

FINANCIAL STABILITY REPORT 2019

FINANCIAL SYSTEM IS STABLE AND ABLE TO ABSORB RISKS

Macro risks			
Credit risk			
Market risk			
Liquidity risk			
Risk-absorption ability			
	2017	2018	2019



HIGHER THAN EXPECTED ECONOMIC GROWTH IS RECORDED



Services	10.1%
Industry	10.2%
Constructions	4.2%
Agriculture	-4.0%
Economic growth	7.6%

GLOBAL ECONOMIC GROWTH IS WEAKENING



Growth rate slowdown and rise of uncertainties were observed in the partner countries.



FINANCIAL INTERMEDIATION IS DEEPENING



52.1%



16.7%



32.0%



6.1%

LOANS/GDP CREDIT GROWTH

Loans to Individuals Loans to Enterprises/Companies

SHARE OF NON-PERFORMING LOANS HAS INCREASED, BUT IT IS CLOSE TO IT'S HISTORICAL AVERAGE



There are signs of risk accumulation in household balances.



BANKING SYSTEM IS LIQUID AND STABLE Exceeds the Prudentials



27.1%

Minimum 15%

111.7%

Minimum 60%

17.6%

Minimum 12%

Total liquidity Current liquidity Capital adequacy

CENTRAL BANK OF THE REPUBLIC OF ARMENIA

FINANCIAL STABILITY REPORT

2019

2020

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

More detailed information on Armenia's macroeconomic environment is available in the Status Report on Monetary Policy Implementation.

Previous publications of the Financial Stability Report are available on the official website of the Central Bank of Armenia: www.cba.am.

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Financial stability is one of the primary objectives of the Central Bank of Armenia (along with price stability), being a crucial element of overall macroeconomic stability and an essential precondition for long-term stable economic growth.

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 emanate as a result of the interruption of internal functions of the financial system, as well as adverse developments in domestic and world economies, credit risk issues connected with major borrowers and lenders, shifts in economic policies and infrastructures.

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

PREFACE

The ***Financial Stability Report*** of the Central Bank of the Republic of Armenia is prepared and published on a semiannual basis. It incorporates a broad assessment of risks that might potentially threaten the stability of the financial system as well as hamper the capacity of the financial system to withstand such risks. By means of publishing information concerning a variety of reviews on financial stability, the Central Bank aims at soliciting the attention of the interested parties on those risks and eventualities that might jeopardize the financial stability of the Republic of Armenia. Furthermore, this might instigate measures targeted at minimizing such risks.

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

Disruptions in the financial sector might bring forward impediments to the effective implementation of monetary policy and long-term and stable economic growth. At the same time, monetary and macroeconomic stability contributes to the minimization of risks that might jeopardize financial stability. The financial system carries out a vital role in the overall economic system. It is essential that the financial sector retains the continuity and sustainability of processes, thus contributing to the sound growth of the entire economy.

The Central Bank carries out constant monitoring and analysis of financial stability in order to identify early disclosure of any changes and variations that could threaten financial stability. The report incorporates the risks revealed in the macro environment and the financial sector, as well as the impact on the developments in all areas of the economy and financial system.

Risks that might affect the financial stability of Armenia can emerge in the internal macroeconomy, external economy, and the financial sector itself. In this regard, the main preconditions for financial stability are:

- ✓ favorable developments in the global economy and international financial markets,
- ✓ sustainable domestic macroeconomic environment whereby households and companies display sufficient creditworthiness,
- ✓ an effective financial system that incorporates prudent and manageable risks,
- ✓ financial infrastructures that constitute operational continuity to the benefit of the financial system functioning.

Taking into consideration the facts mentioned above, risks that can potentially jeopardize Armenia's financial stability are presented in this report in the following directions:

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

The report addresses the risks revealed in those areas and assesses their possible impact on the developments in the overall economy and all parts of the financial sector. Furthermore, the report mainly focuses on the risks in the banking sector and its development trends, because the assets of commercial banks account for 84 percent of the entire financial system assets in Armenia. Therefore, the banking sector stance mainly determines overall financial stability and development trends.

NOTIFICATION

The “2019 Financial Stability Report” annual periodical analyzes the financial stability of Armenia and its risks.

At the moment of the publication of the report, the world is in the state of considerable uncertainty because of the COVID-19 pandemic. In different sections of the report, certain efforts have been endowed in discussing and predicting possible risks; however, all the predictions are strictly conditional in such an unprecedented and turbulent situation,.

On the threshold of this crisis, the banking system is profitable, capitalized, and liquid. The Central Bank continues the monitoring of the current developments daily and is capable to react to the future developments to ensure financial stability with the execution of appropriate tools within its mandate.

Box 1

The Central Bank of Armenia's Measures Steered to Maintain Price and Financial Stability

- **Capital buffers.** To ensure the smoothness and continuity of lending to the economy by the banking system, the CB has decided to lower the core capital adequacy standard from 10% to 9%. The CB has considered the possibility of temporary mitigation of capital buffer requirements. Currently, the commercial banks are provided with capital buffers, and the system is capitalized and liquid. Within the framework of these activities, the CB has exhorted the banks not to distribute profits to avoid sending misleading signals to the market.
- **Liquidity.** The CB executes non-direct monetary policy tools to meet the temporary demand for national currency and foreign currency liquidity. The Central Bank has rescheduled the introduction of two new liquidity standards set by Basel 3 – the liquidity coverage ratio (LCR) and the net sustainable financing ratio (NSFR) to ensure that banks have available resources to continue financing the real sector of the economy. The new liquidity standards will come in force since January 1, 2021. The schedule for implementing new liquidity standards will come into force in January 2021.
- **Measures to mitigate losses from credit risk.** As a result of tight cooperation between the CB and financial organizations, borrowers were given the opportunity to apply for an individualized approach for their credit liabilities. Commercial banks were advised not to review the customers' credit risk category for at least three months after the pandemic has expanded. The measures aim to temporarily relieve the credit burden of the borrowers and avoid the deterioration of credit history. The process of gathering the necessary information for DSTI and LTV has been suspended for two months to exclude the collection of temporary information about the financial difficulties of the borrowers due to the pandemic.
- **Recovery plans.** The CB has deferred the deadline for submitting recovery plans by the commercial banks from March 15 to May 31. At the same time, the CB has proposed the commercial banks to devise and submit recovery plans directed at current challenges of the pandemic.
- **Measures to increase the operational capacity of the banks.** The Central Bank has extended the deadlines for submitting reports by financial organizations, including reports to the Central Bank, long-term development programs. Given the scarcity of human resources at financial institutions because of the situation, on the one hand, and the need to ensure business continuity of financial institutions, on the other, this step of the Central Bank has allowed financial institutions to concentrate their operational capacity more on customer service and the economy. The Central Bank has issued statements, urging customers to use online financial services, execute payment and settlement apps, and online banking services, which are also aimed at increasing the operational capacity of financial organizations.

Consumer rights protection. During this period, the Central Bank's hotline service has functioned in emergency mode. The specialists of the Central Bank responded to the inquiries of the citizens, provided directions on their inquiries, and reviewed their complaints.

➤ **Coordination of activities and further development.** The Central Bank has repeatedly issued announcements for international and domestic audiences. The Central Bank continues to explore the measures taken by international organizations and other central banks and policymakers and to monitor global financial and economic developments. These actions are directed at the further execution of the tools that are targeted at ensuring the coherent functionality of the financial institutions, infrastructures, and markets, as well as to protect consumer interests under the new risks associated with pandemic developments.

ABSTRACT

During the year of 2019, given the high economic growth in Armenia, the financial system of Armenia remained stable.

Meanwhile, financial intermediation continued to deepen, and the credit and deposit portfolios got increased. The Republic of Armenia's economic growth was partially due to the accelerated growth of domestic consumption, which was boosted by bank lending.

The banking system is profitable, capitalized, and liquid.

Credit, liquidity, and market risks are manageable. Given the decreasing circumstances of de-dollarization tendencies, the system is less vulnerable to foreign exchange risk.

During the year, the lending growth was primarily ensured through lending to households, while the growth of corporate loans was comparably lower. The high growth trends in household lending were conditioned by the growth of consumer and mortgage loans due to the replenishment of the statutory capital of banks, the availability of liquidity, and the increase in affordability of credits due to the mitigation of lending conditions. The continuity of household credit growth makes households more sensitive to adverse changes in economic conditions. The CBA has initiated certain measures to promote responsible lending among households through the execution of macroprudential tools and the protection of consumer interests, as well as the execution of activities for increasing financial education.

In the year of 2019, the Central Bank executed the primary tools of macroprudential policy. The countercyclical capital buffer, which is intended to mitigate the possible risk developments of the total credit portfolio remained unchanged in the year of 2019, at 0 % by the CBA. From January 1, 2020, the capital conservation and systemic risk buffers came to force, each with 0.5 % of risk-weighted assets. The execution of the tools mentioned above will facilitate the reinforcement of the banking system's solvency and can be applied to ensure the smoothness and continuity of the lending under situations of economic shock.

The CBA developed an approach of calculating debt-service-to-income and loan-to-value indicators (DSTI, LTV) and a draft on regulations that define their implementation.

1. MACROPRUDENTIAL DASHBOARD

sources of systemic risks and the risk-absorption capacity of the banking system

The macroprudential dashboard¹ consists of two sections, namely, risk sources endangering financial stability and the risk-absorption capacity of the system.

The section describing the **risks** represents systemic risk accumulation differentiated by sources, the materialization of which may threaten the stability of the financial system. The second section represents the resilience of the system, that is, the availability of liquidity and capital buffers.

Macroprudential Dashboard, 2019



In comparison with the last year, no significant increase of risks has been recorded at the end of this year, while the level of risks in the macro-risk subgroup has even decreased.

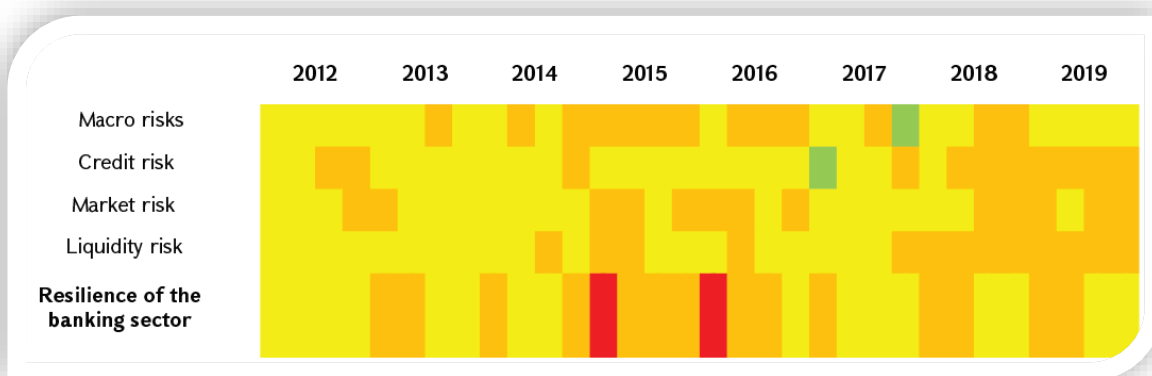
During the year, under the favorable macroeconomic environment and optimistic expectations, there has been a decline in risks stemming from the macro environment.

¹ The macroprudential dashboard consists of 23 indicators aggregated in 2 main groups: the risk sources and the risk-absorption capacity. The indicators have been equated by comparable moderation; the harmonization of the indicators has been achieved through the Gaussian kernel function of cumulative distribution, as a result of which normalized indicators fluctuate/ lie between (0,1) intermediate. The colors of the dashboard represent the division of (0,1) intermediate to 5 equal intermediates/portions. Red color indicates risk growth, while green color indicates risk reduction. The evaluations are updated and calculated quarterly.



The reduction in macro risks was due to higher than the expected annual economic growth. The accelerated growth of exports in comparison with the imports has led to certain improvements in the current account deficit sub-index. At the same time, the decline in remittances from abroad, as well as the high level of government debt, continued to have a negative impact on the aggregate indicator of macro risks.

Since the previous crisis, there has been a significant decline in risk accumulations.



The comparably high level of **credit risk** continues to be conditioned by the high growth rates of household lending. In the year of 2019, the increase of household lending was accompanied by an increase in income but at an inadequate speed. The increase of the share of loans in household income amplifies their debt burden and the vulnerability to the potential shocks. From the perspective of financial stability, a high level of creditworthiness among households is especially important, provided that the consumer loans constitute 25% of total credit portfolio.

Risk accumulation in the sub-group of **market risks** is conditioned by the continued increase of real estate prices. The latter one has been conjoined with a high increase in mortgage lending. Along with the continuous increase in real estate prices, the estate price to average monthly wage rate ratio also has increased, providing income factors underlying the rise in prices. To avoid the risk of further overheating of the market, the Central Bank has initiated to monitor the information on loan to value ratio. Henceforth, the information will serve as a basis for addressing possible risk developments in the real estate market and mortgage loans more accurately and effectively.

The **liquidity risk** has remained at the same level, and the dynamics of the liquidity ratios in comparison with the historical average of the latter has not altered.

The **risk-absorption capacity of the financial system** continued to remain high. This has been conditioned by the maintenance of high levels of liquidity and capital adequacy ratios. In the case of the risk materialization, the availability of such a level of risk-absorption capacity will allow the banking system to ensure a sufficient level of financial stability.

In general, the dashboard reflects the observations and conclusions presented in the following sections of the Report.

2. MACROECONOMIC DEVELOPMENTS

Armenia, being a small open economy country, cannot avoid a number of external risks. The current account deficit, the public debt, and the level of dollarization make the economy and the financial system of Armenia, to certain extent, vulnerable to adverse external developments and potential risks. The adverse developments of the growth of the global economy, the commodity prices, the economic conditions in the main partner countries, and external demand might be regarded as potential risks. The mentioned risks are continuously monitored and assessed with regards to the Republic of Armenia's financial stability.

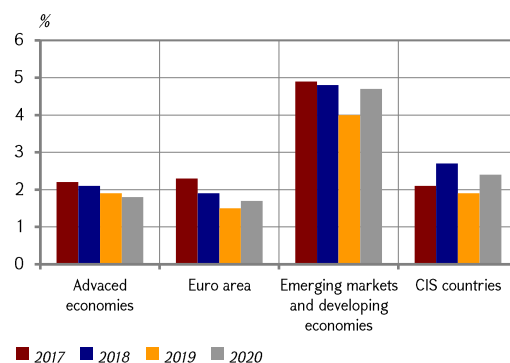
2.1. DEVELOPMENTS IN THE EXTERNAL ENVIRONMENT

The growth of the global economy² continued to decline; a slowdown in economic growth and an increase in risks have also been observed among the Republic of Armenia's partner countries. The high growth of Armenia's economy, mostly driven by the growth of private consumption, has enabled to diminish the impact of external risks. In general, during the year, the risks transferred from macroeconomy were restrained and had no significant effect on the financial system of the Republic of Armenia.

The slowdown of the global economy's growth was maintained in the year of 2019; at the same time, the risks of an economic downturn have increased. The slowdown in the recovery of the global economy has mostly been conditioned by specific uncertainties in developed countries connected with Brexit. Risk accumulations in a low-interest-rate environment, uncertainties of trade policy, and geopolitical tensions in the developing countries have also impacted the global economy.

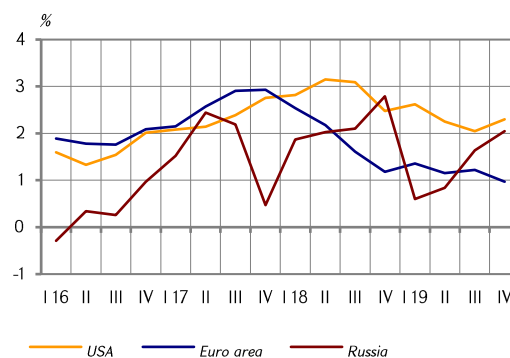
Among the Armenia's main partner countries, economic developments were not favorable, and uncertainties connected with further developments continued to exacerbate. In the partner countries, the risks of economic slowdown are conditioned by the increase in geopolitical risks, the deterioration of trade and economic conditions, and the growth of uncertainties. Conditioned by the slowdown of the Russia's economic growth and the devaluation of the ruble as a consequence of the decrease in oil

Economic growth in selected group of economies



Source: IMF

Economic growth in partner countries



Source: Bureau of Economic Analysis (BEA), Eurostat, Rosstat

² A detailed analysis is available in the "Monetary Policy Program" 2020, 1st quarter.

prices, the inflow of private remittances to Armenia has decreased. In recent years, the persistent decline in private remittances has significantly reduced their share in the household income, thus reducing the sensitivity of households to these risks.

In general, the downward trend in prices in the primary commodity markets, which was recorded at the end of last year, continued. The decline in prices was greatly influenced by the maintenance of disagreements in the US-China trade relations and the decline in the global demand under adverse geopolitical developments.

The developments and uncertainties in the external sector have caused certain risks for the domestic macroeconomic environment, which was mitigated by the high economic growth rate in the year of 2019. Consequently, it positively contributed to the high domestic demand.

At the time of publication of this report, it is evident that the expansion of the Covid-19 pandemic is an unprecedented healthcare, economic, and financial challenge for Armenia. Considering the global expansion of the epidemic since the beginning of the current year and its increasing impact on the countries' economies, it has already been estimated that the global economy will decline. Though the current estimates and forecasts are very approximate, conditioned upon the high level of uncertainties connected with the penetration and expansion of the pandemic, however, the IMF forecasts a 3%³ reduction in the global economy. The forecast of economic growth of Armenia, provided by the Central Bank, is 0,7%. Moreover, the risks of further economic slowdown prevail in the forecast⁴.

2.2. DOMESTIC DEVELOPMENTS

The stability of the economic growth of the Republic of Armenia has been maintained due to the structural changes in the economy, the institutional reforms instituted by the Government, and the implemented economic policies.

The annual economic growth was higher than the forecast, reaching to 7,6 %. It was mainly contributed by the manufacturing industry and services, while agriculture has contributed negatively to the economic growth.

³ IMF, *World Economic Outlook*, April 2020.

<https://www.imf.org/en/Publications/WEO/Issues/2020/04/14/weo-april-2020>

⁴ For details, see the "Inflation Report."

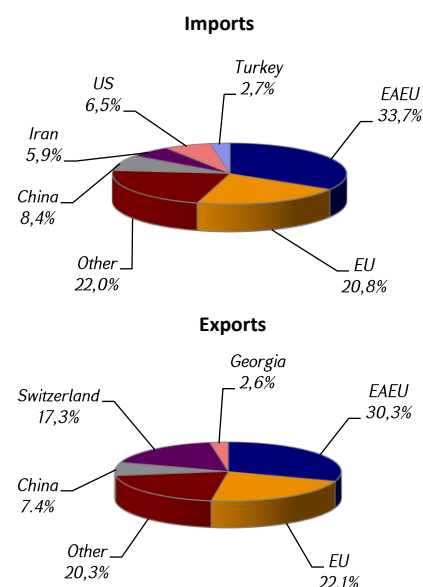
https://www.cba.am/Storage/EN/publications/DVQ/gnach_1_20_eng.pdf

The year of 2019 can be characterized by the increased domestic demand, driven by the high level of private consumption, which was accompanied by a high rate of consumer lending. The lending expansion is a result of the increase in credit demand, the easing in lending conditions, and credit accessibility, conditioned by the positive expectations of economic growth.

In the light of the developments in the international commodities markets and the decline in the foreign demand by partner countries, the contribution of the net exports of Armenia to the economic growth remained negative.

Though in the first half of the year there was a decline in the export rates, conditioned by the economic growth rates of the partner countries, and consequently, by the decrease of foreign demand, the export rate recovered in the second half of the year, especially in terms of certain product groups. The annual growth rate of export was 12,2 %; on the contrary, the import rate's annual growth was 9.0%. In comparison with the last year's figures, the current account deficit improved to certain extent, inching to 8.2 % of GDP.

The distribution of Armenian foreign trade by partner countries (for 2019)



Source: Central Bank of Armenia

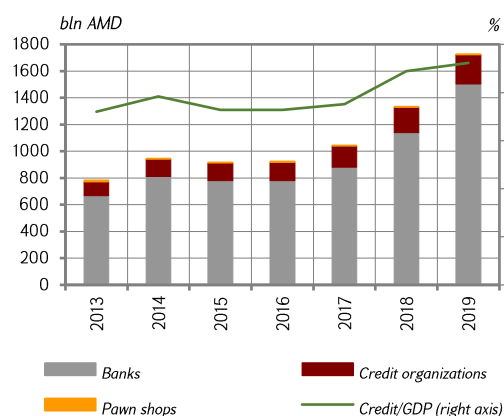
2.3. HOUSEHOLD DEBT AND RISKS

In the year of 2019 household sector risks has been maintained within manageable scopes, but further growth of the debt burden can increase their vulnerability. In this case, it is of outmost importance to implement the policy that aims to improve macroeconomic conditions, to contribute to the growth of household income, to decrease the debt burden or to strengthen debt service capacity, and to promote responsible lending practices. The repercussions of the Covid-19 pandemic will affect household income, though the measures undertaken by the banking system and the Government may mitigate it to certain extent.

In the year of 2019 the household credit to GDP⁵ ratio increased, inching to 23.1% (it was 22.2% in the year of 2018).

This indicator is increasing quite slowly and is not high in comparison with the median for the countries in the region, but it implies an increase in households' debt burden. At the same time, during the recent years, the decrease in interest rates and the increase of the maturity of the household loans have somewhat mitigated the likelihood of possible risk developments of the households' debt service.

The structure of household liabilities



Source: Central Bank of Armenia

⁵ Household loans consist of loans given to the resident households by commercial banks and credit organizations.

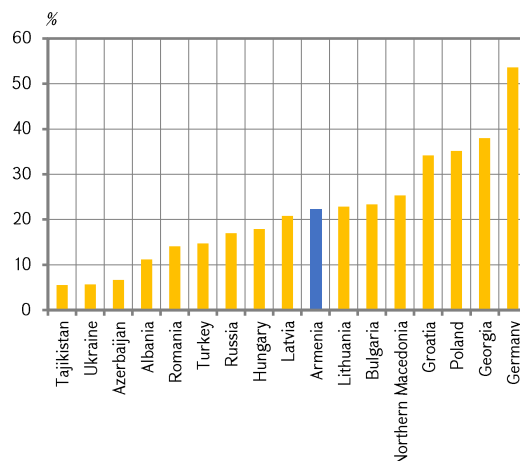
The results of the survey conducted within the CBA's initiative on "Population Debts and Financial Behaviour" indicate the increase of the ratio of household gross debt burden to household disposable income. The latter is the result of a faster rise in credit and other liabilities in comparison with the household income.

The probability of materialization of risks related to households' debt service has increased; In comparison with to several countries in the region, household debt has grown at a fast pace in recent years. During the period under review, high growth trends in household lending have been maintained. This is conditioned by the increase of consumer and mortgage loans due to the replenishment of the statutory capital of banks and the availability of liquidity, as well as due to the increase in affordability of credits as a result of easing in lending conditions. According to the results of the survey conducted by CBA among financial institutions in the fourth quarter of 2019⁶, financial institutions expect that the growth rates of consumer and mortgage loan portfolios provided to households will be maintained in the coming year.

In comparison with the household income, the relatively high growth rate of lending (about 30%) indicates the possible underestimations of risks and their accumulation in this sphere of credit. If income growth rate slows down, the possibility of risks related to the debt service of households and the losses of financial institutions will increase. The increase in credit demand is conditioned by the positive expectations of households on macroeconomic stability and economic development. The increase is also conditioned by the positive expectations on their loan repayment capacity and economic growth in the light of the decrease in interest rates and the extension of loan maturities.

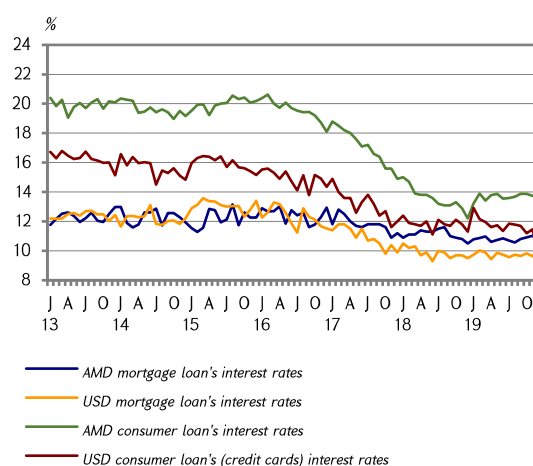
The credit risk of households, calculated as a share of non-performing loans in total household loans, has increased over the past year. In the year of 2019 the ratio of non-performing loans of households⁷, which measures the materialization of the previously accumulated credit risks, reached 5.9%. In the year of 2019 CBA considered the implementation of macroprudential efforts that aimed at restricting the processes of household debt accumulation, which, in turn, would contribute to the formation of

Household liabilities by countries, 2018



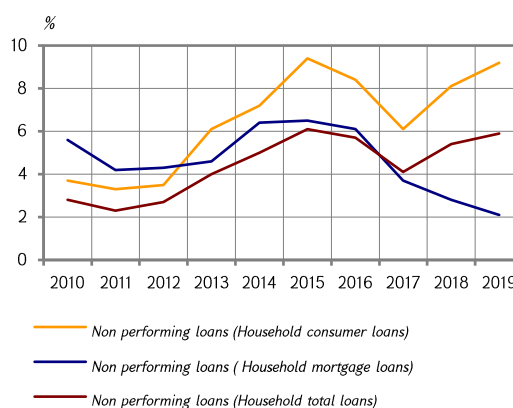
Source: IMF

Interest rates for household loans



Source: Central Bank of Armenia

Household non-performing loan trends



Source: Central Bank of Armenia

⁶ CBA conducts quarterly surveys among the managers of banks, credit organizations, insurance companies, investment companies and investment funds on variables in different sectors of the economy to identify their expectations and take those expectations into account during policy implementation.

⁷ The non-performing loans of households were calculated as a share of non-performing consumer and mortgage loans (AMD and foreign currency) in the total amount of loans provided to the households by banks and credit organizations.

responsible lending practices. However, taking into account the economic repercussions of the COVID-19 pandemic, as well as the possible decline in the credit growth rates under the actual materialization of the risks, CBA has postponed the execution of the designed macroprudential tools aiming at curbing the debt burden, emphasizing the importance of the continuous lending to the economy by the financial system.

Salaries continue to prevail in the household income, followed by state pensions, subsidies, self-employment income, and remittances⁸. During the year, the increase in salaries was 5.8%⁹ and was accompanied by a decrease in 1.6 y/y percentage point in unemployment. With the spread and geographical expansion of the COVID-19 pandemic, household wages, self-employment income, and other factors are expected to decline, the impact of which on the income and creditworthiness of the customers of the financial system may be mitigated by the Government programs aiming at the elimination of economic consequences.

In the year of 2019, the consumer loans grew by 30.4%. According to the survey conducted by the CBA¹⁰, the growth of consumer loans without collateral through online banking systems is especially high. Under such circumstances, some credit organizations have mentioned not only about the decrease in the interest rates, but also about the improvement of certain conditions of consumer lending. Along with the growth of lending, there was an increase in non-performing consumer loans, as a result of which their share in the total amount of consumer loans increased, reaching 9.2%.

There was a 37.1 % increase in mortgage loans, conditioned by the high growth of mortgage loans for real estate purchased from the primary market. Several programs of the RA Government, such as the refund of income taxes on the amount of paid interest payments, several programs on refinancing of mortgage loans, as well as the expectations on the real estate price¹¹ rise have contributed to the latter.

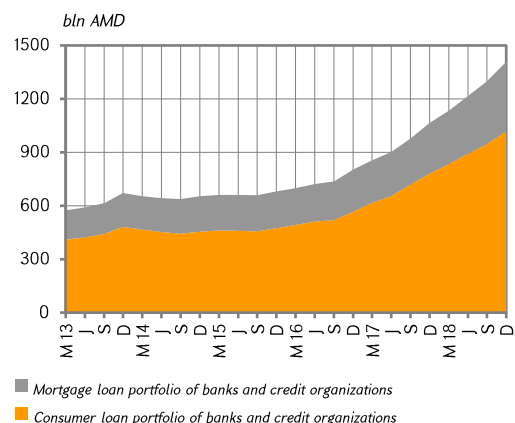
⁸ For details, see “Social Snapshot and Poverty in Armenia. Part 2. Armenia: Household Income, Expenditures, and Basic Food Consumption”. SCRA.

⁹ Source: Statistical Committee of the Republic of Armenia.

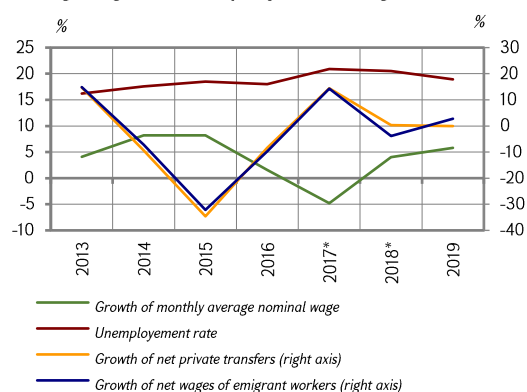
¹⁰ Source: Central Bank of Armenia, 2019 Quarterly Survey of Credit Terms provided by Banks and Credit Organizations in the Second Half 2019.

¹¹ CBA, conducts quarterly surveys among the managers of banks, credit organizations, insurance companies, investment companies and investment funds on variables in different sectors of the economy to identify their expectations and take those expectations into account during policy implementation.

Consumer and mortgage loan portfolio of banks and credit organizations



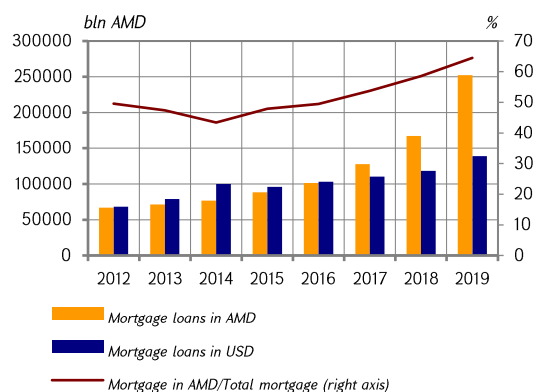
Private transfers, salaries of emigrant workers, nominal average wage, and unemployment changes



* From January 2018, the RA Statistical Committee has revised the methodology for labor market statistics, within which the values of several indicators were changed since January 2017. According to last updates, the average nominal salary refers to organizations with more than 1 employee.

Source: SC of the RA

Structure of mortgage loans by currency



The high growth of mortgage lending was accompanied by the increase of mortgages in national currency. At the end of the year, the share of mortgage loans in national currency in the total amount of mortgage loans was 64.5%, improved by 6.0 percentage points. It is noteworthy that the share of the non-performing mortgage loans continues to maintain at a shallow level; in 2019, it was 2.1%.

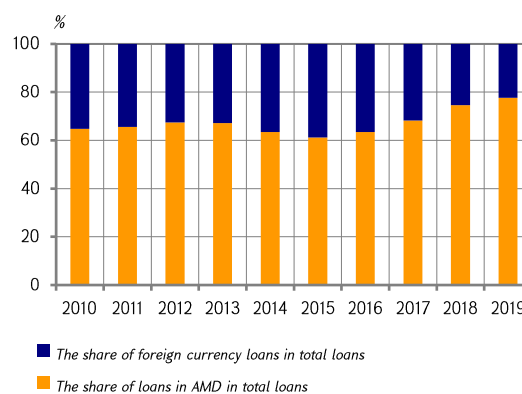
On the contrary, household savings are increasing at a slower pace than their liabilities, contributing to the increase in the debt leverage ratio. During the year, the volume of deposits of residential households increased by 13.4%, and the ratio of household deposits to GDP peaked to 25.3%. Moreover, the share of the deposits in AMD in the total amount of deposits continued to grow; it was 46.2%¹² at the end of December. The rise of deposits in AMD, ceteris paribus, contributes to the expansion of banks' capacities to provide loans in AMD, which, in turn, reduces the credit risk factor for the borrowers stemming from foreign exchange rate fluctuations.

In recent years, household loans in AMD have been increasing, which is a positive trend from the perspective of foreign currency risk reduction. According to the legislation of the RA¹³, consumer loans are provided in national currency, and the government programs mentioned above contributed to the increase of the mortgage loans in AMD.

Households are mainly viewed as unhedged borrowers in the sense of foreign currency risks¹⁴ since the share of income in national currency prevails in the total income. The presence of foreign currency loans in the household debt makes them vulnerable to the increase in the debt burden due to exchange rate fluctuations and the risks derived from it. In recent years, the trend of de-dollarization of loans has had a positive impact on the balance of household risks, contributing to the decrease in the risk factor derived from exchange rate fluctuations.

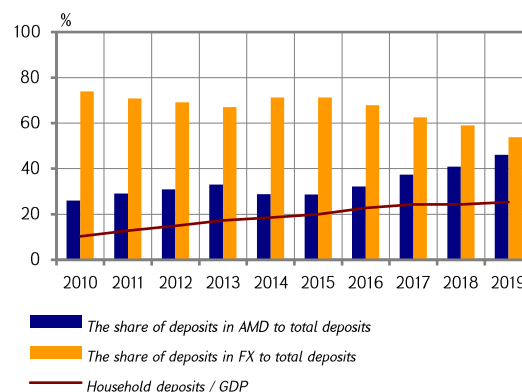
The CBA has initiated certain measures to promote responsible lending among households through the execution of macroprudential tools, the protection of consumer interests, and delivering programs aiming at promoting financial education.

Household loans currency structure



Source: Central Bank of Armenia

Household deposits



Source: Central Bank of Armenia

¹² For the deposits of resident households.

¹³ RA laws on Monetary Regulation and Currency Control, and on Consumer Lending.

¹⁴ According to the 2019 statistical report on Social Snapshot and Poverty in Armenia. Part 2. Armenia: Household Income, Expenditures, and Basic Food Consumption, in 2018, the 95.1 % of per capita income was expressed in local currency; this figure has constantly been increasing during the last three years.

2.4. REAL ESTATE MARKET DEVELOPMENTS AND RISKS

The monitoring of developments in the real estate market is essential from the perspective of maintaining financial stability. Thus, the developments in the real estate market are explored in terms of the materialization of risks related to mortgage loans and construction lending, as well as the change of collateral value. The sharp fluctuations in real estate demand/supply and, thereby, sharp fluctuations in prices can harm banks' asset quality, generating risks, and challenging financial stability.

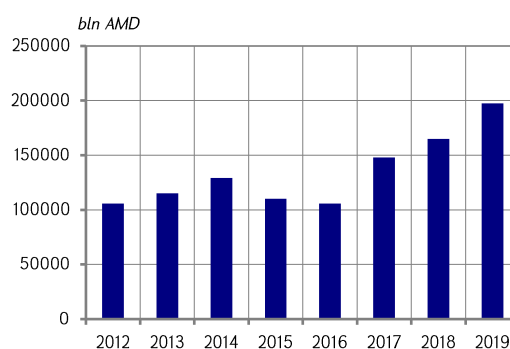
In recent years, high price growth rates have been registered for the real estate market in Armenia. The high demand and the low, but continuous growth of population income triggered the increase in prices. However, under the terms of the rapid growth of mortgage lending and the steady growth of real estate prices, the CBA does not exclude the likelihood of the underestimation of the risks and overheating in mortgage lending. Conditioned by this circumstance, since the beginning of this year, certain analytical and methodological efforts have been undertaken. The latter intend at the implementation of the LTV (loan to value) macroprudential tool to mitigate the possible risks from the real estate market.

The livelihood of the real estate market has been relatively high. The trend of the real estate demand and price growth has been maintained in Yerevan as well as in regions. The increase in real estate demand was conditioned by the availability of long-term mortgage loans, the decline in the interest rates, the rise in income, and the opportunity to lend to different construction stages. As a result of these factors, the acquisition of real estate became more accessible to households.

In comparison with the last year's figures, the average market price of apartments in multi-apartment buildings in Yerevan¹⁵ got increased y/y by 15.5% per 1m², which is the highest value for the indicator since the last global financial and economic crisis. Along with the rise in prices, the number of real estate transactions got increased by 21.6% y/y.

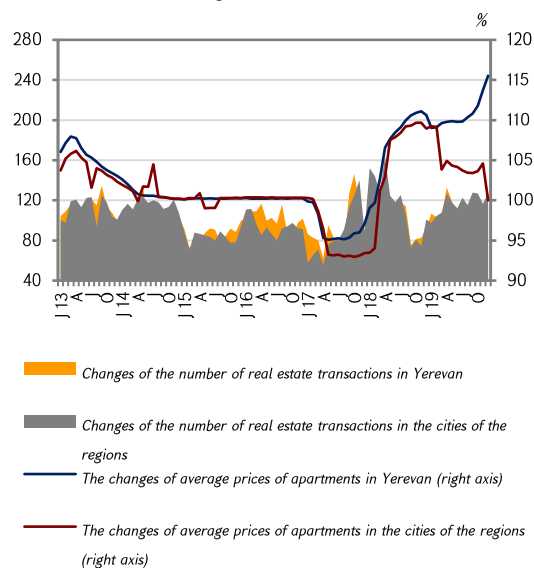
There was a significant increase in the real estate market supply. The increase in the number of new-construction building commissioning and the volume of real estate development projects

Volumes of loans to the construction sector provided by banks and credit organizations



Source: Central Bank of Armenia

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



Source: RA Cadastre Committee.

¹⁵ As there is no single index of real estate average price in Armenia, the real estate price developments are approximated by the average price index of apartments in Yerevan.

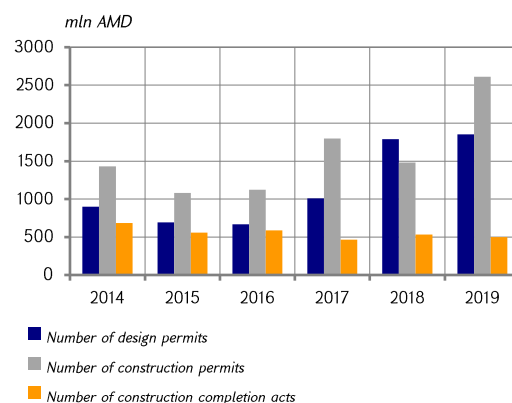
corroborates the activities in the real estate market. During the year of 2019, the number of construction permits almost got doubled. Conditioned upon the maintenance of the trend, significant risks, such as over-supply, can be generated in the market.

According to the quarterly survey conducted by the CBA, the increase in residential real estate prices was anticipated by the credit institutions in the next year.

The high growth trend of mortgage lending was maintained during the year. Factors, contributing to the increase in real estate demand/supply are the State program of interest expense refund (applicable for primary market real estate mortgages) and the state refinancing programs, which have increased the affordability of mortgage lending. The volume of mortgage loans for real estate purchases increased by about 37.1% annually, and the number of loans by 20.0%. According to the quarterly surveys conducted by the CBA, the participating financial organizations continued to mitigate the lending conditions. The competition was mainly through the change of non-interest-rate lending conditions, particularly through the loan to value ratio and easing of collateral valuation terms. Along with the activity of the real estate market, there was an increase in the volume of credits provided to the construction sector, both for residential and non-residential buildings. The quality of the mortgage loan portfolio has not changed.

The above-described transmission mechanism can generate certain risks, such as over-demand in the real estate market, based not on the demographic and income factors, but on the soft conditions of lending and the affordability of credits.

Construction dynamics in Yerevan during 2014-2019



Source: Yerevan Municipality Urban Development and Land Control Department

3. DEVELOPMENTS IN THE FINANCIAL SYSTEM OF ARMENIA

3.1. DEVELOPMENTS IN THE INTERNAL FINANCIAL MARKET

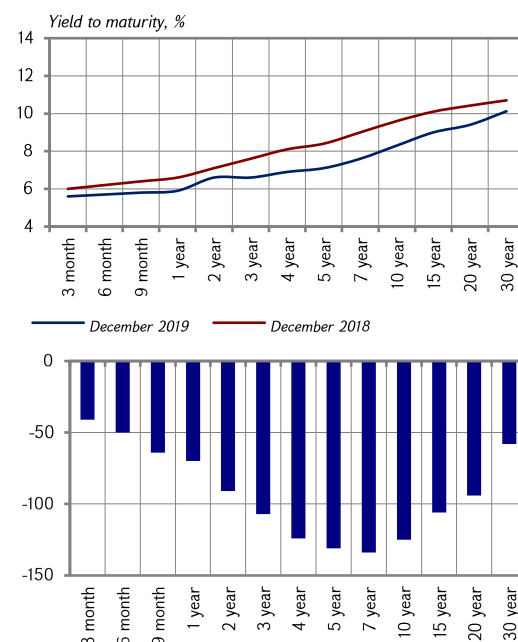
During the year of 2019, as a result of the absence of sharp fluctuation in financial markets, neither risk accumulation nor risk materialization processes have been registered related to the financial markets stability.

The interest rate developments in the financial market have mostly reflected the direction of the expansionary monetary policy conducted by the Central bank of Armenia. During the year, there was a decrease in short-term market interest rates (interbank repo interest rates), the profitability of short-term treasury bills, which was in line with the expansionary monetary policy.

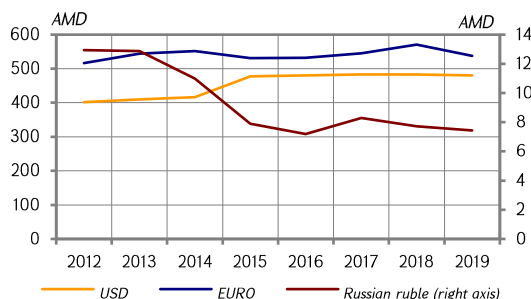
The Government bonds' yield curve has demonstrated varying behavior within different time intervals. The long-term treasury bill's yields have demonstrated growth tendency as opposed to the short-term section of the treasury bills' yield curve.

The foreign exchange market has maintained relative stability. During the year, to neutralize sharp appreciation movements of AMD, the CBA conducted purchases of foreign exchange from the market.

Yield curves of Armenian government bonds and curve changes (base point)



The average annual exchange rates of some currencies against the AMD



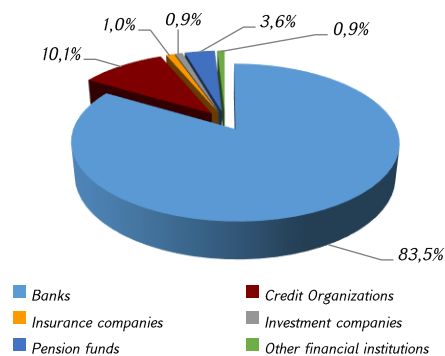
Source: Central Bank of Armenia

3.2. RISKS IN THE FINANCIAL SYSTEM AND INFRASTRUCTURES: STRESS SCENARIOS

The banking system remains profitable, capitalized, and liquid. Credit, liquidity, and market risks are manageable. Due to the decline in dollarization, the financial system's vulnerability to foreign exchange risks significantly decreased. Due to the high growth of household lending, the possible risk developments are planned to be addressed by means of the execution of macroprudential tools.

During the year, the financial system continued growing steadily. The financial intermediation deepened; in the year of 2019, the ratios of financial systems assets to GDP and credits to GDP increased respectively by 8.9 and 4.8 percentage points, reaching 106.5% and 58.7%.

Structure of financial system assets by financial institutions, as of 31.12.2019



Source: Central Bank of Armenia

The banking system prevails in the financial system, with a weight of 83.5% of the financial system's assets. The indicators of the banking system assets/GDP and credits/GDP increased respectively by 5.9 and 3.2 percentage points, reaching 89.0% and 52.1%, respectively. The ratio of deposits to GDP increased by 4.2 percentage points, reaching 49.7%. Conditioned by the small share of the other participants of the financial system (credit organizations, insurance companies, etc.), their impact on the stability of the overall financial system was not significant. This report addresses the identification, evaluation, and presentation of banking system risks in more detail.

3.2.1. Risks and risk scenarios of commercial banks

In the year of 2019, in comparison with the last year, several indicators of the banking system stability map¹⁶ – capital adequacy and asset quality sub-indices remained at the same level. There is an improvement in interest rate, exchange rate risk and profitability, and only a particular negative shift has been observed in liquidity, (for details, see subsections "Credit risk," "Liquidity risk," "Market risk," "Capital adequacy and Profitability").

Credit risk

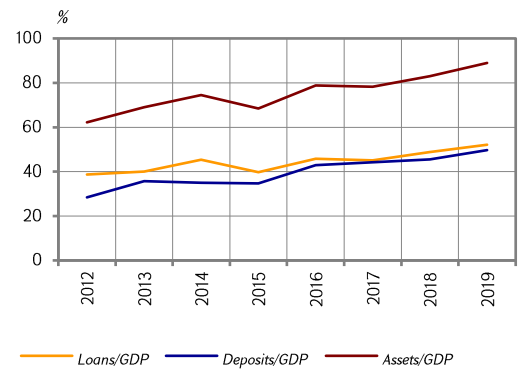
Credit portfolio continues to have the most significant share in the banking system assets, so credit risk analysis, valuation, and application of regulatory instruments to curb the risks are especially relevant in the context of financial stability. The share of credit portfolios in commercial banks' assets hasn't changed significantly in recent years and accounts for 60%. According to the capital adequacy ratio calculation methodology, the risk weighted credits comprise around 89% of the minimum capital.

The 16.47%¹⁷ increase in the credit portfolio mostly maintained the growth rate of the previous year, but unlike the previous year, the increase in lending was due to the growth of household lending by 32.0 % (consumer and mortgage loans). Lending to legal entities

¹⁶ The banking sector stability map contains indicators denoting capital adequacy, asset quality, liquidity, profitability, interest rate risk, and foreign exchange risk. These indicators were firstly measured on a 1 to 10-scale basis and then calculated following the IMF methodology. Note that the nearer the value to the center of the map, the lower the level of risks associated with the indicator, and vice versa. The banking sector stability map shall not be interpreted as an indication of the level of financial stability; instead, it provides a picture of whether the risks involved have increased or decreased.

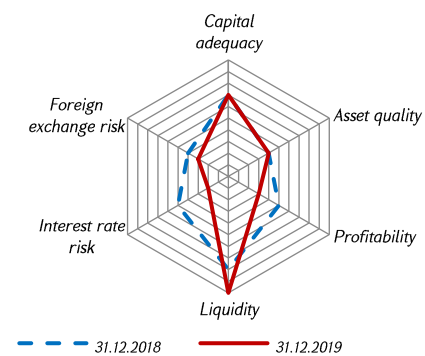
¹⁷ This figure contains credits/loans in AMD and in the foreign currency provided to the residential households, enterprises, and non-profit organizations.

Banking intermediation



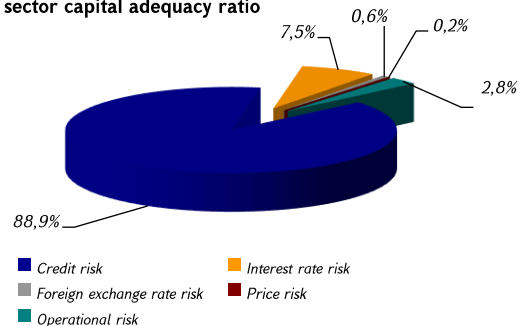
Source: Central Bank of Armenia

Banking sector stability map



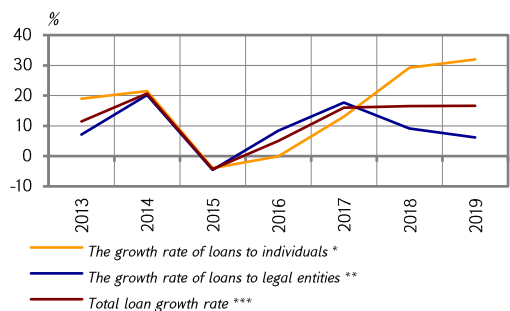
Source: Central Bank of Armenia

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



Source: Central Bank of Armenia

The growth rate of loans provided to individuals and legal entities



* Included loans provided to resident households.

** Included loans provided to resident enterprises and non-profit organizations.

*** Included loans provided to resident households, enterprises and non-profit organizations.

Source: Central Bank of Armenia

was moderate and the annual growth rate was around 6.1%. Easing in lending conditions and the increase in demand for loans by households have contributed to the advanced growth of household lending. The opportunity provided by the state programs (refund of the income tax contributions in the amount of mortgage interest expenses) significantly reduces the burden of credit service at least in the medium-term, has also contributed to the growth of demand for mortgage loans by households. Under such circumstances, the CBA does not find it necessary to increase the countercyclical capital buffer addressing the total volume of lending. On the contrary, considering the possible signs of accumulating risks due to the high growth rate of consumer and mortgage loans, the CBA has undertaken and implemented efforts towards the more targeted and sectoral execution of the macroprudential tools (loan to value, debt to income).

As a result of the measures conducted by the CBA towards dedollarization, the decrease in inflation expectations, and the progressive growth of household lending, the share of foreign currency loans in the total credit portfolio decreased.

In the year of 2019, the share of foreign currency loans in the credit portfolio had decreased by 4.6 percentage points and constituted 49.3%. This decrease is conditioned by the growth of household lending in AMD, while the growth of corporate lending (which is predominant in foreign currency loans) was significantly lower than the latter.

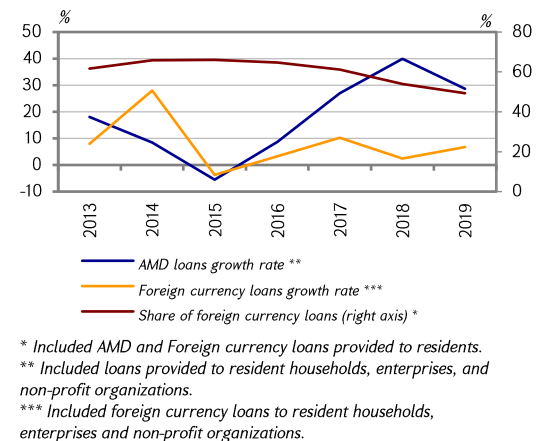
In comparison with the previous year, the share of non-performing loans, and receivables (classified as "watched," "substandard," and "doubtful") increased by 0.6 percentage points to 5.1% of total loans and receivables at the end of 2019. Conditioned by the lending growth of previous years, as well by the sectoral change of the provided loans, the growth of non-performing loans was expected. In particular, during the previous years, the high growth rate of consumer lending has been accounted for, and this types of loans are historically characterized by a comparatively high non-performing rate (the share of non-performing loans in the consumer loans of commercial banks reached 7.6%).

At the end of the year, the coverage of non-performing loans (the ratio of loan loss reserves to non-performing loans) reached 49.9%, lower by 6.7 percentage points in comparison with the previous year. This number has been within the historical average.

The Herfindahl-Hirschman sectorial concentration index¹⁸ for lending constituted 0.13, pointing to a moderate concentration of loan allocation in the banking sector.

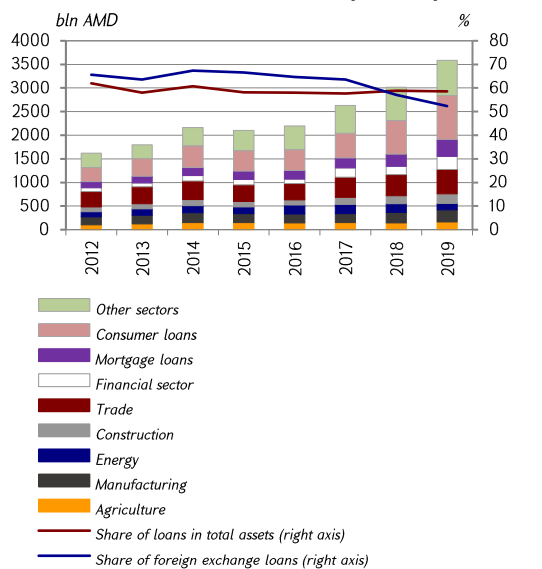
¹⁸ Herfindahl-Hirschman index accepts values in the range of 0-1 and characterizes centralization (values close to 0 describe a low degree of centralization).

The growth rate of loans in AMD and foreign currency

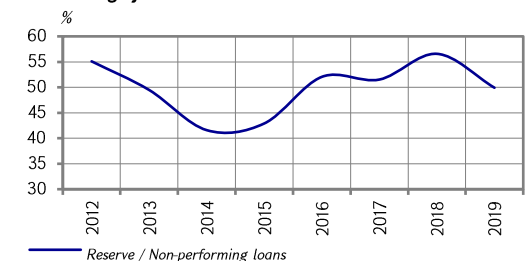


Source: Central Bank of Armenia

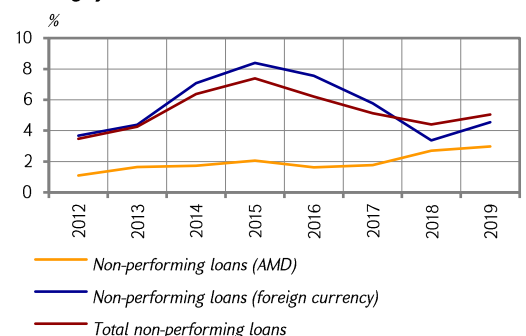
Structure of bank loans to residents, by economy sectors



The ratio of reserves and non-performing loans in the banking system



Non-performing loans weight dynamics in the banking system



In terms of the loan portfolio concentration, the share of loans to large borrowers¹⁹ in total lending was 21.1%, lower by 4.2 percentage points in comparison with the previous year's figures.

The results of the credit risk stress scenarios indicate that the capital adequacy ratios maintain very close to the minimum requirements, not endangering the smoothness and continuity of the banks' financial intermediation function.

Credit risk stress scenario²⁰

31.12.2019	Stress scenarios		
	25% of watched, substandard and doubtful loans classified into losses	75% of doubtful loans classified into losses	30% of standard loans classified into watching loans
Loss of the banking sector	AMD 35 billion or 4.4% of regulatory capital of the banking sector	AMD 15.2 billion or 1.9 % of regulatory capital of the banking sector	AMD 102.3 billion or 12.8% of regulatory capital of the banking sector
Total capital adequacy of the banking sector in case of the stress scenario	17.0%	17.3%	15.7%

Source: CBA.

Liquidity risk

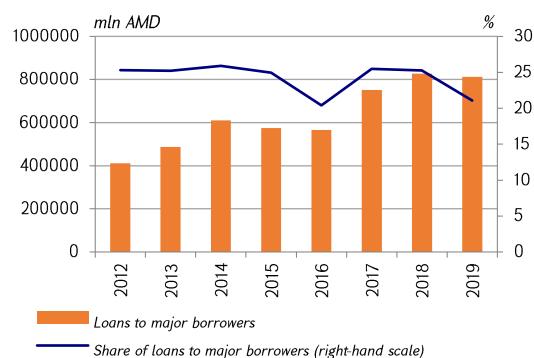
The banking system has a high level of liquidity, ensuring short-term liquidity shock-absorbance capacity. Commercial banks' liquidity displayed a decreasing trend owing to the lending activity of commercial banks; however, it significantly exceeded the prudential levels. Prudential ratios of total and current liquidity fell by 0.2 and 5.0 percentage points to 27.1% and 111.7%, respectively, relative to the beginning of the year (with minimum thresholds of 15.% and 60.0%, respectively).

Prudential ratios of total liquidity and current liquidity for convertible foreign currencies (Group 1) increased by 1.1 and 3.3 percentage points to 19.9% and 64.7%, respectively (with minimum thresholds of 4% and 10%, respectively). In the year of 2019, CBA revised reserve requirements, which contributed to the improvement of total liquidity in foreign exchange. The 18% reserve requirement for funds attracted in foreign currency was fully implemented in AMD in the past, and, after the gradual change by the end of the year, 12% was implemented in AMD, and 6 % in foreign currency.

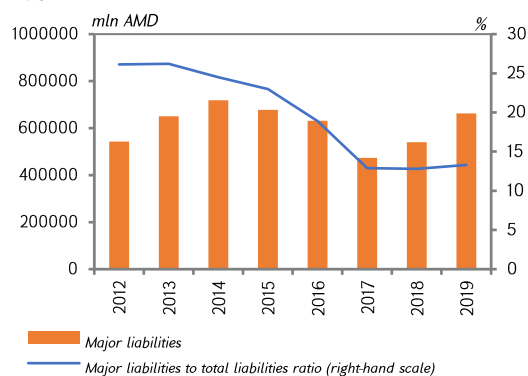
¹⁹ The bank's risk on large borrowers exceeds 5% of average monthly regulatory total capital, considering the interdependence.

²⁰ This and further stress scenarios are not forecasting the emergence of any risks but instead are aimed to reveal the weaknesses of the financial system, as well as to assess its ability to absorb such risks.

Loans to major borrowers in the banking system

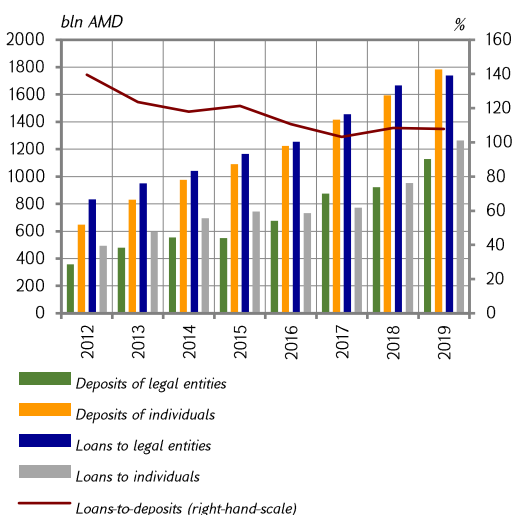


The ratio of the banking sector major liabilities to total liabilities



Source: Central Bank of Armenia

The structure of banking sector loans and financing sources



Source: Central Bank of Armenia

Over the years, the ratio of loan to the deposit of the banking system of the RA has been showing a downward trend, reaching 104.9% at the end of 2019. It means that the loans were heavily funded by deposits, which are considered as a more stable means of financing, contributing to the improved banking system's liquidity.

Liquidity risk stress scenarios

31.12.2019	Stress scenarios		
	Withdrawal of 25% of individuals' term deposits	Withdrawal of 25% of demand liabilities	Withdrawal of 25% of demand liabilities and 25% of individuals' term deposits
Total liquidity ratio of the banking sector	21.6%	22.4%	16.1%
Current liquidity ratio of the banking sector	82.7%	115.4%	76.9%

Source: CBA.

The results of the liquidity stress-tests show that banks have sufficient liquidity to cover the liquidity outflow even in the case of the strictest scenario.

Market risk

The evaluated impact of market risks, in particular, foreign exchange risks and interest rate risks on the capital of the banking system is not significant. The low level of market risks is conditioned by the structural features of the assets and liabilities of the banking system of the RA, as well as the availability of prudential regulatory requirements by the CBA.

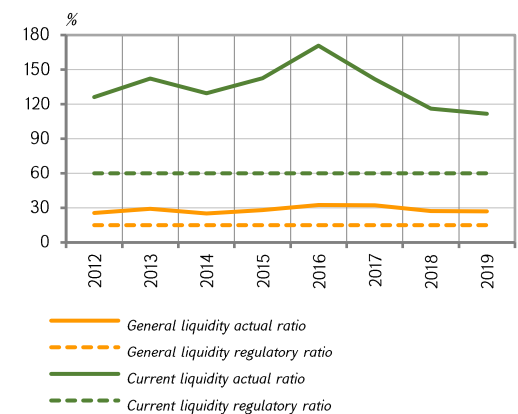
Foreign exchange risk

At the end of the year, the net short FX position of the banking system (including derivatives) has been AMD 2.1 billion or 0.3% of the total capital (as of 31.12.2018, AMD 22.5 billion or 3.1% of the total capital)²¹.

As a result of foreign currency revaluation in the circumstance of foreign exchange rate fluctuations, the banking system had AMD 3.6 billion loss, and AMD 29.6 net income from FX trade transactions and transactions with derivatives.

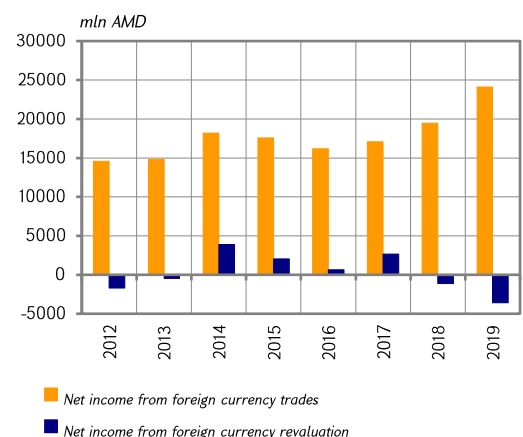
²¹ The derivative instruments include the derivative contracts signed with foreign governments, central (national) banks, financial organizations and international institutions that are rated A+ (A1) or higher than A+ (A1) for long-term deposits by Standard & Poor's or Fitch (Moody's).

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



Source: Central Bank of Armenia

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



Source: Central Bank of Armenia

Foreign exchange risk stress scenarios

31.12.2019	Stress scenarios		
	Profit (loss) in the case of 5% appreciation (depreciation) of AMD/USD	Profit (loss) in the case of 5% appreciation (depreciation) of AMD/EUR	Possible maximum 10-days loss estimated by 99% VaR Model ²²
Banking sector's profit/loss from foreign currency revaluation	AMD 120 million or 0.01% of regulatory capital	AMD 70 million or 0.01% of regulatory capital	AMD 218 million or 0.03% of regulatory capital

Source: CBA.

Interest rate risk

The average weighted duration gap²³ of the present value of assets and liabilities of the banking sector varies in the range of 6 to 12 months. This means that possible fluctuations in the market rates have no significant impact on the banking sector's potential losses.

Interest rate risk stress scenarios

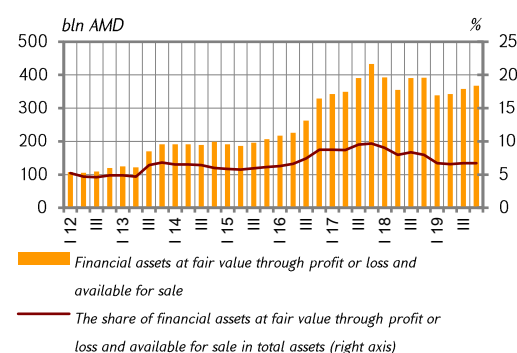
31.12.2019	Impact of 2 pp. Increase (decrease) of market interest rates on the economic value of the capital, estimated through the "Duration Method"	Deviation of net interest income from the expected income of the three months ahead in the case of 2 pp. Increase (decrease) of market interest, estimated through the "Interest rate-sensitive assets and liabilities"
Banking sector's profit/loss	AMD -33.4 billion or 4.2% of banking sector capital	AMD -397 million or 0.05% of banking sector capital

Source: CBA.

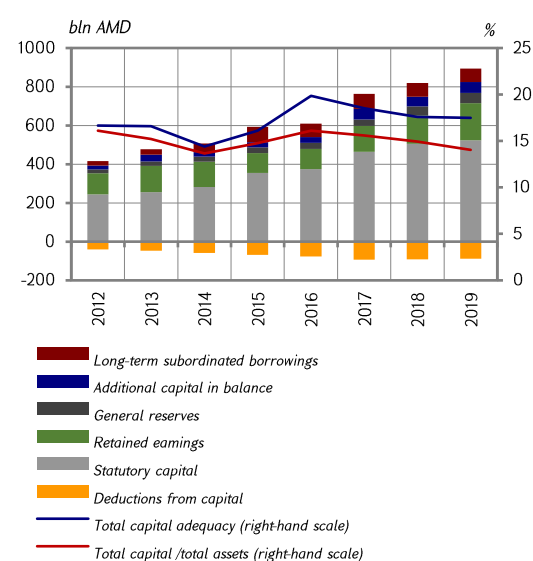
Interest rate risk in the commercial portfolio of the banking system is estimated as low, conditioned by the relatively small amount of financial assets accounted at fair value through profit and loss. Compared to the beginning of the year, the share of the fair value through profit and loss financial assets in total assets decreased by 1.3 percentage points, reaching 6.7%.

In the conditions of declining market rates, the banking system generated 5.4 billion AMD net income in the year of 2019 from the revaluation of fair value financial assets accounted through profit and loss.

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



The structure of total regulatory capital



Source: Central Bank of Armenia

²² 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 31.12.2019.

²³ The difference between the weighted average duration of the present value of the assets and liabilities of the banking system.

Capital adequacy and profitability

The banking system continues to be sufficiently capitalized and resilient against possible shocks. In 2019, the total capital adequacy of banks, compared to the previous year, did not change significantly and reached 17.6%.

The growth of the total size of normative capital was mainly reached with internal resources, due to which the level of capital adequacy, compared to the average of the past years, did not change significantly even in the case of higher lending. The leverage ratio (capital to assets) decreased by 0.9 percentage points and reached 14.1%. Compared to the capital adequacy, the reduction of the latter was possible due to the growth of the share of loans in AMD in the total credit portfolio.

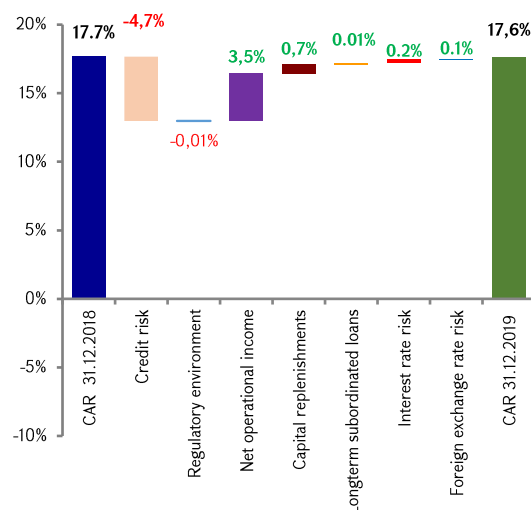
Capital requirements were reinforced due to the implementation of capital buffer requirements. From January 2020, capital conservation buffer and systemic risk buffers operate, each at 0.5 % of risk-weighted assets. The countercyclical capital buffer is set at 0%. The total capital of the banking system is characterized by a high-quality structure from the perspective of risk absorption capacity. The share of the Tier 1 capital in total capital reached 86.6%.

The banking system has improved profitability indicators.

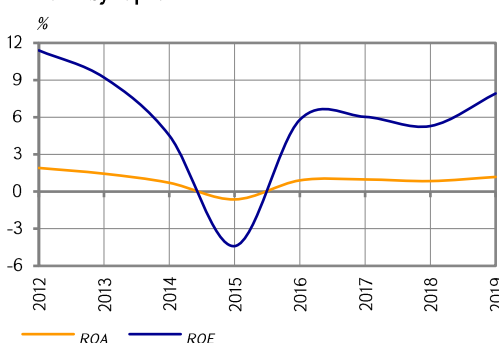
The growth of profitability is mainly conditioned by the decrease in the credit risk losses and the increase in the credit portfolio, which was somewhat mitigated by the decrease in the interest margin of the banks. In recent years, conditioned by the competition in the banking system, there was a continuous decline in the net interest rate margin.

According to the CBA's supervisory reports, the net profit of the banking system reached AMD 62.2 billion. Only one bank suffered losses²⁴ (according to the Financial Reporting Standards, all banks generated a profit). Asset (RoA) and Capital (RoE) profitability indicators of the banking system reached 1.2% and 7.9 %, respectively.

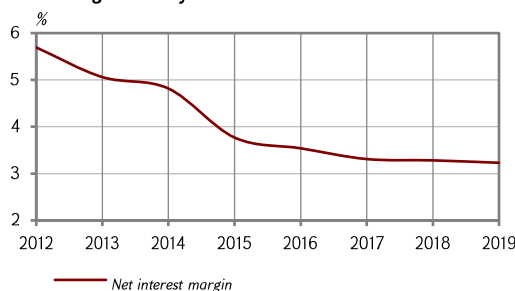
Total capital adequacy with banks- Waterfall



Profitability of the banking system by assets and by capital



The ratio of net interest income of the banking system to the average monthly total assets



Source: Central Bank of Armenia

3.2.1.1. Macroprudential policy

The year was significant for the macroprudential policy operationalization, as on April 1, 2019, the regulation regarding the change of reserve requirements rate came to force. The regulation

²⁴ According to the International Financial Reporting Standards, the annual profit of the banking system at the end of 2019 was 78.8 billion in AMD. Differences between regulatory and IFRS reports presented to the CBA are conditioned by various sizes of deduction on reserves for loss of assets.

defined macroprudential instruments suggested by the Bazel Committee, among these tools, in particular, countercyclical capital buffer, capital conservation buffer, systemic risk buffers, timetable of implementation and thresholds.

The countercyclical capital buffer, which is intended to address the possible risk developments of the total credit portfolio, in the year of 2019, remained unchanged , at 0 %²⁵ by the CBA. This decision was conditioned by the fact that the growth of the total credit portfolio, accompanied by the growth of income in the economy (GDP), did not cause a significant increase in the debt burden of the private sector. In particular, during the year of 2019 the deviation of the ratio of private sector credit to GDP (calculated according to the methodology suggested by the Bazel Committee) from its long-term trend did not exceed the minimum threshold required for application of above 0 buffer limit²⁶.

From January 1, 2020, the capital conservation and systemic risk buffers came to force, each of 0.5 % of risk-weighted assets. The execution of the tools mentioned above will assist in reinforcing the banking system's solvency and can be applied to ensure the smoothness and continuity of the lending under the situations of economic shock.

In the year of 2019, in terms of macroprudential policy, the CBA emphasized the further effective regulation of possible risks, conditioned by the high growth of different types of loans provided to the economy. During the year of 2019, the accelerated growth rates of certain types of loans were recorded, in particular, consumer and mortgage loans. The persistence of the high growth can cause possible risk accumulation in the future. ***To address these risks and promote responsible lending among borrowers, the CBA developed an approach of calculating debt-service-to-income and loan-to-value indicators (DSTI, LTV) and a draft regulation defining their implementation.*** For the execution of these tools, the CBA intends to collect the necessary information on debt service to income and loan to value ratios²⁷. The collected information will serve as a basis to address the possible risks in mortgage and consumer lending more accurately and effectively.

To address and manage liquidity risks more effectively, the CBA accomplished two more tools suggested by the Bazel Committee, in particular, the development and implementation of liquidity

²⁵ The decision on the countercyclical buffer by the Board of the CBA is available at <https://www.cba.am/AM/pmessagesannouncements/Cyclic%2015.04.2020.pdf>

²⁶ The brief methodology on defining countercyclical buffer is available at <https://www.cba.am/AM/pmessagesannouncements/Cyclic%2030.07.2019.pdf>

²⁷ Taking into account the situation conditioned by the COVID-19, the CBA finds it expedient to postpone the mandatory implementation of these tools temporarily and will address them in 2021.

coverage ratio and net sustainable financing ratio, which will be implemented since the year of 2021.

To sum up, during the year of 2019, within the framework of macroprudential policy, the measures conducted by the CBA aimed at reinforcing the solvency and liquidity of the banking system, as well as at preventing possible risks in certain areas of lending, which will serve a stable foundation for more sustainable and efficient development of the financial system.

3.2.2. Other financial institutions

The share of assets of non-bank institutions is still small in the financial system, and the influence of their activities on the stability of the financial system is not significant. Therefore, this report touches upon the principal risks and activities of only credit organizations, insurance companies, and pension funds, which have a relatively significant share among other financial institutions.

Developments of credit organizations

In terms of the volume of assets, credit organizations are relatively large among other financial institutions. In the year of 2019, the credit portfolio of credit organizations increased by 46%. The net loan loss allowance to credit portfolio ratio of credit organizations reached 8.8%, which is four times bigger than the same indicator of the banking system.

Compared to the banking system, the growth of loans of the credit organizations is faster, first of all, conditioned by the peculiarities of the target group of customers.

Unlike credit organizations, banks operate under stricter requirements, and they lend to customers, who have a relatively high degree of creditworthiness (suggesting lower interest rates). Credit organizations target the riskier share of the demand, which implies higher interest rates.

Risks and risk scenarios of insurance companies

During the year of 2019, the assets of insurance companies increased by 29.5%, and at the end of the year, reached 66.9 billion AMD, and the volume of liabilities grew by 41.1% to AMD 45.8 billion. Total capital increased by 9.8% and made up AMD 21.1 billion. The volume of accrued premiums, the primary indicator of insurance activity, increased by 15.5% compared to the same period of the previous year, to AMD 49.3 billion.

The premiums-per-capita was AMD 16,635 (annual), versus AMD 13,929 in the year of 2018.

Solvency risk

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

Solvency assessment stress scenarios

31.12.2019	Stress scenarios	
	Growth of reimbursement rates, 10%, and insurance payment increase, 5%	Shocking growth of outstanding claims reserves, 25%
Required growth of UIPR of the insurance sector, if the stress scenario occurs.	AMD 1.3 billion or 6.3% of regulatory capital of the sector	AMD 0.8 billion or 3.9 % of regulatory capital of the sector
Total capital adequacy ratio of the insurance sector, if the stress scenario occurs	141.4%	145.0%

Source: CBA.

Credit risk

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

Credit risk assessment stress scenarios

31.12.2019	Stress scenarios	
	Classified 30% of "standard" assets into "watched" category	Classified 5% of "standard" assets into "loss" category
Loss of the insurance sector	AMD 1.0 billion or 4.9% of regulatory capital	AMD 1.8 billion or 9.0 of regulatory capital
The total capital adequacy ratio of the insurance sector, if the stress scenario occurs	144.7%	139.5%

Source: CBA.

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

Liquidity risk

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

Liquidity risk assessment stress scenario

31.12.2019	Stress scenarios
	A sharp increase of outstanding claim reserves, 25%
Required growth of outstanding claims reserves when the stress scenario occurs	AMD 0.8 billion or 3.9% of regulatory capital
Liquidity of insurance companies when the stress scenario occurs	313.4%

Source: CBA.

Pension funds

At the end of 2019, the net asset value of the pension funds was AMD 251.2 billion. The net assets-to-GDP ratio was 4.0%, which increased by 1.4 percentage points as compared to the end of 2018.

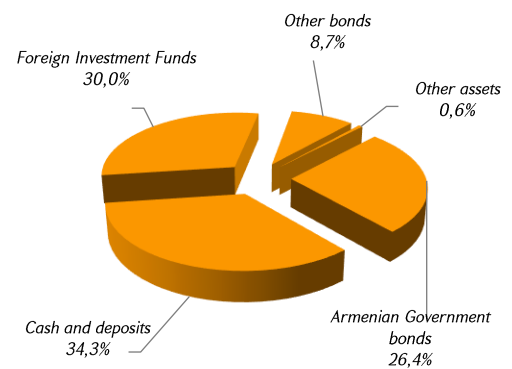
As of the end of 2019, there were around 364,000 active pension fund participants.

The investments in cash and deposits rose by 1 percentage points, accounting for 34% of total assets, while those in securities of foreign investment funds increased by 5 percentage points, amounting to 30% of total assets. At the same time, the share of government bonds decreased by 3 percentage points. The investments in non-government bonds remained unchanged, 9% of total assets in the investments' structure of pension funds.

At the end of the year, the funds' share of foreign exchange assets was 34.1% or AMD 85.9 billion. The majority of foreign exchange assets (AMD 75.4 billion) were securities of foreign investment funds.

The profitability of funds was 13.4%. Starting from the year of 2014, the cumulative profitability for the last four years made up 68.1%.

Investments of pension funds, 31.12.2019



Source: Central Bank of Armenia

4. FINANCIAL MARKET INFRASTRUCTURES STABILITY

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

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

During the reported period, there were about 3.7 (6.6% growth compared to the same period of the previous year) million payments (payment messages), totaling AMD 20007.7 billion (30.3% growth compared to the same period of the previous year), executed via the Electronic Payment System (EPS) of the Central Bank of Armenia.

The interbank payments (EPS) increased by 47.6% compared to the same period of the previous year. A 10.7% growth was recorded in budget payments.

Credit risk

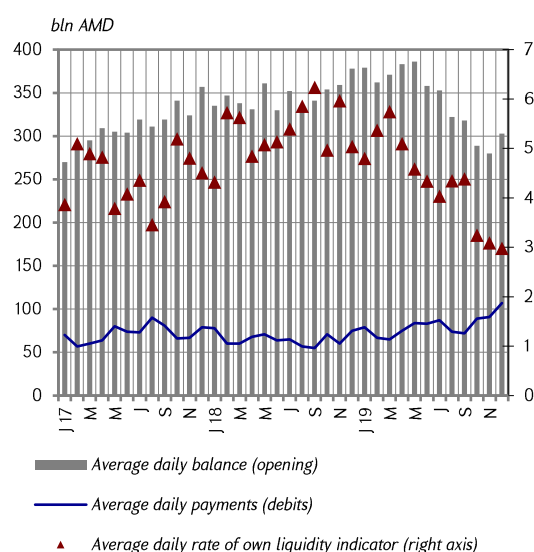
Credit risk to the settlement bank (i.e., the Central Bank of Armenia) in the system is non-existent since the participant can use an interday repo instrument in case of insufficient funds on their correspondent account, which is secured by highly liquid assets. The size of the attracted fund is calculated using the percentage subtracted from the bond's market value (haircut). Nor is there credit risk to the receiving participant as it receives the notice of the payment only after the payment is final and irrevocable.

Liquidity risk

In the period under review, the daily average own liquidity indicator used for assessment of liquidity risk²⁸ was 4.2 (5.3 in

²⁸ The daily average own liquidity indicator is calculated based on the ratio of opening liquidity on AMD correspondent accounts of commercial banks to debits (payments) through the account. Incoming payments are not included in the indicator so that a stress-scenario can assess the likelihood of bank rejections if additional liquidity is not available within a day, namely to which extent would banks generate their payments using only opening balances of their funds. The calculation does not include cash enhancements through their accounts of commercial banks. The indicator is calculated for a system-level (aggregate for all banks), so indicators may vary across commercial banks.

Comparative analysis of average daily payments, average daily opening balances and average daily rate of own liquidity indicator (system based)



Source: Central Bank of Armenia

2018), reaching 5.7 in March (the maximum rate for 2018 was 6.2 in October). At the same time, during the 2nd half of 2019, this indicator decreased sharply, especially in the 4th quarter, which was conditioned by the changes in the reserve requirements. Since June 2019, banks can make reserves also in foreign currency, as a result, the balance of accounts in AMD decreased. In the 2nd half of 2019, there was a 16.8% decrease in the average daily beginning of the day liquidity compared to the 1st half of the year, and an increase of average daily payments by 26.5%²⁹, leading to a sharp decrease in the average own liquidity indicator (in the 4th quarter, the average was 3.1).

Nevertheless, the average daily liquidity at the beginning of the day is more than 3 times higher than the average daily payments, which is a very high indicator. 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. Besides, the number of rejections due to insufficient liquidity, as well as its share in the EPS payments, remain negligible.

The indicator was also monitored across individual banks, based on which the likelihood of liquidity risk is assessed as minimal.

Intraday distribution of payments

In the reported period, on average, 19.7% of the number of payments were settled during peak hours (10:00 – 11:00). Though, the quantitative distribution of payments during the day is mostly proportional.

The peak hour for the volume of payments (23.9 % of the daily volume of payment) in the system is also registered at the beginning of the day (10:00 – 11:00). There is a certain smoothening in other time intervals as well. Moreover, the peak hour was during the first half of the day, which smoothenes the concentration risks, as in case of problems, the participants will have enough time to take the necessary measures to settle the payments on a given day.

Considering the sufficient level of system capacity, the positive outcomes of liquidity and operational availability indicators, and a negligible share of rejections in total payments, the concentration of payments during certain hours of the day did not lead to problems. Therefore, the likelihood of the emergence of risks to the system is generally low.

²⁹ The daily average of all the payments (debits) through the CB correspondent accounts.

System capacity

The dynamics of the maximum hourly number of payments (the maximum number of payments per hour for each month) remained merely unchanged for the reported period (compared to 2018, there was a decrease).

The maximum hourly indicator during the first half of 2019 was 4996 payments/hour (5990 for 2018). The peak hour was from 11:00 to 12:00, making up 23.1% of the number and 7.9% of the value of the day's payments. The peak hour of this particular day was conditioned by the increase in payments during the.

Despite the increase in EPS payments, there is a trend of decrease in certain marginal indicators describing payments per hour (showing the significant flow of payments per hour). At the same time, the share of mentioned indicators remains insignificant, in particular, the indicator of 4300 and more payments per hour is 1.8%, for 3500-4300 payments it is 5.6%, and for 2500-3500 payments it is 15.6% of general operational hours.

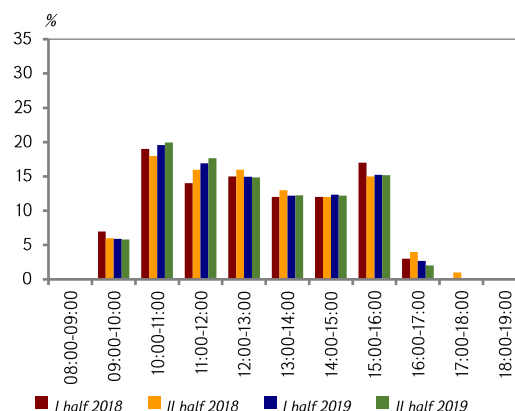
The maximum daily indicator (the number of payments per day) decreased to 23,187 payments/day (the peak was 28,549 in 2018).

Considering that the cases of the abovementioned marginal indicators have a small share in total payments flow³⁰, the probability of the emergence of capacity-related risks is estimated to be low.

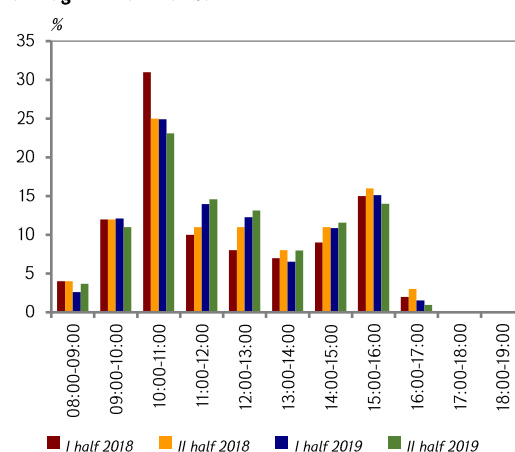
Operational availability of the system

During the reported period, only one significant incident (with a 1 hour or more duration) affecting the operational availability of the EPS was recorded; it lasted for 1h and 15 minutes. As a result, the operational availability of the EPS was 99.9% for the given year³¹. As a result of the incident, no accumulation of payment messages that could influence the operational availability of the system has happened, and the operational day of the system was closed at the set time.

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

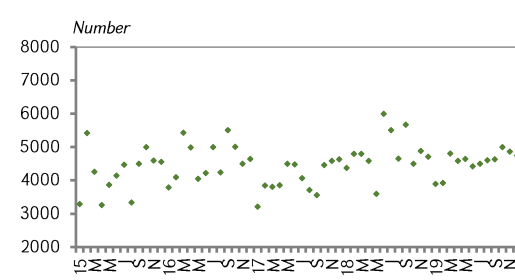


Intraday distribution of the value of payments on an average semiannual basis



Source: Central Bank of Armenia

The maximum number of payments per hour, by month



Source: Central Bank of Armenia

4.2. SECURITIES SETTLEMENT SYSTEMS

In Armenia, the settlement of securities is implemented through two systems - the Securities Accounting and Settlement System of

³⁰ For example, the percentage of more than 3500 payments per hour was 7.4% yearly.

³¹ According to the EPS participation agreement, the operational availability of the system should be at least 98.0% yearly.

the Central Depository of Armenia (hereinafter CDA's SSS) and the Government Securities Accounting and Settlement System of the CBA (hereinafter GSASS).

In the year of 2019, secondary market transactions totalling AMD 10846.3 billion were carried out through GSASS (in the year of 2018 it was AMD 9483.6 billion), so compared to the previous year, the operations increased by 14%. This increase was mainly conditioned by the so-called “free delivery” operations. Secondary market transactions, totalling AMD 718.4 billion in nominal value, were carried out through CDA's SSS in the year of 2019 (in 2018, it was AMD 553.8 billion), so compared to the previous year, the operations increased by 30%. This increase is conditioned by the growth of OTC transactions with shares, corporate bonds, Eurobonds issued on behalf of the RA, as well as stock exchange transactions.

The share of operations executed through the Government Securities Accounting and Settlement System (GSAAS) in the total secondary market transactions is 93.8% (94.5% in 2018). From the perspective of financial stability, GSAAS has vital and systemic importance.

Transfer of securities through the Government Securities Accounting and settlement System of the Central Bank pertaining to the operations with securities in the secondary market³²

Transfers	2017	2018	2019
Value OTC transactions (trades, repo and reverse repo) in nominal value, AMD billion	10676	9433	10794
Number of OTC transactions (trades, repo and reverse repo)	29066	28322	31061
Value of stock exchange transactions in nominal value, AMD billion	61.3	50.2	51.9
Number of Stock exchange transactions	642	611	902
Total transfers of securities in nominal value, AMD billion	10737.3	9483.6	10846.3
Total number of transfers of securities	29708	28933	31963

In both the GSASS and the CDA's SSS, the settlement of OTC transactions is subject to the principle of DVP (Delivery versus Payment), 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.

³² 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.

Transfer of securities through the Securities Accounting and settlement System of the Central Depository of Armenia pertaining to the operations with securities in the secondary market³³

Transfers	2017	2018	2019
Value OTC transactions (trades, repo and reverse repo) in nominal value, AMD billion	326.6	511.4	662.7
Number of OTC transactions (trades, repo and reverse repo)	1978	2697	4043
Value of stock exchange transactions in nominal value, AMD billion	19.6	42.4	55.7
Number of Stock exchange transactions	884	2028	2711
Total transfers of securities in nominal value, AMD billion	346.2	553.8	718.4
Total number of transfers of securities	2862	4725	6754

In 2019, there were no significant (with duration of more than 1 hour) incidents, which influenced the uninterrupted functioning of the GSASS.

The operational availability of the primary and secondary markets' infrastructures of the system was 100%.

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

³³ *The statistical information provided includes the CDA's SSS-executed settlements both with corporate securities and Eurobonds issues by the RA and government bonds held as sub-custodian.*

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GLOSSARY OF TERMS

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

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

ABBREVIATIONS

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