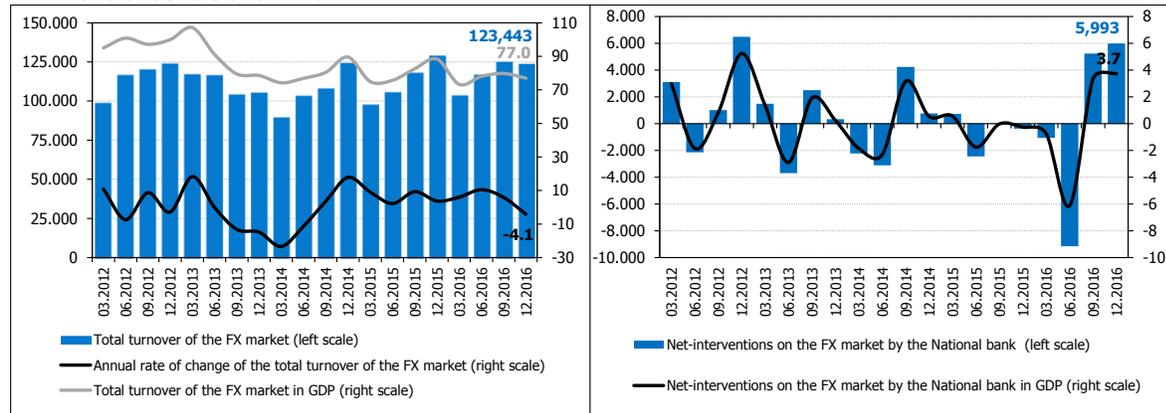
<sup>178</sup> In 2016, the nominal exchange rate of the denar against the euro averaged 61.59 denars per euro (only 0.01 denars less than the previous year). Also, one US dollar was exchanged for 0.19 denars more, one British Pound was exchanged for 1.36 denars less and one Swiss Franc was exchanged for 9.39 denars less, compared to 2015.

agents decreased, which resulted in interventions for purchase of foreign currencies, which exceeded the amount of sales in the first half of the year. Thus, despite the unfavorable effect of the political situation and the pressures on the foreign exchange market, the interventions of the National Bank on the foreign exchange market in 2016 resulted in net purchase of foreign currencies in the amount of Euro 16.7 million (0.7% of the average foreign currency reserves during the year), which is an indicator of the limited nature of these movements and confirmation that they were not based on economic fundamentals, but rather represented a psychological response of the economic agents. The National Bank’s response, aimed at stabilizing the expectations and strengthening the confidence of economic agents, confirms its commitment to implementation of the monetary strategy for targeting stable nominal exchange rate of the denar against the euro.

Chart 97

Total trade and share of the NBRM trade on the foreign exchange market in GDP (left) and NBRM net interventions on the foreign exchange market and their share in GDP (right)

in millions of denars and in %

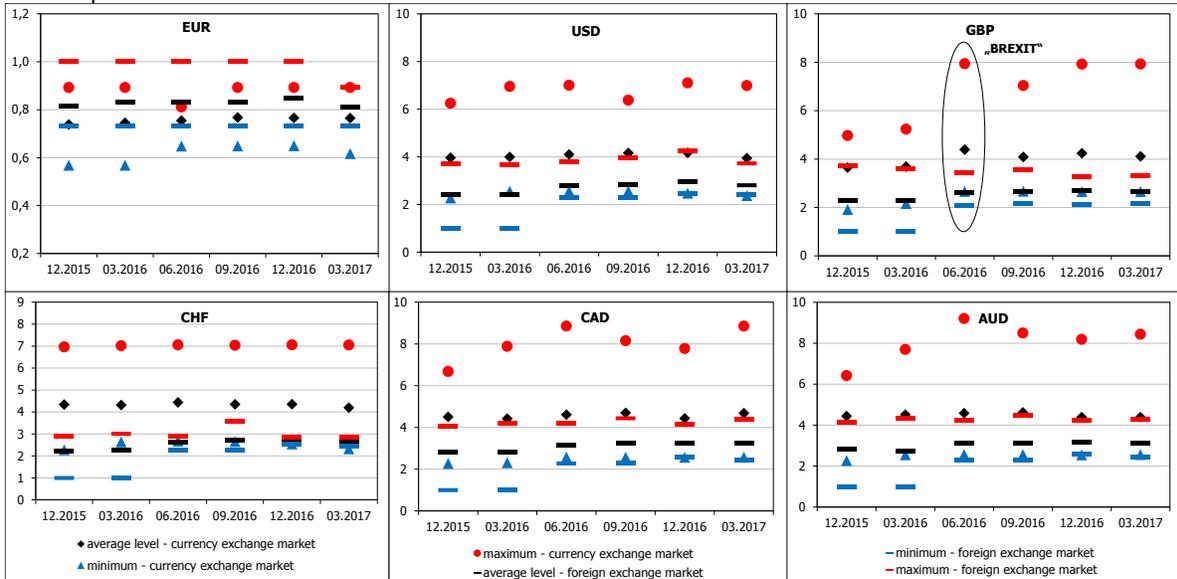


Source: NBRM.

Note: NBRM net interventions on the foreign currency market include NBRM transactions with market makers.

The monetary strategy for maintaining a stable exchange rate also results in relatively low bid-ask spread on the foreign exchange market and the domestic currency exchange market for the euro. In contrast, significant spreads are noticed against other major currencies, which indicates a more modest liquidity (for the foreign exchange market) and/or availability (for the currency exchange market) of other currencies. The average spread on the foreign exchange (non-cash) market is lower than the average spread on the currency exchange market (cash) in the range of 1.1 to 2.0 percentage points, depending on the currency, which is actually an indicator for the additional margin that banks incorporate in the prices of currencies to cover cash management costs.

**Chart 98**  
 Bid-ask spread on the currency exchange market and the foreign exchange market of the banks in the Republic of Macedonia  
 in basis points



Source: NBRM and websites of banks.

Note: The calculation of bid-ask spread on the currency exchange market uses publicly available data of all banks in the Republic of Macedonia, except the Macedonian Bank for Development Promotion, and on the foreign exchange market, only of the market makers.



## **ATTACHMENTS**

## Annex 1 Survey of banks' risk perceptions

The survey conducted by the NBRM of banks' risk perceptions seeks to comprehend the perceptions of banks as leading institutions in the financial system of the Republic of Macedonia of the main sources of bank risks, i.e. the risks that they currently assess as significant and present.

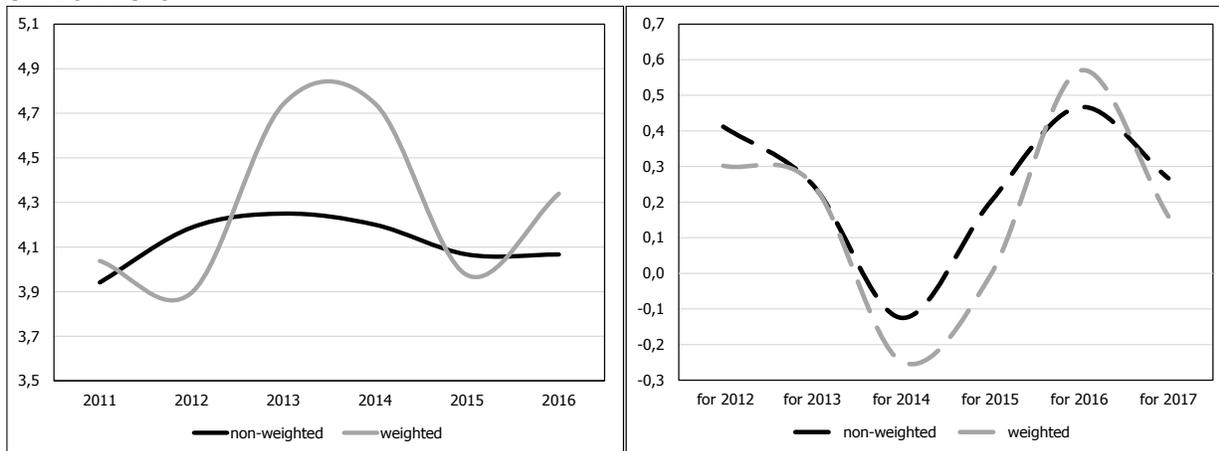
The survey divides the risks in five groups. Those are risks arising from: macroeconomic environment, financial markets, banking sector, strategy of the bank or the banking group and amendments to the regulatory framework. Moreover, the survey requires from banks to adequately rank risks that they faced with in 2016 by their significance and to express their expectations for the next calendar year. Banks assess the significance level of each of the five groups of risks in the range from 1 to 5 (1 means that the risk group is of little significance for the bank, and 5 means that that risk group is extremely important for the bank at the time), while expectations are expressed by qualitative assessment of the risk direction (growing "+1", decreasing "-1", or unchanged "0").

The summarized results of the survey conducted in late 2016 are given below.

### I. Banks point out the risks arising from the macroeconomic environment as risks of the utmost significance and impact on the operations.

Chart 99

Current levels (left) and expectations (right) of risks arising from the macroeconomic environment



The share of the banks' assets in the total assets at a level of the banking system is used as a weight for calculation of the weighted average grade.

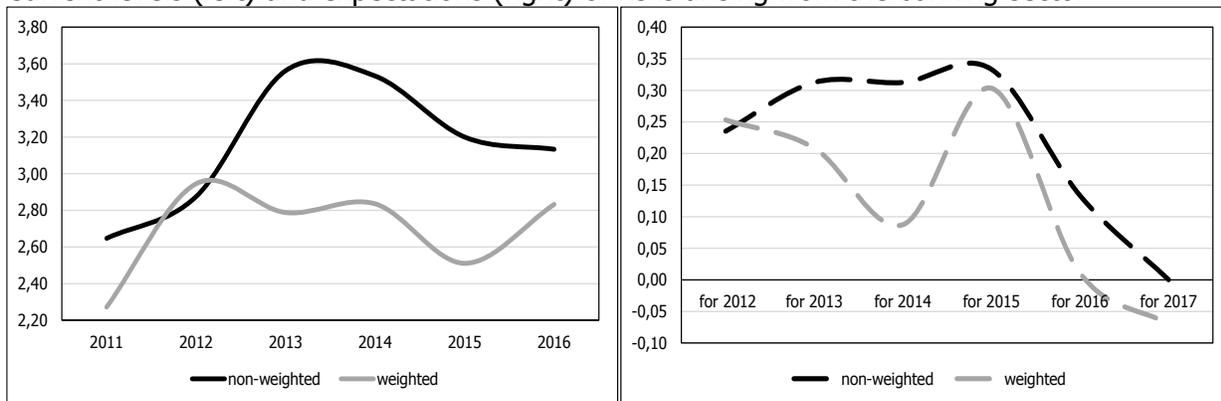
This year again, banks indicated the domestic political crisis at the zenith of the risks arising from macroeconomic nature, which, according to them, caused uncertainty among economic agents and resulted in pressures on the foreign exchange market, offset only in the third quarter of 2016. The most important risk arising from the external environment is the slow recovery of the global economy, coupled with the risks posed by the Brexit. All this, according to the banks, contributed to a more modest annual economic growth.

Additionally, the rapid upward trend in public debt and its sustainability was pointed out by most banks as very important among the risks arising from the macroeconomic environment, given the high exposure of the banking sector to the government through the significant amount of placements in government securities.

Thus, the banks' expectations (in the survey conducted at the end of 2015) for the increase in the significance of the risks from the group of macroeconomic risks were realized in the next, 2016. For 2017, banks expect repeated increase in the significance of this group of risks, but at a slower pace than the expectation for 2016. According to banks, this would primarily depend on the achievement of political stability in the Republic of Macedonia, which would affect positively the domestic economy. Generally, banks expect the risks arising from the macroeconomic environment to continue to be extremely important, from both domestic and external aspect.

**II. Banks assessed the risks which arise from the banking sector as the second most important group of risks.**

Chart 100  
Current levels (left) and expectations (right) of risks arising from the banking sector



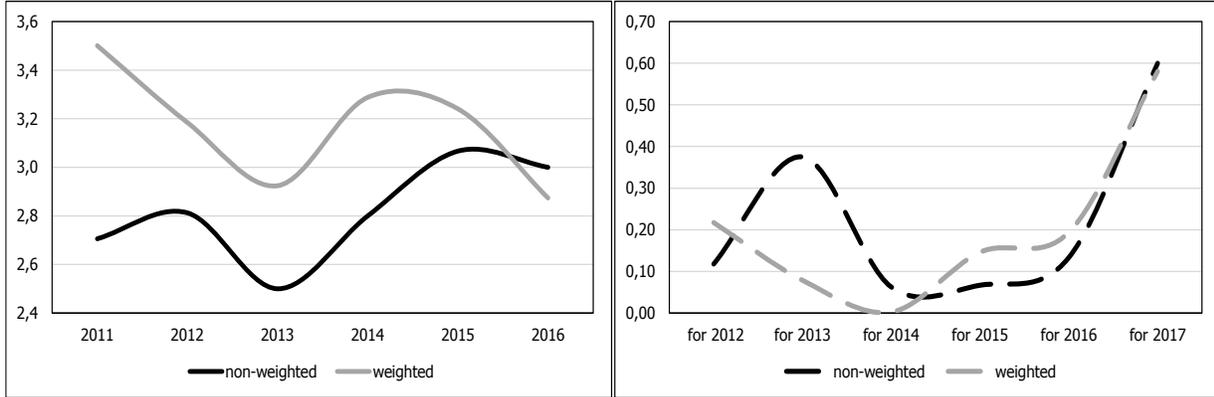
The share of the banks' assets in the total assets at a level of the banking system is used as a weight for calculation of the weighted average grade.

Banks, especially those with higher market shares, usually select the mutual competition as an important risk from this group of risks. However, for 2016, banks suggest greater mutual similarity in the terms of the products offering to customers, thereby indicating the significance of this group of risks as stable and considering that in the future it should not have some greater effect on their operations. Banks with greater market shares assess the risk that comes from the banking sector as moderate to growing, due to the pressures which, according to them, stem from the competition in the area of the price of products offered. Banks, especially the larger banks, expect a decreasing importance of this group of risks during 2017.

**III. The third most important group of risks for banks' operations are the risks arising from changes in the regulatory framework.**

Chart 101

Current levels (left) and expectations (right) of risks arising from changes in the regulatory framework



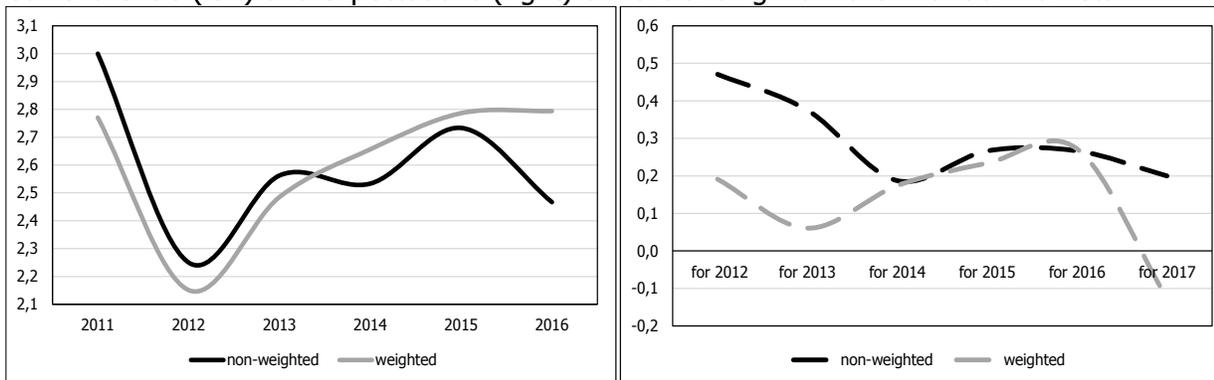
The share of the banks' assets in the total assets at a level of the banking system is used as a weight for calculation of the weighted average grade.

The level of this risk in 2016, according to banks, is slightly lower than the estimates for 2015. However, banks expect that the risks arising from changes in the regulatory framework in 2017 will grow. Among other things, banks state the new regulation in the area of the compliance with the Basel 3 standards and the European regulation in the area of the bank recovery plans, as well as the announced regulation on the implementation of IFRS 9, as changes in the regulatory environment that can pose increased risks in their implementation and effects on equity and provisions.

**IV. The fourth most important group of risks for the banks' operations are the risks arising from developments in the financial markets.**

Chart 102

Current levels (left) and expectations (right) of risks arising from the financial markets



The share of the banks' assets in the total assets at a level of the banking system is used as a weight for calculation of the weighted average grade.

Banks assessed the group of risks arising from the financial markets as less important, the importance of which is reduced compared to 2015, and in the course of 2017, they expect the

importance of this group of risks to decrease. The smaller importance of this group of risks in relation to the previous groups reflects the simple structure of the Macedonian financial system and the somewhat underdeveloped financial market, which is also reflected by the predominant orientation of banks towards standard banking operations (deposit collection, lending).

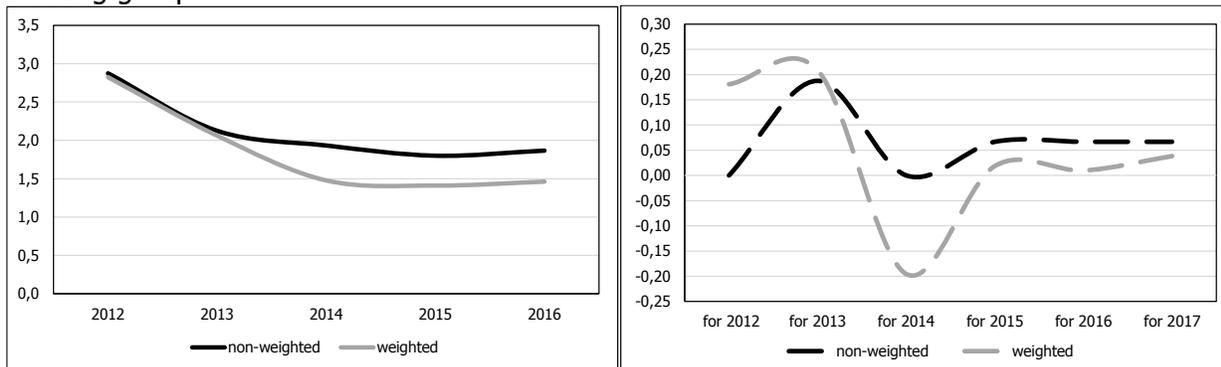
Banks mainly associate the risks arising from the financial markets in 2016 with the crisis in April and the pressures on the foreign exchange market, which were caused by non-economic factors. Also, banks pointed out the risks of changing interest rates on the international financial markets, which, according to banks, depend on the ECB and the FED monetary policy.

Regarding the expectations for the next period, banks expect that the importance of the interest rate risk will increase, given the announced amendments to the Law on Contractual Relations, which will clearly determine the types of interest rates (fixed and variable) and the manner and the conditions of their change, which will actually mean inability to further use the so-called adjustable interest rates.

**V. Banks assessed the risks arising from the strategy of the bank or the banking group as the least important risks.**

Chart 103

Current levels (left) and expectations (right) of risks arising from the strategy of the bank or the banking group



The share of the banks' assets in the total assets at a level of the banking system is used as a weight for calculation of the weighted average grade.

Banks state that in 2016 their activities were directed towards improvement of capitalization and increase in profitability, introduction of new products, increase in the number of customers, etc. According to banks, their business strategies have proved as appropriate in 2016, due to which this group of risks is assessed with the lowest grade, by its importance, in which the larger banks lead. Unlike them, banks with lower market shares consider that this group of risks has greater importance. Regarding the expectations, at the level of the banking system on average no change is expected in relation to the importance of this group of risks in 2017, although the larger banks have stated expectations for increased importance of this group of risks in the upcoming period.

Usually, the Survey also raises some additional questions of topics that are considered current and important.

Thus, with respect to the fluctuations in the housing market, most banks do not expect that in the medium run the prices of apartments will significantly change, which would mean that their impact upon the banks' operations would remain stable. A small part of the banks expect that in the longer run, the increased supply of apartments could have an effect on the prices of apartments, and thus the demand for housing loans and the terms for the amount of the collateralization of mortgage loans.

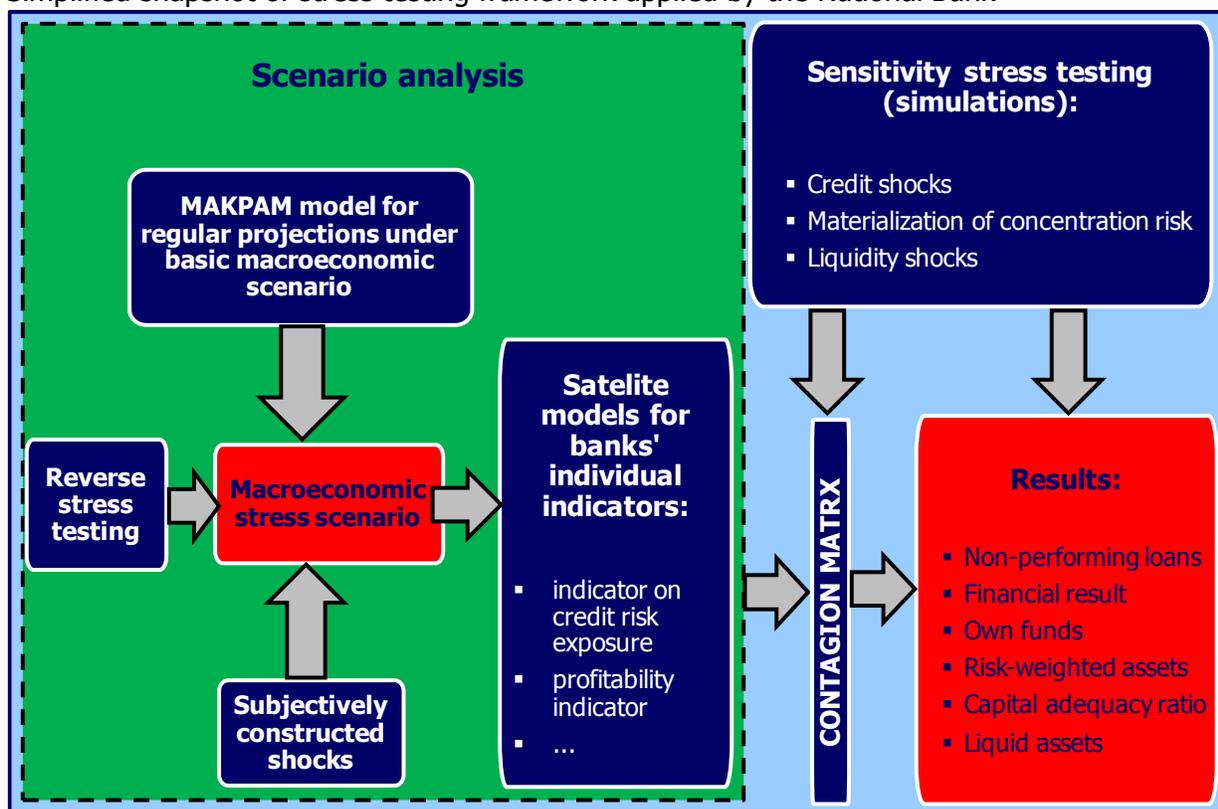
Regarding the Macedonian capital market, banks expect a certain movement and increased turnover in 2017, but this would not affect significantly their operations, although they expect that entities would channel part of the liquid assets to the capital market. Regional linking of stock exchanges and further specification of the capital market regulation to comply with European regulations could increase supply of and demand for securities, greater opportunity for investors from our country to purchase securities that will be traded through the regional platform and stabilization of the prices of securities should be achieved without large fluctuations. Almost all banks do not expect these changes to significantly affect their operations nor in the medium run.

Regarding the effects of the beginning of the application of the new International Financial Reporting Standard IFRS 9, most banks still cannot accurately assess the impact of the application of this standard upon their operations. However, they suggest that its introduction is related to certain costs, primarily due to the need for new software solutions to calculate the impairment. Banks also point out the uncertainty regarding the effects of the requirements of the standard for determination and allocation of so-called expected loan loss provisions for the entire life span of certain categories of financial instruments, where the credit risk increased significantly compared to the initial measurement.

## Annex 2 Stress testing of the banking system of the Republic of Macedonia using scenario analysis and contagion matrix

In order to test the resilience of the Macedonian banking system to various extreme but plausible shocks, the National Bank conducts sensitivity tests quarterly, and once a year it conducts so-called scenario analysis of the banking system, which assumes unfavorable trends in the macroeconomic environment. Additionally, the scenario analysis also includes development of a so-called contagion matrix designed to examine the effects of spillover of the possible problems from one bank to another, and from the banking system to insurance companies and fully funded pension funds. The framework for conduct of the stress tests<sup>179</sup> of the National Bank, in simplified form, is presented on the following figure.

Figure 1  
Simplified snapshot of stress testing framework applied by the National Bank



Source: Developed by the National Bank staff.

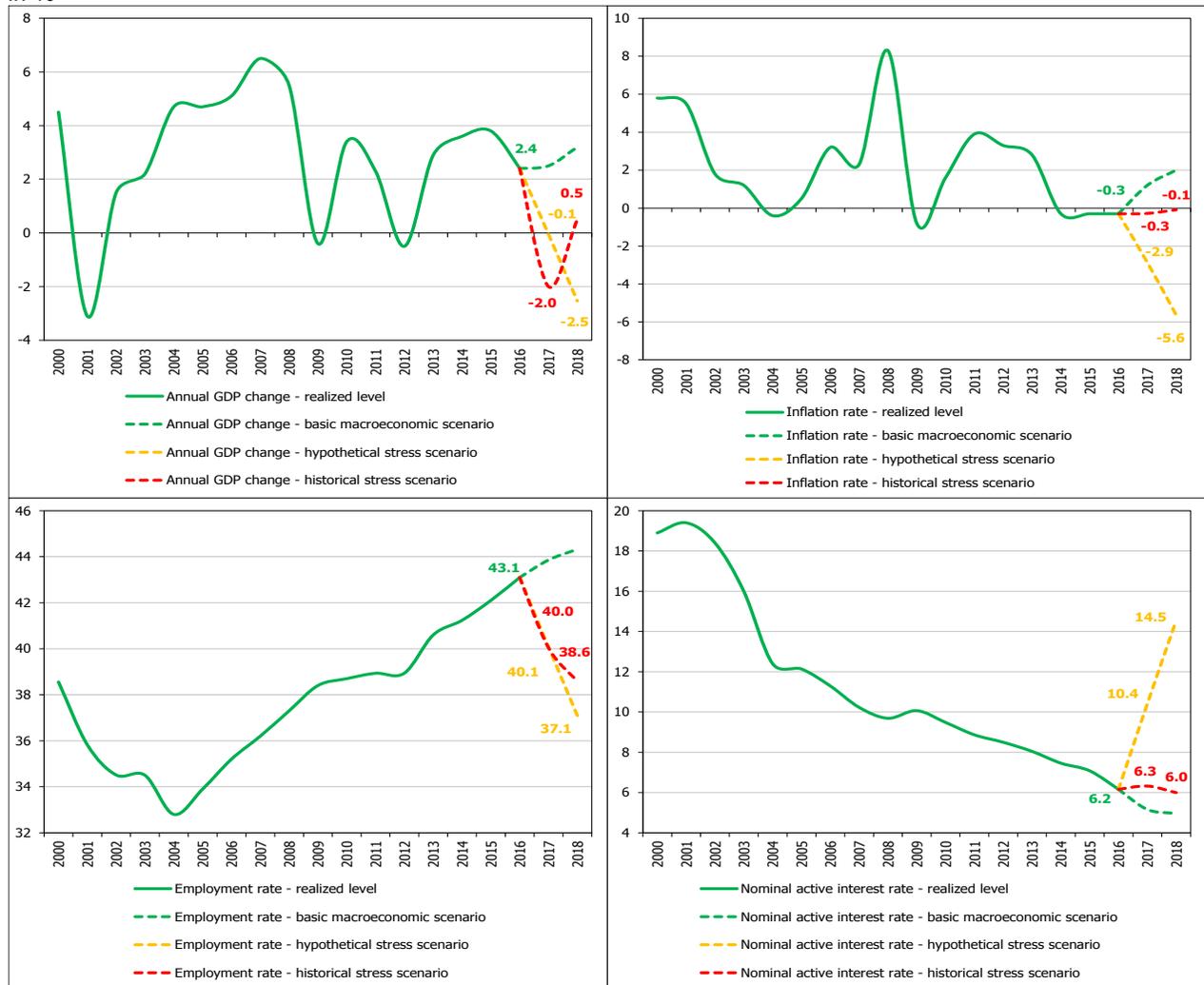
At the beginning of 2017, the stress testing of the banking system using scenario analysis required development of **two adverse scenarios**. Both stress scenarios cover a horizon of two years (2017 and 2018).

<sup>179</sup> More details regarding the stress tests applied by the National Bank of the Republic of Macedonia can be found on the following website: [http://www.nbrm.mk/WBStorage/Files/WebBuilder\\_FSR\\_2015\\_ENG\\_Annex1.pdf](http://www.nbrm.mk/WBStorage/Files/WebBuilder_FSR_2015_ENG_Annex1.pdf). For more details on individual sensitivity tests and their outcomes see the Reports on risks in the banking system of the Republic of Macedonia, prepared on a regular quarterly basis. The reports are available at <http://www.nbrm.mk/?ItemID=D38D33E964D84D45B2E6EFBCB996848B> and <http://www.nbrm.mk/?ItemID=6421C6EE3906F448B7E7A8E978BA933A>.

**The first macroeconomic stress scenario** assumes an unfavorable deviation of the main macroeconomic variables from the level achieved in the previous year, in the amount of one standard deviation, in each of the two years (2017 and 2018) covered by the stress test (hereinafter: hypothetical stress scenario). **The second adverse macroeconomic scenario** is a historical scenario, which in the following two-year period (2017 and 2018) assumes mirroring of the movements of the analyzed macroeconomic variables, achieved in a selected past period (hereinafter: historical stress scenario). More precisely, within this scenario, there was a mirroring to the next two-year period, of changes in the macroeconomic variables from 2001 and 2002, when the adverse effects of the security and political instability in the country on the domestic economy were more pronounced.

Chart 104

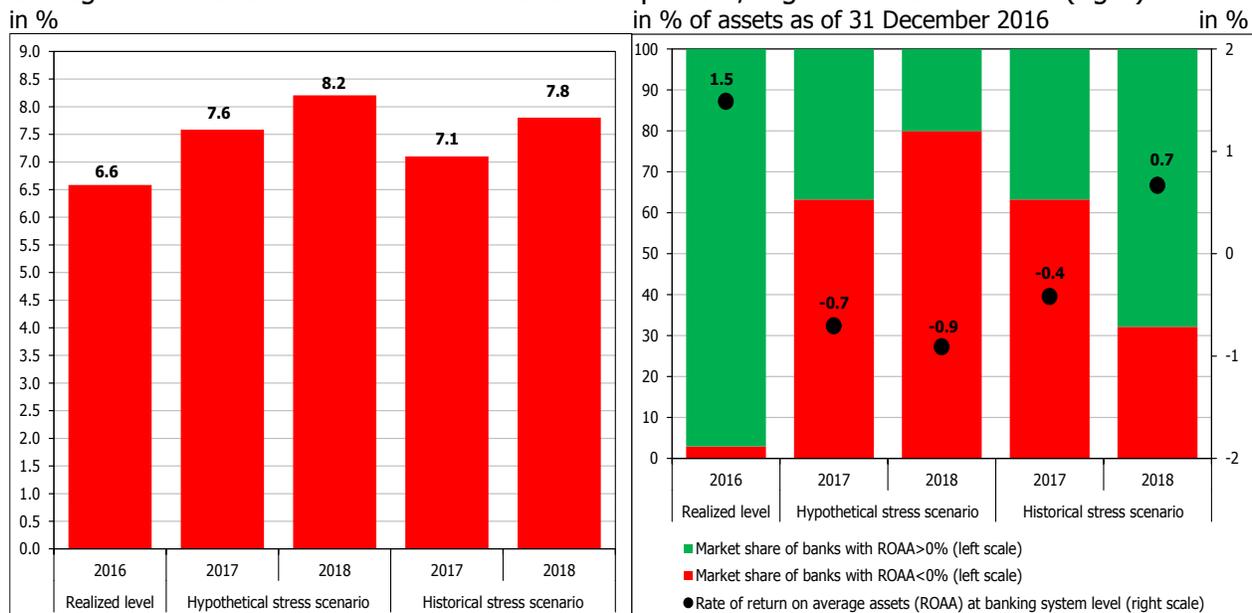
Comparison between forecasted movements of the main macroeconomic variables in the baseline macroeconomic scenario (the NBRM macroeconomic forecasts of the April forecasting round), the hypothetical stress scenario, and the historical stress scenario in %



Source: National Bank calculations.

Chart 105

Share of non-performing loans in total loans to non-financial entities (left) and rate of return on average assets and market shares of banks with positive/negative financial result (right)



Source: National Bank calculations.

**The results of the stress testing conducted as a scenario analysis indicate satisfactory resilience of the total banking system to unfavorable movements in the macroeconomic environment. The analysis by individual bank suggests some vulnerability by individual banks, to the assumed adverse macroeconomic scenarios and need for recapitalization amid possible materialization of these scenarios.** The scenario analysis shows that non-performing loans to non-financial entities grew by 25% within the historical stress scenario, i.e. by about 30% in the hypothetical scenario. In some years, the banking system reported a loss, the maximum amount of which reached 0.9% of average assets (as has not been seen in the past seventeen years or more). The decline in the own funds of the banking system would eventually be Denar 6.9 billion (or 14.5%). Despite these unfavorable trends, the capital adequacy ratio of the banking system reduces to a level that is not lower than 12.8%. Analyzed by individual bank, in the most extreme case, thirteen banks with a total market share of 80% in the assets of the banking system would face a loss, and in one of them (with a market share of 2.2%), the solvency indicators fall below the legally set minimal levels<sup>180</sup>. The necessary recapitalization of the bank required for the solvency indicators to go back to the minimal levels, in the extreme case, would be Denar 437 million (0.1% of GDP in 2016). However, if we take into account the banks' obligation to maintain capital conservation buffer in the amount of 2.5% of the risk-weighted assets (starting from 31 March 2017), as well as capital buffer for banks identified as systemically significant<sup>181</sup>, then, in the extreme case, 4 banks (with a market share of 16.8%) would be below the required minimal levels of the solvency indicators. In this case, the necessary recapitalization of banks is twice higher and equals Denar 879 million (which is again about 0.1% of GDP in 2016). Hence, in the most

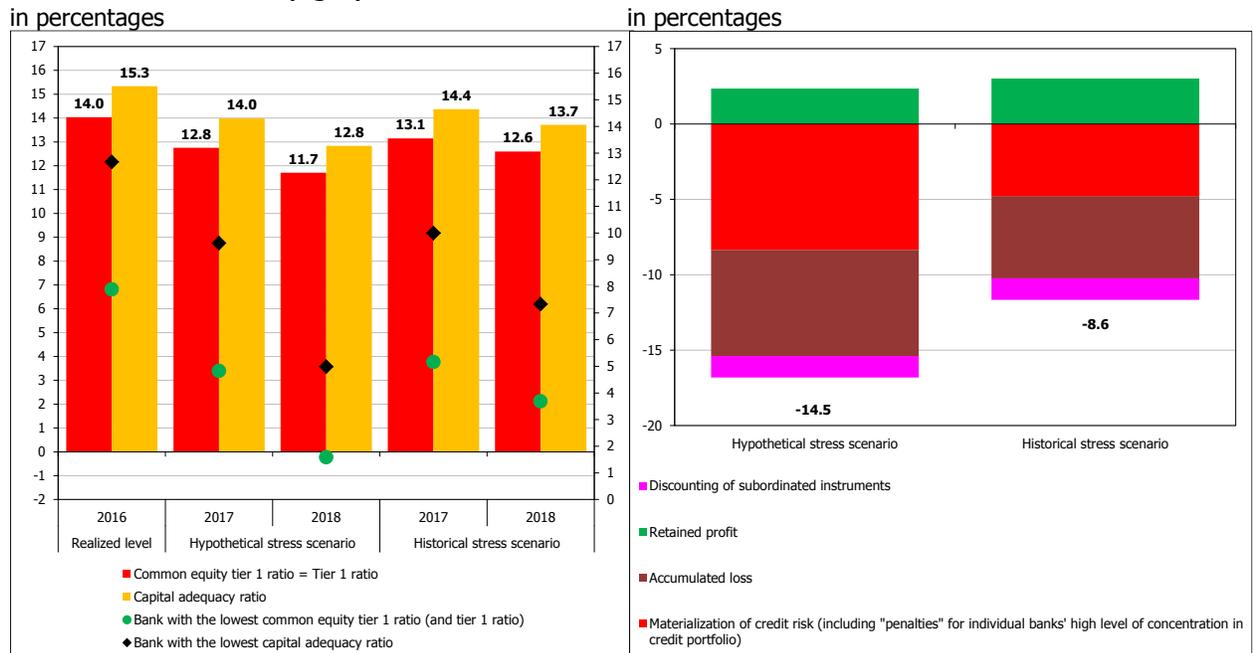
<sup>180</sup> 8% for the capital adequacy ratio, 6% for the Tier 1 ratio and 4.5% for the Common Equity Tier 1 ratio.

<sup>181</sup> Banks identified as systemically significant (as of 31 December 2016) are required to allocate the required capital buffer for systemically important banks, in full by 31 March 2018. However, banks are required to allocate half of this capital requirement by 30 September 2017.

extreme assumed scenario, one bank would have problems with solvency (its solvency indicators are lower than the regulatorily determined minimal levels and even fall below zero), and three banks would not have sufficient amount of Common Equity Tier 1 capital to allocate the prescribed capital buffers, which would activate the restrictions on the amount of profit that these banks can distribute to their shareholders in the form of dividends and consequently on the profit distribution policy.

Chart 106

Solvency ratios\* at the level of the banking system (left) and structure of the total percentage decline in own funds (right)



National Bank calculations

\*The calculations of the solvency ratios (including the achieved level for 2016) and for the total percentage decline in own funds are complied with the Basel 3 requirements. Currently, banks in the Republic of Macedonia do not have capital instruments that meet the conditions to be included in the Additional Tier 1 capital. Hence, the Common Equity Tier 1 ratio and the Tier 1 ratio are equal. The stress test assumes that banks are unable to increase own funds, except through maintaining the realized gain, thereby assuming that the Additional Tier 1 capital is not present in banks' own funds also in 2017 and 2018.

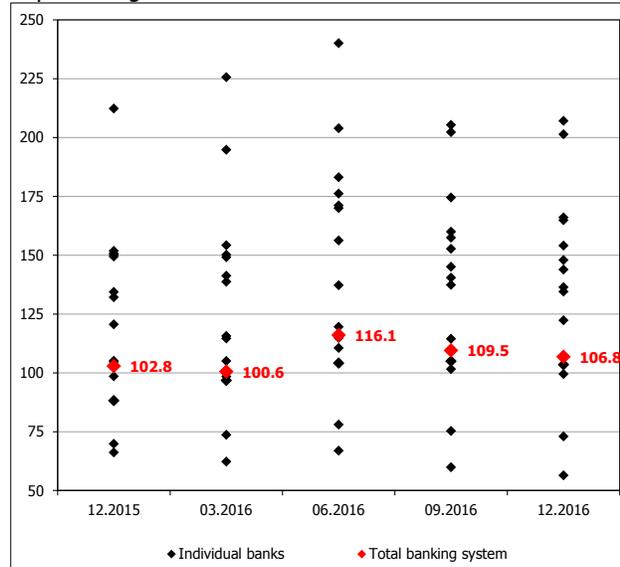
**The four banks with somewhat weaker results of the stress test do not have some higher amounts of liabilities to other banks<sup>182</sup>. Hence, there are no expectations for significant materialization of the risk of contagion, i.e. spillover of problems from these banks to other in the system, through the channel that leads through interbank claims/liabilities. In contrast, three insurance companies have significant amounts of deposits invested in banks with somewhat weaker results of the stress test, the share of which in the total assets of these insurance companies is between 20-23%. The two mandatory pension funds have also invested deposits in these banks, but their share in the total net assets of the funds is small (1.9% in one pension fund, i.e. 3.4% in another).**

<sup>182</sup> Liabilities of these banks to other banks in the system, individually, do not exceed 2.5% of the total assets of other banks.

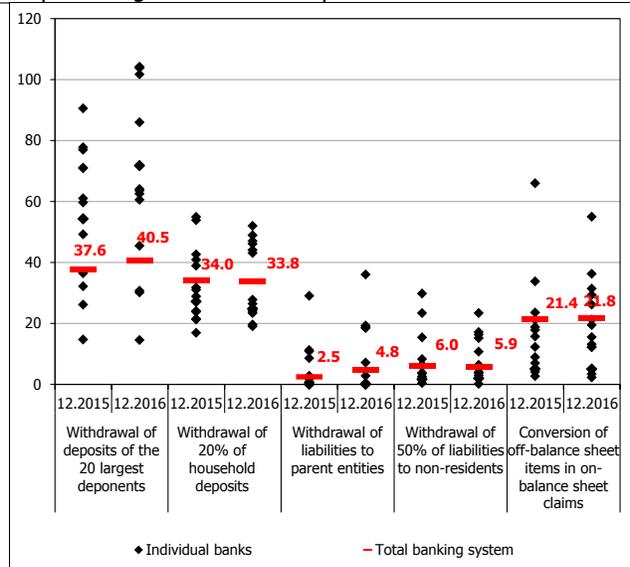
Chart 107

Reduction of liquid assets in the simulation of combined liquidity shocks (left) and contribution of individual combined shocks to the decline in the liquid assets in the simulation of a combined liquidity shock (right)

in percentages



as percentage of decline of liquid assets



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

**In order to test the resilience of the banks and the banking system to liquidity shocks, several stress test simulations were additionally developed, which assume a combination of extreme outflows of several types of sources of financing<sup>183</sup>, outside of banks (presented in the charts above).**

<sup>183</sup> More details about the results of these simulations can be found in the Report on the risks in the banking system of the Republic of Macedonia in 2016, p. 49-51 (<http://www.nbrm.mk/?ItemID=1C26A2647E2E41479638709DDF21F0E0>).

### Annex 3 Risks in the area of cyberspace (cyber risks), cyber crime

Although today there is no widely accepted definition of the concept of cyber crime in the world, and the definitions depend on the purpose of the use of this term, this type of crime is mostly associated with a limited number of activities related to jeopardizing the confidentiality, integrity and availability of information<sup>184</sup>. The purpose of these activities (attacks) is mainly related to the theft of information for the purpose of gaining a competitive advantage, acquisition of financial assets, intellectual property theft, identity theft, undermining the reputation of companies, disabling of the service provision systems, etc. The cyber security process engages activities for protection of companies and individuals from deliberate attacks, breaks into information systems and incidents, as well as dealing with their consequences. This usually refers to those types of attacks, breaks into the systems or incidents that are sophisticated, targeted and difficult to detect, manage and control. Moreover, the focus of the security in the cyberspace is directed towards the so-called Advanced Persistent Threats, Digital Warfare<sup>185</sup> and their impact on the companies and individuals.

The share of cybercrime in the total economic crime notes a steady increase, from one percent in 2009 to significant 23 percents in 2011, exceeding some of the other forms of crime (e.g. money laundering or industrial espionage)<sup>186</sup>. According to the Center for Strategic and International Studies headquartered in Washington (USA), the total damages caused to the global economy are estimated from \$375 billion to \$575 billion<sup>187</sup>. According to the survey conducted by Juniper Research<sup>188</sup>, the number of breaks into information systems by 2019 is expected to exceed 16,000, with potential damage of \$2,100 billion.

The main reasons for the increase of this type of crime are considered:

- The exponential growth of the number of devices and individuals that are continuously connected to the Internet<sup>189</sup>;
- The increased dependence on information technology of the entire social life: online sales, banking and finance, travel and logistics, infrastructure;
- The increased number of individuals and companies exposed to this risk, combined with the uneven distribution of the knowledge in the area of information technology and information security<sup>190</sup>;
- A vast field of potential targets for attack, using relatively inexpensive and easily available tools and technologies;

Although the situation in the financial sector (especially in the banking segment) is somewhat better compared to other areas<sup>191</sup>, there is still a concern that the current approach

<sup>184</sup> United Nations Office on Drugs and Crime (UNODC) - Comprehensive Study on Cybercrime (2013)

<sup>185</sup> Unlike the period until 2010, where attacks are mostly performed by individual hackers, this type of attacks is performed by groups of highly motivated and well-trained individuals with significant financial support by certain centers of power, governments or states.

<sup>186</sup> PricewaterhouseCoopers, Global State of Information Security Survey, 2011

<sup>187</sup> Center for Strategic and International Studies (CSIS): Net Losses: Estimating the Global Cost of Cybercrime (2014)

<sup>188</sup> Juniper Research: Cybercrime and the Internet of Threats 2017

<sup>189</sup> In 2011, 30% of the world population has broadband Internet access. In 2017 this number is expected to exceed 70 percents. By 2020, the number of devices attached to the Internet (IoT- Internet of Things) is envisaged to exceed the number of people in a ratio of 6:1.

<sup>190</sup> According to the annual report of the Cisco company for 2017 (Annual cybersecurity report), 72% of companies use external supplier assistance in 20% to 80% of the area of security.

<sup>191</sup> This is primarily due to the strict regulatory requirements, the limited number of services offered via the Internet, the conservative approach to the operations, etc.

in the area of information security may be insufficient. Instead of the question whether the financial institution will be attacked, one increasingly considers when the institution will be subject to attack, if it is sufficiently protected and what the possible consequences would be. Along with the advancement of the cyberspace attacks, as well as with the increase in their intensity, an advanced approach is needed in the area of security and protection against attacks, which involves the inclusion of the latest threats into the risk assessment process, implementation of protective mechanisms at several levels for the critical infrastructure, continuous monitoring of trends in the area of the potential threats and attacks, as well as sharing this information with the related institutions and companies.

Several organizations which are primarily focused on the protection of information and information systems security, as well as several regulatory bodies, have already developed standards for improvement of the protection in this area.<sup>192</sup> Following the activities of financial regulatory bodies in the area of cyber security, and taking into account the increased number of attacks in the immediate neighborhood, the National Bank issued a tool for self-assessment of the inherent risk that banks are exposed to, and implementation of an adequate degree of preparedness (cyber security maturity)<sup>193</sup>. Self-assessment of the inherent risk considers the size, complexity and type of banking activities, the channels that are used for offering various banking services, organizational features, external threats and online products, without taking into account the existing controls that are implemented for the purpose of risk mitigation. According to the results of the self-assessment and assessment of the efficiency of the implemented controls, the banks are supposed to determine the degree of preparedness that should be achieved in order to manage the identified risks. The degree of preparedness is categorized in three levels (Basic, Intermediate and Advanced), for the five different areas: Cyber risk management and oversight; Threat intelligence and collaboration (collecting, processing and analyzing relevant threats obtained from accurate and verified sources); Cyber security controls; External dependency management; and Cyberspace incidents' management and resilience. The bank's senior management is responsible for achieving the required level of preparedness in the each individual area, depending on the assessments of the inherent risk level, by implementing action plans within the predefined time period. The National Bank recommends the implementation of basic or intermediate level of preparedness. The National Bank also reserves the right to recommend a higher level of preparedness for a certain period of time, if necessary.

The general conclusions from the self-assessment process are that three banks have a low level of inherent risk, while the other twelve have a moderate level of inherent risk. According to the results obtained from the self-assessment process, three of the banks are obliged to implement the basic level of preparedness, while others have right to choose between the basic and the intermediate level of preparedness. According to the action plans prepared by the banks, all the banks will complete the implementation of the basic level of preparedness by the end of 2017. Two of the five banks that have made a decision to implement the intermediate level of preparedness should complete their activities by the end of 2017, and the remaining three by the end of 2019.

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<sup>192</sup> NIST- Framework for Improving Critical Infrastructure Cybersecurity; BIS - Guidance on cyber resilience for financial market infrastructures; FFIEC – Cybersecurity awareness program & Cybersecurity Assessment Tool; European commission - Cybersecurity Strategy of the European Union, ECB – Opinion on a proposal for a directive of the European Parliament and of the Council concerning measures to ensure a high common level of network and information security across the Union, etc.

<sup>193</sup> The tool is based on the Cybersecurity Assessment Tool of the US regulatory agency – FFIEC.

## Annex 4 Digital currencies and the risks associated with them

Digital innovations in finance, also known as "FinTech", attract great attention in the financial industry. Digital currencies and especially those that use a built-in decentralized payment mechanism based on the use of a so-called distributed ledger<sup>194</sup> are innovations that can have a wide spectrum of implications for various aspects of the operations of the individual financial institutions, the functioning of financial markets and the overall economy in general. Thus, on the one hand, they can potentially cause disturbance of the existing business models and systems, but on the other, it is possible to facilitate the creation of new economic interactions and connections by improving the functioning of certain aspects of the global financial industry, above all, in the area of financial infrastructure and financial markets.

The use of digital currencies (or else can be found as virtual currencies or crypto currencies) is considered an alternative payment method.<sup>195</sup> This is a still unregulated, privately created category of (digital) assets used by all members of the concrete scheme of a particular digital currency. They have some monetary features (they are used as an electronic means of payment, but do not represent so-called electronic money), but are not connected nor are issued as sovereign (so-called fiat) currencies, and hence, they do not represent an obligation of neither entity, nor their value is guaranteed, i.e. backed by some authority or by some other means (for example, by gold or reserves). In addition, digital currencies have no intrinsic value<sup>196</sup> and hence their value stems from the expectations/beliefs that they could be exchanged for goods and services, or a certain amount of sovereign currency, at a given moment, which determines the supply of and demand for the currency<sup>197</sup>. As mentioned, their use is based on distributed ledgers, which is a new, innovative technology, which among other things enables decentralized and remote settlement of transactions with digital currencies, without intermediaries, without the need for a centralized trust entity which makes the final settlement and without the existence of an institution or person operating the entire system of functioning of the specific digital currency<sup>198</sup>. The creators of digital currency schemes emphasize the speed and simplicity of transactions with digital currencies, low costs, relative anonymity (or pseudo-anonymity)<sup>199</sup>, the absence of risk of inflation associated with them, technical security and the

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<sup>194</sup> The technology based on a so-called distributed ledger is a relatively new decentralized way of transformation of the processes of payment, clearing and settlement, including the transfer of assets and the ways in which clearing and settlement of transactions with securities (including derivative instruments) and goods is made. More precisely, this is a technology that combines several components, as follows: networking, which provides overcoming of the double-spending problem where each computer functions as a server for the rest without the existence of so-called peer-to-peer networking, distributed data storage, and cryptography, that can potentially change the way of recording, storing, and transferring digital assets. This new technology is considered to be able to reduce or even eliminate operational and financial inefficiencies, as well as other frictions that exist in the currently applied methods of storing, recording and transferring digital assets through financial markets. Source: Mills, David, Kathy Wang, Brendan Malone, Anjana Ravi, Jeff Marquardt, Clinton Chen, Anton Badev, Timothy Brezinski, Linda Fahy, Kimberley Liao, Vanessa Kargenian, Max Ellithorpe, Wendy Ng, and Maria Baird (2016). "Distributed ledger technology in payments, clearing, and settlement," Finance and Economics Discussion Series 2016 095. Washington: Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/FEDS.2016.095>.

<sup>195</sup> Source: Vondráčková, Aneta (2016). "Regulation of Virtual Currency in the European Union". Prague Law Working Paper Series. Charles University Law Faculty, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2896911](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2896911).

<sup>196</sup> More precisely, there is a lack of those fundamental features, as is the case with sovereign currencies, on the basis of which their intrinsic value is determined.

<sup>197</sup> Source: Committee on Payments and Market Infrastructures, Bank for International Settlements (2015). "Digital currencies", <http://www.bis.org/cpmi/publ/d137.pdf>.

<sup>198</sup> In other words, the need for a central bank, specifically in the area of the issuance, creation of currencies and settlement of transactions with them, is bridged.

<sup>199</sup> Digital currency schemes offer anonymity to their users, but whether and the extent to which it will be maintained it depends on the users themselves, on the level of sophistication of the technology used by the digital currency schemes (whether and how easily they can be exposed to hacker attacks, which are quite likely due to the open character of the schemes), as well as on the involvement of third parties - service providers for their customers, in the area of digital currencies.

absence of bureaucratic procedures as significant advantages in the digital currency payments. However, central banks, regulators and supervisors point to the existence of certain risks and warn of the absence of regulation for this relatively new sphere of financial services and subsequently the absence of any regulatory protection for digital currency users, amid possible, justified or ungrounded losses from handling them (practically, there is no legal protection for digital currency users, in their participation in such schemes). The "creation" of digital currencies is not affected by the monetary measures of the central banks, nor the system for insurance of deposits and funds on transaction accounts, which usually includes the funds in depository institutions, applies to them, nor some fund for possible indemnification of investors in these currencies is established (as usually exist to indemnify investors in securities), nor there is some guarantee fund for settlement of liabilities among the members of the digital currency schemes, amid possible lack of funds, as is the case, for example, with securities depositories.

Currently, there are a huge number of digital currencies globally<sup>200</sup>, with their own specific features. The open character of the higher number of schemes – digital currency systems facilitates the copying out from the software on which they are based (jargonically, this procedure is called "fork"). Namely, certain modifications, advancements in the protocols of the existing digital currency systems allow the launching of a separate, new (network of) digital currency, whereby the number of digital currencies is constantly increasing. Bitcoin is probably the best known and most widely prevalent digital currency, with which the beginnings of digital currencies are generally connected. In October 2008, author under the name of Satoshi Nakamoto suggested a peer-to-peer payments system for settlements of transactions with digital assets<sup>201</sup>, which exceeds the double-spending problem<sup>202</sup>, the bases of which were explained in a document entitled as „Bitcoin: A Peer-to-Peer Electronic Cash System“<sup>203</sup>. The first bitcoin was "mined"<sup>204</sup> in January 2009, when the first payment transaction with bitcoins was executed, and at the same time the software that is required to have in order to be a part

<sup>200</sup> The most significant representatives are the Bitcoin, Litecoin, Primecoin, Goldcoin, Namecoin and the PiPicoin) (Vondráčková, 2016).

<sup>201</sup> Blockchain is an example of a distributed ledger (used in transactions with the bitcoin and some other digital currencies), which is a decentralized, distributed database with a continuously growing list of records (blocks), interconnected with so-called timestamping chains, which guarantee a secure way of storing the digital block (composed of digital records or documents for transactions with bitcoins), including the time of creation and change in each block and record (neither the owner of the digital record can make changes, once the record is saved, i.e. added to the "blockchain", which is in favor of greater security and reliability of this database). Source: Szczepanski, Marcin (2014). "Bitcoin: Market, economics and regulation", [http://www.europarl.europa.eu/thinktank/en/document.html?reference=LDM\\_BRI\(2014\)140793](http://www.europarl.europa.eu/thinktank/en/document.html?reference=LDM_BRI(2014)140793) .

<sup>202</sup> As the name itself suggests, it is a danger of spending the same amount of money (maybe bitcoins, for example) in several different transactions. Hence, quite logically, with the exception of one person who would probably receive the full amount of funds, all other persons, participants in transactions (to which the spending of the same amount of funds was made) would have remained without the agreed payment. In centralized payment systems, there is a centralized entity that makes the necessary verification, in order to avoid execution of several transactions using the same amount of funds. In decentralized payment systems, there is no such an entity and hence, double-spending is very likely. However, the use of the distributed ledgers (the blockchain, for example) has overcome this problem.

<sup>203</sup> Nakamoto, Satoshi. (2008). "Bitcoin: A Peer-to-Peer Electronic Cash System", bitcoin.org. <https://bitcoin.org/bitcoin.pdf>.

<sup>204</sup> The blocks are connected within the blockchain (which is used by the bitcoin) through a process of so-called mining. In order to maintain the integrity of the blockchain, each new block obtained through "mining" confirms the integrity of the previous blocks. Thus, each block must meet certain requirements to be attached to the blockchain (it is necessary to solve complex mathematical algorithms). These are complex and costly accounting operations that require the use of powerful computers, more precisely equipment, with significant consumption of electricity. With a possible solution to the set complex mathematical puzzle, the "miner" receives a certain number of bitcoins (the number of bitcoins received as a prize is halved every four years, and at the beginning 50 bitcoins were obtained), and the blockchain is updated for which all entities that are part of the scheme (network) of the bitcoin are notified. The solution to the mathematical tasks is usually some so-called cryptographic random number (code) that needs to satisfy certain complex conditions to provide digital connection of one block with another and at the same time it is extremely difficult to be hacked and falsified, in order to avoid disturbance of the integrity of the blockchain and in general, the reliability of the entire scheme of use of digital currencies (the bitcoin, in this case). Source: Szczepanski, 2014.

of the scheme (network) of the bitcoin was made available<sup>205</sup>. Several years of quite small interest in the bitcoin, and generally in digital currencies, followed, and from the end of 2012, there was a significant growth in the volume of trading<sup>206</sup> with this digital currency and a subsequent rise in its price and market capitalization. As expected, the Bitcoin has the largest, although continuously declining, market share among digital currencies in the past years. In June 2017, there was a circulation of Bitcoin 16.4 million, with a total market capitalization of around US Dollar 48 billion and market share of around 45% in the total market capitalization of digital currencies<sup>207</sup> (source: <https://coinmarketcap.com/currencies/views/all/>). Some authors link the time of the advent of the bitcoin (in the peak of the global financial crisis) with the reduced confidence in the sovereign currencies, and the more intensive growth in the digital currency trading (from the end of 2012 onwards) is associated with the "search of yield" of investors, given the historically low interest rates (Vondráčková, 2016). Another real reason for the increased attractiveness of digital currencies in recent years is associated with the relative anonymity of the participants in the digital currency scheme (BIS, 2015). In the last two years (since 2015), a new digital currency has emerged, called ethereum, which has turned into a significant competitor to the bitcoin. The ethereum is considered a significantly advanced version of the bitcoin, which owns its own scripting language, which in turn enables the creation of complex smart contracts<sup>208</sup>, decentralized autonomous organizations, decentralized autonomous applications, and even other digital currencies. Its initial launch and development is financed by bitcoins, provided through a procedure of a so-called initial coin offering - ICO, through which the future (at the time still non-existent) ethereum was exchanged (pre-sold) for bitcoins. The initial coin offerings have become quite popular because they circumvent the conventional manner of providing funds, and are quite similar to the initial security offerings (instead of securities or equity holdings, it is said that the owners of the still non-existent digital currencies possess so-called virtual tokens). This manner provides self-financing of digital currency schemes, thereby achieving a high level of self-sustainability of these systems.

### ***Expected challenges for banks, central banks and regulatory bodies***

It is difficult to assume what the role and manner of functioning of central banks and financial intermediaries (and especially banks) would be, in a world where the use of digital currencies and the technology they use is widely widespread. Banks are expected to face significant challenges, a very likely process of disintermediation and significant changes in the mechanisms of payment, saving and the access to loans. The possible substitution of the sovereign currencies with digital currencies may lead to a reduction in the non-interest-bearing

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<sup>205</sup> Source: Centre for the Edge, Deloitte, Australia. "Bitcoin, Blockchain & distributed ledgers: Caught between promise and reality", <https://www2.deloitte.com/content/dam/Deloitte/au/Images/infographics/au-deloitte-technology-bitcoin-blockchain-distributed-ledgers-180416.pdf>.

<sup>206</sup> Digital currency traders own so-called digital wallets, which are basically addresses (example: 1EDcAwz23CdxRVQmDvUJLU8ynB3sdeMSk). In order to be able to handle their wallets, traders use two types of keys (passwords) – private (their personal password, so that they can open the wallet) and public, which gives the correct location, i.e. address of the wallet (the public key is often changed). Digital currency trading is made through exchange platforms. First of all, traders send a request to the digital currency network for trading with a certain number of bitcoins, and transactions (more precisely, the group of transactions, also known as block in the case of the blockchain) must be confirmed by the "miners" mentioned above. Additionally, there are also so-called payment gateways, which allow exchange of digital for sovereign currencies (Vondráčková, 2016). An example of a payment gateway is BitPay.

<sup>207</sup> Due to the strongly pronounced volatility of the price of the bitcoin and other digital currencies, their market capitalization may undergo significant changes, even on a daily basis.

<sup>208</sup> Smart contracts are computer protocols that facilitate, verify and execute, fulfill (the negotiation for) the implementation of a specific contract, making contractual clauses, partly or completely self-executing and/or self-fulfilling. Hence, smart contracts are considered safer and cheaper (with lower costs) than traditional bargaining.



liabilities of the central banks, which would probably react with a substitution with interest-bearing liabilities and/or would simply allow the volume of their balances to be reduced (and, which is, for example, in full collision with the manner in which the central banks responded to the global financial crisis and its consequences – through a drastic increase in the volume of their balance sheet). The end result would be a decrease in the gains of the central banks, due to the loss of the seigniorage revenues. In addition, digital currency schemes may have significant effects on (the character, setup, design and efficiency of the instruments for) the monetary policy implementation by the central banks as issuers of the sovereign currencies and the demand for monetary aggregates, which is primarily determined by the scope of the reserve requirement allocation requirements (for example, whether and how, the requirements for reserve requirement could be extended from banking systems to digital currency schemes), as well as by the degree of economic and financial links between sovereign currency users and digital currency users (BIS, 2015).

Despite the relatively increased use of digital currencies in recent years, however, digital currency schemes, at global level, continue to be accepted and used by a small number of users and are still faced with numerous challenges that can limit their future growth. Hence, their impact upon financial services and the economy, in general, and upon the financial and monetary stability is modest for the time being, and some authors believe that in the long run, given the numerous challenges that they faced with, digital currencies will remain a product accepted by a limited number of users and on the very margins of the mainstream financial services (BIS, 2015). However, the innovative technology on which their use is based is expected to find alternative application and it can potentially improve certain aspects of payment systems and generally financial infrastructure, particularly in the area of bridging the need to establish a centralized network of transactions and the additional costs it incurs<sup>209</sup>. Among other things, the use of digital currencies is considered to have a significant impact upon retail payment services (payments between natural persons, e-commerce, cross-border payments, etc.), making them faster and cheaper for end users (consumers and traders), although it is still early to estimate the effects on the efficiency of payment systems, including the potential risks associated with the functioning of schemes based on digital currencies and distributed ledgers. Namely, in the near future, it is considered that the impact of the use of digital currencies upon payment systems is possible, to a certain extent, to affect the central banks, as institutions responsible for supervision and regulation of payment systems. On the other hand, the possible greater and wider use of digital currencies and the technology that supports them can have a significant impact upon other areas of interest for the central banks – financial stability and monetary policy (BIS, 2015). One part of the risks in relation to the use of digital currencies are similar to those associated with the sovereign currencies, especially when used in the form of electronic money, but another part of the risks are specific and arise from the special features of digital currencies and the innovative technology on which they are based.

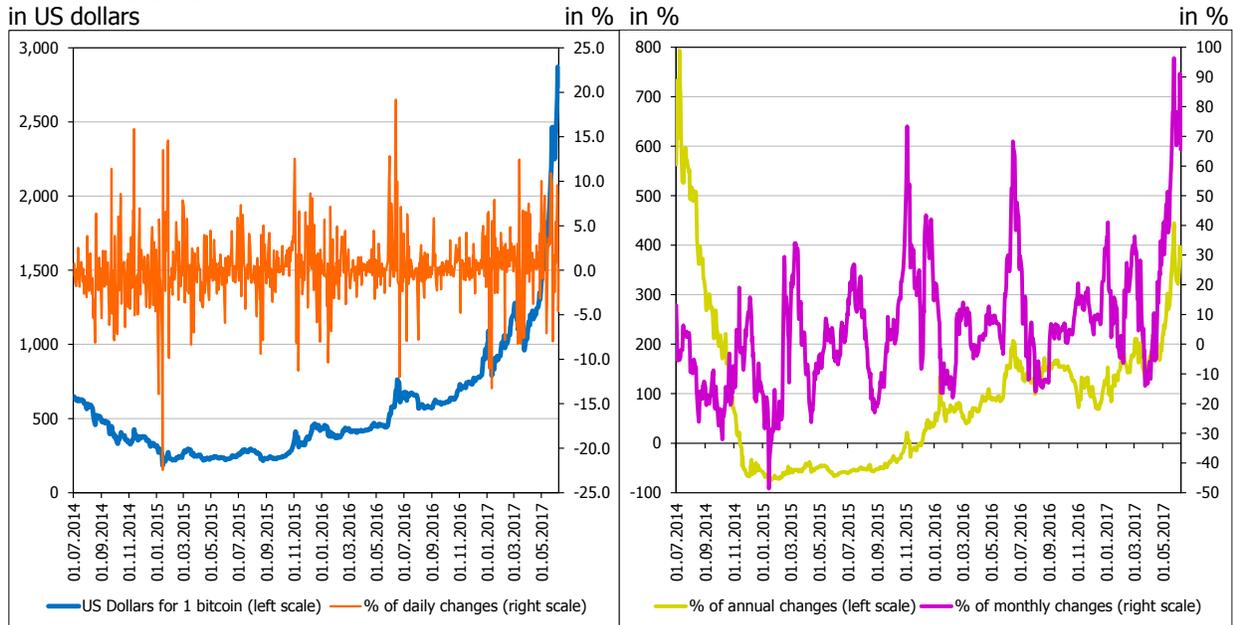
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<sup>209</sup> The possible greater and wider use of digital currencies (and primarily of the distributed ledgers) can significantly change the appearance of financial infrastructure. Thus, these innovations can have a significant impact upon the appearance and manner of registration of the pledged collateral, registration of shares, bonds, trading with derivative instruments and other assets, but also upon the implementation of payments, trading, clearing and settlements. Such changes, on their part, may threaten the survival of some traditional service providers from this area, not only in the segment of retail payment services, but also in the area of wholesale payments (including the functioning of central securities depositories and security settlement systems) (BIS, 2015).

**Risks to the participants in digital currency schemes**

Chart 108

The price of the bitcoin in US dollars and its percentage daily (left), monthly and annual changes (right)



Source: www.bloomberg.com

The pronounced volatility of the price of digital currencies is a significant risk to those who own them. Namely, as mentioned above, their value is based exclusively on the beliefs that they could, at a given moment, be exchanged for goods and services or for a certain amount of sovereign currency, which determines the supply of and demand for such digital currencies. At the beginning of 2013, after starting greater trading with the bitcoin, its price was around US Dollar 10 (previously, its price was smaller than US dollar 1 and in case of such a price there were no interested buyers), and in June 2017 it came close to the level of US Dollar 3,000 for 1 bitcoin. In the last three years (June 2014-June 2017), the daily changes in the price of the bitcoin range from -25% to +20%, and the monthly changes from -50% to +100%, which indicates pronounced volatility in its price and increased investment risks of the investment in this digital currency. But on the other hand, digital currencies are characterized by the low correlation of their yields with the yields of other classes of investment funds, which actually acts as an attractive feature for those investors who analyze the investment in digital currencies as a complement to another portfolio of assets. Hence, it is not surprising that in 2016, about one third of the bitcoins are owned by persons who only "received" bitcoins, but never "sent" bitcoins to other participants in the network, and a minority are the users that use the bitcoin primarily as means of payment<sup>210</sup>. This shows that among the existing bitcoin holders, the

<sup>210</sup> Source: Baur, Hong and Lee: „Virtual currencies: Media of exchange or speculative asset?“, SWIFT institute working papers No.2014-007, June 2016, available on [https://www.swiftinstitute.org/wp-content/uploads/2016/06/Bitcoin-Baur-et-al\\_-2016-SWIFT-FINAL.pdf](https://www.swiftinstitute.org/wp-content/uploads/2016/06/Bitcoin-Baur-et-al_-2016-SWIFT-FINAL.pdf). This paperwork, among other things, concludes that the increase in the demand for digital currencies by potential users, due to the very design of the schemes, affects in the direction of growth of their price, which additionally attracts speculative investors and further increases the demand, which essentially limits the use of the digital currency as a means of exchange for goods and services (i.e. for payment purposes).

perception of the same as a class of an investment asset is more pronounced, which practically means that the speculative motive is dominant for their inclusion in digital currency schemes.

Risks of fraud<sup>211</sup>, hacker attacks on the digital currency exchange platforms, operational risks in the functioning of the infrastructure supporting the use/trading of digital currencies, the settlement risk (present for third parties that provide services related to digital currencies for their customers), etc. are quite certain. Despite the present cryptographic protection of the so-called digital wallets, however, there is still a risk of hacker intrusion into digital wallets and their robbery. The technology on which the use of digital currencies is based is not immune to operational and other problems<sup>212</sup>, and the risks of hacker attacks on the exchange platforms with these currencies are especially pronounced, given the public, open and flexible nature of digital currency schemes. Additionally, raising the level of reliability and security of the total system - digital currency scheme and any other advancements is not made centrally, but with some form of consensus of the participants in the scheme, which can slow down the required improvements and increases the vulnerability of the total system<sup>213</sup>. Finally, the absence of a clear legal structure, in the area of the rights and obligations of individual parties involved in transactions with digital currencies, also underlines the legal risk. Such risks actually act as limiting factors for mass expansion of the degree of the eligibility of digital currencies.

The relative anonymity (or pseudo-anonymity) of digital currency holders makes them attractive to use in activities related to money laundering, terrorist financing, tax fraud and evasion and other criminal activities. This primarily depends on how much (sophisticated and protected from hacker attacks) and what kind of records on transactions with digital records is kept in digital currency schemes (more precisely, in the distributed ledgers), the possibility of free cross-border trading with digital currencies and their conversion into sovereign currencies, as well as on the involvement of third parties - service providers for their customers, in the area of digital currencies (more precisely their compliance with the standards for anti-money laundering and terrorist financing).

Given the fact that digital currencies are an unregulated sphere, and at global level there is still no clear agenda in which direction and scope the use of these currencies would be regulated, digital currency holders should also be aware of the existence of significant regulatory risk<sup>214</sup>. More precisely, the possible introduction of larger regulatory restrictions on

<sup>211</sup> For example, the case with OneCoin is well known, which, although resembling digital currency schemes, however, in its essence includes elements of the fraudulent pyramidal (so-called Ponzi) schemes. Participants in this scheme are led to believe that they "mine" and invest in a digital currency (OneCoin), and even the OneCoin organization itself (whose central representatives have been found to have been involved in pyramidal schemes before) claims to deal with sale of educational trading materials. Several countries (for example: Italy, India, Germany, Belize) have undertaken legal proceedings aimed at investigating, even stopping the activities of the OneCoin network. Currently, these onecoins cannot be exchanged for any other currency, and previously their conversion took place through an internal market (with established daily limits), organized within the OneCoin scheme, which was closed in January 2017 without any warning. Source: <https://cointelegraph.com/news/one-coin-much-scam-onecoin-exposed-as-global-mlm-ponzi-scheme>

<sup>212</sup> The Financial Stability Oversight Council (FSOC) in its annual report from 2016 points to significant delays in the trading with the bitcoin, as well as a series of unsuccessful transactions with this digital currency (source: Financial Times, June 22, 2016, "Regulators say bitcoin poses 'financial stability risks'").

<sup>213</sup> Source: Committee on Payments and Market Infrastructures, Bank for International Settlements (2015). "Digital currencies", <http://www.bis.org/cpmi/publ/d137.pdf> p.p. 15.

<sup>214</sup> Some EU institutions on several occasions and in various forms have delivered opinions and considerations with respect to digital currencies and their future regulation. Among other things, the European Central Bank, the European Banking Authority, the European Commission and the Committee on Economic and Monetary Affairs have delivered opinions on the advantages and risks of the use of digital currencies and their future regulation in their reports or official statements, and in 2016 the European Parliament adopted (non-binding) resolution for these currencies, which, inter alia, requires from the European Commission to establish a

the use and manner of functioning of digital currency schemes may further cause materialization of the investment risk, i.e. negatively affect the prices of these currencies, even possibly threaten the existence of some of the them and/or the platforms used to trade in digital currencies<sup>215</sup>.

The National Bank, on several occasions, through press releases pointed to the risks of investments and digital currency trading. Also, according to the regulation and the existence of a so-called foreign exchange regime, the opening i.e. holding of accounts abroad is prescribed by a special decision adopted by the National Bank, according to which residents (legal entities or natural persons) of the Republic of Macedonia cannot open, i.e. hold an account abroad, nor keep cash assets on those accounts, except under special conditions, for example on the basis of regulated residence abroad of longer than three months or a work permit abroad, as well as other conditions prescribed in the aforementioned decision. Hence, there are regulatory restrictions on keeping cash assets on accounts abroad (including investments in digital currencies), as well as on transferring funds from abroad to bank accounts in the Republic of Macedonia (which would originate from the conversion of some digital currency into a certain sovereign currency, for example euros or dollars). However, it should be borne in mind that public blockchains bridge the need/role of the banks and payment operations carriers in general, whereby anyone (including the entity that owns a digital wallet) can take over the base of the blockchain, with all accounts and transactions executed up to the moment of take-over, and keep it in its possession (in other words, transactions for purchase and sale of digital currencies and purchase and sale of goods with digital currencies may take place without the intermediation of the banks). Digital currencies are not mentioned in the domestic regulations and should not be identified with electronic money in the sense of the Law on Payment Operations.

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working party that will monitor the development of digital currency schemes. Regarding the latter, in 2017, the European Commission established a so-called Digital Currency and Dark Web Consortium, called Titanium, whose main purpose is to prevent criminal and terrorist activities related to the use of digital currencies and the so-called dark web or darknet market, as well as development of instructions for storing and processing data, information and knowledge, etc. In July 2016, the European Commission presented a revision of the Fourth European Anti-Money Laundering Directive, that among other things requires from service providers related to digital wallets and digital currency trading to make an in-depth analysis for their clients and reporting suspicious transactions to the responsible authorities, which would contribute to reducing the relative anonymity, for the time being present in digital currencies schemes. Certain activities for the regulation of digital currencies were observed in individual countries, such as Germany, the Czech Republic, China (Vondráčková, 2016).

<sup>215</sup> The use of the bitcoin, as the most widespread digital currency, is legalized as a means of payments in certain countries, but in other its use is not regulated at all, and it is explicitly prohibited for use in third countries or its use in the domestic payment operations is implicitly limited, as is the case with the Republic of Macedonia.