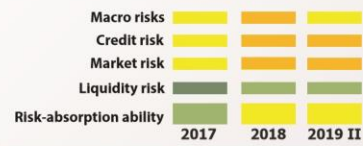


FINANCIAL STABILITY REPORT 2019-I

FINANCIAL SYSTEM IS STABLE AND ABLE TO ABSORB RISKS



HIGHER THAN EXPECTED ECONOMIC GROWTH IS RECORDED



SECTORAL GROWTH

	2019 June
Services	9.4%
Industry	5.2%
Constructions	3.5%
Agriculture	-6.9%
Economic growth	6.8%

THE IMPACT OF RISKS FROM GLOBAL ECONOMY CONTINUOUSLY DECREASED



3.2%

Global economic growth rate slowdown



Decrease of commodity prices



FINANCIAL INTERMEDIATION IS DEEPENING AND CREDIT PORTFOLIO IS GROWING



49.5%

LOANS/GDP



5.4%

CREDIT GROWTH

CREDIT RISK IS MANAGEABLE



5.1%

Share of non-performing loans and account receivables has increased by 0.7 pp and amounted 5.1%.



BANKING SYSTEM IS LIQUID AND STABLE Exceeds the Prudentials



27.2%

Total liquidity

111.4%

Current liquidity

17.4%

Capital adequacy

COUNTERCYCLICAL CAPITAL BUFFER IS 0%



0%



FINANCIAL STABILITY REPORT

2019
1st half

This Financial Stability Report presents an assessment of potential risks that could threaten the stability of the financial system of the Republic of Armenia as well as the capacity of the financial system to absorb such risks.

More detailed information **on Armenia's macroeconomic environment** is available in the Status Report on Monetary Policy Implementation, as well as in financial systems analysis publications, such as the Armenian Financial System: Development, Regulation, and Supervision.

The data published in this report are as of 30.09.2019

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TABLE OF CONTENTS

Preface	5
Abstract	6
<i>Box 1: Macroprudential Dashboard</i>	8
1. Developments in the global economy	10
1.1. Macroeconomic environment	10
1.2. International financial markets	13
2. Developments in the macroeconomic environment of Armenia.....	14
2.1. Macroeconomic developments.....	14
2.2. Foreign trade	17
2.3. Household income and debt burden	18
<i>Box 2: Real Estate Market During the First Half of 2019</i>	20
3. Financial markets stability	22
4. Financial institutions stability.....	25
4.1. Commercial banks.....	25
4.1.1. Credit risk	26
4.1.2. Liquidity risk	27
<i>Box 3: Regarding the change of mandatory reserve requirements rate</i>	28
4.1.3. Market risk	28
<i>Box 4: The general methodology of operating the countercyclical capital buffer</i>	30
4.1.4. Capital adequacy and profitability.....	32
4.2. Credit organizations	33
4.3. Insurance companies	34
4.4. Securities market participants.....	37
4.5. Mandatory pension funds	38
5. Financial market infrastructures stability	40
5.1. Interbank payments via electronic payment system of the Central Bank	40
Charts	44
Tables.....	46
Glossary of terms	47
Abbreviations	49

Financial stability can be characterized as the concurrence of financial and macroeconomic conditions at a time when the financial system, i.e., financial institutions, markets, and market infrastructures, is capable of withstanding probable shocks and instability, minimizing the probability of interruption of intermediation function.

In defining financial stability, it is taken into consideration that financial instability can emerge as a result of the interruption of internal functions of the financial system, as well as unfavorable developments in domestic and world economies, credit risk issues connected with major borrowers and lenders, shifts in economic policies and infrastructures.

Maintaining financial stability involves efforts to identify primary risk sources, poorly-managed financial risks, ineffective asset pricing, and, finally, implementation of the policy as appropriate.

PREFACE

The *Financial Stability Report* of the Central Bank of the Republic of Armenia is prepared on a semiannual basis. It contains a broad assessment of risks that could threaten the stability of the financial system as well as the capacity of the financial system to withstand such risks. Through publishing information concerning a variety of reviews on financial stability, the Central Bank seeks to bring interested parties' attention to those risks and events that could undermine the financial stability of the Republic of Armenia as well as initiate measures addressed to minimize such risks.

On April 9, 2018, the financial stability became the main objective of the Central Bank, parallel with the price stability (following the amendments of the Constitution of the Republic of Armenia, implemented in 2015).

Disruptions in the financial sector may create impediments to the effective implementation of monetary policy and long-term and stable economic growth. At the same time, monetary and macroeconomic stability contributes to the minimization of risks threatening financial stability. The financial sector plays a vital role in the overall economic system, and the financial sector needs to maintain continuity and sustainability of processes to contribute to the healthy growth of the entire economy

The Central Bank carries out ongoing monitoring and analysis of financial stability for early disclosure of any changes and variations that could threaten financial stability. The report refers to the risks revealed in the macro-environment and the financial sector and their influence on the developments in all areas of the economy and financial system.

Risks affecting the financial stability of Armenia can emerge in the domestic economy, external economy, and the financial sector itself. In this sense, the main preconditions for financial stability are:

- favorable developments in the global economy and international financial markets,
- sound domestic macroeconomic environment whereby households and companies are creditworthy enough,
- an effective financial system with risks that are prudent and manageable,
- financial infrastructures with operational continuity to the benefit of the financial system functioning.

Based on the abovementioned facts, risks that can potentially undermine the financial stability of Armenia are presented in this report as follows:

- risks derived from developments in the global economy,

- risks derived from developments in the macroeconomic environment of Armenia,
- risks derived from developments in the financial market of Armenia,
- risks derived from the financial institutions of Armenia,
- risks derived from the financial infrastructures of Armenia.

The report addresses the risks revealed in those areas and measures their possible impact on the developments in the overall economy and all parts of the financial sector. The report mainly focuses on the risks to the banking sector and development trends: assets of commercial banks account for 85 percent of entire financial system assets. Therefore, the banking sector stance mainly determines overall financial stability and development trends.

ABSTRACT

During the first half of 2019, given the high economic growth in Armenia, positive developments of the labor market, and the easy monetary conditions, the financial system of Armenia remained stable. Meanwhile, financial intermediation continued to deepen, and the credit and deposit portfolios grew.

The global growth remained on track during the first half of 2019, although with some slowdown. According to the IMF projections, this trend will be sustained during the second half of 2019.

A slowdown in economic growth is expected in the European Union countries, the USA and Russia, which are Armenia's principal partner countries.

During the half-year, the risk of sustained trade protectionism by advanced economies was maintained, which harmed global trade growth, while slowing the growth rate of the global economy overall.

In the short and medium-term, a slower-than-anticipated economic recovery of emerging markets and developing countries, continuation of tensions in the international trade, possible fluctuation in financial markets, as well as risks caused by unfavorable geopolitical developments will be highlighted.

Given the current economic developments during the first half-year, developed countries returned to a more accommodative monetary policy. In emerging countries, a capital outflow was recorded, causing slower economic growth rates and depreciation pressures on domestic local currencies.

Foreign and domestic developments had no negative impact on financial system stability.

The anticipated decline of the current rate of global economic growth may have some negative impact on the domestic economy in the future.

In the European Union countries and in Russia, which are the leading trade partners of Armenia, a relatively slow economic growth was recorded during the reported period. The latter has not yet caused a fall in foreign demand but has negatively impacted the inflow of money transfers to Armenia from abroad (for details, see section "Developments in the Global Economy").

During the first half of 2019, the economic growth in Armenia was 6.8%, which was mainly driven by structural changes in the economy, institutional reforms by the Government, and the increase in private spending and strong credit growth. The latter, in turn, was fuelled by the accommodative monetary policy of the central bank of Armenia (for details, see section "Macroeconomic developments").

During the first half of 2019, the Central Bank of Armenia retained its monetary policy direction unchanged, given both the domestic and foreign macroeconomic developments. The refinancing rate was lowered by 0.25 percentage points and was set at 5.75%¹.

Given the ongoing economic activity of the first half of 2019 and positive developments in the labor market, a growth of lending was registered in the financial system.

Given the persistent economic activity during the first half of 2019 and positive developments in the labor market, lending growth was recorded in the financial system. Due to easy monetary policy, the interest rates for loans and deposits continued to decline. Parallel to more active lending by commercial banks, credit risk has increased slightly, as the share of non-performing loans has gone up slightly. As loan portfolios grew, the banking sector's capital adequacy and liquidity ratios decreased. These indicators, however, continue to remain higher than the minimum regulatory requirements of the Central Bank.

Non-bank financial institutions have recorded an expansion of their activities, while the prudential ratios have been maintained within the required limits.

Even though the risks hindering the financial stability of Armenia, stemming from both foreign and domestic macroeconomic conditions grew, the financial system has demonstrated a high-risk absorption capacity (for details see section "Stability of financial institutions").

¹On 10 September 2019, the refinancing rate was reduced by another 0.25 percentage points and was set 5.5 %.

Box 1

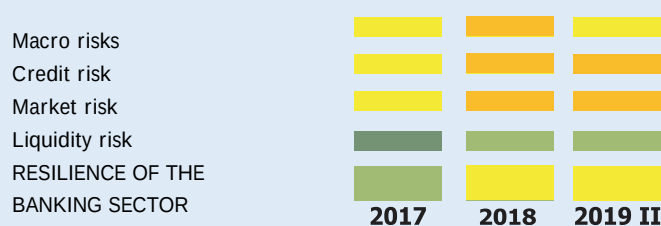
Macprudential Dashboard²

the sources of systemic risks and the financial system resilience

The dashboard consists of two parts, namely, risk sources threatening financial stability and the ability of the system to absorb those risks, i.e., risk resilience.

The part describing the risks, represents the systemic risk sources and their accumulation by different sources, given that in case of risk materialization, the stability of the system will be threatened. The second part represents the resilience of the system – the ability of the system to absorb those risks in case of their materialization, the availability of liquidity and capital buffers.

Macprudential Dashboard, 2nd quarter of 2019



Compared to the end of last year, during the first half of 2019, no increase in risks of all subgroups has occurred, macro risks have decreased.

The decrease in macro risks was due to higher than expected economic growth during the first two quarters of 2019, an improvement of current account deficit due to export and import developments. At the same time, the decline in remittances from abroad and the high level of public debt continue to impact the aggregate indicator of macro risks negatively.

The comparably high level of credit risk is caused by the high growth rates of household lending, and its high share in disposable income. That level of private debt describes the high level of the debt burden of the latter and the vulnerability to the potential shocks.

The accumulation of risks in the market risks is driven by relatively high growth in real estate prices, which was in line with a high increase in mortgage lending.

The low level of liquidity risks is conditioned by the positive dynamics of the liquidity ratios compared to their historical average.

The ability of the financial system to absorb potential risks remains high due to the maintenance of high levels of liquidity and capital

²The macroprudential dashboard consists of 23 indicators that are aggregated in 2 main areas: the risk sources to financial stability and the degree of resilience of the financial sector. The dashboard colors represent a change in the index compared to its long-term series; red color indicates risk increase, while green color indicates risk decrease. The evaluations are updated and calculated quarterly.



adequacy ratios. The existence of such a level of risk absorption will allow for safeguarding financial stability in case of potential risks' materialization in the future and ensure the necessary level of financial stability.

In general, the main message of the dashboard reflects the findings and conclusions presented in the other parts of the Report.

1. DEVELOPMENTS IN THE GLOBAL ECONOMY

1.1. MACROECONOMIC ENVIRONMENT

In 2019, growth in the global economy continued, though at a slower pace. Meanwhile, the balance of risks has shifted further to the downside, both in the short term and medium term. During the first semester, tensions in global trade, weak investment environment, and the possibility of fluctuations in global financial markets have prevailed.

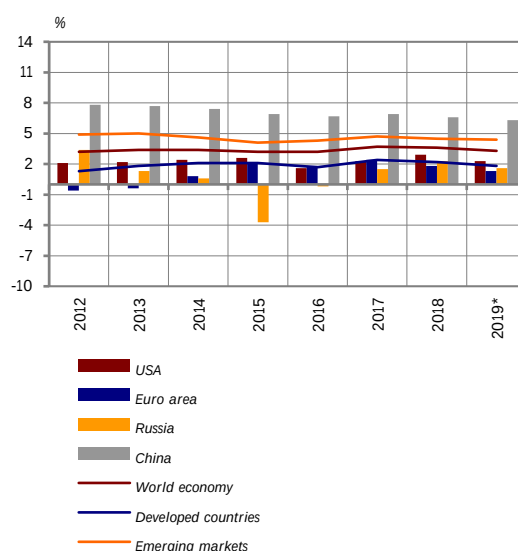
The global economic recovery slowed down, mainly reflecting existing issues in several key advanced economies, and slow economic growth in developing countries.

During the first half of the year, the trend of global economic growth was sustained, though the risks to the downside became more tangible. According to the IMF projections, global growth is estimated to be 3.2% in 2019 (3.6% in 2018).

Both in developed and developing countries the economic growth rates will be lower in 2019 compared to 2018 and amounting 1.9% and 4.1%, respectively (2.2% and 4.5% in 2018)³.

The slowdown of global economic activity and low level of oil prices drew to a relatively lower inflationary environment during the first half of 2019. Respectively, the IMF has estimated the inflation to be 1.6% in advanced countries and 4.8% in emerging market countries in 2019. Moreover, given the continuation of current tendencies of economic activity, inflationary pressures will continue to be subdued.

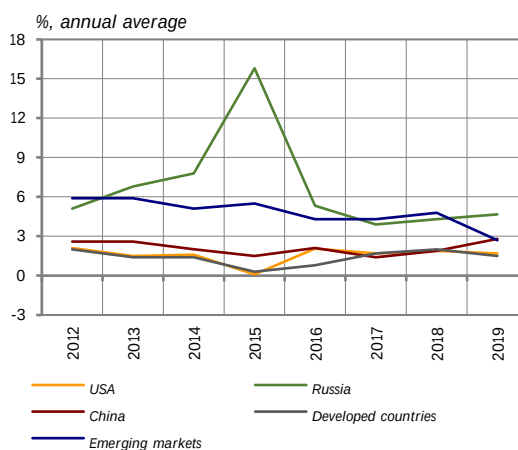
Economic growth by regions



*Indicators marked by an asterisk in this chart and the ones following after that are the IMF estimates (2019 July):

Source: IMF.

Inflation in a number of countries



Sources: IMF, Statistical services of countries.

³All the forecasts and assessments of IMF were taken from "World economic outlook update, July 2019".

*IMF Overview of the World Economic Growth Projections, 2017- 2019,
in percent*

Indicator (economic growth)	2017 assessments as of 30.07.19	2018 assessments as of 30.07.19	2019 forecasts as of 30.07.19
World economy	3.8	3.6	3.2
Developed countries	2.4	2.2	1.9
USA	2.2	2.9	2.6
Euro area	2.4	1.9	1.3
Developing countries	4.8	4.5	4.1
CIS	2.2	2.7	1.9
Russia	1.6	2.3	1.2
China	6.8	6.6	6.2

The economic growth of developed countries has slowed down during the first half of 2019. The economic growth of advanced countries is estimated at 1.9%, which is expected to slow down in the midterm due to the slowdown of world economic growth and developments in some countries.

The U.S. economic growth forecast is estimated at 2.6% in 2019. The economic activity recorded in the previous year was preserved, mainly supported by the high domestic demand due to the tax reduction state policy and expansionary monetary policy during the semester.

The current accelerating level of the U.S. economic growth, according to estimates, will not persist in 2019 due to the slow-down of world economic activity and fluctuations in the financial markets.

In the *Euro area countries*, the slow-down of economic activity witnessed in the second half of 2018 also continues in the first half of 2019. The main driver was the slowing export growth rate, which was due to a decrease in external demand. At the same time, the stable growth of private consumption, the reduction in unemployment, and the increase in lending have contributed positively to economic growth. Domestic demand has also weakened, although in a more mere rate, thanks to the reduction in unemployment and growth of real wages.

The economic growth in the euro area is projected to be 1.3% in 2019.

In *emerging markets and developing countries*, the pace of the economic growth slowed down during the first half due to weak external demand, strictening of terms in international financial markets, and elevated political uncertainties.

The growth rate of developed countries slowed down during the half-year.

The decline in external demand, geopolitical uncertainties, as well as tensions in global trade relations most probably should be noted among the factors slowing down the economic growth of emerging economies in the short term.

According to the IMF, a 4.1% economic growth will be recorded in the emerging market countries in 2019 (4.5% in 2018).

In *China*, the economic growth rates have continued to go down, though some stabilization tendency has been recorded. Industrial production and export growth have decreased, reflecting the slow-down in world economic activity. At the same time, monetary and fiscal incentives, as well as the growth of the lending rate in the financial sector, have contributed positively to the economic activity.

In the near term, the downside risks to the economic growth will stem from tighter financial sector adjustments, inward-looking policies by advanced countries and growing geopolitical tensions⁴.

The economic growth in China is estimated to be 6.2% in 2019.

In *Russia*⁵, according to the estimations by the Ministry of Economic Development of the Russian Federation, the economic growth was 0.9% in the second quarter of 2019.

The economic growth in Russia is estimated to be between 1.0-1.5% in 2019⁶.

The economic growth projections have been revised downward primarily due to low levels of export, as well as the slow recovery of global economic activity. It is expected that the growth of investment demand thanks to a more active public expenditure policy will contribute positively to economic growth during the second half of the year.

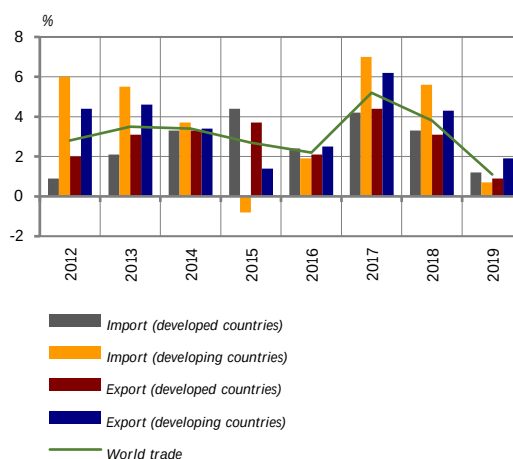
The growth rates of private consumption were mainly conditioned by the increased real disposable income of households, as well as lower inflation and growth in lending.

In the short term, external factors will significantly define Russia's economic growth, such as uncertainties related to oil price dynamics, monetary and trade policies of key countries, as well as trading and economic sanctions against Russia.

The **global trade's** recovery tendency continued to slow down during the first half of 2019 due to a decrease in main commodity

The prices of the main commodities have remained low during the first half-year of 2019.

Annual growth rate of world trade



Source: IMF.

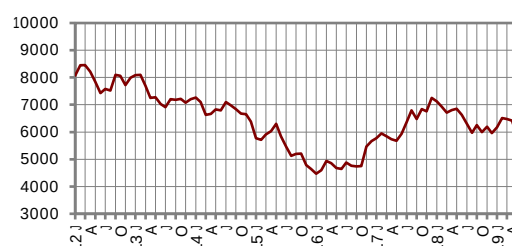
Brent oil prices (USD per barrel)



Source: Bloomberg Data Warehouse.

The prices for base metals were in line with the global economic developments.

Copper prices (USD per ton)



Source: Bloomberg Data Warehouse.

⁴<http://www.imf.org/en/Publications/WEO/Issues/2018/03/20/world-economic-outlook-july2019>

⁵www.economy.gov.ru

⁶http://cbr.ru/Collection/Collection/File/18969/2019_01_ddcp.pdf

prices, a comparably weak investment environment, and trade disagreements between key countries of world trade, which will continue to the second half of the year.

Given the IMF forecasts, the growth rate of global trade will be 2.5% in 2019, as compared to 3.7% of the previous year.

In the first half of 2019, international prices of primary commodities continued to decrease as they did in the yearend of 2018.

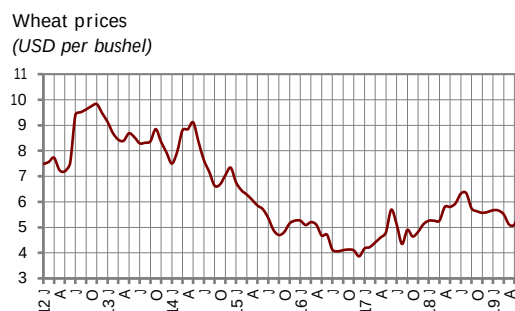
A sharp decline in oil prices over the last months of the previous year was followed by a certain uptrend in the reporting period conditioned by the reduction of oil extraction by oil extracting countries, as well as weakening of the sanctions against Iran. However, Brent crude oil average semi-annual price decreased by 9.1% compared to the same period of the previous year.

Driven by a decrease in demand, the copper prices fell by 8.9% compared to the same period of the last year.

The average semi-annual price of molybdenum grew by 14.0% compared to the previous year.

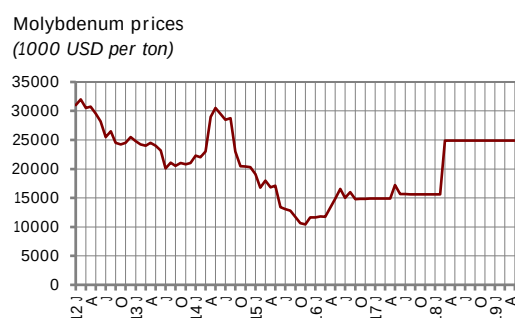
In the short-term, the international stock prices of base metals will be maintained at the current levels due to “trade wars” and developments of world demand.

During the reported half of the year, the wheat average international prices decreased by 1.7%, as compared to the same period of the previous year, due to high harvest levels expectations.



Source: Bloomberg Data Warehouse.

The wheat prices have increased, as compared to the same period of the previous year.



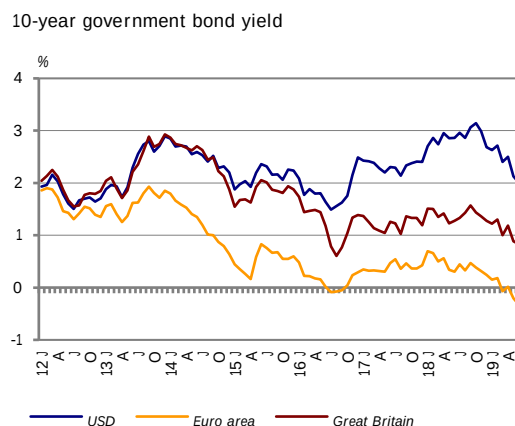
Source: Bloomberg Data Warehouse.

1.2. INTERNATIONAL FINANCIAL MARKETS

Developed countries have given preference to the expansionary monetary policy due to the slowing pace of world economic activity and low-inflation environment. Trade tensions have led to growth in fluctuations in financial markets, as well as an increase in bond spreads.

Government bonds' yields have decreased in developing countries, as well as the capital inflow to those countries has slowed down during the first half of 2019.

Further growth of fluctuations in financial markets in the medium term can lead to disruptive adjustments, sharp exchange rate movements, and the continued downturn of capital inflows to the most vulnerable emerging markets.



Source: Bloomberg Data Warehouse.

In the U.S. and the Euro area, the yields on long-term government bonds have decreased drastically due to the slow down of world economic growth and the changed expectations of monetary policy directions by the market participants.

During the half-year, the position of developed countries to further tighten monetary policy has changed significantly amid low inflationary environment and domination of downward risks.

The U.S. Federal Reserve reviewed the further timeline of policy interest rate change; at the same time, the ECB hasn't reconsidered the refinancing rate and has provided clear messages about the exclusion of interest rate increase in the future, at least up to second half of 2020.

The Bank of England⁷ has not changed its monetary policy rate during the first half of the year. According to the Bank's announcements, the revision of the policy rate would depend on the inflation rate, the rate of unemployment, as well as on dynamics of several economic indicators.

The Central bank of Russia⁸, have eased the monetary conditions during the first half of the year, given the risks stemming from the world economy and their influence on domestic financial markets. The refinancing rate was lowered by 0.25 percentage points to 7.5% during the first half of the year.

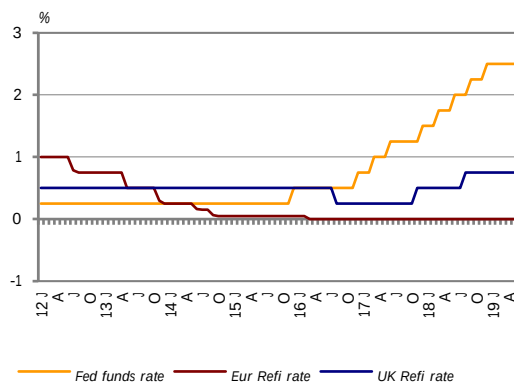
During the reporting period, the major currencies had different behavior. The U.S. dollar has appreciated versus the euro, driven by stable economic growth and the recent course of the monetary policy.

Taking into account the capital flows and the developments in the international financial markets, the domestic currencies depreciated in several emerging markets during the reported half of the year.

In the future, the currency patterns will be conditioned by the monetary policies implemented by the advanced countries, particularly the U.S. Fed's policy, as well as by domestic developments across countries, the demand for external financing, and the political stability.

The interbank interest rates have gone down, responding to the adverse economic developments in leading countries.

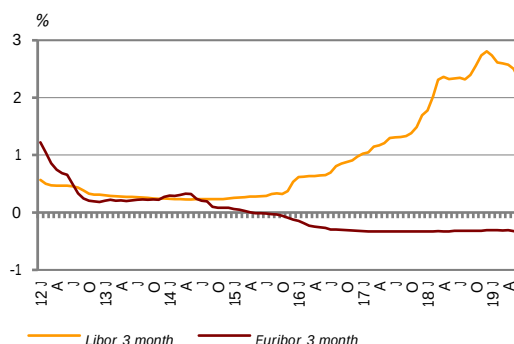
Interest rate policies of Central Banks



Source: Bloomberg Data Warehouse.

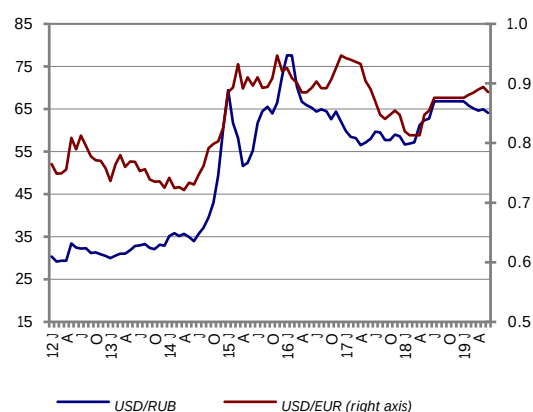
The Fed has stopped raising its interest rate while transmitting signals to the financial markets on a possible reduction of the latter.

Interbank interest rates



Source: ECB.

Dynamics of USD exchange rate versus RUB and EUR



Source: Bloomberg Data Warehouse.

⁷<https://www.bankofengland.co.uk/monetary-policy-summary-and-minutes>

⁸<https://www.cbr.ru>

2. DEVELOPMENTS IN THE MACROECONOMIC ENVIRONMENT OF ARMENIA

2.1. MACROECONOMIC DEVELOPMENTS⁹

During the first half of 2019, economic stability was observed in Armenia, which was conditioned by structural changes of the economy, and expansionary monetary policy. Due to positive developments, the Moody's international rating agency increased the sovereign rating of Armenia from «B1» to «Ba3»:

During the first half of the year, a higher-than-forecasted economic growth was recorded in Armenia, reaching 6.8%. The latter was mainly conditioned by the growth of the services and processing industry, while agriculture has contributed negatively to economic growth.

In particular, 10.2% y/y growth in the services sector was mainly driven by high growth in tourism, recreation, and entertainment, as well as trade sub-sectors.

During the first half of the year, the 5.2% growth in the manufacturing sector was conditioned by accelerated growth of the processing industry sub-sector, as well as recovery tendencies of the mining sub-sector during the second quarter of the first half.

The construction sector recorded a 3.5% growth, which was lower compared to the same period of last year and was mainly driven by a reduction in construction and installation works under some projects.

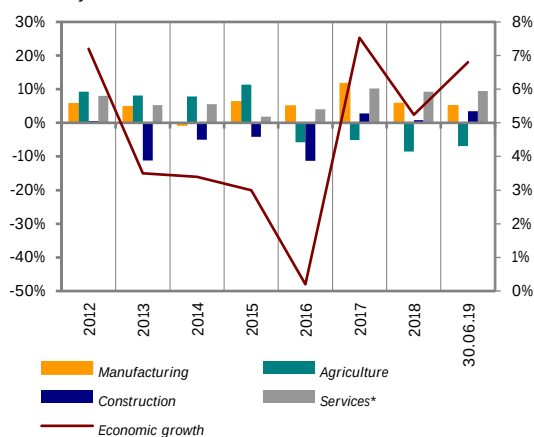
Private consumption, which has contributed substantially to economic growth, has had a 14.0% growth in an environment with a high growth rate of loans to households. The private investments¹⁰ have grown by 8.4%: Continuation of expansionary monetary policy has contributed to the growth of private expenditure.

From the start of the year, public consumption and investments have shrunk by accordingly 5.9% and 32.4% y/y due to tight fiscal policy. As a result, the fiscal sector has had quite a deterrent influence on gross demand.

The recovery of the domestic demand and the easing of lending conditions contributed to 5.4% credit growth (year-on-year). The increase in the volume of loans to trade, accommodation and catering, agriculture, construction, and processing industry had the most significant share in the overall lending growth. The growth of

A higher-than-anticipated economic growth was observed, due to increases in almost all sectors of the economy, except agriculture.

The growth levels of real GDP and main sectors of economy

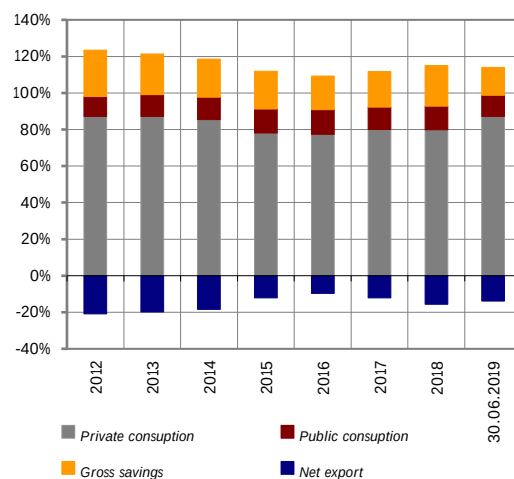


* In the chart, the sector of services includes trade and other service sectors' aggregate values.

Source: Statistical Committee of Armenia.

Trade and manufacturing industry had the most contributions to economic growth.

GDP expenditure components (share in GDP)



Source: CBA.

⁹For details on the developments of the macro environment in Armenia, see "Inflation Report 2019, IIIrd quarter".

¹⁰Reserves of material working capital are not included.

lending was accompanied by a slight increase in the share of non-performing loans and receivables in total loans and receivables of the banking sector, which by the end of the first half of 2019 amounted to 5.1% (4.4% in 2018).

The share of non-performing loans has grown almost in all sectors. The most significant growth was recorded in the sectors of processing industry, trade, accommodation and catering, and in agriculture.

It should be mentioned that despite the growth in the share of non-performing loans, it is quite lower than its average during the past few years.

In the first half of 2019, the growth of lending investments continued.

Compared to the same period last year, lending supply-side conditions improved across all directions¹¹. As a result, general lending terms and conditions were eased due to increased competition and expectations of economic activity acceleration. The latter resulted in a lowered interest margin. It should be mentioned that the cost of attracted funds has increased, which allows us to expect an increase in interest rates. Creditworthiness evaluation terms have become strict due to the deteriorated creditworthiness of households.

According to the surveys, during the second quarter, 52% of credit demand was satisfied, which is lower than the previous quarter by 4 pp.

Although the fiscal policy is expected to be expansionary regarding the gross demand by the end of the year, for the whole year, the fiscal policy will continue to remain restraining. Budget revenues have grown by 25.1% thanks to consistent and targeted tax administration. Tight fiscal policy has resulted in a 4.3% increase in expenditures. Thanks to the above developments, the state budget had a surplus.

Under the umbrella of sustained stabilization and more efficient management of the public debt by the Government and performed tight fiscal policy, indicators describing external debt have improved. Notably, the indicator of external debt has decreased by 1.7% compared to the end of the previous year, as a result of which external debt to GDP has declined by 3.4% compared to the same period and is 45.6%.

In June 2019, the 12-month inflation constituted 2.5%, which was mainly resulted by a higher-than-expected fall of prices for agricultural products.

According to the monetary policy program of the Central Bank, the 12-month inflation will stay at the lower border of the acceptable limit range in the near future and will stabilize to reach its target level in the medium term. As a result of it, the Central Bank will continue the expansionary monetary policy to realize the inflation target for the medium timeline.

¹¹ According to the survey: "Lending conditions of banks and credit organizations". I quarter, 2019.

2.2. FOREIGN TRADE¹²

During the first half of 2019, global growth continues to slow-down, and disagreements regarding trade terms lead to the slow-down of growth rates of revenues of Armenia's key partner countries. Prices of energy carriers have destabilized, and the demand for industrial metals has gone down.

The net export of Armenia has contributed to economic growth negatively, though, from the second half of the half-year, the problems of the mining industry have weakened thanks to the improvement of the recovery rate of the sub-sector, which has led to the acceleration of the growth rate of the export.

In January – June 2019, the foreign trade turnover hasn't changed compared to the same period of the previous year, the growth of export of the products hasn't exceeded 1%.

It should be noted that the growth rates of investment products have slowed-down.

The trade balance has improved thanks to the developments in imports and export mentioned above. The trade balance was 20.2% of the GDP (22.0% at 30.06.2018).

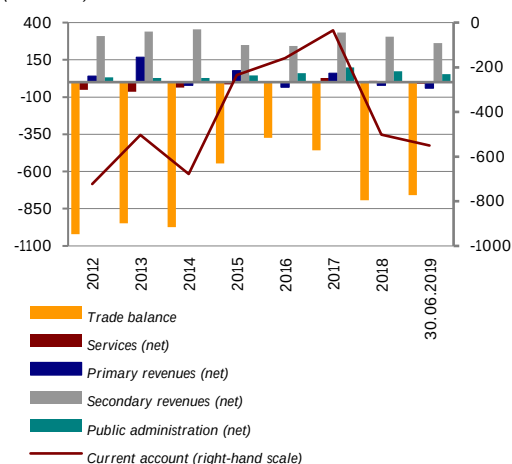
The relationship between the current account/GDP has improved and reached 9.7% instead of 9.8% of the previous year. Real and nominal effective exchange rates have appreciated in June 2019 compared to the same month of the last year for 5.6 and 14.3 percents respectively¹³.

The concentration level of foreign trade of Armenia has not changed significantly. The main trading partners with the largest share remain the EAEU and the EU member states with the following export and import weights (by the countries of origin): EAEU, 27.9% and 28.4%, EU 23.1% and 20.8%.

Compared to the previous year, the concentration of exports almost did not change and totaled 0.418 (0.422 at 30.06.2018).

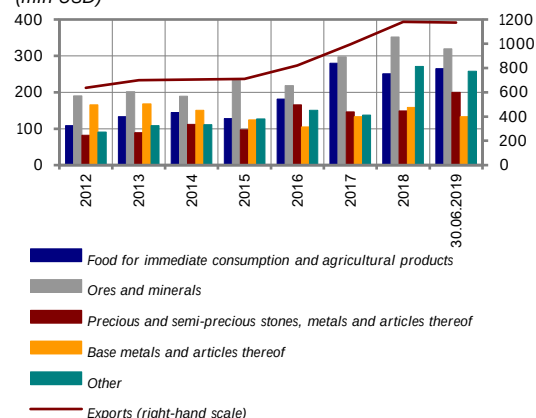
During the first half of 2019, the current account deficit/GDP relationship has improved due to GDP growth.

Main indicators of balance of payments (semiannual), (mln USD)

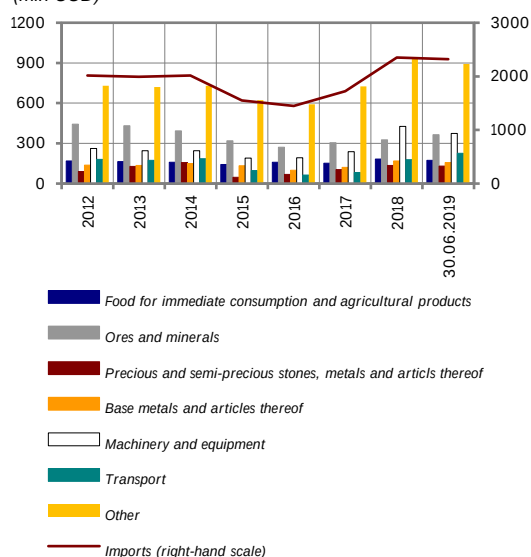


Source: CBA.

Armenia's exports by commodity groups, semiannual, (mln USD)



Armenia's imports by commodity groups, semiannual, (mln USD)

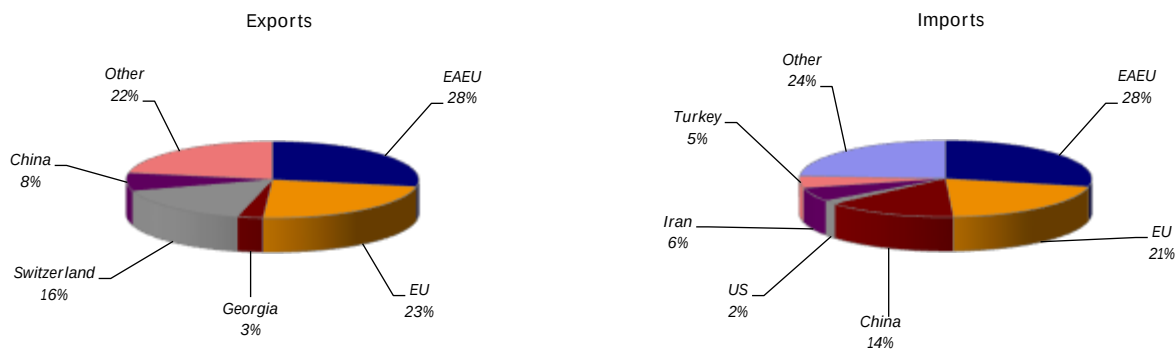


Source: Statistical Committee of Armenia.

¹²The indicators in this section are based on data from the National Statistics Service of Armenia.

¹³For the Exchange rate behavior and the foreign competitiveness, the nominal and real effective exchange rates are also considered, which are calculated based on the respective weights of foreign trade with twelve main partner countries (Euro area, Russia, Ukraine, South Korea, Bulgaria, Switzerland, Iran, the USA, Turkey, Georgia, Japan, China).

Armenia's foreign trade, by country
(as of 30.06.2019)



Source: Statistical Committee of Armenia.

2.3. HOUSEHOLD INCOME AND DEBT BURDEN

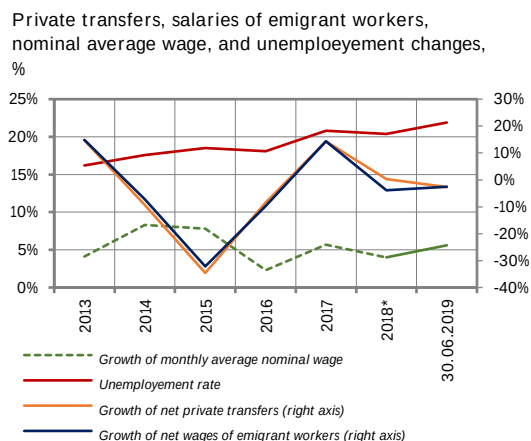
During the first half of 2019, the risks coming from the households have remained manageable, though the vulnerability of households has increased towards possible shocks due to the increase of debt burden. In this case, it is important to maintain the improvement of macroeconomic conditions to support the increase of disposable income of households and to the decrease of the debt burden.

Salaries constitute the most significant share of household incomes, and they have grown for 5.6% during the half-year¹⁴. The growth of wages was accompanied by a 2.6% y/y decrease of unemployment. The reduction of net current private remittances and outbound worker's compensations in USD, due to Russian Ruble's depreciation against the USD and the slow down of construction and trade sectors' growth rates, had some negative influence on household's revenues

During the first half of the year, the deposits of the resident households have grown by 2.7%. Besides, the share of deposits in AMD in the total deposits has continued to grow and reached 57.0%. The increase of the percentage of deposits in AMD, all other things being equal, contributes towards the growth of the possibility of lending in AMD, which itself decreases credit risk derived from the movements of the exchange rates. Households have increased the share of Government bonds in their savings.

During the first half of the year, the growth trend of lending by the banks and credit organizations to the households has been

During the first half of the year, salaries have grown, but remittances from abroad have decreased.

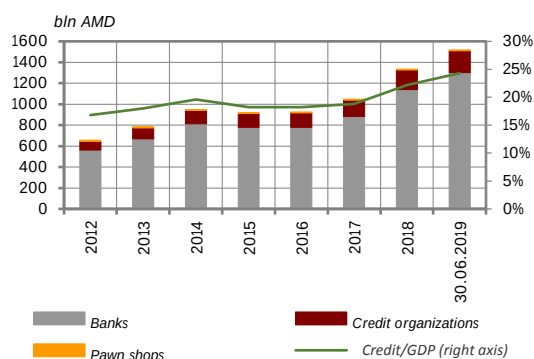


*Starting from January 2018, the RA Statistical Committee has revised the methodology for labor market statistics, within which the values of several indicators were changed. Accordingly, in the chart, the data related to the first half of 2018 is not comparable with the previous years' data.

Source: National Statistics Service of Armenia.

During the half-year, lending to households grew, leading to their increased debt burden.

The structure of household liabilities to financial institutions



Source: CBA.

¹⁴Starting from January 2018, the National Statistics Service of Armenia revised the statistical methodology of the labor market, within which several indicators were changed. Accordingly, the average nominal salary refers to organizations with one or more employees.

maintained on the same level, which has increased the vulnerability of the households to the possible shocks. The primary indicator describing the debt burden of the households: credit/GDP relationship has grown and is 24.2% (22.2% in 2018). To manage the debt burden of households, it is planned to take some actions to suppress the further deepening of the debt burden.

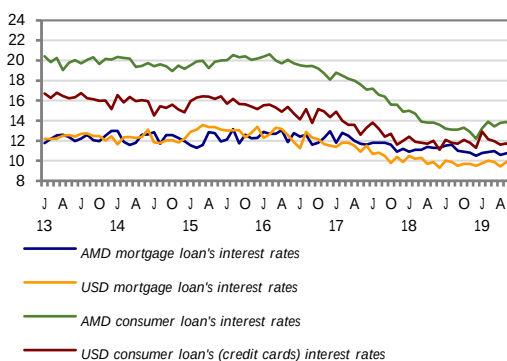
Due to the progressive growth of loans against the deposits first time after 2015, the credit/deposit relationship has exceeded 100% and reached 100.9% at the end of June. As a result, the households started to play the role of net borrower instead of the net funder for credit organizations. In this case, the active crediting of households in the further years should be accompanied by appropriate growth of disposable incomes to suppress the risks associated with high credit burden. Despite that, the growth of lending of households of the last years has been accompanied by an increase of credit portfolio maturity, which, all things equal, eases the burden of debt service. According to the survey by the Central Bank of Armenia, households expect lending to them to grow also for the second half of 2019¹⁵.

The competition in the credit market has been high, especially for consumer lending, which has grown by 14.2% during the half-year. Primarily fast consumer loans that don't require collateral and are provided through an online banking system have grown significantly¹⁶. According to the surveys by the Central Bank of Armenia, some credit organizations have mentioned that in these conditions, there is some pressure towards the tightened pricing of consumer lending, which can be neutralized by an improvement of other lending conditions.

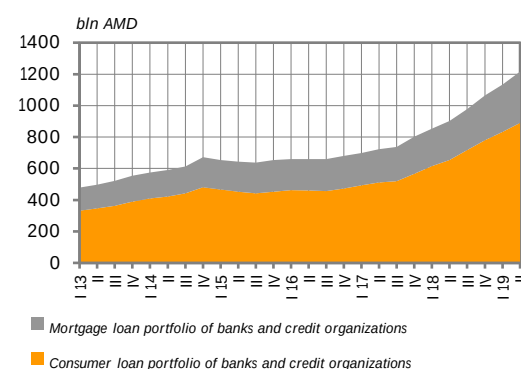
Simultaneously to the growth of lending, the quantity of non-performing consumer loans has increased, and as a result of which the share of it in the total sum of consumer loans portfolio reached 9.2%.

Mortgage loans have increased drastically as well (14.3%), mostly due to the increase of mortgages to buy real estate from the primary market. The latter is conditioned by the initiative of refunding mortgage interest payments from income tax payments, realized refinancing programs by the state, as well as expected price hikes in the real estate market¹⁷. Under the umbrella of events to promote the mortgage market, the share of the mortgages in AMD in the total portfolio of mortgages reached 61.9% by the end of the half-year. Meanwhile, during the half-year, the percentage of non-performing mortgages has decreased to 2.6%.

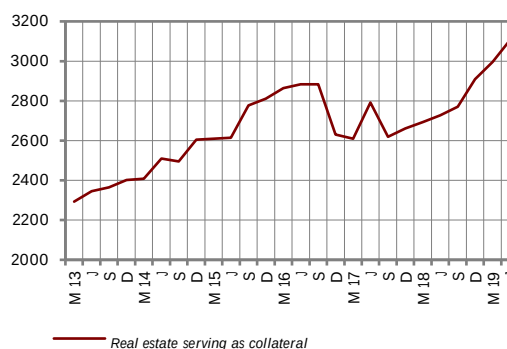
Lending interest rates to households, %



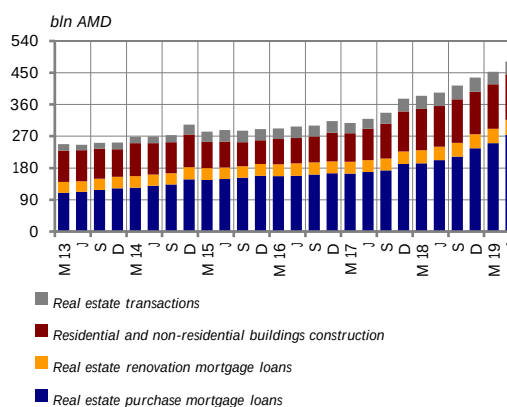
Consumer and mortgage loan portfolio of banks and credit organizations



The volume of bank's collateral as real estate (bln AMD)



Real estate lending



Source: CBA.

¹⁵Source: summary of quarterly surveys on "Lending conditions by banks and credit organizations of Armenia" by the CBA, 2019.

¹⁶See the previous reference.

¹⁷See the previous reference.

Real Estate Market During the First Half of 2019

From the perspective of financial stability, the developments in the real estate market play a crucial role as they impact the normal functioning of the financial system significantly. Notably, the growth of mortgages or the prices of real estate, which isn't conditioned by economic fundamentals, can lead to an increase in the risks to financial stability.

The activity of the real estate market continued to be comparably high.

The real estate market continued to be active also during the first half of 2019. The trend of price growth was maintained as in Yerevan as well as in the regions. In Yerevan¹⁸, compared to the same period of last year, the average market price for 1 m² of an apartment has grown by 9.5% y/y, which is the highest value of the indicator since the last financial and economic crisis. The prices have gone up in all administrative areas of Yerevan, especially in the first zone of Centre (16.3%).

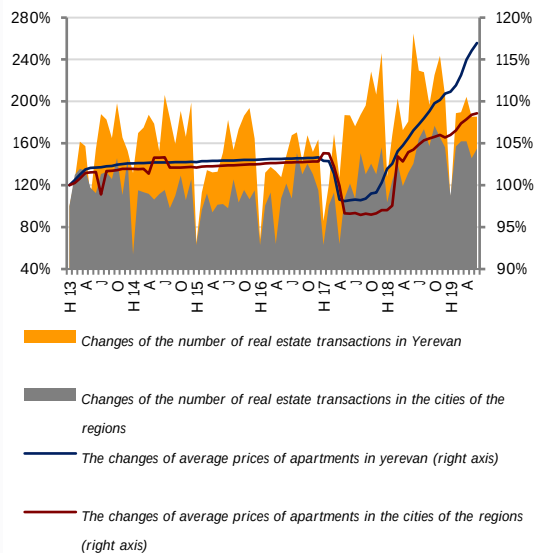
In the cities of the regions, the average price for 1m² of apartments has grown by 5.9% y/y. With the increase in the prices, the number of real estate purchases and sell transactions has gone up (1.5% y/y). We can conclude about the activation in the real estate market also from the numbers of newly built houses and the volume of real estate construction growth (appropriately 38.5% growth y/y and 18.7% y/y). According to the quarterly survey of credit organizations performed by the Central Bank, the real estate price increase tendency will also continue in the next quarter.

During the half-year, the growth tendency of mortgage lending persisted.

The initiative of refunding mortgage interest payments by income tax payments, realized refinancing programs by the state that have increased the volumes of available mortgage lending continue to remain as critical factors influencing the increase of the demand for real estate. During the half-year, the amount of loans to buy real estate has grown by 16.0%, and the number of them has increased by 9.4%. The quarterly surveys performed by the Central Bank of Armenia showed that the banks and credit organizations that took part in the study continued to ease the lending terms, and the competition was mainly not through interest rate conditions, but through non-interest rate terms, such as loan to value and evaluation of collateral. With the activation of the real

¹⁸As there is no single index of real estate average price in Armenia, the criterion for real estate price developments is considered the average price index of apartments in Yerevan.

The changes in average prices of apartments and the number of transactions in Yerevan and the cities of the regions



Source: State Committee of Real Estate Cadaster at the Government of Armenia

estate market, the volumes of loans to build residential and commercial property have also grown (7.9%). During the half-year, the credit portfolio quality of the above-mentioned loans hasn't changed. Overall, real estate activity has had a positive impact on the liquidity risk of credit institutions and the credit risk arising from fluctuations in real estate prices. However, the further rise in real estate prices should be in line with economic fundamentals to contain the risks arising from the real estate market in terms of financial stability.

3. FINANCIAL MARKETS STABILITY

The Central Bank of Armenia has continued expansionary monetary policy during the first half of 2019 as a result of which short-term market interest rates (interbank repo interest rates) and short-term government bonds yields have gone down. The long-term treasury bill yields have demonstrated growth tendency as opposed to the short section of the treasury bills' yield curve. Both repurchase agreements, as well as the significant portion of the securities trade, has been done with treasury bills.

The Central Bank has maintained the expansionary direction of the monetary policy during the first half of 2019 to cope with low inflation.

In January 2019, the Central Bank has reduced the key interest rate with 25 basis points and set to 5.75% because of the possible influences of slow-down of world economic growth rates and an expected weakening of the inflationary conditions in the international markets of essential goods on gross demand and internal prices¹⁹.

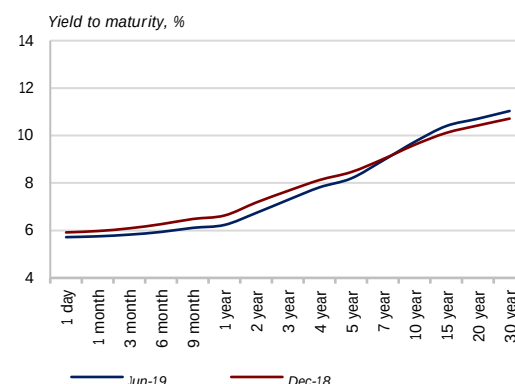
At the same time, the Central Bank indicated that it would continue maintaining the expansionary conditions for a necessitated long-term period in case the forecasted macroeconomic conditions come true²⁰.

Under the umbrella of expansionary monetary policy, the volume of repo transactions with the CB has advanced and reached 190.6 billion AMD at the end of June (163.4 billion AMD at the end of 2018). During the half-year, the Central Bank, in parallel with the primary monetary policy tool, has utilized the up to 91-day repo agreements aiming at shifting part of the short-term liquidity to the long-term and evaluating the liquidity price for that period.

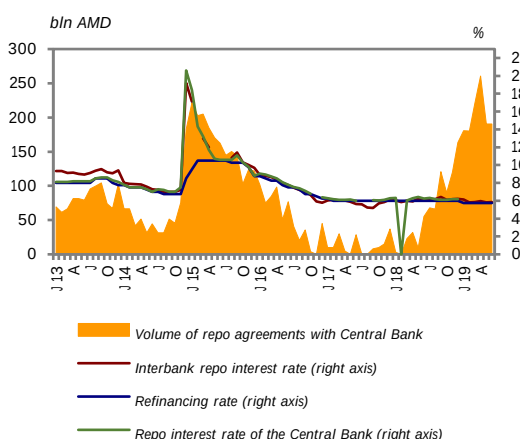
Historically the RA CB refinancing interest rate changes have reflected in the behavior of interbank repo transactions' interest rates, which have mainly been resembling the refinancing interest rate. The same tendency has endured during the first half of 2019, and, parallel to the shrinkage of refinancing interest rate, the interbank repo interest rates have lowered and formed around the CB policy interest rate. The interbank repo interest rate contracted by 40 basis points and reached 5.84% in 2019 June compared to 2018 December.

During the first half of 2019, the CBA maintained its accommodative monetary policy trace.

Yield curves of Armenian government bonds



Monthly volume of repo transactions and repo interest rates (interbank and with the CBA)



Source: CBA.

¹⁹In September 2019, the Central Bank of Armenia reduced the refinancing rate by 0.25 percentage points to 5.5%.

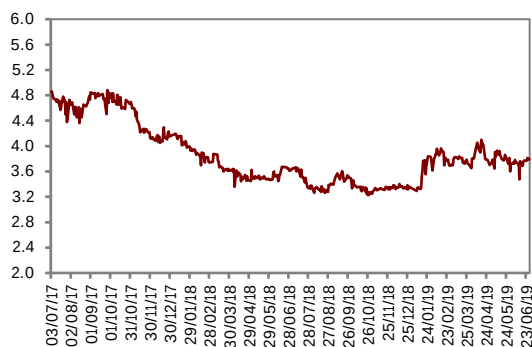
²⁰<https://www.cba.am/AM/ppperiodicals/MP%20report%202019Q1.pdf>

Different portions of the government bonds' yield curve have changed in different directions²¹. Notably, short-term government bonds continued the behavior typical to the money market, and the short section of the yield curve yields contracted in line with the CB policy interest rate reduction. The long-term government bonds' returns have shown growth tendency, which later on has been neutralized by the decrease of the CB refinancing interest rate²². As a result, the spread/difference between 10-year and 6-month maturity yields stood at 3.8 (3.4 at the end of 2018). During the half-year, the leading describing indicators of the government bonds (modified duration²³, risk-adjusted return, weighted average return) haven't changed. The average term of government coupon bonds has grown and formed on average, 9.9 years (9.5 years in 2018). The 1% parallel-move stress test of the bond yields shows that in case of the growth/decline of returns, the possible loss/profit of the investors will be 29.6 billion AMD or 4.7% of the market value (27.2 billion AMD, 4.6% in 2018). The significant part of the changes is expected from the long-term bonds as the latter have higher sensitivity towards the interest rates.

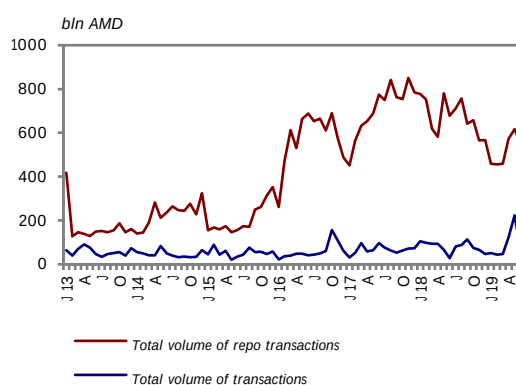
During the first half-year of 2019 compared to the same period of the previous year, the gross volume of transactions made by investment service providers in the securities market has decreased by 21.4% y/y because of 25.6% y/y decline in the repo and reverse repo transactions (not taking into account the repo deals with the RA CB). However, repo transactions continue to have a significant share in the gross volume of arrangements (84.8%). The majority part of repo transactions (around 99%) was made with government securities.

The total turnover of securities trade by investment service providers has shrunk by 7.9% y/y. The transactions with government bonds have continued to dominate and formed 74.4% of the securities trade (79.0% for the same period of the previous year), a big part of which are transactions made with long-term

Spread between 6 month and 10-year government securities

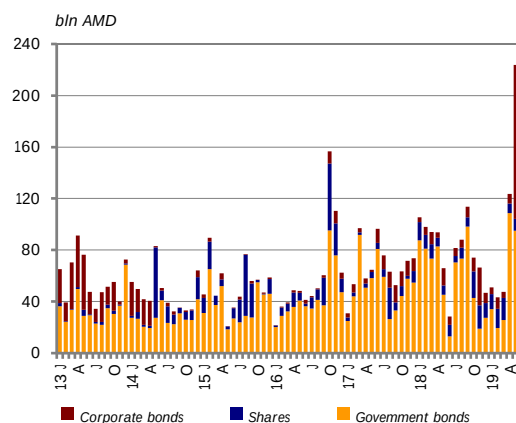


Repo transactions carried out by investment service providers (excluding transactions with the CBA)



Source: CBA.

Security trades by investment service providers



Source: CBA.

²¹The yield curve involves dependence between the yields and maturities of government bonds. Starting from July 2013, the Central Bank is using a new approach in building the yield curve by applying the Nelson and Siegel model; this is a parametric statistical model, and it approximates the yield curve of all periods as a function.

²²There are five indices calculated for government securities, of which 4 for coupon bonds and 1 for discount bonds. The coupon bond indices are G03, G05, G5I, which cover bonds with maturities, respectively, from 0 to 3 years, 0 to 5 years, and 5 years and more; and GMI, which is a coupon bond index. Indices include the bonds issued in AMD by the Ministry of Finance, with semi-annual fixed coupons and AMD 1 billion and higher turnover. Discount government bonds TBI include bonds with a maturity of one week and more, with AMD 400 million and higher turnover.

²³Modified duration indicates the price change of a bond in case of its percentage change in the yield to maturity.

government bonds. The relationship between the volume of government bond trade transactions by the investment service providers and the quantity of government bonds in turnover has grown and reached 8.1% in June. Compared to the same period of the previous year, the share of the regulated market in the securities trade has risen to 9.7%.

As of June 30th, 2019, the capitalization of equity shares' market was AMD 144.0 billion (AMD 143.8 billion at the end of 2018). The concentration of capitalization by issuers has remained the same compared to the previous year; the share of the first three issuers was 83.3%, while the share for the first five issuers was 98.5%. This denotes the high concentration of share issuers.

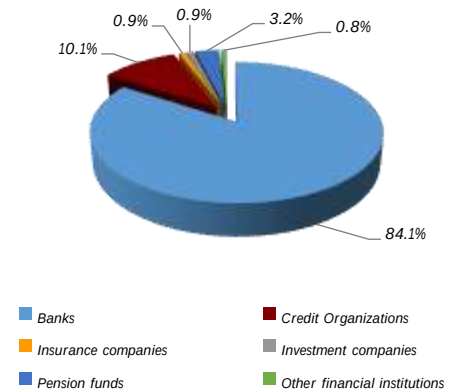
4. FINANCIAL INSTITUTIONS STABILITY

In the first half of 2019, the indicators of financial system actives to GDP and credit to GDP have grown by 2.4 and 1.7 percentage points accordingly compared to 2018 and reached 99.9% and 55.5%, respectively.

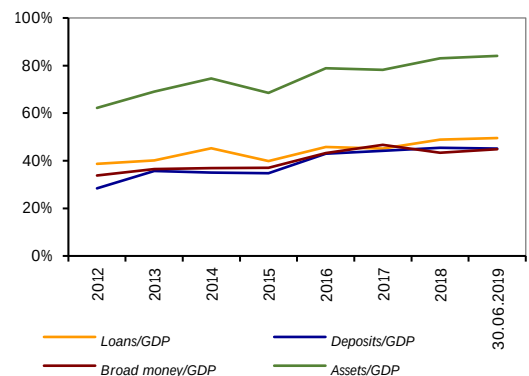
Armenia's financial system continues to be bank-dominated, with banks accounting for 84.1% of the financial system assets. During the first half of 2019, banking system assets to GDP and credits to GDP indicators have grown by 1.0 and 0.6 percentage points accordingly and reached 84.1% and 49.5%. Deposits to GDP and money supply to GDP indicators were 45.2% and 44.8%, respectively. In this context, identifying and evaluating banking sector risks is essential for the assessment of the stability of domestic financial institutions. The shares of insurance and securities market participants and other players of the financial market are small, and their impact on financial stability is still low.

The risk management of banks is highly important in terms of financial stability.

Structure of financial system assets by financial institutions, as of 30.06.2019



Banking intermediation

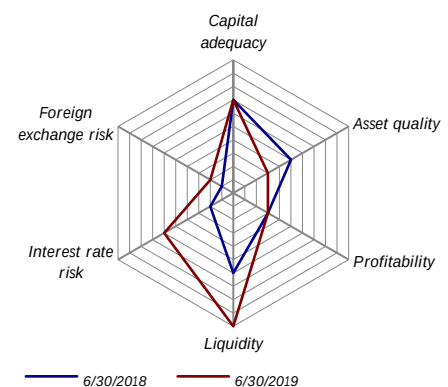


4.1. COMMERCIAL BANKS

Banking sector stability map

In the second quarter of 2019, relative to the second quarter of 2018, the elements of the stability map²⁴ incurred some changes. Mainly, some negative shifts were observed in the liquidity, interest rate, and exchange rate risks. Capital adequacy, profitability subindexes haven't incurred any changes, and regarding the asset quality indicators, there is some improvement (for details, see subsections "Credit risk," "Liquidity risk," "Market risk," "Capital adequacy and Profitability").

Banking sector stability map



Source: CBA.

²⁴The banking sector stability map contains indicators denoting capital adequacy, asset quality, liquidity, profitability, interest rate risk, and foreign exchange risk. These indicators were firstly measured on a 1 to 10-scale basis and then calculated following the IMF methodology. Note that the nearer the value to the center of the map, the lower the level of risks associated with the indicator, and vice versa. The banking sector stability map shall not be interpreted as an indication of the level of financial stability; instead, it provides a picture of whether the level of risks involved has increased or decreased.

4.1.1. Credit risk

Credit services continue to have the most significant share in the banking system assets, and in this case, credit risk has the most significant share. The share of credit risk in the risk-weighted assets of commercial banks accounts for 89.2%.

During the first half of the year, loans to the economy increased by 5.6%. Lending to legal entities decreased by 0.2%, while lending to individuals increased by 14.7%.

The consumer and trade loans had the most significant shares in total lending to residents, making up to 25.1% and 14.6%, respectively.

The share of foreign currency loans in the credit portfolio has decreased by 2.6 percentage points and constituted 54.5%.

The share of non-performing loans and receivables (classified as "watched," "substandard," and "doubtful") increased by 0.7 percentage points to 5.1% of total loans and receivables. Regarding each category of loans and receivables, the shares of "watched", "substandard", and "doubtful" loans and receivables were 2.2%, 1.5% and 1.7%, respectively (as of 31.12.2018, they were 1.4%, 1.2% and 1.7%, respectively). The share of non-performing loans and receivables is relatively high in the manufacturing industry, consumer loans, and agricultural sector, constituting 11.6%, 7.8%, and 5.9%, respectively.

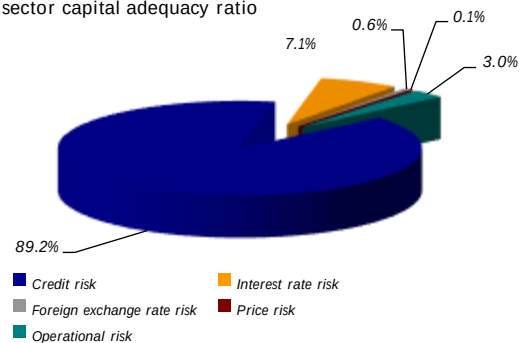
It should be noted that though the increase of the share of non-performing loans, it is significantly lower than the average indicator of the last years.

The Herfindahl-Hirschman sectorial concentration index for lending constituted 1154, pointing to a moderate concentration of loan allocation in the banking sector.

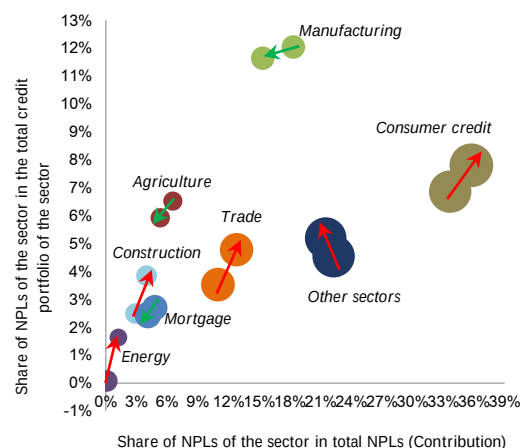
In terms of the loan portfolio concentration, the share of loans to large borrowers in total lending was 25.6%²⁵.

The results of the credit risk stress tests deteriorated somehow at the end of the first half of the year, as compared to the beginning of the year. This was attributed to the decrease in capital adequacy, and growth in the share of non performing loans and receivables in total loans and receivables. The strictest stress scenario revealed cases of infringement of the capital adequacy requirement at some banks. However, the capital adequacy indicators in these banks remain quite close to the regulatory requirements, and the total capital will be sufficient enough to absorb plausible losses arising from the credit risk. In this context, the probability of the emergence of insolvency problems in the banking sector is estimated to be low.

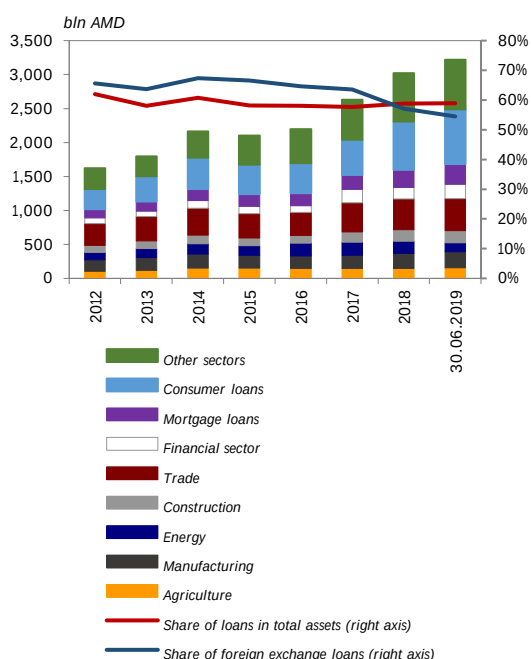
Structure of risk weighted assets calculated in banking sector capital adequacy ratio



Change of NPLs share in lending to economy sectors (The end of the arrow shows data as of 30.06.2019, the beginning, as of 31.12.2018)



Structure of bank loans to residents, by economy sectors



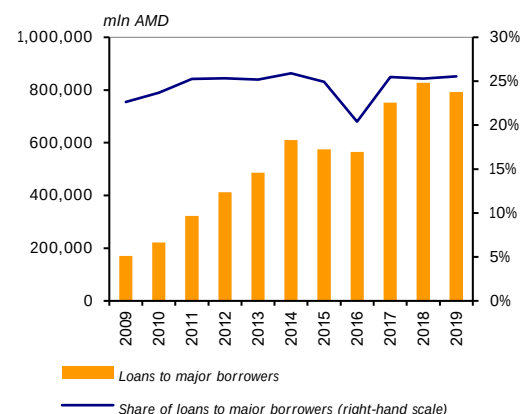
²⁵The bank's risk on large borrowers exceeds 5% of average monthly regulatory total capital, considering the interdependence.

Source: CBA.

30.06.2019	Stress scenarios		
	25% of watched, substandard and doubtful loans classified into losses	75% of doubtful loans classified into losses	30% of standard loans classified into watching loans
Loss of the banking sector	AMD 30.9 billion or 4.2% of regulatory capital of the banking sector	AMD 16.4 billion or 2.2% of regulatory capital of the banking sector	AMD 93.6 billion or 12.7% of regulatory capital of the banking sector
Total capital adequacy of the banking sector in case of the stress scenario	16.8%	17.1%	15.6%

Source: CBA.

Loans to major borrowers in the banking sector



Source: CBA.

4.1.2. Liquidity risk

The liquidity of commercial banks displayed a decreasing trend owing to the lending activity of commercial banks. Prudential ratios of total and current liquidity fell by 0.1 and 5.2 percentage points to 27.2% and 111.4%, respectively, relative to the beginning of the year (with minimum thresholds of 15.0% and 60.0%, respectively).

Prudential ratios of total liquidity and current liquidity for convertible foreign currencies (Group 1) increased by 2.0 and 3.3 percentage points to 20.9% and 71.9%, respectively (with minimum thresholds of 4.0% and 10.0%, respectively).

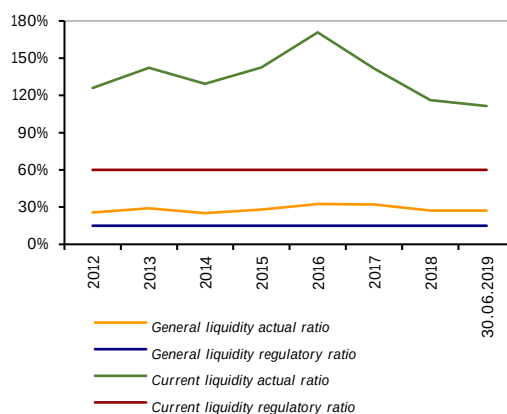
As for assets and liabilities by maturity baskets, in up to 1-year timeframe, contractual cash inflows and the volume of highly liquid assets almost fully cover cash outflows, in case if the liabilities are not being refinanced. The ratios of the sum of the contractual inflows of funds and highly liquid assets, and the contractual outflows of funds for up to 30-day (including demand), up to 3-months and up to 1-year maturity baskets amounted 103.2%, 94.9%, and 84.2%, respectively²⁷.

The foreign borrowings of commercial banks have increased by 2.3%, as compared to the beginning of the year. The funds attracted from international financial institutions increased by 0.4%, with a 26.0% share in total foreign borrowings. The primary lender countries include the Netherlands (21.2%), Luxembourg (19.9%), Germany (7.9%), the United States (5.8%), and Ireland (5.1%). The share of long-term liabilities in total foreign borrowings amounted to 87.0%.

From the perspective of the stability of loan financing sources by deposits, the loans to deposits ratio increased by 5.4 percentage

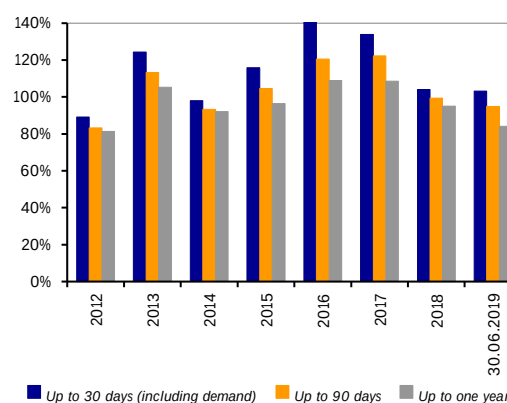
The liquidity ratios of commercial banks are twice higher than the regulatory minimum requirements.

The dynamics of actual and regulatory liquidity ratios of the banking sector



Source: CBA.

The ratio of the banking sector assets to liabilities by terms to maturity



Source: CBA.

²⁶This and further stress scenarios are not forecasting the emergence of any risks but instead are aimed to reveal the weaknesses of the financial system, as well as to assess its ability to absorb such risks.

²⁷In the calculation of the ratio of assets and liabilities according to time baskets, the off-balance-sheet contingent liabilities were included by a share of 20%.

points relative to the beginning of the year and stood at 109.7%²⁸ at the end of the first half of the year.

Liquidity risk stress scenarios

30.06.2019	Stress scenarios		
	Withdrawal of 25% of individuals' term deposits	Withdrawal of 25% of demand liabilities	Withdrawal of 25% of demand liabilities and 25% of individuals' term deposits
Total liquidity ratio of the banking sector	21.7%	22.4%	16.3%
Current liquidity ratio of the banking sector	83.0%	115.1%	77.3%

Source: CBA.

Box3

Regarding the change of mandatory reserve requirements rate

The CBA has initiated a gradual change in the requirements of mandatory reserve standards to strengthen the financial stability of the banking system and to create liquid foreign currency assets. According to the initiative, it is envisaged to switch from mandatory reserve requirements in AMD for liabilities in foreign currency to mandatory reserve requirements in foreign currency in the coming years.

After the changes realized in June and August of 2019, the mandatory provisioning for attracted funds in a foreign currency will be done by 14% in AMD and 4% in foreign currency (in the past, for both cases (attracted funds in AMD and foreign currency), the provisioning was done in AMD.) It should be noted that from now on in the reserve requirements for funds attracted in foreign currency, the share of provisioning in a foreign currency will grow by gradual steps. These measures, in line with the implementation of Liquidity coverage ratio and Net stable financing ratios of Basel liquidity requirements, will allow strengthening the flexibility of commercial banks by increasing the foreign currency liquidity ratio.

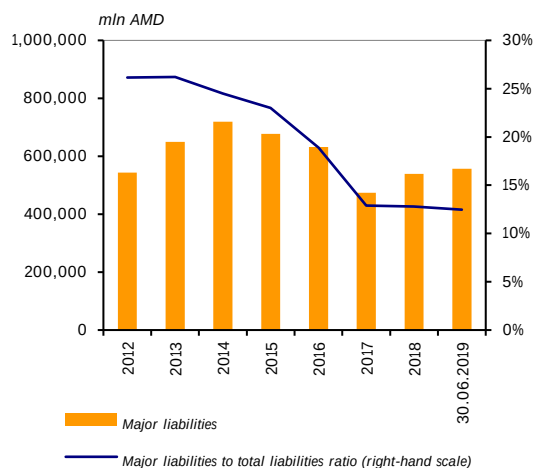
Compared to the liquidity risk stress tests done at the beginning of the year, the results of the stress tests at the end of the first half almost haven't changed. All banks have a sufficient level of highly liquid assets to absorb the simulated liability outflow in case of the worst stress scenario. In this context, the emergence of liquidity problems undermining financial stability is estimated to be low.

4.1.3. Market risk

Foreign exchange risk

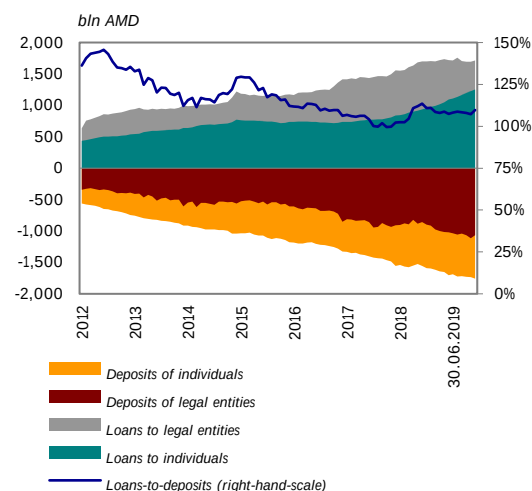
The market risks of the banking system continue to be manageable. The net short FX position of the banking system

The ratio of the banking sector major liabilities to total liabilities



Source: CBA.

The structure of banking sector loans and financing sources



Source: CBA.

The possible influence of market risk on financial stability is estimated to be weak.

²⁸In the calculation of this ratio, loans include loans to real sector, while deposits include term and demand funds attracted from individuals and companies.

(including derivatives) has been AMD 846 million or 0.1% of the total capital (AMD 22.5 billion or 3.1% of the total capital)²⁹.

As a result of foreign currency revaluation because of AMD and foreign currency exchange rate fluctuations, the banking system had AMD 730 million loss, and AMD 11.6 net income from FX trade transactions and transactions with derivatives.

Foreign exchange risk stress scenarios

30.06.2019	Stress scenarios		
	Profit (loss) in the case of 5% appreciation (depreciation) of AMD/USD	Profit (loss) in the case of 5% appreciation (depreciation) of AMD/EUR	Possible maximum 10-days loss estimated by 99% VaR Model
Banking sector's profit/loss from foreign currency revaluation	AMD 66 million or 0.01% of regulatory capital (AMD 65 million)	AMD 160 million or 0.02% of regulatory capital (AMD 160 million)	AMD 274 million or 0.04% of regulatory capital

Source: CBA.

Of the worst possible stress scenarios reviewed in the above stress test³⁰ unfold, bank losses resulting from an open FX position will be insignificant, and the impact of such losses on the financial stability will be weak.

Interest rate risk

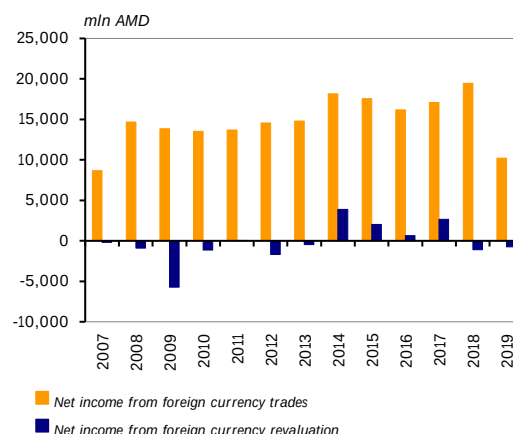
The interest rate risk of the banking sector remained low. The average weighted duration gap of the present value of assets and liabilities of the banking sector varies in the range of ½ to 1 year. This means that possible fluctuations in the market rates have a low direct impact on the potential losses of the banking sector.

Interest rate risk stress scenarios

30.06.2019	Stress scenarios	
	Impact of 2 pp. Increase (decrease) of market interest rates on the economic value of the capital, estimated through the "Duration Method"	Deviation of net interest income from the expected income of the three months ahead in the case of 2 pp. Increase (decrease) of market interest, estimated through the "Interest rate-sensitive assets and liabilities"
Banking sector's profit/loss	AMD -32.6 billion or 4.4% of banking sector capital (AMD 32.6 billion or 4.4% of banking sector capital)	AMD -943 million or 0.1% of banking sector capital (AMD 943 million or 0.1% of banking sector capital)

Source: Central Bank of Armenia.

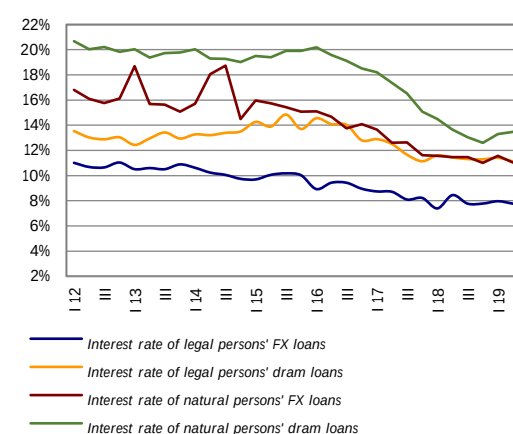
The net income of the banking sector from foreign currency trades and revaluation



Source: CBA.

The interest rates of loans and deposits of natural and legal entities have decreased.

Interest rates of loans to legal and natural persons



Source: CBA.

²⁹The derivative instruments include the derivative contracts signed with foreign governments, central (national) banks, financial organizations and international institutions that are rated A+ (A1) or higher than A+ (A1) for long-term deposits by Standard & Poor's or Fitch (Moody's).

³⁰The calculation of losses estimated through stress-scenarios and the VaR Model (The VaR Model is not considered as a stress-scenario since the calculation of the model considers historical exchange rate series of currencies) is based on FX positions of commercial banks as of 30.06.2019.

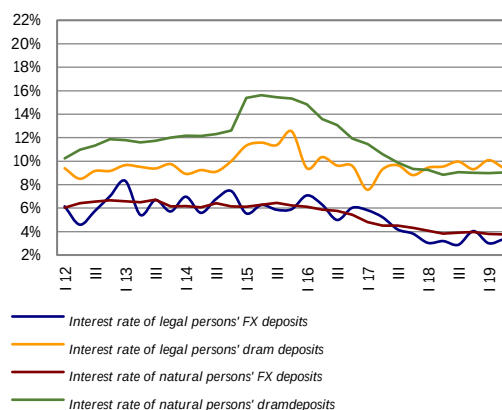
In case of the worst possible stress scenarios, potential losses of banks resulting from interest rate changes will approximately be 4.5% of the total capital. This implies that losses of the banking sector resulting from the interest rate fluctuations are insignificant, and the impact of such losses on the financial stability will be negligible.

Price risk

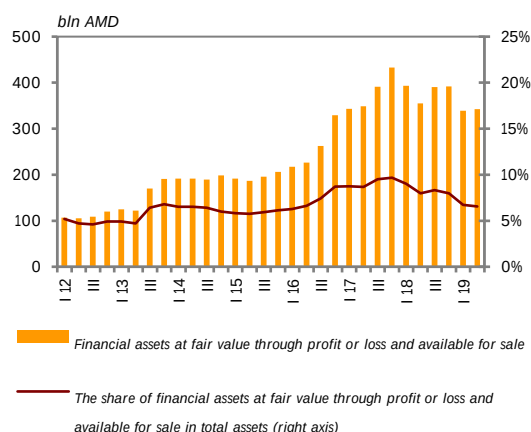
The price risk of the banking sector remains low, owing to the small amount of financial assets available-for-sale and held at fair value through profit or loss in the balance sheets of banks. Relative to the beginning of the year, the share of the abovementioned assets decreased by 1.5 percentage points to 6.6% in total assets as of the end of the first half of the year.

The net income generated by the banking sector from the revaluation of financial assets available-for-sale and held at fair value through profit or loss was AMD 2.4 billion.

Interest rates of deposits from legal and natural persons



Share of financial assets at fair value through profit or loss and available for sale in total assets



Source: CBA.

Box 4

The general methodology of operating the countercyclical capital buffer

1. The objective of the countercyclical capital buffer (CCyB)

CCyB is one of the macroprudential policy tools, which targets excessive credit growth to weaken the negative influence of the latter on financial stability.

The macroprudential policy-making body raises the CCyB rate at the expansion phase of the credit cycle to create an additional buffer to suppress the possible systemic risks because of excessive credit growth. During the downturn phase of the credit cycle, the demanded rate for the CCyB is decreased. By doing this, the need to drastically cut down crediting by the participants of the financial system (deleveraging) and the unwanted consequences on financial stability and economic growth is softened.

To sum up, we can say that the primary objective of the CCyB is to raise the capability of the financial system to withstand financial and economic shocks and to ensure a smooth supply of credit financial assets to the economy.

2. RA CB approach to CCyB decisions

A general approach to setting CCyB was suggested by the Basel Committee on Banking Supervision (BSBC). According to this approach, a preliminary factor for deciding the CCyB is the gap between the Credit to the economy to GDP relationship and its long-term trend.

However, The Basel Committee advises not to use the credits/GDP indicator mechanically when making decisions regarding the CCyB, as the latter can often bring to wrong conclusions regarding the developments of the credit cycle. Mainly, a reason for wrong conclusions can be the usage of short time-series, as well as different crediting regularities typical to developing economies. Besides, credits/GDP gap can be used as a preliminary landmark to assess the excessive credit growth, which is not enough to decide the developments of the credit cycle, particularly the turning points between its stages (expansion phase, downturn phase). Because of it, the Basel Committee suggests using discretion in addition to using the credits/GDP gap when making decisions about the CCyB.

The RA CB also uses discretion when making decisions about the CCyB in line with the assessments derived from the credits/GDP gap, also uses the excessive growth of the credits and other early warning indicators of systemic risks accumulation, as well as the changes in the general numbers received from aggregating the mentioned indicators, and performs expert judgements.

Mainly, indicators that describe the developments of the credit market (changes in the volumes of credits, credit growth rates, trend analysis, credit terms, etc.), real estate prices and mortgage lending tendencies which are connected to the developments of the credit market, indicators describing external imbalances, etc. are among the early warning indicators.

At the RA CB, the decision making regarding the CCyB (setting the rate, increase, decrease, and leaving it unchanged) is performed in successive steps.

At the initial stage, it should be decided if the level of the CCyB goes in line with the current developments of the economy. That's to say, the RA CB has to decide on the increase, decrease, or leaving unchanged of the CCyB. At this stage, by using quantitative indicators (credits/GDP gap and other indicators), the possibility of accumulation of systemic risk because of the general developments of the credit market is estimated. Afterwards, these estimations and the decisions derived from them can be corrected by taking into account the expert judgments and the possible influences of the CB other tools.

In the case, when the RA CB concludes that there is no need to change the CCyB rate, the process ends here. In the example, when a decision is made to review the CCyB rate in the direction of increasing or decreasing it, the process continues and discussions regarding changing the rate start. Notably, the growth rates of different quantitative indicators that indicate the excessive growth of credits, the deviation of the latter from their trends, and the duration of the deviation, changes in the volumes, etc. are being evaluated in more depth.

Before making a final decision regarding the CCyB rate, the aggregate incoming information described above is combined with expert judgments, and the CCyB rate is set.

Summing up, let's mention that while making decisions about macroprudential tools, particularly the CCyB, the RA CB follows the discretion principle. The usage of discretion principle is justified by the fact that the evaluation of systemic risks is a complex process, and the conclusions derived from the mechanical usage of quantitative methods can be not enough (correct).

Therefore, the RA CB decision-making process regarding the CCyB is based not only on estimations from quantitative methods but also on expert judgments.

4.1.4. Capital adequacy and profitability

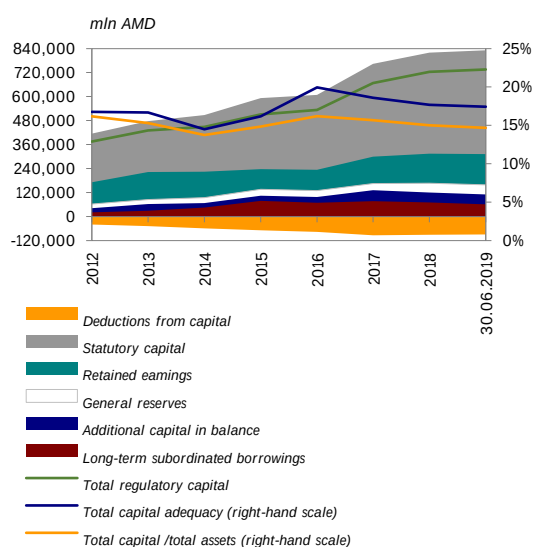
During the first half of 2019, the total capital adequacy ratio of commercial banks decreased by 0.2 percentage points to 17.4%. The leverage ratio (capital/assets) has decreased by 0.3 percentage points and reached 14.7%. This decrease was mainly due to the expansion of the loan portfolio and increase of possible loss provision reserves, as well as the reduction of the share of the additional capital, which occurred due to the implementation of the capital structure requirements of the Basel III accord. The statutory capital replenishments and generated net income positively impacted the capital adequacy at banks. The structure of the total regulatory capital has high quality in terms of its risk absorption capacity. In particular, the share of CET1 capital constitutes 86.9% of the total regulatory capital.

After the complex analysis of a few facts, the CBA has set the countercyclical capital buffer (CCyB) to be 0% of risk-weighted assets. Here are some of the arguments for it:

- The Credit/GDP³¹ ratio, calculated by the methodology suggested by the Basel committee, was around 60%. The gap of the latter from its long-term trend is positive, but not essential to set a positive CCyB.
- The maintenance of high growth rates of loans to the economy and it's different sectors (particularly, households), the developments of mortgage and real estate markets, as well as the tendencies of other early warning

The capital of commercial banks provides a high level of risk absorption.

The structure of total regulatory capital



Source: CBA.

³¹Credits constitute the gross amount of loans (including leasing, factoring, and loans classified as a loss) to the private, non-financial sector of the economy by the financial sector and recalculated by the fixed exchange rate. The estimation of credit/GDP potential level was done with the methodology suggested by the Basel Committee, by using Hodrick Prescott filter, where the λ parameter was 400,000.

indicators tell about some enlargements in the lending market, so they can indicate about possible signs of accumulation of systemic risks. But these indications/signs are still limited and don't create a need to set a positive CCyB³².

According to the supervisory reports of the CBA, the banking sector's net profit amounted to AMD 29.2 billion, with 16 banks reporting profit and one bank incurring losses³³. RoA and RoE were 1.1% and 7.6%, respectively.

The return on equity deteriorated due to a decrease in the return on assets, while the leverage almost hasn't changed.

The interest and non-interest income and interest expenditure shares have increased in the banking sector and expenditure structure, while the shares of recoveries from asset loss provisions and allocations from asset loss provisions have decreased. These changes took place due to some improvement in loan portfolio quality compared to the same period of the previous year.

4.2. CREDIT ORGANIZATIONS

Credit organizations represent the second largest sector of the Armenian financial system, with their assets making up to 10.1% of total assets of the financial system.

Assets, liabilities, capital, and profit of credit organizations

Thousand AMD

Indicator	31.12.2018	30.06.2019	Δ (%)
Assets	555,964,093	633,300,524	13.9%
Liabilities	261,532,405	338,377,186	29.4%
Capital	294,431,688	294,923,338	0.2%

Source: CBA.

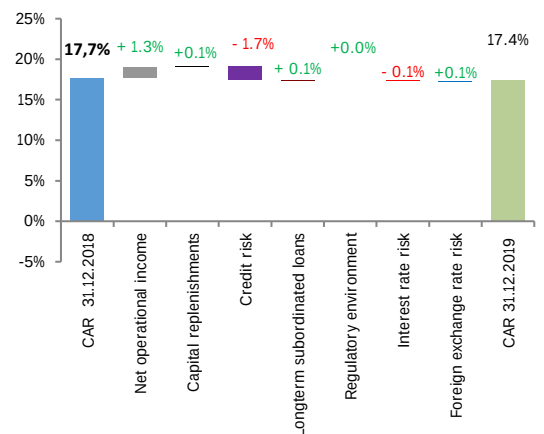
The total assets of credit organizations had a growth rate outpacing that of the total capital. As a result, the total capital-to-assets ratio (leverage ratio) has decreased by 6.4% percentage points to 46.6%.

The net profit of credit organizations amounted to AMD 37.3 billion. Moreover, 32 credit organizations posted a profit and seven

³²<https://www.cba.am/AM/pmessagesannouncements/Cyclic%2030.07.2019.pdf>

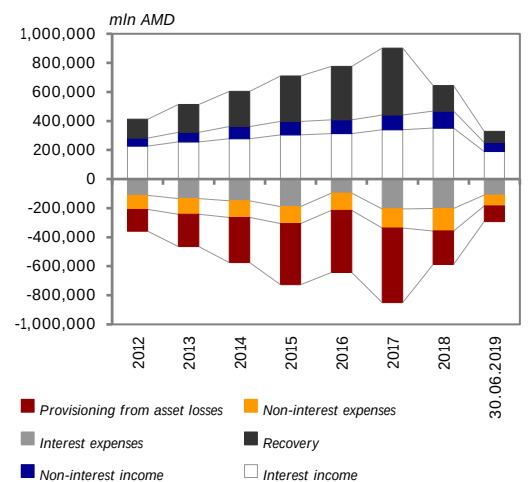
³³This differs from IFRS mainly on the part of contributions to assets loss provisioning. According to IFRS, the banking system annualized during the first half of 2019 was AMD 38.5 billion.

Total capital adequacy with banks- Waterfall



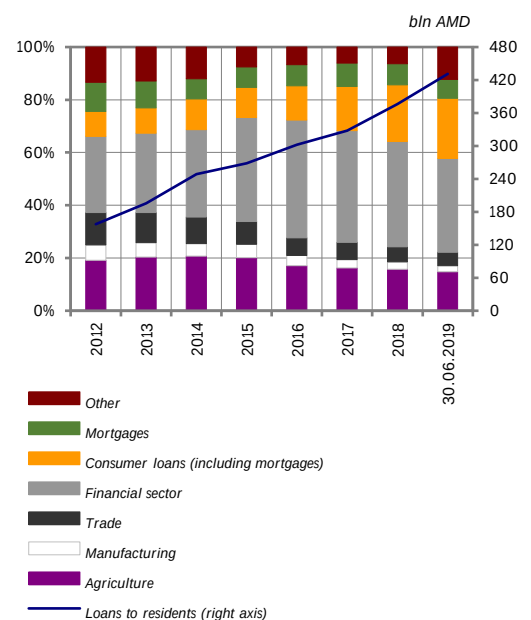
Source: CBA.

Income and expenses of the banking sector



Source: CBA.

Balance of loans to residents by credit organizations, by sectors



Source: CBA.

reported losses³⁴. The return on assets (RoA) and return on equity (RoE) grew by 1.4 and 1.3 percentage points, relative to the same period of the previous year, to 12.3% and 24.8%, respectively.

In the first half of 2019, the share of non-performing loans and receivables grew by 0.7 percentage point to 5.8% in the total loan portfolio. The share of non-performing loans and receivables is relatively high in consumer loans, trade, and agricultural sectors, amounting to 21.2%, 8.2%, and 8.0%, respectively.

Relative to the same period of the previous year, the ratio of net asset loss provisioning to total assets has increased by 0.5 percentage points to 1.7%.

In all maturity time bands of assets and liabilities (up to 180-day (including demand instruments), from 180-day to 1-year, more than 1-year), the volume of assets was more than the amount of liabilities. This is a clear indication, *ceteris paribus*, that the level of liquidity risk of credit organizations is low.

Credit risk assessment stress scenarios³⁵

30.06.2019	Stress scenarios		
	25% of loans in watched, substandard and doubtful categories classified into loss loans	75% of loans in doubtful category classified into loss loans	30% of loans in standard category classified into watched loans
Total loss of credit organizations	AMD 6.0 billion or 2.2% of regulatory capital	AMD 1.5 billion or 0.6% of regulatory capital	AMD 10.6 billion or 4.0% of regulatory capital

Source: Central Bank of Armenia.

As compared to the banking sector, credit organizations are much more capitalized. According to various stress scenarios, credit organizations are fully capable of absorbing potential risks.

4.3.INSURANCE COMPANIES

During the first half of 2019, the assets of insurance companies increased by 8.5% to AMD 56.1 billion, and the amount of liabilities grew by 12.6% to AMD 36.6 billion. Total capital increased 1.6% and made up AMD 19.5 billion. The share of the insurance companies in the structure of the financial system of Armenia hasn't changed and amounted to 0.9%. The amount of premiums written, the primary

³⁴The net profit of credit organizations, calculated following the IFRS amounted to AMD 32.1 billion.

³⁵Stress scenarios are built on the assumption that the amounts of loans of credit organizations are unchanged, and the secured property is ignored (which means when loans are classified as a loss, a possible sale of the collateral is not considered).

indicator of insurance activity, increased by 18.8%, as compared to the same period of the previous year, to AMD 26.5 billion.

The premiums to GDP ratio (annualized) was 0.73%, increased by 0.04 pp during the half-year³⁶. The premiums per capita ratio was AMD 15,378 (annualized), versus AMD 13,929 in 2018.

The insurance companies' expense ratio has decreased by 4.6 percentage points and amounted 24.0%³⁷. The loss ratio of insurance companies fell by 0.3% compared to the previous year. It amounted to 66.1%³⁸.

The shares of risk-weighted assets and required solvency in the insurance sector's capital adequacy ratio were 32.4% and 67.6% percent at the end of the first half of 2019, respectively. The regulatory capital adequacy ratio of the insurance sector was 152.6% (the marginal value of regulatory capital adequacy is 100%).

Solvency risk

The change in the solvency level of insurance companies was assessed in case if stress-scenarios shown below unfold (growth of reimbursement rates, 10%, and insurance payments increase, 5%). The results suggest that the level of solvency will not incur notable changes, so the likelihood of risks undermining financial stability in the insurance sector is very low.

Solvency assessment stress scenarios

30.06.2019	Stress scenarios	
	Growth of reimbursement rates, 10%, and insurance payment increase, 5%	Shocking growth of outstanding claims reserves, 25%
Required growth of UIPR of the insurance sector, if the stress scenario occurs.	AMD 1.5 billion or 7.9% of regulatory capital of the sector	AMD 0.6 billion or 3.1 % of regulatory capital of the sector
Total capital adequacy ratio of the insurance sector, if the stress scenario occurs	140.5%	147.8%

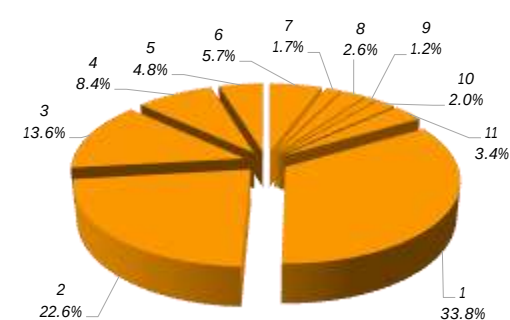
Source: CBA.

³⁶ Based on the 2018 data, the premiums to GDP ratio on non-life insurance was 3.57% on average in developed industrial countries and 1.5% in emerging market countries (source: Swiss Re, Sigma No 3/2019, May 2019).

³⁷The expense ratio has been calculated using the following formula: $\text{non-interest expense} / (\text{earned insurance premiums} - \text{sums refunded on the contracts terminated} - \text{change of UIPR})$.

³⁸The loss ratio has been calculated using the following formula: $(\text{net written claims} + \text{net provisions to technical reserves} + \text{other transaction costs on insurance}) / (\text{earned insurance premiums} - \text{sums refunded on the contracts terminated} - \text{change of UIPR})$.

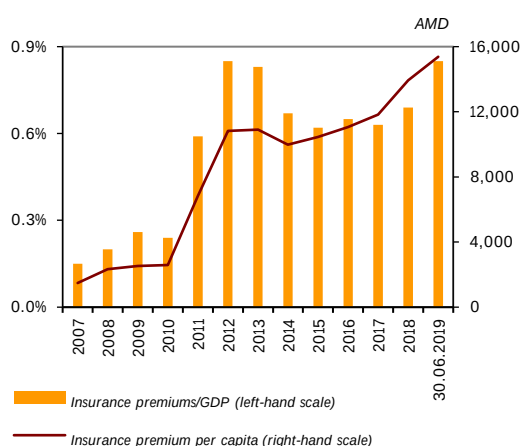
The structure of assets of the insurance sector as of 30.06.2019



1. Deposits with banks, 2. Government and non-government securities (including securities sold under repo agreements), 3. Sums receivable on direct insurance, 4. Reinsurers' share in insurance reserves, 5. Costs for future periods and prepayments on insurance, 6. Fixed assets, 7. Interests receivable, 8. Claims to reinsurers on compensation, 9. Borrowings, 10. Bank accounts and cash, 11. Other assets

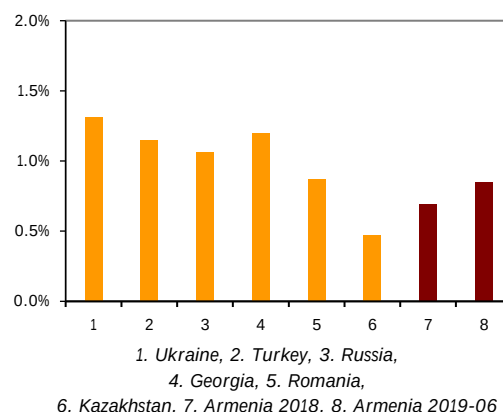
Source: CBA.

Main ratios of the insurance sector



Source: CBA.

Insurance premiums/ GDP in EEC and CIS (2018)



Source: CBA, Swiss Re, Sigma No 3/2019.

Credit risk

Allocating funds of the insurance sector in low-risk assets allows keeping the investment risk at a low level. Assets equivalent to technical reserves are invested primarily in term and demand deposits with commercial banks as well as government and non-government bonds.

Credit risk assessment stress scenarios

30.06.2019	Stress scenarios	
	Classified 30% of "standard" assets into "watched" category	Classified 5% of "standard" assets into "loss" category
Loss of the insurance sector	AMD 1.0 billion or 5.1% of regulatory capital	AMD 1.8 billion or 9.4 of regulatory capital
The total capital adequacy ratio of the insurance sector, if the stress scenario occurs	146.1%	140.7%

Source: CBA.

The results of the stress tests of credit risk assessment show that the potential loss of the insurance sector is low.

Foreign exchange risk

The results of the foreign exchange stress scenario suggest that the loss of insurance companies resulting from foreign exchange risk is not considerable.

The stress scenarios of foreign exchange risk assessment ³⁹

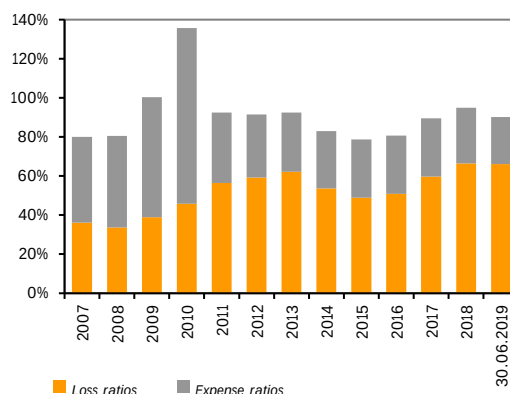
30.06.2019	Stress scenarios		
	Gain (loss) in the case of 5% AMD appreciation (depreciation) versus USD	Gain (loss) in the case of 5% AMD appreciation (depreciation) versus EUR	Medium potential 10-day loss valued through the VaR method
Insurance sector's gain/loss in case of foreign exchange revaluation	AMD -4.0 million or 0.02% of regulatory capital (AMD 4.0 million)	AMD 0.7 million or 0.004% of regulatory capital (AMD -0.7 million)	AMD 730 thousand or 0.004% of regulatory capital

Source: CBA.

Liquidity risk

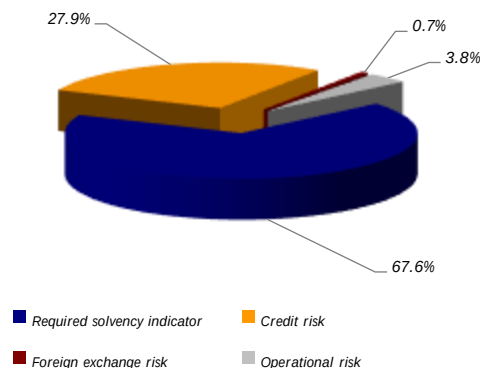
The liquidity risk to the insurance sector is low, proven by the results of the stress scenario below.

Expense and loss ratios of the insurance sector



Source: CBA.

The shares of risk weighted assets and required solvency in the capital adequacy ratio of the insurance sector, as of 30.06.2019



Source: CBA.

³⁹The calculation of losses estimated through stress-scenarios and the VaR Model (the VaR Model is not considered as stress – scenario, since the calculation of the model considers historical exchange rate series of currencies) makes an assumption that FX position of insurance companies would not change in a 10-day time-span.

Liquidity risk assessment stress scenario

30.06.2019	Stress scenarios
	A sharp increase of outstanding claim reserves, 25%
Required growth of outstanding claims reserves when the stress scenario occurs	AMD 0.6 billion or 3.1% of regulatory capital
Liquidity of insurance companies when the stress scenario occurs	415.4%

Source: CBA.

Overall, the share of the insurance sector in the financial system remains small. Risks to the insurance companies are controllable and non-vulnerable in the financial stability point of view.

4.4. SECURITIES MARKET PARTICIPANTS⁴⁰

As of the end of June 2019, 72 classes of securities of 23 reporting issuers were admitted to trading in the regulated market of securities. Three issuers were accountable for both shares and bonds.

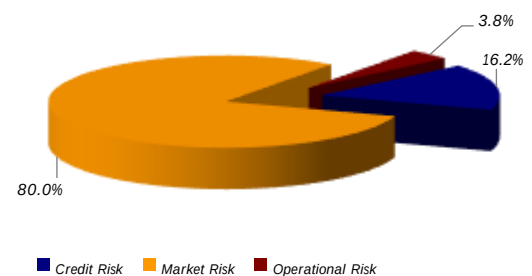
As of the end of the first half of the year, the total amount of shares issued was AMD 63.3 billion, while that of bonds was AMD 161.0 billion. The share of equity securities issued by four commercial banks was 71.7% of the total issuance of securities, while the share of bonds issued by ten commercial banks was 91.2% of the total issuance of bonds. 46 bonds of total 72 bonds issued were in foreign currency, with the share making up to 75.5%.

There were 17 banks providing investment services and 10 investment companies in the securities market of Armenia, as of the end of June 2019.

The total assets of investment companies decreased by 5.2% and amounted to AMD 53.6 billion, while total capital has increased by 0.6% and amounted to AMD 10.7 billion compared to the end of 2018. The total profit of investment companies was AMD 1.3 billion.

The capital adequacy of investment companies decreased by 0.7 percentage points, as compared to the end of 2018 and was 16.2%, as of the end of June 2019. The credit risk of investment companies accounted for 16.2% of risk-weighted assets, the market risk was 79.9%, while the operational risk was 3.8%. Remarkably, the interest rate risk had the largest share in the market risk of investment companies (87.6%), while foreign exchange and share

The structure of assets in the capital adequacy ratio of the investment companies, as of 30.06.2019



Source: CBA.

⁴⁰ The participants of the securities' market of Armenia involve the issuers of securities and investors in securities, investment service providers, investment funds' managers, the Central Depository and the regulated market operator.

price risks constituted to 11.4% and 1.0%, respectively. The capital adequacy of investment companies is higher than the required minimum level, and the abovementioned risks are manageable.

There were 2,576 security issuers' registers and 102,392 owners' accounts in the Central Depository of Armenia.

Overall, the investment companies have low-risk level activity in terms of financial stability vulnerability.

4.5.MANDATORY PENSION FUNDS

There were two investment fund managers with permission to operate as mandatory pension fund managers in Armenia. Each one manages three mandatory pension funds.

Net Asset Value – NAV of pension funds as of 30.06.2019

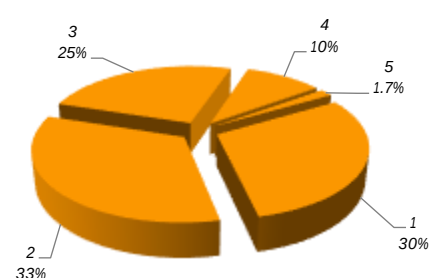
Name of the fund manager	Name of the pension fund	Net asset value
AMUNDI-ACBA Asset Management Armenia CJSC	Balanced fund	AMD 2.0 billion
	Conservative fund	AMD 97.1 billion
	Fixed income fund	AMD 1.2 billion
C-QUADRAT AMPEGA Asset Management Armenia LLC	Balanced fund	AMD 912 million
	Conservative fund	AMD 96.6 billion
	Fixed income fund	AMD 642 million

The net asset value of the pension funds was AMD 198.4 billion. The net assets-to-GDP ratio was 3.3%, which increased by 0.6 percentage points as compared to the end of 2018.

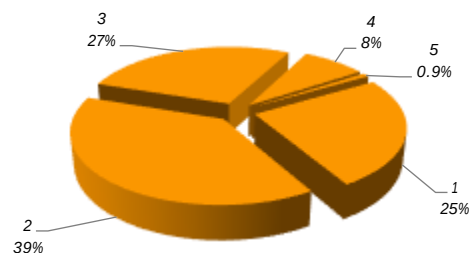
As of the end of the first half of 2019, there were around 344,000 active pension fund participants.

The Herfindahl-Hirschman concentration index for pension fund investment increased, as compared to 2018, and amounted to 0.29. The investments in non-government bonds decreased by almost one percentage point to nearly 9% of total assets in the investments' structure of pension funds. The investments in cash and deposits rose by 5% to 38% of total assets, while those in securities of foreign investment funds remained merely unchanged and amounted to 25% of total assets. The share of government bonds decreased by four percentage points, during the reported period. The 25% or AMD 49 billion of the fund's assets are invested in the Armenian government bonds. The investments in Armenia's government Eurobonds amounted to AMD 396 million. The

Investments of pension funds, 31.12.2018



Investments of pension funds, 30.06.2019



1. Armenian Government bonds, 2. Cash and deposits,
3. Foreign Investment Fund Securities, 4. Other bonds,
5. Other assets

Source: CBA.

weighted average maturity of the government bonds in which funds invest was eight years, and their weighted average yield (to maturity) was 8.8%.

The share of foreign exchange assets of the fund was 29.4% or AMD 58.1 billion at the end of the first half of the year. The majority of foreign exchange assets (AMD 54.6 billion) were securities of foreign investment funds.

The average yield of funds was 6.1% in the first half of 2019. Starting from 2014, the cumulative average yield for the last four years made up 57.3%. The average price of one pension fund unit for all six funds was AMD 1000 during the establishment of the funds, which rose by AMD 573 and stood at AMD 1573, as of 30.06.2019.

5. FINANCIAL MARKET INFRASTRUCTURES STABILITY

Given the importance and the impact of the payment and settlement systems on the monetary policy and the financial stability of Armenia, the Central Bank further pays due attention to the systematically important payment and securities' settlement systems, as well as the telecommunication networks supporting their activity.

In Armenia, over 99 percent of the value of the interbank settlements are made via the Central Banks systems⁴¹.

5.1. INTERBANK PAYMENTS VIA ELECTRONIC PAYMENT SYSTEM OF THE CENTRAL BANK

During the reported period, there were about 1.5 million payments (payment messages), totaling AMD 8987.8 billion, executed via the Electronic Payment System (EPS) of the Central Bank of Armenia.

The interbank payments constitute the most significant share of the value of the EPS payments (50%), and they increased by 35.2%, as compared to the same period of the previous year. A 4.6% growth was recorded in budget payments, and the operations with the Central Bank have increased by 13.3%. As a result, the total value of the EPS payments grew by 21.1%, as compared to the same period of the previous year.

During the reported period, the number of payments increased by 11.7% compared to the same period of the previous year.

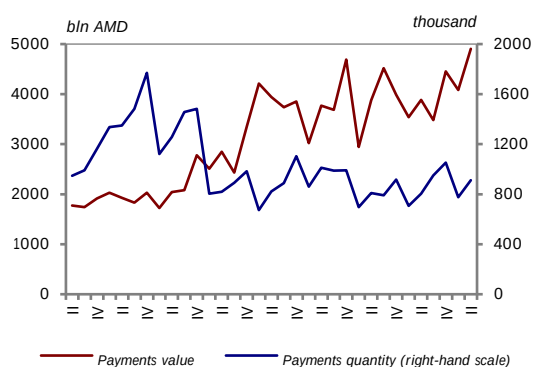
The risks in the system are reviewed separately for each area described below.

Credit risk

Credit risk to the settlement bank (i.e. the Central Bank of Armenia) in the system is non-existent since the participant can use an interday repo instrument in case of insufficient funds on their correspondent account, which is secured by government bonds of the Republic of Armenia, securities of the Central Bank of Armenia, and/or high-rated corporate bonds. The size of the attracted fund is calculated using the percentage subtracted from the market value of

The results of the monitoring of the EPS functioning suggest that the system is safe and does not create risks in terms of financial stability.

Payments by Electronic Payment System
(without stock exchange market transactions)



Source: CBA.

There is no credit risk identified in the EPS.

⁴¹Payments via the Central Bank systems involve Electronic Payment System (EPS) payments without stock exchange trades, also transactions concerning the CBA indirect monetary instruments, as well as final settlements of ArCa cards system and the cash leg of the transactions of the Government Securities Accounting and Settlement System (GSASS). For details, please see the paper "Payments and Securities Settlement Systems in the Republic of Armenia," 2010.

the bond (haircut). Nor is there credit risk to the recipient as it receives the notice of the payment only after the payment is made final and irrevocable.

Liquidity risk

In the period under review, the daily average indicator of own liquidity for assessment of liquidity risk⁴² was 4.9 (5.1 for the same period in 2018, reaching 6.2 in September). This high level of the ratio was due to the regulatory framework of reserve requirements. It was conditioned by the 9.6% growth of the average daily liquidity at the beginning of a day in the system and an increase of average daily payments by 12.8%⁴³.

In assessing the liquidity risk, it should be noted that the calculation of the abovementioned indicator does not include incoming payments (crediting of the account) by banks and/or funds from other sources to increase liquidity, which neutralizes the liquidity risk furthermore.

The above indicator was monitored across the individual banks as well, and the results of the monitoring suggest that the likelihood of liquidity risk is estimated to be minimal.

Reported rejections in the system and their share in total payments made through the system are also important measures for the assessment of the liquidity risk.

The number of rejections due to insufficient liquidity, as well as its share in the EPS payments, remain negligible – 0.02% by value and 0.001% by number, on a semi-annual basis.

These rejections are due to individual cases and may be the result of improper management of liquidity (payment flows) by the participants, so this could not affect the liquidity of the system.

Intraday distribution of payments

In the reported period, 24.9% of the value and 19.5% of the number of payments were settled during peak hours (10:00 – 11:00, both).

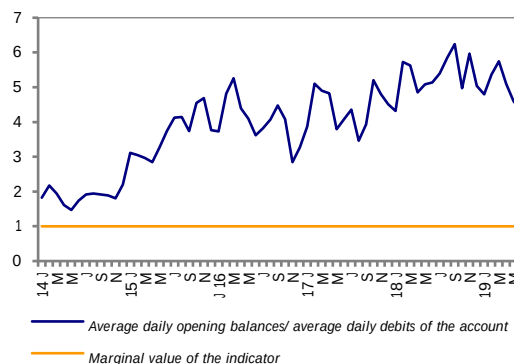
The peak hour for the value of payments in the system is still registered at the beginning of the day (10:00 – 11:00) when the

⁴² The daily average indicator of own liquidity is calculated based on the ratio of opening liquidity on dram correspondent accounts of commercial banks to debits (payments) through the account. Incoming payments are not included in the indicator so that a stress-scenario can assess the likelihood of bank rejections if additional liquidity is not available within a day, namely to which extent would banks generate their payments using only opening balances of their funds. The calculation does not include cash enhancements through their accounts of commercial banks. The indicator is calculated for a system-level (aggregate for all banks), so indicators may vary across commercial banks.

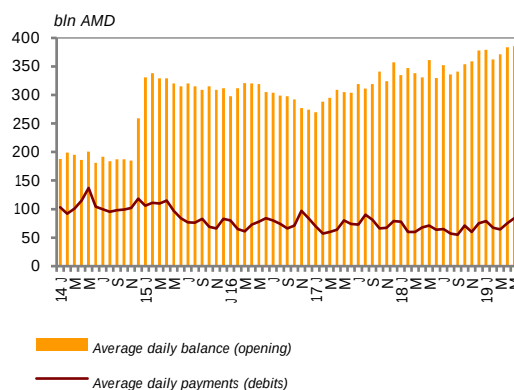
⁴³ The daily average of all the payments (debits) through the CB correspondent accounts.

The likelihood of the emergence of liquidity risk and systemic problems in the EPS is negligible.

The dynamics of the own liquidity indicator



Average daily payments and average daily opening balances (by all banks)



Source: CBA.

Some concentrations during certain hours of the operational day did not pose problems.

most significant share of the number of payments is performed. However, the share of the peak hour of the beginning of the day decreased considerably, by 6.1 percentage points, as compared to the same period of the previous year. This somehow flattened the uneven distribution of the value of payments during the day. Despite the abovementioned unequal distribution, the peak hour was during the first half of the day, which smoothens the concentration risks, as in case of problems, the participants will have enough time to take the necessary measures to settle the payments on a given day.

The distribution of the number of payments during the day has a substantially proportionate nature. The share of the peak hour at the end of the day (15:00-16:00) has decreased by 2.2 percentage points, reaching 15.2%. This has shuffled the second peak hour to the beginning of the day, which increased by 2.7 percentage points, as compared to the same period of the previous year.

Taking into consideration the sufficient level of system capacity, the positive outcomes of liquidity and operational availability indicators and a negligible share of rejections in total payments (for details, please see the previous subsections), the uneven distribution and concentration of payments during certain hours of the day did not lead to complications. Therefore, the likelihood of the emergence of risks to the system is generally low.

System capacity

The dynamics of the maximum hourly number of payments (the maximum number of payments per hour for each month) remained merely unchanged.

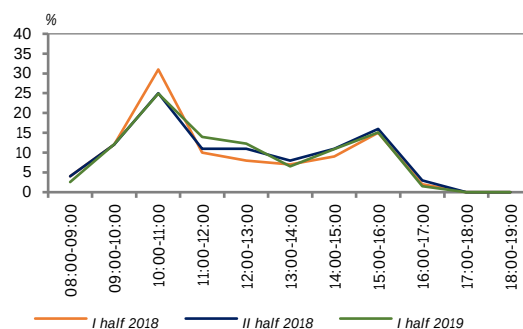
The maximum hourly indicator during the first half of 2019 was 4797 payments/hour (5990 for the same period and the yearly peak of 2018). The peak hour was in March, from 10:00 to 11:00, making up 29.8% of the number and 6.3% of the value of the day's payments. The peak hour of this particular day was conditioned by the increase in payments during the day by a few banks.

The shares of all marginal indicators (showing the significant flow of payments per hour) have decreased drastically.

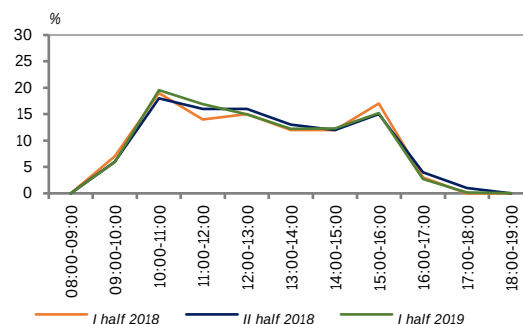
The maximum daily indicator (the number of payments per day) decreased to 22,211 payments/day (the peak was 28,548 in 2018).

Taking into account that the cases of the abovementioned indicators have a small share in total payments flow⁴⁴, the probability of the emergence of capacity-related risks is estimated to be low.

Intraday distribution of the value of payments on an average semiannual basis

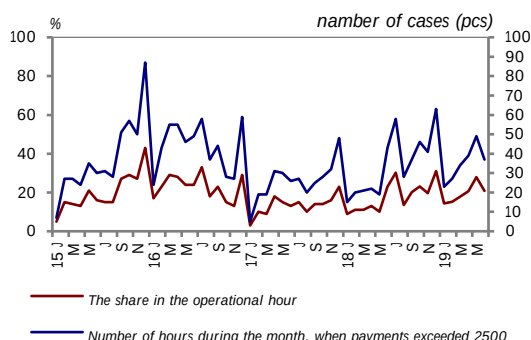


Intraday distribution of the number of payments on an average semiannual basis

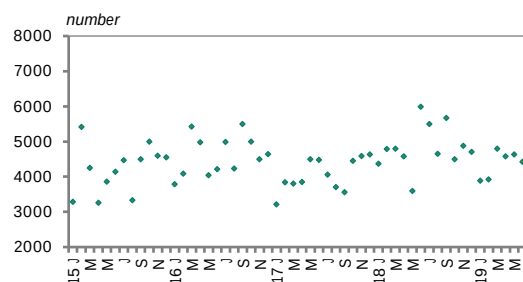


Source: CBA.

The dynamics of 2500 and more payments per hour and their share in the operating hour in the given month



The maximum number of payments per hour, by month



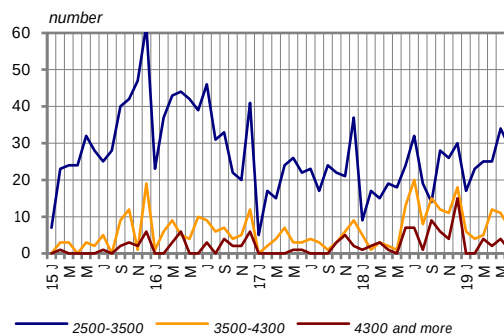
Source: CBA.

⁴⁴For example, the percentage of more than 3500 payments per hour was 5.2% per semi-annum.

Operational availability of the system

During the reported period, only one incident (with a 1 hour or more duration) affecting the operational availability of the EPS was recorded; it lasted for 1h and 15 minutes. As a result, the operational availability of the EPS was 99.8% for the given half-year⁴⁵. As a result of the incident, no accumulation of messages that could influence the operational availability of the system has happened, and the operational day of the system was closed at the set time.

Dynamics of payments exceeding the threshold of 2500, 3500 and 4300 payments per hour



Source: CBA.

⁴⁵According to the EPS participation agreement, the operational availability of the system should be at least 98.0% yearly.

CHARTS

<i>Economic growth by regions</i>	<i>10</i>
<i>Inflation in a number of countries</i>	<i>10</i>
<i>Annual growth rate of world trade</i>	<i>12</i>
<i>Brent oil prices</i>	<i>12</i>
<i>Copper prices</i>	<i>12</i>
<i>Wheat prices</i>	<i>13</i>
<i>Molybdenum prices</i>	<i>13</i>
<i>10-year government bond yield</i>	<i>13</i>
<i>Interest rate policies of Central Banks</i>	<i>14</i>
<i>Interbank interest rates</i>	<i>14</i>
<i>Dynamics of USD exchange rate versus RUB and EUR</i>	<i>14</i>
<i>The growth levels of real GDP and main sectors of economy</i>	<i>15</i>
<i>GDP expenditure components</i>	<i>15</i>
<i>Main indicators of balance of payments (semiannual)</i>	<i>17</i>
<i>Armenia's exports by commodity groups, semiannual</i>	<i>17</i>
<i>Armenia's imports by commodity groups, semiannual</i>	<i>17</i>
<i>Armenia's foreign trade, by country</i>	<i>18</i>
<i>Private transfers, salaries of emigrant workers, nominal average wage, and unemploeyement changes.....</i>	<i>18</i>
<i>The structure of household liabilities to financial institutions.....</i>	<i>18</i>
<i>Lending interest rates to households.....</i>	<i>19</i>
<i>Consumer and mortgage loan portfolio of banks and credit organizations</i>	<i>19</i>
<i>The volume of bank's collateral as real estate</i>	<i>19</i>
<i>Real estate lending.....</i>	<i>19</i>
<i>The changes in average prices of apartments and the number of transactions in Yerevan and the cities of the regions.....</i>	<i>20</i>
<i>Yield curves of Armenian government bonds.....</i>	<i>22</i>
<i>Monthly volume of repo transactions and repo interest rates (interbank and with the CBA).....</i>	<i>22</i>
<i>Spread between 6 month and 10-year government securities.....</i>	<i>23</i>
<i>Repo transactions carried out by investment service providers (excluding transactions with the CBA)</i>	<i>23</i>
<i>Security trades by investment service providers.....</i>	<i>23</i>
<i>Structure of financial system assets by financial institutions.....</i>	<i>25</i>
<i>Banking intermediation.....</i>	<i>25</i>
<i>Banking sector stability map.....</i>	<i>25</i>
<i>Structure of risk weighted assets calculated in banking sector capital adequacy ratio.....</i>	<i>26</i>
<i>Change of NPLs share in lending to economy sectors.....</i>	<i>26</i>
<i>Structure of bank loans to residents, by economy sectors</i>	<i>26</i>
<i>Loans to major borrowers in the banking sector.....</i>	<i>27</i>
<i>The dynamics of actual and regulatory liquidity ratios of the banking sector.....</i>	<i>27</i>
<i>The ratio of the banking sector major liabilities to total liabilities.....</i>	<i>27</i>
<i>The ratio of the banking sector major liabilities to total liabilities.....</i>	<i>28</i>
<i>The structure of banking sector loans and financing sources</i>	<i>28</i>
<i>The net income of the banking sector from foreign currency trades and revaluation.....</i>	<i>29</i>
<i>Interest rates of loans to legal and natural persons</i>	<i>29</i>
<i>Interest rates of deposits from legal and natural persons.....</i>	<i>30</i>
<i>Share of financial assets at fair value through profit or loss and available for sale in total assets.....</i>	<i>30</i>

<i>The structure of total regulatory capital.....</i>	<i>32</i>
<i>Total capital adequacy with banks- Waterfall.....</i>	<i>33</i>
<i>Income and expenses of the banking sector.....</i>	<i>33</i>
<i>Balance of loans to residents by credit organizations,by sectors.....</i>	<i>33</i>
<i>The structure of assets of the insurance sector as of 30.06.2019.....</i>	<i>35</i>
<i>Main ratios of the insurance sector.....</i>	<i>35</i>
<i>Insurance premiums/ GDP in EEC and CIS (2018).....</i>	<i>35</i>
<i>Expense and loss ratios of the insurance sector.....</i>	<i>36</i>
<i>The shares of risk weighted assets and required solvency in the capital adequacy ratio of the insurance sector, as of 30.06.2019.....</i>	<i>36</i>
<i>The structure of assets in the capital adequacy ratio of the investment companies, as of 30.06.2019</i>	<i>37</i>
<i>Investments of pension funds, 30.06.2019.....</i>	<i>38</i>
<i>Payments by Electronic Payment System (without stock exchange market transactions).....</i>	<i>40</i>
<i>The dynamics of the own liquidity indicator.....</i>	<i>41</i>
<i>Average daily payments and average daily opening balances (by all banks).....</i>	<i>41</i>
<i>Intraday distribution of the value of payments on an average semiannual basis</i>	<i>42</i>
<i>Intraday distribution of the number of payments on an average semiannual basis</i>	<i>42</i>
<i>The dynamics of 2500 and more payments per hour and their share in the operating hour in the given month.....</i>	<i>42</i>
<i>The maximum number of payments per hour, by month.....</i>	<i>42</i>
<i>Dynamics of payments exceeding the threshold of 2500, 3500 and 4300 payments per hour.....</i>	<i>43</i>

TABLES

<i>IMF Overview of the World Economic Growth Projections, 2017- 2019.....</i>	<i>11</i>
<i>Credit risk stress scenario</i>	<i>27</i>
<i>Liquidity risk stress scenarios.....</i>	<i>28</i>
<i>Foreign exchange risk stress scenarios.....</i>	<i>29</i>
<i>Interest rate risk stress scenarios.....</i>	<i>29</i>
<i>Assets, liabilities, capital, and profit of credit organizations.....</i>	<i>33</i>
<i>Credit risk assessment stress scenarios (Credit organizations).....</i>	<i>34</i>
<i>Solvency assessment stress scenarios.....</i>	<i>35</i>
<i>Credit risk assessment stress scenarios (Insurance companies).....</i>	<i>36</i>
<i>The stress scenarios of foreign exchange risk assessment</i>	<i>36</i>
<i>Liquidity risk assessment stress scenario.....</i>	<i>37</i>
<i>Net Asset Value – NAV of pension funds as of 30.06.2019.....</i>	<i>38</i>

GLOSSARY OF TERMS

<i>Economic growth</i>	The growth of the volume of goods and services produced in the economy during a certain period.
<i>Inflation</i>	An increase in the general level of prices of goods and services.
<i>Consumer price index</i>	An index of the variation in prices paid by typical consumers for retail goods and other items. The consumer price index measures the changes in the price of a market basket of consumer goods and services purchased by households.
<i>Balance of payments</i>	A system of recording of all economic transactions of Armenia (residents and non-residents) with the rest of the world over a reporting period (a quarter, a year).
<i>Foreign trade</i>	This involves an exchange of capital, goods, and services across international borders or territories, in the form of exports and imports.
<i>Gross external debt</i>	Gross external debt, at any given time, is the outstanding amount of those actual current, and not contingent, liabilities that require payment(s) of principal and/or interest by the debtor at some point(s) in the future and that are owed to nonresidents by residents of an economy.
<i>Credit risk</i>	Credit risk refers to the risk that a borrower will default on any debt by failing to make payments which it is obligated to do. The risk is primarily that of the lender and includes the lost principal and interest, disruption to cash flows, and increased collection costs.
<i>Liquidity risk</i>	Liquidity risk is the risk that a given security or asset cannot be traded by the financial institution quickly enough in the market to prevent a loss (or make the required profit).
<i>Foreign currency risk</i>	Foreign currency risk is the risk that a change in the exchange rate in the market will adversely affect profits and/or capital of the financial institution.
<i>Interest rate risk</i>	Interest rate risk is the risk that interest rate volatilities in the market will adversely affect profits and/or capital of the financial institution.
<i>Price risk</i>	Price risk is the risk that a change in the price of securities in the market or price of similar financial instruments on balance sheets will adversely affect profits and/or capital of the financial institution.
<i>Standard asset</i>	An asset that is serviced under a contract, and is not problematic.
<i>Watched asset</i>	An asset that is serviced under an original contract, yet certain circumstances have emerged that may undermine the borrower's ability to serve that asset.
<i>Substandard asset</i>	An asset the contractual obligations towards which are not performed due to the borrower's fragile financial standing or inability to repay the debt.
<i>Doubtful asset</i>	An asset the contractual obligations towards which are not performed; it is more problematic, making its collection at the given time very difficult or impossible.
<i>Loss asset</i>	An asset non-collectible and fully impaired uncollectible, so that its recording on the balance sheet is no longer reasonable.
<i>Nonperforming asset</i>	An asset which has been classified by the bank as watched or substandard or doubtful or bad.
<i>Major borrower</i>	An entity on which the risk exceeds 5% of the total capital of the bank.
<i>Large liability</i>	A liability, that itself constitutes 5% and more of the total liabilities of the bank, without taking into account interdependence.
<i>Return on assets (RoA)</i>	A ratio of net annual profit to average annual total assets.
<i>Return on equity (RoE)</i>	A ratio of net annual profit to average annual total capital.

<i>Total liquidity</i>	A ratio of highly liquid assets to total assets.
<i>Current liquidity</i>	A ratio of highly liquid assets to demand liabilities.
<i>Regulatory total capital</i>	The difference between total capital, as shown in the statement on financial standing and deductions as specified in Central Bank “Regulation 2 on Banks and Banking”.
<i>Capital adequacy</i>	A ratio of total regulatory capital to risk weighted assets.
<i>Leverage</i>	A ratio of total assets to total capital.
<i>Off-balance sheet contingent asset</i>	Off-balance sheet contingent assets include outstanding credit lines, credit cards, and overdrafts, as well as letters of credit, guarantees, and warranties provided.
<i>Net provisioning</i>	The difference between provisions to and recoveries from assets loss reserve fund.
<i>Net foreign currency position</i>	The difference between assets and liabilities in FX assets and local currency assets containing FX risk.
<i>Gross foreign currency position</i>	This position measures the sum of absolute values of positions of various currencies.
<i>The Herfindahl-Hirschman index</i>	This index is defined as the sum of the squares of the market shares. It varies between 0 and 1, characterizing the level of concentration (values near to 0 denote lower concentration).
<i>Economic cost of capital</i>	The difference between the present value of total assets and the present value of total liabilities.
<i>Spread</i>	The difference between deposit and credit interest rates.

ABBREVIATIONS

AMD	Armenian Dram
BCI	Business Climate Index
CBA	Central Bank of the Republic of Armenia
CDA SSS	Securities Accounting and Settlement System of the Central Depository of Armenia
CIS	Commonwealth of Independent States
CJSC	Closed Joint Stock Company
DVP	Delivery versus Payment
ECB	European Central Bank
EPS	Electronic Payments System
EU	European Union
FRS	Federal Reserve System
GDP	Gross Domestic Product
GSASS	Government Securities Accounting and Settlement System
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
LLC	Limited Liability Company
NPL	Non-performing Loans
NSSA	National Statistics Service of Armenia
OD	Operational Day
OTC	Over-the-counter
RA	Republic of Armenia
RoA	Return on assets
RoE	Return on equity
UIPR	Unearned insurance premium reserves
UK	United Kingdom
USA	United States of America
YOY	Year on Year