

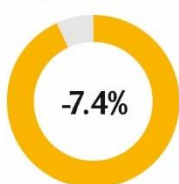


CENTRAL BANK OF
THE REPUBLIC OF
ARMENIA

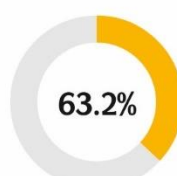
FINANCIAL STABILITY REPORT 2020

Financial Stability Report 2020

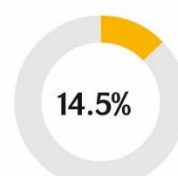
Economic decline and decrease of income in the Republic of Armenia are conditioned by the effects of two shocks: pandemic and martial law



Banking system has maintained continuity and smoothness of lending to the economy

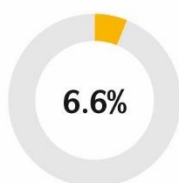


Loans/GDP



Credit growth

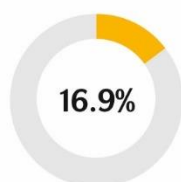
Credit risk has grown, and will continue in 2021



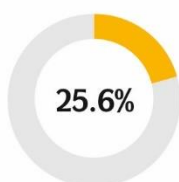
The threshold of countercyclical capital buffer was maintained at 0%, allowing the banks to ensure the continuity of lending



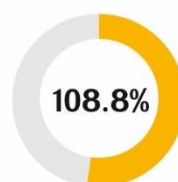
The banking system is stable: capable to absorb potential risks and lend to the economy



Capital adequacy



Total liquidity



Current liquidity

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.

The data published in this report are as of 30.04.2021

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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, the potential risks endangering the stability of the financial system as a result of internal and external macroeconomic developments, as well as their possible sources are monitored and assessed. As a result of the comprehensive analysis of these risks and assessment of their potential impact on financial stability, macroprudential policy is developed and implemented.

INTRODUCTION

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 financial system as well as hamper the capacity of the financial system to withstand such risks. Through the publication of information on financial stability developments, the Central Bank aims at soliciting the attention of the stakeholders on those risks and eventualities that might jeopardize the financial stability of the Republic of Armenia as well as present a policy to manage and reduce those risks.

Financial stability and price stability are components of overall macroeconomic stability and effectively complement each other. Volatility of the financial system can hamper implementation and effectiveness of monetary policy, long-term and sustainable economic growth. At the same time, macroeconomic stability, including price stability, helps reduce risks to financial stability. The financial system plays an important role in the overall economic system, and it is essential that the financial system maintains the continuity and stability of processes, thus contributing to the normal growth of the economy.

In order to identify risks endangering financial stability, the Central Bank of the Republic of Armenia conducts continuous monitoring and analysis of both the financial system and general macroeconomic developments. The report presents the risks in the macro-environment and the financial system, their impact on the development of various sectors of the economy and financial system.

Economic and non-economic risks affecting the financial stability of the Republic of Armenia may arise in the domestic macro-environment, in the external economy, and in the financial system itself.

Based on the above, the potential risks threatening the financial stability of the Republic of Armenia are presented in the report in the following main 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 presents accumulation of risks in these areas and their possible impact on the development of all sectors of the economy and financial system, as well as macroprudential policy of the Central Bank of Armenia aimed at addressing the above-mentioned risks. Furthermore, financial stability report mainly emphasizes the risks and development directions of the banking system, as about 84% of the assets of the financial system are the assets of commercial banks, therefore, the state of the banking system mainly determines the level of general financial stability and development directions.

EXECUTIVE SUMMARY

In 2020, Republic of Armenia economy has suffered from the effects of two successive shocks, the pandemic and the martial law. These shocks have in turn created challenges for the financial system, which are significantly different from the those of all previous crises.

Restrictions to prevent the spread of the coronavirus, martial law at the end of the year and the high level of uncertainty that followed, resulted in an economic downturn.

The Central Bank of Armenia and the Government responded to the current economic situation by pursuing an expansionary macroeconomic policy. The government's policy also included targeted measures to assist affected businesses and vulnerable social groups.

In face of unprecedented shocks, the financial system managed to maintain the proactive stance of activity during the year, which became largely possible due to the sufficient capital and liquidity potential.

Banks continued to provide banking services, giving priority to increasing the availability of online/remote services and customer awareness raising. The commercial lending offered by commercial banks and the revision of loan terms have enabled borrowers affected by the pandemic to redistribute their debt service burden adequately to their future income expectations.

Amid growing uncertainties and risks, the banking system continued to lend to the economy, although lending growth rates slowed. The deepening uncertainties and the reduction of the opportunities on attracting financial resources for the banking system led to the reduction of the growth rates of crediting in the fourth quarter. The demand for lending has also decreased due to the growing uncertainty of economic prospects among businesses.

Despite a certain reduction in the growth rate of mortgage lending, the annual growth remains high. In order to effectively address mortgage lending and real estate market risks, the Central Bank is considering the introduction of appropriate macroprudential instruments (in particular, setting Loan-to-Value ratio or other similar arrangements).

Against the background of economic decline recorded during the year and decrease of incomes, growth of credit risk was observed. In the face of shrinking incomes of households and economic entities, deterioration of solvency and problems with the debt service emerged. In such circumstances, the materialization of credit risk losses of financial institutions and the share of non-performing loans in the credit portfolio grew. The growth of non-performing loans was mainly due to the increase in the share of non-performing loans in the consumer credit portfolio.

Financial institutions have succeeded in mitigating and slowing down the emergence of credit risk through credit reviews and credit holidays, as well as government assistance programs. The provision of credit holidays by financial institutions created an opportunity to curb the swift materialization of credit risk, as well as carry over possible losses to future times. This allowed avoiding a significant deterioration in the quality of the credit portfolio, especially in the first half of the year. At the end of the year, the growth rate of non-performing loans accelerated, which can continue in 2021 as well.

Capital adequacy and banking system liquidity prudentials during the year were met. Despite the recorded credit growth and the absorption of materialized risks, the decrease in the capital adequacy ratio was

moderate. Reflected by a decrease in the growth rate of deposits and certain outflow of deposits at the end of the year, the decrease in liquidity indicators was insignificant. As of the end of the year, both capital adequacy and liquidity remained above the thresholds.

In the current situation, conservative approaches to lending by financial institutions are quite possible. In almost all directions of lending, a decrease in the volume (flows) of new loans compared to the previous year was observed. Amid the declining economic activity, growth of credit losses and lingering uncertainty, moderate growth rates of the credit portfolio are expected.

Macroprudential policy measures were mainly aimed at strengthening the banking system's resilience to growing risks and ensuring the sustainability of financial intermediation. In order to ensure the continuity and smoothness of lending to the economy, the Central Bank has signaled the banks about the possibility of using capital buffers. At the same time, the level of the anti-cyclical capital buffer remained unchanged at 0%. With the view to mitigating the shocks of liquidity demand, the Central Bank provided the banks with necessary dram and foreign exchange liquidity through its toolkit.

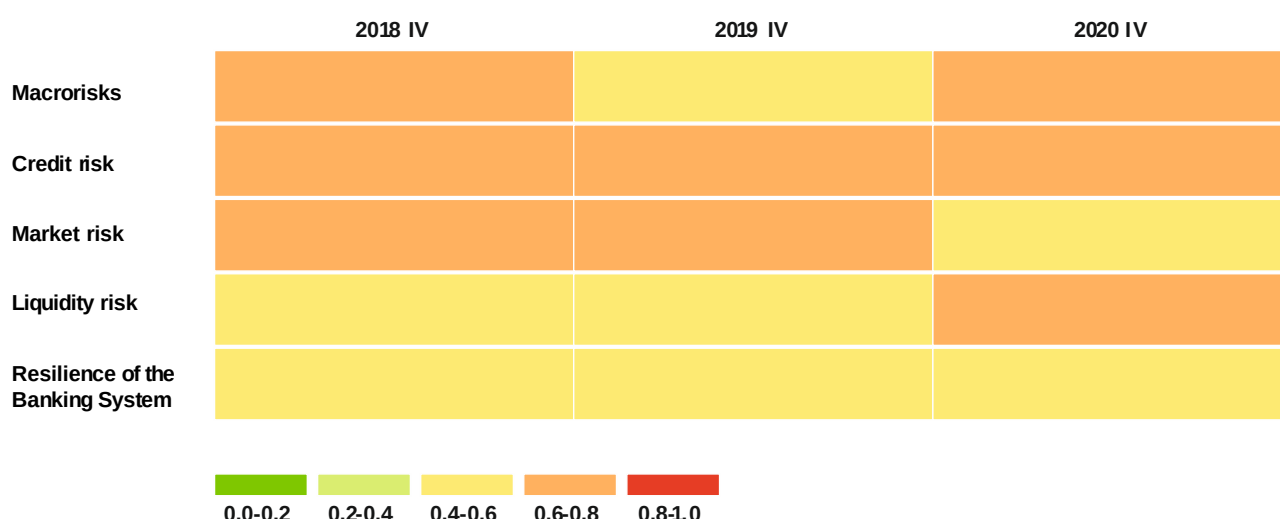
The Central Bank emphasizes the use of prudent and balanced capital management approaches by banks. The probability of growth of credit losses and their deferred impact in the future is estimated as high. Given the current level of capitalization of the banking system, it is obvious that possible violations of the capital buffers can rarely occur in banks. However, due to the current situation, the Central Bank considers it important that banks refrain from distributing dividends and bonuses as much as possible. At the same time, it is important that banks do not engage in transactions that would jeopardize the smoothness and stability of their activity.

1. MACROPRUDENTIAL DASHBOARD

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, materialization of which may threaten the stability of the financial system. The part that characterizes resilience of the system, represents the ability of the system to absorb risks, i.e. the availability of liquidity and capital buffers.

Macroprudential Dashboard



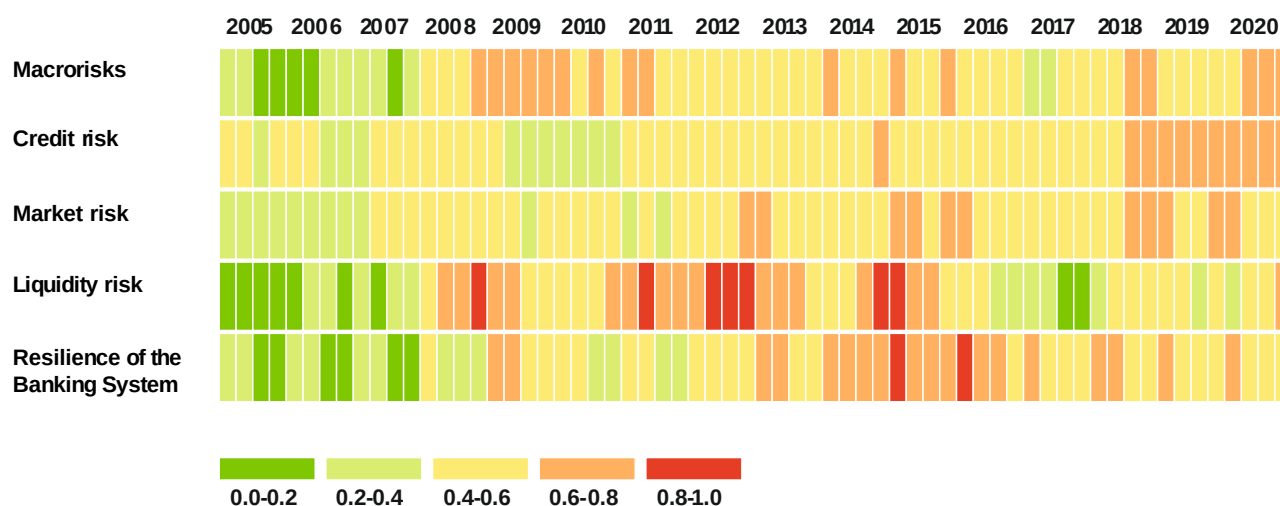
Compared to the end of the previous year, an increase in the accumulation of risks in some risk groups was recorded in the second half of this year, which was largely contributed to the economic downturn in the world and in Armenia, caused by the pandemic and the growing level of uncertainty.

The **macro-risk composite indicator** was affected by an increase in the accumulation of risks over the previous year. Such an increase was driven by the deep economic decline during the year and the growing levels of public debt. Affected by the spill-over effects of the economic activity decline in the partner countries, remittances plummeted too, contributing to the growth of the composite index. The decrease in “current account deficit” and low inflation had a positive impact on the macro-risk index (See “Macroeconomic Developments” section for details).

¹ The macroprudential dashboard consists of 23 indicators aggregated in 2 main groups: the risks 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 rowth, while green color indicates risk reduction. The evaluations are updated and calculated quarterly.



During the year, there has been some increase in risk accumulation



The composite **credit risk** accumulation indicator remained at the same color range, which is still an evidence of risk accumulation. Relatively high-risk accumulation is due to the high values of household loans/gross national disposable income ratio and banking system leverage. Maintenance of high leverage of banks in parallel with the reduction of incomes in the economy, other conditions being equal, can be the reason of difficulties in credit servicing. There was also an increase in the accumulation of risks in terms of corporate lending, facilitated by the growth of lending through state support programs. The unchanged color range of the credit risk accumulation indicator was also conditioned by the decrease in the growth rate of credits recorded during the year, which has mitigated the accumulation of risks. Notably, the growth rate of consumer loans has shifted to the green zone since the second quarter, responding quickly to economic developments. It should be noted that Macroprudential Dashboard does not include an indicator that would characterize the impact of credit revisions and credit holidays. These measures were a temporary initiative aimed at mitigating the economic consequences COVID-19 pandemic (for details see the section “Household Debt and Risks”).

The decrease in the accumulation of risks in the **market risk subgroup** was conditioned by the fall in real estate prices and lower growth of foreign exchange loans during the year (for details see the section “Real Estate Market Trends and Risks”).

The growth of the **liquidity risk** accumulation indicator is mainly conditioned by the growth of interbank liabilities and the decrease of the general liquidity prudential indicator. The latter, however, above the prudentially required level.

Owing to the unchanged level of capital adequacy and profitability ratios, the consolidated indicator of **risk-absorption capacity of the financial system** didn’t change. Given the growth of risk accumulation, it is important to improve the composite indicator of risk absorption in order to enhance resilience of the banking system and the sustainability of processes in case of the actual emergence of the potential risks (See “Financial System Developments” section for details).

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

2. MACROECONOMIC DEVELOPMENTS

Armenia, being a small open economy, cannot avoid the risks from the external sector. The current level of dollarization, certain deviation from the balance of external debt and current account deficit/GDP ratio, makes the Armenian economy and financial system fairly vulnerable to adverse external sector developments and potential risks. The adverse developments relating to global growth, the prices in key commodity markets, the economic conditions in key partner countries, the external demand, etc. can be regarded as potential risk sources. These risks are monitored and assessed in terms of their impact on the financial stability of the Republic of Armenia².

2.1. DEVELOPMENTS IN THE EXTERNAL ENVIRONMENT

As a result of the spread of the pandemic and the imposed anti-pandemic restrictions, there has been a sharp decline in the global economy. The annual results indicate a deep economic decline both in the developed and developing countries. In order to mitigate the economic downturn and prevent the liquidity crisis, fiscal and monetary authorities of the countries have taken measures, which have somewhat stabilized the situation in the real sector and the financial system. The downturn in the global economy³, had in turn a negative impact on the Armenian economy, i.e. income of businesses and households and, consequently, the stability of the financial system.

According to the latest IMF estimates, the global economic downturn in 2020 reached 3.3% (See Chart 2.1). As a result of the pandemic, the annual economic downturn in 2020 was actually deeper than expected at the beginning of the year, therefore the recovery will be slower and more gradual than projected. It is expected that fiscal and monetary policies implemented in 2020 will have a positive impact on the projected 6.0% growth of the global economy in 2021.

Economic developments in the main partner countries of Armenia were not favorable either, furthermore there are uncertainties related to further developments.

In particular, the 2020 economic decline in the US is estimated at 3.5%, in the Eurozone 6%, and Russia 3.1%⁴. According to projections, Armenia's main partner countries are expected to move from a recession to a growth phase in 2021. The positive expectations for economic growth are mainly due to the effective use of vaccines, as well as fiscal and monetary policies that will be implemented. However, because of the high level of uncertainty, private spending will remain restrained longer than expected, hampering economic recovery in these countries.

The inflow of remittances to Armenia from partner countries has stalled due to the economic downturn. In addition, significant drop in exports of goods and services took place. In recent years, as private remittances have continued to diminish, their share in household income has narrowed significantly, tumbling households' exposure to risks posed by fluctuations in private remittances.

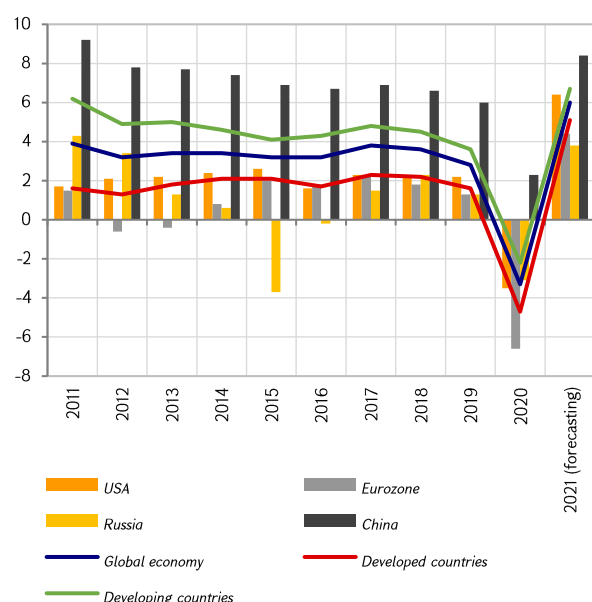
² More detailed information on the macroeconomic environment of the Republic of Armenia is provided in the report on the implementation of the Monetary Policy Program.

³ See "Inflation Report" for details:

https://www.cba.am/Storage/AM/downloads/parberakan/DVQ/Monetary%20policy_I_2021.pdf

⁴ For details see: <https://www.imf.org/en/Publications/WEO/Issues/2021/03/23/world-economic-outlook-april-2021>

Chart 2.1. Economic growth indicators by regions



Source: IMF.

Deflation trends in the main commodity markets in the first half of the year changed towards growth at the end of the year.

The impact of the pandemic in the main international commodity markets has been felt both in terms of demand and supply. The continuous fall of prices in the first half of the year was due to the drop of demand caused by the health restrictions applied on the country level, as well as the shrinkage of global economic growth.

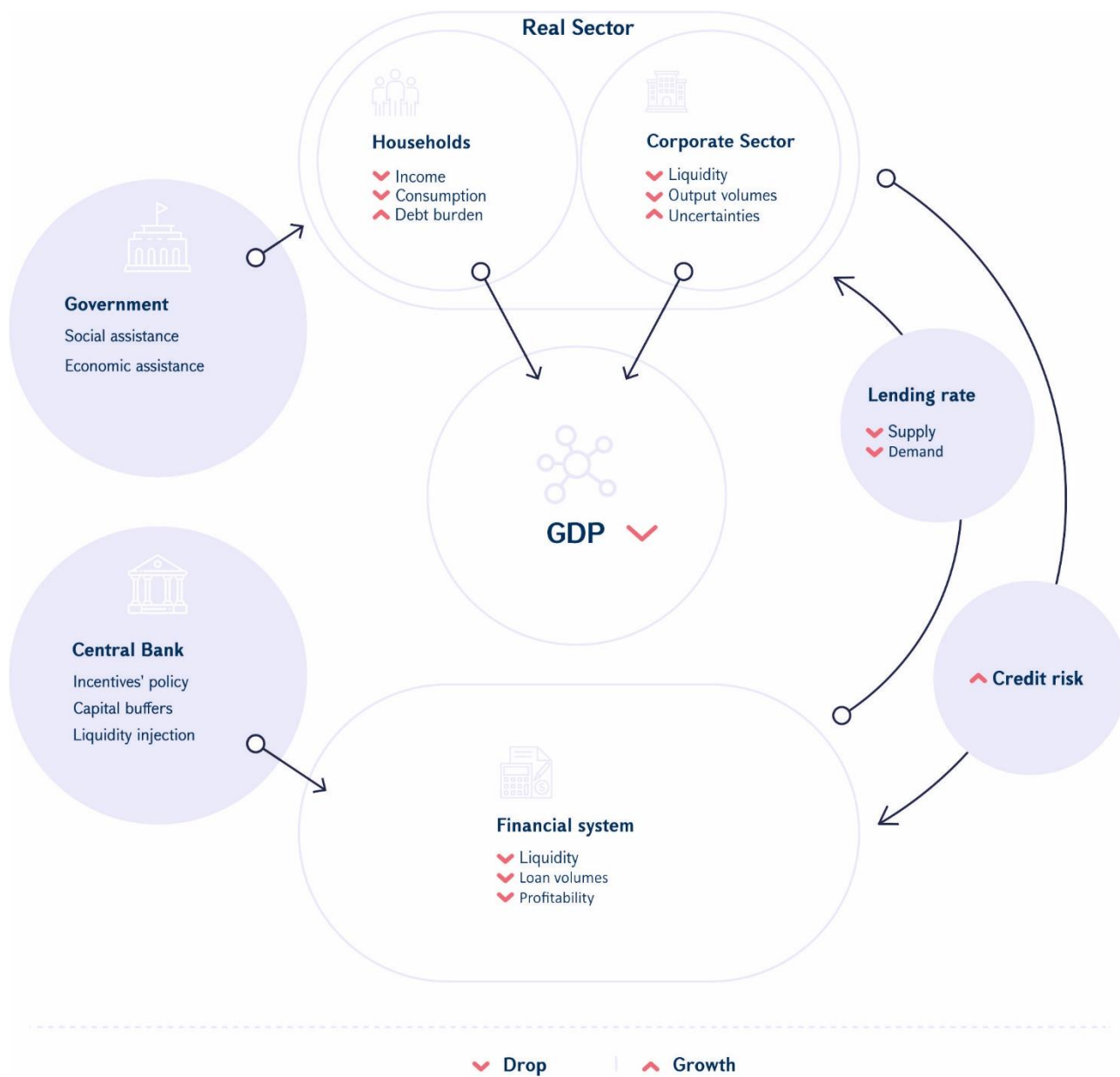
The decrease in prices in the first half of the year was followed by a certain stabilization of prices, and in the fourth quarter there an upward trend was observed, which, in addition to the recovery of global demand, was facilitated by a number of supply factors. Similar trends were recorded in terms of copper prices, which crushed in the face of the growing risks associated with China's economic growth, and recovered in the second half of the year, this time due to the recovery of Chinese demand. Copper prices promoted the growth of Armenia's exports volumes.

The drop of demand for oil amid massive flight cancellations, as well as the disagreements over the cut of supply by the OPEC+ countries, have in turn significantly reduced the international oil prices, though the latter underwent a rapid recovery in the second half of the year.

Concerning the monetary authorities' response to the crisis caused by pandemic, continuation of large-scale measures of the expansionary monetary policy, upkeeping a low interest rate environment and provision of liquidity, as well as the acquisition of assets was highlighted. In both developed and developing countries, financial conditions were at an all-time favorable level. Developed countries, will maintain these conditions in 2022, creating a favorable external environment for developing economies.

Described developments in the external sector have created significant risks for the domestic macro-financial environment of the Republic of Armenia, hence the high level of uncertainty regarding the positive expectations for further developments continues to prevail.

Chart 2.1. The impact of pandemic and policy response



2.2. DOMESTIC DEVELOPMENTS

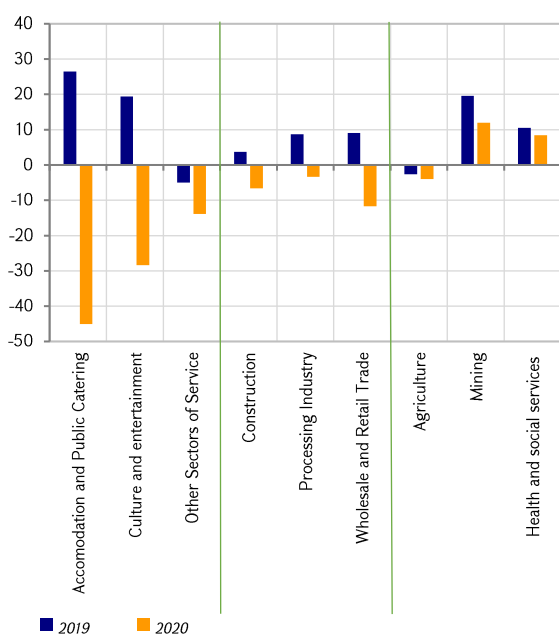
In 2020, the Armenian economy has been hit by two successive shocks, i.e. the pandemic and the martial law.

The 7.4% economic decline was mostly the result of a decline in value added of services and construction.

Given the systemic nature of the pandemic, it has had a differentiated, unequal impact on different sectors of the economy. In terms of the impact of the pandemic, the economy sectors were separated by the magnitude and straightness of exposure as follows (see Chart 2.2):

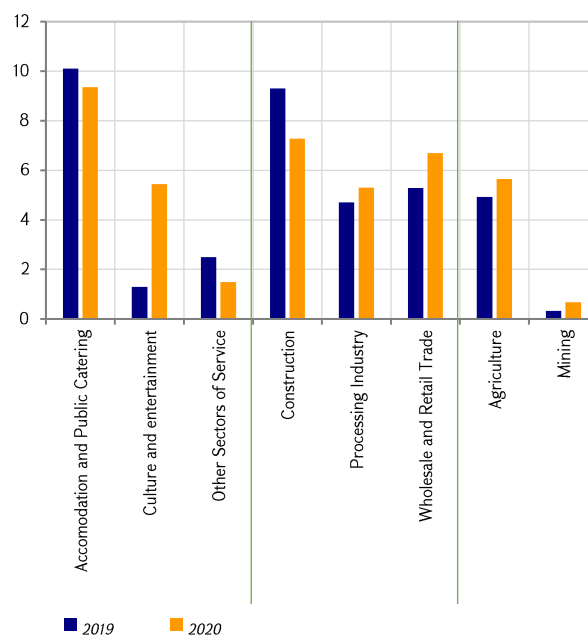
- sectors where business was disrupted because of restrictions;
- sectors that have faced demand decline because of deteriorating economic conditions,
- sectors that were less susceptible to pandemic and anti-pandemic measures.

Chart 2.2. Growth dynamics of economic sectors



Source: SCRA.

Chart 2.3. The share of non-performing loans in total loans



Source: CBA.

The negative impact of the pandemic and anti-pandemic measures has been greater and more direct in a number of areas related to the organization of accommodation and catering, as well as the organization of recreation and services. At the same time, as a result of the reduction of income and demand in the economy, construction, wholesale and retail trade, as well as the processing industry, have strongly suffered. The negative developments recorded during the year had the weakest impact on agriculture, health and mining industry.

Grouping the economy sectors by strength of exposure allows to better assess the reflection of individual sector developments on the quality of the financial system credit portfolio (see Chart 2.3).

In the credit portfolios provided to the worst affected sectors, the share of non-performing loans grew. The share of non-performing loans in credit portfolios of some sectors of the economy continued to remain at the same level or decreased slightly. The disproportionate reflection of sectoral economic downturns on the quality of credit portfolios is mainly the result of revision of credit terms and credit holidays provided by banks, which allowed them avoiding sizeable payment failures and mitigating the actual credit risks.

At the same time, due to the contraction of cash flows on business activity, the upcoming difficult economic period and the future uncertainties on the economic prospects, a further increase in the share of non-performing loans is possible. Its probability is high especially for those economic entities that have a large burden of accrued debt.

In terms of demand, contraction of private spending had a negative impact on annual economic growth, which, given the current uncertainties, will not recover quickly in the coming year either.

The pandemic, and the high level of uncertainty caused by the military conflict at the end of the year had a negative impact on lending too. While lending was growing during the year, current developments indicate a high probability of a decrease in the new lending volumes.

In case the above tendencies persist, other things being equal, this will incur rapid recovery of economic growth. In this context, according to CBA projections, real economic growth in 2021 will total around 1.4%⁵.

During the year, contraction of exports and imports were recorded both.

Amid the declining external demand and drop of prices for raw materials, a decrease in the volume of exports of goods and services was observed, which, to some extent, moderated in the second half of the year. Annual real exports fell by 3.9%. The decline in consumption and investment demand led to a stronger decline of imports compared to exports (around 17.7%).

Because of the economic downturn and migration restrictions in the partner countries, net remittances to Armenia dropped by 12.3% y/y.

As a result of these developments, the current account deficit has narrowed compared to the previous year, amounting to 3.1% of GDP, and now it is at a historically low level. It is noteworthy that net exports had positive contribution on real economic growth.

Measures to mitigate economic consequences of the pandemic have led to higher public debt, limiting the government's ability to support economic growth in the future.

In the face of the health crisis, a number of support measures have been initiated by the government with the view to mitigating economic impacts of the shock and enhance further economic recovery. As a result of financing these measures, the public debt grew by 18.6% and amounted to 67.4% of GDP (compared to 53.5% in 2019). The growth of public debt confines the possibility of continued government support in the event of a prolongation of the health crisis, at the same time, given that the bulk of public debt is in foreign exchange, depreciation of dram will fuel public debt service costs further.

2.3. HOUSEHOLD DEBT AND RISKS

Anti-pandemic measures and unfavorable macroeconomic developments have had a negative impact on household employment and incomes, exacerbating their financial exposure and debt service difficulties. Government support programs and credit holidays have been a temporary solution in terms of household liquidity management, but debt burden losses may materialize over the next year.

⁵ See "Inflation Report" for details:
https://www.cba.am/Storage/AM/downloads/parberakan/DVQ/Monetary%20policy_I_2021.pdf

Chart 2.4. Structure of household liabilities

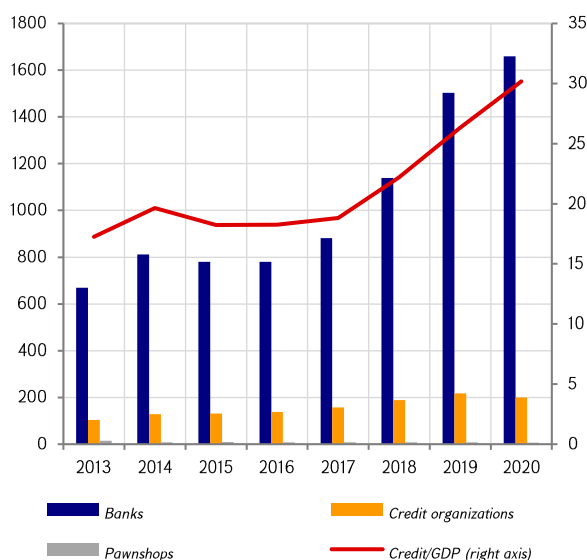
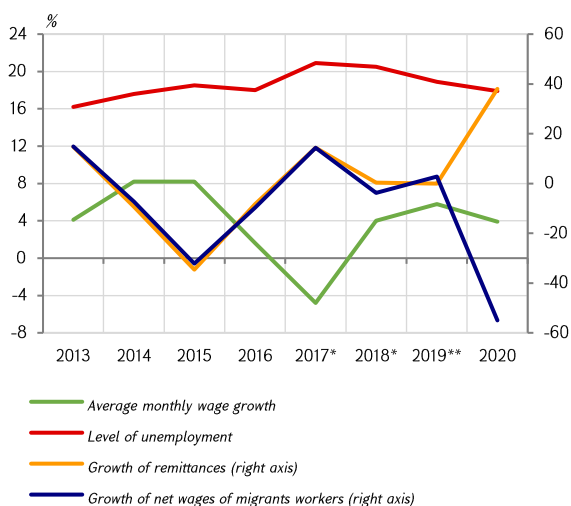


Chart 2.5. Changes in remittances, migrant workers' remuneration, wages and unemployment



* 2018 Since January 2010, the Statistical Committee of the Republic of Armenia has reviewed the methodology of labor market statistics, within the framework of which the values of a number of indicators have been changed. According to the last updates, the average nominal salary refers to entities with more than 1 employee.

Source: Central Bank of Armenia, Statistical Committee.

Given the non-homogeneous nature of the economic problems caused by the spread of the pandemic, along with the policy of stimulating aggregate demand, targeted assistance to vulnerable households was crucial, since it was contributing to the sustainability of household incomes. Combined with government measures⁶, credit relief measures by the financial system helped temporarily mitigate the risks of declining household incomes and defer potential credit losses (see Charts 2.4 and 2.11). During the year, credit organizations provided credit holidays or revised loans of about 550,000 borrowers with a principal amount of AMD 682 billion. The credit relief measure were applied to around 960 thousand loans, in terms of which around AMD 45.1 billion repayment was restructured.

In the first half of the year, economic downturn observed mainly in the tourism and services sectors (direct impact of the pandemic), whereas in the second half of the year, the problems expanded over almost all sectors of the economy (see Chart 2.5). Measures to prevent the rapid spread of the pandemic have had a negative impact on employment. In some cases, instead of firing employees, the employers offered switching to part-time employment, as a result of which economic activity plummeted (see Charts 2.6, 2.7)⁷. Household support measures, part-time employment schemes, and state support for employers have somewhat alleviated the decline of employment and incomes. Under the implemented economic policy, the unemployment rate remained almost the same (17.9%)⁸, and wages have grown by 3.9%. Wage growth⁹ was recorded in both private (3%) and public (5.3%) sectors.

⁶ See Box 2.1.

⁷ In 2021, the Central Bank of Armenia conducted a study on "The Impact of the COVID-19 pandemic on the economic activities of non-financial organizations" among 458 heads of non-financial organizations, who assessed the impact of COVID-19 and military conflict on the economic activities of their organizations in July-December 2020.

⁸ Unemployment data are preliminary (calculated on a quarterly basis) as a result of surveys conducted by the SCRA, which may contain some deviations during this year due to the complexity of conducting surveys as a result of the pandemic and military conflict.

⁹ Source: SCRA

Chart 2.6. Number of employees after the emergency situation

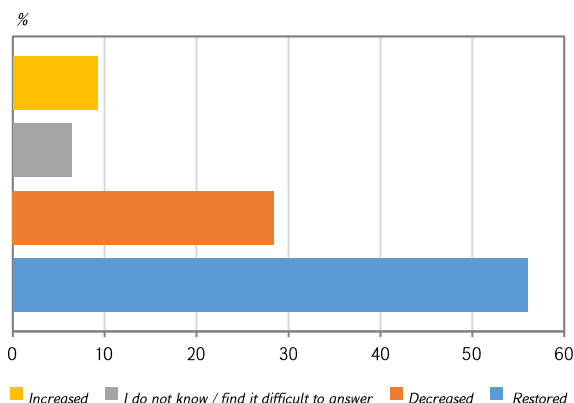
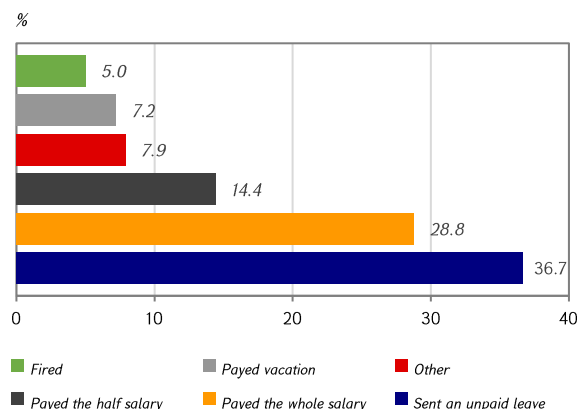


Chart 2.7. Status that the employers gave to the employees during the mandatory leave



In the face of declining household incomes, as well as persisting uncertainty about the economic outlook, financial institutions have revised their risk appetite by adopting more conservative lending conditions. Growth rate of loans to households slowed down particularly in the second half of the year, amounting to 8.1% year-on-year (compared to 29.6% in 2019) (see Chart 2.8). As a result of the decline in household incomes, consumer loans shrank. Mortgage loans significantly contributed to the growth of lending the households, the response of which to adverse changes in the economic environment and expectations was not so quick. In 2020, the growth of mortgage loans slowed down as well.

Consumer loans in 2020 shrank by about 1% (y/y), compared to about 30% growth in the previous year. According to a survey conducted by the Central Bank of Armenia¹⁰, preference was given to customers with high creditworthiness and consumer loans with higher security (consumer loans secured by gold and cash,) for which the credit demand was fully covered. In this case, if we ignore provision of these types of loans, compared to the previous year, the number of approved applications within the total demand for consumer loans dropped by about 13 percentage points by the end of the year.

Mortgage loans grew by 31.5% (y/y, as of the end of 2020, compared to 37.1% in the previous year), mainly due to the growth of mortgage loans for real estate acquired on primary market.

Chart 2.8. Mortgage-consumer loan portfolio of banks and credit organizations

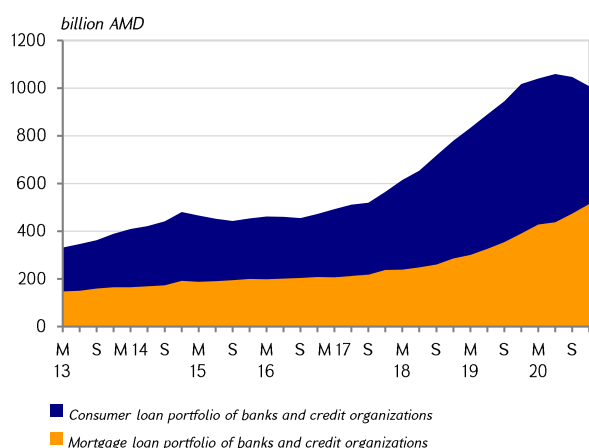
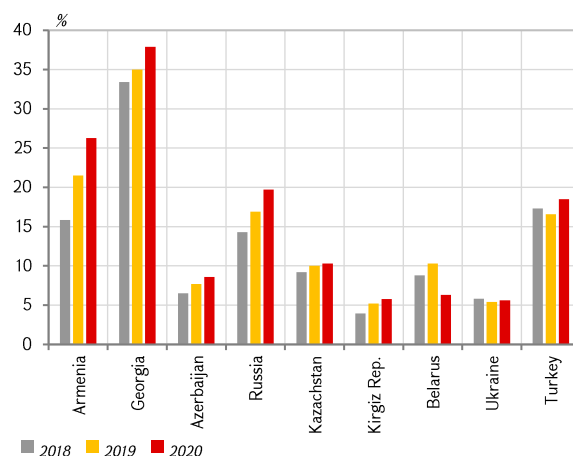


Chart 2.9. Household loans/GDP



Source: Central Bank of Armenia.

¹⁰ The non-performing loans of households were calculated as a share of non-performing consumer and mortgage loans (AMD or foreign exchange) in the total amount of loans provided to the households by banks and credit organizations.

A number of government programs continue to support the growth of mortgage lending (see section “Real Estate Market Trends and Risks”). The ongoing growth of mortgage loans is partly conditioned by the approval of mortgage loans before the pandemic that were actually disbursed after the spread of the pandemic.

Amid the economic downturn and credit growth in 2020, the household loan¹¹-to-GDP ratio grew to 30.2% (compared to 26.3% in 2019) (see Chart 2.9). This indicator is growing at a steady pace and is quite high compared to the median of the countries in the region, second only to Georgia. In case of further decline in employment and income, household debt service ability may deteriorate. In recent years, declining interest rates on loans and the higher maturity of loans (all other things being equal) have somewhat eased the debt service burden of households, contributing to the stable demand for these loans (see Chart 2.10). If the current trends of tightened lending conditions continue, lending is expected to decrease, leading to a moderate growth of the debt burden.

According to the results of a survey conducted by the Central Bank of Armenia in financial institutions in the fourth quarter of 2020¹², lending conditions for individuals have been tightened, and the demand continued to decline. In particular, the actual demand for consumer loans has decreased dramatically, the main reasons being the decrease in customer incomes, the deepening/growth of consumer lending risks and the uncertainty about the future. The contraction of supply was conditioned by more restrictive lending terms, and the suspension of certain types of loans. In particular, as a result of a significant deterioration in the quality of the credit portfolio (mainly in the foreign exchange portfolio), creditworthiness assessment terms for consumer loans were tightened. Higher costs of the attracted resources and around 16 percentage point drop in deposits/resources attracted by the banking system had a negative impact on the supply as well.

Chart 2.10. Interest rates on loans to households

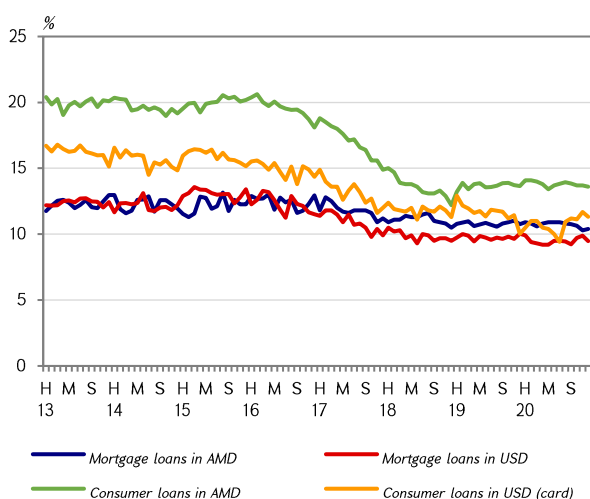
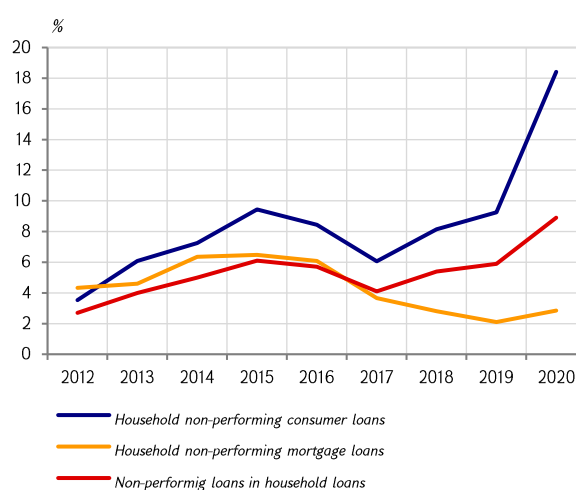


Chart 2.11. Dynamics of household non-performing loans



Source: Central Bank of Armenia.

The growth in the share of non-performing loans reflects an increase in the credit risk of the households. By the end of the year, the non-performing loans to households¹³ almost doubled reaching 8.9% (compared to 5.9% in 2019) (see Chart 2.11). Along with the decrease in the growth rate of consumer loans,

¹¹ Household loans include mortgage and consumer loans provided by commercial banks and credit organizations to resident households.

¹² The Central Bank of the Republic of Armenia conducts quarterly surveys of banks, credit organizations, insurance companies, investment companies, investment fund managers on the variables of different sectors of the economy in order to identify their expectations and take them into account during implementation of the policy.

¹³ Source: quarterly survey conducted by the Central Bank of Armenia in QIV, 2020 "Terms of Loans Provided by Banks and Credit Organizations".

compared to the previous year, the share of non-performing consumer loans grew strongly to 18.4%. It is noteworthy that the share of non-performing mortgage loans compared to other types of loans is still very modest, amounting to 2.9% by the end of the year.

Given the recent years' high growth of household lending compared to their income, the likelihood of household debt service risks materialization and higher losses of financial institutions in the coming years is augmented. However, if household consumption decreases, the resulting savings can be used to repay loans, thus alleviating the debt service.

Household deposits grew at a slower pace than liabilities, contributing to the growth of their debt leverage (see Chart 2.12). By the end of the year, the volume of deposits of resident households grew by 7.9% y/y, and its ratio to GDP reached 26.9%. At the same time, the share of dram deposits in total deposits continued to grow and at the end of the year reached about 50%¹⁴.

Chart 2.12. Household deposits

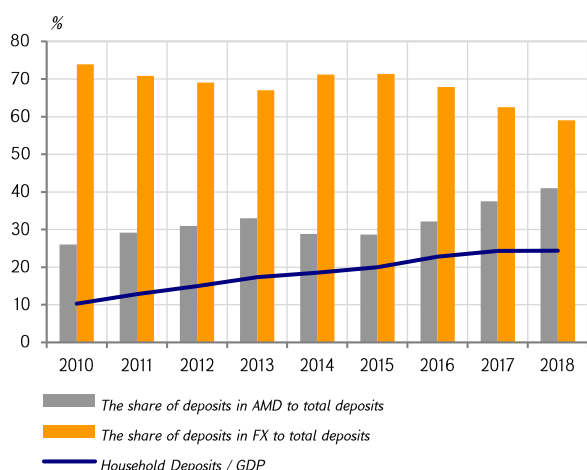
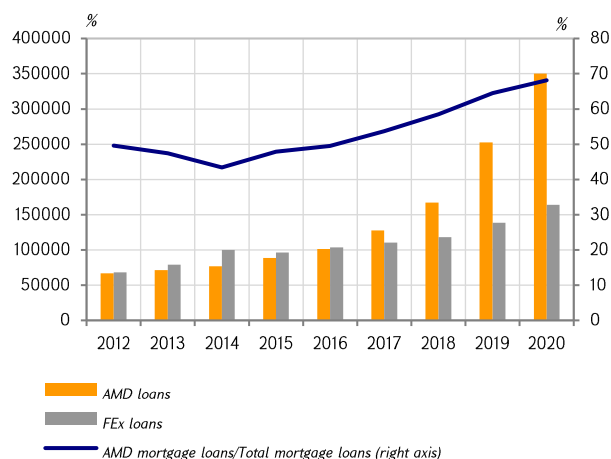


Chart 2.13. Currency structure of mortgage loans



Source: Central Bank of Armenia.

In recent years, a monetization trend of both household savings and loans was observed, which is positive in terms of mitigating foreign exchange risk. It should be noted that according to the RA legislation¹⁵, consumer loans must be provided in the national currency, and in general the growth of mortgage loans contributed to monetization (see Chart 2.13). The share of AMD mortgage loans within total mortgage loans was 68.1%, rising by 3.5 percentage points over the previous year.

Households are generally viewed as non-hedged foreign exchange risk borrowers, since the share of national currency prevails in their income¹⁶. The presence of foreign exchange loans in the household debt makes the households vulnerable to the higher levels of debt entailed by exchange rate fluctuations and the risks thereon. The recent year's trend of de-dollarization of loans has had a positive impact on the overall balance of the household risks, contributing to the decrease in the risk entailed by the exchange rate fluctuations.

In the context of the growing debt burden of households, the Central Bank of Armenia has initiated a number of measures aimed at promoting responsible lending to individuals, introducing prudential tools for banks, as well as consumer protection and financial education (See Box 3.1 for details).

¹⁴ Includes deposits of resident households.

¹⁵ RA Laws on Currency Regulation, Currency Control, and on Consumer Lending.

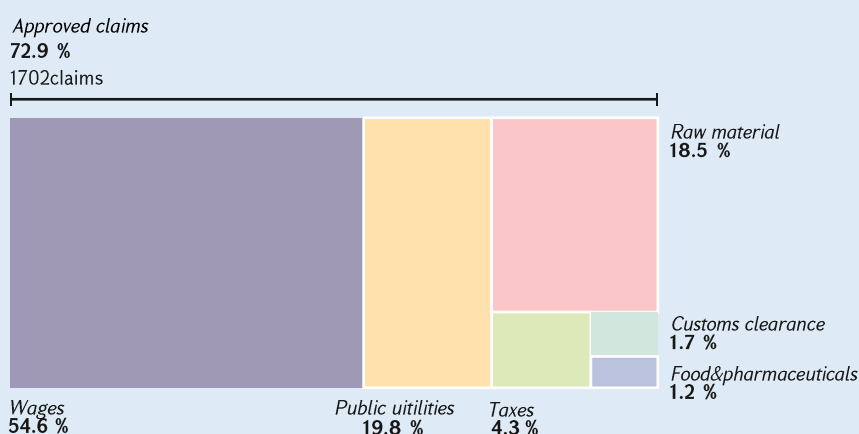
¹⁶ According to the SCRA 2019 Social Snapshot and Poverty in Armenia Report, in 2018, 95.1% of the average monthly nominal income per capita was denominated in AMD. This indicator has been constantly growing in the last three years.

Box 2.1

Support Programs of the Government of the Republic of Armenia aimed at mitigating the consequences of COVID-19 through targeted lending

In March 2020, the Government of the Republic of Armenia approved the Coronavirus Response Program. The main goal of the measures included in the program is to enhance mitigating the current liquidity risks entailed by the spread of the coronavirus, in order to help those who have lost their jobs, provide social assistance to vulnerable groups and to alleviate other socio-economic costs. In terms of overcoming the challenges, the programs were divided into two groups, i.e. those aimed at mitigating either the economic or social consequences, with the total volume of financial resources provided during the year reaching 3.2% of GDP. In total, the Government has developed more than two dozen measures, and banks have been particularly actively involved in the implementation of the first and the second measures aimed at neutralizing the economic impacts of pandemic.

Chart 1. Lending objectives under the first assistance program by weights



- **The goal of the first program aimed at neutralizing the economic impacts of coronavirus** was to support individual businesses in Armenia to resist the current liquidity risks associated with the projected spread of the pandemic.

Chart 2. Lending types under the first assistance program by weights

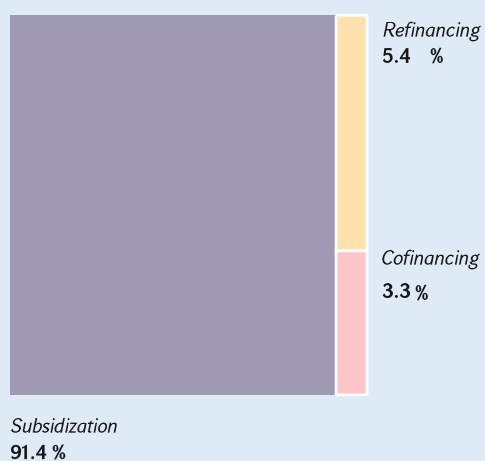
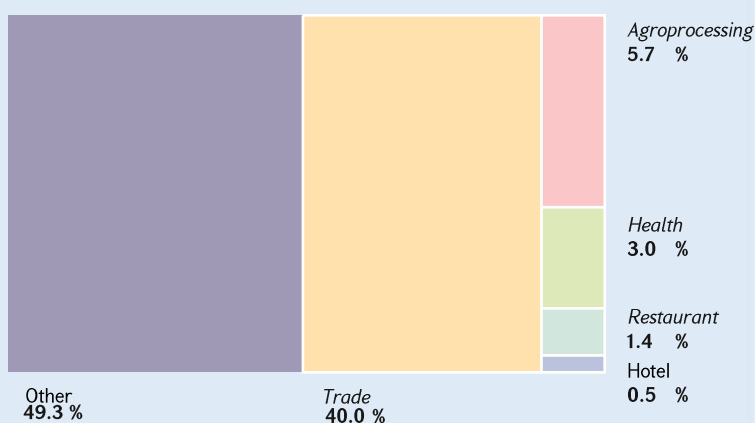


Chart 3. Lending sectors under the first assistance program by weights



Source: Central Bank of Armenia.

Figure 1. Summary of the first program to neutralize the economic consequences of coronavirus¹⁷

Within the framework of the first measure of assistance of the Government of the Republic of Armenia 1,702 applications (72.9%) were approved. The approved applications were mainly directed to the payment of taxes, salaries, purchase of raw materials (54.6%, 19.8% and 18.5% respectively) (see Figure 1).

For the majority of the approved applications (91.4%), subsidy was used as a support tool, which amounted to about AMD 92.4 billion. Among the support tools, refinancing and co-financing amounted to AMD 5.4 and 3.3 billion, respectively (see Figure 2).

The total amount of assistance provided by credit institutions amounted to AMD 101.1 billion. The share of the approved **applications for capital replenishment tool** was small, with funding of about AMD 20 billion. The loans were directed mainly to manufacturing, trade and agriculture sectors (see Figure 3).

Within the framework of financial assistance, AMD 40.5 billion was allocated to the trade sector, AMD 5.8 billion to agriculture. The largest amount of financing was allocated to Other Sectors (IT, construction, textiles), about AMD 50 billion (50.2% of total approved applications).

The assistance is provided through co-financing, refinancing and interest rate subsidies for loans provided by banks and credit organizations. More than one loan application is possible per business entity, regardless of the distribution of goals (within the maximum loan amount it can be used more than once and, in each case, should be considered as a separate application).

Table 1. Main anti-crisis policy measures

Country	Wage subsidies	Grants	Debt moratorium	Guarantees
Austria	✓	✓	✓	✓
Czech Republic	✓	✓	✓	✓
Latvia	✓	✓		✓
Slovenia	✓	✓	✓	✓
Slovakia	✓		✓	✓
Germany	✓	✓	✓	✓
France	✓	✓	✓	✓
Belgium	✓	✓	✓	✓
Bulgaria	✓	✓	✓	✓
Hungary	✓	✓	✓	✓
Romania	✓		✓	✓
Turkey	✓		✓	✓
Georgia	✓	✓	✓	✓
Serbia	✓		✓	✓
Russian Federation	✓	✓		✓
Ukraine	✓			✓
Republic of Armenia	✓		✓	

Central Banks, Financial Stability Authorities, IMF

¹⁷ The data used in the box is as of 23.04.2021.

- **The second program to neutralize the economic effects of the coronavirus¹⁸** is to support individual businesses in the agricultural sector to mitigate the projected current liquidity risks associated with pandemic. Assistance is provided through co-financing of targeted loans received from credit institutions and (or) loan/leasing interest rate subsidies.

Figure 2. Summary of the second program to neutralize the economic consequences of coronavirus¹⁹

Within the framework of the second measure of assistance of the Government of the Republic of Armenia, 35,357 applications (56.5%) were approved. 76.5% of the approved applications were seeking financial support in the form of agricultural micro-loans (up to 1 million AMD).

The total amount of assistance provided by credit institutions amounted to AMD 71.5 billion, of which about AMD 21.8 billion were agricultural micro-loans. In general, within the framework of the second measure, 45.8% of the total volume of submitted loan applications were approved.

Thus, within the first and second programs to neutralize the economic impacts of the coronavirus, about 57.1% of the submitted loan applications were approved, with the total volume of loans amounting to AMD 172.6 billion.

Table 2. Other anti-crisis policy measures

Country	Deferment of taxes until 2021	Tax reduction/relief	Employment protection schemes	Programs for the unemployed
Austria			✓	✓
Czech Republic		✓	✓	
Latvia				
Slovenia	✓			
Slovakia	✓		✓	
Germany		✓	✓	
France		✓	✓	✓
Belgium		✓	✓	✓
Bulgaria	✓		✓	
Hungary		✓	✓	
Romania			✓	
Turkey				
Georgia	✓	✓		
Serbia	✓			
Russian Federation	✓	✓	✓	✓
Ukraine			✓	✓
Republic of Armenia			✓	✓

Central Banks, Financial Stability Authorities, IMF

In order to neutralize the economic consequences caused by the pandemic, policy makers in a number of countries have pro-actively launched fiscal, monetary and macroprudential policy toolkits. In some countries, budget revisions, creation of special extra-budgetary funds for contingencies, etc. took place. The main measures taken by countries are presented in more detail in Tables 1, 2 and 3 (See Box 5.1 on monetary and financial stability measures to mitigate the financial and economic impacts of the pandemic).

¹⁸ From January 1, 2021, the second program to neutralize the economic effects of the coronavirus was suspended.

¹⁹ The data used in the box is as of 23.04.2021.

Table 3. Other anti-crisis policy measures

Country	Capital investments	Interest rate subsidy	Lending
Austria			✓
Czech Republic			✓
Latvia	✓		✓
Slovenia			✓
Slovakia		✓	✓
Germany	✓		✓
France	✓		✓
Belgium			✓
Bulgaria	✓		✓
Hungary	✓		✓
Romania			✓
Turkey	✓		✓
Georgia	✓		
Serbia			✓
Russian Federation		✓	✓
Ukraine		✓	✓
Republic of Armenia	✓	✓	✓

Central Banks, Financial Stability Authorities, IMF

2.4. REAL ESTATE MARKET DEVELOPMENTS AND RISKS

Vulnerability of financial stability to fluctuations in real estate prices is mainly viewed in terms of construction lending and real estate mortgage loans and materialization risks relating to change in collateral value. Sharp fluctuations in real estate supply/demand, and thereby, sharp price variations, can harm banks' asset quality, generating risks and challenging financial stability.

Due to the decline of business activity and lower incomes in the economy, the high growth of prices in the real estate market of the Republic of Armenia in recent years has started to slow down in 2020. The reason for the slower price growth is the decline in demand resulting from the uncertainties regarding the economic developments.

Compared to the previous year, there was a decrease in activity in the real estate market, reflected in a 14.7% drop of total transactions. The drop of apartment sales of in the multi-apartment residential buildings was even deeper (27.6%) (see Chart 2.14). Along with the quantitative drop, prices of the apartments shrank (see Chart 2.15). In particular, the sharp growth of apartment prices in Yerevan multi-apartment buildings²⁰ (15.5% at the end of the year), which began in 2019, continued till March 2020, after which prices plummeted down to 3.9% by the end of the year. The drop of apartment prices in multi-apartment buildings has been restrained by the high growth of mortgage loans. Despite the fact that the risks associated with the decline of real estate prices in 2020 did not materialize and were insignificant in terms of endangering the financial stability, the latter may

²⁰ As there is no single index of real estate average prices in Armenia, the real estate price developments are approximated by the average price index of apartments in Yerevan.

still emerge in the coming year. In the commercial real estate market, there was a growth of demand at an all-time high level. Such a growth of demand has evidently affected the prices (see Box 2.2 “Real Estate Market Developments in the Context of Structural Cycles”).

Chart 2.14. Annual average change of general transactions in the RA real estate market

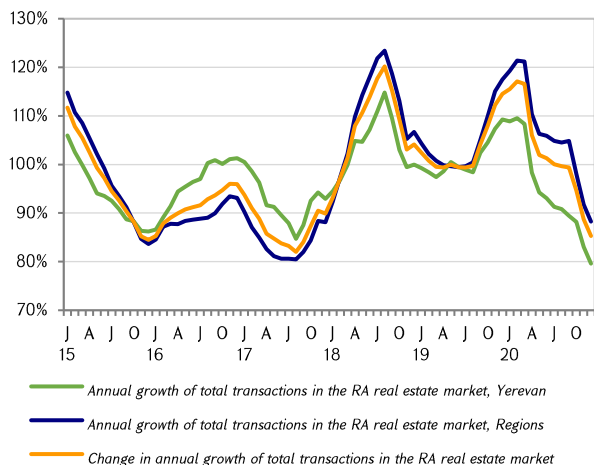
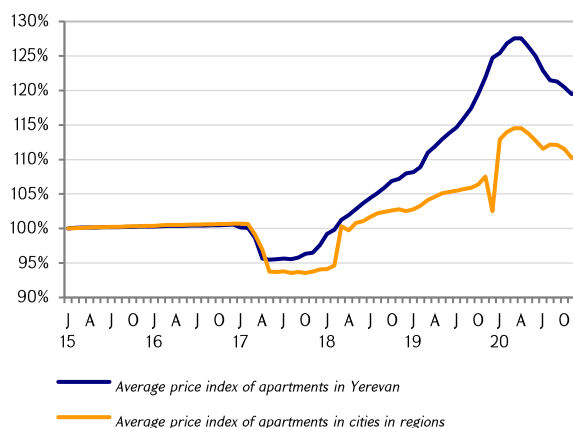


Chart 2.15. Change in the average housing price index in Yerevan and cities of the regions



Source: Central Bank of Armenia.

Despite the economic downturn, the growth trend of mortgage lending continued during the year. In recent years, the growth of demand and supply for real estate is strongly driven by the existing mechanism of income tax refund in the amount of mortgage loan interest and the ongoing government refinancing programs²¹. These programs increase the availability and affordability of mortgage lending, not only simplifying lending terms, but also significantly reducing the current debt service burden (especially in the early years of the loan). During the year, the volume of mortgage loans provided by banks and credit organizations²² grew by 33.0% (the number grew by 16.1%), and the volume of loans for the construction of residential and non-residential buildings by 41.5% (see Charts 2.16 and 2.17). Given the economic decline and the contraction of income, the trends of real estate price drop have been somewhat subdued, as the high growth of mortgage lending continued.

Chart 2.16. Change in real estate mortgage loans

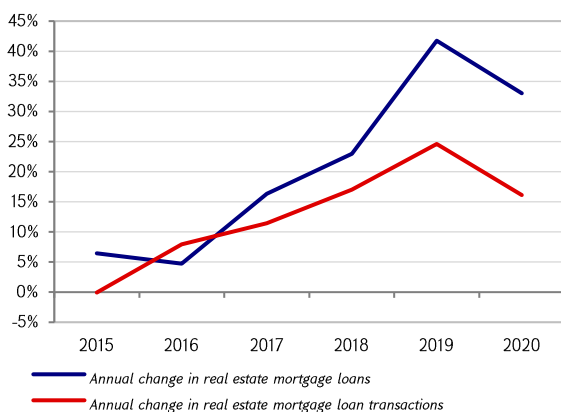
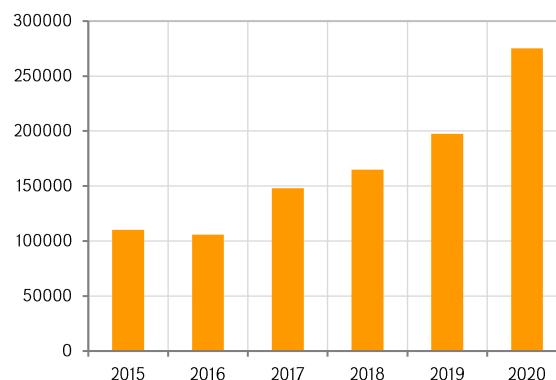


Chart 2.17. Volumes of loans provided by banks and credit organizations to the construction sector



Source: Central Bank of Armenia.

²¹ In January 2015, the amendments to the RA Law on Income Tax came into force, and the 2020-2023 state housing support programs for families with children have been in force since June 2020.

²² Mortgage loans include the aggregate amount of real estate acquisition, renovation and construction mortgage loans.

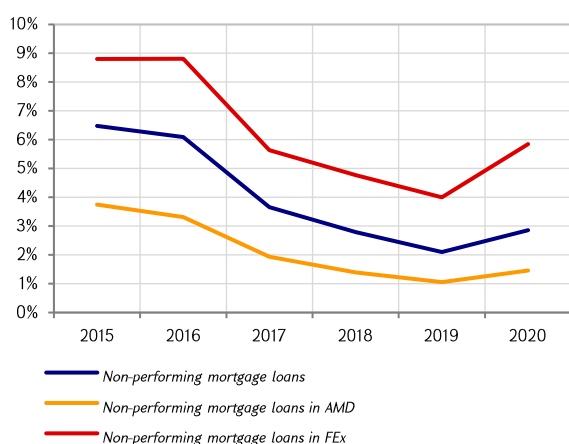
During the year, the quality of mortgage loans was deteriorating. While compared to the previous year, the share of non-performing mortgage loans rose steeply, given the high growth of mortgage lending, the share of non-performing mortgage loans was creeping within 2.9% range (see Chart 2.18).

With the view to effectively addressing the hazardous developments in the real estate market, the Central Bank of Armenia is monitoring loan-to-value ratio trends, working on its introduction (see Box 5.2 Loan-to-Value Ratio Analysis Based on Credit Register Microdata).

Armenia, in the context of the expected decline in prices, expectations of a demand decline in the real estate market were formed, conditioned by the postponed decisions of clients to purchase housing in the face of uncertainty. The survey showed that lending terms relating to assessment criteria of credit institutions on collateral demand and borrowers' creditworthiness are expected to tighten.

During the year, the downward trend in the real estate market was reflected in the decline of the number of sale transactions, accompanied by a drop in the real estate prices.

Chart 2.18. Dynamics of non-performing mortgage loans



Source: Central Bank of Armenia.

Box 2.2

Real Estate Market Developments in the Context of Structural Cycles

The real estate market plays a special role in the asset market. The change in its prices affects consumption as well as the overall aggregate demand through various chains, including the chain of direct expenditures of real estate²³, the wealth effect²⁴, the chain of balance²⁵, and so on. The essence of the first chain is that the growth in real estate prices directly leads to a growth in the real estate supply, as it becomes increasingly profitable to build real estate. The wealth effect assumes that when real estate prices rise, home owners feel richer, therefore the demand for real estate is growing. In terms of balance chain, real estate is used as collateral, and rising prices lead to a greater ability to borrow, hence an increase in debt. The latter is especially important in the context of financial stability.

²³ Frederic S. Mishkin, 2001. "The Transmission Mechanism and the Role of Asset Prices in Monetary Policy," NBER Working Papers 8617, National Bureau of Economic Research, Inc.

²⁴ Campbell, John Y. & Cocco, Joao F., 2007. "How do house prices affect consumption? Evidence from micro data," Journal of Monetary Economics, Elsevier, vol. 54(3), pages 591-621, April

²⁵ Ben Bernanke & Mark Gertler, 2000. "Monetary Policy and Asset Price Volatility," NBER Working Papers 7559, National Bureau of Economic Research, Inc.

Therefore, from the point of view of macro-financial stability, it is very important to assess the cyclical developments and the current position of the real estate market. To this end, we will review the structural model developed and used in the Central Bank, which also expands on the real estate market²⁶. The number of real estates in the model is considered constant and is divided into two parts, used for personal and commercial purposes. Households use private real estate for housing, while commercial ones are rented and income is earned. The main subjects of the model are households, firms and the central bank. Households maximize their utility function through budget and debt constraint:

$$E_t \sum_{j=0}^{\infty} \beta^j \left(d_{t+j} \ln X_{t+j} + j_{t+j} \ln H_{t+j}^c - \frac{N_{t+j}^{1+\varphi}}{1+\varphi} \right) \longrightarrow \max$$

where: j_{t+j} is a propensity to keep real estate for commercial purposes; H_{t+j}^c is the real estate used for commercial purposes; and β , d_t , X_t , N_t , φ are other structural variables and parameters.

Household debt limit is as follows:

$$B_t \leq \frac{mQ_{t+1}P_{t+1}H_t^c}{R_t}$$

It assumes that the amount of household debt cannot exceed the expected value of real estate.

Firms use the Cobb-Douglas production function to produce goods and services, and lease labor and commercial real estate as resources.

$$Y_t = A_t(N_t Z_t)^\alpha (H_{t-1}^c)^{1-\alpha}$$

The model was applied to the Armenian economy using 2002-2020 time series. The appraisal results in a cycle of propensity for commercial real estate (see Chart 1). As one can see from the Chart, the propensity to keep real estate for commercial purposes was high in Armenia in 2002-2008 (before Global Financial and Economic Crisis) and beginning from 2016-2017. The last propensity growth cycle is partly conditioned by the Income Tax Refund Law adopted in 2015, triggering the motivation (incentive) to purchase real estate with a mortgage loan. Subsequently, many people buy second or third real estate and rent it out, earning income. Note that this propensity is currently at its historical maximum.

Chart 1. Preference for commercial real estate

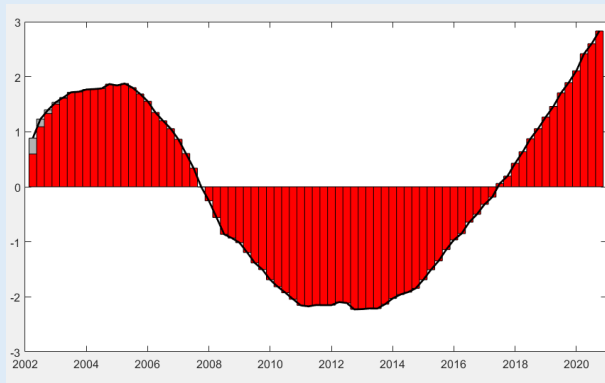
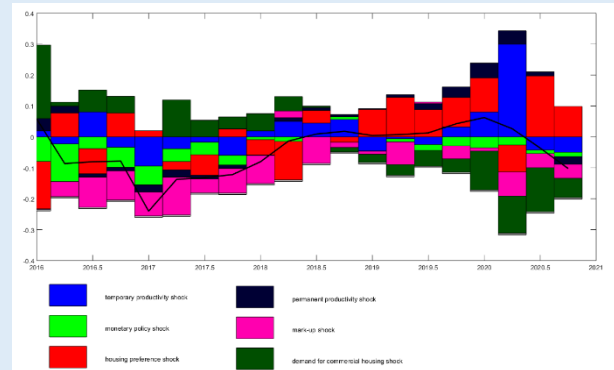


Chart 2. Nominal prices of real estate



The cyclical developments of propensities in the real estate market apparently affect real estate prices as well. Figure 2 shows the annual growth rate of real estate prices compared to the average growth rate in 2002-2020. As the Chart shows, between the third quarter of 2018 and the second quarter of 2020, real estate prices remained above average, mainly due to the propensity growth factor presented above. On the other hand, the growth in real estate prices and the resulting growth in rental fees has led to a certain decrease in demand for real estate, which negatively contributed to the formation of prices. Under the impact of coronavirus shock, economic activity and productivity in 2020 plummeted, affecting negatively real estate prices from the second half of 2020.

Finally, the demand for commercial real estate is still at historically high levels, contributing positively to the formation of prices, while the prevailing factor of weak demand shaped under the adverse economic shocks leads to downward adjustment of prices.

²⁶ For additional details concerning the model see Haykaz Igityan & Hasmik Kartashyan, 2021 "Housing Market Drivers and Dynamics in Armenia", Central Bank of Armenia, Working Paper 21/1/08, https://www.cba.am/EN/panalyticalmaterialsresearches/Housing_Model.pdf

3. DEVELOPMENTS IN THE FINANCIAL SECTOR

3.1. DEVELOPMENTS IN THE DOMESTIC FINANCIAL MARKET

As a result of the high level of uncertainty in the early stages of the spread of the pandemic and the preventive health measures, financial market underwent pressures that were associated with the dram depreciation and the growth of government bond yields, which, however, were mitigated in a short time. However, the declared martial law caused additional uncertainties related to economic developments, hence at the end of the year dram depreciation and government bond yield growth pressures resumed.

During the year, developments in financial markets reflected the expansionary monetary policy of the Central Bank. The Central Bank injected the necessary liquidity in Armenian drams through its repo instrument, promoting formation of short-term market interest rates around its policy interest rate. Because of the uncertainty over further developments amid the anti-pandemic health and economic restrictions, banks' demand for liquidity grew in the first quarter, and was effectively covered by the Central Bank of Armenia by keeping interbank interest rates close to the target level (see Chart 3.1).

Chart 3.1. Repo agreements with the Central Bank of Armenia and interest rates

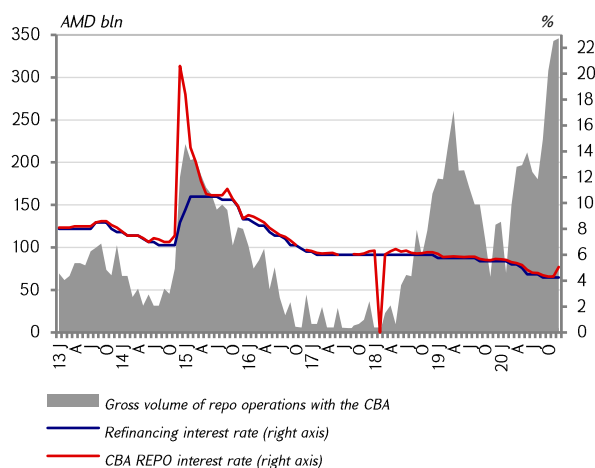
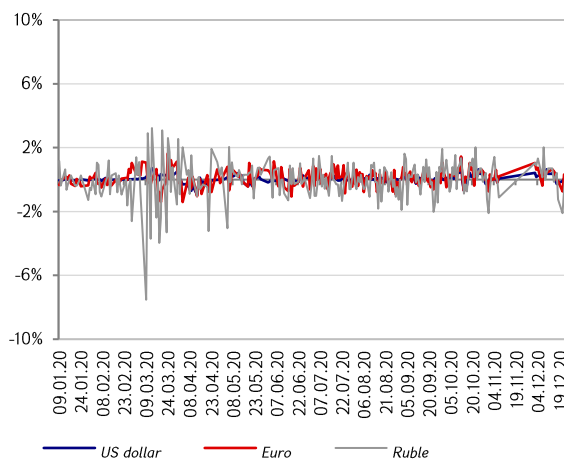


Chart 3.2. Relative change of exchange rates of US dollar, euro and ruble since the beginning of the year



Source: Central Bank of Armenia.

During the year, the CBA continuously lowered refinancing rate by 1.25 percentage point to 4.25%²⁷, and at the end of the year raised its policy interest rate by 1 percentage point in response to the anticipated inflationary effects from the external sector, the growth of the country's risk premium and the existing uncertainties. Compared to December 2019, the interbank repo interest rate decreased by 0.5 percentage points and amounted to 5.03%.

During the war and the period of risks that followed the relatively stable period, a growth in the country's risk premium was recorded in the international capital markets. However, in the final months of the year, the country's risk premium has significantly dropped, easing Armenia's access to international financial markets on favorable terms²⁸.

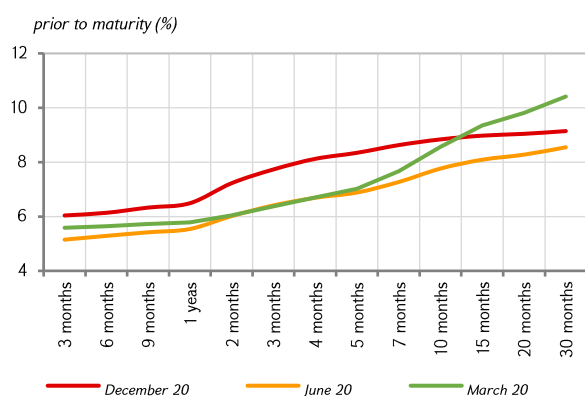
²⁷ On April 4, 2021, refinancing rate was raised to 6.0%.

²⁸ In January 2021, the Republic of Armenia issued \$ 750 million worth of foreign exchange government bonds (Eurobonds) in the international capital market at an unprecedented low yield rate of 3.875%.

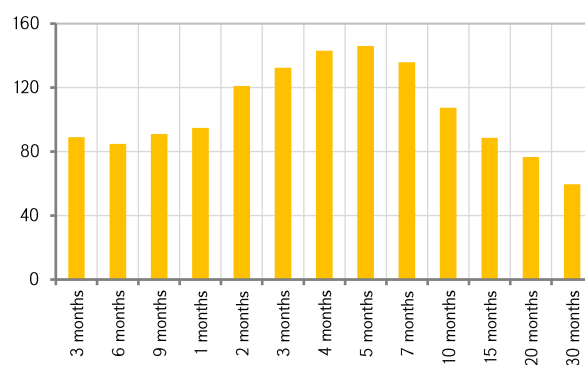
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The events of the year were also reflected in the changes of the yield on government bonds. In particular, at the end of the first quarter, the yield on government bonds grew, which was especially noticeable in the medium-term and long-term segments of the yield curve, and weaker in the short-term segment. In the second and third quarters, the CBA continued to expand its policy and the resulting mitigation of uncertainties in the financial market led to a significant decrease in government bond interest rates. Under the impact of the increased country's risk premium amid the accumulated risks in the economy, in the last months of the year an increase in the yield on the government bond market along the entire curve from short-term to long-term segment was recorded.

Chart 3.3. Yield curve and curve changes (base point)



December to June



Source: Central Bank of Armenia.

Developments in the currency market were shaped by the economic situation. In the second and fourth quarters of the year, a short-term high demand for liquidity in the foreign exchange market was recorded, which was also reflected in the formation of dram depreciation pressures. In a response to these situations, the Central Bank of Armenia used a currency swap instrument, buying and selling US dollars. The CBA provided foreign exchange liquidity with these tools, ensuring sustainability of financial markets.

At the end of the year, Armenian financial market underwent depreciation pressures because of the growing uncertainties amid the economic and political developments (see Chart 3.2): CBA intervention aimed at easing the tension in the financial markets and ensure sustainability of financial markets was in line with the policy of floating exchange rate.

3.2. RISKS IN FINANCIAL SYSTEM AND INFRASTRUCTURES

In the context of positive macroeconomic developments of recent years, financial institutions entered 2020 with relatively high-risk resilience and profitability. During the year, the main balance sheet indicators of the financial system - assets, loans, deposits, capital, have grown, albeit at a slower rate than in 2019.

Throughout the year, financial system assets (GDP and loans) grew by 21.5 and 10.2 percentage points, respectively, reaching 128.1% and 68.9%. Among financial institutions, the growth of pension funds was relatively high, whereas assets of credit organizations dropped (see Charts 3.5 and 3.6).

Banking system continues to play a leading role in the financial system of the Republic of Armenia, accounting for 84.5% of its total assets (see Chart 3.4). Banking system assets/GDP and loans/GDP ratios grew by 19.3% and 11.1%, respectively, to 108.2% and 63.2%. Deposits/GDP ratio grew less, by 4.1 percentage points rate to 53.8%.

Chart 3.4. The structure of financial system assets by financial institutions as of 31.12.2020

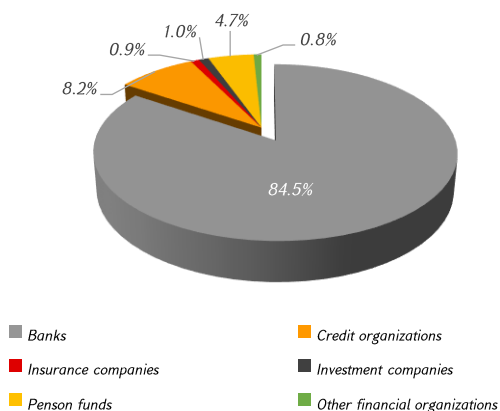
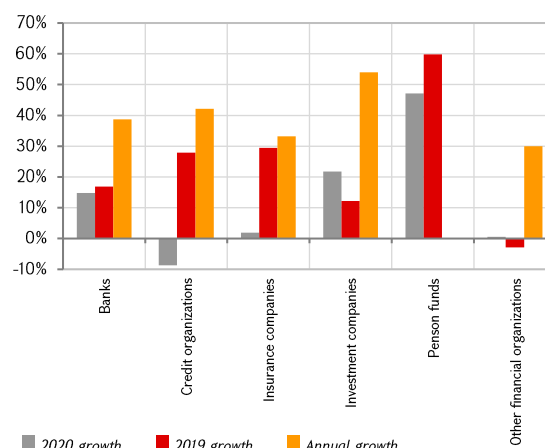
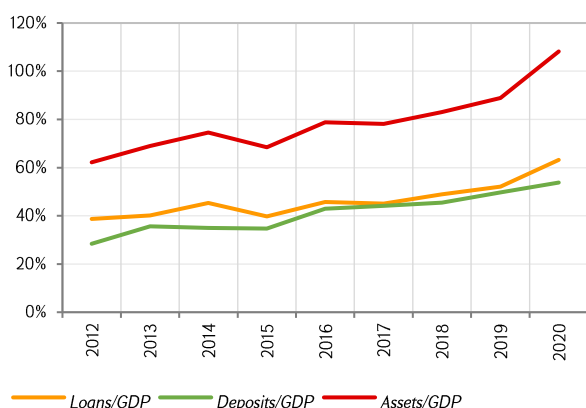


Chart 3.5. Growth of assets of financial system participants



Source: Central Bank of Armenia.

Chart 3.6. Level of intermediation of the banking system



Source: Central Bank of Armenia.

3.2.1. Commercial Banks

Against the background of unprecedented shocks in 2020, banking system continued smoothly financial intermediation, which was largely possible due to sufficient capital and liquidity potential. The levels of capital adequacy and liquidity were maintained at the required level throughout the year.

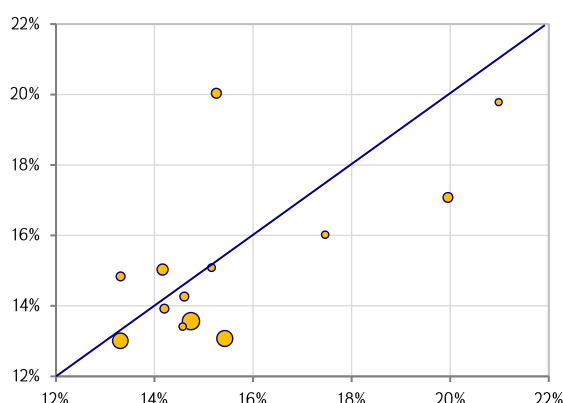
According to current estimates, the impact of economic uncertainty still persists, and the risks have not yet fully materialized. It should be noted that the results of stress tests indicate the potential of the banking system to endure the consequences of further adverse developments.

Capital Adequacy and Profitability

The banking system has always maintained a capital adequacy in excess of the required minimum providing the opportunity for absorbing possible losses and ensuring continuity of operations.

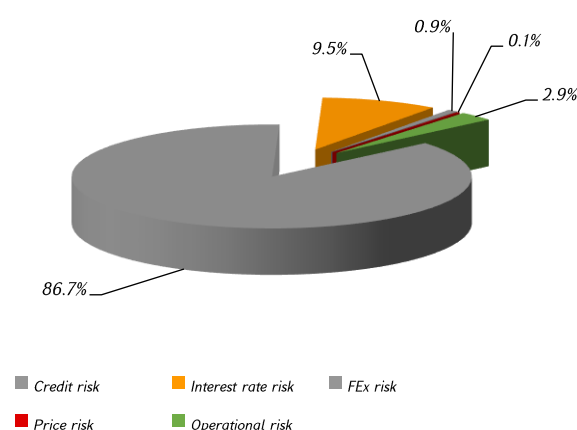
Total capital adequacy of the banking system dropped by 0.6 percentage points during the year and made 16.9% (see Chart 3.7 for banks): The decrease in adequacy is conditioned by the higher volume of operations, as well as by the growth in the dram equivalent of risk weighted foreign exchange assets ensuing from the depreciation of the AMD exchange rate (see RWA structure in Chart 3.8). The negative impact of these factors on the adequacy was equal to 1.9 and 0.6 percentage points, respectively. At the same time, capital growth played a 1.9 percentage point positive impact. Regulatory capital grew by 11.1%, mainly at the expense of profit (see Chart 3.9). Balance sheet capital/assets ratio shrank by 1.0 percentage point and amounted to 13.1% at the end of the year. The ratio of risk weighted assets to total assets has been steadily declining in recent years, mainly due to the gradual decline in the level of dollarization of both loans and total assets (see Chart 3.10).

Chart 3.7. Capital adequacy by banks



* The chart does not include banks that exceed the capital adequacy ratio (4 banks, the share in the banking system is 8%). The abscissa axis in the Chart is the capital adequacy of 2019, the ordinate axis is that of 2020, and the point size is the share of assets in the banking system as of the end of 2020.

Chart 3.8. Structure of risk-weighted assets in the capital adequacy ratio of commercial banks as of 31.12.2020



Source: Central Bank of Armenia.

In terms of the ability to absorb risks, total capital of the banking system is characterized by a high-quality structure (the share of fixed capital (Tier 1) in total capital is 86.8%).

In face of the pandemic, the Central Bank has signaled about the possibility of using the capital buffers to mitigate the banks' procyclical response to rising risks.

Capital conservation and system buffers have been in place since January 2020, each accounting for 0.5% of risk-weighted assets, and the countercyclical capital buffer has been maintained at 0%. Unlike capital adequacy ratios, banks may temporarily have lower-than-required thresholds to absorb losses in stressful situations. In case of using this feature, according to the regulatory requirements, the possibility of distribution of profits and bonuses by banks is limited, and the buffers must be filled in due time. During the year, all banks complied with the level of consolidated buffer and the risks were absorbed due to the availability of higher-than-required capital.

In May 2020, by the decision of the Central Bank Board, Tier 1 capital adequacy ratio was reduced by 1 percentage point and set at 9%.

Chart 3.9. Total regulatory capital structure

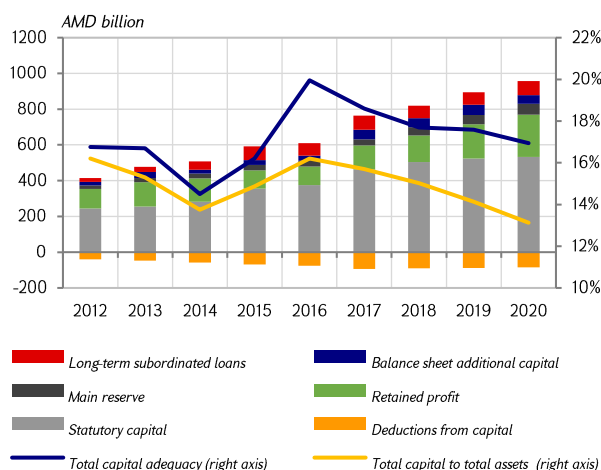
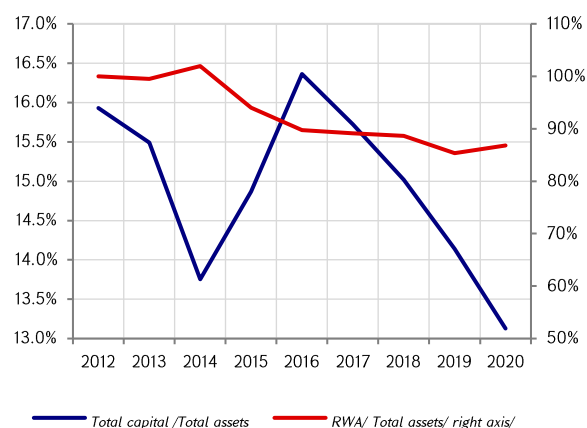


Chart 3.10. Banking system leverage trends



Source: Central Bank of Armenia.

The change of the prudential standard has expanded the ability of banks to increase the share of additional capital in the capital structure. Due to this change, it was possible to raise the level of total capital adequacy, increasing the possibility of additional lending to the economy and absorption of losses.

While in 2020, the banking system operated profitably, according to the Central Bank, the possible financial consequences of the risks are not fully absorbed yet. Further materialization of risks is likely to be reflected at least in 2021 financial results.

According to the reports submitted to the Central Bank of Armenia by banks, in 2020 profitability indicators of the banking system in terms of assets (RoA) and capital (RoE) dropped by 0.2 and 0.8 percentage points, respectively, totaling 1.0% and 7.2%, respectively (see Chart 3.11).

The decline in profitability is mainly due to higher loan losses, whereas other key factors have contributed positively to profitability.

Compared to the previous year, net contributions calculated according to Central Bank regulatory requirements grew by 68.6% (see Chart 3.12).

Chart 3.11. Profitability of the banking system by assets and by capital

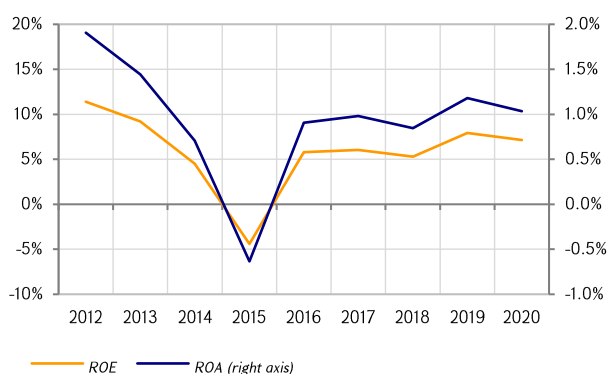
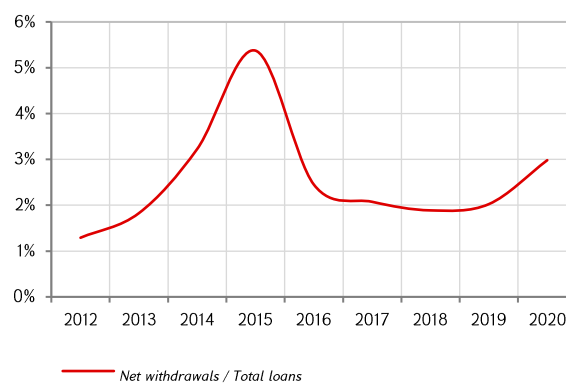


Chart 3.12. Losses on loans



Source: Central Bank of Armenia.

Due to the rapid growth of consumer and mortgage loans to individuals in the previous years with yields higher than those of business loans, net interest income/assets ratio grew by 0.1 percentage points to 3.4% (see Chart 3.13).

Profitability was enhanced by 0.3 percentage point decrease in the administrative expenses/assets ratio (see Chart 3.14).

In the face of growing credit portfolio risks and declining credit demand, the downward pressure on banks' profitability will continue.

Chart 3.13. Net interest margin of the banking system

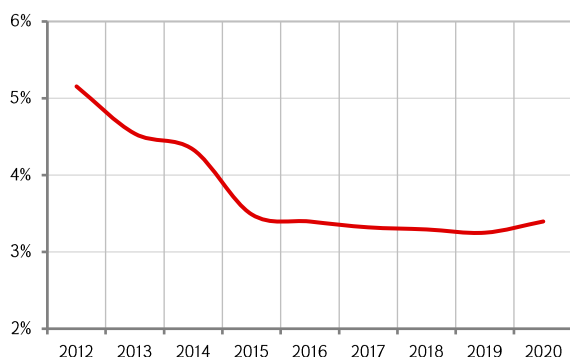
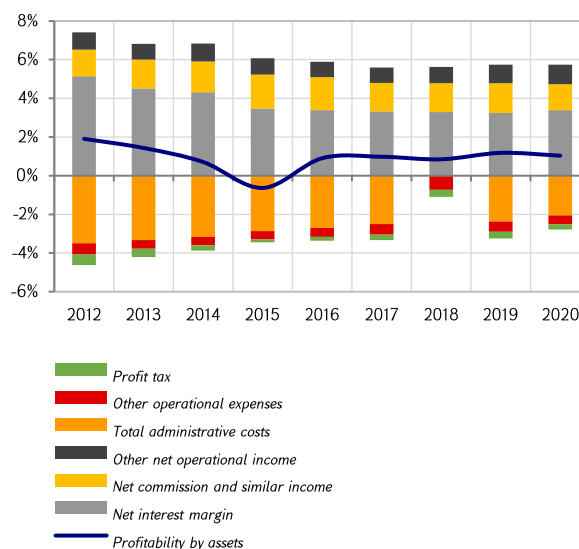


Chart 3.14. Change in the structure of profitability of assets



Source: Central Bank of Armenia.

The procyclical response of banks to the current shocks (tightening of lending conditions, reduction of credit growth, materialization of risks) limits the perspectives of profitability growth. The decline in profitability will have a restraining effect on the investment potential of banks for development and capacity building. The negative impact will be especially high in terms of competitiveness, resulting in the delay of the launch of digital technologies that require investment.

Chart 3.15. Structure of loans to residents by sectors of the economy

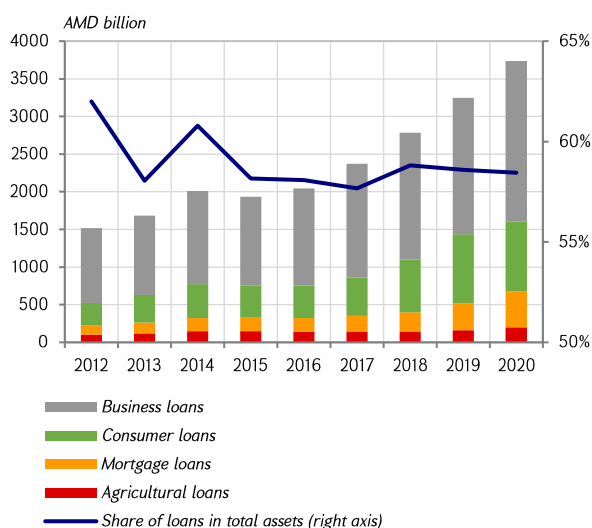
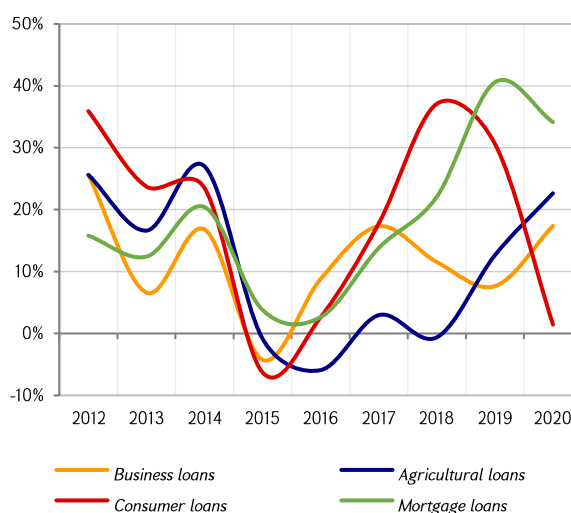


Chart 3.16. Growth rates of loans by sectors of the economy



Source: Central Bank of Armenia.

Credit Risk

Banks are able to absorb the risks that emerge from deterioration of credit quality. Banks' capital and liquidity potential has enabled them to ensure a rather high growth rate of lending till September 2020, inclusive. The continuous growth of uncertainties and the decrease of deposits in the fourth quarter restrained the growth rates of lending.

Chart 3.17. The share of major loans in the absolute growth of loans' balance in 2020

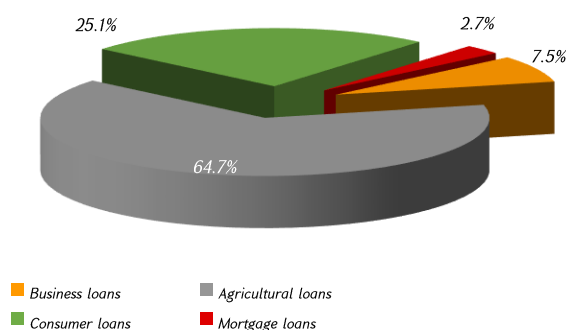
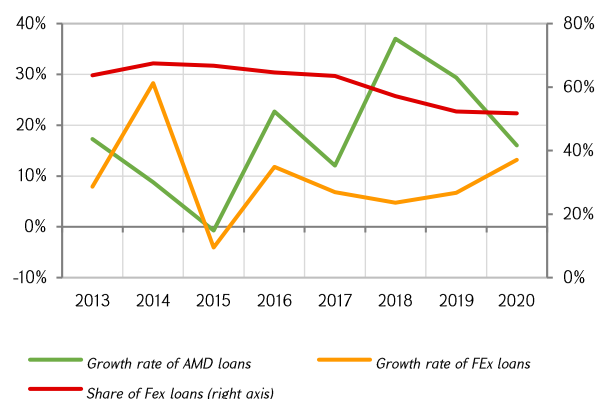


Chart 3.18. Growth rate of dram and foreign exchange loans



Source: Central Bank of Armenia.

In 2020, the volume of loans grew by 14.5%, within which the positive exchange rate contribution is 4.9 percentage points. The growth of loans was mainly due to the growth of business sector loans and mortgage loans by 17.4% and 34.1%, respectively. The growth of mortgage loans in AMD was sustained due to the launch of the income tax refund program, and lending to legal entities was boosted by Government lending programs to offset coronavirus economic impact (see Charts 3.15-3.18).

Chart 3.19. Credit investments provided to large borrowers in the banking system

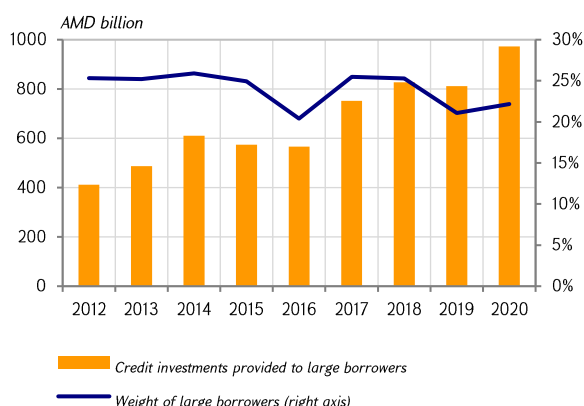
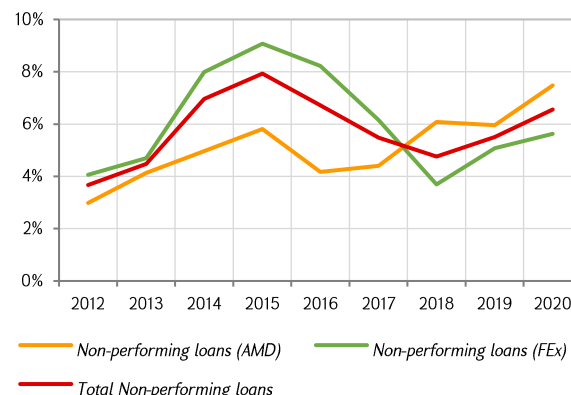


Chart 3.20. Dynamics of the weight of non-performing loans in the banking system



Source: Central Bank of Armenia.

There were no risky changes in terms of credit portfolio concentration: the share of loans to large borrowers²⁹ in credit investments was 22.2%, growing by 1.1 percentage points over the previous year (see Chart 3.19).

²⁹ A borrower for which the bank's risk (including that of the affiliates) exceeds 5% of its average monthly total regulatory capital is considered large.

As a result of the shocks in 2020, the quality of banks' credit portfolio deteriorated. The growth of non-performing loans was higher in the fourth quarter, which continued in January-February 2021 as well.

Chart 3.21. Non-performing loans by main types

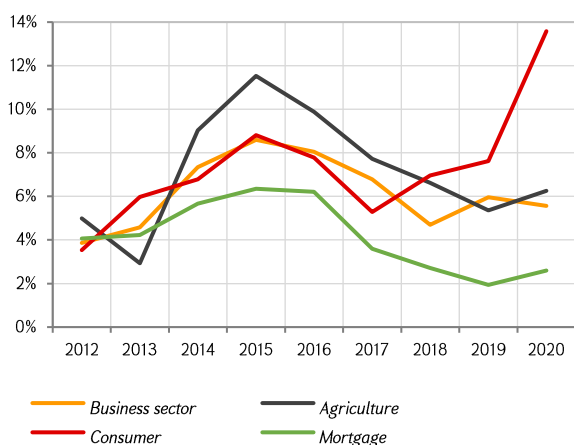
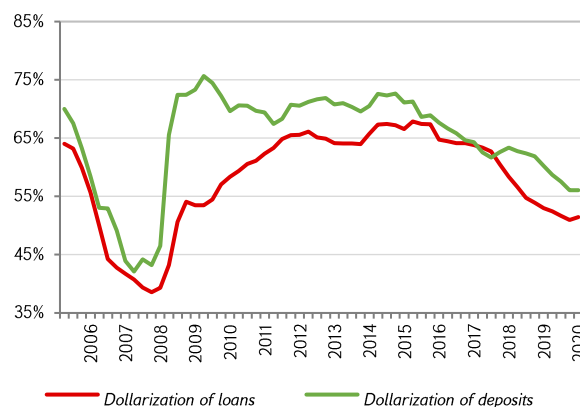


Chart 3.22. Dollarization of loans and deposits



Source: Central Bank of Armenia.

During the year, the share of non-performing loans in total loans grew by 1.1 percentage points and amounted to 6.6% at the end of the year, with a 0.5 percentage point growth attributed to the fourth quarter (see Charts 3.20 and 3.21).

Risk materialization has been slow throughout the year, mainly due to bank loan restructuring and credit holidays in the early stages of the spread of coronavirus. Banks and credit organizations have been guided by the principles of revision of the loan terms developed by the Central Bank, with due regard to international approaches on revisions. The purpose of the loan revision was to refrain from limiting lending capacities of the banks and to enable them recognize loan losses more smoothly over time. Credit holidays were mainly provided in March-June, after which the majority of loans that benefited from credit holidays (approximately 90-95%) were serviced in accordance with the new repayment terms.

In contrast to the shock developments of 2009 and 2015, in 2020, no increase in loan dollarization was recorded.

The share of foreign exchange loans decreased by 0.7 percentage points and amounted to 51.7% (see Chart 3.22). Dedollarization of loans was driven by the growth of mortgage loans in AMD, as well as the provision of AMD loans within the framework of Government measures aimed at combating the pandemic.

Liquidity Risk

The banking system has successfully overcome the liquidity pressures during the year due to the operative measures of the Central Bank aimed at maintaining financial stability.

The decrease in deposits was recorded in the initial stage of the spread of the pandemic and during the state of martial law, moreover, as of the end of the year, the pre-war level of deposits was not restored.

Deposits decreased by about 6% in October-November (exchange rate effect neutralized), whereas both in terms of total deposits and term deposits of resident individuals, foreign exchange funds decreased by 1.5 times more compared to dram deposits (for more details, see the "Banks Stress Test Results" section).

Chart 3.23. Ratio of loans and deposits in the banking system

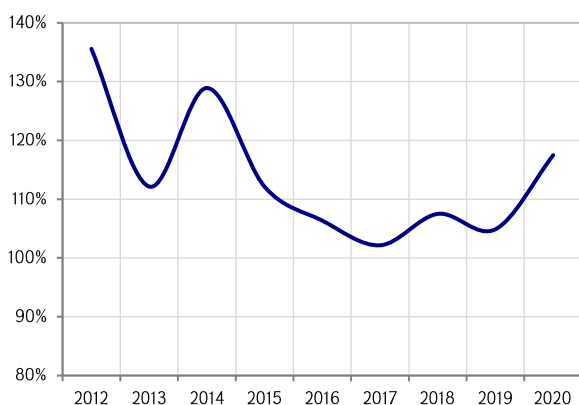
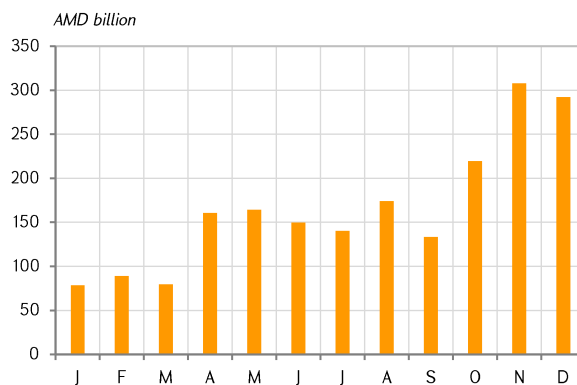


Chart 3.24. Average daily volumes of repo attracted from the Central Bank in 2020

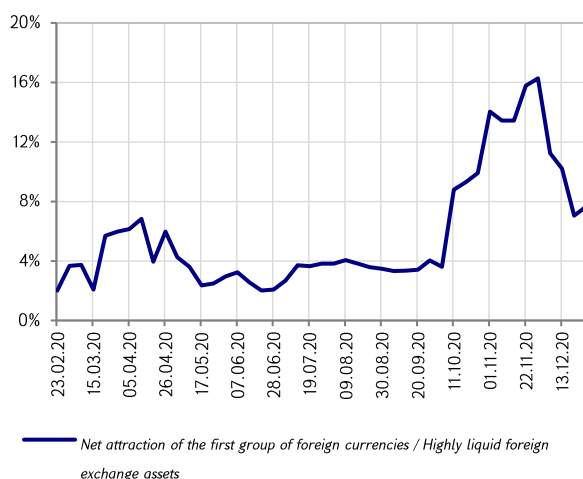


Source: Central Bank of Armenia.

Under the conditions of declining deposits, the ratio of bank loans and deposits grew by 12.6 percentage points as compared to the beginning of the year and made 117.5% at the end of the year (see Chart 3.23). Given that deposits have always been the main source of credit financing, the steep rise in the loan/deposit ratio may limit the possibility of bank lending growth in the near future.

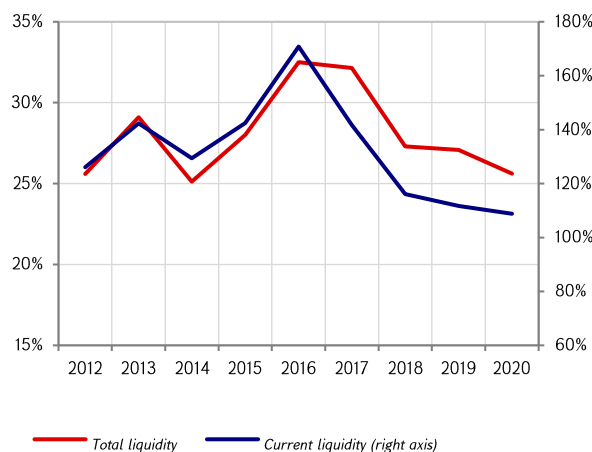
The Central Bank of Armenia increased repo instrument offer to manage liquidity in financial markets both in spring and autumn (see Chart 3.24). Banks met the demand for foreign exchange liquidity by currency swap instrument as well, which reached the maximum level in November (see Chart 3.25).

Chart 3.25. Dynamics of attracting funds through currency swap during the year



Net attraction of the first group of foreign currencies / Highly liquid foreign exchange assets

Chart 3.26. Liquidity dynamics in all currencies



Source: Central Bank of Armenia.

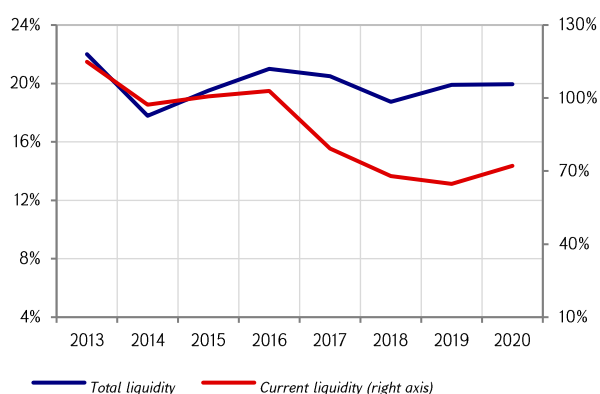
Compared to the beginning of the year, the total and current liquidity ratios of commercial banks decreased by 1.5 and 1.9 percentage points, respectively, and amounted to 25.6% and 108.8% (thresholds being 15% and 60%, respectively). The liquidity ratios at individual bank level remained at the required regulatory level (see Chart 3.26). Total and current liquidity ratios in the first group of foreign currencies were 19.9% and 72.2%, respectively³⁰ (see Chart 3.27). From January 1, 2021, the standards of Liquidity Coverage Ratio (LCR) and Net Stable Financing Ratio (NSFR) have been introduced, which are met in the banking system both in terms of AMD and foreign exchange.

³⁰ The minimum standards of total and current liquidity for currencies included in the first tier are set at 4% and 10%, respectively.

The gradual transition to mandatory foreign exchange provisioning for banks' foreign exchange borrowing contributed to the improvement of total foreign exchange liquidity.

In order to ensure the availability of high liquid assets adequate to foreign exchange assets in banks, as well as to increase the efficiency of asset liquidity management, banks are gradually shifting to mandatory provisioning from AMD to foreign exchange for funds attracted in foreign exchange. Last time the share of foreign exchange provisioning was increased by 2 percentage points in September 2020.

Chart 3.27. Liquidity dynamics by the first group of currencies



Source: Central Bank of Armenia.

The policies of gradual introduction of foreign exchange liquidity standard and gradual transfer to mandatory provisioning from AMD to foreign exchange are considered by the Central Bank as complementary measures and are implemented in parallel. From January 2021, the new standards of foreign exchange liquidity coverage and net stable financing with a floor of 60% came into force. Over the next two years, the latter will be gradually increased to 100%.

Market Risk

The estimated impact of market risks, in particular foreign exchange and interest rate risks, on the capital of the banking system is not significant.

The relatively low level of market risks is conditioned both by the structural features of the assets and liabilities of the Armenian banking system and by the existence of prudential regulatory requirements set by the Central Bank.

The net foreign exchange position of the banking system (the sum of long and short positions by bank derivatives) fluctuated, reflecting the events that took place in the course of the year (see Chart 3.28).

During the year, the loss of the banking system from currency revaluation and transactions with derivatives amounted to 0.04% of total capital.

The potential negative impact of open foreign exchange positions on banks' capital caused by drastic changes of the exchange rate is estimated to be non-significant. The potential negative impact of exchange rate fluctuations is more significant in terms of foreign exchange liquidity management and credit risk and is considered within the framework of the assessment of those risks.

Compared to the beginning of the year, the share of financial assets at fair value remeasured through profit/loss of the banking system in total assets grew by 0.9 percentage points totaling 7.6% (see Chart 3.29): RA government bonds prevail in the portfolio.

The banking system had a net income of 0.8% of total capital from revaluation of financial assets at fair value through profit/loss.

Chart 3.28. Net currency position dynamics during the year

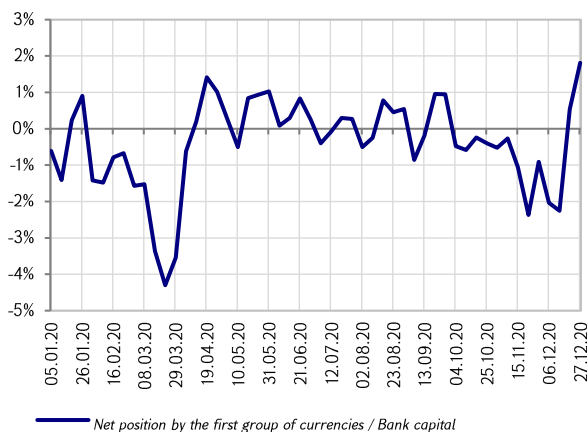
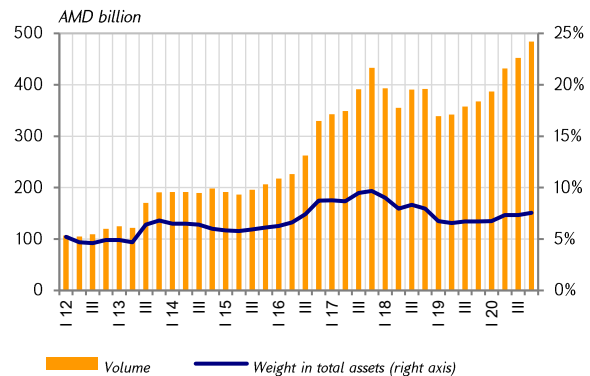


Chart 3.29. The volume and weight of financial assets at fair value



Source: Central Bank of Armenia.

Box 3.1

Consumer Protection

The Central Bank of Armenia has been protecting the interests of consumers through fair treatment of financial institutions providing adequate institutional environment and financial education.

Business Conduct



Supervision – Desk studies of financial institutions (advertisements, website) were carried out and appropriate measures were taken in case of identification of risks.



Regulation – With the new legal regulation, consumers will be able to receive free statements (reference) on mortgage loans 4 times a year, which they can submit for the refund of quarterly interest rates on mortgage loans.

The "What to do if you have a complaint" public awareness leaflet provided by financial organizations has been updated.

Hotline



The hotline at the Central Bank operated in an emergency mode. In 2020, compared to the same period last year, the number of calls to the hotline tripled to about 17,000 calls. The operators provided information and instructions to people to take the necessary actions and avoid possible problems, furthermore, in case of problems (complaints), the necessary measures were taken. The majority of the calls related to the issues on repayment of loans in emergency and martial law situation.

Applications



The number of written applications from consumers grew by 50% compared to the same semester of the previous year and amounted to about 1,200 applications. The vast majority of applications were requests for "credit holidays" by financial institutions. The applicants were provided with information about the Central Bank competencies and their own rights. Necessary measures have been taken regarding the detected violations.

Financial Education



The Central Bank has continued the process of public financial education through its educational website www.abcfinance.am, eponymous social networks, as well as by implementing various on-line events. Video lessons on personal financial management were conducted, as well as information materials were published on online financial services, payment applications and other useful topics in the conditions of COVID-19 epidemic (non-contact transactions, credit history, actual interest rate calculation, financial fraud, budget planning and cost optimization in the existing situation, etc.).

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.

Credit Organizations

Activities of credit organizations declined in 2020 because of both the deterioration of macroeconomic conditions and the closure of one credit organization.

According to the results of the year, the assets of credit organizations decreased by 8.7%, including decrease of credit investments by 13.5%. If the effect of termination of the activity of UCO "Varks AM" is ignored, the decrease of loans is 5.5%. The volume of consumer loans provided by credit organizations dropped by 21.8%, and without UCO "Varks AM" by 6.6%.

During 2020, the quality of assets has deteriorated, moreover, the share of problem loans in credit organizations is higher compared to banks, due to differences in the target groups of customers.

The share of non-performing loans grew by 2.0 percentage points compared to 2019 and amounted to 9.2%, the share of non-performing loans in consumer sector grew by 7.4 percentage points and amounted to 31.3%.

Insurance Companies

Assets of insurance companies grew by 1.9%, liabilities remained almost unchanged, and total capital grew by 6.1%.

Insurance Penetration (premiums/GDP) ratio totaled 0.7%, shrinking by 0.03 percentage points as compared to the previous year, insurance density (premiums per capita) also decreased and totaled AMD 15,087 (AMD 16,635 in 2019).

In 2020, the profitability of insurance companies improved due to the positive trends in the previous year.

According to the supervisory reports, the profitability of insurance companies by assets was 5.1%, and by capital 15.1% (in 2019, , 2.2% and 7.1%, respectively).

The main indicator characterizing the activity of insurance companies, the amount of gross written premiums, shrank by 9.3% (last year this indicator grew by 19.1%) amounting to AMD 44.7 billion. Gross written claims dropped by 6.8% during the year amounting to AMD 23.4 billion.

The loss ratio³¹ of insurance companies shrank by 10 percentage points compared to the previous year and amounted to 57.3%, and the expense ratio³² grew by 3 percentage points and amounted to 25.9%.

The share of risk weighted assets and solvency amount required in the capital adequacy ratio of the insurance system at the end of the half year was 28.2% and 71.8%, respectively. As of 31.12.2020, capital adequacy ratio was 183%, (capital adequacy ratio threshold is 100%).

Pension Funds

As a result of the 2020 developments, there has been no significant fluctuation in the value of pension fund shares.

At the end of 2020, the value of net assets of pension funds totaled AMD 369.3 billion, with the net assets/GDP ratio 6.0%, increasing by 2.7 percentage points compared to the end of 2019 (see Chart 3.31).

The number of active participants in pension funds was about 374 thousand people.

Within the structure of pension fund investments, investments in cash and deposits shrank by 3.7 percentage points, and government bonds grew by 3.4 percentage points, totaling 30.6% and 29.7% of total assets, respectively (see Chart 3.30).

Chart 3.30. Pension fund investments as of 31.12.2020

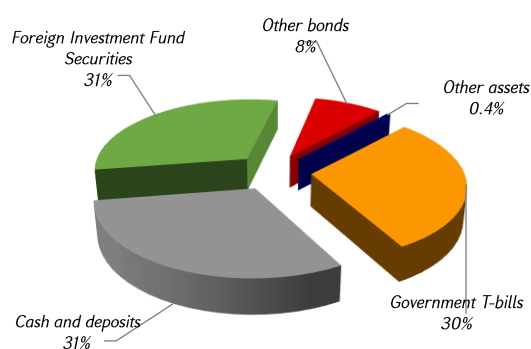
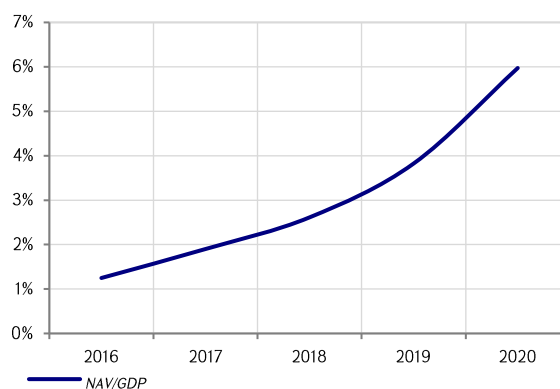


Chart 3.31. Share of pension fund assets in GDP



Source: Central Bank of Armenia.

³¹ The loss ratio was calculated using the following formula: (net accrued compensation + change in net claims reserves + settlement costs) / (net accrued insurance premiums - net amounts refunded on terminated contracts - unearned insurance premium reserve change).

³² The cost ratio was calculated using the following formula: non-interest expenses / (net accrued insurance premiums - net amounts refundable on terminated contracts - unearned insurance premium reserve change).

The share of foreign exchange assets of the funds at the end of the year totaled 38.0% or AMD 133.4 billion, the majority of which, AMD 114.0 billion, were securities of foreign investment funds.

The return on funds in 2020 was 11.2%. The average annual yield since the beginning of 2014 was 9.4% (accumulative growth was 86.9%).

Box 3.2

Changes made during in 2020 in the field of financial system regulation

Banking System. In addition to the changes made in the first half of the year, which are already included in the Financial Stability Report for the first half of 2020³³, in 2020 the Guaranteed Deposit Limits for dram and foreign exchange deposits were increased from 10 million and 5 million AMD to 16 million and 7 million AMD, respectively.

Insurance System. Following the introduction of the Solvency 2 system requirements, insurance companies' reports have been adjusted to changes in the regulatory framework, as well as the effectiveness of analytical and statistical information collection processes for insurance companies was improved.

The processes of classification of assets of insurance companies operating in the territory of the Republic of Armenia and formation of reserves for possible losses have been improved, companies were allowed to classify as irrevocable the actual uncollectable budget receivables.

Amendments have been made to the law on minimum requirements for internal control of insurance companies in order to increase the efficiency of the internal control system of insurance companies. The amendments set requirements for insurance companies' receivables, prepayments, provided borrowings, and subrogation claims management.

In order to increase the effectiveness of the control, the reports submitted by the "Bureau of Motor Insurers of Armenia" NGO to the Central Bank were modified.

Securities Market. In order to repeal the mandatory requirement on AMD denomination of foreign exchange bond quotations and coupon payments against them and allow to make these quotations/payments in the currency in which the obligation was assumed, amendments were introduced to the Law on Currency Regulation and Currency Control. The changes made are especially important for foreign investors, as receiving interest in AMD causes inconvenience, as well as foreign exchange and operational risks. In addition, the requirement to have a mandatory cash account, from both foreign and domestic investors' point of view, excessively increases the cost of servicing investors' accounts, reducing the attractiveness of the bond as an investment instrument compared to the deposit.

The change of the tax regime, which was aimed at boosting capital market, provided certain economic incentives to its participants. In particular, interest rates on bonds circulating in the regulated market were exempt from income tax, and dividends on shares circulating in the regulated market were exempt from income tax and non-resident income tax. In addition, securities market brokerage and servicing services were exempt from VAT.

In order to develop the capital market, the Central Bank, together with the Ministry of Economy and with the support of the International Monetary Fund, has developed a capital market development program, which consolidates all possible strategic directions that may be important in the context of capital market development, in particular, instruments offered in the capital market and their relevant markets, investors that ensure the demand, market infrastructure, regulation and control of capital market. The program aims to create new investment tools that will facilitate the investment of savings in the real sector of the economy, allow the population (including through pension funds) to participate in investment programs in the country and receive income thereof.

³³ https://www.cba.am/AM/ppperiodicals/Stability%20report_I_20.pdf

The Board of Directors of the Warsaw Stock Exchange (WFB) and the Central Bank of Armenia have signed an agreement on the acquisition of a 65% controlling stake in the Armenian Stock Exchange by the WFB. The entry of the WFB can be a serious impetus for the development of capital market infrastructure and rapid market growth.

Pension System. *In order to reduce the risks associated with investing in derivative financial instruments by mandatory pension funds, a new normative legal act defines the parties of derivative financial instruments and the types of derivative financial instruments in which mandatory pension fund assets can be invested.*

To ensure the calculation of net asset value of the funds and correction of errors in the calculation on a unified basis, the new normative legal act defines the peculiarities of accounting for the expenses related to the assets registered with the foreign custodian of the fund, the principles of calculating the estimated value of the shares of different classes of the fund, as well as streamlines the steps to correct the possible errors identified in calculation of the value of net assets of the fund.

Payment and settlement system. *With the view to clarifying the processes of establishment and operation of payment and settlement systems in Armenia, to reduce and prevent the risks endangering normal operation of payment and settlement systems and the stability of the financial system of Armenia, the Central Bank Board has established the following requirements:*

Only the entity licensed by the Central Bank of Armenia can carry out processing, clearing and/or settlements in the Armenian payment system. Any participant of the Armenian quick money transfer system must have adequate security in the amount of the transfers initiated by him/her in the bank carrying out the final settlement of the system.

In case the Armenian payment and settlement system is considered to be of public or systemic importance, the system operator must ensure the existence of additional requirements set by the Central Bank of the Republic of Armenia and comply with the established conditions.

At the same time, the requirements for information which the Armenian payment and settlement system operator must submit to the Central Bank have been clarified and amended.

4. BANK STRESS-TEST RESULTS

This section presents the results of macro stress of Armenian banking system. Stress testing of the banking system is one of the most important components of the Financial Stability Analytical Toolkit. It aims to assess the banking system's ability to withstand various possible shock situations (scenarios). Stress testing makes it possible to better understand and analyze potential vulnerabilities of the banking system and take targeted steps to correct them.

The results of stress tests conducted for the banking system prove that the system has sufficient capital and liquidity reserves to withstand the shocks assumed by the scenarios. In particular, by the end of the considered scenarios, the system has a high level of capital adequacy and liquidity, as a result of which the banking system is able to absorb credit losses and liquidity shocks assumed by the scenarios.

4.1. MACRO-STRESS SOLVENCY TESTS

Solvency stress tests assess the ability of the banking system to absorb risks threatening the stability of the financial system in various shock situations. Credit risk has a prominent role in the macro stress testing framework, as the latter is one of the most important risks inherent in the activities of banks. Solvency stress tests were conducted over a three-year horizon and assume two scenarios: baseline and stress.

Baseline Scenario

The baseline scenario reviews the main developments described in the, 2020 4-th quarter inflation report of the Central Bank of Armenia³⁴. The mentioned report projects sluggish recovery of aggregate demand because of the spread of the pandemic, the state of war and the continuing uncertainties with a subsequent economic growth of around 1.4% by the yearend: Economic growth will gradually recover in the medium term, stabilizing at 3-5% (see Table 4.1).

Stress Scenario

The stress scenario presented below is merely a highly pessimistic version of the hypothetical development of events, which in no way is the Central Bank projection and shall not be construed as such.

The stress scenario assumes a slow neutralization of the effects of the pandemic, the spread of its third wave in 2021 in Armenia and the main partner countries. According to the scenario, the governments in Armenia and partner countries will apply restrictions to temporarily restrict economic activity in certain areas (tourism, hotel industry, restaurant business, etc.) to prevent the spread of the pandemic. At the same time, the government will expand assistance programs to certain target groups, which on the one hand will compensate for the damage caused by the pandemic in these areas, on the other will increase government spending and budget deficits.

³⁴ For details see "Inflation Report": https://www.cba.am/Storage/AM/downloads/parberakan/DVQ/Monetary%20policy_I_2021.pdf

The government's anti-crisis measures will contribute to certain relief of the crisis situation in the economy. However, many real-sector enterprises that incurred pandemic related losses in 2019-2020, will temporarily suspend business activity, resulting in a deep economic downturn and a significant growth of unemployment in the first year of the horizon under review. According to the scenario, given the existing economic difficulties, in 2021, government capital investments from internal financing sources will decrease. Foreign direct investment will also decrease amid the growing uncertainty. As a result of economic difficulties caused by the new wave of the pandemic in the main partner countries, a significant decline in foreign trade volumes and turnover will be recorded, contributing to the depreciation of the Armenian dram against the US dollar.

The above-mentioned developments will also have an impact on the participants of the financial system. Given the growing uncertainty in the real sector, banks will reconsider their behavior, becoming more conservative and risk averse, which will be mainly reflected in the tightening of lending conditions. At the same time, the further decline in household incomes will have an impact on their ability to repay credit liabilities, as a result of which decline in profitability of lenders will take place, and they will need additional lending support. Real estate market will be under the influence of falling prices, which will have a negative impact on the volume of construction and mortgage lending.

According to the scenario, an economic decline of about 14% will be recorded in the short term. In the medium term, economic activity will gradually recover at about 3%-4% as a result of the widespread use of anti-crisis measures by the government and vaccination against the pandemic, which will contribute to the formation of group immunity and reduction of uncertainties. (see Table 4.1).

4. 1. 1. Solvency stress test results

Under the baseline scenario, the banking system remains highly capitalized. According to the baseline scenario, as a result of the economic decline recorded in the previous year and the contraction of incomes, the process of materialization of credit losses in the banking system will continue in 2021. Total losses (credit and market risks) reach a maximum in the first year of the horizon. In the succeeding years (2022-2023) along with the reduction of losses, the profit of the system starts to grow. The banking system remains profitable, and throughout the period under consideration, the capital adequacy remains above the required minimum of 12% for both the banking system and for individual banks (see Table 4.2).

Table 4.1. Values of key variables in different scenarios

	Actual	Baseline scenario			Stress scenario		
	2020	2021	2022	2023	2021	2022	2023
GDP	-7.6%	1.4%	1.5%	4.2%	-14.2%	8.0%	2.7%
Inflation	1.2%	5.4%	4.6%	3.6%	5.2%	4.1%	3.5%
Credit Growth	14.8%	4.0%	5.0%	6.0%	-3.0%	0.0%	4.0%
Probability of default (PD)	8.9%	7.5%	7.8%	7.7%	12.3%	9.0%	8.3%
Loss given default (LGD)	45.0%	43.0%	40.0%	38.0%	55.0%	50.0%	45.0%

Table 4.2. The main results of stress testing *

	Actual	Baseline scenario			Stress scenario		
	2020	2021	2022	2023	2021	2022	2023
Withdrawals from credit portfolio (billion drams)	-116.6	-112.4	-115.8	-106.0	-235.9	-155.2	-113.1
weight in assets (%)	1.74	1.67	1.69	1.50	3.90	2.68	1.96
Market risk** (AMD billion)		-23.1	11.5	11.6	-58.2	37.5	14.5
Total losses (AMD billion)		-135.5	-104.4	-94.4	-294.1	-117.7	-98.6
weight in assets (%)		2.01	1.52	1.34	4.86	2.04	1.70
Net income on interest (AMD billion)	205.4	193.8	183.0	173.2	177.4	161.4	148.0
Net profit (AMD billion)	62.7	58.3	78.7	78.8	-116.7	43.8	49.3
weight in assets (%)	0.94	0.87	1.15	1.12	-1.93	0.76	0.85
Capital adequacy (%-as of the end of period)	16.93	17.69	18.48	19.00	15.23	17.12	18.04
Necessary capital injection (AMD billion)			0			27.4	
weight in GDP (%)			0			0.44	
Number of banks with less than 12%-capital adequacy			0			3	

* Losses are expressed with (-) sign

** Losses from market risk include losses due to interest rate changes and direct exchange rate effects. In particular, for the baseline scenario, it was assumed that the market interest rate grows by 1 percentage point in the first year, and decreases by 0.5 percentage points in each subsequent year. In the case of a stress scenario, market interest rates are expected to grow by 2 percentage points in the first year, and decrease by 1 and 0.5 percentage points in the following years, respectively.

Under the stress scenario assumptions, credit losses in the banking system grow significantly. Under the highly pessimistic macroeconomic environment assumed by the scenario, a sharp growth in credit losses is recorded because of the growth of credit risk components. (probability of default - PD and loss given default - LGD). In this situation, banks show more conservative and risk averse behavior, as a result of which the credit portfolio declines in the first year of the scenario (see Table 4.1). The net interest income of banks significantly declines and is not enough to cover credit and market losses. Subsequently, in the first year of the stress horizon, the banks suffer a net loss. In the succeeding years (2022-2023), parallel to the gradual decrease in probability of default (PD) and loss given default (LGD) credit losses decrease as well, the banking system becomes profitable and capital adequacy grows (see Table 4.2).

Under the stress scenario, capital adequacy of the banking system decreases to a minimum of 15.2% without breaching the required minimum of 12% (see Table 4.2). Despite this, in the first year of the stress horizon, capital adequacy ratio of 3 banks decreases below the required limit, which would require the /injection of about AMD 27 billion capital. In the succeeding years, along with the gradual improvement of the situation and the restoration of the profitability of the banking system, capital adequacy ratios grow.

Overall, the conducted stress testing shows that at present Armenian banking system is sufficiently capitalized to survive the situation assumed by such a strict scenario. Furthermore, even after materialization of such severe stress scenario most banks still retain a sufficiently large capital buffer

4.2. BANKING SYSTEM LIQUIDITY STRESS TESTS

Commercial banks' ability to resist liquidity risk is assessed through liquidity stress tests. In particular, under the conditions of the hypothetical stress scenario(s), the existence of a sufficient stock of liquidity buffers in the banking system is assessed. The main parameters of the liquidity stress test and the result based on the actual indicators as of December 31, 2020 are described below.

Stress test scenario and methodology

The liquidity stress test is based on the following main assumptions:

- ✓ systemic liquidity risk (outflow of deposits from all banks at the same time over the period of 6 months is discussed, with the expected shock being stronger in the first 2 months and relatively mild in subsequent months;
- ✓ expected inflows from loan portfolio were included with 50% haircut the assumption under the Liquidity Coverage Ratio (LCR) requirement), potential inflows from classified loans were ignored, and haircuts were applied to highly liquid securities³⁵;
- ✓ concerning financial institutions it was assumed that both claims and liabilities to financial institutions would be renewed;
- ✓ the potential outflow of funds for other items (for example, unused credit card balance) has been ignored, given their insignificant balance and historical behavior under different shock situations;
- ✓ potential measures to raise liquidity (e.g. currency swaps) were not considered.

The stress test is itself quite conservative. It assumes a longer period of stress than historically recorded. Furthermore, the scenario was applied to the balance sheets of banks as of the end of 2020, which already reflect the actual adverse effects of the previous year.

The hypothetical scenario of deposit outflow is based on the developments in September-November 2020, with a more conservative (strict) assumption for outflow. The scenario was built separately for each bank and reflects the sensitivity of the given group of customers to possible shocks, as well as the effect of concentrations.

Outflow rates were assigned based on the following breakdown of depositors:

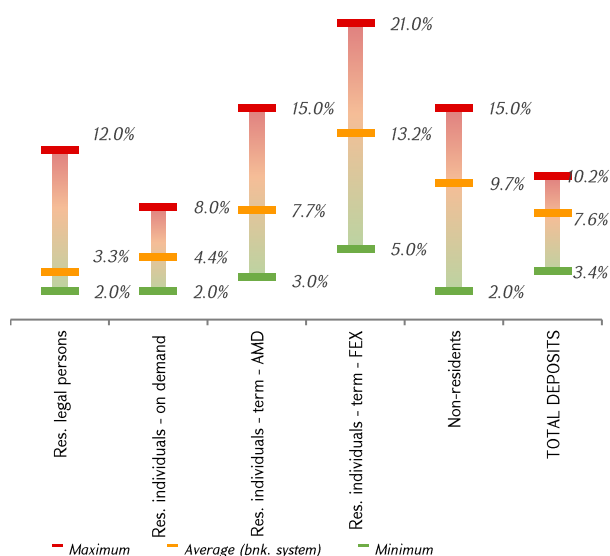
- deposit of resident legal entities;
- on-demand deposits of resident individuals;
- AMD term deposits of resident individuals;
- foreign currency term deposits of resident individuals;
- non-residents' deposits.

Chart 4.1 presents the minimum, maximum and average (banking system) outflow applied for banks over the first 2 months of the stress period³⁶.

³⁵ In case of AMD bonds 10%, and in case of foreign currency bonds 5% haircuts were applied.

³⁶ The accumulative outflow scenario for the system for the next four months is 4.9% - average; 7.3% - maximum; and 3.8% - minimum.

Chart 4.1. Cumulative outflow of deposits in the first 2 months

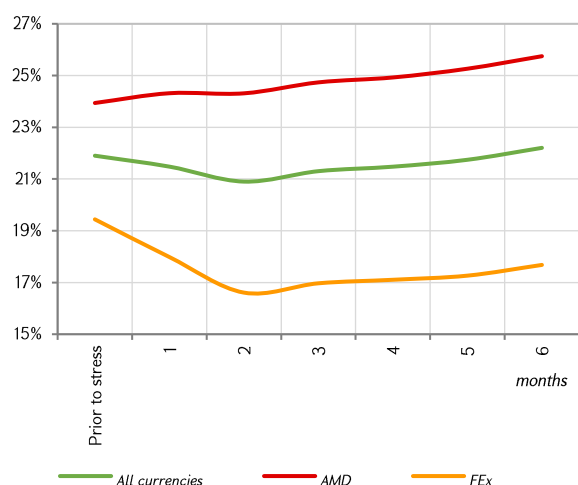


4.2.1. Liquidity stress test results

The stress test assesses the change in liquidity position of each bank over the stress period, i.e. the post-shock ratio of available liquidity buffer/deficit to total assets was estimated as of the end of each month (see Chart 4.2).

The stress test results show that available liquidity buffers both of the banking system and individual banks, is sufficient to cover the liquidity outflow. There is no decline in the level of dram liquidity, which means that at the system level even 50% of the expected inflow of loans is sufficient to cover liquidity outflow. This is due to the higher stress resilience of dram deposits on the one hand, and relatively short maturity of dram loans on the other. In terms of foreign currency liquidity, for the first two months of the stress period, a moderate decrease in the liquidity position is recorded, which gradually improves in the following months along with the easing of stress assumptions.

Chart 4.2. Change of liquidity position



5. MACROPRUDENTIAL POLICY

The macroprudential policy of Central Bank in 2020 was largely aimed at addressing and mitigating the impacts of growing risks and uncertainties on the stability of the financial system during the year. The spread of COVID-19 pandemic since the beginning of the year, as well as the military conflict in September–November, have significantly amplified the risks and uncertainties of the financial system. At the same time, along with the declining incomes and deepening uncertainties in the economy, risk appetite of the financial system participants has declined as well, reflected by conservative behavior of the financial system.

In such situation, the priority of the CBA macro-prudential policy was to maintain the proper level of capital and liquidity in the financial system and to ensure an uninterrupted lending process to economy by the financial system. In the face of emerging credit risks during the year, the Armenian banking system continues to maintain a high level of capitalization. Since the beginning of 2019, the Central Bank has been working on the introduction of capital conservation requirements by banks and the regulation of system bank buffers, which creates a strong basis for ensuring financial stability by, while contributing to more flexible risk management by banks.

Structural buffers that the banks have already established can be used to absorb losses. In the current situation, given the high level of actual risks, the Central Bank considers it natural for banks to use structural capital buffers as the main tool for absorbing losses. At the same time, in view of the growing credit risk during the year, both the likelihood of future losses and uncertainty about the macro-environment outlook remain high.

In these circumstances, the Central Bank considers it extremely important for banks to apply prudent and reasonable capital management approaches. Specifically, to maintain a proper capacity to effectively absorb future potential growth of credit losses entailed by the persistent uncertainties, it is crucial for commercial banks to refrain from distributing dividends and bonuses as much as possible and avoid from engaging in operations that would jeopardize their smooth running and stability.

During 2020, the Central Bank kept the countercyclical capital buffer (CCyB) unchanged at 0%. Unlike structural capital buffers, CCyB can be changed (raised or lowered) over time and used by regulators as a key macroprudential tool to address risky developments in financial or credit cycles. The Central Bank of the Republic of Armenia introduced the CCyB in 2019, in order to evaluate the expediency of possible rate changes on a quarterly basis, and publishes its findings thereof on the CBA website.

Amid the economic downturn, growing credit losses and uncertainties during the year, participants of the financial system exhibited a relatively conservative behavior in the lending market. In such circumstances, emphasizing the importance of ensuring smoothness and continuity of lending to the economy by the banking system, the Central Bank of Armenia left CCyB rate at an unchanged zero level (see Chart 5.1).

The general analysis of the early warning indicators representing credit market trends allows to conclude that the Armenian economy has entered a contraction phase of the credit cycle. Conservative lending behavior by the financial system is reflected in the dynamics of lending to the economy, which has been declining throughout the year (see Chart 5.2).

At the same time, financial cycle indicator characterizing the credit market trends (consolidated index of various early warning indicators) shows that the Armenian economy is in a contraction phase of the credit cycle (see Chart 5.1).

Chart 5.1. CCyB decisions

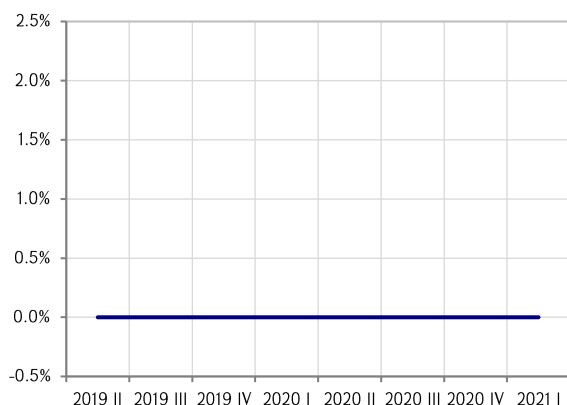
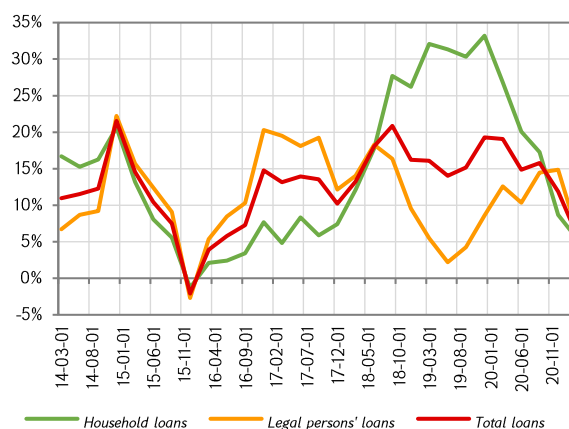


Chart 5.2. 12-month growth rate of credit stock index



Source: Central Bank of Armenia.

In the current situation, along with the loans/GDP gap, a fairly wide range of early warning indicators serve as a basis for setting the CBA rate. According to the methodology recommended by the Basel Committee, credit to GDP gap is the starting point for estimation of excessive lending and CCyB rate, but the final decision may be affected by number of other early warning indicators .. By the end of 2020, loans/ GDP gap was 6.3 percentage points. However, it should be noted that the positive gap is conditioned by the GDP decline during the year rather than surplus lending (see Chart 5.4).

The Central Bank of Armenia constantly monitors developments in the mortgage market in order to timely identify and address systemic risks. The CBA emphasizes and monitors developments in the mortgage market, since the interaction of mortgage loans and real estate prices can cause systemic risks buildup in the financial system. To mitigate possible hazardous developments in the mortgage market, Central Banks generally use specific targeted tools (loan-to-value, debt-service-to-income ratios, etc.), which aim to address sectoral lending developments.

Chart 5.3. Financial cycle index for Armenia

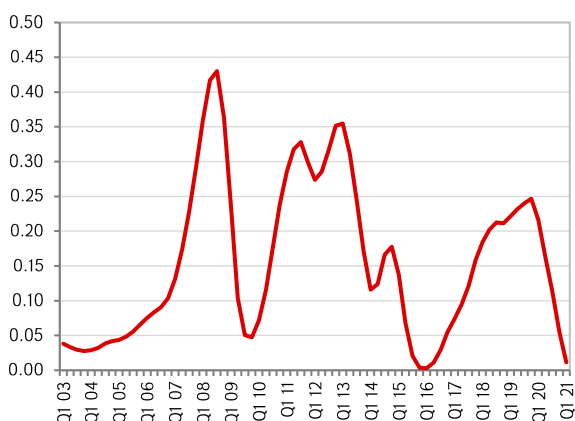
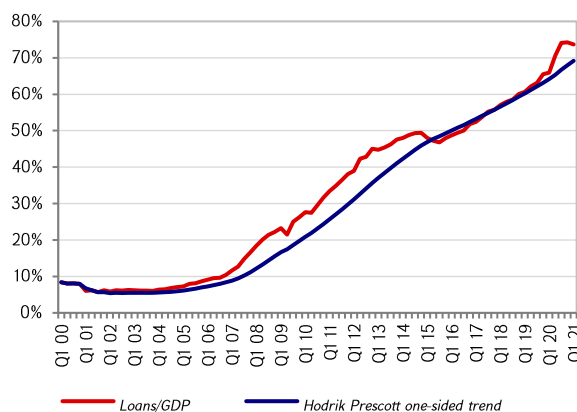


Chart 5.4. Loans / GDP ratio and its long-term trend



Source: Central Bank of Armenia.

The growth rate of mortgage loans continues to be quite high. Amid the economic recession and the existing uncertainties, the total credit portfolio have experienced lower growth rates. Still, the decline in mortgage lending was relatively small, as a result of which the annual growth rate of the mortgage credit portfolio remained high (see Chart 5.5).

In order to better address systemic risks in the field of mortgage lending area, the Central Bank is considering the possibility to introduce the macroprudential instrument of loan-to-value ratio. During the year, the Central Bank continued to work on further expansion and operationalization of its macroprudential toolkit. In particular, on the basis of the data of individual mortgage loans in the credit register the distribution of the loan-to-value indicator and its possible threshold level was analyzed for possible future use as mandatory requirement (see Box 5.2). It should be noted that in the conditions of ongoing uncertainty in the economy, the introduction loan-to-value indicator will be designed with the view to expanding the macroprudential toolkit and does not aim to strongly affect the existing crediting standards of banks in this area.

Chart 5.5. 12-month growth rate of the mortgage loan stock index

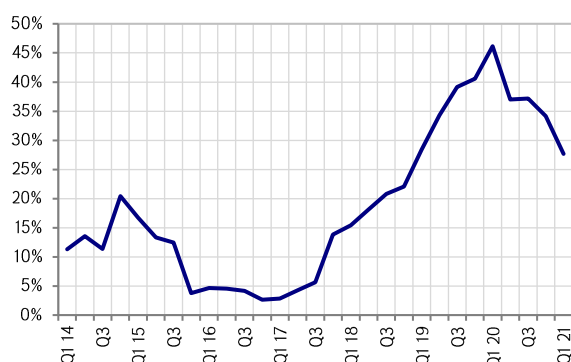


Table 5.1. Monetary and financial stability measures to mitigate financial and economic consequences of the pandemic

Macroprudential policy developments	Reduction of policy interest rate	Stock market changes	Credit holidays	Changes in credit terms	Easing of supervision tools	Easing of capital buffers	Liquidity provision
Austria		✓	✓	✓	✓	✓	✓
Czech Republic	✓	✓	✓	✓	✓	✓	✓
Latvia		✓	✓	✓	✓	✓	✓
Slovenia		✓	✓	✓	✓	✓	✓
Slovakia		✓	✓	✓	✓	✓	✓
Germany		✓	✓	✓	✓	✓	✓
France		✓	✓	✓	✓	✓	✓
Belgium		✓	✓	✓	✓	✓	✓
Bulgaria			✓			✓	✓
Hungary			✓	✓	✓		✓
Romania	✓		✓				✓
Turkey	✓	✓	✓	✓			✓
Georgia	✓		✓		✓		✓
Serbia	✓	✓	✓		✓		✓
Russian Federation	✓	✓	✓	✓			✓
Ukraine	✓		✓	✓	✓		✓
Republic of Armenia	✓		✓	✓	✓	✓	✓

Central Banks of the countries, Financial Stability Bodies, IMF.

Box 5.1

Financial Cycle Index

The estimation of financial cycle index is extremely important for effective implementation of macroprudential policy. It allows policy-making authorities to assess the stage of the economy in the financial cycle, and accordingly to assess the degree of accumulation of systemic risks and the necessary calibration of tools to address those risks.

The financial cycle index used by the Central Bank of Armenia is an aggregated index calculated on the basis of the indicators characterizing the Armenian economy and financial sector from different angles, taking into account the changing correlations between those indicators over time. In particular, calculation of the RA Financial Cycle Index is based on the following variables: loans/annual GDP growth rate, loans/GDP gap, consumer, mortgage and business loans dynamics, growth of real estate prices, household and business loan interest rate spread, and RA trade balance/GDP ratio. Prior to application, these indicators are standardized within 0-1 range using Gaussian kernel methodology in order to make them comparable among each other

The financial cycle index is calculated by the following formula:

$$FCI_t = (w^0 s_t)' C_t (w^0 s_t),$$

where: FCI_t is financial cycle index; $w = (w_1, w_2, \dots, w_9)$ is a vector of weights that reflects the relative importance of the indicators used; $s_t = (s_{1t}, s_{2t}, \dots, s_{9t})$ is the matrix of indicators; $(w^0 s_t)$ represents index-to-index product matrix of weights and indicators; C_t - is the correlation matrix that changes over time. The latter is calculated by Exponentially Weighted Moving Average (EWMA) methodology, allowing to balance the values of historical and current correlation between the indicators included in the calculation.

The optimal vector of weights (w) is determined by its ability to forecast credit loss through the financial cycle index. In other words, an attempt is made to project the amount of credit losses through the Financial Cycle Index with a 6-month lag. Weights are estimated based on a simulation exercise that involves 30,000 tests and a selection of weights in which the difference between the actual lending losses and the projected losses is minimal (minimalization of RMSE). Moreover, the generation of weights takes into account the relative significance of the indicators, so that the weight of the most important indicator is the largest, the weight of the next important indicator is the second largest, and so on.

As already mentioned, the Financial Cycle Index is a crucial indicator for macroprudential policy decisions. It allows to approximate the current position of the Armenian economy in the financial cycle, to understand the degree of accumulation or materialization of risks and the volume of possible losses at the given stage of the cycle. It is also an important indicator for determining the rate of the countercyclical capital buffer, especially at the stage of the declining financial cycle.

Box 5.2

Loan-to-Value Ratio Analysis Based on Micro-Data of the Credit Register

Compared to loans in other sectors, mortgage loans have certain peculiarities, as a result of which they are in the focus of financial system regulators, and to mitigate risky developments in this area targeted or sectoral macroprudential tools are used (debt-to-collateral value, debt service-to-income, etc.). In particular, mortgage loans are characterized by longer maturities, which, all other things equal, implies a greater likelihood of materialization of potential risk factors. At the same time, as a result of the complementary effects of mortgage loans and real estate prices, spiral accumulation of credit risk may occur.

According to the results of the analysis of micro-data from credit register, in recent years a certain growth of loan-to-value ratio in the RA mortgage credit market was observed (especially in terms of dram mortgage loans). This serves as an evidence of easing of lending conditions in this area, which may be due to the rapid growth of real estate prices in Armenia in recent years, as well as the availability of income tax refund mechanism.

Chart 1. Distribution of LTV index of AMD loans in different periods

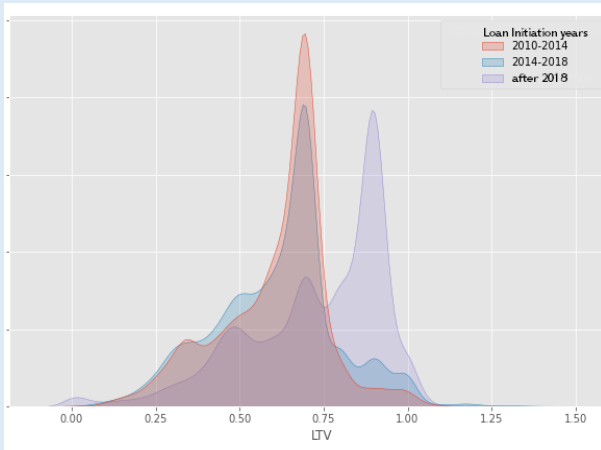
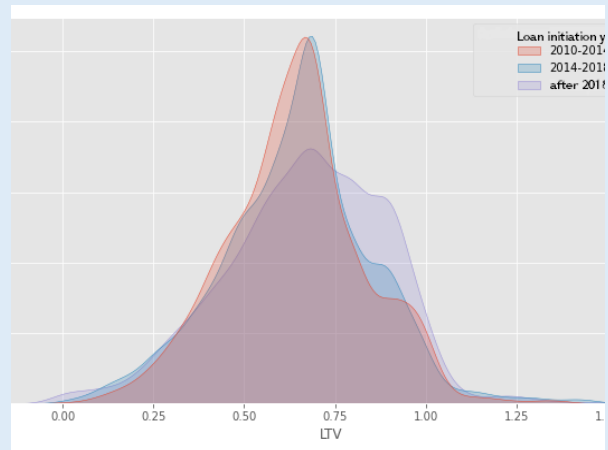


Chart 2. Foreign currency loans LTV distribution in different periods

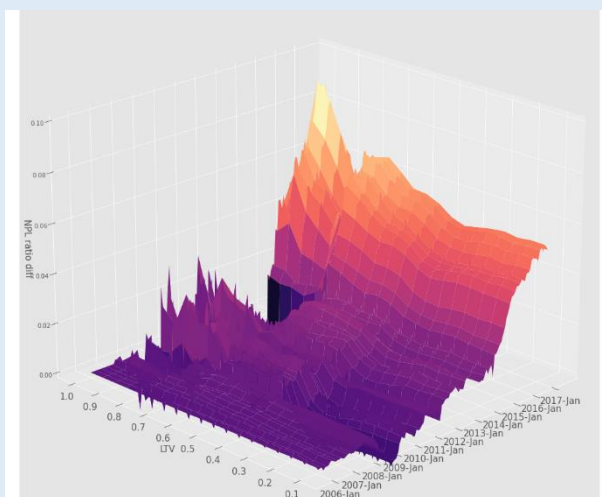


Source: Central Bank of Armenia.

The charts show the loan-to-value (LTV) ratios for newly issued AMD and foreign exchange mortgages on a quarterly basis from 2010 to 2020 (see Charts 1 and 2).

From the charts, it can be seen that until 2017-2018, the new AMD mortgage loans were mainly centralized and limited around 65-75% range of the LTV ratio, but during the last 2-3 years there has been a sharp transition to higher 85-90% LTV levels. One of the possible reasons for such strong increase in the loan-to-value ratio may be the existing income tax refund mechanism introduced by the government. With this mechanism the debt service burden of the loan is significantly reduced, and at least in the short term, the probability of the borrower's default goes down. Banks responded to this by easing the terms of mortgage lending by raising the LTV ratio, which may be viewed as proxy of LGD ratio.

Chart 3. The difference between the shares of non-performing loans in AMD and foreign currency loans at different LTV levels



Source: Central Bank of Armenia.

There has been no strong increase in the LTV of foreign exchange loans, but in recent years growth in the share of loans with a relatively high LTV ratio was recorded. Thus, compared to 2010-2016 when the share of loans with 75% and higher LTV ratio was 34% at maximum, in 2017-2020 this indicator grew to 52%.

Relative to different LTV levels, dram and foreign exchange mortgage credit risk is also different (see Chart 3).

The depth axis in the chart represents time (2006-2017), the horizontal axis represents the LTV levels (0-100%), and the vertical axis represents the difference between the weights of non-performing loans in dram and foreign exchange mortgages (NPL ratio). One can see that this difference was relatively small before foreign exchange crisis of 2015 (about 2 percentage points), whereas after the crisis it grew dramatically, reaching about 4 percentage points. For loans with 90-100% LTV, this difference is bigger, about 8 percentage points. The latter is explained by the fact that in contrast to dram mortgage loans, in the case of foreign exchange loans, in addition to fluctuations of real estate prices, those in foreign exchange rates serve as an additional source of credit risk. This difference in riskiness between FX and AMD mortgage loans is one of the main reasons why the regulatory organizations use more strict prudential measures for FX mortgages, including stricted LTV caps compared to AMD mortgage loans.

6. 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.

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

During the reported period, 3.7 million payments (payment messages) of AMD 20,751.1 billion were made via Electronic Payments System (EPS) of the Central Bank of Armenia, providing 3.7% growth and 0.3% decrease, respectively, over 2019. The growth in terms of value of interbank payments totaled 2.6% as compared to the same period of the previous year (while in 2019, growth of 47.6% was recorded as compared to 2018), and the growth of pure budget payments was only 5.0% (compared to 13.2% growth of the previous period). The reason for the slowdown in growth may be the decline due to the war and the pandemic.

The risk in the system is considered in the following directions.

Credit Risk

Credit risk to the settlement bank (i.e., the Central Bank of Armenia) in the system is non-existent since the repo instrument is used to provide intraday liquidity to the participant, which is secured by highly liquid assets and the haircut mechanism.

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 average daily rate³⁷ of own liquidity indicator (used for liquidity risk assessment) was 3.1. (3.4 in the same period of 2019), reaching its maximum of 3.8 in February (5.7 in 2019). From June 2019, banks are also able to make reserves in foreign currency, as a result of which the balance of dram accounts, hence also the above-mentioned indicators, decreased. During the 1-st semester, monthly indicators of average daily payments and average daily opening balances remained almost unchanged (see Chart 6.1).

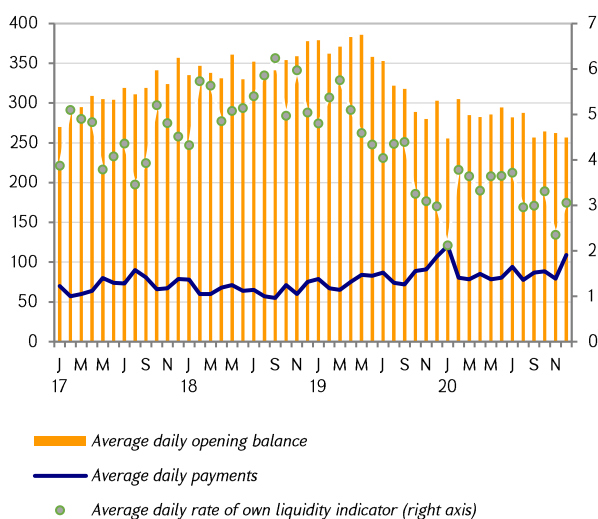
Thus, the average opening balances is more than 3 times higher than the average daily payments, which is a very high indicator. It should also be borne in mind that calculation of the indicator does not include incoming payments (account credits) and/or funds from other sources, which further neutralizes the liquidity risk.

In addition, the share of rejections due to insufficient liquidity in EPS is also insignificant both in terms of the value (0.06%) and number (0.001%).

The same indicator was also monitored by individual banks, based on which the probability of liquidity risk is assessed to be minimal.

³⁷ 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 projections 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 the accounts of commercial banks. The indicator is calculated for a system-level (aggregate for all banks), so indicators may vary across commercial banks.

Chart 6.1. Comparative analysis of average daily payments, average daily opening balance, average daily rate of own liquidity indicator (system based) AMD bln



Intraday distribution of payments

The peak hour for the number of payments in the reporting period was the 10:00-11:00 interval of the day, during which an average of 19.3% of the number of payments were made (see Chart 6.2). However, the quantitative distribution of payments is smoothened for the other time intervals of the day.

Chart 6.2. Intraday distribution of the number of payments on an average semiannual basis, %

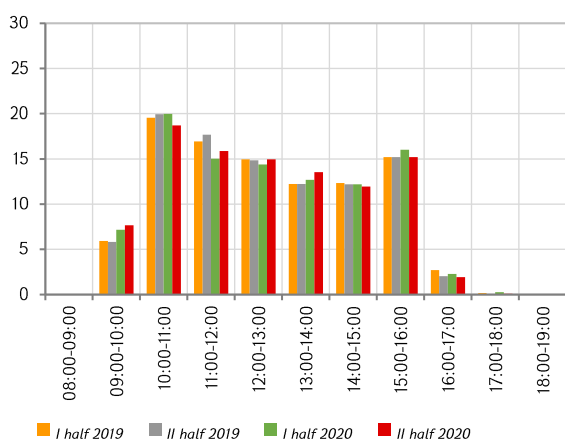
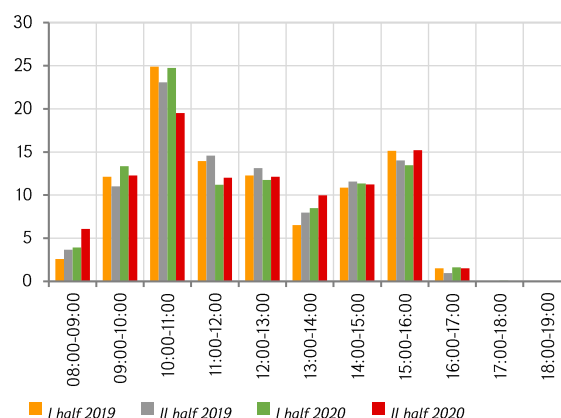


Chart 6.3. Intraday distribution of the value of payments on an average semiannual basis, %



Source: Central Bank of Armenia.

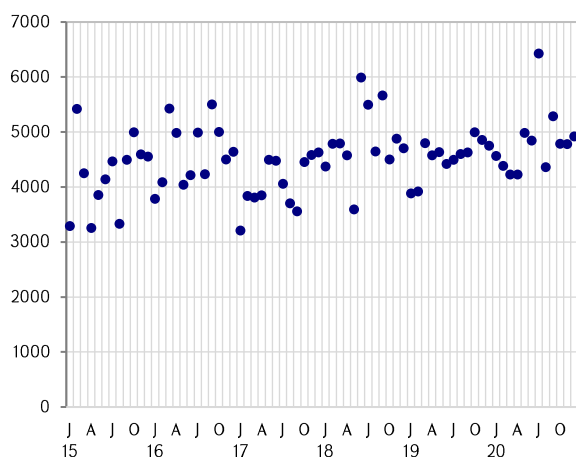
The peak hour for the value of payments was also recorded for the 10: 00-11:00, when 22.2% of total value was made (see Chart 6.3). Some smoothening is also recorded in other time ranges. In addition, the peak hour was in the first half of the day, which reduces the concentration risks, as in case of problems, participants have enough time to take the necessary measures to settle 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.

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, growing to some extent during the second half of 2020 (see Chart 6.4).

Chart 6.4. Maximum number of payments per hour by month



Source: Central Bank of Armenia.

The maximum hourly indicator in 2020 was 6,429 payments per hour (4,996 in 2019). The peak hour was the time range of 12:00-13:00, totaling 39.6% of the number and 31.5% of the value of payments for that day. This maximum indicator was conditioned by operational problems during the 1.5 hours preceding that time range³⁸. Nevertheless, the payments were absorbed by the system and the business day was closed on time, creating no problems for the participants.

During the reporting period, there was a 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 1.6%, for 3500-4300 payments it is 5.0%, and for 2500-3500 payments it is 14.2% of general operational hours.

The maximum daily indicator (the number of payments per day) grew by 22.9% over 2019 to 28,487 (in 2019, the peak was 23,187).

Given that the cases of the abovementioned marginal indicators still have a small share in total payments flow ³⁹, the probability of the emergence of capacity-related risks is deemed to be low.

Operational availability of the system

During the reporting period, no significant incident (lasting 1 hour or more) affecting the availability of the EPS was recorded, as a result of which the operational availability of EPS for the year was 100%⁴⁰.

³⁸ The operational problem did not affect the availability of the system, but only delayed sending information on the final settlement to the participants.

³⁹ For example, the share of payments over 3,500 per hour was 7.4% per annum.

⁴⁰ According to the EPS participation agreement, operational availability of the system should be at least 98.0% yearly.

6.2. SECURITIES SETTLEMENT SYSTEM

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

In 2020 secondary market transactions totaling AMD 13,679.6 billion, were carried out through GSASS (AMD 10,846.3 billion in 2019). Compared to the previous year, transactions grew by 26.1% (see Table 6.1). Such growth was mainly conditioned by the so-called "free delivery" operations. In 2020, secondary market operations totaling AMD 945.4 billion were carried out through CDA's SSS (in 2019 this figure was AMD 768.7 billion), growing by 22.9% over the previous year (see Table 6.2). The growth is conditioned by the growth of OTC transactions with shares, corporate bonds, , Government bonds including Eurobonds issued on behalf of the RA, as well as stock exchange transactions of the CDA. In particular, compared to the previous year, in 2020, the over-the-counter transfers of local corporate shares and transfers made with foreign securities grew significantly.

In 2020, the share of operations executed through the Government Securities Accounting and Settlement System (GSAAS)) in the secondary market transactions was 93.5% (93.4% in 2019). In terms of financial stability, GSAAS has vital and systemic importance.

Table 6.1. Transfer of Securities through the Government Securities Accounting and Settlement System of the Central Bank Pertaining to the Operations with Securities in the Secondary Market ⁴¹

Transfers	2018	2019	2020
Value of OTC transactions (trades, repo, reverse repo) (billion AMD nominal value)	9433	10,794	13,616
Number of OTC transactions (trades, repo, reverse repo)	28322	31,061	33,847
Value of stock exchange transactions (billion AMD nominal value)	50.2	51.9	62.7
Number of stock exchange transactions	611	902	993
Total value of transfers of securities (billion AMD nominal value)	9483.6	10,846.3	13,679.6
Total number of transfers of securities	28,933	31,963	34,840

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.

Table 6.2. Transfer of Securities through the Securities Account and Settlement System of the Central Depository of Armenia pertaining to the operations with securities in the secondary market ⁴²

Transfers ⁴³	2018	2019	2020
Value of OTC transactions (trades, repo, reverse repo) (billion AMD nominal value)	545.0	713.0	858.7
Number of OTC transactions (trades, repo, reverse repo)	2,718	4,088	2,557
Value of stock exchange transactions (billion AMD nominal value)	42.4	55.7	86.7
Number of stock exchange transactions	2,028	2,711	4,058
Total transfers of securities (billion AMD nominal value)	587.4	768.7	945.4
Total number of transfers of securities	4,746	6,799	6,615

⁴¹ 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.

⁴² The statistical information provided includes the COA's SSS-executed settlements, both with corporate securities and Eurobonds issues by the RA and government bonds held as sub-custodian.

⁴³ OTC transactions for 2018 u 2019 have been adjusted, including investments in foreign bonds.

In 2020, there were no significant (with duration of more than 1 hour) incidents, which could influence on the uninterrupted functioning of the GSASS.

The operational availability of the primary and secondary markets' moduls of the GSASS was 100%.

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

Box 6.1

Peculiarities of payment card transactions

Payment card is the most popular payment instrument used in the retail sector in Armenia, therefore the indicators of transactions of non-cash payments, especially in light of the situation caused by COVID 2019. To prevent the spread of coronavirus, the Central Bank of Armenia, in cooperation with commercial banks, has launched awareness campaigns urging the public to use online banking services, including non-cash payments for goods and services, giving priority to online payments in the virtual environment or payments through contactless payment cards in the physical environment (through NFC cards). Moreover, emphasizing the role of contactless means of payment in the current situation, Armenian commercial banks raised the monetary threshold from AMD 10,000 to AMD 20,000 for transactions not requiring the PIN code.

Due to the above-mentioned policy, in 2020 the number of contactless payment cards grew by 156.9%, accounting for 34.9% of overall payment cards issued by the Armenian banks. Furthermore, as a result of higher demand in pandemic situation, the number of physical and virtual POS terminals that serve as the basic infrastructure for non-cash transactions, grew by 16.4% and 63.7%, respectively. Thus, in the terms of physical POS terminals, card payments were mainly used in "Health", "Accommodation and public catering", "Wholesale and retail" sectors. In contrast, pandemic related restrictions caused many organizations in other sectors to cancel operations, resulting in a decrease of physical POS terminals in the sector of "Culture, Entertainment, Recreation". As for the virtual POS terminals, the highest growth during the year was in May, when in face of pandemic, various organizations started to accept payments also in the virtual environment.

Chart 1. Value of transactions with domestic cards in RA (thousand drams)

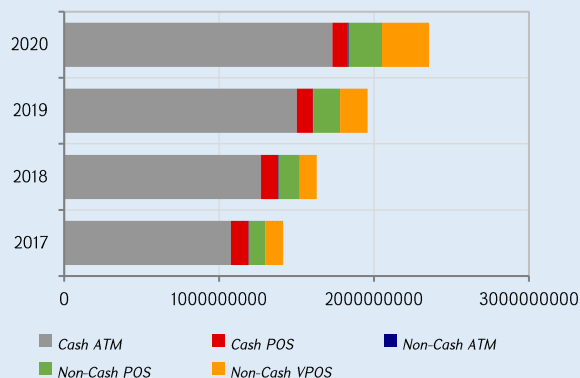
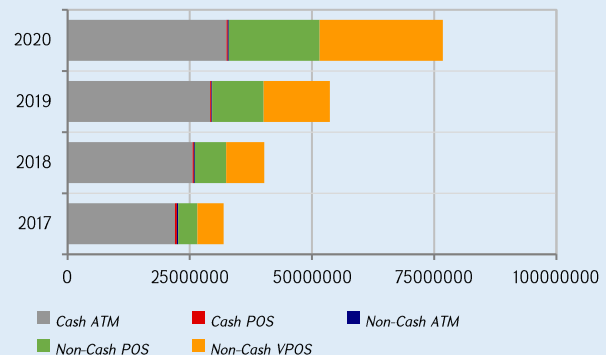


Chart 2. Number of transactions with domestic cards in RA

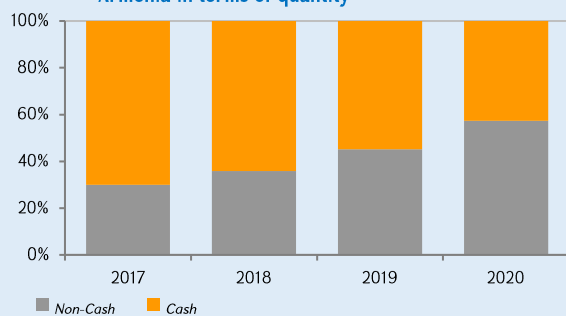


Below we review the impact of the coronavirus pandemic on card transactions.

Transactions with Domestic Cards in Armenia

In 2020, the value of transactions with domestic cards in Armenia grew by 20.3% compared to the previous year, whereas in terms of the number of transactions, due to the 81.6% growth of non-cash transactions, it grew by 43.1%. Compared to the previous year, the value and the number of cash transactions with payment cards in 2020 grew by 14.1% and 11.3%, respectively (see Chart 1.2):

Chart 3. Shares of cash and non-cash transactions in Armenia in terms of quantity



In 2020, the value and the number of non-cash transactions grew by 48.6% and 81.6%, respectively. In 2020, for the first time since 2017, the number of non-cash transactions with payment cards exceeded cash transactions, reaching 57.4% of total card transactions, indicating the strengthening of the culture of non-cash transactions, which was partly catalyzed by the pandemic (see Chart 3). It should be noted that because of the pandemic, the growth of non-cash transactions in 2020 is several times higher than that for cash transactions with payment cards (both in terms of value and number).

The value and the number of transactions made in the Internet environment is growing year by year, and in 2020, driven by pandemic, the growth accelerated. In terms of value, the growth over the previous year was 70.7%, and in terms of number, 86.5%.

International Transaction

As expected, both volumetric and quantitative indicators of transactions with Armenian cards abroad and with foreign cards in Armenia decreased (see Charts 4,5,6,7).

Chart 4. Value of transactions with RA cards abroad (AMD thousand)

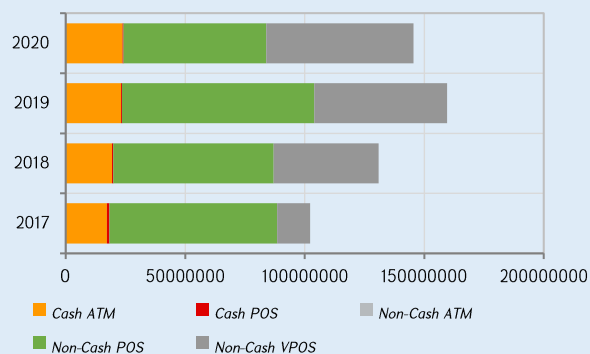


Chart 5. Number of transactions with RA cards abroad

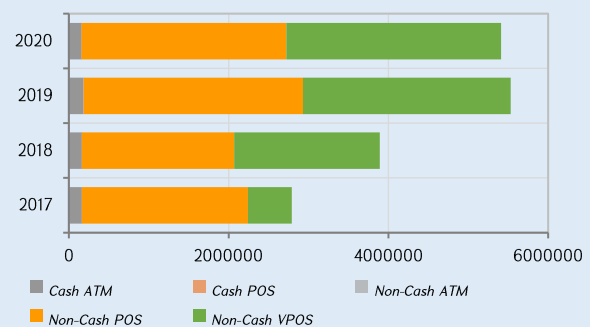


Chart 6. Value of transactions with foreign cards in Armenia (AMD thousand)

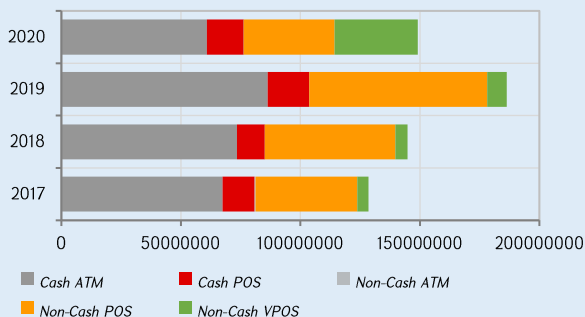
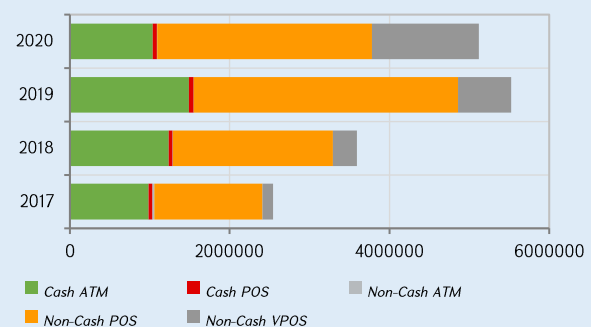


Chart 7. Number of transactions with foreign cards in Armenia



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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