INTERNATIONAL MONETARY FUND

MIDDLE EAST AND CENTRAL ASIA DEPARTMENT

Macroprudential Policies to Enhance Financial Stability in the Caucasus and Central Asia

Prepared by a team led by Padamja Khandelwal and including Ezequiel Cabezon, Sanan Mirzayev, and Rayah Al-Farah

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Executive Summary

Limited economic diversification has made the economies of the Caucasus and Central Asia (CCA) particularly vulnerable to external shocks. The economies in the region are heavily reliant on oil and mining exports as well as remittances. In some countries, tourism and capital flows also play a prominent role in aggregate economic activity.

The effect of external shocks on economic activity in the CCA is amplified through large financial cycles. Over the past two decades, favorable external conditions in the region have been accompanied by large credit expansions and rising systemic risks. Adverse external shocks have led to sharp contractions in credit and asset prices and higher nonperforming loans. Banking sector crises—more frequent in the less diversified CCA economies—have aggravated macroeconomic outcomes and necessitated costly publicly funded bailouts, also weakening financial sector development and potential growth. The COVID-19 fallout is the latest economic shock to affect CCA financial sectors, with its full impact expected to materialize with a lag.

Stronger macroprudential policy frameworks can help strengthen financial sector resilience to mitigate the impact of the region's large financial cycles. Time-varying macroprudential policies can help address risks over the financial cycle by moderating credit and asset price booms and by building buffers that can be released to maintain resilience as shocks materialize. In addition, structural macroprudential policies can help reduce the financial sector's vulnerability to common shocks and dollarization.

A broad range of macroprudential tools is needed in CCA countries to curtail financial sector risks. The design of the macroprudential toolkit should reflect the size and complexity of the financial sector, data availability, and analytical capacity. Tools should be calibrated and evolve in line with risks, minimize leakages, and avoid undue complexity.

Many CCA countries have started the process of strengthening their macroprudential policy frameworks. In this context, it is important to adopt a macroprudential strategy, establish a system to identify and monitor systemic risks, select and operationalize tools in line with identified risks, and upgrade communication and ex post evaluation. While efforts to improve monitoring of systemic risks are underway in a number of countries, several of them still need to address gaps in the independence of the macroprudential authorities as well as in data and capacity.

1. Introduction

The relatively undiversified nature of the Caucasus and Central Asian[1] economies contributes to economic volatility. The dependence on oil and mining exports and remittances from migrant workers has meant that large external shocks to commodity prices and trading partners—such as the global financial crisis (GFC) (2009), the drop in oil prices (2014–15), and the current COVID-19 pandemic—have led to significant drops in economic activity and in some cases sizable currency depreciation. In some CCA countries, the volatility of tourism receipts and capital flows has also contributed to economic instability.

While the financial sectors in the region remain underdeveloped, they have played an amplifying role in the transmission of external shocks on domestic activity. Banking sectors in the region have remained relatively small and underdeveloped, unable to contribute significantly to efficient resource allocation, financial inclusion, and private sector development. Nonetheless, the impact of declines in economic activity and currency depreciations on bank balance sheets has been amplified due to strong macro-financial linkages as well as vulnerabilities from high levels of financial dollarization and weak asset quality. As a result, there have been repeated bank failures and restructurings in many CCA countries. Growth, monetary policy effectiveness, and public finances have also been affected adversely by this instability.

There is a role for time-varying macroprudential policies to address systemic risks over the CCA financial cycle. During a financial cycle upswing, higher commodity prices and remittances boost government spending and bank liquidity, which in turn fuel a feedback loop between bank credit, asset prices (e.g., real estate) and real sector activity. This can lead to the buildup of systemic vulnerabilities on bank balance sheets. During a downturn, as commodity prices and remittances decline, the cycle goes in reverse, driving an adverse feedback loop with highly disruptive declines in credit, asset prices, and real sector activity. Time-varying macroprudential policies, which can be tightened and loosened as needed, can help mitigate the buildup of systemic risks and their disorderly unwinding over the course of the financial cycle.

Limited economic diversification and the high degree of dollarization in the CCA call for structural macroprudential measures to mitigate systemic risk. Limited economic diversification and accompanying volatility constrain the ability of banks to diversify the risk in their credit portfolios. Moreover, the high level of dollarization contributes to higher vulnerabilities in banks. These structural systemic risks can be managed through macroprudential policies that can directly address the implications of these structural vulnerabilities.

This departmental paper examines the case for, and experience with, macroprudential tools in the region and suggests recommendations to improve their effectiveness, including in the context of the coronavirus shock. The paper is structured as follows: Chapter 2 examines the stylized facts regarding the region's vulnerability to external shocks and capital flows as well as financial sector risks. Chapter 3 presents evidence regarding the presence of financial cycles and adverse feedback loops that have manifested themselves in systemic financial crises in the CCA. Many CCA countries already implement macroprudential policies, and Chapter 4 documents the institutional frameworks and guidelines that are already in place. The section also draws lessons from countries' experiences so far and provides policy recommendations to strengthen the use of macroprudential policies in the region.

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[1] The CCA includes eight countries: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. Azerbaijan, Kazakhstan, Uzbekistan, and Turkmenistan are considered oil exporters whereas Georgia, Armenia, Kyrgyz Republic and Tajikistan are classified as oil importers.

2. Stylized Features of CCA Economies

CCA economies are highly vulnerable to external shocks…

CCA economies are heavily reliant on oil and mining exports and remittances (Figure 1). While the CCA oil exporters (CCAOE) are heavily reliant on oil and mining exports, oil importers also have some mining exports. In 2018, oil and mining exports averaged about 17 percent of GDP across the region (reaching as high as 39 percent in Azerbaijan and 30 percent in Kazakhstan). CCA oil importers (CCAOI) and some oil exporters are dependent on remittances from migrant workers, which averaged 15 percent of GDP, far higher than the 3.7 percent average across emerging market economies. Together, oil and mining exports and remittances ranged between 20 and 50 percent of GDP across individual CCA countries in 2018. Given that one of the main sources of remittances to the region is Russia, there is often a high correlation between shocks to oil and mining exports and remittances.[1]

Government revenues and expenditures also have a strong positive correlation with remittances and oil prices. In CCAOE, hydrocarbon revenues accounted for 43 percent of fiscal revenues on average for the period 2000–18. In CCAOI, remittances boost government revenues indirectly through stronger economic activity. In general, oil price and remittance upswings lead to higher revenues which translate into higher government spending. During oil price and remittance downturns, these developments reverse. The correlations between year-over-year changes in real government expenditure and real oil prices in oil exporters, and real government expenditure and real remittances in oil importers are positive and statistically significant, implying that potentially procyclical fiscal policy amplifies external shocks.[2]

Tourism and capital flows are additional sources of external volatility in some CCA economies. Tourism receipts in Armenia, Azerbaijan, and Georgia ranged between 6 and 20 percent of GDP in 2018 (compared to 7.3 percent in emerging Europe).[3] The coronavirus shock in 2020 led to a collapse in these inflows and exacerbated the downturn in these economies (Figure 2).[4] In a similar vein, Kazakhstan banks received very large capital inflows before a sharp reversal in 2007–08. Capital flows to the rest of the CCA have been relatively moderate, reflecting the perception of high risk and limited size of financial sectors. These capital inflows are likely correlated with commodity prices and remittances and in turn exacerbate economic volatility.[5]

Banking sectors are underdeveloped and, in many places, weak…

The financial sector in most CCA countries is bank-dominated, and relatively small and underdeveloped. In 2020, Georgia and Armenia had the largest banking sectors in the region, as measured by the size of credit to the private sector (in percent of GDP). By contrast, Tajikistan, Azerbaijan, and Kazakhstan had relatively small banking sectors, less than half the size of banking sectors in comparison to countries in emerging Europe (Figure 3), reflecting in part the large credit contractions in the aftermath of the 2014–15 oil shock (Figure 4).

Dollarization in the CCA remains high and well above emerging market peers, amplifying external vulnerabilities and raising the likelihood of financial crises. Financial dollarization has been historically elevated in the CCA due to the post-Soviet transition in the 1990s, which was characterized by very volatile exchange rates,

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[1] Due to historical and structural factors, several countries in the CCA depend on Russia as a major export and import market, as well as a source of remittances. See also Poghosyan (2020).

[2] See also Countercyclical Fiscal Measures for Recovery, Joint Development Partner Presentation, CAREC Economic and Financial Stability Cluster Forum, October 2020.

[3] The tourism sector is smaller in other CCA economies.

[4] See also October 2020 IMF *Regional Economic Outlook: Middle East and Central Asia.*

[5] In recent years, the region has seen a step up in Eurobond issuances by banks in Armenia, Georgia, and Uzbekistan.

Figure 1. Characteristics of CCA Economies

1. Real GDP Growth
(Percent change; weighted by PPP-adjusted GDP)
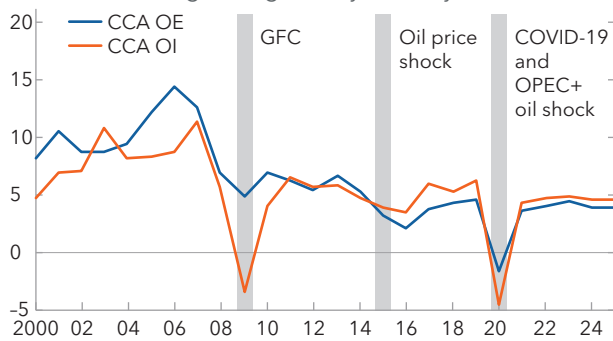
2. Export Diversity Index, 2014
(Index of 0 to 1, where 1 is more diverse)
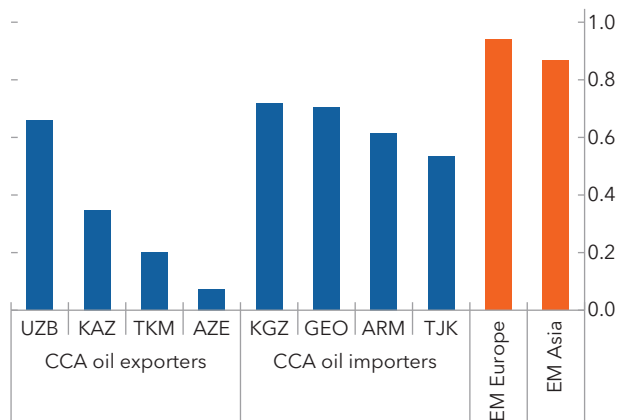
3. Oil and Mining Exports and Remittances, 2018
(Percent of GDP)
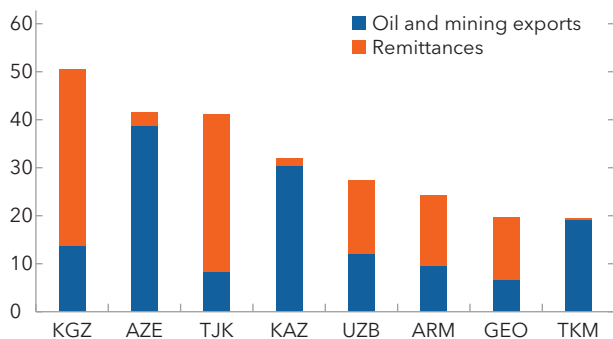
4. Cyclicality of Remittances Inflows and Real GDP Growth in Russia
(Annual growth rates, percent)
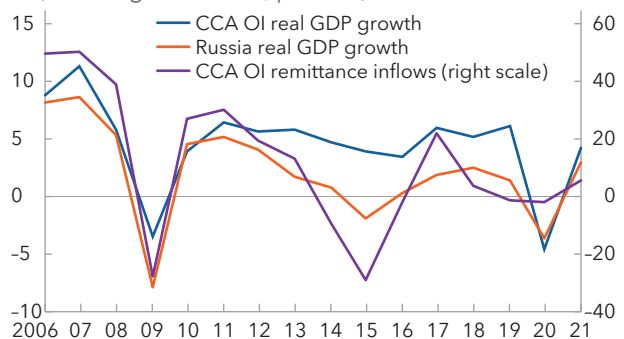
5. Real Government Expenditure and Oil Price Growth
(Percent, year-over-year growth[1])
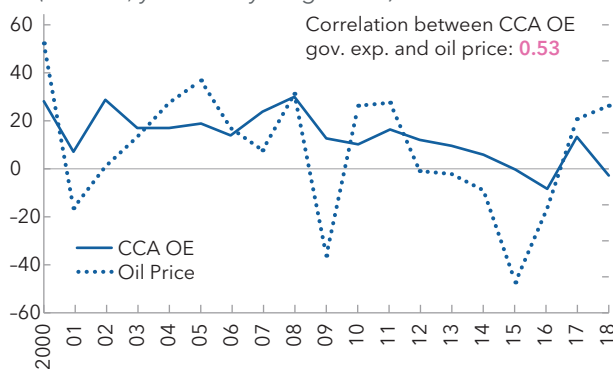
6. Real Government Expenditure and Remittance Growth
(Percent, year-over-year growth[1])
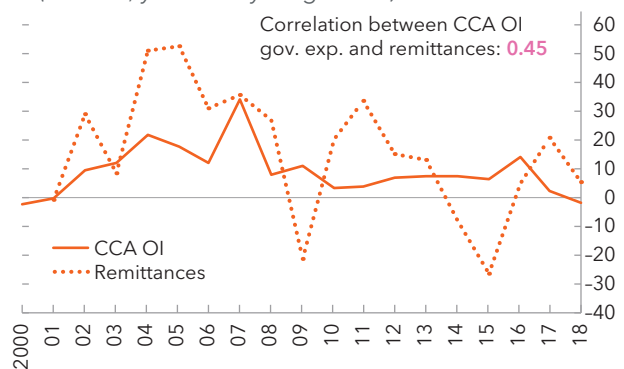
Sources: National authorities; UNCTAD; IMF Diversification Database; IMF, *World Economic Outlook*; and IMF staff calculations.
Note: CCA = Caucasus and Central Asia; OE = Oil Exporters; OI = Oil Importers. Please see IMF, *World Economic Outlook* for country groupings included in the definition for EM Europe and EM Asia.
[1]Real oil price and remittances obtained by deflating the series with US consumer price index.

Figure 2. Tourism and Capital Flows in the CCA

1. Inbound Tourism Expenditure
(Percent of GDP)
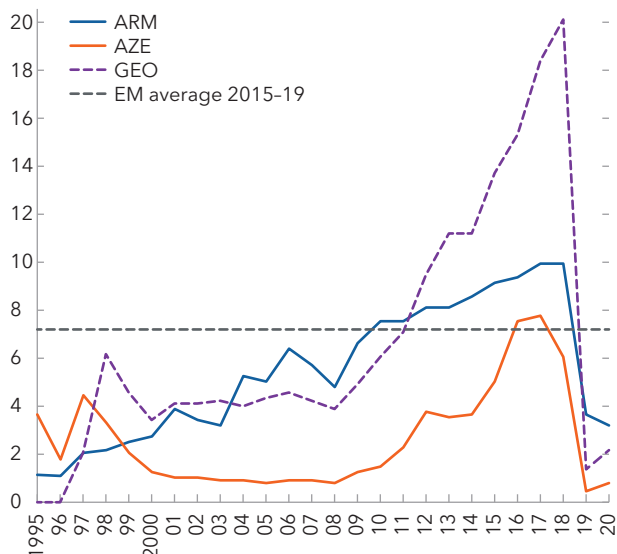
2. Banks External Funding
(Percent of GDP[1])
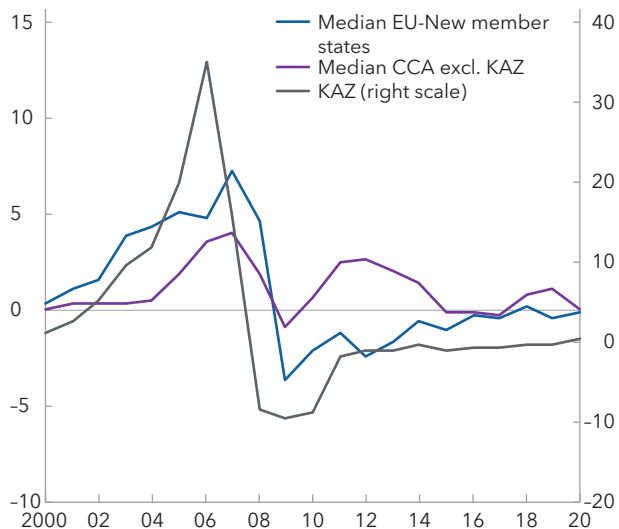
Sources: National authorities; World Tourism Organization; IMF, Balance of Payments Statistics database; IMF, *World Economic Outlook*; and IMF staff calculations and estimates.
Note: Banks' external funding calculated as the portfolio investments (debt securities and equity) and other investments of deposit-taking corporations.
[1]Non-oil GDP for Azerbaijan and Kazakhstan.

hyperinflation, and declines in output. Financially dollarized economies display a more unstable demand for money and a greater propensity to suffer banking crises after a depreciation of the local currency (Levy Yeyati 2006). Despite making some progress, the share of foreign currency (FX) deposits was about 46 percent in the CCA (compared to 40 percent in emerging Europe), and the share of FX loans averaged at 40 percent (in contrast to 36 percent) in 2020.

Banks in some CCA countries remain encumbered with high levels of problem loans. Problem loans (defined as restructured, watch, and overdue loans) and officially reported nonperforming loans (NPLs) are high in several CCA countries, pointing to persistent weaknesses in asset quality. Delays in loan loss recognition and write-offs raise concerns about the quality of reported capital in some countries even as reported capital adequacy ratios average about 18 percent, well in excess of minimum requirements.[6]

Financial sector vulnerabilities in the region have deep-rooted structural causes. These include limited competition that reflects the presence of large state-owned banks in some countries. A weak rule of law, large directed and subsidized lending programs, weak banking regulation and supervision, and limited data availability are other structural causes, similar to other low-income countries (IMF 2014c). The banking systems in Armenia, Georgia, and the Kyrgyz Republic have grown more resilient as the authorities have proactively strengthened regulation and supervision (Vera Martin and others 2018).

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[6] For instance, reported capital adequacy ratios are more than 20 percent in Kazakhstan, but an asset quality review that was conducted at the end of 2019 revealed additional capital requirements of 3 percent of assets. Similarly, in Tajikistan, the reported capital of banks included government loans provided to two formerly systemic but insolvent banks (liquidated in early 2021).

Figure 3. Banking Sector Indicators

1. Size of the Financial Sector, 2020
(Percent of GDP)
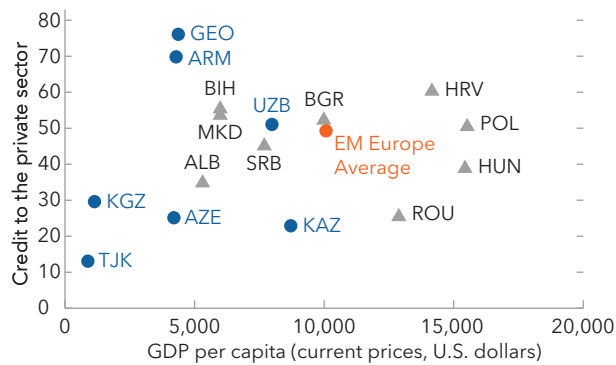
2. Bank Deposit and Loan Dollarization, 2019
(Percent of total)
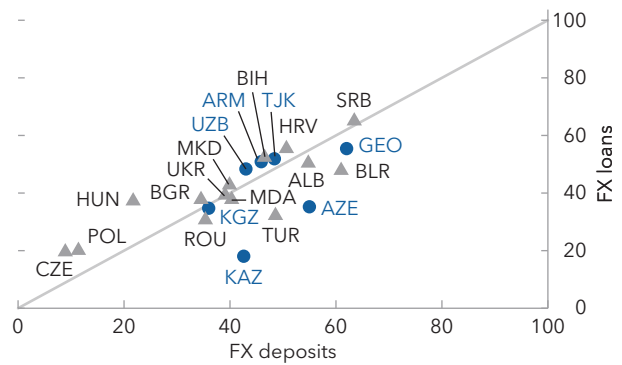
3. Asset Quality in CCA[1]
(Percent of total loans, latest data available)
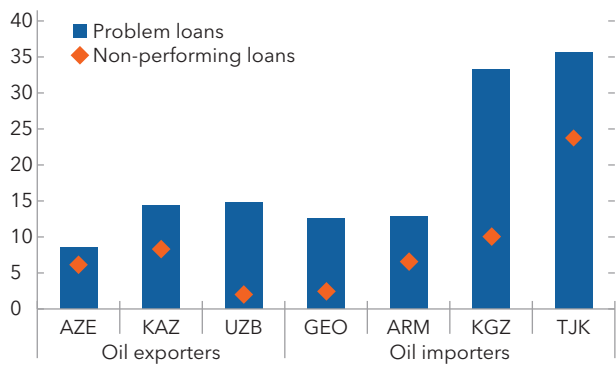
4. Regulatory Tier 1 Capital to Risk-Weighted Assets
(Percent)
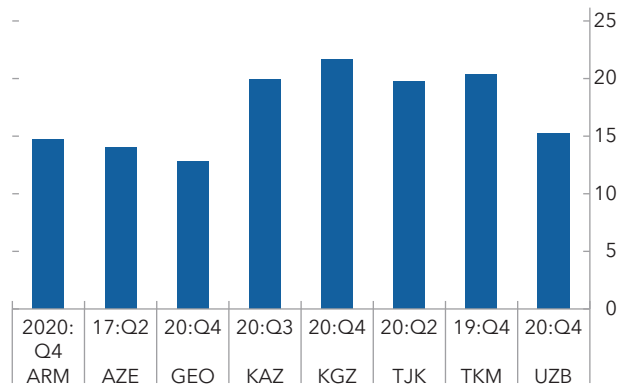
5. Changes in Selected FSIs
(Percentage points)
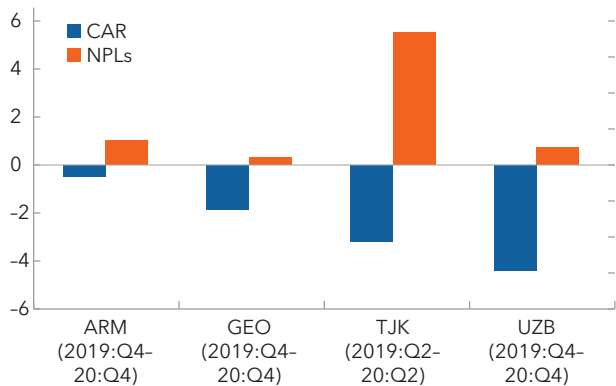
6. Return on Assets
(Percent)
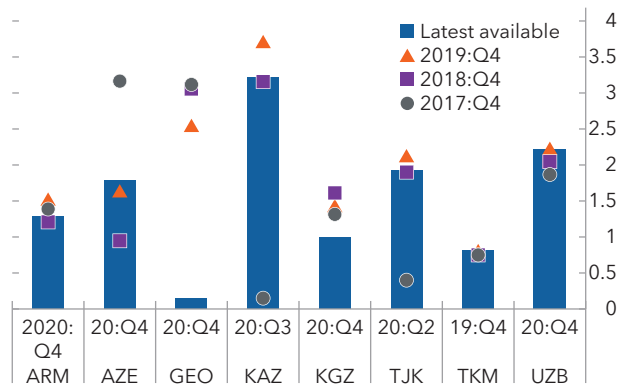
Sources: National authorities; IMF, Financial Soundness Indicators Database; and IMF staff calculations.
[1]Data for NPLs are 2020:Q4 excluding Kazakhstan and Turkmenistan where data are 2020:Q2. Problem loans data are either 2019:Q2 or 2019:Q4. Problem loans include (1) overdue loans >90 days; (2) watch loans <90 days; (3) restructured/prolonged loans; (4) write-offs; and (5) transfer to special-purpose vehicles or other vehicles. For Uzbekistan restructured loans are related to SOE borrowing (from state-owned banks) with government guarantees. The risks for banks are low as the government has high liquid buffers to repay if needed. The amount of restructured loans includes only the restructured parts of the loans. For Armenia total loans include losses and loss loans are loans overdue by 270 days. Data for Azerbaijan are staff estimates.

Figure 4. Private Credit in the CCA

1. Credit to the Private Sector in CCA OE
(Percent of GDP)

AZE   KAZ   UZB
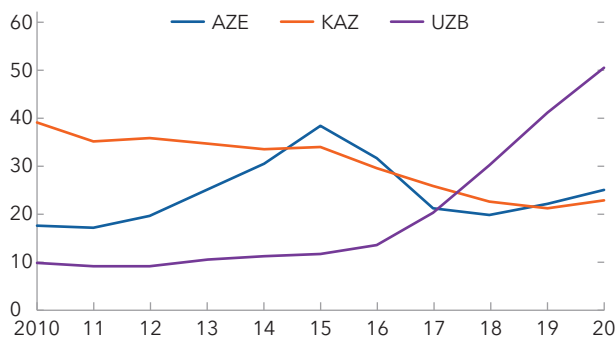
2. Credit to the Private Sector in CCA OI
(Percent of GDP)

ARM   GEO   KGZ   TJK

3. Growth in Credit to the Private Sector in CCA OE
(Percent)

AZE   KAZ   UZB
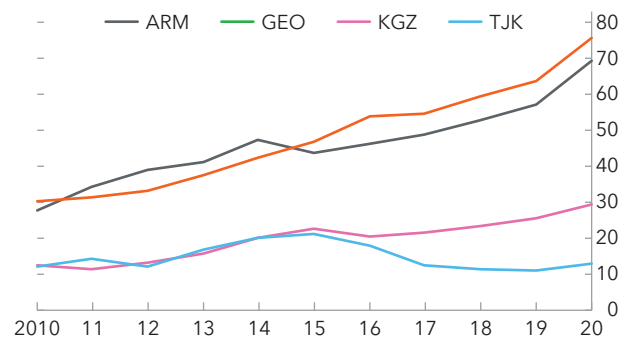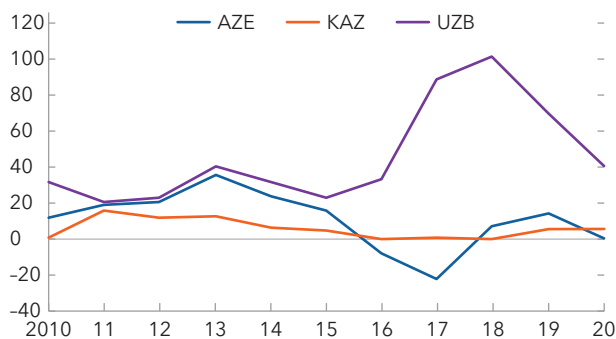
4. Growth in Credit to the Private Sector in CCA OI
(Percent)

ARM   GEO   KGZ   TJK
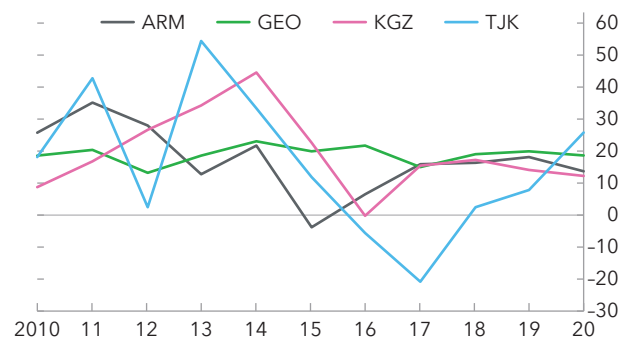
Sources: Haver Analytics; national authorities; IMF, International Financial Statistics database; and IMF staff calculations.

The COVID-19 shock has impacted the CCA banking systems adversely. Credit growth has declined and officially reported NPLs have increased in Armenia, Georgia, Tajikistan, and Uzbekistan. In 2020, profitability decreased in Georgia and Tajikistan. Looking ahead, a significant adverse impact of the COVID-19 shock on asset quality and capital adequacy is expected to materialize with a lag in some countries (see Teodoru, Akepanidtaworn, and Xu 2021).

3. Financial Cycles in the CCA and Their Economic Implications

A financial cycle is characterized by comovement in key financial markets and can impact real economic activity.[1] Financial markets are procyclical in general and this can have a significant impact on the evolution of economic activity (Borio, Furfine, and Lowe 2001), with shocks to borrower balance sheets playing an important role in economic activity and a source of fluctuations in the real economy (Bernanke and Gertler 1989). In the United States, credit shocks have had an adverse effect on output in every recession since 1982 (Meeks 2011). In emerging markets (EMs), economic growth falls significantly after structural shocks that drive NPLs higher or cause a contraction in credit (De Bock and Demyanets 2012).

While many financial upturns reflect financial deepening, a period of excessive credit growth often involves a build-up of systemic vulnerabilities and could end in a financial crisis. Empirically speaking, strong credit growth is a significant factor in explaining the probability of financial crises (Demirgüç-Kunt and Detragiache 1997) and large and prolonged credit booms are strongly associated with subsequent deterioration of credit quality (Jiménez and Saurina 2006, Claessens Kose, Laeven, and Valencia 2014), especially in the context of weak regulatory and supervisory environments. In boom periods, stronger bank balance sheets and rising asset values drive excessive credit expansions. During the downturn, faced with deteriorating balance sheets as a result of loan defaults, weaker asset prices, and rapid growth in NPLs, banks toughen credit conditions and collateral requirements, amplifying the cyclical swings by reducing the flow of credit to the economy.

As financial sectors in the CCA are mainly bank-based, this paper focuses on bank credit cycles and the resulting buildup of systemic risks in the region. Equity markets in the CCA are mostly small or non-existent, while data on real estate prices are not regularly collected. In this study, we take two approaches to study the credit cycles in the CCA countries (Annex 1, methodological details and caveats)[2]:

▪ *Credit gap analysis*. The credit-to-GDP gap indicator was put forward by the Basel Committee for Banking Supervision and is considered a powerful early warning indicator of banking crises (IMF Staff Guidance Note on Macroprudential Policy). The IMF Guidance Note also recommends using the credit-to-GDP gap as a starting point for assessing the build-up of systemic risks over the financial cycle.

▪ *Credit cycle analysis using business cycle methodology*. This methodology (similar to Claessens, Kose, and Terrones 2011) identifies credit cycles using changes in the levels of relevant variables.[3] The advantage of this methodology is that it can be collated with broader macroeconomic developments to study the drivers and feedback loops between financial and business cycles in the CCA.

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[1] While there is no single definition of the financial cycle, the term generally refers to the cyclical comovement of a set of financial variables including both quantities and prices (BIS 2014) and is conceptually similar to the standard approach for defining the business cycle. Key financial variables include bank credit, real estate prices, and equity prices.

[2] The credit cycle analysis should be supplemented with multiple indicators across time and structural dimensions to assess the need for macroprudential policy measures. This is particularly relevant for low-income countries, where data issues are more prominent (IMF 2014a, 2014b, 2014c).

[3] A downturn or a contraction is defined as a decline in the level of that variable from peak to trough, while an upturn or an expansion is characterized as an increase from trough to the next peak.

A. Credit Gap Analysis

The credit gap analysis shows that several CCA countries witnessed large credit gaps and a buildup of systemic vulnerabilities ahead of the GFC. Rapid expansions of credit to both the household and corporate sectors occurred ahead of the GFC as rising oil prices and remittances fueled optimism.[4] While there are some measurement challenges, at their peak, credit-to-GDP gaps were between 5–10 percent of GDP in most CCA countries, and nearly 30 percent of non-oil GDP in Kazakhstan (Figure 5). These were followed by sharp declines relative to the long-term trend, almost mirroring the positive deviation from the trend in the expansion phase. In most CCA countries, it took over 20 quarters from the cyclical peak to close the credit gap.

By comparison, credit gaps ahead of the 2014–15 oil price shock were smaller in all countries except Armenia, Azerbaijan, and Tajikistan. In Armenia, which did not see a pre-GFC boom, the credit gaps turned large and positive again (about 5 percent of GDP) ahead of the 2014–15 oil price shock. In Georgia and the Kyrgyz Republic, credit gaps were smaller (closer to 3 percent of GDP). Azerbaijan and Tajikistan, by contrast, saw a rapid widening of credit gaps in 2015, before a very sharp decline in subsequent years.

Georgia, Uzbekistan and, to some extent, Armenia, saw rising pressures ahead of the COVID-19 crisis. Credit gaps increased to almost 15 percent of GDP in Uzbekistan and 10 percent of GDP in Georgia, ahead of the COVID-19 shock. While some of the expansion in the credit gap and credit growth reflected exchange rate depreciation and not only credit growth, it may still indicate a build-up of systemic risks in these countries. Average annual credit growth during 2015–19 in Georgia and Uzbekistan has been 20 and 47 percent, respectively. A persistent negative credit gap in Kazakhstan almost closed in late 2019 on the back of rapid credit growth. Overall, credit gaps remained largely unchanged in the CCA during the COVID-19 pandemic, despite a modest slowdown in credit growth in most CCA economies in 2020.

The maximum credit gaps in CCA countries have been smaller than the average maximum gaps seen in major EMs, with some exceptions. Across major EMs, the maximum credit gaps increased from about 12 percent pre-GFC to about 15 percent post-GFC.[5] In much of the CCA (except Azerbaijan and Kazakhstan), the maximum positive and negative credit gaps have been smaller (Figure 5). The larger credit gaps in Azerbaijan and Kazakhstan point to higher credit growth. In 2020, however, positive credit gaps in Georgia and Uzbekistan have risen sharply near or above the average maximum positive credit gap in EMs.

B. Credit Cycles Analysis

Similar to the credit gap analysis, the credit cycles methodology indicates that CCA countries experienced large credit upturns and downturns.

- *Credit upturns*. Starting in the early 2000s, CCA countries went through a historic credit upturn that lasted an average of 25 quarters, and real credit increased a cumulative seven-fold (Table 1).[6] Starting in the early 2010s, many CCA countries witnessed another strong credit upturn, with an average of 15 uninterrupted quarters of real credit increase.

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[4] All CCA countries except for Armenia and Tajikistan witnessed a sharp increase in the credit gap ahead of the GFC.

[5] The BIS credit gap data is used for 18 major EMs. For details see https://www.bis.org/statistics/c_gaps.htm. The maximum credit gaps across EMs are calculated by deriving a maximum positive and maximum negative credit gap for each country for two periods (2001–09 and 2010–20) and then taking a simple average across the countries.

[6] This average excludes Turkmenistan and Uzbekistan due to multiple short-term downturns during 2001–08.

Figure 5. Contribution to Private Sector Credit Gap
(Percent of GDP)

■ Household contributions   ■ Nonfinancial corporation contributions (resident)   — Private sector credit gap
--- Average maximum positive credit gaps across major EMs, 2001–09 and 2010–20
···· Average maximum negative credit gaps across major EMs, 2001–09 and 2010–20

1. Armenia

2. Georgia

3. Kyrgyz Republic

4. Tajikistan

5. Kazakhstan

6. Azerbaijan

7. Uzbekistan
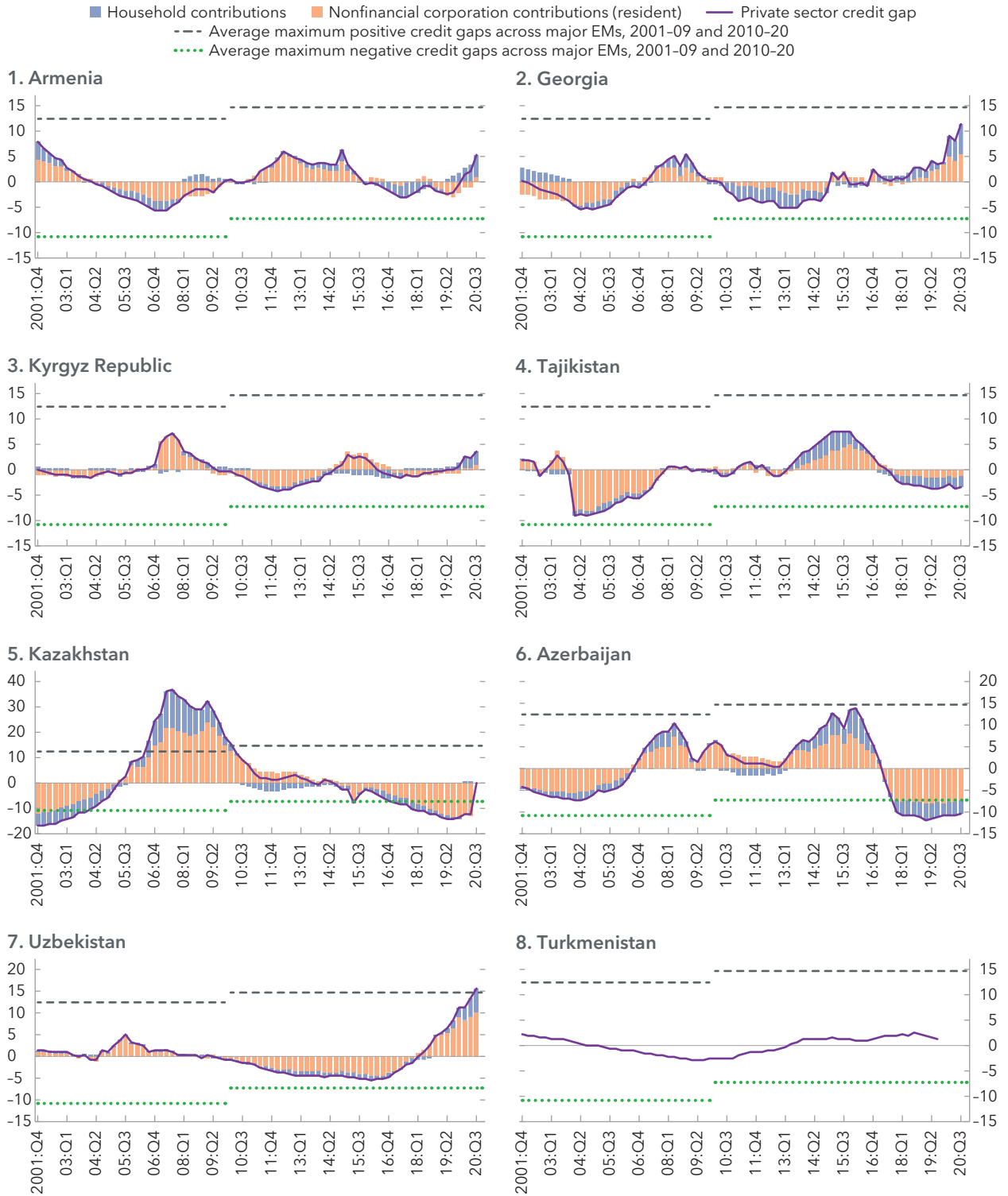
8. Turkmenistan

Sources: Bank for International Settlements; national authorities; IMF, Monetary and Financial Statistics database; and IMF staff estimates.
Note: In percent of non-oil GDP for Azerbaijan, Kazakhstan, and Turkmenistan. Sectoral breakdown is not available for Turkmenistan due to data limitations. Maximum credit gaps across EMs are acquired by deriving the maximum positive/negative credit gaps for each country for the given period and then taking simple average across the countries.

Table 1. Duration and Amplitude of Credit Cycles in the CCA, 2001–2020

Credit Downturns, 2001–20				
	Average Duration (quarters)	**Duration of Longest Downturn (quarters)**	**Average Amplitude (percent)**	**Amplitude of Longest Downturn (percent)**
Armenia	1	1	−10	−21
Azerbaijan	3	8	−16	−45
Georgia	3	4	−7	−15
Kazakhstan	8	12	−17	−24
Kyrgyz Republic	4	7	−10	−21
Tajikistan	4	11	−25	−45
Turkmenistan	3	4	−8	−15
Uzbekistan	1	2	−11	−18
Credit Upturns, 2001–20				
	Average Duration (quarters)	**Duration of Longest Upturn (quarters)**	**Average Amplitude (percent)**	**Amplitude of Longest Upturn (percent)**
Armenia	17	24	176	654
Azerbaijan	12	28	259	1095
Georgia	16	28	219	648
Kazakhstan	11	24	184	868
Kyrgyz Republic	15	21	197	557
Tajikistan	8	23	88	379
Turkmenistan	8	38	421	2824
Uzbekistan	18	18 (ongoing)	88	368

Sources: IMF staff calculations.

- *Credit downturns*. There have been 40 credit downturns in CCA countries during 2001–20. Classifying the top 25 percent of downturns as credit busts gives an average 28 percent real decline in credit from the peak. Azerbaijan, Kazakhstan, and Tajikistan went through the most pronounced credit boom-bust cycles with the largest amplitude and longest duration.

Credit upturns in CCA countries are longer than those in EMs, and downturns are shorter. While CCA upturns lasted for over six years before the GFC, EM upturns lasted about three years on average.[7] Post-GFC, CCA upturns have been shorter (about four years on average), perhaps as a result of the 2014–15 oil price shock. The average amplitude of CCA credit upturns (more than 200 percent) is much larger than that of EMs (9 percent), possibly reflecting the exponential growth experienced as banking systems were just being set up

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[7] We draw on Claessens and others (2011) for statistics on EM financial cycles. Their paper examines 218 credit downturns and 225 credit upturns across 21 advanced economies and 23 EMs.

in the CCA after the year 2000.[8,9] Similar to EMs, upturns are longer than downturns across CCA countries. However, the average duration of EM downturns (6.6 quarters) is twice as long as in CCA countries (3.3 quarters). The average decline during a credit downturn in CCA countries (13.3 percent) is slightly larger than in other EMs (11.8 percent), suggesting a much more rapid decline in credit.

In CCAOE, credit downturns have followed oil price shocks and capital flow reversals. External shocks to oil prices (GFC and 2014–15) and capital inflows (Box 1) precipitated the credit downturns in Azerbaijan and Kazakhstan. Turkmenistan and Uzbekistan were able to avoid sharp credit downturns owing to a more state-controlled banking system.

In CCAOI, credit downturns have followed shocks to remittances. The shocks to oil prices also affected CCAOI as remittance declines were followed by credit downturns (Figure 6).[10] The duration and amplitude of credit downturns have been greatly different across countries, explained in part by the level of dependence on remittance flows. Tajikistan saw the largest decline in real remittance flows and credit during 2016–18. Other CCAOI also faced these shocks but were able to weather them with relatively modest credit downturns.

Credit busts, as measured by the duration and amplitude of credit downturns, are more modest in more diversified economies and those with stronger macroprudential frameworks. Azerbaijan, Kazakhstan, and Tajikistan are among the most dependent on commodities and remittances, and the amplitude and duration of the downturns is consequently the largest in these countries. Since the 2014–15 oil-price shock, real credit in Azerbaijan, Kazakhstan, and Tajikistan remains far below the previous peak. Conversely, Armenia and Georgia are less reliant on oil and mining exports, while the overall exports of the Kyrgyz Republic are among the most diversified in the region (Figure 1). Partly as a result of these lower vulnerabilities, their credit cycles have been more modest. Additionally, progress on macroprudential policies and banking regulation and supervision in Armenia, Georgia, and Kyrgyz Republic following the GFC have also helped strengthen banking sector resilience and weather the 2014–15 external shocks. In Uzbekistan, recent reform efforts but also directed lending policies have spurred high credit growth, which bears monitoring.

C. Impact on the Economy

Financial shocks feed back to the real economy through macro-financial linkages. The lack of reliable long series of quarterly GDP data makes it difficult to empirically establish the existence of feedback loops between credit and economic activity in the CCA. Nonetheless, significant credit downturns in CCA countries clustered around the GFC and 2014–15 shocks, and in some countries overlapped with declines in asset prices and economic activity (Figures 7 and 8). Macro-financial linkages imply an adverse feedback loop between a weakening in economic activity, higher NPLs, credit tightening and a drop in asset prices (Figure 9).[11]

Past episodes of banking distress have imposed substantial fiscal costs for bank bailouts in the CCA. In Kazakhstan, the four largest financial institutions defaulted on their debt. In Azerbaijan, during the 2014–15 shocks, one third of banks were liquidated and the largest bank defaulted on its external debt payments. The two largest and several other smaller banks in Tajikistan became insolvent. In these countries, govern-ments have repeatedly stepped in with bailouts to prevent a systemic collapse, but actions to address the

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[8] However, the maximum credit-to-GDP gaps in the CCA are smaller than average EMs, likely reflecting the large trend growth in credit as banking systems have grown rapidly over the last two decades.

[9] Post GFC, the average amplitude of CCA upturns has declined to about 35 percent.

[10] Real remittances in US dollars are obtained by deflating the nominal figure by US consumer price index. Real credit is obtained by deflating the nominal figures by the consumer price index of respective countries. A real remittance decline is defined as two consecutive quarterly declines compared to the same quarter of the previous year. Credit downturn defined as when real credit in a given quarter is less than the real credit in both quarters preceding it.

[11] Espinoza and Prasad (2010) document this for the GCC. Although data are limited for real estate prices in the CCA, the sector is likely to be an important channel for the transmission of shocks, especially as alternative investment opportunities are limited.

Box 1. Capital Inflow Reversals in CCA Countries

Capital inflows have exacerbated credit downturns in many CCA countries, while ameliorating them in others. In CCA countries where data are available, significant episodes of capital inflow reversals coincide with real credit downturns. The largest reversal was registered in Kazakhstan, where net private capital inflows declined from 45 percent of GDP in 2006 to a negative 5 percent of GDP in 2009. This resulted in a credit downturn starting in 2007. During the 2014–15 oil price shock, capital inflows turned negative in all CCA countries except Georgia and these countries witnessed credit downturns. In Georgia, it is likely that the increase in capital inflows ameliorated the credit downturn.

Box Figure 1.1. Net Private Capital Inflows (excluding FDI) and Credit Downturns
(Percent of GDP)
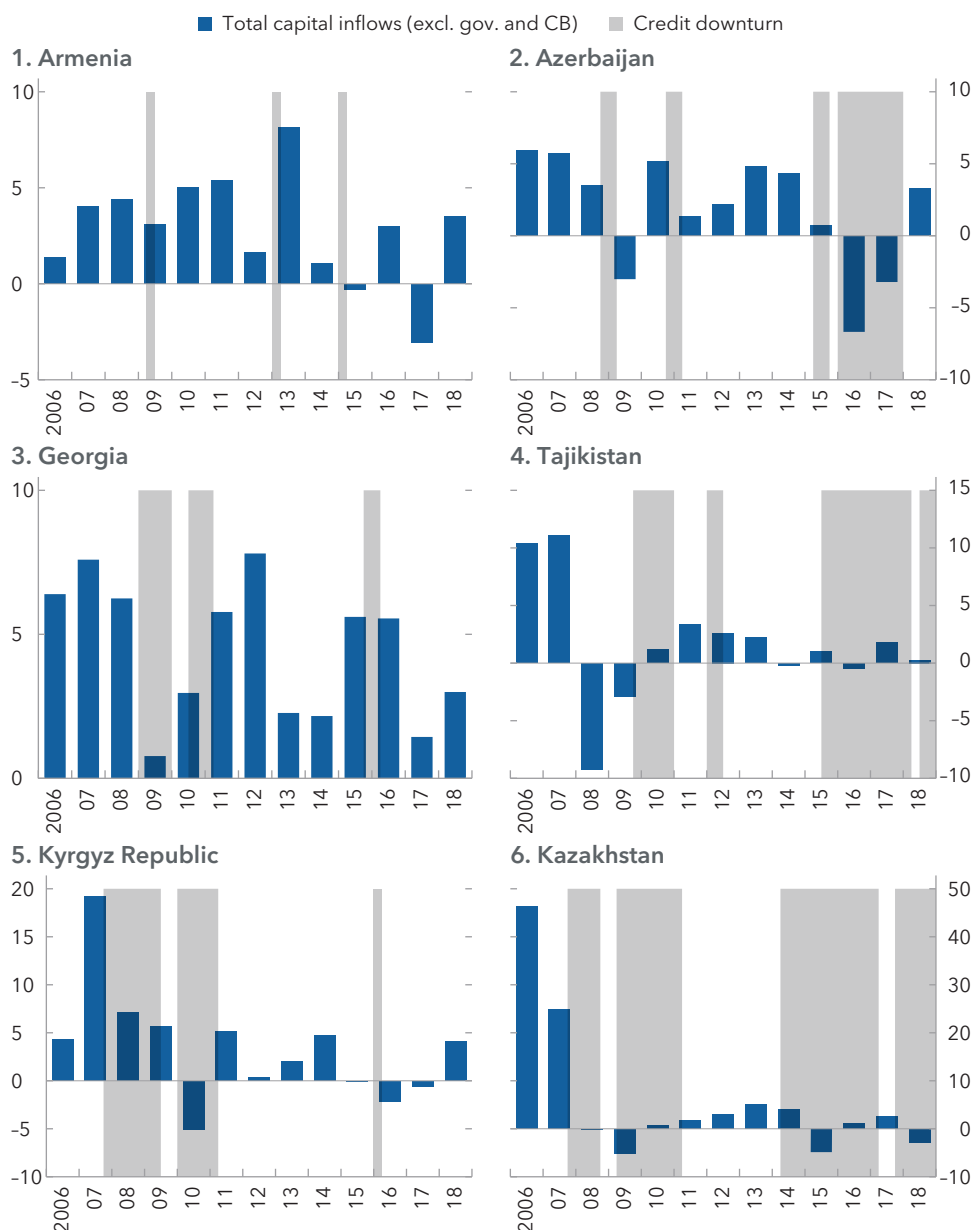
Sources: Haver Analytics; national authorities; IMF, International Financial Statistics database; and IMF staff calculations.
Note: Net capital inflows excluding foreign direct investment, government, and central bank inflows.

Figure 6. Oil Prices, Remittances, and Credit Downturns
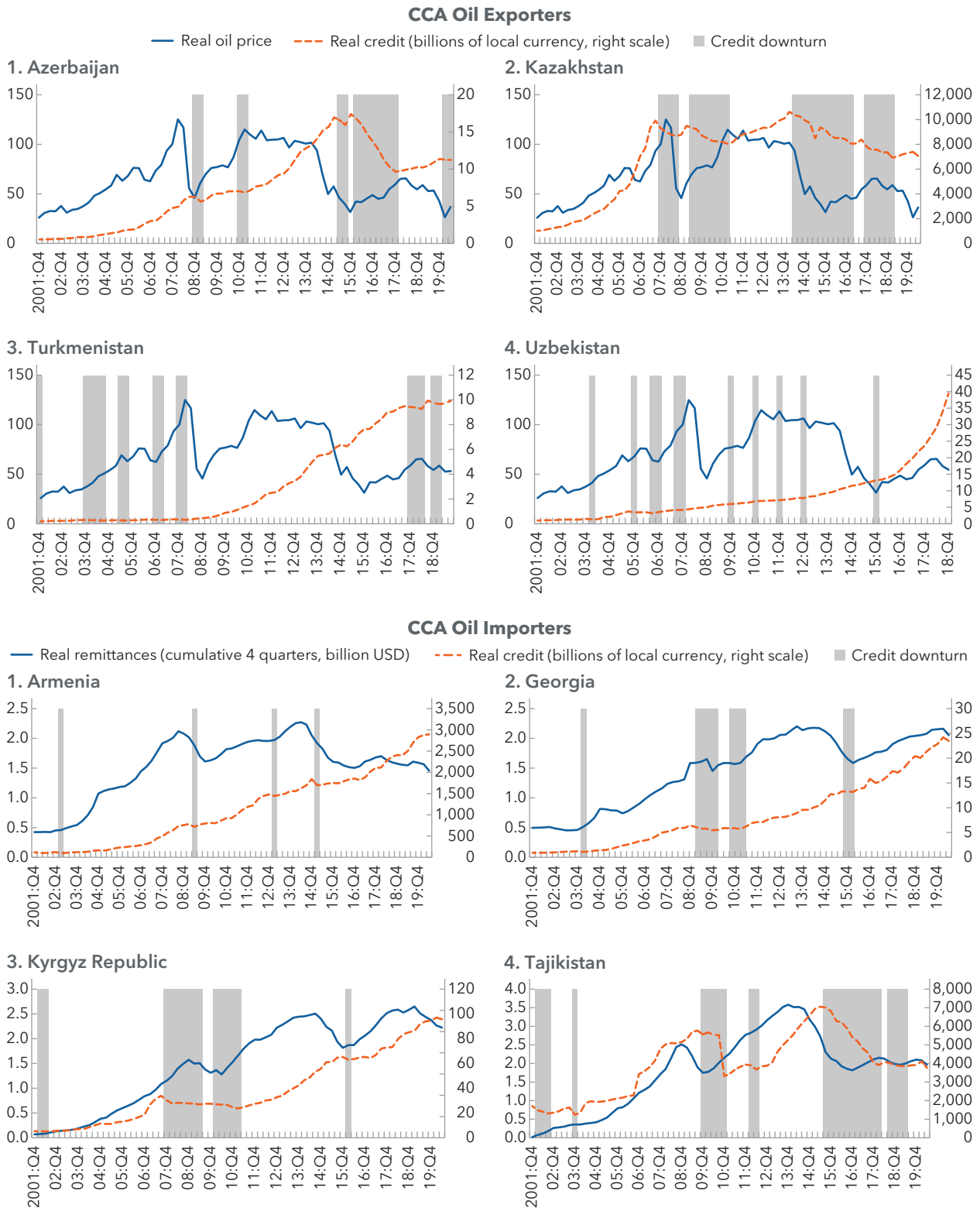
CCA Oil Exporters

— Real oil price   - - - Real credit (billions of local currency, right scale)   ■ Credit downturn

1. Azerbaijan

2. Kazakhstan

3. Turkmenistan

4. Uzbekistan

CCA Oil Importers

— Real remittances (cumulative 4 quarters, billion USD)   - - - Real credit (billions of local currency, right scale)   ■ Credit downturn

1. Armenia

2. Georgia

3. Kyrgyz Republic

4. Tajikistan

Sources: Haver Analytics; national authorities; and IMF staff calculations.
Note: Methodology to derive credit downturns is explained in footnote 17. This figure plots real oil prices and real credit for CCA oil exporters and real remittances and real credit for CCA oil importers.

Figure 7. Housing Prices in US Dollars
(Index, 2010 =100)
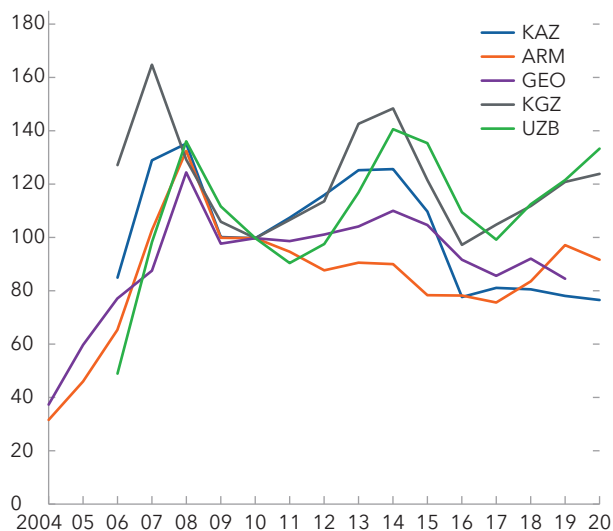
Sources: National authorities; and IMF staff estimates.

underlying bank governance issues and prevent the build-up of imbalances were delayed. As a result, fiscal costs of banking crises have been relatively high, in some cases exceeding 10 percent of GDP (Annex 2), likely reducing the scope for growth-enhancing expenditures.

The repeated banking sector crises have likely also had an adverse impact on financial sector development, inclusion, private sector job creation, and growth. Besides reducing the space for financing growth-enhancing spending, there are several channels through which banking sector crises have adversely affected financial development and growth:

▪   *Lengthy disruptions in financial inter-mediation and loss of depositor confidence have reversed gains in financial deepening and weakened access to credit*. The financial crises highlighted above weakened confidence and led to a shrinking of the financial sector. The lack of a strong financial sector that can manage risks efficiently limited access to credit, especially for small and medium enterprises (SMEs), with a deleterious impact on private sector job creation and growth (Blancher and others 2019). Over the longer term, these hidden costs of banking crises are likely to be substantial.

▪ *Despite the region's vulnerability to large shocks, central banks have allowed limited exchange rate flexi-bility to mitigate the impact on bank balance sheets*. Greater exchange rate flexibility is needed to facilitate external adjustment and protect price competitiveness and growth. However, partly owing to financial sector vulnerabilities, policymakers have been cautious in allowing greater exchange rate flexibility, slowing down the transition to inflation targeting and likely adversely affecting longer-term growth.

Figure 8. Real GDP Growth and Credit Downturns
(Percent)
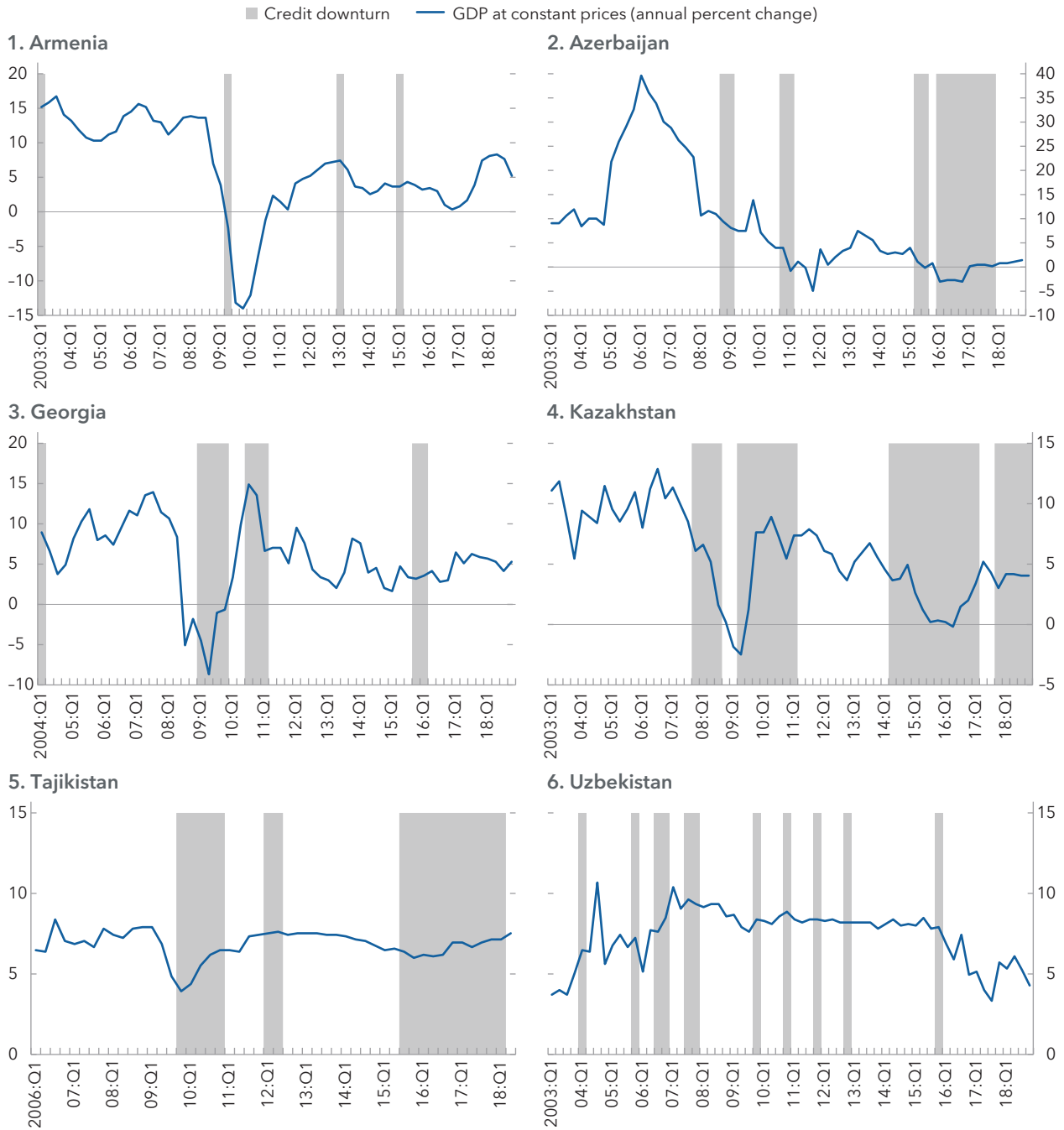
■ Credit downturn   —— GDP at constant prices (annual percent change)

1. Armenia

2. Azerbaijan

3. Georgia

4. Kazakhstan

5. Tajikistan

6. Uzbekistan

Sources: Haver Analytics; national authorities; and IMF staff calculations.
Note: Methodology to derive credit downturns is explained in footnote 17.

Figure 9. NPLs and Credit Downturns
(Percent)
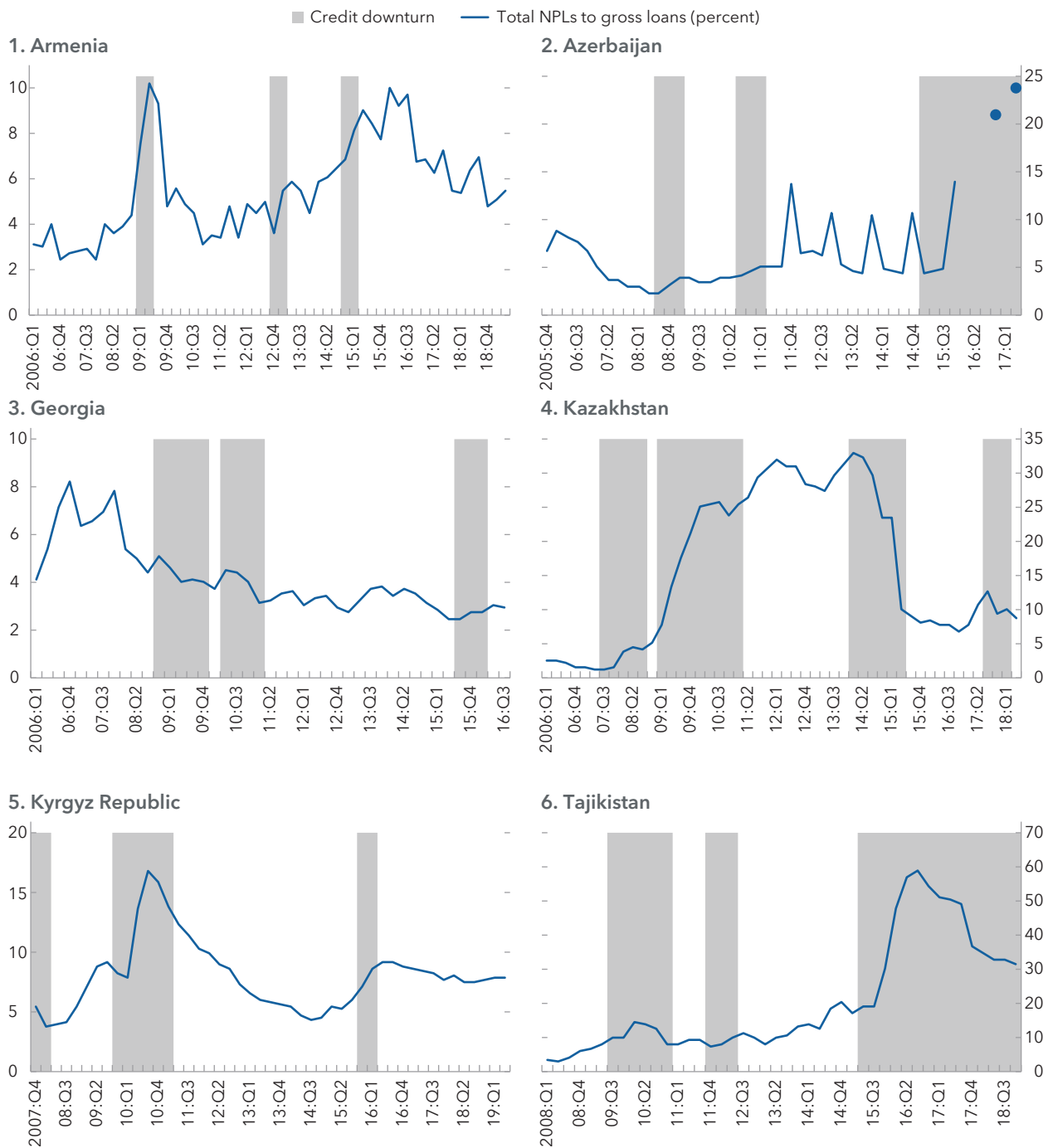
Sources: National authorities; IMF, Financial Soundness Indicators database; and IMF staff estimates.
Note: Methodology to derive credit downturns is explained in footnote 17. Data unavailable for Azerbaijan for 2016:Q1–Q3, 2017:Q1, and after 2017:Q2.

4. Using Macroprudential Policies to Support Financial Stability in the CCA[1]

Despite progress in recent years, stronger macroprudential policy frameworks would help strengthen financial sector resilience in the CCA. Since CCA countries are susceptible to large external shocks, credit and asset price booms and busts, and structural vulnerabilities, an enhanced role for macroprudential policies would significantly support financial stability, and in turn financial development and inclusion. Macroprudential policies would foster financial resilience through (1) moderating credit and asset price booms; (2) building larger buffers which can then be released as an adverse shock materializes; and (3) reducing structural vulnerabilities in the financial system that arise from common exposures and interlinkages (IMF 2014a, BIS 2018).

Macroprudential policies are not a substitute for needed macroeconomic policy adjustment. Instead, they complement sound monetary and fiscal policies. Macroprudential policies are the first line of defense against financial stability risks, but they may not always be sufficient.[2] If financial imbalances are being fed by loose fiscal or monetary policies, macroprudential policies may have limited effectiveness (IMF 2013) and countercyclical fiscal and monetary policies would be needed.

Effective implementation of macroprudential policies requires several other elements to be in place. Important prerequisites are:

- *Strong microprudential supervision*. Strong supervision of individual institutions is essential to ensure that accurate information is available to assess systemic risks and that macroprudential policies are enforced. In many CCA countries, where banks have weak governance and supervisory capacity is limited, improvements in these areas are a priority (Vera Martin and others 2018).

- *Robust legal framework and information infrastructure*. Measures that are needed to strengthen the legal framework include adequate collateral mobilization and enforcement, insolvency procedures, and corporate governance of businesses. A reliable information infrastructure would boost transparency in borrowers' creditworthiness through credit registries, standardized accounting, and audit practices.

A. Institutional Frameworks for Macroprudential Policy

Macroprudential policies should be embedded in a strong institutional framework. To overcome political pressures, it is important to establish the legitimacy and accountability of macroprudential policy authorities (IMF 2014a). The institutional design should ensure:

- *the willingness to act* to avoid inaction or a late response to emerging problems due to industry and political pressures. To ensure willingness to act, the regulatory framework should spell out the macroprudential authority's mandate, clear objectives, and accountability over such mandate.

- *the ability to act*, which requires that the macroprudential authority has the necessary legal powers as well as the capacity to analyze risks and use policy instruments to mitigate risks. Therefore, the authority should have the powers to: (1) access data, (2) change regulations, (3) activate instruments, and (4) supervise and enforce the policy.

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[1] This section draws on the 2014 IMF Staff Guidance Note on Macroprudential Policy.

[2] In the CCA, where there are high external vulnerabilities, macroprudential measures would help support monetary autonomy by mitigating balance sheet impacts of greater exchange rate flexibility (IMF 2020).

Figure 10. Selected Features of Macroprudential Institutional Frameworks

1. Legal and Institutional Framework

	Legally Macroprudential Policy Authority	Powers of the Macroprudential Authority (Hard or Not Hard)	Executive Board Meeting for Macroprudential or Fin. Stability	Interagency Coordination Mechanism	Department/Division Fully Focused on Fin. Stability
GEO	Yes	Yes	Yes	Yes	Yes
ARM	Yes	Yes	Yes	Yes	Yes
KAZ	Yes	No	Yes	Yes	No
KGZ	Yes	No	Yes	Yes	Yes
TJK	Yes	Yes	Yes	Yes	Yes
AZE	Yes	Yes	Yes	Yes	Yes
UZB	Yes	Yes	Yes	No	Yes
TKM	Yes	No	Yes	Yes	Yes

2. Communicational Tools: What is Published?

	Macroprudential strategy	Financial Stability Report (FSR)	FSR: Risk Dashboard?	FSR: Some Kind of Stress Tests?	Press Release of Macroprudential Policy Meetings
GEO	Yes	Yes	Yes	Yes	Yes
ARM	Yes	Yes	Yes	Yes	No
KAZ	No	Yes	Yes	Yes	No
KGZ	No	Yes	No	Yes	No
TJK	Yes	No	No	No	No
AZE	No	No	No	No	No
UZB	No	No	No	No	No
TKM	No	No	No	No	No

Yes. For column on powers of macroprudential authority means hard.
No. For column on powers of macroprudential authority means semi-hard or soft.

Sources: IMF staff based on the IMF Macroprudential Survey; and national authorities' reports.

- *coordination mechanisms between various agencies* for effective risk mitigation, where the central bank needs to play an important role in the cooperation with other regulatory agencies.

The framework can be operationalized through a macroprudential strategy, which elaborates the objectives and details of the macroprudential cycle.[3] Overall, building a strong framework is an evolving process that needs to fit the characteristics of the country and its economy.

Efforts to strengthen macroprudential policy frameworks have accelerated in the CCA in recent years. All CCA countries have designated a macroprudential authority (Figure 10) and a majority of countries have provided the macroprudential authority with hard powers.[4] In most countries, the central bank is the macro-prudential authority. Interagency coordination mechanisms have also been set up to facilitate coordination with monetary and fiscal policies and regulation and supervision, especially considering that the financial sector is mostly bank-based. In addition, dedicated units on financial stability to help address data gaps, build analytical capacity, and enhance the willingness to act have been established. Armenia and Georgia are well advanced in developing communication tools, having published the macroprudential strategy and financial stability reports. Similarly, Kazakhstan and the Kyrgyz Republic are also developing their communication tools.

Willingness to Act

However, government influence and the limited independence of the macroprudential authorities have produced inaction bias in the CCA. Large government subsidized lending programs (for example, Kazakhstan in 2016 and Uzbekistan in 2018) are uncoordinated with macroprudential policy. In several countries, the heads of central banks and macroprudential authorities are appointed and removed by the government, which may weaken the macroprudential policy response to emerging risks. In addition, the

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[3] The cycle covers (1) risk identification, (2) instrument selection and calibration, (3) implementation and communication, and (4) ex post evaluation.

[4] Hard powers mean that the macroprudential authority has direct control over the macroprudential instruments.

need for financial development has often meant that the risks from rapid credit growth have been under-estimated. The influence of these factors is evident in the repeated public bank bailouts where uncertainty over asset quality has been allowed to linger.

Frequent institutional changes that reassigned the authority for macroprudential policy have had a high cost in the CCA. Azerbaijan, Georgia, and Kazakhstan have reassigned the supervision and macroprudential authority in the last decade, only to reverse these decisions later.[5] These changes have involved significant costs (hiring of staff, adapting regulations, and setting up coordination mechanisms with other government institutions and banks). There are also other side effects including creating disruptions during the transition, slowing down reforms, and delaying the capacity building and development of institutional knowledge of the agency in charge.[6]

Ability to Act

The macroprudential authorities' ability to act is undermined by data and capacity gaps in some CCA countries. Closing these gaps requires multifaceted improvement efforts:

- *Data collection.* Some progress has been made in this area. For instance, the National Bank of Kyrgyz Republic quantifies unhedged borrowers' risk in its Financial Stability Report. Authorities in Armenia, Georgia, and Kazakhstan monitor real estate price gaps. The Central Bank of Armenia is enhancing data collection on loan collateral to facilitate the introduction of loan-to-value (LTV) ratios. These efforts are important initial steps and indicate the scope to collect and monitor relevant data. Nonetheless, in many places, more comprehensive, high-frequency, and granular data are needed to assess existing and emerging risks. For instance, data on lending standards, borrower indebtedness, volatile external funding flows, FX lending to unhedged borrowers, real estate and equity prices, collateral valuation, interlinkages, etc., are missing in many CCA countries.

- *Systemic risk monitoring.* Most CCA countries are in the process of developing a set of early warning indicators to monitor and assess systemic risk.[7] However, this analysis can be further improved by placing greater emphasis on making it forward-looking and more closely aligning macroprudential tools with supervision capacity and country context.[8]

- *Policy operationalization, communication, and accountability.* Improvements are urgently needed in many authorities' capacity for instrument selection, calibration, and implementation. Strengthening communication will improve the effectiveness and accountability of macroprudential policies. Currently only four of the eight CCA countries publish financial stability reports, and only three have released a macroprudential strategy. Only Georgia issues regular press releases on macroprudential policy decisions.

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[5] Azerbaijan in 2016 transferred the responsibility for supervision and macroprudential policy from the central bank to a newly created Financial Market Supervision Agency (FIMSA), but in 2020 it was transferred back to the central bank. Similarly, in 2011, Kazakhstan transferred the macroprudential responsibility from the financial supervision agency to the National Bank of Kazakhstan, and in 2020 it reversed the decision. In 2008, Georgia assigned macroprudential responsibility to a financial supervision agency independent of the central bank, but this decision was reversed in 2009. Furthermore, in 2015, new legislation aimed to transfer prudential supervision out of the central bank, but the law was never enacted and finally abolished in 2016.

[6] For example, the Central Bank of Azerbaijan stopped publishing the financial stability reviews in 2015 as macroprudential authority moved to FIMSA, but the latter never published a financial stability report.

[7] Some countries, including Armenia and Georgia, include systemic risk dashboards and comprehensive risk analysis in their published financial stability reports.

[8] The National Bank of Georgia started to rebuild the systemic monitoring framework in 2017. By 2020, it had set up a strong forward-looking risk monitoring system, covering household and corporate balance sheets, real estate, as well as top-down and bottom-up stress tests, which are integrated with the risk scenarios considered for monetary policy. Similarly, Kazakhstan has progressed by including stress tests as part of risk-based supervision.

Table 2. Interagency Coordination Groups

Country	Interagency Coordination Mechanism	Members of the Interagency Coordination Group
Azerbaijan	✔	Prime Minister (Chair), Assistants to the President on Economic Policy and Industry, Assistants to the First Vice President, Minister of Finance, Minister of Economy, Governor of the Central Bank, Minister of Labor and Social Protection, Head of State Oil Fund.
Armenia	✔	Central Bank, Ministry of Finance, Deposit Guarantee Fund.
Georgia	✔	Central Bank, Ministry of Finance, Finance Monitoring Service, Insurance sector Regulator.
Kazakhstan	✔	Governor of the Central Bank (Chair), Deputy Chief of Staff of the President, Minister of Finance, Minister of Economy, Central Bank Deputy Governor, Head of the Financiers Association, Head of the Chamber of Entrepreneurs, Head of the Financial Supervision Agency.
Kyrgyz Republic	✔	Prime Minister (Chair), Minister of Finance, Governor of the Central Bank, Head of the Financial and Economic Analysis Department (President Office), Chairman of the State Service for Regulation and Supervision of the Financial Market, Head of the Deposit Protection Agency, Head of the Finance and Credit Policy Department, and Inspector of the Secretariat of the Defense Council.
Tajikistan	✔	Minister of Economic Development and Trade (chair), Minister of Finance, Governor of the Central Bank (coordinator), Head of Personal Savings Insurance Fund, representative of the Office of the President (observer).

Source: IMF staff.

Coordination Mechanisms

There is room to improve interagency coordination mechanisms. Most CCA countries have established an interagency group to coordinate policies, but there remains a need to focus and enhance the membership and leadership to avoid industry and political pressures (Table 2). The macroprudential authority can also be awarded a more central role in these groups (for example, in several cases the central bank does not chair the committee or has limited influence on decisions). Finally, accountability can be strengthened by publishing a summary of the interagency meetings. This could focus the agenda and help limit the incentive for inaction as there would be a formal public record of the discussions and the policy decisions.

B. Macroprudential Tools

The design of the macroprudential toolkit across CCA countries should depend on the size and complexity of their financial sector, data availability, and analytical capacity.

▪ *In countries with limited data availability and weak analytical capacity, using simple and rules-based time varying tools can increase the resilience of the financial system to shocks* (IMF 2014a). Implementing more sophisticated time-varying tools can be challenging due to the lack of adequate time series and financial data for effective calibration (Ferreira, Jenkinson, and Wilson 2019). Moreover, the macroprudential authority's narrow independence and weak accountability frameworks facilitate political and industry pressures for inaction. In this context, tools that need fewer inputs for calibration can be more effective. Several CCA countries are likely to fit in this category (Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan).

- *More sophisticated time varying tools can be considered for countries with relatively developed financial markets, sufficiently available data, strong supervision, and substantial analytical capacity.* Countries facing risks from capital flows also require greater sophistication in their macroprudential tools. Macroprudential authorities in economies with better data and capacity are relatively more independent and have robust accountability frameworks that mitigate political and industry pressures for inaction. Armenia and Georgia fit neatly in this category, while Azerbaijan and Kazakhstan are transitioning toward this more developed group and hopefully, over time, other countries will follow suit as they enhance their macroprudential toolkits.

The use of time-varying macroprudential tools in the past has been helpful, although there remains scope to further strengthen these policy frameworks going forward. Some CCA countries have released liquidity and capital buffers during large external shocks. For example, Armenia and Georgia eased reserve and liquidity requirements during the GFC and the 2014-15 oil price shock. Georgia reduced risk-weights for FX loans in 2008 (Georgia–Russia crisis) and in 2009 (GFC), which it partially reversed in 2011 to rebuild capital buffers. Azerbaijan also adjusted capital requirements countercyclically in 2015. In the absence of a plan to rebuild released capital or liquidity buffers, these ad-hoc measures are considered departures from best practices as they can be difficult to reverse and may undermine longer-term financial stability. Overall, a stronger policy framework, underpinned by clear communication, would have supported a more effective policy response.

The coverage of macroprudential tools should minimize leakages to the nonbank financial sector or cross-border financing. Capital tools are more effective at constraining credit in financial systems with few nonbanking financial institutions, a broad scope of regulated entities, and an effective consolidated supervision. Sectoral tools that target customers such as LTV and debt service-to-income (DSTI) limits are in principle less subject to domestic leakage. Currently, leakage risks are low in the CCA, as nonbanking financial sectors are small, and access to international funding for the nonfinancial private sector is limited. However, as macroprudential policies create incentives for circumvention (regulatory arbitrage), policymakers will need to remain vigilant and ensure that policies are applied evenly and that the regulatory agency has a sufficiently broad enforcement jurisdiction. Cooperation between regional supervisors may also be important to minimize leakages from cross-border activities of large regional banks.

The macroprudential toolkit should also be easy to communicate. A comprehensive toolkit with many instruments may be desirable to target risks, but this needs to be balanced against the need for easy and clear communication of macroprudential policy actions. An overly complicated macroprudential toolkit may undercut the effectiveness of policy actions by making it difficult to assess the interaction between various tools and for individuals and institutions to understand and comply given the limited capacity in commercial banks and low financial literacy in some CCA countries.

The remainder of this chapter discusses the specifics of the macroprudential toolkit across CCA countries and provides policy recommendations to boost effectiveness. Two features stand out. First, tools to build capital buffers or sectoral tools to contain the build-up of specific risks are relatively new in the CCA.[9] Second, tools to mitigate FX-risks are more prevalent, with these tools being used for more than 10 years in several countries.

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[9] Given the relatively short period over which the tools have been implemented and the role of confounding factors, it is difficult to assess their impact rigorously.

Table 3. Minimum Regulatory Capital Requirements in the CCA – June 2020
(Percent of risk-weighted assets)

	ARM	GEO	AZE	KAZ	KGZ	TJK	UZB	Basel III
1. Microprudential capital (excl. buffers)	12.0	8.0	9.0[1]	8.0[2]	12.0	12.0	13.0	8.0
o/w Tier 1	9.0[7]	6.0	5.0	7.5[2]	6.0	–	10.0	6.0
o/w common equity Tier 1	–	4.5	–	6.5[2]	4.5	–	–	4.5
2. Countercyclical buffer	0.0	0.0	0.0	0.0	–	–	–	. . .
Range	[0–2.5]	[0–2.5]	[0–2.5]	[0–3.0]	–	–	–	[0–2.5]
3. Conservation buffer	0.5[9]	0.0[3]	–	1.0[5]	6.0	–	–[4]	2.5
4. Systemic institutions buffer	0.5	1.5	2.0	2.0[6]	2.0	–	–	[1–2.5]
5. Others (including Pillar II)	–	3.7	–	–	–	–	–	
Total capital for a non-systemic bank	**12.5**	**11.7**	**9.0**	**9.0**	**18.0**	**12.0**	**13.0**	**10.5**
Total capital for a systemic bank (1 + 2 + 3 + 4 + 5)	**13.0**	**13.8**	**11.0**	**11.0**	**20.0**	**12.0**	**13.0**	**11.5–13.0[8]**

Source: National authorities; and IMF staff estimates.

Note: "–" means not included in the framework.

[1]Azerbaijan relaxed microprudential capital from 10 to 9 percent in April 2020.

[2]Kazakhstan excludes 2 (1) percent of capital conservation buffer for systemic banks (non-systemic) and the 1 percent of systemic institutions buffer.

[3]Georgia relaxed conservation buffer from 2.5 to 0 percent in April 2020 and reduced part of the Pillar 2 buffer (⅔ of the currency risk buffer).

[4]Uzbekistan has a 3 percent "preservation" buffer within the 13 percent min. regulatory capital, but the 13 percent is a hard limit preventing its use as a standard conservation buffer.

[5]Kazakhstan excludes 1 percent for systemic banks (systemic banks have conservation buffer of 2 percent and non-systemic have a conservation buffer of 1 percent).

[6]Kazakhstan includes 1 percent of systemic buffer and 1 percent of additional conservation buffer on systemic banks—conservation buffers systemic banks (3 percent) and non-systemic banks (2 percent) so the additional 1 percent on systemic banks is accounted at systemic bank buffer.

[7]Armenia relaxed Tier 1 capital from 10 to 9 percent in May 2020.

[8]Assumes zero countercyclical buffer and 1 percent systemic banks buffer.

[9]Capital conservation buffer is 1 percent from January 1, 2021 and will increase up to 2.5 percent in 2024.

C. Capital Tools

Capital buffers are key to build bank resilience to shocks. These buffers increase banks' ability to absorb losses, provided that they can actually be drawn down in times of stress. In addition, raising capital requirements to (re)build the capital buffers in good times can increase the cost of providing credit, which should slow credit growth. In this way buffers could also be expected to mitigate credit cycle upswings (IMF 2014b), but experience shows that capital buffers have limited effectiveness at slowing excessive credit and asset price growth.[10]

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[10] To the extent that regulatory capital requirements are not binding, they may not be very effective to constrain credit and asset price booms. Capital requirements become more binding during a downturn, where release of buffers can help protect against a credit contraction.

Several CCA countries are in the early stages of implementing time-varying capital buffers (Annex 3). Armenia, Azerbaijan, Georgia, and Kazakhstan have put in place tools broadly in line with the Basel III framework, including the capital conservation buffer (CCB) and the countercyclical capital buffer (CCyB).[11] The CCyB is currently set at zero in these countries, while the CCB ranges between 0 and 6 percent across countries. The phasing in of these tools has been appropriately gradual to avoid an overly abrupt tightening while the region was recovering from the 2014–15 oil shock and, more recently, the COVID-19 shock. The CCyB seems suitable for the CCA countries with higher capacity.

An alternative, relatively simpler approach to maintaining high capital buffers can be considered for countries facing data and analytical gaps. The Kyrgyz Republic provides an example of such an approach. It has a CCB of 6 percent and its capital adequacy ratios are the second

Figure 11. Selected Broad Tools to Contain Credit Cycles

Source: IMF staff estimates.

highest across the CCA. The high level of CCB can be used in the event that systemic risks materialize, while still maintaining capital well above microprudential requirements.[12] A similar approach could also be considered in Tajikistan, Turkmenistan, and Uzbekistan. The size of the CCB would need to be calibrated around country-specific risks and phased in over time to avoid a procyclical tightening of credit conditions. Nonetheless, this approach should allow for the build-up of buffers during good times, which can then be used when an adverse shock hits. Minimum microprudential requirements should be met even after macroprudential capital buffers are released.

Capital buffers should be calibrated to reflect financial sector risks and create adequate capacity for loss absorption. As noted in Chapter 2, actual capital adequacy ratios in CCA are similar to those in other EMs—albeit higher than their minimum requirements (Table 3). In this regard, the large number of publicly funded bailouts in the CCA raises questions about the adequacy and loss absorbency of these buffers in a downturn. Part of the problem is that capital buffers in the CCA may be overstated. Collateral values can be uncertain and hard to realize, loan loss recognition generally proceeds slowly, while weaknesses in bank supervision and governance can potentially aggravate losses. These factors make it difficult to calibrate capital in line with existing risks (Figure 11).

Calibrating time varying capital tools requires the routine use of stress tests. Using a broad set of indicators to calibrate capital buffers in the CCA can be challenging given the large shocks they face, their shallow financial sectors, and the limits imposed by short time series data. Estimates of potential losses from stress tests can help supervisors calibrate capital buffers, so that minimum microprudential capital requirements can be met even in a shock scenario.

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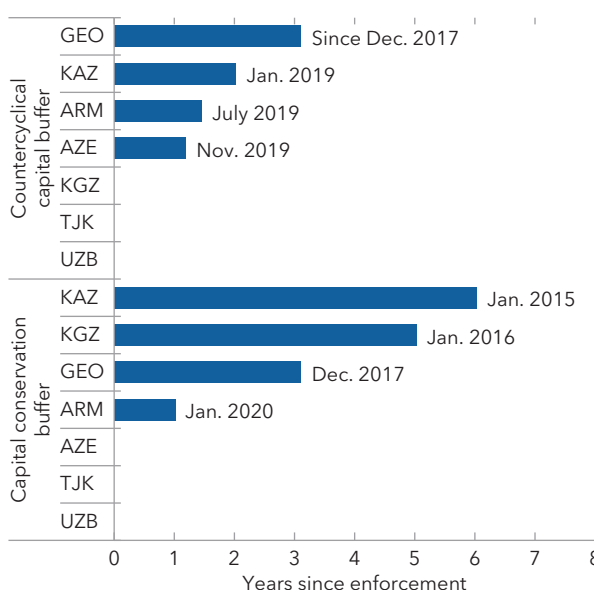
[11] The CCyB, ranging from 0 to 2½ percent, involves a decision by policymakers to increase regulatory capital during credit booms and release regulatory capital to absorb losses during recessions. The CCB is a buffer that banks can use when they face financial stress, but dividend distributions and bonus payments are restricted until this buffer is rebuilt. This buffer can be used with authorization from the regulator but is not usually considered a time-varying tool.

[12] Easing by relaxing buffers is not without its problems. The market may view a discretionary release of buffers during a downturn as a signal of worse to come rather than as a tool to stabilize the financial system. Thus, to be effective in a bust, buffers may need to be sufficiently large to start with and to be used in a nondiscretionary fashion (as in the CCB).

D. Liquidity Tools

The calibration and design of liquidity tools should reflect underlying risks in the system and allow the release of buffers during periods of financial stress. Banks in Armenia, Georgia, Kazakhstan, and Uzbekistan have greater access to international wholesale funding relative to other CCA economies, and liquidity buffers also need to shelter these countries from potential capital flow reversals.[13] Liquidity requirements should also take into consideration the ability of the central bank to provide liquidity during periods of stress, the depth of domestic financial markets, and the strength of deposit insurance funds.

With these factors in mind, there is room to improve the calibration of liquidity tools in the CCA. There is considerable cross-country variation in liquidity requirements across the CCA. Liquid asset ratios and reserve requirements are easy to monitor and are used in all CCA countries, but the level of these requirements varies widely. In Armenia and the Kyrgyz Republic, liquid asset requirements are higher than in other CCA countries and these may adversely affect profitability. In contrast, reserve requirements are very low in Azerbaijan. Basel III liquidity tools (the LCR and the Net Stable Funding Ratio (NSFR)) have been introduced only recently in Georgia,[14] Kazakhstan, and Uzbekistan. However, there is much less cross-country variation in actual liquidity—at end-June 2020 reported liquid asset ratios ranged from 20 to 30 percent for most CCA countries, with Kazakhstan (more than 40 percent) and Uzbekistan (about 12 percent) being outliers.[15] This suggests that the large cross-country variation in liquidity requirements may not reflect underlying risks and that there may be room to improve the calibration of liquidity tools. Given the need to align credit growth with financial deepening, the introduction of the NSFR and the loan to deposit ratios across the region would help incentivize stable funding more broadly.

Figure 12. Selected Tools to Contain FX Risks
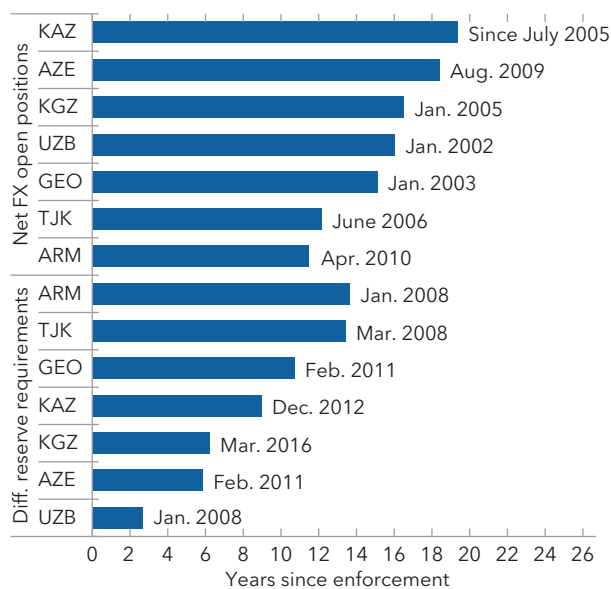
Source: IMF staff estimates.

CCA countries have appropriately used liquidity requirements as a countercyclical tool. It is recommended that central banks monitor high-frequency indicators during periods of financial stress and release liquidity buffers promptly to avoid fire sales of assets and maintain market confidence. Indeed, Armenia and Georgia relaxed reserves and liquidity requirements during the GFC and, more recently, most CCA countries relaxed liquidity requirements during the COVID-19 pandemic (see next section).[16]

E. Tools to Reduce Risks from Dollarization

International experience suggests that reducing dollarization requires credible macroeconomic stabilization and complementary macroprudential policies (Figure 12). Kokenyne, Ley, and Veyrune (2010) suggest successful de-dollarization is a protracted process and requires the local currency (LC) to be more attractive than the foreign currency (FX).

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[13] In Georgia, the presence of long-term international financial institution funding of banks mitigates some of the risks from external funding.

[14] Georgia introduced NSFR and LCR requirements since September 2019 and September 2017, respectively.

[15] This average excludes Azerbaijan due to data availability and limitations. The low liquid-asset ratio in Uzbekistan reflects the low dependence on customer deposits and high dependence on long-term loans from the government. Liquidity ratios in Kazakhstan have been rising since 2016 owing to government bailouts.

[16] Azerbaijan, Georgia, and Tajikistan also used the reserves requirements countercyclically during the GFC but as a monetary policy tool according to the authorities' response in the IMF Macroprudential Policy Survey.

Credible macroeconomic stabilization, two-way exchange rate volatility, and stable and low inflation are key ingredients of market-based de-dollarization.[17] Additional policies and measures are often necessary to break persistent dollarization and encourage the use of the LC. Garcia-Escribano and Sosa (2011) examine the drivers of both deposit and credit de-dollarization in Latin America and find that exchange rate appreciation has been a key factor explaining deposit de-dollarization. The introduction of prudential measures to create incentives to internalize the risks of dollarization (including the active management of reserve requirement differentials), the development of an LC-based capital market, and de-dollarization of deposits have all contributed to a decline in credit dollarization. Similarly, Ben Naceur, Hosny, and Hadjian (2015) find that deposit and credit dollarization in the CCA is mainly driven by volatile inflation, low financial depth, and asymmetric exchange rate policies biased toward depreciation. For countries with very high levels of dollarization, as in the CCA, active de-dollarization policies are considered appropriate.

Progress toward de-dollarization in the CCA has been uneven. The average decline in credit dollarization across CCA countries during 2004–19 was 23 percentage points, with the largest declines of more than 30 percentage points in Azerbaijan and Kazakhstan. Tajikistan has seen the smallest decline (about 10 percentage points), while in Turkmenistan and Uzbekistan, the decline in credit dollarization has been reversed in recent years (Figure 13). On the deposit side, the average decline in dollarization is only 13 percent, perhaps owing to a large increase in deposit dollarization following the 2014–15 drop in oil prices and associated currency depreciations, notwithstanding the previous trend de-dollarization subsequently resuming. The largest decline in deposit dollarization, more than 30 percent, was seen in the Kyrgyz Republic. In Kazakhstan, Tajikistan, and Uzbekistan, deposit dollarization has been mostly unchanged over the entire period.

Limits on open FX positions helped reduce currency mismatches in CCA countries. Between 2005–10, all CCA countries implemented limits on open FX positions, which helped reduce currency mismatches on bank balance sheets (Annex 3). However, the presence of high levels of both credit and deposit dollarization meant that the indirect credit and liquidity risks, which have manifested themselves in multiple financial crises, remain on bank balance sheets.

Macroprudential measures to boost resilience and reduce dollarization risks have been introduced in recent years, but more is needed to ensure their effectiveness:

- *Higher risk weights and loan loss provisions for FX exposures can build additional capital buffers in a targeted way, but these require careful calibration.* Georgia implemented higher capital requirements on FX exposures fairly early (2002), followed by Armenia in 2010. Most other CCA countries only implemented these measures after 2014–15. However, in some countries, capital adequacy ratios did not rise perceptibly as a result (e.g., Kazakhstan in 2014, Tajikistan in 2018) suggesting that these requirements may have had limited impact (Figure 14).[18] Going forward, appropriate calibration of the additional risk weights would be key to boosting bank resilience. It is worth emphasizing that these risk weights are typically a structural tool to reflect underlying risks and a relaxation may be misinterpreted by the market as a lowering of risks. A temporary relaxation could be considered as long as there is a preannounced plan for the authorities to reinstate these risk weights. However, the relaxation of time-varying capital tools (for example, CCB) may be easier to communicate and hence preferable. Finally, higher loan loss provisions (as established in Armenia and Kyrgyz Republic) should be based on a forward-looking model of expected loan losses.

- *Bans on FX lending to households or unhedged borrowers have been put in place to reduce risks, but the potential for leakage needs to be addressed.* In the presence of limits on open FX positions and high deposit dollarization, bans on FX lending to specific categories of borrowers mean that FX lending and associated

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[17] See Catão and Terrones (2016) for the experience in Peru where dollarization has seen a sustained decline over the past two decades.
[18] Big movements in capital adequacy ratios in Azerbaijan, Kazakhstan, and Tajikistan are the result of publicly funded bailouts.

Figure 13. Dollarization in the CCA
(Percent of total)
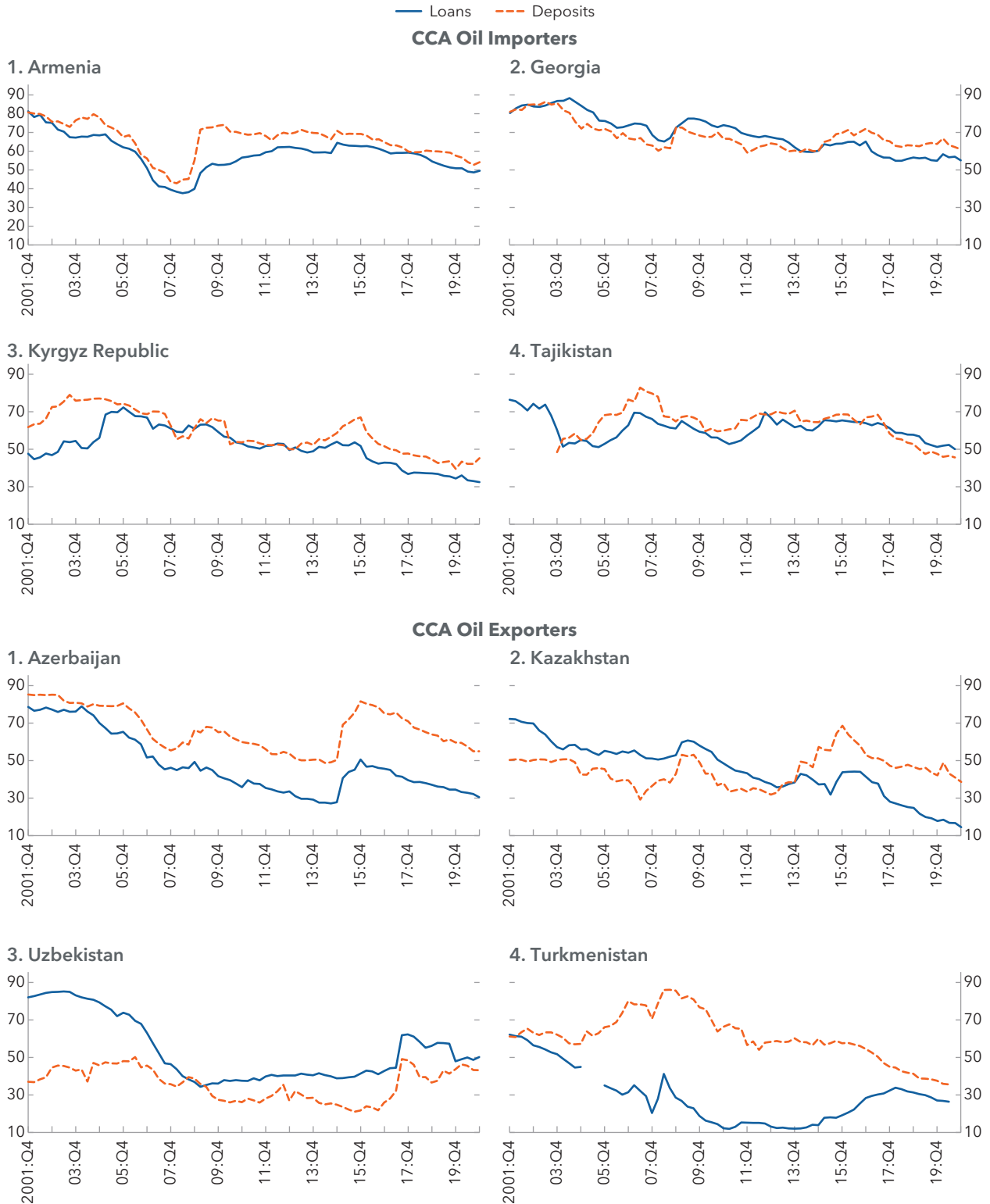
——— Loans   – – – Deposits

CCA Oil Importers

1. Armenia

2. Georgia

3. Kyrgyz Republic

4. Tajikistan

CCA Oil Exporters

1. Azerbaijan

2. Kazakhstan

3. Uzbekistan

4. Turkmenistan

Sources: National authorities; IMF, Monetary and Financial Statistics database; and IMF staff calculations.

Figure 14. Banks' Capital Adequacy
(Percent)
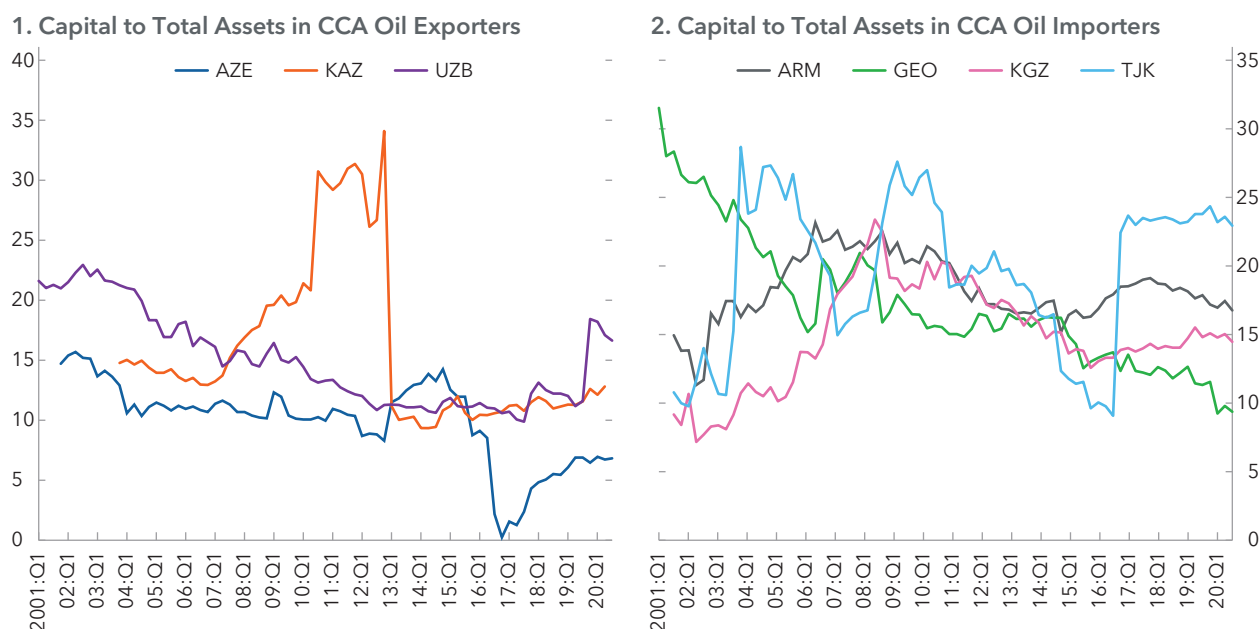
1. Capital to Total Assets in CCA Oil Exporters

2. Capital to Total Assets in CCA Oil Importers

Sources: National authorities; IMF, Financial Soundness Indicators database; and IMF staff calculations.

risks migrate to other types of customers. In this regard, FX lending to the corporate sector can increase, which is already a vulnerability (if unhedged or heavily indebted) in many CCA countries. Restrictions on lending to unhedged borrowers may be appropriate but require reliable data on borrowers as well as the presence of hedging instruments—conditions which are missing in several CCA countries. These restrictions should also cover both foreign bank branches and the nonbank sector, and borrowers should be educated regarding the risks involved in FX borrowing. Alternatively, the authorities could consider a more targeted approach as part of the supervisory dialogue with banks to tighten prudential require-ments for indirect FX-related credit risks (as assessed through forward-looking, stress-testing based supervisory analyses). Regardless, the potential for leakage should be monitored on an ongoing basis.

▪ *Differential reserve requirements on FX deposits have been put in place to address FX liquidity risks and should be met in FX.* While differential reserve requirements are widespread, the difference is relatively small in some CCA countries (for example, Azerbaijan, Kazakhstan, Tajikistan), where it is unlikely to signifi-cantly boost the FX liquidity buffers of banks.[19] More importantly, reserve requirements on FX deposits in most CCA countries are fulfilled in LC, thereby promoting dollarization and providing limited FX liquidity coverage in the event of a shock.[20] In situations of capital flight, the banks may not have FX liquidity readily available to meet withdrawal needs. For these reasons, it is advisable to phase-in requirements for banks to meet a significant portion of reserve requirements for FX deposits in FX (IMF 2017a, 2017b). These measures would also help promote resilience to volatile capital flows. Liquidity tools in Armenia, Georgia, and Kazakhstan are differentiated by currency, which would boost FX-denominated liquid assets in those countries.

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[19] Peru is considered as a good example of a country with successful de-dollarization policies, with reserve requirements and liquidity ratios on FX liabilities sharply higher and differentiated from those on LC liabilities. Reserve requirements are 50 percent on ST obligations to foreign financial institutions and marginal reserve requirements of 35 percent on FX liabilities (Rossini and Quispe 2017). Additional reserve requirements are also imposed to encourage reducing exposures to FX loans over time.

[20] As LC deposits are used to fulfill reserve requirements for both currencies, funds for LC credit growth are limited. The greater provision of loans in foreign currency, via the money multiplier unencumbered by reserve requirements, fuels a greater supply of deposits in foreign currency, leading to greater dollarization.

Figure 15. Selected Sectoral Tools

Source: IMF staff estimates.

F. Other Tools

International evidence suggests that sector-specific macroprudential tools can help moderate financial booms. For households, LTV limits bolster resilience to house price shocks by increasing the equity in the residential property. DSTI caps enhance borrowers' resilience to interest rate and income shocks. LTV and DSTI limits are complementary because when LTV limits become less binding with the increase of house prices, caps on DSTI ratios become more binding. As a result, LTV and DSTI ratios are often used simultaneously to curb credit cycles. Studies have found that tighter LTV and DSTI limits help curb housing credit and house price growth (Alam and others 2019, Cerutti and others 2017).

Given the large boom-and-bust credit cycles in the CCA, the use of LTV and DSTI limits could be enhanced. The use of these tools in some CCA countries is fairly recent and requires reliable and comprehensive real estate valuations and consolidated balance sheet data on borrowers.[21,22] LTV and DSTI limits have been in place for less than 2 years in Azerbaijan and Georgia, while Kazakhstan and Kyrgyz Republic have had DSTI limits on consumer loans for about five years (Figure 15). Uzbekistan introduced DSTI limits in 2020. In Georgia, Kazakhstan, and Uzbekistan, risk weights depend on LTV and DSTI ratios. Given that past credit gaps have been driven by corporate lending, these tools could also be extended to the corporate sector. Moreover, to minimize leakage, these limits should also be applied to foreign branches and the nonbank financial sector.

Other tools to limit structural risks may also be useful in the CCA. Some CCA countries have imposed limits and capital requirements (or risk weights) on unsecured loans, as well as large, concentrated, and interbank exposures. These additional tools can help mitigate the structural risks from the region's limited economic diversification. However, consolidated supervision and disclosure of ultimate beneficiary information are critical for their effectiveness.

G. Response to COVID-19 Crisis

Pre-pandemic improvements in CCA macroprudential frameworks allowed a better response to the COVID-19 crisis. Improvements to the regulatory and supervisory frameworks, financial reporting and credit risk management, and macroprudential policy frameworks helped the authorities formulate an early response to the COVID-19 shock. In this context, some CCA countries released the CCB, eased liquidity requirements, and delayed the planned phase-in of additional tools (Box 2). While several countries (Armenia, Azerbaijan, Georgia, and Kazakhstan) have CCyBs, those buffers could not be released as they were mostly set at zero in early 2020. Azerbaijan delayed the phasing-in of the CCyB. Tajikistan announced a policy of waiving capital requirement for banks if they missed minimum requirements owing to higher loan loss provisions, provided they set up capital restoration plans. Other countries relaxed minimum

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[21] Credit information bureaus have been set up recently in many CCA countries, so borrower information may not be complete.

[22] Reliable and timely real estate valuations may be key to address uncertainty over the quality of bank capital.

Figure 16. Relaxation of Regulatory Capital during Crises
(Percentage points)

1. 2015: Oil Shock and Russia Sanctions

2. 2020: COVID-19 Crisis

Legend (both panels):
- Microprudential
- Conservation buffer
- Countercyclical buffer
- Systemic inst. buffer
- Pillar 2 and other buffers

Tightening ← → Relaxation

Source: IMF staff.
*In response to the COVID-19 crisis, Armenia released Tier 1 capital in 2020 but not overall capital requirement.

microprudential capital requirements, which is not considered in line with best practice, calling for regulators to uphold minimum regulatory and supervision standards, while using the inherent flexibility of the framework. Overall, compared with the 2014–15 crisis, the CCA macroprudential policy response was better as more countries relaxed macroprudential policy (Figure 16).[23] However, once the recovery is established, the authorities should prevent the entrenchment of financial vulnerabilities by rebuilding macroprudential buffers and completing temporarily delayed reforms (Teodoru, Akepanidtaworn, and Xu 2021, Kongsamut, Monaghan, and Riedweg 2021).

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[23] A detailed discussion on COVID-19 policy response is included in Teodoru, Akepanidtaworn, and Xu (2021).

Box 2. Macroprudential Response to COVID-19

CCA countries actively used macroprudential policy to mitigate the impact of pandemic:

- **Armenia:** Relaxed Tier 1 capital requirement from 10 to 9 percent (May 11, 2020). The phasing in of LCR and the NSFR—initially planned for mid-2020—was postponed until January 2021, at which time they were implemented. The introduction of an LTV limit was delayed until March 2021.

- **Azerbaijan:** Azerbaijan relaxed capital adequacy ratio (CAR) from 10 to 9 percent (and for systemic banks from 12 to 11 percent), and risk weights on mortgages were reduced from 100 to 50 percent in April 2020. In addition, the phasing in of the CCyB was delayed, implying a relaxation from the scheduled 0.5 percent to 0 percent.

- **Georgia:** Relaxed the CCB from 2.5 to 0 percent and eliminated part of the Pillar 2 buffer (2/3 of the currency induced credit risk buffer), which implies an additional capital relaxation of about 1.4 percent. Tighter capital requirement for concentration risks scheduled to phase-in were postponed. In addition, the LCR for local currency was cancelled for a year (from May 1, 2020).

- **Kazakhstan:** Relaxed the CCB from 2 to 1 percent (and for systemic banks from 3 to 2 percent) in June 2020. Risk weights for loans were reduced, for FX loans (from 200 to 100 percent), for SMEs loans (from 75 to 50 percent), and for syndicated loans (from 100 to 50 percent). In addition, the authorities froze the loan classification requirements for SMEs and reduced the LCR from 80 to 60 percent until April 2021.

- **Kyrgyz Republic:** Reduced the minimum liquidity ratio from 45 to 30 percent, removed the instant liquidity ratio requirements (7-day and overnight/instant), and risk weights of FX corporate and retail loans were reduced from 150 to 100 percent.

- **Tajikistan:** Reduced required reserve ratios of local currency from 3 to 1 percent and FX from 9 to 5 percent (April 8, 2020). In addition, temporary waivers on capital requirements were granted for banks that adequately provision for loans and set up capital restoration plans. Dividend and bonus payments were restricted.

- **Uzbekistan:** The phasing in of tighter liquidity regulation (tightening of definitions) was delayed from June 2020 to March 2021. Dividends and bonus payments were restricted.

Annex 1. The Credit-to-GDP Gap and Credit Analysis Methodology

A. Credit-to-GDP Gap

The credit gap analysis captures the deviation of the credit-to-GDP ratio from its long-term trend. The credit gap exercise compares the credit-to-GDP ratio to its long-term trend to assess whether credit is excessive and increases the likelihood of a crisis. The measure of credit in this study captures LC and FX lending to the nonfinancial sector by domestic financial institutions. After obtaining time series data on total credit to the private sector during 2002–19, the long-term trend is calculated by applying the Hodrick-Prescott (HP) filter on eighteen years of quarterly data with the recommended smoothing parameter of lambda equal to 400,000.[1] The trend value is interpreted as the equilibrium credit-to-GDP ratio. A credit-to-GDP gap above a certain threshold (usually about 2–10 percent) relative to its long-term trend warrants attention and might be a strong early warning indicator for banking distress.

The credit gap as an early warning indicator is faced with a number of measurement challenges, and policy-makers' judgement is necessary. Structural changes and the lack of a reliable long series of quarterly GDP data in CCA economies make it challenging to adequately distinguish between trend and cycles. The HP filter suffers from an end-point problem. Other challenges are that the credit gap can be biased upward when GDP declines or the currency depreciates (typically during a downturn). The credit gap also performs worse for EMs than for advanced economies (Drehmann and Tsatsaronis 2014). These shortcomings call for caution and combining the credit gap with other indicators as well as policymakers' judgement.

Total credit is broken down into its components to understand the size and dynamics of the credit gap. Similar to the approach taken in Kocsis and Sallay (2018) and Lang and Welz (2017), the credit aggregate in this paper is separated into household lending and nonfinancial firm sector lending (calculated as the residual). The split is additive and allows a decomposition into separate household and firm loans results in two sub-models with the application of an HP trend. The segment level credit-to-GDP ratios as well as trends for household and corporate segments add up to the credit aggregate. This provides insights to the credit cycle and the optimal policy response.

B. Credit Cycle Analysis

The paper uses the methodology followed by Claessens, Kose, and Terrones (2011) to identify turning points in credit cycles. The methodology identifies maxima and minima over a period of a time. A peak in quarterly series F_t occurs at time t if:

$$\{[(F_t - F_{t-2}) > 0, (F_t - F_{t-1}) > 0] \text{ and } [(F_{t+2} - F_t) < 0, (F_{t+1} - F_t) < 0]\}$$

Similarly, a cyclical trough occurs at time t if:

$$\{[(F_t - F_{t-2}) < 0, (F_t - F_{t-1}) < 0] \text{ and } [(F_{t+2} - F_t) > 0, (F_{t+1} - F_t) > 0]\}$$

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[1] Different smoothing parameters were applied for robustness purposes and did not change the results significantly. These results can be provided by the authors upon request.

A downturn is defined as a contraction phase from peak to the next trough. If the formula identifies consecutive troughs, the second trough is taken as the downturn end point unless real credit is higher at the second trough compared to the first.

An upturn is defined as an expansion from trough to the next peak. If the formula identifies consecutive peaks, the second peak taken as the end of upturn unless real credit is higher at the first peak compared to the trough.

Duration for downturn (or upturn) is defined as the number of quarters between peak and trough (or trough and peak subsequently). The amplitude of a downturn (or upturn) measures the change from peak to the trough (or trough to the peak).

Annex 2. Systemic Financial Crises in the CCA

There have been frequent systemic financial crises in the CCA. Over the past two decades, systemic financial crises in the CCA have been associated with large upswings in remittances and commodity prices followed by sizeable adverse shocks, namely the GFC and the 2014–15 drop in oil prices.

In Azerbaijan, Kazakhstan, and Tajikistan, the effects of systemic financial crises have been particularly long-lasting. In these countries, the same banks have been recapitalized with public funds multiple times, and policy action has been delayed. In comparison, Armenia, Georgia, and Kyrgyz Republic have fared better with a shorter duration of crisis, while Turkmenistan has not experienced a systemic financial crisis. The specifics of financial crisis episodes for each CCA country are discussed below.

Armenia

2009. Ahead of the GFC, credit growth was rapid amid large foreign inflows. This also fueled a sharp increase in house prices. In 2009, as the drop in remittances led to an economic contraction, real estate prices and transactions fell sharply and NPLs increased. As credit started to contract, the government and the Central Bank of Armenia provided a sizable on-lending and guarantees package at competitive rates to SMEs and other targeted sectors using resources from the World Bank (USD 50 million) and Russia (more than USD 250 million).

2016. As the banking sector came under stress, the central bank raised minimum capital requirements for banks to raise additional capital. In this effort, three banks were merged or acquired, with new capital being injected by Armenian diaspora and other foreign investors.

Azerbaijan

2009. The financial sector took a big hit in Azerbaijan with the GFC in 2009 and the Central Bank of Azerbaijan provided sizable liquidity support to banks. Additional support in the form of government-guaranteed credit was provided to the state-owned bank for on-lending to the state-owned oil and aluminum companies. Budget transfers were used to support mortgage lending through the Azerbaijan Mortgage Fund (AMF).

2011-17. The recapitalization and restructuring of the state-owned bank (the largest bank) were long-running issues over this entire period with multiple attempts at recapitalization and large publicly funded bailouts. In 2015–16, 11 banks were closed, and two banks were merged. In 2017, the financial restructuring of the state-owned bank was mostly completed and preliminary discussions on a privatization plan started. Banking laws were amended in 2017 to appoint the deposit insurance fund as the bank liquidator, while the Financial Institutions and Markets Supervision Agency (FIMSA) established a new bank resolution framework for insolvent banks. However, there was political resistance and in June 2017, FIMSA's charter was amended to restrict its operational independence, with bank closures requiring the consent of higher authorities.

Georgia

2009. The main concern was the banks' maturing external liabilities and deposit outflows. Lending and equity injections of about USD 500 million by IFIs (notably EBRD and IFC) and some credit from parents of foreign-owned banks helped meet external obligations.

2016. Prudent regulation, good lending practices, and loan restructurings explained the limited impact of the FX depreciation on banks. Strict loan classification and mandatory stress-testing (emphasizing FX risk) had ensured that borrowers were able to absorb shocks. Loan restructurings (typically in the form of maturity extensions) and lower interest rates on FX loans also helped contain debt service payments.

Kazakhstan

2008–10. Kazakhstani banks had borrowed heavily from abroad in the years preceding the GFC—amassing external debt of 44 percent of GDP—to fund a rapid expansion of credit, which also led to a boom in real estate prices. The tightening of external funding starting in 2007 precipitated marked declines in credit growth and property prices, and the early 2009 devaluation of the tenge exacerbated risks in the highly dollarized economy. The government introduced an anti-crisis plan at a stated cost of 9.5 percent of GDP to provide support to the largest banks and targeted sectors. Notwithstanding the provision of liquidity and capital support, the combination of weak economic growth, currency induced credit exposure, and increased uncertainty led to a sharp increase in NPLs and weakening of banks' balance sheets. Some of the banks restructured their external liabilities.

2011–14. NPLs continued to remain high, and the authorities established a distressed assets fund to remove problem loans from bank books. The largest bank was recapitalized with public funds in 2012. Banks were required to present action plans to reduce NPLs below thresholds set by regulators. However, limited recognition of bank losses and uncertainty over asset valuation undermined these efforts. As credit growth started to pick up, the authorities started deploying macroprudential policies to contain credit growth.

2015–19. While there was some improvement in NPLs, the drop in oil prices and currency depreciation further weakened the already fragile bank balance sheets. There continued to be large government-funded efforts to clean the balance sheet of the largest bank, including through transfers of bad assets and recapitalization. Given lingering concerns over asset valuation and misreporting, a system-wide Asset Quality Review was considered an essential diagnostic but was only completed at end-2019.

Kyrgyz Republic

2001. The government recapitalized a systemically important bank and strengthened its management and placed four problem banks under liquidation. A fifth bank was recapitalized by its private shareholders. This helped improve the capital base of the banking system.

2010. Following the political unrest in 2010, the largest bank was restructured with a forensic audit of its accounts to contain a possible systemic crisis in the banking system. It was subsequently sold to foreign investors.

2015. As NPLs started to increase, the authorities introduced macroprudential measures in 2015 to help build banking sector buffers in relation to FX exposures. The shock left banks with weaker assets and profitability. The Russia-Kyrgyz Development Fund provided support to state-owned banks for on-lending to SMEs and the private sector.

Tajikistan

2001. The four largest banks were restructured to improve the recovery of NPLs, but there was limited effort in terms of downsizing. Several of the remaining banks did not meet minimum capital requirements.

2004. The largest commercial bank was recapitalized, and several small banks were closed.

2007-12. Following a slump in remittances during the GFC and associated currency depreciation and liquidity shocks, bank NPLs increased sharply and credit growth slowed. The shocks exacerbated existing vulnerabilities due to directed lending, and poor governance and accountability in banks. The government recapitalized several commercial banks in 2010 to improve their asset quality and the largest commercial bank again in 2012. The continued forbearance and delay in action to improve governance in commercial banks is likely to have protected vested interests of shareholders while increasing costs for taxpayers.

2014–19. The 2014 credit boom was followed by a large drop in remittances, leading to a jump in NPLs (from already high levels) and sharply lower capital adequacy ratios. The authorities closed or merged several smaller banks and micro-finance institutions and recapitalized the two largest banks at a cost of 6 percent of GDP. Despite the recapitalization, the banks remained insolvent and unviable.

Uzbekistan

2010. The global financial crisis strained exports, which affected bank balance sheets. Publicly funded capital injections in several banks were earmarked for directed lending at preferential terms to strategic companies and projects and fueled rapid credit growth.

2017-19. After the sharp depreciation of 50 percent of the exchange rate, Uzbek banks received significant government capital injections of approximately 3 percent of GDP during 2017–18. In 2019, the government completed cleaning the state-owned banks' balance sheets with another 3 percent of GDP capitalization.

Annex Table 3.1. Macroprudential Tools Deployed in the CCA Countries, June 2020

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Broad-Based Capital Tools								
Countercyclical Capital Buffers	Currently at 0 percent. Ranges between 0 and 2.5 percent of RWA. 6-month notice is needed for an increase to take effect. (Tool in place since Jul-2019)	Currently at 0 percent. Ranges between 0–2.5 percent of RWA. 6-month notice is needed for an increase to take effect. (Tool in place since Nov-2019)	Currently at 0 percent. Ranges between 0–2.5 percent of RWA. 12-month notice is needed for an increase to take effect. (Tool in place since Dec-2017)	Currently at 0 percent. Ranges between 0-3 percent of RWA. 12-month notice is needed for an increase to take effect. (Tool in place since Jan-2019)	No	No	No	No
Capital Conservation Buffer	Currently is 0.5 percent. It will gradually raise to 2.5 percent. Reached 1 percent since Jan. 1st 2021. (Tool enforced since Jan-2020)	No	Currently is 0 percent[1] since Apr-2020, in line with Basel III (Tool enforced since Dec-2017)	Set at 1 percent[2] since Jun-2020, in line with Basel III. (Tool enforced since Jan-2015)	Currently is 6 percent, differs from Basel III.[3] (Tool enforced since Jan-2016)	No	No	No[4]

Annex Table 3.1. Macroprudential Tools Deployed in the CCA Countries, June 2020 (continued)

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
D-SIB Buffer	Currently is 0.5 percent. Still being phased in, increasing to 1 percent on January 1, 2022, and rise to 1.5 percent on January 1, 2023. (Tool enforced since Jan-2020)	Currently is 2 percent. Implicit as systemic banks are subject to 11 percent minimum CAR, while non-systemic banks to 9 percent. (Tool enforced since Nov-2019)	Set at a maximum of 2.5 percent, being phased in from 2018 to 2021. Varies between 1.5 and 2.5 percent based on the systemic importance of the bank. (Tool enforced since Dec-2018)	Currently is 2 percent of which: − 1 percent (explicit) D-SIB − 1 percent (implicit) as conservation buffers are 2 percent for systemic banks but 1 percent for non-systemic banks. (Tool enforced since Jan-2017)	2 percent for banks that account for at least 8 percent of total customer deposits and loans of the banking system. (Tool enforced since Jan-2016)	No	No	No
Leverage ratio (Capital to Assets)	No	Minimum 4–5 percent: ▪ 5 percent systemic banks ▪ 4 percent non-systemic banks (Tool enforced since Nov-2019)	Minimum 5 percent	No	Minimum 8 percent (Tool enforced since Oct-2004)	No	No	Minimum 6 percent. (Tool enforced since Sep-2015)
Dynamic provisioning	No	No	Forward-looking criteria as per IFRS 9 to determine provisioning to be implemented by 2022	Forward-looking criteria as per IFRS 9 to determine provisioning were adopted as of January 2018	No	No	No	No

Annex Table 3.1. Macroprudential Tools Deployed in the CCA Countries, June 2020 *(continued)*

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
	Tools to Reduce Risks from Dollarization							
Limits on Foreign Exchange Positions[5] (LFX)	Maximum open FX position-to-total capital for all currencies is 10 percent. Maximum open FX position-to-total capital for each currency is 7 percent. (Tool enforced since Nov-2009)	Maximum gross open position-to-regulatory capital is[6]: – For all convertible currencies is 20 percent – For each convertible currency is 10 percent	Maximum open FX position-to-regulatory capital is 20 percent (Tool enforced since 2006)	Maximum open FX position-to-equity capital for all currencies: 12.5 percent.[7] Maximum open FX position-to-equity capital for each currency is: – 7.5 percent for each currency of highly rated sovereigns and precious metals. – 5 percent for each currency of low-rated sovereigns. Maximum derivatives in foreign currency are 50 percent of equity capital	Maximum open FX position-to-net capital for all currencies is 20 percent, for each currency is 15 percent.[8] (Tool enforced since Jan-2005)	Maximum open FX position-to-regulatory capital for all currencies is 20 percent (Tool enforced since Aug-2009)	Maximum open FX position-to-capital for all currencies is 15 percent. Maximum open FX position-to-capital for each currency is 10 percent.	Maximum open FX position-to-regulatory capital for all currencies is 15 percent. Maximum open FX position-to-regulatory capital for each currency is 10 percent. (Tool enforced since Jul-2005)

Annex Table 3.1. Macroprudential Tools Deployed in the CCA Countries, June 2020 *(continued)*

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Targeted Capital Requirements and Risk-Weights for FX exposures	FX assets have a 50 percent higher RW than local currency assets. (Tool enforced since Apr-2010) Specific RW for mortgages in local currency at 35 percent, and in FX at 75 percent Additional risk weights for interbank exposures and differentiated for FX exposures.	Risk weights for FX exposures is higher than national currency exposures	Pillar 2 requirements include the unhedged currency induced credit risk buffer; the credit portfolio concentration buffer (name and sectoral concentration buffers); the net stress test buffer, which is set in accordance with the results of stress tests administered by the NBG; and the net GRAPE buffer.	Higher RW for unhedged FX-borrowers (200 percent RW–instead of 100) (Tool enforced since Jan-2014)	No	FX loans have a 150 percent RW. (Since Mar-2018)	No	No
Differentiated Loan Loss Provisions (LLP) for FX loans	Differentiated LLP for FX exposures (20 percent higher) (Tool enforced since Jan-2008)	No	No	No	Provisions on FX loans based on share of FX income for borrowers: Income share / Prov. +75% 2% 50–75% 5% 0–50% 10% 0% 25%	No	No	No

Annex Table 3.1. Macroprudential Tools Deployed in the CCA Countries, June 2020 (continued)

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Limits on FX-Loans	Ban on FX denominated loans (except mortgages) to households	Lending for unhedged consumer loans borrowers is restricted to borrowers with an FX-deposit guarantee and LTV ratio less than 90 percent.	Lending in FX up to 200,000 GEL equivalents is prohibited. (Tool enforced since Jan-2017)	Ban on FX-mortgages for individuals without FX-income in the preceding 6 months.	Ban on mortgage and consumer loans in FX to individuals (except entrepreneurs).	Ban on FX mortgages for households without FX income. (Tool enforced since May 2017)	No	Ban on FX denominated loans for households without FX income
Differentiated Reserve Requirements *Reserves requirement can be filled with local currency. **Aggregate RR used mostly for monetary policy.	Local currency deposits at 2 percent. FX deposits at 18 percent, fulfilled in FX (2 percent) and local currency (16 percent).[9,10] Reserves are remunerated. (Tool enforced since Jan-2008)**	Local currency liabilities are at 0.5 percent. FX liabilities at 1 percent* (Tool enforced since Mar-2016)**	Local currency liabilities at 57 percent for maturity less than 1 year.[11] FX liabilities 10-25 percent depending on deposit-dollarization of the bank – For FX liabilities with maturity less than 1 year is 25 percent; – For FX liabilities with maturity 1-2 years is 10-15 percent (depending on the bank deposit dollarization of the bank).* Reserves are remunerated. (Tool enforced since Feb-2011)**	Short-term local currency deposits at 2.5 percent Short-term FX deposits at 3.0 percent, long-term at 1 percent.* (Tool enforced since Dec-2012)**	Local and select regional currencies are at 4 percent;[12] Other foreign currencies are at 14 percent.* (Tool enforced since Oct-2015)**	Local currency liabilities at 1 percent. FX deposits is at 5 percent.* (Tool enforced since Mar-2008)	Local currency demand deposits is 12 percent, time deposits is 5 percent. FX demand deposits is 9 percent, time deposits is 6 percent.	Local currency liabilities at 4 percent. FX liabilities at 14 percent. Fulfilled in local currency.* (Tool enforced since Jun-2018)**

Annex Table 3.1. Macroprudential Tools Deployed in the CCA Countries, June 2020 (continued)

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Other Sector-Specific Tools								
Limits on exposures to unsecured borrowers, large exposures (including interbank)	Maximum exposures to a single borrower (including financial institution) limited to 20 percent of banks' capital	No	Maturity of unsecured loans should be less than 5 years. Loans to borrowers with unverified income should be less than 25 percent of regulatory capital. No. A limit of 25 percent Tier 1 capital for large exposure to be enforced in Jun-2021.	No	Unsecured loans should not exceed 50 percent of a bank's aggregate net capital. Maximum exposures to a single non-bank borrower limited to 15 percent of a bank's aggregate net capital, 20 percent of all banks. Interbank exposures to a single bank limited to 15 percent of a bank's aggregate net capital, 30 percent of all banks' net capital.	No	No	Unsecured loans less than 5 percent of Tier I capital. Maximum exposures to a single borrower or group of interrelated borrowers to not exceed 25 percent of Tier 1 capital. Related-party loans limited to 100 percent of bank's Tier 1 capital.

Annex Table 3.1. Macroprudential Tools Deployed in the CCA Countries, June 2020 *(continued)*

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Capital requirements or risk-weights for other exposures	Additional risk weights for interbank exposures.	No.	Pillar 2 requirements include the credit portfolio concentration buffer (name and sectoral concentration buffers); the net stress test buffer, which is set in accordance with the results of stress tests administered by the NBG; and the net GRAPE buffer. There are additional capital requirements for loans with high LTV and DSTI ratios.	RW for household-mortgages are based on their LTV and DSTI ratios	No	No	No	Auto loans with down-payment of less than 20 percent have a 300 percent RW. Household mortgage loans or for construction have a 50 percent RW. If LTV larger than 60, the RW increases to 100 percent.
Debt-Service-to-Income Ratio (DSTI)/Loan-to-Income Ratio	No	Yes. If loan to income ratio is more than indicative limit (45 percent), such credit is categorized as substandard. (Tool enforced since Nov-2018)	Maximum DSTI for unhedged FX loans ranges between 20–35 percent, depending on maturity. Maximum DSTI for hedged FX loans ranges between 25–60 percent, depending on maturity. (Tool enforced since Jan-2019)	The ceiling for consumer loans is 50 percent.	The ceiling for a consumer loans in domestic currency is 50 percent. (Tool enforced since Apr-2015)	No	No	Yes. Loan to income ratio for microloans should not exceed 50 percent. (Tool enforced since Mar-2020)

Annex Table 3.1. Macroprudential Tools Deployed in the CCA Countries, June 2020 (continued)

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Loan-to-Value ratios	No	Yes For retail and mortgage loans LTV ratio is between 70-90 percent depending on the guarantee. (Tool enforced since Nov-2018)	Maximum for local currency is 85 percent. Maximum for FX is 70 percent.[13] Maximum LTV for non-residents at 60 percent. (Tool enforced since Jan-2019)	No	No	No	No	No
Liquidity Tools								
Loan-To-Deposit Ratio	No	No	No	No	No	No	No	Maximum 80 percent.
Net Stable Funding Ratio	100 percent (for all currencies[14] (Tool in enforced since Jan-2021)	No	100 percent (Tool enforced since Sep-2019)	100 percent (Tool enforced since Jan-2019)	No	No	No	100 percent. (Tool enforced since Jan-2019)
Liquid Coverage Ratio	100 percent for all currencies[15] (Tool in enforced since Jan-2021)	No	100 percent Differential LCR for FX.[16] (Tool enforced since Sep-2017)	60 percent[17] Set at 50 percent in 2019, gradually rising to 100 percent by 2022. The calendar is on hold due to COVID-crisis. (Tool enforced since Sep-2018)	No Introduction expected for June 2020 was suspended due to COVID-crisis.	No	No	100 percent Differential LCR for FX. (Tool enforced since Sep-2019)

Annex Table 3.1. Macroprudential Tools Deployed in the CCA Countries, June 2020 (continued)

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Liquid asset ratios	Min. highly liquid assets to total assets ratio is 15 percent (Jan-2008) Min. highly liquid FX-asset-to-total FX-assets ratio: 4% (for each currency) (Jul-2012) Min. highly liquid assets-to-demand deposits: 60 percent (Jan-2008) Min. highly liquid FX assets-to-FX-demand deposits: 10% (for each currency) (Jul-2012)	Min. liquid assets to ST liabilities ratio at 30 percent.	No (done via LCR)[18] Additional liquidity is required for nonresident deposits.	Min. highly liquid assets to ST liabilities ratio is 30 percent The requirement must also be met in FX.	Min. liquid assets-to-bank liabilities ratio at 45 percent. Min. highly-liquid assets-to-ST liabilities ratio is 35 percent. (Since Jul-2004)	Min. liquid assets as a share of ST liabilities is 30 percent.	Min. overall liquidity ratio is 25 percent. Min. quick liquidity ratio is 35 percent. Min. current liquidity ratio is 60 percent.	Min. liquid assets as a share of ST liabilities at 30 percent. Min. highly liquid assets to total assets 5 percent; raised to 10 percent in Jul-2020.

Sources: IMF, 2018 Macroprudential Policy Survey, IMF-JVI Survey 2020; published Financial Stability Reports; and country financial regulations.

[1]Relaxed from 2.5 percent to 0 percent on April 1, 2020.

[2]Systemic important banks have a higher rate of 2 percent, while non-systemic banks have a rate of 1 percent. Conservation buffers were relaxed in June 2020 from 2 to 1 percent for non-systemic banks and from 3 to 2 percent for systemic banks.

[3]In addition to the minimum capital requirements of 12 percent.

[4]The 3 percent preservation buffer is included as part of the minimum requirement of 13 percent, but the 13 percent is hard limit preventing banks to use it when they face losses.

[5]Presents limits relative to convertible currencies on the table, but footnotes provide details when convertible and non-convertible are differentiated.

[6]Convertible and non-convertible currencies have differentiated maximums. For non-convertible currencies the ceilings are lower.

[7]Reduced from 12.5 to 7.5 percent for each currency and from 25 to 12.5 percent for all currencies in June 2020.

[8]For countries that have not accepted IMF Article VIII the maximum is zero.

[9]There are a few exemptions.

[10]Since September 2020, the 18 percent FX requirements are fulfilled in foreign currency (8 percent) and local currency (10 percent).

[11]Borrowed funds with a remaining maturity of more than one year in the national currency, and more than two years in a foreign currency, are exempt from reserve requirements.

[12]Armenian dram, Belarusian ruble, Chinese renminbi, Kazakh tenge, and Russian ruble.

[13]These limits also apply to the nonbank sector.

[14]For each currency LCR is set at 60 percent during Jan–Jun 2021, 80 percent Jul–Dec 2021 and 100 percent from January 1, 2022.

[15]For each currency LCR is set at 60 percent during Jan–Jun 2021, 80 percent Jul–Dec 2021 and 100 percent from January 1, 2022.

[16]LCR on Lari liabilities can be as low as 75 percent, if the overall LCR remains above 100 percent. LCR on foreign currency is at least 100 percent.

[17]Reduced from 80 to 60 percent in June 2020.

[18]Phased out at the end of 2019 (liquid assets as a share of ST liabilities was 30 percent).

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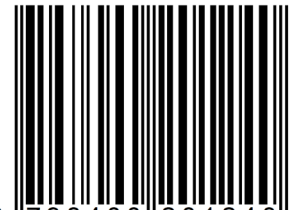
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