

FINANCIAL STABILITY REPORT 2018

FINANCIAL SYSTEM IS STABLE AND ABLE TO ABSORB RISKS



HIGHER THAN EXPECTED ECONOMIC GROWTH IS RECORDED



Services	9.4%
Industry	5.8%
Construction	0.8%
Agriculture	-8.5%



THE IMPACT OF RISKS FROM GLOBAL ECONOMY CONTINUOUSLY DECREASED



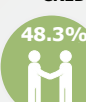
Global economic growth slowdown



Decrease of commodity prices



FINANCIAL INTERMEDIATION IS DEEPENING AND CREDIT PORTFOLIO IS GROWING



LOANS/GDP



Loans to Individuals

Loans to Enterprises/Companies

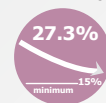
CREDIT PORTFOLIO QUALITY IS IMPROVING



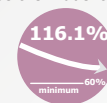
Share of non-performing loans and account receivables has decreased by 0.8 percentage points.



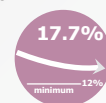
BANKING SYSTEM IS LIQUID AND STABLE Exceeds the Prudential's



Total liquidity



Current liquidity



Capital adequacy

CENTRAL BANK OF THE REPUBLIC OF ARMENIA

FINANCIAL STABILITY REPORT

2018

2019

This Financial Stability Report presents an assessment of potential risks that could threaten the stability of 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 “Status Report on Monetary Policy Implementation”, as well as “Armenian Financial System: Development, Regulation, and Supervision” reports.

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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 unfavourable developments in domestic and world economies, credit risk issues connected with major borrowers and lenders, shifts in economic policies and infrastructures.

Maintaining the financial stability involves efforts to identify main 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 semi-annual 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 (in accordance with the amendments of the Constitution of the Republic of Armenia, implemented in 2015).

Disruptions in the financial sector may create impediments to 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 the financial stability. The financial sector plays an important role in the overall economic system, and it needs to maintain continuity and sustainability of processes to contribute to the normal growth of the economy overall.

The Central Bank of Armenia carries out an 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 developments in all sectors of the economy and financial system.

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

- favourable developments in the global economy and international financial markets,
- sound domestic macroeconomic environment whereby households and companies are creditworthy enough,
- 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 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 financial institutions of Armenia,
- risks derived from 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, as the assets of commercial banks account for 85 percent of the entire financial system assets. Therefore, the banking sector stance mainly determines the overall financial stability and development trends.

ABSTRACT

In 2018, given the economic activity, positive developments of the labour market and the easy monetary conditions, the financial system of Armenia remained stable, while credit and deposit portfolios grew.

The pickup of global growth remained on track in 2018, but with weakening expansion in the second half. This trend will be maintained in 2019 and the following year as well.

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

During the year, the risk of sustained trade protectionism by advanced economies was maintained, which had its negative impact on the global trade growth and will continue to weaken it, while slowing the growth rates of the global economy overall.

In the near and medium term, a slower-than-anticipated economic recovery of emerging markets and developing countries, the tightening of the financial conditions in the financial markets, as well as risks caused by geopolitical unfavourable developments will be highlighted.

Given the current economic developments, some countries continued to withdraw the monetary policy accommodation policy volumes, while announcing a feasible end of accommodative policies. In emerging countries, a capital outflow was recorded, causing slower economic growth rates and depreciation pressures on domestic currencies.

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

The anticipated decline of the current rate of the 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 main 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”).

In 2018, the economic growth in Armenia was 5.2%, which was mainly contributed by the growth in private spending and increased lending to economy. The latter, in turn, was fuelled by the accommodative monetary policy of the Central bank of Armenia. (for details, see section “Macroeconomic developments”).

In 2018, the Central Bank of Armenia retained its monetary policy direction unchanged, given both the domestic and foreign macroeconomic developments. The refinancing rate remained 6.0%.

Given the persistent economic activity of 2018 and positive developments in the labour market, a 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, a credit risk stabilisation trend was recorded, and the share of non-performing loans decreased. 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 a large-scale 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, safeguarding the necessary level of financial stability (for details see section “Stability of financial institutions”).

Given the ongoing economic activity of 2018 and positive developments in the labor market, a growth of lending was registered in the financial system, parallel with loan quality improvement.

Box 1

Macroprudential Dashboard¹

the sources of systemic risks and the financial system resilience

The macroprudential dashboard is a tool intended to provide a graphical overview of the recent developments and trends of the economy from the financial stability perspective, using a simplified assessment of a number of forward-looking risk build-up indicators.

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

The first part represents the systemic risk sources and their accumulation, 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.

Macroprudential Dashboard, 2018



The dashboard illustrates that an increase in risks of all subgroups has occurred at the end of the year.

The growth in macro risks is caused by a slowdown in economic growth relative to its time series, a deepening of current account deficit due to export and import developments, as well as the decline in remittances from abroad in 2018.

The current account deficit widened as a result of the rapid growth of import, contributed by the high level of private consumption. If the anticipated pace of economic growth persists, all other factors being equal, the above developments will not entail any risk build-up in terms of financial stability.

Overall, it should be noted that after the previous financial crisis the vulnerability of the domestic economy to the foreign world's economic developments has dropped significantly.

¹ The 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 (5 colors) represent a change in the index compared to its longterm series; red color indicates risk increase, while green color indicates risk decrease. The evaluations are updated and calculated quarterly.



Therefore, the impact of the above-mentioned risk sources on the financial stability is continuously weakening.

The increase of credit risk is caused by the high growth rates of household lending, which increases the vulnerability of the latter to the potential shocks.

The growth of market risks is driven by a relatively high growth in real estate prices, which was in line with a high growth in mortgage lending. The increase in the subgroup's risk assessment was also due to a decrease in the interest rate margin.

A mere increase in liquidity risk is conditioned by decrease in the liquidity ratios compared to their historical average, which, however, remain almost twice higher than the CBA minimum regulatory requirements.

The ability of the financial system to absorb potential risks remains high, allowing to safeguard the financial stability in case of potential risks' materialization in the future.

1. DEVELOPMENTS IN THE GLOBAL ECONOMY ²

1.1. MACROECONOMIC ENVIRONMENT

In 2018, the pickup in growth continued in the global economy, though with a slower pace and uneven across countries. At the same time, the balance of risks remains on the downside, including in the short and medium term. During the year, international financial conditions have become tougher. The industrial production has grown moderately, while tensions have increased in global trade relations.

The slowdown in the recovery of the global economy has been driven by confluence of problems in major developed countries, as well as slower economic growth in developing countries.

The possible growth of volatility in global financial markets, the uncertainties driven by trade protectionism and heightened geopolitical tensions will continue to be the main factors impacting the future global economic developments.

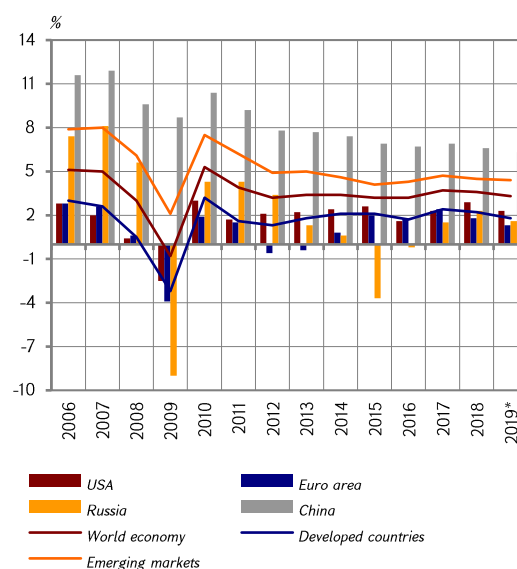
During the year, the trend of the global economic growth was sustained, though the risks to the downside became more tangible.

The global growth was 3.6% in 2018, according to the IMF (3.8% in 2017).

The economic growth in both emerging and advanced economies was slower than in the previous year, amounting 2.2% and 4.5%, respectively (2.4% and 4.7% in 2017) ³.

Under the slowdown in the global economic activity and low oil prices, a weak inflationary environment was formed at the end of the year. Accordingly, the IMF has estimated the inflation to be 2.0% in advanced countries and 4.8% in emerging market countries, in 2018. Moreover, in 2019, the inflationary pressures will not change significantly given the current economic activity trends.

Economic growth by regions



*Indicators marked by asterisk in this chart and the ones following thereafter are the IMF estimates (April 2019).

Source: IMF.

² International developments and predictions were based on information taken from IMF, World Bank, Economist Intelligence unit, Financial times, Bloomberg, RBC, the Institute of International Finance and other sources.

³ All the forecasts and assessments of IMF were taken from "World Economic Outlook, April 2019"

**IMF Overview of the World Economic growth Projections,
2016-2018, in percent**

Indicator (economic growth)	2017 assessments as of 30.04.2019	2018 assessments as of 30.04.2019	2019 projections as of 30.04.2019
World economy	3.8	3.6	3.3
Developed countries	2.4	2.2	1.8
USA	2.2	2.9	2.3
Euro area	2.4	1.8	1.3
Developing countries	4.7	4.5	4.4
CIS	2.1	2.8	2.2
Russia	1.5	2.3	1.6
China	6.9	6.6	6.3

In developed countries, with the exception of the USA, economic growth was slowing down during the year. Growth across developed economies is estimated at 2.2%, in 2018, which will further slowdown in the short term, driven by a slowdown in global economic growth and developments across individual countries.

The **U.S.** growth was assessed 2.9% in 2018. The economic activity recorded in the previous year was preserved mainly supported by the high domestic demand due to the U.S. fiscal stimulus wane and the accommodative monetary policy.

Apparently, the current accelerating level of the U.S. economic growth will not continue in 2019, caused mainly by a slowdown in global economic activity and volatility of financial markets.

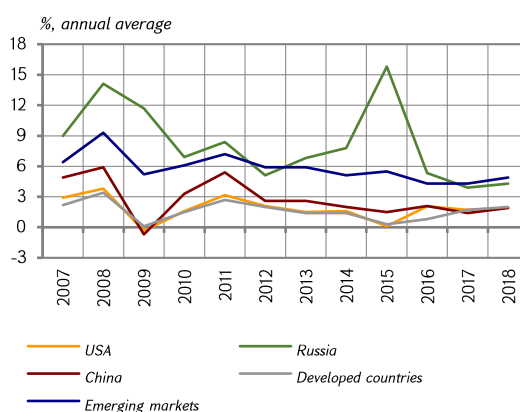
In the **Euro area countries** the economic growth has been marked down in 2018, given the drop in export growth rates, which is in turn caused by a weaker foreign demand and euro appreciation.

The steady increase in private consumption, the decrease in unemployment rate and lending expansion contributed positively to the economic growth. In the short term, the slowdown trend of the Euro area's economic growth will be maintained, all other factors being equal, due to political uncertainties, concerns about further decline in trade with key partner countries, as well as tighter financial conditions in some countries.

The economic growth in the Euro area is assessed to be 1.8% in 2018.

In **emerging markets and developing countries**, the pace of economic growth slowed down, caused by weak foreign demand, tighter financial conditions in the international financial markets and growing political uncertainties.

Inflation in a number of countries



Sources: IMF,
Statistical services of countries.

The growth trend of developed countries slowed down near the end of the year.

In the short term, the economic growth of emerging and developing countries will continue, *ceteris paribus*, driven by weaker foreign demand, appreciated U.S. dollar, geopolitical uncertainties, as well as tensions in the international trade.

According to the IMF, a 4.5% economic growth was recorded in the emerging market countries in 2018; (4.7% in 2017).

In **China**, some decrease in the economic growth rates has been noted. The growth of private investments has somehow compensated for the decline in public spending, whereas manufacturing output and export growth have dropped, reflecting the slowdown in global economic activity.

In the near term, the downside risks to the economic growth will stem from tighter financial sector regulation, a decline in foreign demand, as well as likely inward-looking policies by advanced countries and growing geopolitical tensions ⁴.

The economic growth in China was 6.6% in 2018.

In **Russia** ⁵, a 2.3 % economic growth was recorded in 2018, according to the Ministry of economic development of Russian Federation, contributed by the growth in domestic demand largely for domestic goods.

The highest growth rate was recorded in the construction sector, while the agricultural sector contributed negatively to the economic growth levels.

The high growth rate of the private demand was conditioned by increased real disposable income of households, as well as lower inflation and lending expansion.

Meanwhile, no stirring of the investment environment was noted during the year. Relatively tight lending conditions and the price increases in investment goods, given the depreciation of the Russian ruble, were the main contributors to the weaker investment flows.

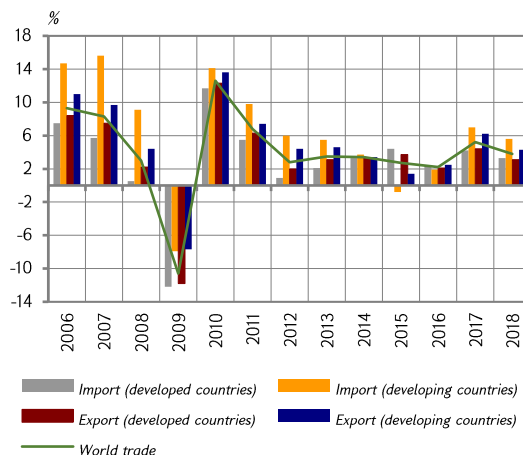
In the near term, the economic growth will be conditioned mainly by external factors, such as the uncertainties related to the further dynamics of the oil prices, monetary and trade policies of the key countries and the series of trading and economic sanctions against Russia.

The economic growth of Russia is anticipated to be in the range of 1.2% to 1.7% in 2019 ⁶.

The pickup in the **global trade** volumes observed in the previous year slowed down somehow in 2018, conditioned by the decline in prices for main commodities, comparatively low global economic activity and global trade disputes between key countries.

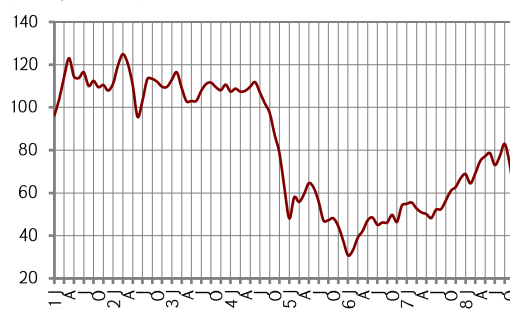
The prices of main commodities declined in the second half of the year.

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.

⁴ <http://www.imf.org/en/Publications/WEO/Issues/2018/03/20/world-economic-outlook-April2019>

⁵ www.economy.gov.ru

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

The main risks for the future growth of international trade volumes will be the uncertainties associated with the inward-looking trade policies in short term and the forecasted weakening of the investment climate in key countries.

Given the IMF forecasts, the growth rate of the global trade was 3.8 % in 2018, as compared to 5.3% of the previous year.

In 2018, sharp fluctuations of international prices of main commodities were recorded, the high price growth in the first half of the year was followed by a downward trend in key international prices in the second half. The downturn was conditioned by the slowdown in global economic activity and developments in some commodity markets. The price fluctuations in food commodity markets were less significant than in the manufacturing commodity markets.

Brent crude oil average annual price grew by 28.3%. In spite of the recorded increase, the oil prices declined considerably in the second half of the year, due to the supply factors, particularly growth in the production levels in the U.S. and the OPEC member countries.

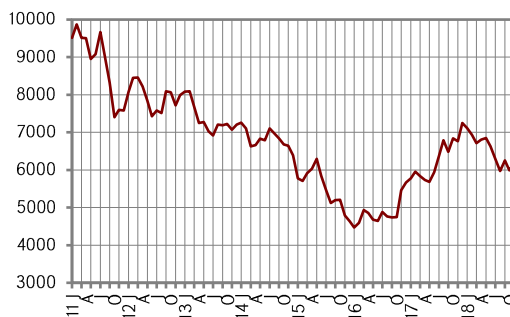
Driven by some decrease in demand in China, the copper prices continually fell as compared to the end of the previous year. However, a growth was recorded as compared to the previous year. The average annual price of copper increased by 2.8% year-on-year.

The average annual price of molybdenum grew by 50.0%, as compared to the previous year.

In the short term, the international stock prices of base metals will be maintained at the current levels, driven by trade conflicts and developments in the global demand.

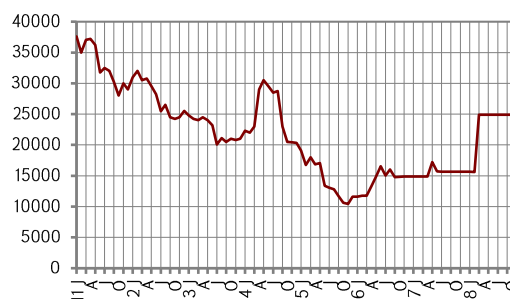
During the reported year, the wheat average international prices have increased by 20.0%, as compared to the previous year, due to low harvest levels caused by dry weather conditions.

Copper prices
(USD per ton)



Source: Bloomberg Data Warehouse.

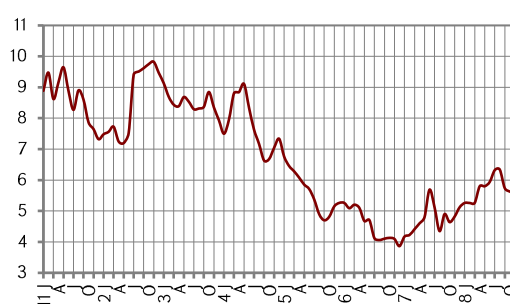
Molybdenum prices
(1000 USD per ton)



Source: Bloomberg Data Warehouse.

The wheat prices have increased considerably, as compared to the previous year.

Wheat prices
(USD per bushel)



Source: Bloomberg Data Warehouse.

1.2. INTERNATIONAL FINANCIAL MARKETS

The financial conditions were tightened in the international financial markets, given the intentions to change the course of easy monetary policy in the developed countries.

The trend of the tightening of financial conditions have led to some fluctuations in the capital markets as well, along with concerns about escalating international trade tensions and geopolitical uncertainties.

The growing interest rates in advanced countries parallel to the tight conditions of external financing have led to capital outflows from the emerging market countries, as well as have created depreciation pressures on the currency rates of the latter.

Further tightening of financial conditions in the medium term can lead to disruptive portfolio adjustments, sharp exchange rate movements and the continued downturn of capital inflows to the most vulnerable emerging markets with weaker fundamentals.

The intentions for more moderate pace of monetary policy tightening in the advanced countries and slower global economic activity resulted in a decrease in the yields on long term government bonds in the U.S. and the Euro area in the second half of the year.

Given the relatively high inflationary pressures and the positive developments in the labour market, the U.S. Federal Reserve hiked its benchmark interest rate for 4 times, by 0.25 percentage point each, to reach a final 2.25-2.5% range. At the same time, some signals were transmitted to the financial markets that the further interest rate changes will be implemented with a more moderate pace.

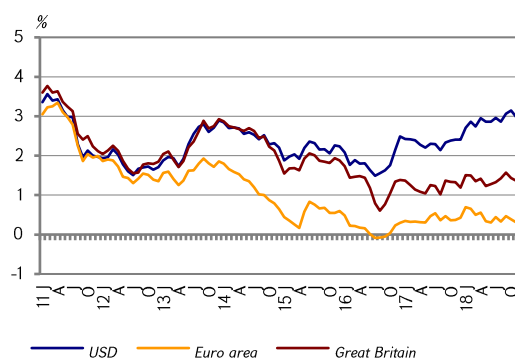
During the year, the ECB continued to conduct its asset purchase program with a smaller monthly volume of 30 billion euros, and stopped the program at the end of 2018. The ECB maintained the refinancing rate unchanged and has clearly signalled the low likelihood of its future hike, at least till summer 2019.

The Bank of England ⁷ has increased its monetary policy rate by 0.25 percentage point during the year, which is the third hike after the global financial crisis. According to the Bank's announcements, the further increase of the policy rate would depend on the inflation rate, the rate of unemployment, as well as on changes of a number of economic activity indicators, which will signal positive trends in the economy.

The Central bank of Russia ⁸ have lowered the refinancing rate by 0.5 percentage point during the first half of the year, given the macroeconomic stance and the inflationary expectations. In the second half of the year, the refinancing rate was increased with the same amount to stand at 7.75%.

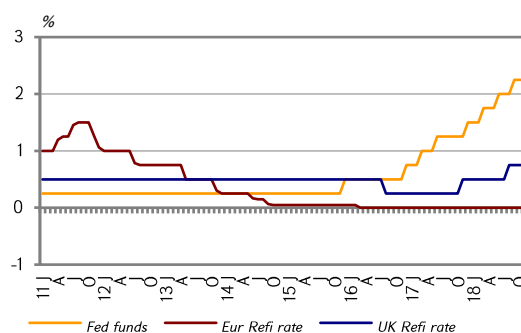
During the reporting period, the major currencies assumed volatile trends. The U.S. dollar has appreciated somehow versus euro, driven by steady economic growth and the recent course of the monetary policy in the U.S.

10-year government bond yield



Source: Bloomberg Data Warehouse.

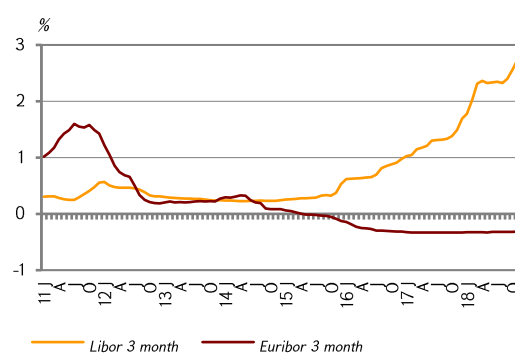
Interest rate policies of Central banks



Source: Bloomberg Data Warehouse.

The Fed continued to rise its rates, while transmitting signals to the financial markets on the further interest rate changes will be implemented with a more moderate pace.

Interbank interest rates



Source: ECB.

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

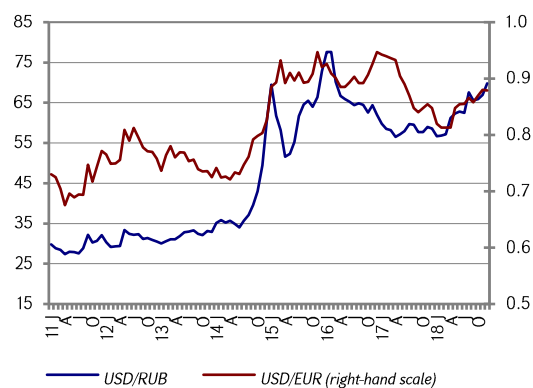
⁸ <https://www.cbr.ru>

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

In 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 mainly grew, responding to the increases in the policy rates in some countries.

Dynamics of USD exchange rate versus RUB and EUR



Source: Bloomberg Data Warehouse.

SUMMARY

During 2018, the recovery of the world economy persisted, though the expansion became weaker and less even across countries.

The financial conditions became tighter in the international markets and the downside risks have become more salient, caused by developments in global trade and geopolitical stance. At the same time, price decreases were recorded in commodity markets in the second half of the year.

The trends in the global economy, the price falls in the metal markets and the economic situation in Russia did not have a negative impact on Armenia's economy and exports, which testifies to the sufficient level of creditworthiness of the businesses involved in exporting sectors.

The declining trend of the net current remittances and net remuneration of outbound workers had a negative impact on the income of households. At the same time, the decline of the impact of the abovementioned factors on the income and creditworthiness of the clients of the financial system continued.

2. MACROECONOMIC ENVIRONMENT IN ARMENIA

2.1. MACROECONOMIC DEVELOPMENTS ⁹

A higher-than-forecasted economic growth was observed in Armenia in 2018, mainly contributed by the expansionary monetary policy of the Central bank, the growth of lending and accelerating growth in private spending, on one hand, and by the moderate growth in foreign demand, on the other.

During the year, the growth rates of gross demand slowed down, caused by tighter fiscal policy, as compared to the previous year, and weaker currencies of partner countries.

The economic growth was 5.2% for the reporting year. The growth rates of service and trade sectors (9.4% year-on-year) were the main contributors to the overall economic growth. These higher-than-anticipated growth rates of services and trade were due to high growth of trade volumes and significant activity in tourism, entertainment and recreation sectors.

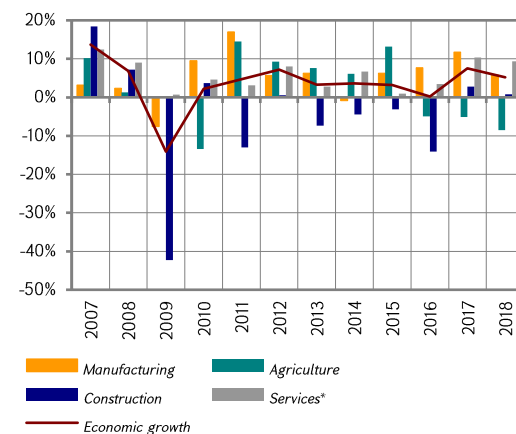
Growth in manufacturing sector was 5.8%, though the mining output volumes decreased. Other sectors of the economy, with the exception of agriculture, had a relatively small positive contribution to the overall economic growth.

In the course of the year, the high level of private spending has largely contributed to the economic growth, largely due to the acceleration of private spending growth, while the private investment growth rates have slowed down somehow. Growth in private spending was also promoted by the growth of lending to the economy, with growth in loans to households exceeding the growth rates of business lending. As a result, private spending and investment increased by 4.7% and 38.8%, respectively, year-on-year. It should be noted that the high growth rates of investments, recorded from the beginning of the year, were largely due to the high growth of material inventories, which slowed down in the fourth quarter.

As for the fiscal policy carried out during the year, it had a detrimental effect on the aggregate demand, which was mainly evidenced by the reduction of government spending and investment volumes.

A higher-than-forecasted economic growth was observed in 2018, due to significant increase in private spending.

The growth levels of real GDP and main sectors of economy

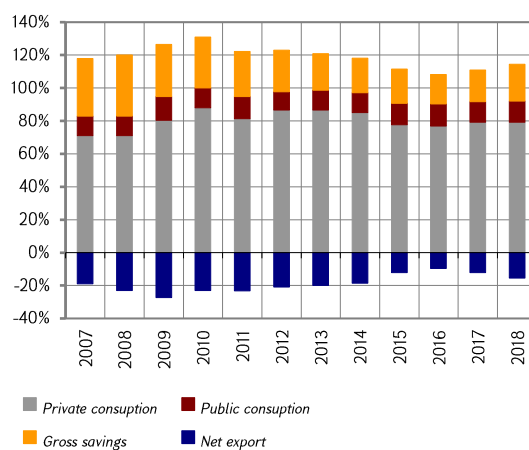


* In chart the sector of services includes trade and other service sectors' aggregate values.

Source: Statistical Committee of Armenia.

Services and trade sectors had the highest contributions to the economic growth.

GDP expenditure components (share in GDP)



Source: Statistical Committee of Armenia.

⁹ For details on the developments of macroeconomic environment in Armenia, see "Inflation Report" (2018, 4th quarter 2019, 1st quarter).

The recovery of the domestic demand and the easing of lending conditions¹⁰ contributed to 16.5% credit growth (YoY). The increase in the volume of loans to transport and communications, consumer, mortgage and manufacturing sectors have had the biggest share in the overall lending growth. The growth of lending was accompanied by a decrease in the share of non-performing loans and receivables in total loans and receivables of the banking sector, which by the end of year amounted 4.4% (5.1% in 2017), posting a 0.8 percentage point decrease compared to the previous year-end.

Moreover, along with the growth of lending volumes, the share of non-performing loans decreased in almost all sectors.

During the year, lending conditions improved across all components due to increased competition among financial institutions. As a result, general lending terms and conditions were eased, which resulted in a narrowed interest margin and more active lending, especially for mortgage and consumer loans, as well as loans to small and medium sized businesses¹⁰. The lending supply expansion was also conditioned by positive developments in the real estate market, along with the ongoing government projects, high competition among banks, as well as positive expectations concerning the recovery of economic activity.

There was a noticeable increase in demand for loans, which was conditioned by the significantly improved lending supply conditions, accommodative monetary policy, high economic growth and other positive expectations.

It should be noted, that a shift to financing through capital investments was recorded in the demand side of business lending.

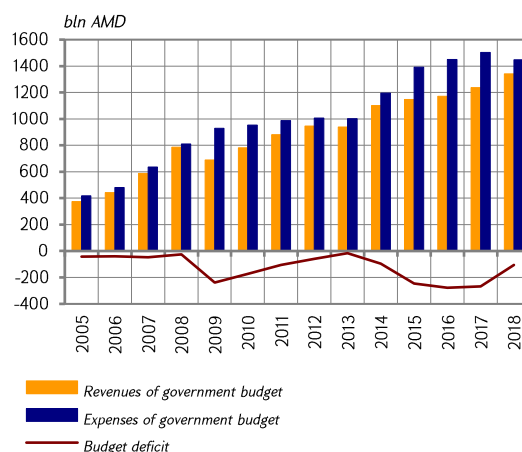
According to the results of the lending survey conducted in the fourth quarter of 2018, some expectations for the expansion of the loan supply and growth in demand have been formed in 2019¹⁰. The latter are based on the expectations for stronger economic activity (business environment improvements), as well as considerable easing of lending procedures, in particular for SME and consumer loans.

The fiscal policy had a restraining effect for gross demand both for expenditures' and revenues' sides. The indicators of state budget show an 8.4 % increase in revenues and a 3.8 % drop in expenditures. Resulted by the abovementioned shifts in expenditures and revenues, the state budget deficit declined significantly and amounted AMD 100 billion in 2018 (1.7% of the GDP).

A weak inflationary environment was recorded in 2018; the 12-month inflation constituted 1.8 %.

In 2018, a lending growth was observed for almost all sectors.

Main indicators of government budget



Source: Statistical Committee of Armenia.

¹⁰ According to the survey on "Lending terms provided by banks and credit organizations" conducted in the fourth quarter of 2018.

Throughout the year, the dynamics of inflation was largely in line with the developments in demand, though being also influenced by the supply side, mainly due to changes in the tax field, subdued global inflation, as well as more competitive environment in the domestic market.

According to the monetary policy program of the Central bank, in the short term horizon, the 12-month inflation will stay at the lower border of the acceptable confidence band, and will stabilize to reach its target level in the medium term.

2.2. FOREIGN TRADE ¹¹

In 2018, the developments in the partner countries and increased tourism contributed positively to the economic growth.

At the same time, the net export contribution to the economic growth was negative as the mining sector's problems led to a slowed down growth rates in export, while the growth in consumption and investment in the domestic economy was in line with a significant increase in import volumes.

In January-December 2018, the volume of foreign trade increased by 16.7%, compared to the previous year, while export of goods and services grew by 8.5% and imports by 21.1%.

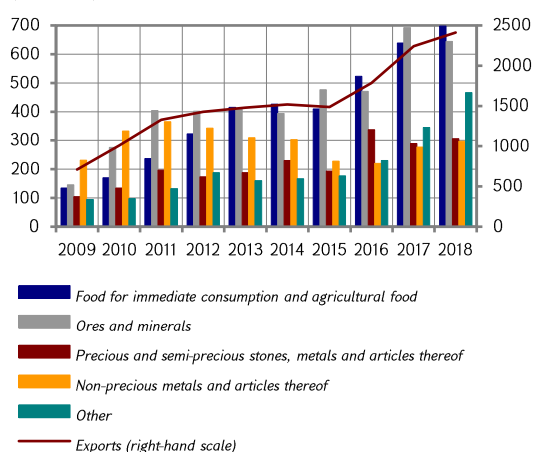
The moderate increase in exports was due to the slowdown in economic growth in some partner countries and the unfavourable developments in the mining industry.

The increase in imports was contributed by a high level of economic growth and an increase in private consumption (domestic demand).

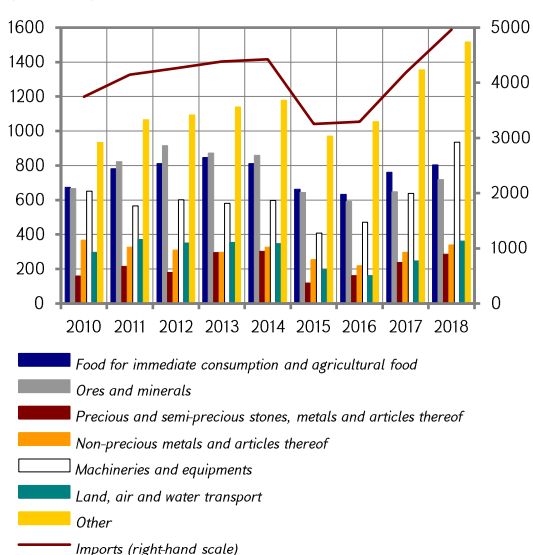
It should be noted that during the year a high growth rate was registered in the investment products, which is an evidence of the positive expectations for the business environment and future economic growth. In the context of rapid growth of imports, the negative balance of trade balance decreased to USD 2.5 billion, 20.5% of GDP (16.1% in 2017), while the current account deficit/GDP ratio increased and was around 9.1%, as opposed to 2.4% in the previous year. During the year, the real and nominal

In 2018, the current account deficit grew.

Armenia's exports by commodity groups
(mln USD)



Armenia's imports by commodities
(mln USD)



¹¹ The indicators in this section are based on data from Statistical Committee of the Republic of Armenia.

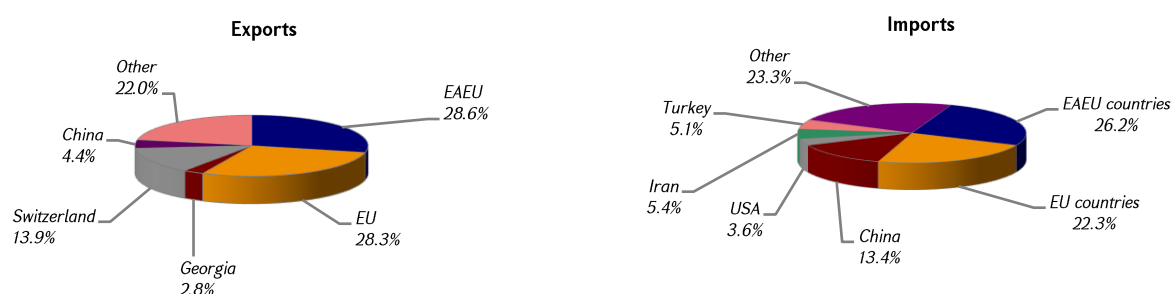
Source: Statistical Committee of Armenia.

effective exchange rates of Armenian dram appreciated, by 0.6% and 2.5%, respectively ¹².

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, 28.6% and 26.2%, the EU, 28.3% and 23.0%, respectively.

Compared to the previous year-end, the coefficient of concentration of exports by commodities decreased and totalled 0.409 (0.429 in 2017).

Foreign trade of Armenia, by countries, as of 2018



Source: Statistical Committee of Armenia.

2.3. HOUSEHOLD INCOME AND DEBT BURDEN

During 2018, developments in the Armenian labour market had a positive impact on the household income, while the remittances diminished.

The monthly average nominal wages grew by 4.0%, mainly driven by the growth of wages in the private sector ¹³.

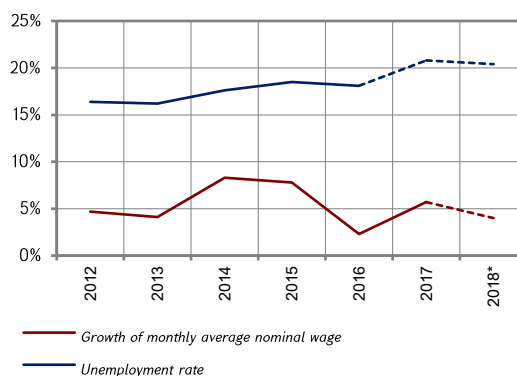
The unemployment rate decreased by 0.4 percentage point to 20.4%. At the same time, the U.S. dollar value of remittances to individuals decreased, starting from the second half of the year, as a result of the depreciation of the Russian ruble against the U.S.

¹² For 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).

¹³ Starting January 2018, the National Statistics Service of Armenia revised the statistics methodology of the labor market, within which a number of indicators were changed. Accordingly, the average nominal salary refers to organizations with 1 or more employees. According to the previous methodology, the average monthly nominal wages grew by 5.1%.

The nominal wages grew, though remittances from abroad declined during the year.

Nominal average wage change and unemployment



* Starting from January 2018, the RA Statistical Committee has revised the methodology for labor market statistics, within which the values of a number of indicators were changed. Accordingly, in the chart, the unemployment rate for 2017-2018 and the wage growth for 2018 are not comparable with the previous years' data.

Source: Statistical Committee of Armenia.

dollar. As a result, the net income of the outbound workers' compensations decreased by 3.8%, while the transfers grew by 3.7%. The ratio of net current transfers and outbound workers' compensation to GDP decreased and totalled 9.0%.

The resident households' savings in domestic bank deposits grew by 8.3% during the reported period. The foreign exchange denominated deposits continue to have major share in the deposit structure, with a 59.0% share, which is one of the constraints limiting the ability of banks to allocate their funds in dram denominated assets, especially such as AMD lending to households.

During the year, the lending volumes to the households by the financial institutions grew by 27.6%. Moreover, the growth in lending was recorded with both banks (29.2%) and credit organizations (19.8%).

In 2018, consumer lending remained the most attractive type of lending, with the most competitive market. In the reporting period, the volume of consumer loans increased by 37.9%, given the increase in all subtypes of consumer loans. During the year, growth has also been recorded on online consumer loans without collateral¹⁴.

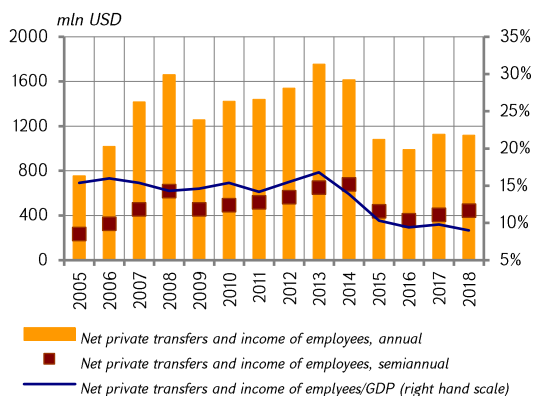
Given the high competition between credit institutions, the easing trend for conditions and procedures for loans to households has been maintained during the year. Mitigations relate to almost all loan terms and procedures, including loan maturity, non-interest payments. The interest rates decreased.

In the period under review, the mortgage lending increased considerably by 20.0%, contributed mainly by the increase in mortgage loans for real estate purchase (23.0%).

The Government's program on the return of income tax paid as interest rate on real estate mortgages acquired from the primary market and the refinancing projects of mortgage loans' market continue to trigger the mortgage market¹⁵.

During the reported period, mortgage portfolio tended to become more dram-denominated. As a result, the share of foreign currency denominated mortgage loans in total mortgage loans decreased by 4.8 percentage points and amounted to 41.5%.

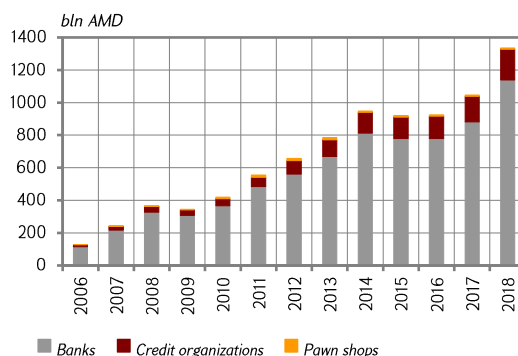
Net private transfers and wages of seasonal employees



Source: Central Bank of Armenia.

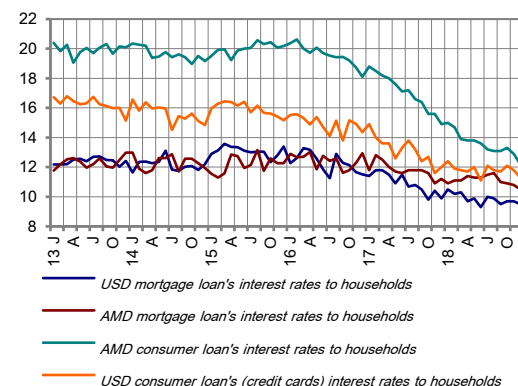
During the year, the lending to households grew, leading to their increased debt burden.

The structure of household liabilities to financial institutions



Source: Central Bank of Armenia.

Lending interest rates to households



Source: Central Bank of Armenia.

¹⁴ Source: summary of quarterly surveys on "Lending conditions by banks and credit organizations of Armenia" by the CBA, 2018.

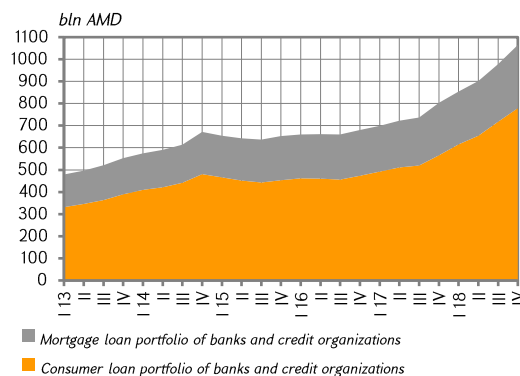
¹⁵ In August 2018, the RA Ministry of Finance drafted a preliminary agreement on making changes to the targeted program "Housing for Young families". Changes relate to loan interest rates, prepayments and age thresholds. In May 2018, the amendments to the RA Law on Mortgage Bonds were adopted, the purpose of which is to create additional incentives for the development of the Mortgage backed Security market and to increase the attractiveness of mortgage backed securities issued in Armenia for foreign investors.

Amidst growing non-performing consumer loans, their share in total consumer loans increased by 2.1 percentage points, reaching 8.2%. The non-performing mortgage loans decreased by 0.9 percentage point, resulting in a fall in the ratio of non-performing mortgage loans to total mortgage loans, which constituted 2.8%.

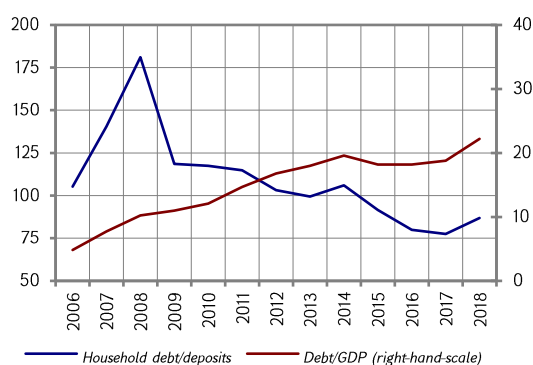
The credit burden of households (ratios of loans / GDP, loans / deposits) has increased given the persistent active lending. Meanwhile, according to the surveys conducted by the CBA, expectations for growth of loan supply and demand have also been formed for 2019¹⁶. In this context, in subsequent years, the active lending to households should be in line with a corresponding increase in disposable income to curb the credit risk caused by high credit burden. The ratio of loans granted to resident households to GDP increased by 3.4 percentage points and made 22.2%. Loan / deposit ratio also increased (by 9.3 percentage points) and made 86.8%. However, households continue to act as net creditors for financial organizations.

Overall, the risks arising from the household sector have not undergone significant changes and have been maintained within managed frameworks, in terms of financial stability.

Consumer and mortgage loan portfolio of banks and credit organizations



Debt and income ratios of households (%)



Source: Central Bank of Armenia.

2.4. REAL ESTATE MARKET

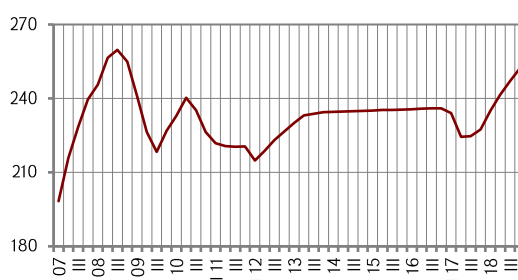
During the year, the increasing trend of real estate prices was maintained, positively affecting the management of credit risk derived from real estate price fluctuations¹⁷ (for details see the subsection “Market risk of Commercial banks”).

In 2018, as compared to 2017, the market price for 1 square meter of apartments in residential apartment buildings in Yerevan increased by 7.2%, which is the highest growth since 2010. The prices grew in almost all districts, particularly in Center (18.7%) and Davtashen (11.2%) districts.

According to the banks and other credit organizations, which took part in the quarterly surveys conducted by the Central bank of Armenia, both prices and the number of transaction of residential

In 2018, the real estate market was more active, as compared to 2017.

Average apartment price index in Yerevan (sq m)



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

¹⁶ Source: summary of quarterly surveys on “Lending conditions by banks and credit organizations of Armenia” by the CBA, 2018.

¹⁷ As 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

real estate sale and purchase will continue to grow in the next quarter as well ¹⁸. In this context, in subsequent years, the ongoing growth of real estate market prices should be in line with a corresponding increase in disposable income to curb the probable risks caused by real estate market volatility.

In line with a price growth, the number of real estate and apartment sale and purchase transactions increased. The number of apartment sale transactions in Yerevan increased by 15.5%, and in regions; by 26.6%.

The high activity in the real estate market has had a positive impact on the decrease of liquidity risk of collateral, which is an important risk for credit institutions.

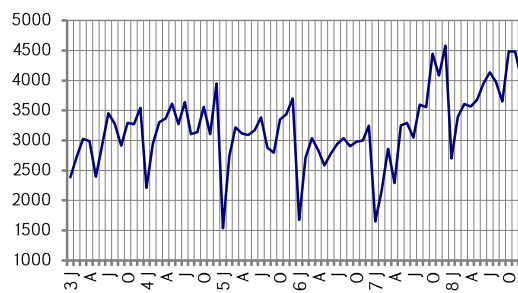
The twofold growth of the volume of commissioned residential houses is another indicator of real estate market stirring. This growth was mainly due to an increase in the volume of commissioned residential houses financed by companies (25.7 times more).

The mortgage lending grew in line with a more active real estate market. During the year, both the volume of loans for real estate purchase with banks and credit organizations grew by 23.0% (the increase in the number of loans was by 17.0%). The initiative of refunding mortgage interest payments by using the income tax payments continues to have a positive impact on the activity of primary real estate market. The latter is also stimulated by the refinancing programs of the mortgage loans acquired for real estate purchase (for details, see section “Household income and debt burden”). At the same time, the share of non-performing loans for real estate purchase decreased by 0.9 percentage point and amounted 2.3% of total real estate purchase loans.

In 2018, loans provided for construction of residential and non-residential real estate increased by 5.6%, which in line with a drop in the non-performing loans brought to a decreased share of non-performing loans in total loans for construction of residential and non-residential real estate.

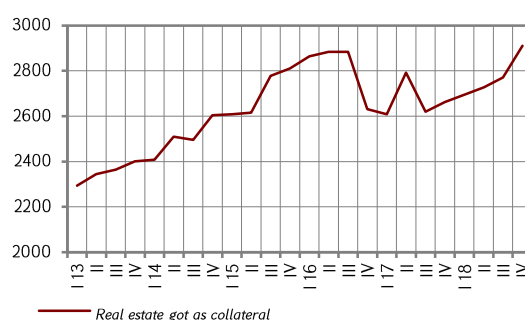
Thus, high activity was registered in the real estate market during the year, which was reflected in the increase in real estate prices, the number of sale and purchase transactions, as well as the volume of real estate market lending.

Number of real estate sale and purchase transactions



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

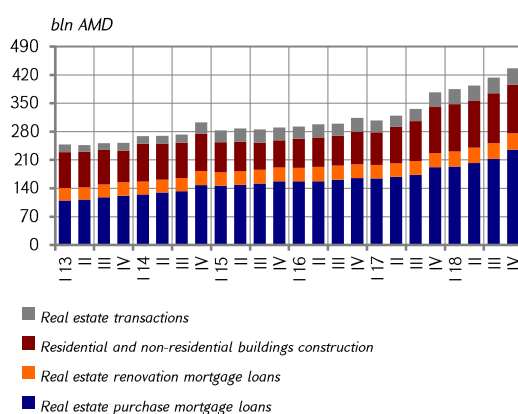
Volume of real estate got as collateral with the commercial banks (bln AMD)



Source: Central Bank of Armenia.

The volume of lending for real estate grew during the year.

Real estate lending



Source: Central Bank of Armenia.

¹⁸ Source: summary of quarterly surveys on “Lending conditions by banks and credit organizations of Armenia” by the CBA, 2018.

SUMMARY

The 5.2% economic growth recorded in 2018 was mainly driven by the increase in services and trade, from the supply side, and by the private spending growth and the easing of lending conditions and credit growth, which occurred due to the accommodative monetary policy, from the demand side.

Armenian real estate market was also more active; an increase in the number of transactions and real estate prices was recorded.

Given the economic growth, the salaries have increased and the unemployment has diminished slightly. Remittances (net transfers received from abroad and net income of the outbound workers' compensations) from abroad decreased. In parallel to the accelerated growth of the loans the household debt burden has increased.

In general, the risks transferred from macroeconomic environment to the financial system are not significant, from the financial stability viewpoint.

3. STABILITY OF FINANCIAL MARKETS

Given the macroeconomic developments and the non-inflationary impacts from domestic and foreign markets, the Central bank of Armenia maintained its accommodative policy and did not change the refinancing rate, 6.0%, in 2018¹⁹. The accommodative monetary policy contributed to decreases in interest rates of the financial market, including a decrease in interest rates on loans granted and deposits attracted by commercial banks. Taking into account the anticipated macroeconomic developments, the Central Bank of Armenia emphasizes an accommodative monetary stance in the long term, in order to maintain price stability in the medium term²⁰.

Historically, the changes in the CBA refinancing rate were reflected in the behaviour of the interbank repo interest rates, which were mainly close to the refinancing rate. This trend was also maintained in 2018.

In order to maintain short-term interest rates close to the refinancing rate, the Central Bank of Armenia almost completely satisfied the demand for short-term liquidity. So the volume of repo operations with the Central Bank of Armenia increased considerably. At the end of 2018, the latter made AMD 163 billion. The interbank repo rate did not change practically and made 6.22% at the end of the year, having increased by 0.1 percentage point compared to December of the previous year.

At the same time, the volume of interbank repo operations has decreased twice starting from the second half of the year and made AMD 21.9 billion by the end of the year.

The yields of government bonds changed differently all along the curve²¹. The fall of interest rates is more emphasized in parallel with their maturity increase.

In general, the yields of short-term government bonds formed in line with the monetary market developments and were close to the Central Bank's policy rate. Meanwhile, the yields of long-term government bonds decreased significantly because of the increase in the demand.

As a result, the spread between 10-year and 6-month bonds stood at 3.3 basis points, falling by 0.8 percentage point, as compared to December 2017.

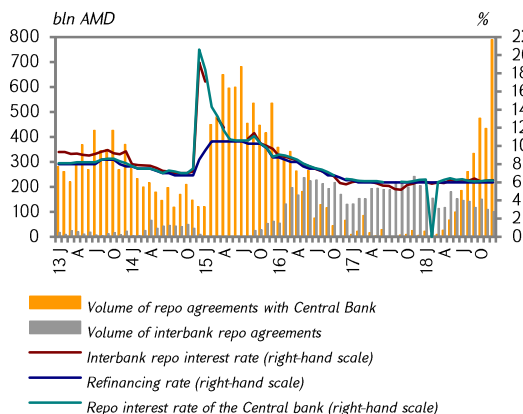
¹⁹ In January 2019, the Central Bank of Armenia favored the accommodative monetary policy and reduced the refinancing rate to 5.75%, given the low inflationary environment and the likelihood of its preservation in the upcoming months.

²⁰ <https://www.cba.am/AM/pmessagesannouncements/Minutes%2029.01.2019.pdf>

²¹ The 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.

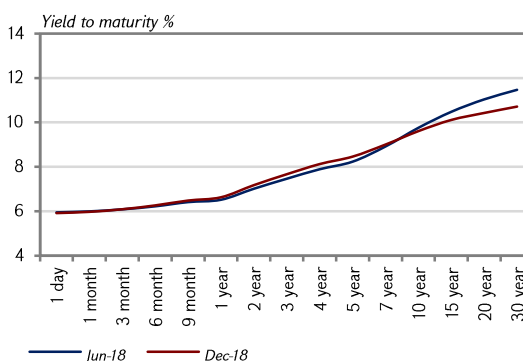
In 2018, the CBA maintained its accommodative monetary policy trace.

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



Source: Central Bank of Armenia.

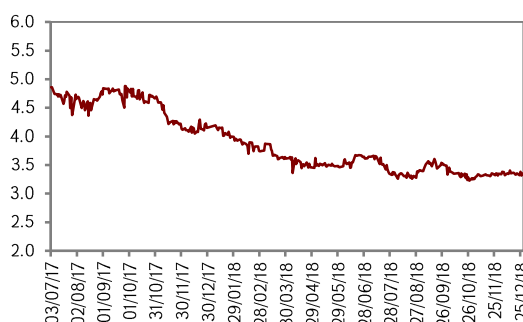
Yield curves of Armenian government bonds



Source: Central Bank of Armenia.

The yields of government bonds changed in different directions all along the yield curve.

Spread between 6 month and 10 year government securities



Source: Central Bank of Armenia.

Indices of government securities²² in 2018

	TBI	G03	G05	G5I	GMI
Modified duration	0.39	1.47	1.89	6.79	4.60
Risk weighted yield	6.23	7.04	7.40	10.30	9.75
Average maturity (year)	0.41	1.66	2.21	15.99	9.47
Average weighted coupon (%)		9.44	9.40	12.15	10.85
Market Price of government securities (bln AMD)	22.4	195.3	264.5	326.2	590.7

The average annual modified duration²³ of government coupon bonds outstanding was 4.60. The average maturity also grew to 9.47 years. These indicators for discount bonds also grew to 0.39 and 0.41, respectively.

In 2018, the gross operations in securities' markets (including repo and reverse repo transactions but excluding operations with the Central Bank) carried out by investment service providers decreased by 2.7%, as compared to the previous year²⁴. The decrease is conditioned by the fall in repo and reverse repo operations (excluding the CBA operations), which, however, continue to have a significant share in the overall operations of investment services providers. During the year, securities' purchase and sale transactions made 10.6% of the aforementioned operations (8.6% last year). Nevertheless, the liquidity level in the securities market remains low.

The volume of repo and reverse repo transactions (excluding operations with the Central Bank) carried out by investment service providers; banks and investment companies, decreased by 4.9%, as compared to the previous year, and amounted to AMD 8 trillion 88 billion. Moreover, almost all repo transactions involved government securities.

In 2018, the indicator describing the level of liquidity²⁵; the ratio between an amount of monthly trade transactions executed by investment service providers in the secondary market of government bonds and an amount of government bonds outstanding was volatile and amounted 4.7 as of December 2018

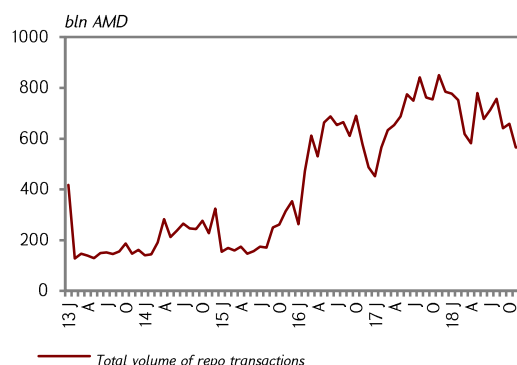
²² There are 5 indices calculated for government securities, of which 4 for coupon bonds and 1 for discount bonds. The coupon bond indices are G03, G05, G5I, which cover bonds with maturities, respectively, from 0 to 3 years, 0 to 5 years and 5 years and more; and GMI, which is a coupon bond index. Indices 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 maturity of one week and more, with AMD 400 million and higher turnover. For details, see the CBA website: www.cba.am

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

²⁴ The aforementioned transactions include repo and reverse repo operations (including extended repo operations), as well as securities trading transactions.

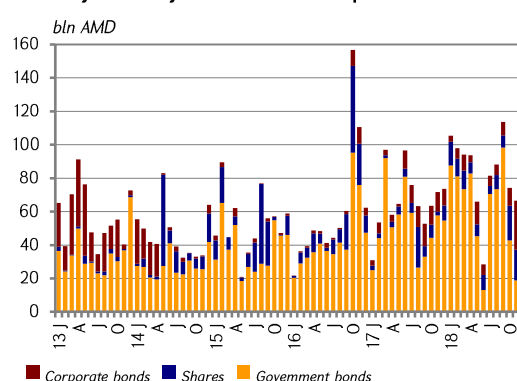
²⁵ The liquidity indicator of government securities market is calculated as a ratio between an amount of monthly trade transactions executed by investment service providers in the secondary market of government bonds and an amount of government bonds outstanding.

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



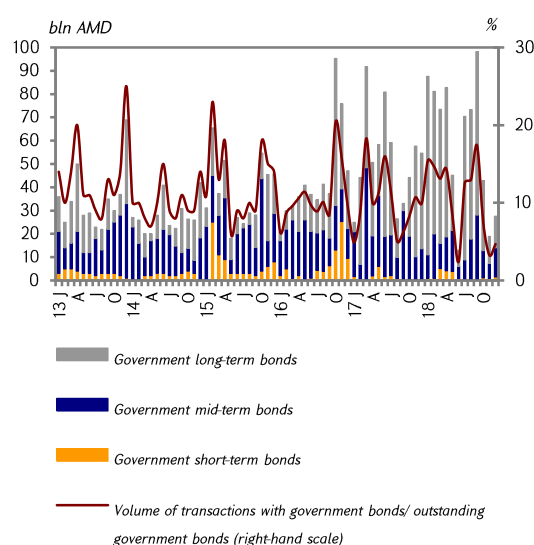
Source: Central Bank of Armenia.

Security trades by investment service providers



Source: Central Bank of Armenia.

Volume of transactions with government securities and volume of transactions with government securities/outstanding government securities ratio



Source: Central Bank of Armenia.

(9.9, in December 2017). The standard deviation of the aforementioned ratio increased and was 5.1, against 4.0 in the previous year.

Within the total trades of government securities the share of short-term security trades remained merely unchanged at 2.8% during the year (2.4%, in the end of 2017). The share of long-term security trades grew markedly and amounted to 74.6% (59.7% in the end of 2017) while the share of medium-term security trades decreased and was 22.6% of total security trades.

In 2018, the total volume of securities' trades in the regulated market amounted to AMD 96.8 billion. The share of regulated market in the structure of securities' trades by investment service providers decreased by 1.9 percentage point and was 10.1%. In the regulated market, transactions with government securities comprised the prevailing part, 58.9%. Trades with corporate securities and shares constituted 38.9% and 2.2%, respectively.

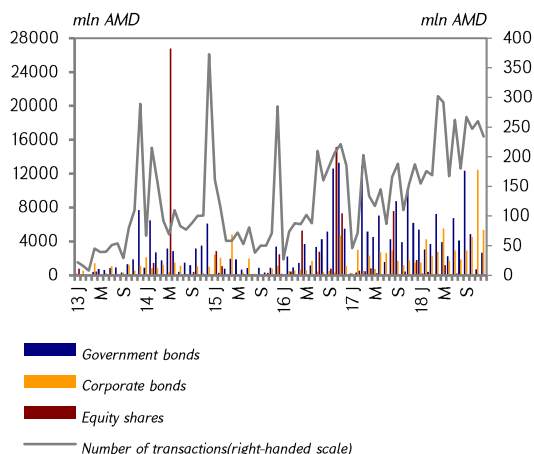
As of December 31st 2018, the capitalization of equity shares' market was AMD 145.7 billion, increasing by AMD 1.9 billion as compared to the previous year-end. The concentration of capitalization by issuers remained the same compared to the previous year; the share of the first three issuers was 83.3%, while the share for the first five issuers was 98.5%. This denotes the high concentration of share issuers.

The share of 3 and 5 largest issuers, by capitalization, in 2013 – 2018 (%)

Date	Capitalization of the 3 largest companies (%)	Capitalization of the 5 largest companies (%)
31.12.2013	79.8	96.7
31.12.2014	86.5	97.2
31.12.2015	83.0	98.0
31.12.2016	80.4	95.2
31.12.2017	83.3	98.5
31.12.2018	83.3	98.5

Source: Nasdaq OEMEX Armenia.

Security trade and repo transactions carried out in the regulated market of securities



Source: Central Bank of Armenia.

SUMMARY

The financial and foreign exchange markets were stable during the year.

The Central bank of Armenia has maintained its accommodative monetary policy stance. The interbank repo rates remained close to the refinancing rate.

Yields of government bonds dropped down, parallel to the growth of their maturities.

4. STABILITY OF FINANCIAL INSTITUTIONS

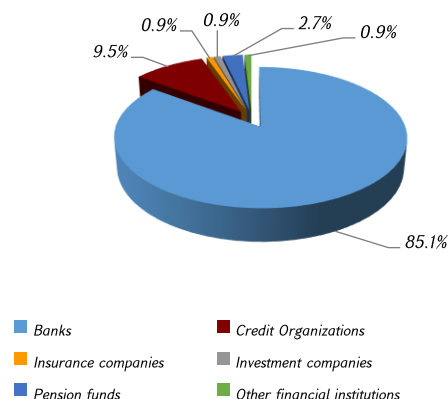
In 2018, the financial market participants maintained high activity in credit and investment markets, given the accelerating growth of economic activity and positive developments in labour market. The financial sector ratios of asset-to-GDP and credit-to-GDP grew by 4.0 and 4.1 percentage points during the year and were 97.6% and 53.9%, respectively.

Armenia's financial system remains bank-dominated, with banks accounting for 85% of the financial system assets. The banking sector's assets-to-GDP and credit-to-GDP ratios grew by 4.9 and 3.8 percentage points, respectively, to 83.1% and 48.9%, during the year. Overall, all banks have ensured proportionate growth of different activities. Therefore, from this point of view the risk of concentration in the banking sector is rather low.

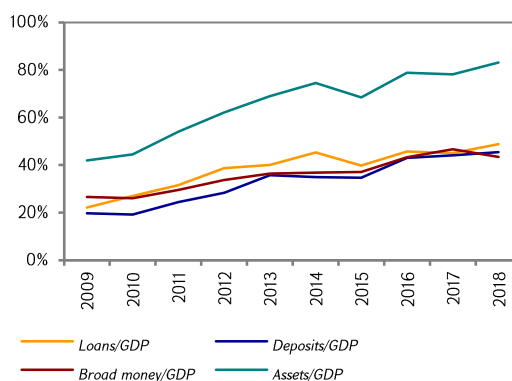
The shares of insurance and securities market participants and other players of the financial market are small and their impact on the financial stability is still low.

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

Structure of financial system assets, by financial institutions, as of 31.12.2018



Banking intermediation

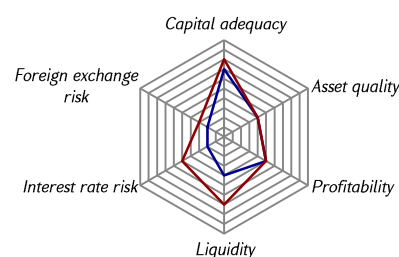


4.1. COMMERCIAL BANKS

In the fourth quarter of 2018, relative to the fourth quarter of 2017, the elements of the stability map²⁶ incurred some changes.

Some deteriorations were observed in the capital adequacy, foreign exchange risk, interest rate risk, as well as liquidity risk indicators. The asset quality and profitability ratios did not incur notable changes (for details, see subsections “Credit risk”, “Liquidity risk”, “Market risk”, “Capital adequacy and Profitability”).

Banking sector stability map



²⁶ The banking sector stability map contains indicators denoting capital adequacy, assets 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 in accordance with 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, rather it provides a picture whether the level of risks involved has increased or decreased.

Source: Central Bank of Armenia.

Box 2

Capital buffers for Armenian banks according to Basel 3 requirements

In reaction to the Basel III regulatory framework requirements developed by the Basel Committee on Banking Supervision, the Central Bank of Armenia has developed and adopted the regulatory requirement on “The procedure for setting and calculating buffers higher than the Capital Adequacy Standard”, which have entered into force since April 2019. The adoption of the regulation is aimed at increasing the efficiency of the macro-prudential policy implementation and strengthening the ability of banks to withstand shocks in various economic situations.

The Central Bank of Armenia has set three buffers exceeding the current capital adequacy requirement: capital conservation buffer, counter-cyclical capital buffer, systemic risk buffer. Moreover, the first two buffers are applicable for all banks, while the systemic capital buffer is set for systemically important banks only.

The capital conservation buffer is intended to provide additional capital for the bank to absorb potential losses. Starting from 2020 it will be set at 0.5% and gradually will increase to 2.5%.

The counter-cyclical capital buffer is aimed to limit the volumes of lending during economic growth periods, while providing additional possibilities of lending during economic downturns. The counter-cyclical capital buffer can be set in the range of 0% to 2.5%. When the rate is increased, the banks concerned will be usually notified at least 6 months in advance of the rate taking effect. If the rate is reduced, the new rate can take effect within the timeframe established by the Central bank of Armenia.

The systemic capital buffer will be implemented for more strict control over the systemically important banks. It will also come into force from 2020 and will be set at 0.5% on January 1st 2022. In the following years it will gradually increase and will make 1.5%, starting from January 1st 2023.

The introduction of the above-mentioned buffers is aimed at increasing the efficiency of the risk management in the banking sector; i.e. resilience, which in turn will strengthen the stability of the financial system.

4.1.1. Credit risk

The credit risk remains the most important risk to the financial stability in terms of ensuring the solvency of the banking sector. The share of the credit risk in the risk-weighted assets of commercial banks accounts for 86.7%.

During the year, loans to economy increased by 16.5%. Lending to legal entities increased by 10.6%, while lending to individuals, by 26.1%.

The consumer, manufacturing and trade loans had the largest shares in total lending to residents, making up 23.3%, 17.5% and 14.9%, respectively.

By currency structure, the share of foreign currency loans in the credit portfolio decreased by 6.4 percentage points and made 57.1%.

By risk structure, the share of non-performing loans and receivables (classified as “watched”, “substandard”, and “doubtful”) decreased by 0.8 percentage point to 4.4% of total loans and receivables. Regarding each category of loans and receivables, the shares of “watched”, “substandard”, and “doubtful” loans and receivables were 1.4%, 1.2% and 1.7%, respectively (as of 31.12.2017, they were 1.4%, 2.0% and 1.7%, respectively). The share of non-performing loans and receivables is relatively high in consumer loans, agricultural sector, public catering and other services, constituting 7.0%, 6.6% and 5.4%, respectively.

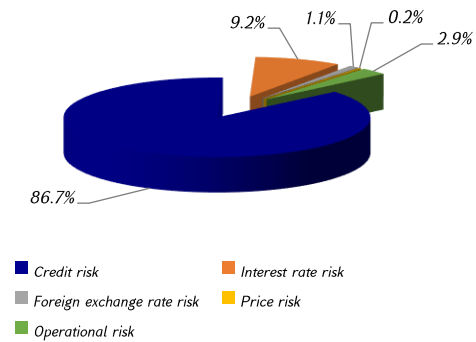
The Herfindahl-Hirschman sectorial concentration index for lending increased by 8 points, constituting 1088, pointing to a moderate concentration of loan allocation in the banking sector. The same indicator calculated using the banks’ average amounted to 1760, which indicates a relatively high concentration of lending portfolios with some banks. Nevertheless, the sectoral concentration of credit portfolios of the aforementioned banks is largely the result of the large share of small consumer loans, therein the credit portfolio of the same banks is sufficiently diversified, in terms of the volume of the loans.

In terms of the loan portfolio concentration, the share of loans to large borrowers was 27.3% of total loan portfolio ²⁷.

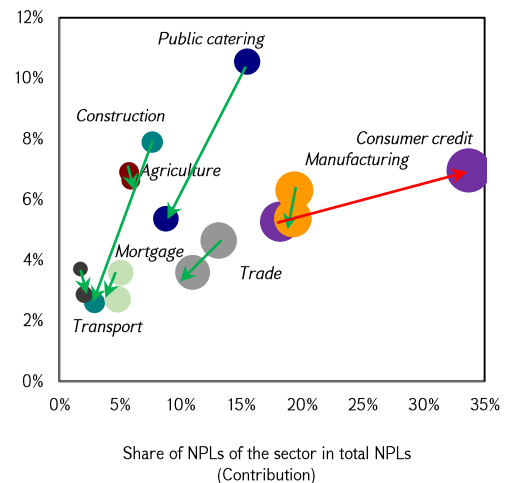
The results of the credit risk stress tests deteriorated somehow at the end of the year, as compared to the beginning of the year. This was attributable to the decrease in capital adequacy due to loan portfolio growth. The strictest stress scenario revealed cases of infringement of the capital adequacy requirement at some banks.

The credit portfolio quality has improved.

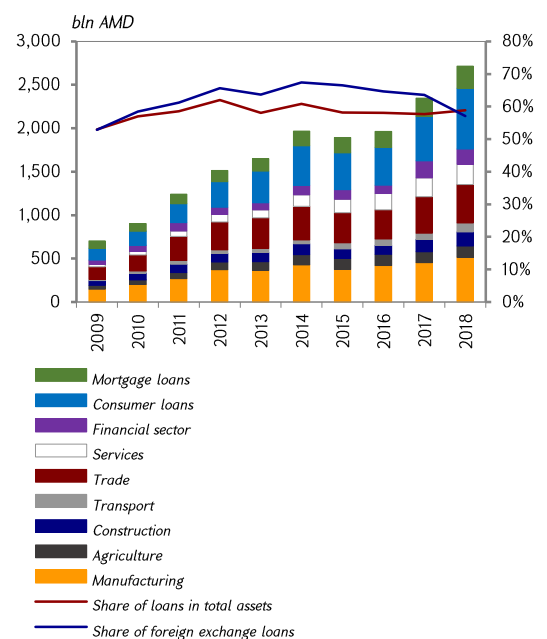
Structure of risk weighted assets calculated in banking sector capital adequacy index



Change of NPLs share in lending to economy sectors (The end of the arrow shows data as of 31.12.2018, the beginning, as of 31.12.2017)



Structure of bank loans to residents, by economy sectors



Source: Central Bank of Armenia.

²⁷ The bank's risk on large borrowers exceeds 5% of average monthly regulatory total capital, considering the interdependence.

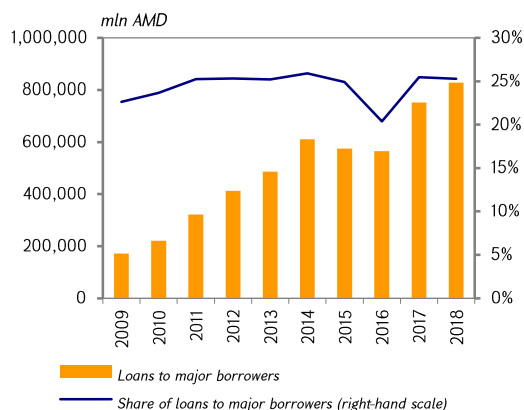
However, the total capital is sufficient enough to absorb plausible losses arising from the credit risk in these banks. In this context, the probability of emergence of insolvency problems in the banking sector is estimated to be low.

Credit risk stress scenarios

31.12.2018	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 24.7 billion or 3.4 % of regulatory capital of the banking sector	AMD 18.2 billion or 2.5 % of regulatory capital of the banking sector	AMD 89.8 billion or 12.4 % of regulatory capital of the banking sector
Total capital adequacy of the banking sector in case of stress scenario	17.2%	17.3%	15.8%

Source: Central bank of Armenia.

Loans to major borrowers in the banking sector



Source: Central bank of Armenia.

4.1.2. Liquidity risk

The liquidity of commercial banks displayed a decreasing trend owing to better lending activity of commercial banks. The prudential ratios of total and current liquidity of banks fell by 4.9 and 25.1 percentage points to 27.3% and 116.6%, respectively (with minimum thresholds of 15.0% and 60.0%, respectively).

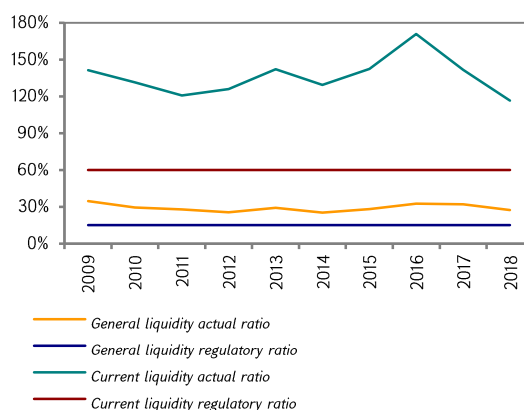
The prudential ratios of total liquidity and current liquidity for convertible foreign currencies (Group 1) decreased by 1.8 and 11.4 percentage points to 18.8% and 68.0%, respectively (with minimum thresholds of 4.0% and 10.0%, respectively).

As for assets and liabilities by maturity baskets, cash inflows practically cover cash outflows in up to 1-year timeframe, in case if the liabilities are not being refinanced. As of 31.12.2018, the ratios of contractual inflows of cash and high liquid assets to contractual outflows of cash for up to 30-day (including demand), up to 3-month and up to 1-year maturity baskets amounted to 104.0%, 99.3% and 95.1%, respectively ²⁸.

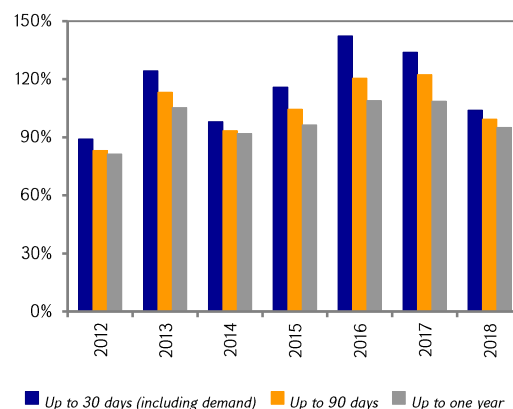
The foreign borrowings of commercial banks have increased by 10.8%, as compared to the beginning of the year. The funds attracted from international financial institutions increased by 19.0%, with a 26.4% share in total foreign borrowings. The main lender countries include Netherlands (33.9%), Luxembourg (25.3%) and Germany (12.1%). The share of long-term liabilities in total foreign borrowings amounted 87.3%.

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

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



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



Source: Central bank of Armenia.

²⁸ According to maturity baskets, the off-balance sheet contingent liabilities were included in the calculation of the ratio of assets to liabilities with a 20% weight.

From the perspective of the stability of loan financing sources by deposits, the loans to deposits ratio increased by 5.4 percentage points relative to the beginning of the year and stood at 107.5%²⁹ at the end of the year.

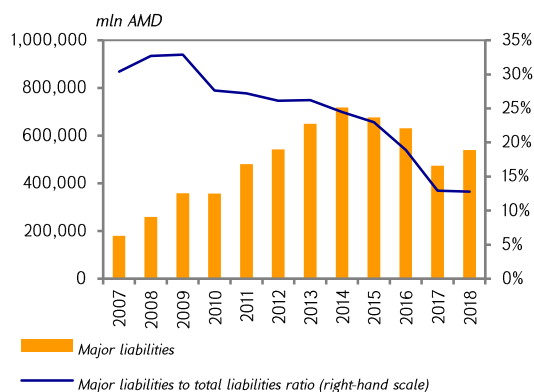
Liquidity risk stress scenarios

31.12.2018	Stress scenarios		
	Withdrawal of 25% of individuals' time deposits	Withdrawal of 25% of demand liabilities	Withdrawal of 25% of demand liabilities and of 25% of individuals' time deposits
Total liquidity ratio of banking sector	21.7%	22.8%	16.4%
Current liquidity ratio of banking sector	85.9%	122.0%	81.2%

Source: Central Bank of Armenia.

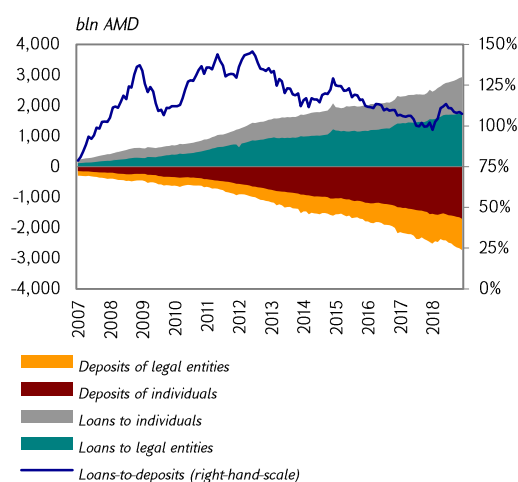
Compared to the liquidity risk stress tests done at the beginning of the year, the results of the stress tests of the end of the year deteriorated. This was caused by a cut in the share of high liquid assets in the balance sheet of banks. However, all banks have sufficient level of high liquid assets to absorb the simulated liability outflow, even in case of the worst stress scenario. In this context, the emergence of liquidity problems undermining financial stability is estimated to be low.

The ratio of the banking sector major liabilities to total liabilities



Source: Central bank of Armenia.

The structure of banking sector loans and financing sources



Source: Central bank of Armenia.

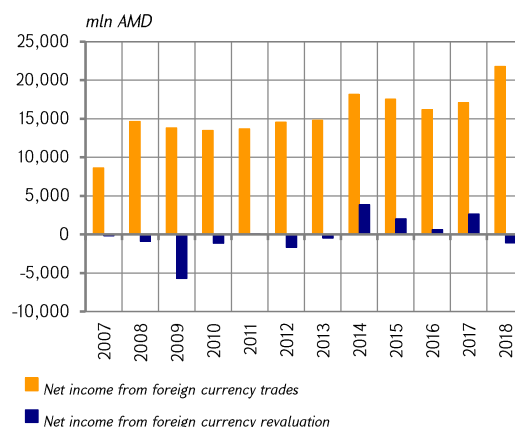
4.1.3. Market risk

Foreign exchange risk

The Armenian dram exchange rate fluctuations against other currencies drove the domestic banking sector to revaluation losses reaching AMD 1.1 billion. The banking sector generated net revenue of AMD 21.8 billion from foreign exchange transactions and transactions with derivatives.

The banking sector's foreign currency net short position (including derivatives) amounted to AMD 22.5 billion or 3.1% of total regulatory capital (as of 31.12.2017, it was AMD 9.7 billion or 1.4% of total regulatory capital)³⁰.

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



Source: Central bank of Armenia.

²⁹ In the calculation of this ratio, loans include loans to real sector, while deposits include funds attracted from individuals and companies.

³⁰ The 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)

It is worth to note that during the year, the Armenian dram versus USD remained almost unchanged, compared to 2017, and appreciated by 6.6% versus Russian ruble and depreciated by 4.7% versus euro.

Foreign exchange risk stress scenarios

31.12.2018	Stress scenarios		
	Profit (loss) in case of 5% appreciation (depreciation) of AMD/USD	Profit (loss) in case of 5% appreciation (depreciation) of AMD/EUR	Possible maximum 10-days loss estimated through VaR Model
Banking sector's profit/loss from foreign currency revaluation	AMD 1,091 million or 0.15% of regulatory capital (AMD 1,091 million)	AMD 215 million or 0.03% of regulatory capital (AMD 215 million)	AMD 200 million or 0.03 % of regulatory capital

Source: Central Bank of Armenia.

If the worst possible stress scenarios reviewed in the above stress test ³¹ unfold, bank losses resulting from an open FX position will be insignificant and the impact of such losses on the financial stability is assessed to be weak.

Interest rate risk

The interest rate risk of the banking sector remained low. In the context of asset and liability management, the commercial banks use strict limits for maturity time baskets. Thus, the average weighted duration gap of present value of assets and liabilities of the banking sector varies in the region of 6 to 12 months. This means that possible fluctuations in the market rates have low direct impact on the financial stance of the banking sector.

Interest rate risk stress scenarios

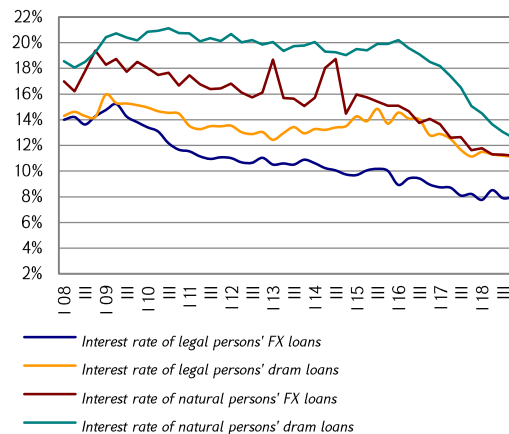
31.12.2018	Impact of 2 pp. increase (decrease) of market interest rates on the economic value of capital, estimated through the "Duration Method"	Deviation of net interest income from expected income of the three months ahead in case of 2 pp. increase (decrease) of market interest, estimated through the "Interest rate-sensitive assets and liabilities Gap Method"
Banking sector's profit/loss	AMD -29.3 billion or 4.1% of banking sector capital (AMD 29.3 billion or 4.1% of banking sector capital)	AMD -848 million or 0.1% of banking sector capital (AMD 848 million or 0.1% of banking sector capital)

Source: Central Bank of Armenia.

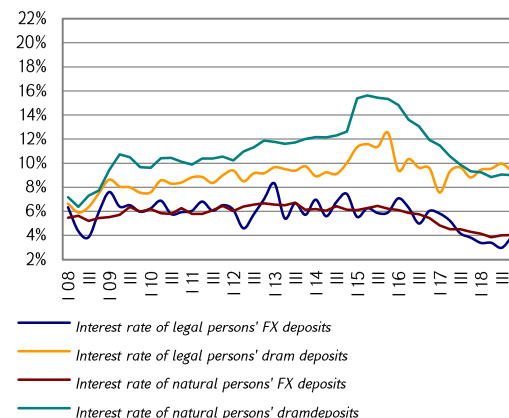
³¹ The calculation of losses estimated through stress - scenarios and the VaR Model (the VaR Model is not considered as a stress - scenario since the calculation of the model considers historical exchange rate series of currencies) is based on FX positions of commercial banks as of 31.12.2018.

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

Interest rates of loans to legal and natural persons



Interest rates of deposits from legal and natural persons



Source: Central bank of Armenia.

In case of the worst possible stress scenarios, possible losses of banks resulting from interest rate changes will approximately be 4.0% on average 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 weak.

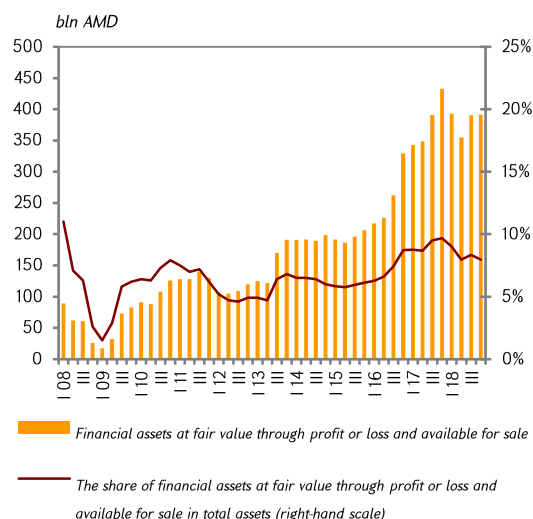
Price risk

The price risk of the banking sector remains low, owing to the banks' preference for holding government securities and 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 1.7 percentage point to 8.0% in total assets.

The net income generated by the banking sector from revaluation of financial assets available-for-sale and held at fair value through profit or loss was AMD 3.1 billion.

Risks associated with the real estate price fluctuations remained manageable. Domestic commercial banks further provided mortgages with loan-to-value ratios mostly between 60-80% , while taking quite a strict approach in evaluating borrowers' creditworthiness. Such restrictions significantly lower the possibilities of loan losses from real estate price fluctuations.

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



Source: Central bank of Armenia.

4.1.4. Capital adequacy and profitability

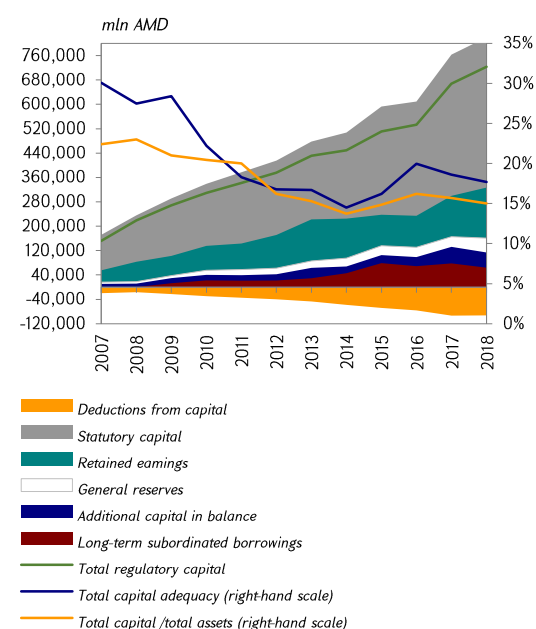
During 2018, the total capital adequacy ratio of commercial banks decreased by 1.0 percentage point to 17.7% at the end of the year. The leverage ratio (capital – to– assets) decreased by 0.7 percentage point to 15.7%. The capital adequacy with banks decreased mainly due to expansion of the loan portfolio and increase of potential loss reserves, as well as the reduction of the share of the additional capital, which occurred due to the implementation of stricter 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% of the total regulatory capital.

According to the supervisory reports of the CBA, the banking sector's net profit amounted to AMD 38.5 billion, with 15 banks

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

The structure of total regulatory capital



Source: Central bank of Armenia.

reporting profit and 2 banks incurring losses³². The ROA and ROE ratios decreased by 0.1 and 0.7 percentage points, respectively, and equalled 0.9 and 5.3 percent. The return on equity decreased due to the fall in the return on assets, while the leverage ratio remained the same. The return on assets decreased mainly as a result of the decrease in the spread between deposit and credit interest rates and an increase of non-interest expenditures. The growth of non-interest income and better loan quality impacted positively the return on assets.

4.2. CREDIT ORGANIZATIONS

Credit organizations represent the second largest sector of Armenian financial system, with their assets making up 9.5 % of total assets of the financial system.

Assets, liabilities, capital and profit of credit organizations

(thousand AMD)

Indicator	31.12.2017	31.12.2018	Growth (%)
Assets	474,750,664	555,964,093	17.1%
Liabilities	217,389,789	261,532,405	20.3%
Capital	257,360,874	294,431,688	14.4%

Source: Central Bank of Armenia.

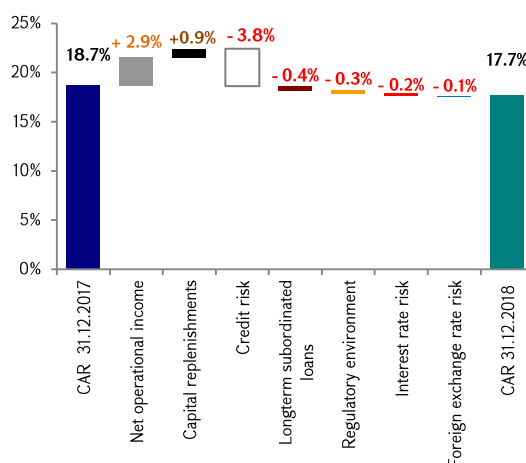
The total assets of credit organizations had a growth rate outpacing that of the total capital. As a result, the total capital-to-assets ratio (leverage ratio) decreased by 1.3 percentage point to 52.9%.

The net profit of credit organizations amounted to AMD 56.6 billion. Moreover, 32 credit organizations posted profit and 6 reported losses³³.

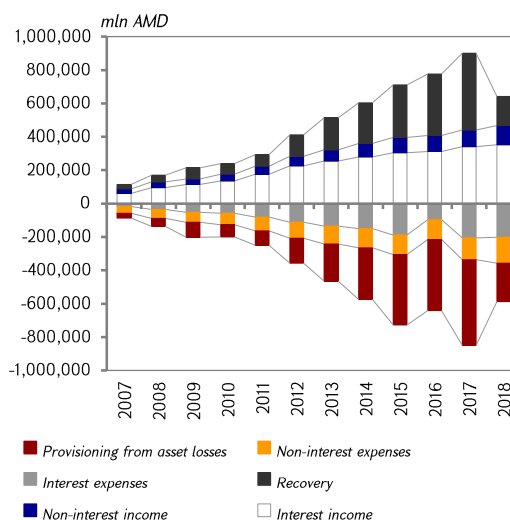
The return on assets (ROA) and return on equity (ROE) decreased by 1.4 and 2.0 percentage points, respectively, relative to the previous year, to 10.6% and 22.6%, respectively.

In 2018, the share of non-performing loans and receivables grew by 1.8 percentage point to 5.0% in the total loan portfolio. The share of non-performing loans and receivables is relatively high in consumer loans, loans to public catering and other services, as well

Total capital adequacy with banks- Waterfall



Income and expenses of the banking sector



Source: Central bank of Armenia.

³² According to the International Financial Reporting Standards, the profit of the banking system in 2018 made up AMD 59.1 billion. The CBA supervisory reports and IFRS reports mainly differ on the part of contributions to assets loss provisioning.

³³ The net profit of credit organizations, calculated in accordance with the IFRS amounted to AMD 54.6 billion.

as trade and agricultural sectors, amounting to 18.2%, 7.8% , 7.2 % and 6.9%, respectively.

Relative to the previous year, the ratio of net asset loss provisioning to total assets has increased by 0.9 percentage point to 2.5 percent.

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 amount of assets was in excess of 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 scenarios ³⁴

31.12.2018	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 4.5 billion or 1.8% of regulatory capital	AMD 1.7 billion or 0.7% of regulatory capital	AMD 9.2 billion or 3.7 % of regulatory capital

Source: Central Bank of Armenia.

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

4.3. INSURANCE COMPANIES

In 2018, the assets of insurance companies increased by 4.4% to AMD 51.7 billion, as of 31.12.2018, and the amount of liabilities grew by 7.3% to AMD 32.5 billion. Total capital decreased by 0.2% and made up AMD 19.2 billion.

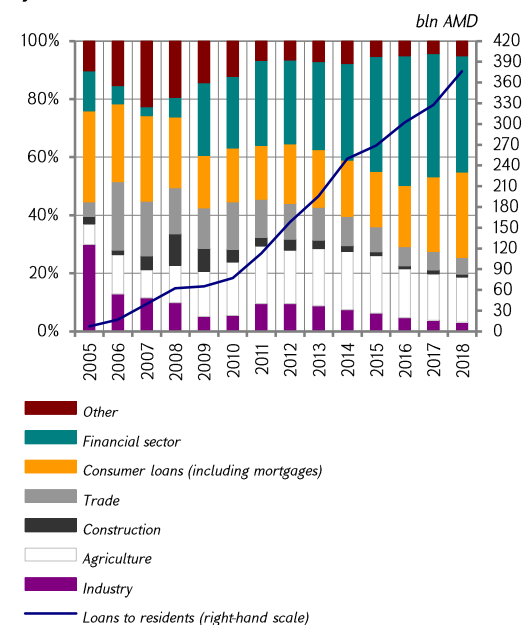
The amount of premiums written, the main indicator of insurance activity, increased by 17.4%, as compared to the previous year, to AMD 41.4 billion in 2018 (this indicator increased by 6.4% during the previous year).

The premium to GDP ratio, another key indicator of insurance companies, was 0.69% ³⁵, increasing by 0.06 pp., as compared to

³⁴ Stress scenarios are built on an assumption that the amounts of loans of credit organizations are unchanged and the secured property is ignored (which means when loans are classified as loss, a possible sale of the collateral is not considered).

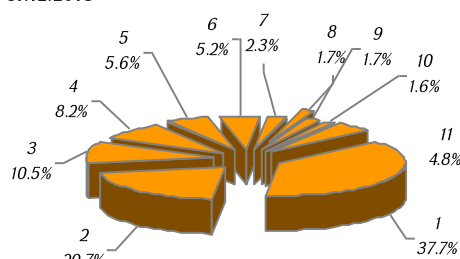
³⁵ Based on the 2017 data, the premiums to GDP ratio on non-life insurance was 3.6% on average in developed industrial countries and 1.5% in emerging market countries (source: Swiss Re, Sigma No 3/2018, May 2018).

Balance of loans to residents by credit organizations, by sectors



Source: Central bank of Armenia.

The structure of assets of the insurance sector as of 31.12.2018



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. Borrowings, 8. Bank accounts and cash, 9. Interest receivables, 10. Claims to reinsurers on compensation, 11. Other assets

Source: Central bank of Armenia.

2017. The premium per capita ratio increased to AMD 13,929 in December 2018, from AMD 11,835 in December 2017.

The insurance companies' loss ratio has increased by 6.7 percentage points, as compared to the previous year, to 66.4%³⁶. The expenditure ratio of insurance companies fell by 1.3 percentage point compared to the previous year and amounted to 28.6%³⁷.

The shares of risk-weighted assets and required solvency in the insurance sector's capital adequacy ratio were 31.7 and 68.3 percent, respectively, at the end of the year. The regulatory capital adequacy ratio of the insurance sector was 160.6% as of 31.12.2018 (the marginal value of regulatory capital adequacy is 100.0%).

Solvency risk

The change in solvency level of insurance companies was assessed in case if stress-scenarios shown below unfold (10.0% growth of reimbursement rates and 5.0 % increase in insurance payments). 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

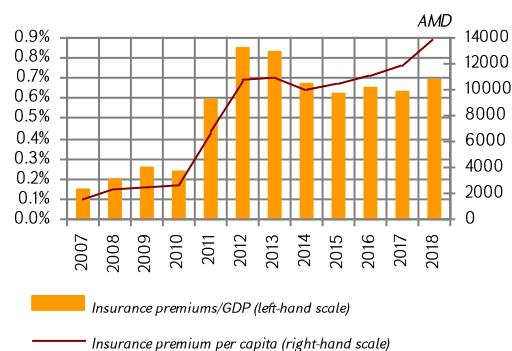
31.12.2018	Stress scenarios	
	Growth of reimbursement rates, 10%, and insurance payments increase, 5 %	Shocking growth of outstanding claims reserves, 25%
Required growth of UIPR of the insurance sector, if the stress scenario occurs	AMD 0.8 billion or 4.5% of regulatory capital of the sector	AMD 0.5 billion or 2.9% of regulatory capital of the sector
Total capital adequacy ratio of the insurance sector, if the stress scenario occurs	153.3%	155.9%

Source: Central Bank of Armenia.

Credit risk

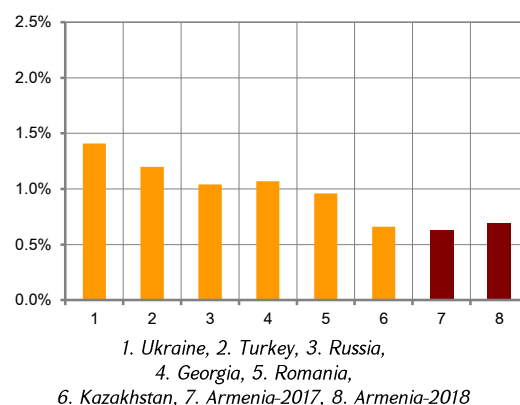
Allocating funds of the insurance sector in low-risk assets allows keeping the investment risk at a low level. Assets equivalent to technical reserves are invested primarily in time and demand deposits with commercial banks as well as government and non-government bonds.

Main ratios of the insurance sector



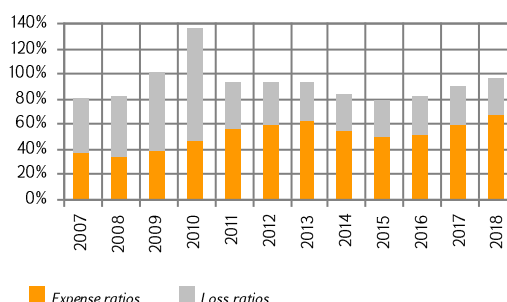
Source: Central bank of Armenia.

Insurance premiums/ GDP in EEC and CIS (2017)



Source: Central bank of Armenia, Swiss Re, Sigma No 3/2018:

Expense and loss ratios of the insurance sector



Source: Central bank of Armenia.

³⁶ The loss ratio has been calculated using the following formula: (net accrued indemnity + net provisions to technical reserves + other transaction costs on insurance) / (earned insurance premiums – sums refunded on the contracts terminated- change of UIPR).

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

Credit risk assessment stress scenarios

31.12.2018	Stress scenarios	
	Classifying 30% of "standard" assets into "watched" category	Classifying 5% of "standard" assets into "loss" category
Loss of the insurance sector	AMD 0.9 billion or 5.1% of regulatory capital	AMD 1.7 billion or 9.3% of regulatory capital
The total capital adequacy ratio of the insurance sector, if the stress scenario occurs	154.0%	148.3%

Source: Central Bank of Armenia.

The results of the stress tests of credit risk assessment reveal that 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 non considerable.

Foreign exchange risk assessment stress scenarios³⁸

31.12.2018	Stress scenarios		
	Gain (loss) in case of 5% AMD appreciation (depreciation) versus USD	Gain (loss) in case of 5% AMD appreciation (depreciation) versus EUR	Maximum potential 10-day loss valued through 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 0.3 million or 0.002% of regulatory capital (AMD -0.3 million)	AMD 0.4 million or 0.002% of regulatory capital

Source: Central Bank of Armenia.

Liquidity risk

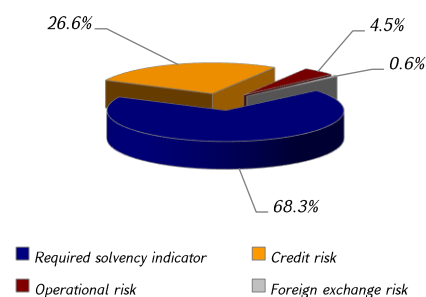
The liquidity risk to the insurance sector is low, proven by the results of the stress scenario below.

Liquidity risk assessment stress scenarios

31.12.2018	Stress scenarios	
	Sharp increase of outstanding claims reserves, 25%	
Required growth of outstanding claims reserves when the stress scenario occurs	AMD 0.5 billion or 2.9% of regulatory capital	
Liquidity of insurance companies when the stress scenario occurs	386.7%	

Source: Central Bank of Armenia.

The shares of risk weighted assets and required solvency in the capital adequacy ratio of the insurance sector, as of 31.12.2018



Source: Central bank of Armenia.

³⁸ The 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) makes an assumption that FX position of insurance companies would not change in a 10 - day time - span.

Overall, the share of 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 PARTICIPANTS ³⁹

As of end of December 2018, 79 classes of securities of 22 reporting issuers were admitted to trading in the regulated market of securities. Three issuers were accountable on both shares and bonds.

As of end of the year, the total amount of shares issued was AMD 63.3 billion, while that of bonds was AMD 147.7 billion. The share of equity securities issued by four commercial banks was 89.0% of total issuance of securities, while the share of bonds issued by ten commercial banks was 89.9% of total issuance of bonds. 44 of these 79 bonds were in foreign currency, with their share making up 78.3 %.

There were 17 banks providing investment services and 10 investment companies in the securities market of Armenia, as of end of 2018.

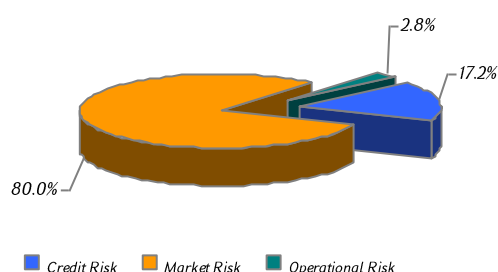
The total assets of investment companies decreased by 12.0% and amounted to AMD 56.6 billion, as of end of the year. The total capital grew by 8.4% and made 10.7 billion. Total profit of investment companies was AMD 1.4 billion.

The regulatory capital adequacy of investment companies decreased by 1.7 percentage point, as compared to the end of year and was 16.9%. The credit risk of investment companies accounted for 18.6% of risk-weighted assets, the market risk constituted 78.6% and the operational risk, 2.8%. Remarkably, the interest rate risk had the largest share in market risk of investment companies (89.1%), while foreign exchange and share price risks constituted 9.6% and 1.3%, respectively. The capital adequacy of investment companies is higher than the required minimum level, and the abovementioned risks are manageable.

As of 31.12.2018, there were 2,491 security issuers' registers and 102,987 owners' accounts in the Central Depository of Armenia.

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

The structure of assets in the capital adequacy ratio of the investment companies, as of 31.12.2018



Source: Central bank of Armenia.

³⁹ 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.

4.5. MANDATORY PENSION FUNDS

As of end of 2018, there were 2 investment fund managers with permission to operate as mandatory pension fund managers in Armenia. Each of the two manages three pension funds.

Net Asset Value - NAV of pension funds as of 31.12.2018

Name of the fund manager	Name of the pension fund	Net asset value (NAV)
AMUNDI-ACBA Asset Management Armenia CJSC	Balanced fund	AMD 1.7 billion
	Conservative fund	AMD 77.0 billion
	Fixed income fund	AMD 988 million
C-QUADRAT AMPEGA Asset Management Armenia LLC	Balanced fund	AMD 749 million
	Conservative fund	AMD 76.2 billion
	Fixed income fund	AMD 509 million

The net asset value of the pension funds was AMD 157.2 billion. The net assets-to-GDP ratio was 2.6%, increasing by 0.7 percentage point as compared to the end of 2017.

As of the end of 2018, there were around 323,000 active pension plan participants.

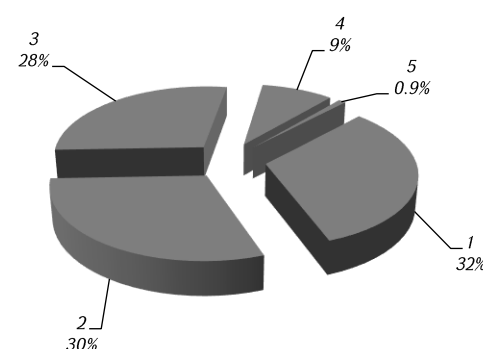
In 2018, the Herfindahl-Hirschman concentration index for pension fund investments decreased, as compared to 2017, and amounted to 0.27.

During 2018, the investments in non-government bonds increased by 1 percentage point to approximately 10% of total assets in the investment structure of pension funds, which indicates the rising activity of asset managers in investing in the non-government bond market of Armenia. The investments in cash and deposits rose by 3 percentage points to 33% of total assets, while those in securities of foreign investment funds decreased by 3 percentage points and amounted 25% of total assets. The share of government bonds decreased by 2 percentage points, during the same reporting period.

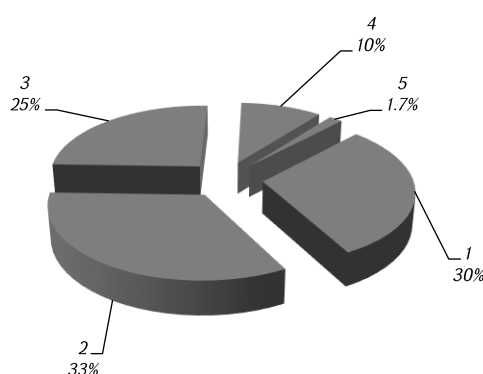
The share of foreign exchange assets of the funds was 29.5% or AMD 46.4 billion, at the end of the year. The majority of foreign exchange assets (AMD 39.3 billion) were securities of foreign investment funds.

The average annual profitability of funds was 4.3% in 2018. Starting from 2014, the cumulative average return for the last four years made up 48.2 percent. The average price of one pension fund unit for all 6 funds was AMD 1000 during the establishment of the

Investments of pension funds, 2017



Investments of pension funds, 2018



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

Source: Central bank of Armenia.

funds, which rose by AMD 482 and stood at AMD 1482, as of 31.12. 2018.

The 30% or AMD 47 billion of the fund's assets are invested in the Armenian government bonds. The investments in Eurobonds amounted AMD 380 million. The weighted average maturity of the fund invested government bonds was 9 years and the weighted average yield to maturity was 8.7 %.

SUMMARY

In 2018, active deposit and lending activities were recorded in the financial system, benefited from the economic growth and positive developments in the labour market.

The declining pace of loan and deposit interest rates was maintained amidst the ongoing easy monetary conditions.

Along with lending expansion, a credit risk stabilization trend has also been observed, while the share of non-performing loans decreased.

With the growth of lending, the capital adequacy and liquidity indicators of the banking sector have dropped somehow, remaining rather high than the CBA regulatory minimum requirements.

Non-bank financial institutions also recorded an expansion of their activity, in terms of volume, while the regulatory indicators remained within the required limits.

Overall, the financial stability has strengthened, while the financial system has shown appropriate risk-absorption capacity.

5. STABILITY OF FINANCIAL MARKET INFRASTRUCTURES

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 systemically 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 Bank systems⁴⁰.

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

During the reported period, there were about 3.5 million payments (payment messages), totalling AMD 15,354.2 billion, executed via the Electronic Payment System (EPS) of the Central Bank of Armenia.

The interbank payments constitute the biggest share of the value of the EPS payments (46%) and increased by 12.4%, as compared to of the previous year. A 7.5% growth was recorded in budget payments, while the operations with the Central bank decreased by 17.9%, mainly due to the decrease in transfers related to the deposit transactions with the Central Bank. Taking into account the large share of transactions with the Central Bank, the total value of the EPS payments grew only by 0.1%, as compared to the same period of the previous year.

During the reporting period, the number of payment messages increased by 9.2%, as compared to the previous year; the number of interbank payment messages increased by 19.4% (mainly due to an increase in separate messages), while the number of budget payment messages reduced by 13.9%.

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

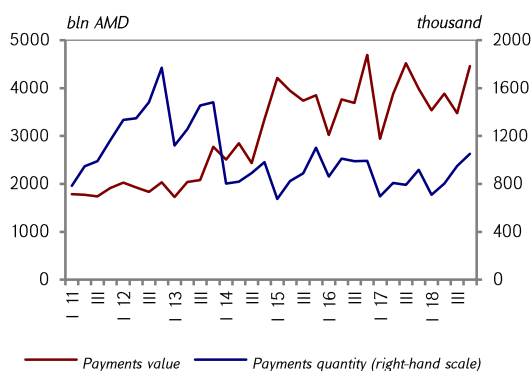
Credit risk

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 intraday repo instrument in case of insufficient funds on their correspondent account, which is secured by government bonds of

⁴⁰ Payments 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 results of the monitoring of the EPS functioning suggest that the system is safe and does not create risks in terms of the financial stability.

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



Source: Central bank of Armenia.

There is no credit risk identified in the EPS.

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 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 used for assessment of liquidity risk ⁴¹ was 5.3 (4.3 in 2017), reaching 6.2 in September (in 2017, the maximum was 5.2 in October). This high level of the ratio was due to amendments in the regulatory framework of reserve requirements implemented in December 2014. As a result, the liquidity held in AMD correspondent accounts of banks with the Central bank notably increased.

The increase of the indicator during the reported period was caused by an 11.3% increase in the average daily liquidity at the beginning of the day and an 8.9% decrease in average daily payments ⁴².

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 – a maximum of 0.02% by value and 0.002% by number.

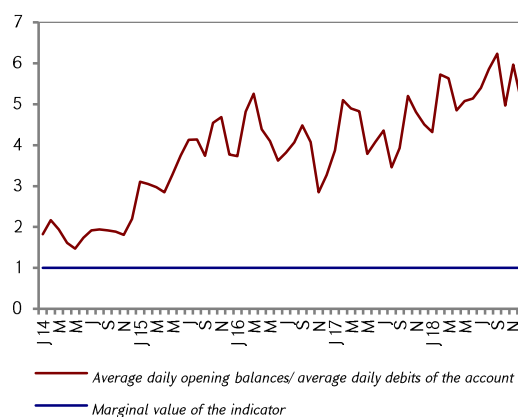
These rejections are due to individual cases and may be the result of an improper management of liquidity (payment flows) by the participants, so this could not affect the liquidity of the system.

⁴¹ The daily average indicator of own liquidity is calculated on the basis of a 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 own funds. The calculation does not include cash enhancements through their own accounts of commercial banks. The indicator is calculated for a system level (aggregate for all banks), so indicators may vary across commercial banks.

⁴² An average daily on all payments (debit) with correspondent accounts in Central Bank of Armenia.

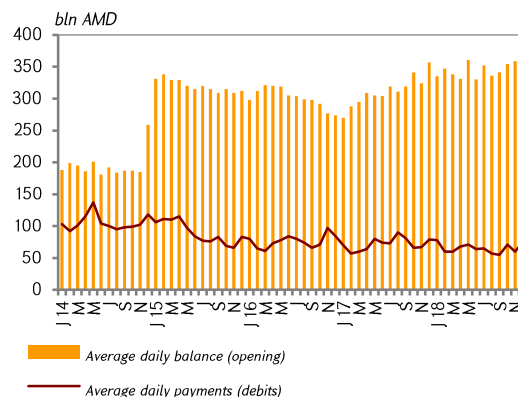
The likelihood of emergence of liquidity risk and systemic problems in the EPS is negligible.

The dynamics of the own liquidity indicator



Source: Central bank of Armenia.

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



Source: Central bank of Armenia.

The rejections due to insufficient liquidity are also negligible.

Intraday distribution of payments

In the reported period, 27.8% of the value and 18.6% of the number of payments were settled during the peak hours (10:00-11:00, both).

The peak hour for value of payments in the system is still registered at the beginning of the day (10:00-11:00), when the biggest share of the value of payments is performed. However, the share of the peak hour of the beginning of the day decreased considerably, by 9.5 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 uneven distribution, the peak hour was recorded 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 during the given day.

The distribution of the number of payments during the day has a substantially proportionate nature. The share of the peak hour of the end of the day (15:00-16:00) has decreased by 1.8 percentage points, reaching 16.4%. This has shuffled the peak hour to the beginning of the day, which increased by 1.5 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 the 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 emergence of risks to the system is generally low.

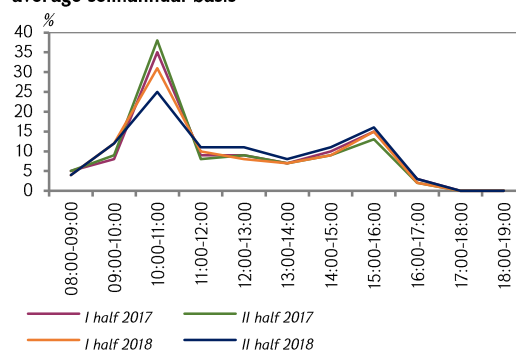
System capacity

The dynamics of the hourly maximum number of payments (the maximum number of payments per hour for each month) remained merely unchanged. However, a sharp increase of the maximum number of payments per hour was recorded in June.

The maximum peak hour indicator was 5990 payments/hour in 2018 (4628 payments/hour in 2017). The total number of payments on that day was 15,741. In June the peak hour was recorded, from 12:00 to 13:00, making up 38.1% of the number and 9.6% of the value of the day's payments. The peak hour of this certain day was conditioned by the uneven distribution of payments during the day by two banks.

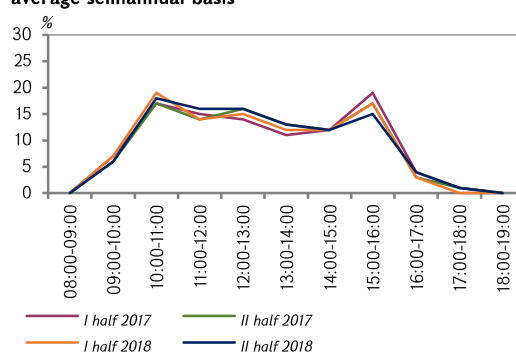
Some concentrations during certain hours of the operational day did not pose problems.

Intraday distribution of value of payments on an average semiannual basis



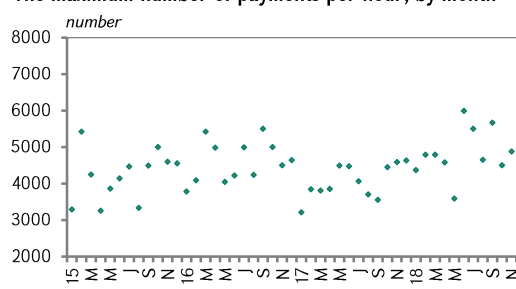
Source: Central bank of Armenia.

Intraday distribution of number of payments on an average semiannual basis



Source: Central bank of Armenia.

The maximum number of payments per hour, by month



Source: Central bank of Armenia.

The shares of all marginal indicators (showing the significant flow of payments per hour) have also increased considerably. The share of more than 2500 payments per hour in total operational hours was 18.1% on average during the year (13.4% in 2017), increasing by 35%, while that of more than 3500 payments per hour was 7.1%, increasing by 187% as compared to 2017.

The maximum daily indicator (number of payments per day) increased to 28,549 against 24,637 payments/day in 2017.

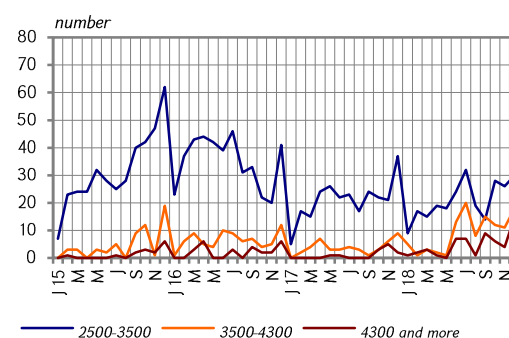
Taking into account that the abovementioned marginal indicators have a small share in total payments flow ⁴³, the probability of emergence of capacity-related risks is estimated to be low.

Operational availability of the system

During the reported period, no significant incident (with 1 hour or more duration) affecting the operational availability of the EPS was reported.

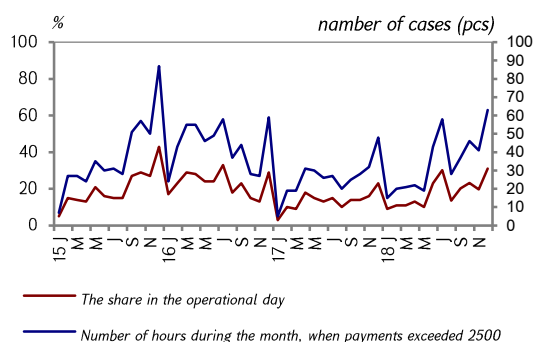
As a result, the operational availability of the EPS was 100.0% ⁴⁴.

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



Source: Central bank of Armenia.

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



Source: Central bank of Armenia.

5.2. SECURITIES SETTLEMENT SYSTEMS

In Armenia, the settlement of securities is done through two systems: the Securities Accounting and Settlement System of the Central Depository of Armenia (hereinafter CDA's SSS) and the Government Securities Accounting and Settlement System of the CBA (hereinafter GSASS).

In 2018, secondary market transactions totalling AMD 9,483.6 billion of nominal value were carried out through GSASS (AMD 10,737.3 billion, in 2017), which represent a 12% decrease in relation to the previous year. Such decrease was mainly due to decreased "free delivery" transactions. Meanwhile, secondary market transactions, totalling AMD 553.8 billion of nominal value, were carried out through the CDA's SSS, which were 60% more than in the previous year (AMD 346.2 billion in 2017). This increase was due to a growth of OTC transactions with corporate shares and Eurobonds issued on behalf of the Republic of Armenia, as well as stock exchange transactions of the Central Depository of Armenia.

⁴³ For example, the share of more than 3,500 payments per hour was 3.5% per annum.

⁴⁴ According to the EPS participation agreement the operational availability of the system should be at least 98.0% yearly.

Transfers of securities through the Government Securities Accounting and Settlement System of the Central Bank pertaining to the operations with securities in the secondary market⁴⁵

Transfers	2016	2017	2018
Value of OTC transactions (trades, repo and reverse repo) in nominal value, AMD billion	8045.0	10676	9433
Number of OTC transactions (trades, repo and reverse repo)	31651	29066	28322
Value of stock exchange transactions in nominal value, AMD billion	54.4	61.3	50.2
Number of Stock exchange transaction	911	642	611
Total transfers of securities in nominal value, AMD billion	8099.4	10737.3	9483.6
Total number of transfers of securities	32562	29708	28933

Source: Central Bank of Armenia and AMX.

In 2018, the transactions executed through the GSASS accounted for 94.5 percent of secondary market transactions executed totally via securities' settlement systems (96.9% in the previous year). Thus, in the financial stability point of view, the GSASS is of crucial importance and remains a systemically important system.

In both the GSASS and the CDA's SSS, the settlement of OTC transactions is subject to the principle "delivery versus payment" (DVP), while stock exchange transactions are executed through a procedure of pre-depositing of securities and cash, thereby excluding counterparty risk. No credit risk may emerge due to the usage of gross settlement and irrevocability principles in the system.

Transfers of securities through the Securities Accounting and Settlement System of the Central Depository of Armenia pertaining to the operations with securities in the secondary market⁴⁶

	2016	2017	2018
Value of OTC transactions (trades and repo) in nominal value, AMD billion	511.1	326.6	511.4
Number of OTC transactions (trades and repo)	1355	1978	2697
Value of stock exchange transactions (trades and repo) in nominal value, AMD billion	20.6	19.6	42.4
Number of stock exchange transactions (trades and repo)	597	884	2028
Total transfers of securities in nominal value, AMD billion	531.7	346.2	553.8
Total number of transfers of securities	1952	2862	4725

Source: AMX and CDA.

⁴⁵ The statistical information provided includes the GSASS-executed settlements and excludes transfers via CDA nominee account and internal transfers made by sub-custodians for their clients.

⁴⁶ The statistical information provided includes the CDA's SSS-executed settlements both with corporate securities and Eurobonds issued by the RA and government bonds held as sub-custodian.

In 2018, there were no significant (with duration of more than 1 hour) incidents, which influenced the uninterrupted functioning of the GSASS.

The operational availability of primary and secondary markets' infrastructure of the GSASS was 100.0%.

Given the abovementioned, the GSASS is assessed as reliable and safe.

SUMMARY

The results of monitoring assure that the credit and liquidity risks are minimized in the EPS. The system capacity is sufficient and ensures the continuity of payments during the day. No operational risks were recorded in the system; the operational availability of the system was maintained on an internationally accepted level.

Overall, the functioning of both the EPS and the GSASS are assessed satisfactory enough; the developments in the payment and settlement system are manageable in terms of the financial stability and no risks exposed to the system arise.

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GLOSSARY OF TERMS

<i>Economic growth</i>	The growth of volume of goods and services produced in the economy during a certain period of time.
<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 type of 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 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 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 which is serviced under a contract, and is not problematic.
<i>Watched asset</i>	An asset which 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-collectable 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>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 high liquid assets to total assets.
<i>Current liquidity</i>	A ratio of high liquid assets to demand liabilities.

<i>Regulatory total capital</i>	The difference between total capital as shown in statement on financial standing and deductions as specified in Central Bank “Regulation 2 on Banks and Banking”.
<i>Capital adequacy</i>	A ratio of regulatory total 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 of the present value of total assets and present value of total liabilities.
<i>Spread</i>	The difference between deposit and credit interest rates
<i>Current liquidity</i>	A ratio of high liquid assets to demand liabilities.

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	Close Joint Stock Company
DVP	Delivery versus Payment
ECB	European Central Bank
EPS	Electronic Payments System
EU	Euro 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
CDA	Central Depository of Armenia