

**EURASIAN FUND FOR STABILIZATION
AND DEVELOPMENT WORKING PAPER
WP/20/3**

2020

**Tajikistan and the Kyrgyz
Republic Post-COVID-19:
Debt Sustainability,
Financing Needs, and
Resilience to Shocks**

E. Vinokurov, N. Lavrova and V. Petrenko

Keywords: debt sustainability, external shocks, Kyrgyz Republic, Tajikistan, external debt, public debt, financial crisis, economic crisis, macroeconomic resilience.

JEL codes: F15, F35, F47, H12, H63, H68

Authors' contact information:

Evgeny Vinokurov, Chief Economist: vinokurov_ey@eabr.org

Natalia Lavrova, Head of Unit of Macroeconomic Analysis and Statistics,

Chief Economist Group: lavrova_na@eabr.org

Victoria Petrenko, Economist, Chief Economist Group: petrenko_vd@eabr.org

The electronic version of this document is available at

<https://efsd.eabr.org/en/research/working-papers/>

Disclaimer

This Working Paper has been prepared based on statistics as of 01 June 2020.

Macroeconomic indicators for forecast calculations are based on the baseline scenario as of April 2020.

EFSD Working Papers reflect the Fund's research on global, regional, and country economic trends, economic modelling, macroeconomic analysis, sectoral analysis, global financial architecture, and other issues. This Working Paper was prepared by the staff of the Project Unit of the Eurasian Fund for Stabilization and Development in the Eurasian Development Bank. The conclusions and interpretation of the facts in the Working Paper do not necessarily reflect the official position of the EDB, the EFSD Council of Experts, the EFSD Council, or the EFSD member states.

Reprinting of the text for non-commercial purposes, in whole or in part, including large fragments, and placing the text on external electronic resources are permitted with a link to the original text.

TABLE OF CONTENTS

ACKNOWLEDGEMENT	2
EXECUTIVE SUMMARY	3
1. INTRODUCTION	5
2. LITERATURE REVIEW	7
3. METHODOLOGY AND DATA	10
4. EMPIRICAL SUPPORT AND APPLICATION	13
5. RESULTS AND IMPLICATIONS	17
6. CONCLUSION	25
7. REFERENCES	26

ACKNOWLEDGEMENT

The authors are grateful to Nathan Porter (Advisor at the IMF Strategy Policy and Review Department), IMF Country Teams in Kyrgyzstan and Tajikistan, Alexey Kuznetsov (Head of Unit of Economic Analysis at the Eurasian Development Bank), and the EFSD Financial Credit Project Group for valuable comments and recommendations. All remaining errors are the authors' responsibility.

EXECUTIVE SUMMARY

The EFSD Chief Economist Group continues the series of working papers on debt sustainability analysis. The previous paper “Kyrgyz Republic Debt Sustainability and External Shocks” focused on the country’s debt performance. It was partially tested by the economic crisis caused by the COVID-19 pandemic. Although, the considered stress tests should not be expected to accurately predict the crisis, it served as a supervisory tool that assessed the countries’ debt portfolio by focusing on external shocks, which can trigger solvency risks. In the current working paper, we address Kyrgyzstan’s and Tajikistan’s debt performance, taking into account their internal vulnerabilities.

COVID-19 has increased the risk of debt distress for developing economies. In the recent years, public debt in low-income countries has steadily increased and its pace has slowed down only slightly since 2017. Concurrently, the risk of debt distress has remained high for a wide range of developing economies (around 50% according to the IMF estimate). In these circumstances, the spread of COVID-19 hit low-income economies particularly hard and may precipitate debt crises across the developing world. The COVID-19 outbreak also revealed the sensitivity of economies and their debt positions to a wide range of disruptions: not only financial shocks may hamper economic growth, but health, political and environmental emergencies may also bring economic suffering.

In this context, we estimated developing countries’ debt sustainability and their financing needs by considering the Kyrgyz Republic and Tajikistan, which are the EFSD member states with comparable debt levels, accounting for 54.1% and 44.1% of GDP in 2019, respectively. Both economies are expected to be significantly hit by the COVID-19 emergency through disruptions in global value chains and a fall in remittances. In the baseline scenario, we calculated that a 4.3% contraction in GDP in the Kyrgyz Republic and a 2.8% slowdown in Tajikistan, accompanied by a 10–15% depreciation in the local currencies, may increase the public debt to almost 65.3% of GDP in the Kyrgyz Republic and 48.4% in Tajikistan by the end of 2020. Although these new levels of public debt are expected to remain affordable for both countries, there will be a significant increase in financing needs. In Tajikistan, gross financing needs are expected to increase from 3.8% of GDP in 2019 to 7.7% by the end of 2020, while in the Kyrgyz Republic they are projected to reach 10.9% compared to 4.5% in 2019. In the long run, the gross financing needs of both countries are expected to remain within 10% of GDP. In Tajikistan they may increase from 7.7% of GDP in 2020 to 9.8% at the end of 2025, while in the Kyrgyz Republic they will hover around 7% of GDP. In these circumstances, the countries’ debt positions became even more vulnerable and they may need additional financial assistance.

In order to shed light on how much debt Tajikistan and the Kyrgyz Republic can sustain and how the situation may change their financing needs, we consider **three alternative, more adverse scenarios**, which may take place starting in 2021 as a continuation of the COVID-19 pandemic. We calculated the response of the Kyrgyz and Tajik debt indicators to (1) a global economic crisis and (2) a regional crisis. Applying a two-step approach, we simulated external economic shocks and their impact on economic performance in the framework of a global model. Then, we incorporated the results into a debt sustainability analysis (DSA), where we calculated potential financing needs, taking into account the resources available to these countries. In addition, we considered (3) a natural disaster shock. Although this is a low-probability scenario, an assessment of its possible impact on economic performance can be important for policymaking.

Stress test 1. Our simulation of the protracted global crisis suggests that weaknesses in these countries' fiscal frameworks may become a key source of concern for debt sustainability in the Kyrgyz Republic and Tajikistan. Our results imply significant spillovers from global growth dynamics — slower recovery of the global growth, which is 4% instead of 5.8% in 2021 — ranging from 1.5 p.p. to 1.6 p.p. of difference in GDP growth in the Kyrgyz Republic and Tajikistan in the stress scenario (compared to the baseline scenario). This magnitude of global growth effects is commensurate with existing external trade links amplified by remittances and exchange rate channels with Russia. In the context of countries' financing needs (consisting of debt servicing, primary balance and short-term obligations), the main adverse effect will appear in 2024–2025, when they may increase to 8.9% in the Kyrgyz Republic and 11.4% in Tajikistan. In the short run, the main factor of higher debt flows (compared to the baseline scenario) will be translated through the primary deficit, which will explain around 40% of deviation between the stress and the baseline scenarios. In the long run, however, some contribution to the deviation of debt flows between the baseline and global crisis scenarios will be translated through servicing payments.

Stress test 2. The impact of a slow economic recovery in the region is estimated to be less pronounced compared to the protracted global crisis scenario. Our projection in a regional crisis scenario, envisages that slow economic rebound in Russia would lead to a sluggish recovery in the Kyrgyz Republic and Tajikistan. As a result, by the end of 2025, financing needs in the Kyrgyz Republic and Tajikistan may increase to 8.1% of GDP and 10.4% of GDP, respectively. In the short run, the main contribution to the growth in gross financing needs (GFN) stems from deteriorating public finance, which will explain 30–40% of the difference in debt flows between the stress-test and baseline scenarios. In the long run, amortization and interest payments will play a more decisive role, since the grace period for concessional borrowings (on average five years in both countries) will expire and the countries will have to serve their obligations.

Stress test 3. In contrast to the abovementioned scenarios, the natural disaster scenario entails extreme economic and social risks. Despite these events being rare and this scenario being a low-probability one, we point at the necessity of resilient national policies that would allow withstanding such a shock. In order to assess the consequences of a natural disaster shock, we assume a one-off shock that leads to 10 p.p. loss of GDP growth. In this case, a natural disaster shock would increase financing needs from 7.2% of GDP in the Kyrgyz Republic and 9.8% of GDP in Tajikistan under the baseline scenario to 11.1% of GDP and 15.3% of GDP, respectively.

The empirical findings suggest that adverse external conditions may significantly increase countries' debt flows. The main threat comes from the depreciation of local currencies and widening budget deficits, highlighting the need for strengthening fiscal positions to address the possibility of external shocks. The positive result of stress-testing is that Kyrgyzstan's public gross financing needs would not exceed 14% of GDP, estimated by the IMF as a benchmark for developing countries and treated as an early warning for potential financing pressures. This implies that Kyrgyz Republic debt sustainability will remain moderate and elevated liquidity needs will be covered by public external and domestic borrowing. In Tajikistan, medium-term financing pressure may continue to increase, which will remain a source of economic vulnerability.

Given the severity of public debt shocks, we expect that in the short term, the Kyrgyz Republic and Tajikistan will meet their financing needs from concessional financial sources. The countries might need simultaneous and coordinated support from several international financial institutions. In the medium term, our estimates highlight the necessity of fiscal consolidation to ensure debt sustainability, since the pace of its recovery will mainly depend on budget policies undertaken after the crisis.

1. INTRODUCTION

During 2016–2019, most low-income countries managed to improve their debt positions through a variety of channels: (1) access to additional sources of financial support, (2) restructuring mechanisms, and (3) generally favourable market conditions. Overall, this eased debt-servicing obligations in low-income countries and enabled them to finance essential development needs. On the other hand, a relatively sustainable economic environment until 2020, with open access to concessional loans, contributed to debt accumulation in developing economies. This reduced countries' fiscal space and made them more vulnerable to external shocks. While economic shocks vary from one country to another, in low-income countries they are mainly transmitted through a decline in commodity prices and remittances.

In 2020, the global economy faced a new type of shock from the coronavirus (COVID-19), which has led to unexpected economic fallout. Although the total economic effect of the health emergency is still uncertain, this meltdown can be expected to impede budget revenues of low-income economies and will have significant adverse consequences for business development. The coronavirus outbreak has also revealed the sensitivity of the global economy and especially of low-income countries to a wide range of disruptions: not only financial shocks may hamper economic growth, but health, political and environmental emergencies may bring economic suffering.

It is essential to estimate the impact of these external shocks on economic performance and the potential financing needs of low-income countries. Being highly dependent on global demand performance, low-income economies have to be cautious about their financial positions and especially about their debt sustainability, given the debt intolerance of developing countries. Risks arising in an uncertain economic environment lead their debt ratios, which are relatively moderate by international standards, to be perceived as relatively dangerous. Given this low sovereign riskiness of low-income economies, they should pay more attention to their debt obligations and capacity to serve them. Examining the financial needs of low-income countries therefore requires stress-test analysis, which analyse the effects of separate and combined economic shocks on countries' solvency.

In this study, we applied stress-test analysis to the capacity of low-income countries to deal with unfavourable economic environment, by considering the Kyrgyz Republic and Tajikistan, two EFSD member states.

The two economies have close levels of economic development, with \$1 340 GDP per capita in the Kyrgyz Republic and \$911 in Tajikistan, even though Tajikistan is classified as part of the low-income country group and the Kyrgyz Republic managed to move into the group of lower-middle-income economies. They equally depend on remittances and commodity revenues. Both countries have access to concessional loans from a variety of sources, while their access to financial markets is constrained. The combination of all these factors and development goals led to similar public debt-to-GDP ratios, which at the end of 2019 amounted to 44.1% in Tajikistan and 54.1% in the Kyrgyz Republic. In general, the pattern of the public debt ratios in the Kyrgyz Republic and Tajikistan is comparable to that of other emerging economies, partially because it also has a tendency to increase. However, in 2019, debt-to-GDP in the Kyrgyz Republic and Tajikistan was sustained at levels similar to those prevailing during the pre-crisis 2000s, which means that their debt ratios have remained lower than in emerging economies, with almost a fifth of those countries struggling with debt above 70% of GDP.

In this study, we estimated countries' debt sustainability and their financing needs by applying a two-step approach. First, we simulated external economic shocks and their impact on economic

performance in the framework of a global model, that considers linkages between external and domestic macro parameters. This allows us to estimate domestic responses according to a range of policy scenarios. The model also takes into account the correlation among shocks and generates a joint dynamic response, which makes forecasts more accurate. Second, we incorporated the results into a debt sustainability analysis (DSA), where we calculated potential financing needs, taking into account the resources available to the countries.

The results shed light on the debt and budget situation in Central Asian countries. Apart from a general outlook on the adequacy of financial resources in these countries, our intent was to analyze differences between the Kyrgyz Republic and Tajikistan in order to determine their ability to deal with crises. This comparative approach is one of the advantages of our study, as it enables us to analyze common and individual features of the debt situation in the two countries, applying an individual modelling approach.

By identifying the effect of shocks on the countries' debt position, the study estimated how much debt low-income countries can sustain and how the shocks may change their financing needs. From a theoretical point of view, analysis of additional fiscal needs under adverse economic scenarios may increase the effectiveness of countries' capital allocation and evaluate whether an economy will be able to raise funds from its financial safety net to withstand a crisis. The problem of adequacy of financial resources has been at centre stage in the debates within international institutions about economic stability. Furthermore, the importance of identifying financial resources that are necessary to deal with a plausible set of shocks, can be judged by authorities' intentions to mitigate debt risks and develop new mechanisms of financial provision.

Motivated by the growing significance of global economic stability and of providing support to the most vulnerable countries, this study emphasizes the importance of monitoring debt and fiscal positions in the current environment of expanding global capital flows, and provides assessments of the necessary resources for dealing with adverse shocks. We embed risk management in the assessment of debt sustainability, which can contribute to the development of policy responses in the face of a severe economic crisis.

The structure of the paper is as follows. Section 2 provides a literature review. Section 3 contains a discussion of methodology and data-related issues. Section 4 shows the impact of adverse external shocks on macroeconomic indicators of the Kyrgyz Republic and Tajikistan. Section 5 provides an assessment of the countries' financing needs in the face of economic shocks, considering the impact of the shocks on economic performance. The concluding section 6 summarizes the key arguments and develops a set of policy recommendations going forward.

2. LITERATURE REVIEW

The developing and developed worlds have been experiencing significant changes in capital flows. Relatively robust economic growth has contributed to an increase in the share of developing and emerging markets in the global GDP, which in 2018 reached 40%. This process has been accompanied by growing trade and financial integration. However, while the trade network has become notably interconnected — emerging markets and developing countries increased their share in goods exports from around 32% in 2000 to 46% in 2018 — the role of developing countries in the global financial system has remained limited, and advanced countries have become even more dominant in the financial system.

Given that and the relatively shallow financial markets in developing countries, most of these economies have raised funds for infrastructure and other development projects through concessional loans, provided especially by international institutions. Concurrently, the implementation of the Heavily Indebted Poor Countries (HIPC) initiative has provided notable debt relief to developing countries by alleviating their debt-servicing burden. However, in the 2010s, since the majority of developing countries graduated from the HIPC, they turned to non-Paris Club credits in order to compensate for a decline in concessional financing. Other developing countries also tended to gain access to new sources that provide easier access to financing and enable them to diversify their credit portfolios.

Since the importance of commercial credits has risen, the sensitivity of low-income countries to economic fluctuations has increased. As a result, they have become more vulnerable to changes in the economic landscape: External shocks may have long-lasting adverse consequences for the fiscal and debt sustainability of developing countries.

The empirical literature on debt sustainability and the financial needs of developing countries has usually discussed these issues as separate topics. As a result, our study draws from two strands of literature. The first is focused on the debt situation in the country and provides an assessment of the main factors contributing to debt growth, while the second is considered from the perspective of the global financial safety net (GFSN).

Debt sustainability analysis is performed by a number of international organizations, primarily the World Bank and the IMF (IMF, 2019). These studies usually examine the debt performance of low-income countries, taking into account the structure of their obligations and the impact of macroeconomic indicators on the sustainability of the debt.

The stress-testing that complements these studies allows a comprehensive analysis of countries' debt performance and their solvency. One of the first institutions that adopted stress-testing is the IMF (Cihak, 2007), which has done it since 1997, in response to the Asian financial crisis. The 2008–2009 global financial crisis (GFC) was the next event that prompted interest in stress-testing. Authorities in the USA, EU, and other countries adopted stress-testing and made it public (Steffen, 2014; Board of Governors of the Federal Reserve System, 2013). Regional institutions regularly arrange stress-testing in order to provide qualitative and quantitative insight for policymaking. In 2018, the European Stability Mechanism (ESM) (Athanasopolou et al., 2018) assessed debt sustainability and quantified the maximum pace of debt reduction under several macroeconomic scenarios. As a result of these efforts, stress-testing became a systemic tool for identifying vulnerabilities. Among its focuses are external risks, and banking and financial crises.

However, as the climate change issue and the current health emergency evolved to be the most probable challenges facing the global economy, especially for low-income countries, international institutions focused on stress-testing for natural disasters and pandemics as well. Emergencies may have immediate adverse effects on low-income countries and hence increase the debt-to-GDP ratio. According to Lee et al. (2018), in the Pacific island countries, where the likelihood of a severe natural disaster in a given year is around 9%, GDP growth may be reduced by 1.8%, with an average decline of the fiscal balance by 1.3% of GDP. Given this vulnerability to natural disaster, authorities have to take into account these adverse effects in their medium-term and long-term economic forecasting and planning. For example, Nakatani (2019) proposed the design of fiscal policy rules that are suited to help vulnerable countries to stabilize their debt-to-GDP ratios in the face of natural disasters. However, it is not only natural disasters that might impede economic activity. The coronavirus (COVID-19) outbreak has already brought severe economic disruption, which will translate into deterioration of trade, growth slowdown, fall in disposable incomes and, consequently, an increase in public debt. The majority of international institutions agree on the severity of the economic impact of coronavirus: The ADB (ADB, 2020) estimates the negative impact of COVID-19 to be equal to 6.4–9.7% of world GDP; the OECD (OECD, 2020) projects a reduction in global growth of 6.0–7.6%, which will increase the debt burden dramatically all over the world, especially in the most susceptible countries, such as low-income developing regions.

Regional shocks that occur because of a crisis in a leading economy of the region also increase risks for economic development and debt sustainability in dependent countries. IMF estimates (Stepanyan, et al., 2015) indicate significant spillovers from the Russia growth shock to the CIS region. Since the magnitude of spillovers is commensurate with remittance inflows as well as trade and financial links, policymakers of dependent economies need to focus more on assessing these adverse effects and mitigating them.

Altogether, these tasks require an in-depth review of possible sources of shocks and estimates of their potential level. For these purposes, a wide range of instruments was developed. Nevertheless, a DSA model (with a constantly evolving methodology) (IMF, 2018) remains a standard tool for the simulation of debt positions and their stress-testing. This tool serves several functions: the assessment and forecasting of countries' debt levels and their financing needs, when the economy is under stress.

However, by considering the debt-to-GDP ratio under a variety of economic scenarios, a number of studies do not answer the question of financing needs in the event of economic crisis, but focus on the debt stock. The problem of financing needs is widely discussed in papers examining the global financial safety net; by simulating a series of economic stresses that affect macroeconomic indicators, they estimate the liquidity gap in emerging markets. This approach was adopted by Denbee et al. (2016), who simulated balance of payment responses under six stress scenarios in emerging markets. By comparing the results obtained from the baseline scenario and stress-tests, the authors estimated the potential financing needs of emerging economies. Then, taking into account the resources available to those countries from international reserves, regional financial mechanisms and the IMF, the study provided indicative estimates of possible financial gaps. The results indicated that available resources from the global financial safety net would be sufficient in case of a crisis. However, if an economic shock is more severe than historical experience, and domestic residents are reluctant to reduce their investments abroad, the resources of the GFSN seem insufficient.

Similar results were obtained in an IMF paper (2016), where the financial gap in emerging markets was estimated, considering shocks to FDI inflows, deposit outflows and rollover rates of external debt. The study concluded that emerging markets might face a notable financing gap, which would require involvement of all GFSN elements.

While the above-mentioned papers tended to focus on the role of international institutions as global financial insurers, the purpose of our study was to assess financial gaps in low-income countries considering their existing debt obligations. A similar study, which focused on the flows of obligations instead of the stock of debt, was done by the ESM (Gabriele et al., 2017). The motivation of that paper was explained by the fact that different economic risks, and changes in principal payments and interest rates, can impose significant risks to countries' financing needs, which are not entirely described by alterations in the debt-to-GDP ratio.

The limitation of the debt stock approach to assessment of countries' sustainability compelled us to focus more on debt flow analysis. We follow the same principles as in the ESM study, focusing on the role of debt-related cash flows for debt sustainability. Another limitation of existing empirical studies relates to the countries considered. These papers usually examine advanced and emerging economies, while developing countries, given their shallow financial markets, are rarely included in the analysis. In addition, studies devoted to the sufficiency of financial resources usually ignore the short-term debt liabilities of developing countries. From our perspective, this approach may also have some limitations, especially given the relatively weak debt management capacity of low-income countries. For this reason, we bring together different approaches on financing needs assessment, and fill the gap by outlining a framework for discussing financial adequacy challenges, taking into account the debt positions of low-income countries.

3. METHODOLOGY AND DATA

The estimation techniques applied in this paper can be considered as a two-stage process. First, we simulated one-year-long economic shocks in the Kyrgyz Republic and Tajikistan. Second, we calculated gross financing needs and debt sustainability under adverse scenarios, using the results obtained in the previous step. The results of these estimates are compared with debt parameters calculated in the framework of the baseline scenario; the estimated difference between scenarios enables us to identify the “pure” impact of alterations in the external economic environment.

In the first part of the analysis, we examined the projected trajectories of macroeconomic indicators under the baseline and adverse scenarios. The impact of external shocks on economic performance of the Kyrgyz Republic and Tajikistan was estimated within the global model, which combines (1) four external regions, such as the USA, the Euro Zone, China, and the rest of the world; and (2) the EFSD countries, including donor-countries Russia and Kazakhstan, as well as the recipients: Belarus, Armenia, the Kyrgyz Republic and Tajikistan. Altogether, these economies are linked by diverse cross-border spillover channels through the real and financial sectors.

The global model follows a semi-structural approach (EEC, EDB, 2016), which combines a set of core economic relationships (IS and Phillips curve equations, Taylor rule, uncovered interest rate parity) and allows us to address economic challenges in policy decisions. The main advantage of this model is that it facilitates tracking a number of specific features of the EFSD region, including its commodity and remittance dependency. It also enables us to estimate international and regional shocks, which propagate via economic and financial linkages.

Using this instrument, we calculated the response of the Kyrgyz and Tajik economies to (1) a global economic crisis and (2) a regional crisis. Domestic shocks, such as natural disasters, are considered separately in the DSA model. In order to estimate the consequences of all the aforementioned shocks, we imposed some key assumptions:

Given that the external economic sector is represented in the model by four areas — the USA, Euro Zone, China, and the rest of the world — we estimated the decline in global growth, considering economic linkages between regions. In the framework of the model, we estimated growth elasticities among the countries and then, by imposing an external shock to the USA, we estimated responses in other economic regions. Combining these shocks, we calculated a total effect on world economic growth and conducted a comprehensive stress-test analysis. We imposed a continuation of global crisis in 2021, which would leave the world growth 1.8 p.p. lower compared with the baseline scenario. This corresponds to 4% y/y world economic growth in 2021. We then applied a global shock to the countries’ output gaps, which implies that changes in the economic performance of the Kyrgyz Republic and Tajikistan would be mainly driven by cyclical changes.

Another assumption is related to the pass-through effect, which is also measured within the global model. According to our estimates, the simulation of a 1% change in the exchange rate may increase inflation by 0.2–0.3 p.p. in the Kyrgyz Republic and by 0.2 p.p. in Tajikistan. By incorporating these results into the debt sustainability model, we expected to receive more consistent estimates of the countries’ debt performance.

Regional economic influence was assumed to be determined by the economic performance of Russia. Given the significant dependence of the Kyrgyz and Tajik economies on remittances from Russia, as well as trade linkages between the countries, we estimated the scenario of regional crisis,

assuming the spillover effect from Russia's economic growth to remain the dominant regional factor. The impact of Russia's GDP slow recovery on the Kyrgyz Republic and Tajikistan was also estimated within the global model. As an assumption of this adverse scenario, we considered a 2.1 p.p. weaker rebound in Russia's GDP growth in 2021 (compared to the baseline scenario), which implies 1.4% growth in 2021.

As a national tail event, we considered a natural disaster shock. Although this is not the most realistic scenario, an assessment of its possible impact on economic performance can be important for policymaking. Another motivation for this stress-test analysis is that developing economies are usually more strongly affected by natural disaster shocks than advanced economies, so some fiscal buffer may be required to safeguard economic and debt sustainability, especially in low-income developing countries. In order to calculate how the disaster shock might increase countries' financing needs, we applied the size of the shock estimated in Khor et al. (2016) and thus assumed that the damage from natural disasters for low-income countries would be as large as 10 p.p. of GDP compared to the baseline, which implies a 5% y/y decline in Kyrgyz GDP growth and a 2.4% y/y decline in Tajikistan in 2021 under the stress scenario.

By running a series of stress scenarios, we carried out sensitivity analyses for Kyrgyz and Tajik economic performance. In order to measure external effects on the countries' debt performance, we made use of debt sustainability analysis, which enabled us to estimate debt projections and additional financing needs in a more comprehensive way. Applying this toolkit, we tied together the flow and stock approaches and estimated the consequences of external shocks with respect to existing and forthcoming debt obligations, specifically taking into account interest payments, principal payments, short-term outstanding debt and primary balance. Combining this information, we estimated gross financing needs as:

$$GFN_t = PB_t + A_t + ShD_{t-1} + IP_t, \quad (1)$$

where PB_t stands for public sector primary balance at time t ; A_t represents amortization of medium- and long-term public debt in the corresponding year; ShD_{t-1} includes all short-term outstanding debt at the end of the previous year; and IP_t stands for the interest payments in the period t .

Next, we analyzed the results across baseline and adverse scenarios and compared them with historical debt performance. This allowed us to explore debt cash flows further and suggest some policy implications.

Data

For calculation of the responses of macroeconomic parameters to external shocks within the global model framework, monthly, quarterly and annual data were taken from the national statistical committees of the Kyrgyz Republic and Tajikistan. The data on interest rates, exchange rates, and remittance inflows come from the national banks. Variables describing the GDP growth, inflation, exchange rates, and commodity prices of the external sector (Euro Zone, USA, China, and the rest of the world) were obtained from Eurostat, the BEA, BLS, ECB, IMF, WB and Bloomberg.

The database for the DSA consists of yearly observations on a set of macroeconomic time series from 2006 to 2019. For external debt, our main data source was the Joint External Debt Hub, developed by the BIS, IMF, OECD, and World Bank. It encompasses debt profile data together with foreign assets. These data were complemented with series on disbursement from government projections. For public debt, our main source of information was the Ministry of Finance. These data included series on the debt portfolio and its main components. We extended the dataset with projections based on the interest rate, maturity, and grace period of new borrowing.

A set of exogenous macroeconomic variables determining the debt level — such as real GDP growth, GDP deflator, U.S. inflation, and exchange rates — was retrieved from the National Statistical Committees, the National Banks, and the World Bank. The fiscal variables complement these data, including government revenues and grants, primary expenditures, and other parameters (privatization proceeds, debt relief). The main sources of these data were the Ministries of Finance.

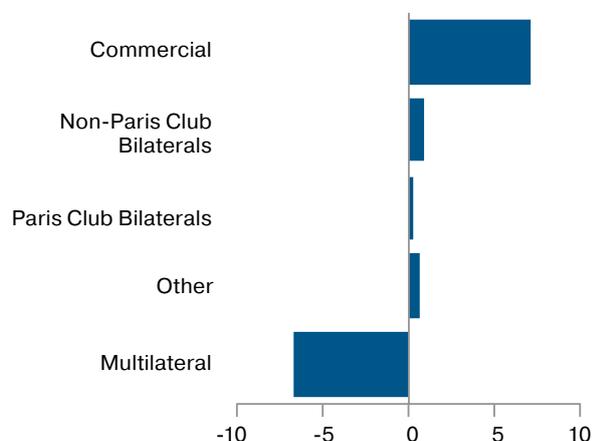
4. EMPIRICAL SUPPORT AND APPLICATION

Analyzing recent and prospective development of debt stocks and flows is crucial for assessing the debt sustainability of developing low-income countries, especially given their significant sensitivity to the external economic environment. However, over the last decade, the vulnerability of the debt performance has increased in these countries, not only due to external factors, but also internal ones. One of them is related to significant changes in the debt structure.

Since the 2010s, a number of countries have increased their exposure to commercial debt rather than concessional loans from international financial institutions. As a result, non-concessional instruments have become an important source of financing for low-income countries' investment projects. In Tajikistan, the share of non-concessional loans increased to 7% of GDP compared to 0.1% of GDP in 2010 (Figure 1). This sharp increase was primarily due to the issuance of eurobonds for the construction of the Rogun hydropower plant.

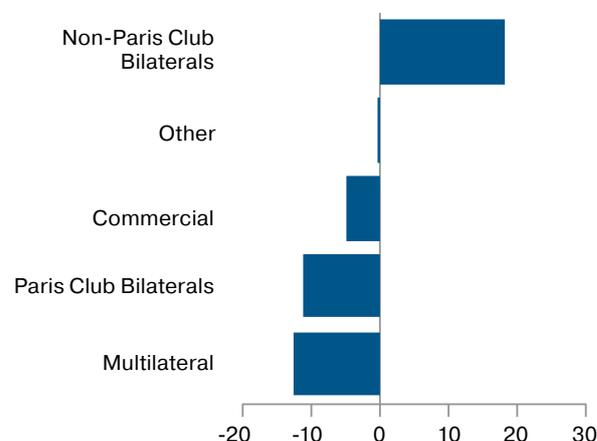
Another common trend in the debt composition is a shift from borrowing from multilateral organizations or Paris Club countries towards other lenders. During 2010–2019, the share of non-Paris Club bilateral lenders increased by 1 p.p. of GDP in Tajikistan (Figure 1) and by almost 20 p.p. of GDP in the Kyrgyz Republic (Figure 2). The major part in this increase is accounted for by Chinese lending.

Figure 1. Change in Creditor Composition in Tajikistan, 2010–2019 (p.p. of GDP)



Sources: Ministry of Finance, the National Bank of Tajikistan, Agency on Statistics of the Republic of Tajikistan

Figure 2. Change in Creditor Composition in the KR, 2010–2019 (p.p. of GDP)



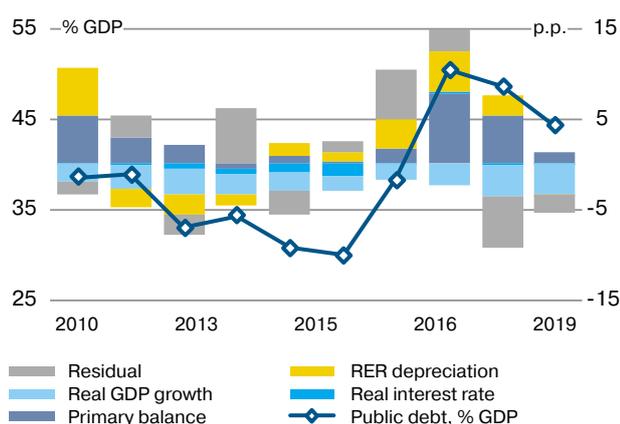
Sources: Ministry of Finance, the National Bank of the Kyrgyz Republic, National Statistical Committee of the Kyrgyz Republic

Over the last decade, China has become one of the main lenders to the Kyrgyz Republic and Tajikistan. As of the end of 2018, due to financing related to the Belt and Road Initiative (BRI), the share of Chinese loans rose to 46% of total government external obligations in the Kyrgyz Republic and to 40% in Tajikistan. While the role of China as a lender is expanding, Chinese interests have remained focused on the energy sector and transportation. Massive financial resources provided by the Chinese government are concessional; however, the relevant issue of lending arrangements for Chinese and for non-Paris Club debt in general, is that they have remained less transparent and some of them are collateralized.

The main drawback here is that collateralized debt may reduce fiscal space by earmarking revenues (Essl et al., 2019), which may increase risks for countries' solvency and debt-carrying capacity. This issue may arise in the mid-2020s, when the grace period will expire, and the debt service burden may become obvious for most loans. In the case of Tajikistan, it seems particularly acute, as the country's debt portfolio comprises \$500 mln. worth of eurobonds, issued by the National Bank. The redemption of this ten-year bond with a coupon of 7.125% will take place in 2025–2027 and is expected to notably increase Tajikistan's financing needs. The impact of this eurobond on debt sustainability may become significant, partially due to the income status of the country — Tajikistan is one of the poorest countries that has issued eurobonds.

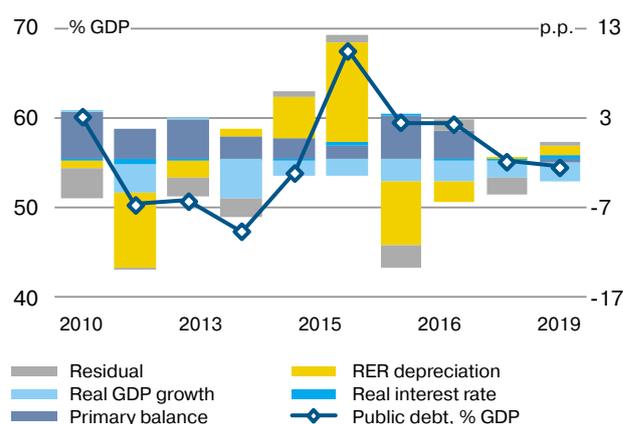
Developing and emerging economies have to tackle a number of existing structural rigidities and external vulnerabilities in order to pursue sustainable development, which also requires enormous financial resources. Part of what is needed can be raised from grants and development assistance (Box 1), but, in general, the situation leads to growth of public debt obligations. In Tajikistan, public debt rose from 30.6% of GDP in 2014 to 50.2% of GDP in 2017 due to an increase in infrastructure investment (Figure 3). In 2019, it stabilized at 44.1% of GDP. The Kyrgyz Republic also increased its outstanding debt, but in contrast to Tajikistan, the Kyrgyz debt-to-GDP ratio decreased from 66.9% of GDP in 2015 to 54.1% in 2019 (Figure 4).

Figure 3. Public Debt of Tajikistan, % GDP



Sources: Ministry of Finance, the National Bank of Tajikistan, Agency on Statistics of the Republic of Tajikistan

Figure 4. Public Debt of the Kyrgyz Republic, % GDP

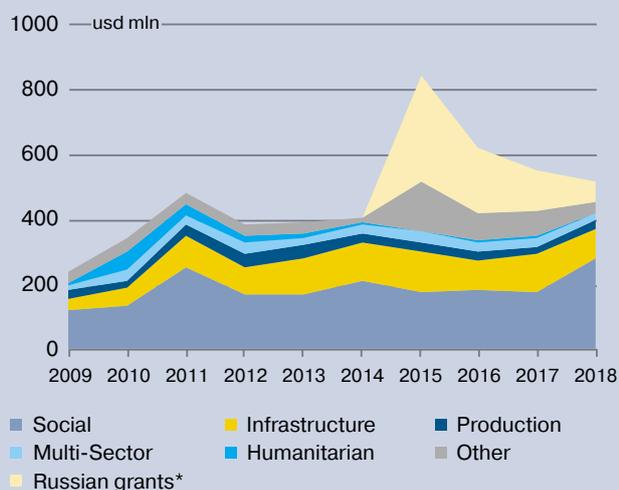


Sources: Ministry of Finance, the National Bank of the Kyrgyz Republic, National Statistical Committee of the Kyrgyz Republic

Box 1. The Role of Official Development Assistance in the Kyrgyz Republic and Tajikistan

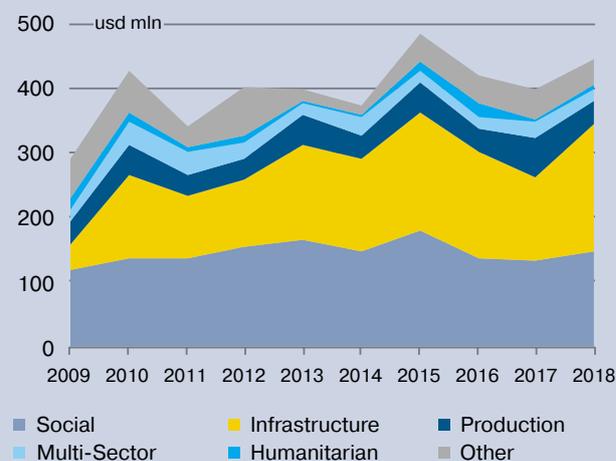
An additional source of economic development in Tajikistan and the Kyrgyz Republic is concessional finance. This external development assistance is primarily provided for the financing of social and infrastructure projects. Over the last 10 years, in the Kyrgyz Republic infrastructure made up 20% of total official development assistance, while in Tajikistan it reached almost 33% (Figures 5, 6). Given the relatively high poverty rate in both countries, social projects have continued to accumulate a significant part of development assistance. Up to the present, they have remained mainly focused on healthcare, education, government and civil society development.

Figure 5. Official Development Assistance to the KR by Aggregated Sector, 2009–2018



Source: OECD Creditor Reporting System database
* Sector non-allocable Russian grants

Figure 6. Official Development Assistance to Tajikistan by Aggregated Sector, 2009–2018



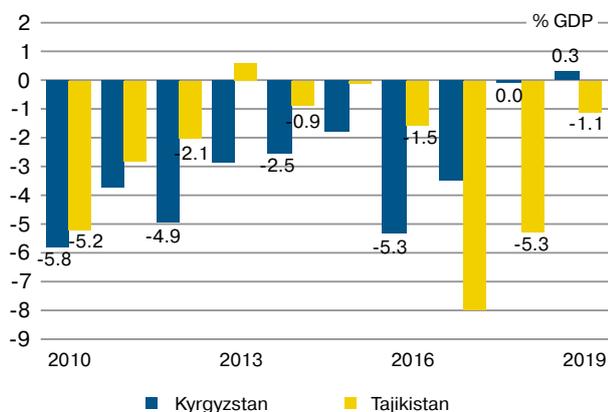
Source: OECD Creditor Reporting System database

It is noteworthy that external development assistance to the Kyrgyz Republic and Tajikistan consists primarily of grants. The size of grant support is considerable: During 2009–2018, gross disbursements to the Kyrgyz Republic amounted to US \$3.8 bln, which is comparable with the outstanding external debt at the end of 2018. In Tajikistan, those figures are even more significant, as total grant disbursements over the same period exceeded the level of outstanding debt (US \$3.2 bln versus US \$2.9 bln).

The debt positions of both countries have remained fragile and affected by the same combination of economic drivers. The main factor decreasing the debt was related to strong growth performance; however, the high primary balance deficit partially offset the impact of economic growth (Figure 7). Recent tendencies of raising government expenditures on interest servicing have partially eliminated the progress that was made by Tajikistan and the Kyrgyz Republic in increasing their budget revenues, primarily through tax channels. Compared to emerging markets, developing countries still have some unrealed potential to improve their tax-to-GDP ratio, which may help mitigate risks to debt distress and ensure more sustainable economic development. In fact, over the last 10 years, both countries increased their tax-to-GDP ratio, from 18% in 2009 to 21.2% in 2018 in Tajikistan and from 18% to 20.6% in the Kyrgyz Republic (Figure 8). However, in 2019, while the Kyrgyz Republic slightly increased its tax-revenues-to-GDP ratio, Tajikistan has experienced its shrinking below 20%.

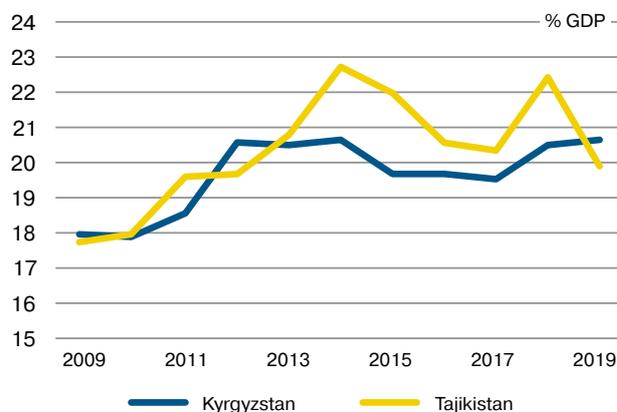
In 2020, a substantial hit to the GDP may result in an increase in fiscal deficits and hamper debt positions. As a result, additional budget discipline may be required going forward. Finally, both countries remain vulnerable to exchange rate movements, as the bulk of their external debt is foreign currency-denominated. It may also have an adverse effect on fiscal and debt sustainability.

Figure 7. Primary Budget Deficit, % GDP



Source: WEO database

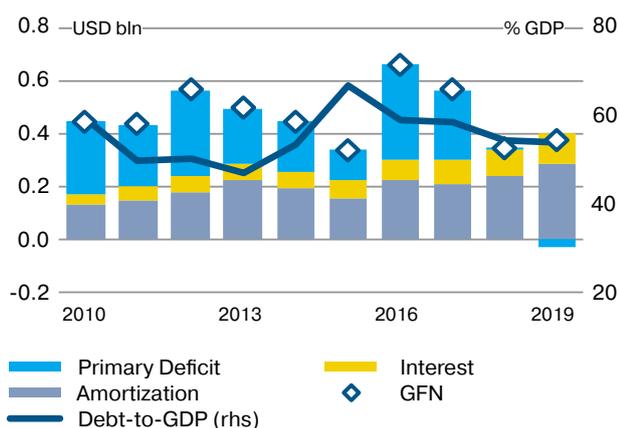
Figure 8. Tax Revenues, % GDP



Source: CEIC Data

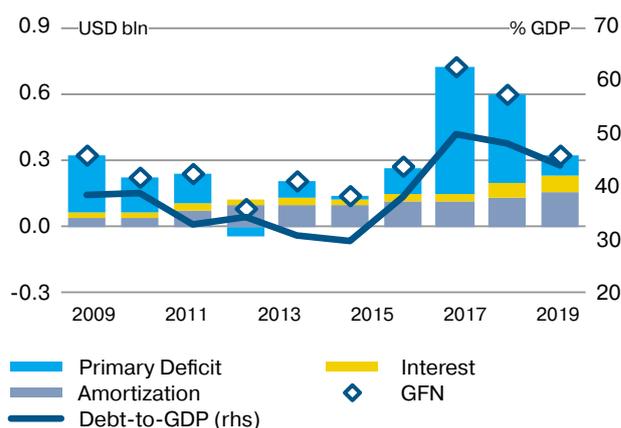
Changes in outstanding debt are leading to alterations of gross financing needs in both countries. In 2019 in the Kyrgyz Republic, these needs declined to \$0.38 bln. vs \$0.45 bln. in 2014, while in Tajikistan they increased from \$0.2 bln. in 2014 to \$0.3 bln. in 2019 (Figures 9, 10). In the Kyrgyz Republic, debt flows decreased primarily due to improvements in fiscal positions, but interest and principal payment contributed to their growth. In Tajikistan, the budget deficit has remained the key risk factor behind an increase in gross financing needs. The impact of amortization proceeds has also been increasing in recent years. Over the next few years, it is expected to become even more pronounced in Tajikistan due to the retirement of eurobonds. Interest payments do not contribute much to gross financial needs in either country, because the bulk of their external debt is concessional; however, the weight of interest payments is growing.

Figure 9. Breakdown of GFN in the Kyrgyz Republic



Sources: Ministry of Finance, the National Bank of the Kyrgyz Republic, National Statistical Committee of the Kyrgyz Republic

Figure 10. Breakdown of GFN in Tajikistan



Sources: Ministry of Finance, the National Bank of Tajikistan, Agency on Statistics of the Republic of Tajikistan

All in all, the current public debt in both countries indicates their fragility to external shocks. Faced with uncertainty and economic distortions, there would be additional consequences for fiscal and debt performance, which may raise the risk of debt distress. The impact of adverse shocks on countries' solvency and financing needs can be estimated by considering a variety of stress-test scenarios.

5. RESULTS AND IMPLICATIONS

In this section, we summarize our baseline and alternative scenarios. Stress scenarios will result from a two-stage estimation strategy. First, in the framework of impulse responses, we calculate the relative size of spillover effects on the Kyrgyz Republic and Tajikistan from commodity price changes, the global economy, and separately from Russia. Second, we incorporate the results into a debt sustainability analysis (DSA), where we calculate potential financing needs, taking into account the resources available to these countries.

Box 2. The Impact of COVID-19 on Debt Positions of the Kyrgyz Republic and Tajikistan

The spread of COVID-19 and the resulting sharp drop in commodity prices interrupted the growing economic trajectory of the last years in both countries. As a result, their economies are significantly hit by disruptions to global value chains and a fall in remittances. In March, Tajikistan and the Kyrgyz Republic had already lost around 30% y/y of their remittances inflow. Closure of the border had also resulted in a decline in imports and budget losses due to a fall in tax revenues. This may widen the budget deficit and further reduce the limited fiscal space of both countries, which will contribute to an increase in already-high government debt.

We estimate that the economic shock will last until the end of the second quarter, and a recovery will slowly gather pace only in the second half of 2020 — although this remains notably uncertain. Our macroeconomic outlook suggests that the overall direct hit to GDP could be around a 4.3% contraction in the Kyrgyz Republic and an economic slowdown to 2.8% in Tajikistan. Worsening of economic performance will be accompanied by 10–15% depreciation of local currencies and a higher primary deficit, which will contribute to public debt growth.

Our projections indicate that public debt may increase to almost 65.3% of GDP in the Kyrgyz Republic and 48.4% in Tajikistan. These new levels of public debt are expected to remain affordable for both countries; however, they will be compounded by a significant increase in financing needs. In Tajikistan, gross financing needs may increase to 7.7% of GDP, while in the Kyrgyz Republic their ratio to GDP is projected to reach 10.9%.

Although both countries have access to concessional financing, and we assume that additional financing needs will be covered by long-term external debt, the debt-servicing may significantly reduce the countries' fiscal space and make them even more vulnerable to fluctuations in the exchange rate.

An additional issue may arise with respect to contingent liabilities. Although in the Kyrgyz Republic the budget code excludes the possibility of guarantees to state-owned enterprises, the risk of growing contingent liabilities remains high, especially under a prolonged-lockdown scenario. Under these circumstances, the Kyrgyz Republic and Tajikistan may face higher fiscal constraints, which will contribute to worsening debt sustainability.

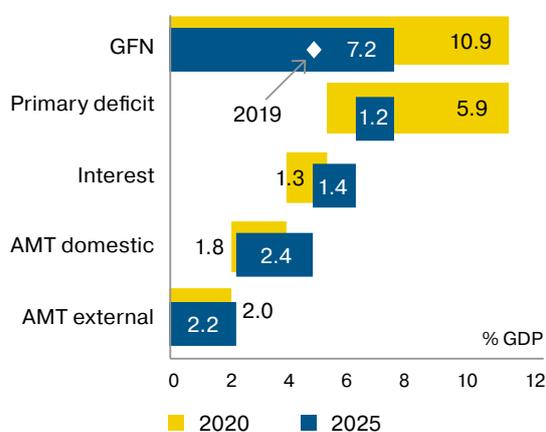
Baseline Scenario

Considering the historical path of public debt dynamics discussed above and taking into account key baseline assumptions, we calculate the likely behavior of debt flow indicators over 2020–2025. In the baseline scenario we assume that the deterioration of the global economic performance due

to the COVID-19 outbreak takes place in 2020 and will be followed by economic rebound in the next years. Among the key assumptions are that GDP growth, after some deterioration in 2020 due to the COVID-19 pandemic, will remain around 4% in the Kyrgyz Republic and around 6% in Tajikistan. Fiscal policy is expected to remain expansionary in Tajikistan, which assumes additional expenditure on the Tajik Rogun hydropower plant and other large infrastructure projects. In the Kyrgyz Republic, after an economic shock in 2020, the primary deficit would narrow steadily and is expected to account for 1.2% of GDP in 2025. In line with these projections, our estimates are that public debt in the Kyrgyz Republic would slightly decline from 64.3% of GDP in 2021 to 57.8% of GDP in 2025. The lower debt accumulation can be explained by a more sustainable external environment on the medium-term forecast horizon, which implies an absence of exchange rate and remittance shocks and possible moderate fiscal consolidation. In Tajikistan, public debt would decline in the projection period, although less than in the Kyrgyz Republic.

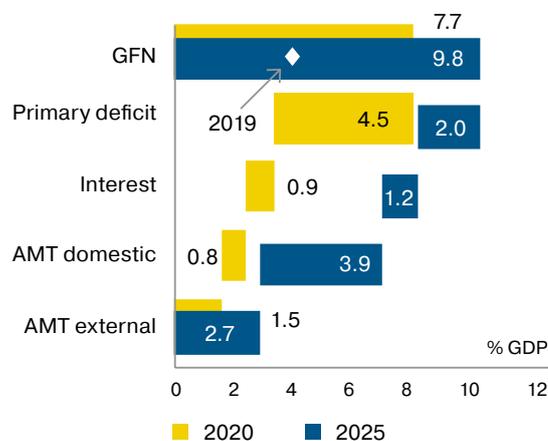
Under the aforementioned baseline scenario, the gross financing needs of both countries are expected to remain below 10% of GDP. In Tajikistan, we expect them to increase from 7.7% of GDP in 2020 to 9.8% at the end of 2025, while in the Kyrgyz Republic they will hover around 7% of GDP in 2025. In both countries, financing needs would be triggered by a relatively high primary deficit, which in 2020–2025, will explain around one third of gross debt flows in Tajikistan and a quarter in the Kyrgyz Republic (Figures 11, 12). Another driver of financing needs is the maturation of outstanding debt. Despite growing financial volatility, and thus risk premium, interest servicing won't play a crucial role in the debt flows of either country. Under the baseline scenario, we expect that in the short run, financing needs will be covered by concessional resources; however, there will tend to be less concessional borrowing in the medium term.

Figure 11. Financing Needs of the Kyrgyz Republic: Baseline Scenario



Sources: authors' calculations
*AMT – amortization

Figure 12. Financing Needs of Tajikistan: Baseline Scenario



Sources: authors' calculations

All in all, we can conclude that the COVID-19 pandemic, which has dramatically hit the economy, not only temporarily increases these countries' financing needs, but changes their debt patterns and reveals vulnerabilities in their debt-carrying capacities. However, the COVID-19 pandemic is surrounded with a high degree of uncertainty. This forced us to contemplate alternative scenarios that depict more protracted economic slowdown in 2021–2022 instead of V-shaped recovery of the baseline scenario. Hence, we consider two alternative scenarios with the different scope of pandemic spread: (1) global

economic crisis scenario and (2) regional economic crisis. Separately, we estimate stress scenario of natural disaster in post-COVID-19 reality.

Global Economic Crisis Scenario

In the scenario of the global economic crisis, we assume that the coronavirus pandemic will continue for a longer period, causing further economic uncertainty and slow recovery in commodity prices. Under this scenario, the global economic shock tends to be relatively persistent, since it notably downgrades GDP growth in the Kyrgyz Republic and Tajikistan over a period of two years. The estimated effect on growth gains momentum over the first year: In 2021, the impact ranges from 1.5 p.p. to 1.6 p.p. of difference in GDP growth (vs the baseline scenario) in the Kyrgyz Republic and in Tajikistan; and mitigates gradually in the following years. The estimated magnitude of global growth effects is commensurate with existing external trade links amplified by remittances and exchange rate channels with Russia. Key assumptions of this scenario are summarized in Table 1.

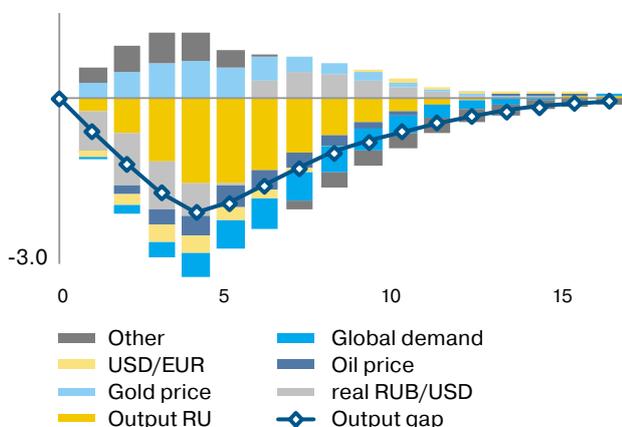
Table 1. Baseline and alternative scenarios, % year on year unless other indicated

	2020	2021			
		Baseline	Global shock	Regional shock	National tail event
World GDP growth	-3.0	5.8	4.0	5.7	5.8
Urals Price, \$	35	37	30	37	37
Gold Price	14.3	-0.6	10.9	-0.6	-0.6
Russian GDP growth	-5.5	3.5	0.3	1.4	3.5
Kyrgyz GDP growth	-4.3	6.0	4.5	5.0	-4.0
Kyrgyz Debt, % GDP	65.3	64.3	67.5	66.0	76.8
Tajik GDP growth	2.8	7.5	5.9	6.6	-1.5
Tajik Debt, % GDP	48.4	47.8	51.3	49.2	61.5

Sources: authors' calculations

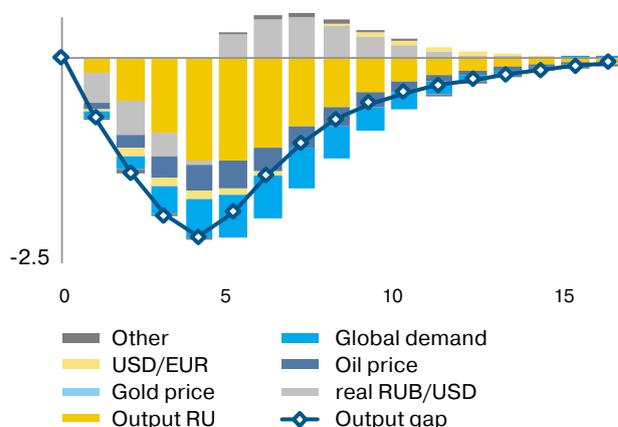
Applying variance decomposition, we assessed the contributions of the main macroeconomic parameters in explaining growth fluctuations (Figures 13, 14). One of the key channels of influence is related to foreign demand. This has a significant impact on the Kyrgyz Republic and Tajikistan through declining foreign demand on the one hand and the change in the USD/EUR exchange rate on the other hand, which affects terms of trade. However, the major factor offsetting adverse economic shocks in the Kyrgyz Republic is the price of gold, which is the main Kyrgyz export commodity (amounting to around 30% of exports). Historically the demand for gold — a safe asset — as well as its price have been higher during an economic slowdown. Hence, an increase in gold prices has a positive impact on Kyrgyz GDP growth.

Figure 13. Contributions of Shocks to Kyrgyz Output Gap Dynamics



Sources: authors' calculations

Figure 14. Contributions of Shocks to Tajik Output Gap Dynamics

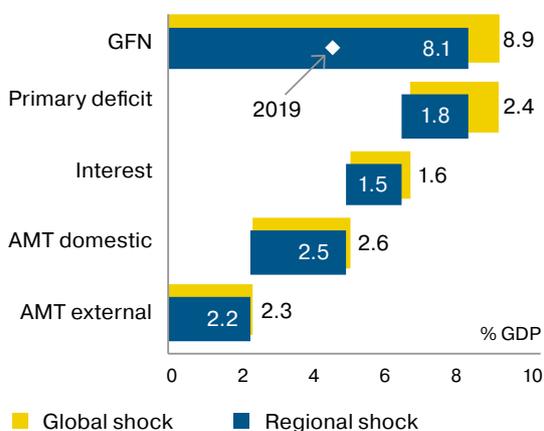


Sources: authors' calculations

For both countries, the most sizable spillover source is related to the dynamics of the Russian economy, since Russia has remained one of the key trading partners and the main source of remittances inflows, which determine personal incomes in both the Kyrgyz Republic and Tajikistan. In the model's language, this influence is transmitted through two major channels: (1) the fall in Russian GDP and (2) the real depreciation of the ruble against the US dollar. In total, under the global economic slowdown scenario, a decline in Russian economic growth explains roughly half of the total deterioration in Kyrgyz and Tajik economic performance.

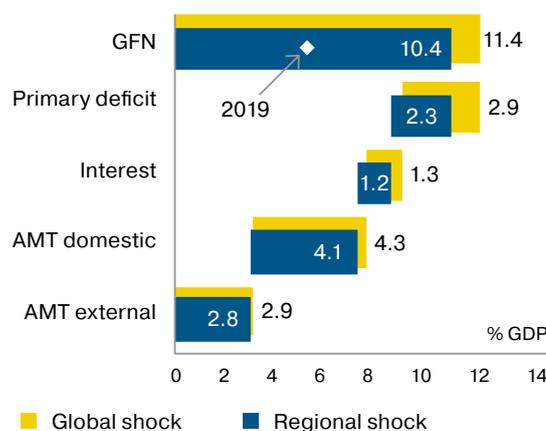
All in all, the global economic crisis is projected to have a severe impact on the countries' debt positions and gross financing needs (Figures 15, 16). A broad range of adverse shocks in the framework of a global crisis could derail the debt dynamics, indicating a significant vulnerability of the countries' economic performance. Corresponding estimates for financing needs underline economic stress in coping with an increased budget deficit, with debt-servicing obligations coming due.

Figure 15. Financing Needs of the Kyrgyz Republic: Global and Regional Scenarios, 2025



Sources: authors' calculations

Figure 16. Financing Needs of Tajikistan: Global and Regional Scenarios, 2025



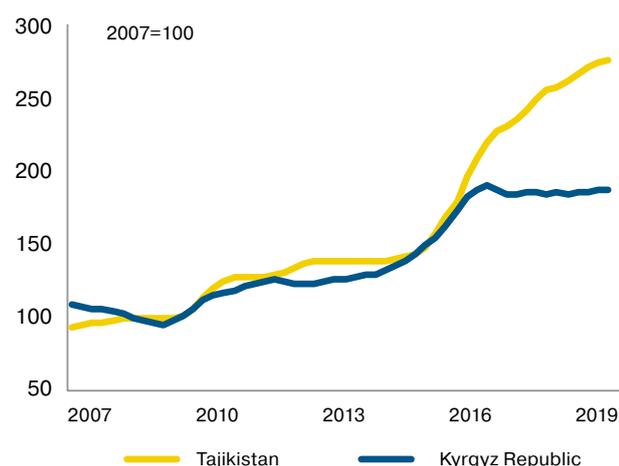
Sources: authors' calculations

According to the global crisis scenario, the main adverse effect will appear in 2024–2025, when gross financing needs may increase to 8.9% in the Kyrgyz Republic and 11.4% in Tajikistan. In the short run, the main factor of higher debt flows (compared to the baseline scenario) will be translated through the primary deficit, which will explain around 40% of GDP deviation between the stress and the baseline scenarios; in the long run, some contribution to the deviation of debt flows between the baseline and global crisis scenarios will be translated through servicing payments.

Regional Economic Crisis Scenario

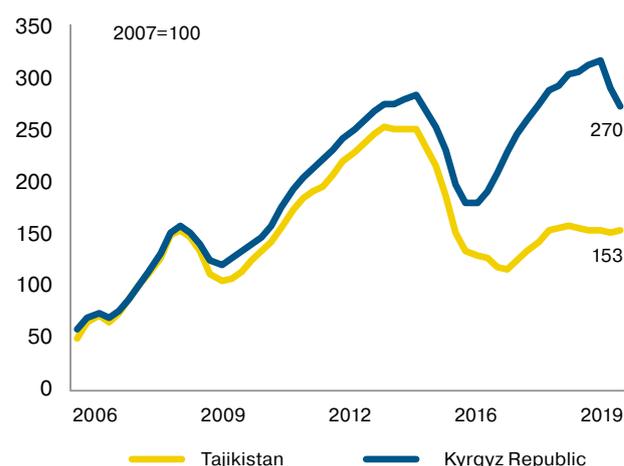
Under the regional economic crisis scenario, we assume that the COVID-19 pandemic will be brought under control by the end 2020. However, smaller outbreaks might take place in some countries. The dominant role of Russia in the economic development of Tajikistan and the Kyrgyz Republic motivated us to focus on a regional economic crisis originating in Russia. Indeed, the sensitivity of the Tajik and Kyrgyz economies to Russia's performance was particularly revealed during the crisis of 2015. With geopolitical tensions, imposed sanctions and the plunge in oil prices, Russian economic activity contracted by 2% and the national currency weakened by 65%. In response to this regional shock, the currencies of Tajikistan and the Kyrgyz Republic depreciated by 50% and 30%, respectively (Figure 17). The main channel of transmission of economic shocks from Russia has remained remittances. Since the Kyrgyz Republic and Tajikistan are among the most remittance-dependent countries in the world, with the remittance-to-GDP ratio around 30%, and the fact that the most of these inflows come from Russia, the fragility of both countries to economic volatility in Russia is particularly high. Increasingly, over the last decade, remittances from Russia have risen significantly in the Kyrgyz Republic (Figure 18), which supported household incomes and consumption. In Tajikistan, however, remittance inflows fell in 2015 and did not recover to their pre-crisis level, partially because Tajikistan is not a member of the EAEU (the Kyrgyz Republic's accession occurred in 2015), which implies a more complicated procedure for Tajik workers in obtaining work permits. Nevertheless, remittances from Russia have remained one of the key sources of economic activity in Tajikistan.

Figure 17. Nominal Exchange Rates, 2007=100



Sources: authors' calculations

Figure 18. Remittances from Russia, 2007=100



Sources: authors' calculations

Another issue of Kyrgyz Republic and Tajikistan dependence on external financial flows is the high volatility of these remittance incomes, which makes the economic performance of developing countries even more fragile. The fact that remittances have usually originated from non-tradable sectors, where most migrant workers are involved, contributes to greater vulnerability of these incomes, since

non-tradable activity historically is highly correlated with oil revenues in Russia. FDI inflows from Russia have also supported economic activity in both countries, although their role is less important: For Tajikistan FDI accounts for 3% of GDP, while for the Kyrgyz Republic it is only around 2% of GDP. Given the aforementioned spillover channels, the impact of the Russian economy on the Kyrgyz and Tajik economies has remained dominant.

In order to contextualize the role of trade and financial links between countries and the potential effect of regional shocks, we applied the global model to investigate the impact of Russia's economic performance on business fluctuations in the Kyrgyz Republic and Tajikistan. The assumed GDP dynamics in Russia correspond to a 2.1 p.p. decline vis-à-vis the baseline scenario (1.4% growth). However, according to our estimates, these abrupt changes in Russia's economic performance may lead to relatively protracted weakness in Tajik and Kyrgyz business activity. Historical co-movement of business cycles in Russia and the CIS countries may result in a 0.9 p.p. downward revision in GDP growth in Tajikistan and 1 p.p. in the Kyrgyz Republic in 2021, which corresponds to 5% and 6.6% GDP growth in the Kyrgyz Republic and Tajikistan, respectively.

Considering this regional shock scenario and the response of GDP growth in the Kyrgyz Republic and Tajikistan, we calculated potential financing needs. Our results indicate that in the short run, a regional economic crisis may stabilize financing needs in the Kyrgyz Republic at the level of 10–11% of GDP and increase them in Tajikistan to 11% of GDP. For both countries, the main contribution to GFN growth stems from deteriorating public finance, which will explain 30–40% of the difference in debt flows between the stress-test and the baseline scenario.

By the end of 2025, our model shows that financing needs stabilize at 8.1% of GDP in the Kyrgyz Republic and reach 10.4% in Tajikistan (Figures 15, 16), thus remaining higher than in the baseline scenario. This implies that amortization and interest payments will play a more crucial role, since the grace period of concessional borrowings — which is on average five years in both countries — will expire and the countries will have to serve their obligations.

All in all, analysis of debt flows suggests that the Kyrgyz economy will remain relatively resilient under the regional shock scenario; however, in Tajikistan, which may face an increase in debt flows due to growing principal payment, the debt position is a subject of risk.

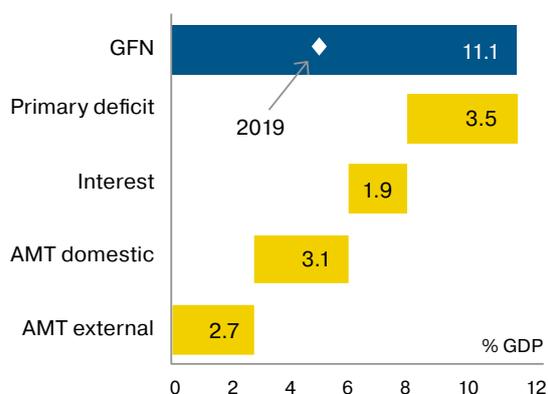
National Tail Event Scenario

In contrast to the aforementioned stresses, the natural disaster scenario entails extreme, although rare situation, which leads to worsening of economic activity in Kyrgyzstan and Tajikistan.

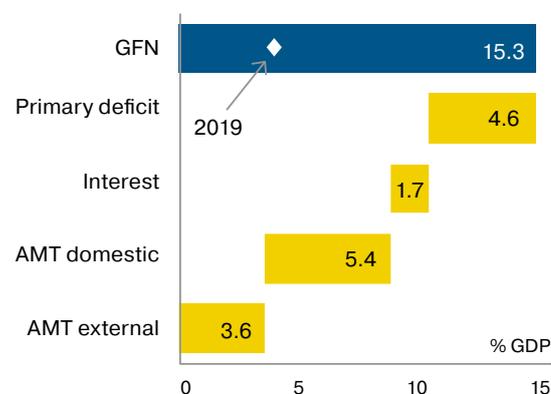
To evaluate this scenario, we use the IMF methodology for DSA. According to this approach, natural hazards are usually applied to the most vulnerable countries, where at least two natural disasters occur in three years and the average damage is around 5% of GDP. Although that is not relevant for the Kyrgyz Republic and Tajikistan, we decided to focus on this shock scenario for the following reasons. First, the Kyrgyz Republic and Tajikistan are located in a region that is highly exposed to seismic hazards. Second, climate changes tend to increase environmental risks in these countries, which may significantly weaken domestic response capacity and trigger more borrowing.

In order to assess the consequences of a natural disaster shock, we follow a tailored stress-test approach (IMF, 2018). We assumed a natural disaster as a one-off shock, which leads to 10 p.p. losses of GDP growth — the size of this shock is based on the definition of natural disaster episodes by Khor et al. (2016).

The results of our analysis indicate that, by the end of 2025, a natural disaster shock may increase financing needs from 7.2% of GDP in the Kyrgyz Republic and 9.8% of GDP in Tajikistan under the baseline scenario to 11.1% of GDP and 15.3% of GDP, respectively, under the stress-test scenario (Figures 19, 20).

Figure 19. Financing Needs of the Kyrgyz Republic: Natural Disaster Shock, 2025

Sources: authors' calculations

Figure 20. Financing Needs of Tajikistan: Natural Disaster Shock, 2025

Sources: authors' calculations

Under these stress scenarios, our estimates point to notable debt vulnerabilities in both countries. The main threat for the growth of debt flows comes from the depreciation of local currencies and widening budget deficits. This highlights the need for strengthening fiscal positions and rebuilding budget buffers to address external shocks. In the Kyrgyz Republic, public gross financing needs do not exceed 14% of GDP, estimated by the IMF as a benchmark for low-income countries and treated as an early warning for potential financing pressures (IMF, 2018). This implies that Kyrgyz Republic debt sustainability will remain moderate and heightened liquidity needs will be covered by public external and domestic borrowing. In Tajikistan, medium-term financing pressure may continue to increase. Under natural disaster scenarios, gross financing needs are projected to exceed the threshold of 14% of GDP, which will remain a source of vulnerability for debt sustainability.

Since the pressure of growing financing needs may increase, the issues of availability of financial resources and how they are distributed between countries also arise. The COVID-19 outbreak has created significant immediate demand for financial support, and if in the short run financing needs can be filled with concessional emergency financing from international institutions, in the medium term, the sufficiency of international support is an open question. In order to shed light on this issue, we considered the resources available to Tajikistan and the Kyrgyz Republic to fund their fiscal gaps and compare them with the potential financing needs, calculated under stress scenarios.

In general, low-income countries have a range of resources that they can draw upon. Both countries have several lines of defense. Considering each country's RFA membership and their borrowing limits, we can conclude, that multilateral creditors can contribute 2.5–6.4% of GDP to the Kyrgyz Republic and 2.5–3.8% to Tajikistan. It implies, that as a member of the EFSD, the Kyrgyz Republic can receive \$300 mln, while Tajikistan's borrowing limit is determined by \$200 mln. Multilateral development banks also provide budget support financing: \$200 mln for the Kyrgyz Republic and \$100 mln for Tajikistan. These resources can partially cover potential financing needs. However, bilateral creditors are expected to remain the dominant financing sources for both countries — in 2019, they accounted for 57.7% of total public external debt in the Kyrgyz Republic and 46.9% in Tajikistan. Although, the size of this support is questionable.

Given the severity of public debt shocks, we expect that in the short run, the Kyrgyz Republic and Tajikistan will meet their financing needs from concessional financial sources, although they may need simultaneous support from several financial institutions. In the medium term, our estimates highlight the necessity of fiscal consolidation to ensure debt sustainability, since the pace of economic recovery will mainly depend on policies undertaken after a crisis.

In the long run, we assume that apart from concessional borrowing, the Kyrgyz Republic and Tajikistan may meet their financing needs from commercial borrowing. This implies that liquidity risks can be heightened, especially in a period of deteriorating market sentiments. Thus, the countries may need a streamlined borrowing policy to assess carefully whether they will have to cover their additional financing needs from loan resources or focus more on their budget sustainability.

6. CONCLUSION

The global economy has been under a relatively prolonged period of uncertainty, which can be realized not only in cyclical changes, but in structural changes as well. Given the growing dependence of countries on each other and their convergence in economic performance, adverse shocks may lead to significant deterioration in global growth. In these unfavorable economic conditions, the policy space to respond to economic shocks tends to be limited, particularly in developing economies, suffering from their own economic uncertainties. The spread of COVID-19, which has resulted in notable disruption of global economic activity, has revealed the particular vulnerability of low-income countries to economic shocks.

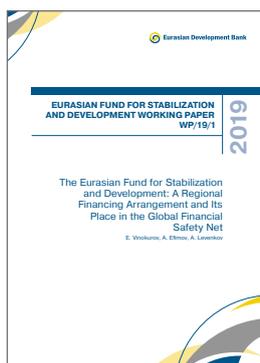
In order to assess the impact of external shocks not only on economic performance of low-income countries, but also on their debt positions, we focused on the Kyrgyz and Tajik economies and studied their debt sustainability under three stress scenarios: global, regional and national shocks. Unlike many studies, we focused not only on debt stocks, but also on debt flows, which indicate countries' liquidity and solvency problems. Our estimates are that amid economic crisis, financing needs may increase significantly. Under the global crisis scenario, by 2025 they may reach 11.4% of GDP in Tajikistan, while in the Kyrgyz Republic they may increase to 8.9% of GDP. One of the main factors contributing to an accumulation of debt flows is a relatively weak budget position. When there is uncertainty about the affordability of borrowing and the terms of a loan, low-income economies may need to embark on fiscal consolidation and focus more on maintaining their fiscal discipline. In line with the budget stance, the exchange rate has also remained an important factor, determining the dynamics of debt flows. A significant currency depreciation, given the countries' dependence on forex-denominated loans, may significantly increase the burden of debt servicing. All in all, the results of this study emphasize the importance of debt management and effective resource allocation.

This study of debt sustainability in Tajikistan and the Kyrgyz Republic with a focus on their public debt flows intends to provide a comprehensive analysis of the countries' public debt-carrying capacities. It has some limitations, however, since it does not cover total external debt performance and related debt flows. As a result, the study could be developed further by an analysis of the debt-carrying capacities of Tajikistan and the Kyrgyz Republic, with a focus on external private and public obligations.

7. REFERENCES

- ADB (2020) *An Updated Assessment of the Economic Impact of COVID-19*. ADB Briefs. Available at: <https://www.adb.org/sites/default/files/publication/604206/adb-brief-133-updated-economic-impact-covid-19.pdf> [Accessed 07 July 2020].
- Athanasopoulou, M., Consiglio, A., Erce, A., Gavilan, A., Moshammer, E., Zenios, A. (2018) *Risk Management for Sovereign Financing within a Debt Sustainability Framework*. ESM Working Paper Series, 31. Available at: <https://gnosis.library.ucy.ac.cy/bitstream/handle/7/46098/SSRN-id3250806.pdf?sequence=1&isAllowed=y> [Accessed 07 Apr. 2020].
- Denbee, E., Jung, C., Paterno, F. (2016) *Stitching Together the Global Financial Safety Net*. Bank of England Occasional Paper, 322. Available at: <https://www.bankofengland.co.uk/-/media/boe/files/financial-stability-paper/2016/stitching-together-the-global-financial-safety-net.pdf> [Accessed 07 Apr. 2020].
- Cihak, M. (2007) *Introduction to Applied Stress Testing*. IMF Working Papers, 2007/59. Available at: <https://doi.org/10.5089/9781451866230.001> [Accessed 07 April 2020]
- Gabriele, C., Erce, A., Athanasopoulou, M., Rojas, J. (2017) *Debt Stocks Meet Gross Financing Needs; a Flow Perspective into Sustainability*. ADEMU Working paper, 2017/067. Available at: <https://www.recercat.cat/bitstream/handle/2072/306049/Ademu-WP-067-2017.pdf?sequence=1> [Accessed 07 Apr. 2020].
- EEC, EDB (2016) *Forecasting System for the Eurasian Economic Union*. Joint Report by the Eurasian Economic Commission and the Eurasian Development Bank. Available at: <https://eabr.org/en/analytics/integration-research/cii-reports/forecasting-system-for-the-urasian-economic-union/> [Accessed 07 Apr. 2020].
- Essl, S., Celic, S., Kirby, P., Proite, A. (2019) *Debt in Low-Income Countries. Evolution, Implications, and Remedies*. World Bank Policy Research Working Paper, 8794. Available at: <https://openknowledge.worldbank.org/bitstream/handle/10986/31453/WPS8794.pdf?sequence=6> [Accessed 07 Apr. 2020].
- Steffen, S. (2014) *Robustness, Validity and Significance of the ECB's Asset Quality Review and Stress Test Exercise*. SAFE White Paper, 23. Available at: <https://www.econstor.eu/bitstream/10419/103435/1/800968875.pdf> [Accessed 07 Apr. 2020].
- Khor, H., Kronenberg, R., Tumbarello, P. (2016) *Strengthening Macro-Fiscal Resilience to Natural Disasters and Climate Change in the Small States of the Pacific*. Available at: <https://www.elibrary.imf.org/view/IMF071/22336-9781513507521/22336-9781513507521/ch05.xml?language=en&redirect=true> [Accessed 07 Apr. 2020].
- IMF (2019). *Operational Framework for Debt Sustainability Assessments in Low-Income Countries – Further Considerations*. IMF Policy Papers. Available at: <https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/Operational-Framework-for-Debt-Sustainability-Assessments-in-Low-Income-Countries-Further-PP412> [Accessed 07 Apr. 2020].
- IMF (2018) *Guidance Note on the Bank-Fund Debt Sustainability Framework For Low Income Countries*. IMF policy papers. Available at: <https://www.imf.org/en/Publications/Policy-Papers/Issues/2018/02/14/pp122617guidance-note-on-lic-dsf> [Accessed 07 Apr. 2020].

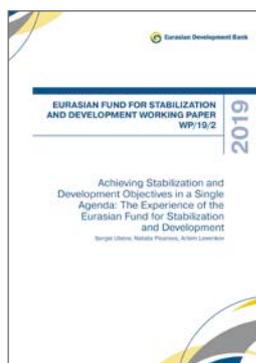
- IMF (2016) *Adequacy of the Global Financial Safety Net*. IMF Policy Papers. Available at: <https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/Adequacy-of-the-Global-Financial-Safety-Net-PP5025> [Accessed 07 Apr. 2020].
- Lee, D., Zhang, H., Nguyen, Ch. (2018) *The Economic Impact of Natural Disasters in Pacific Island Countries: Adaptation and Preparedness*. IMF Working Paper, 18/108. Available at: https://www.researchgate.net/profile/Dongyeol_Lee3/publication/325601238_The_Economic_Impact_of_Natural_Disasters_in_Pacific_Island_Countries_Adaptation_and_Preparedness/links/5c311bed299bf12be3b1c422/The-Economic-Impact-of-Natural-Disasters-in-Pacific-Island-Countries-Adaptation-and-Preparedness.pdf [Accessed 07 Apr. 2020].
- Nakatani, R. (2019) *A Possible Approach to Fiscal Rules in Small Islands – Incorporating Natural Disasters and Climate Change*. IMF Working Paper, 19/158. Available at: https://www.researchgate.net/profile/Ryota_Nakatani/publication/336014701_A_Possible_Approach_to_Fiscal_Rules_in_Small_Islands_-_Incorporating_Natural_Disasters_and_Climate_Change/links/5d8ab48da6fdcc255496d834/A-Possible-Approach-to-Fiscal-Rules-in-Small-Islands-Incorporating-Natural-Disasters-and-Climate-Change.pdf [Accessed 07 Apr. 2020].
- OECD (2020) *OECD Economic Outlook*, June 2020, OECD: Paris. Available at: https://read.oecd-ilibrary.org/economics/oecd-economic-outlook/volume-2020/issue-1_0d1d1e2e-en#page1 [Accessed 7 July 2020].
- Board of Governors of the Federal Reserve System (2013) *Dodd-Frank Act Stress Test 2018: Supervisory Stress Test Methodology and Results*. Available at: https://www.federalreserve.gov/newsevents/press/bcreg/dfast_2013_results_20130314.pdf
- Stepanyan, A., Roitman, A., Minasyan, G., Ostojic, D., and Epstein, N. (2015) *The Spillover Effects of Russia's Economic Slowdown on Neighboring Countries*. International Monetary Fund Departmental Paper. Available at: <https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2016/12/31/The-Spillover-Effects-of-Russias-Economic-Slowdown-on-Neighboring-Countries-43389>
- Vinokurov E., Efimov, A., and Levenkov, A. (2019) *The Eurasian Fund for Stabilization and Development: A Regional Financing Arrangement and its Place in the Global Financial Safety Net*. *EFSD Working Paper*, 1. Available at: https://efsd.eabr.org/upload/iblock/5d2/EABR_EFSR_RD_19_1_EN_A4_web.pdf [Accessed 07 Apr. 2020].
- Vinokurov E., Vasilyev, G., A., and Levenkov, A. (2020) *Sources and Accessibility of Stabilization Sovereign Financing in Armenia, Belarus, Kyrgyz Republic and Tajikistan*. *EFSD Working Paper*, 2020/2. Available at: <https://efsd.eabr.org/en/research/working-papers/efsd-working-paper-wp-20-2-global-financial-safety-net-in-eurasia-accessibility-of-macroeconomic-sta/> [Accessed 07 July 2020].



EFSD WP/19/1 (RU/EN)

The Eurasian Fund for Stabilization and Development: A Regional Financing Arrangement and Its Place in the Global Financial Safety Net

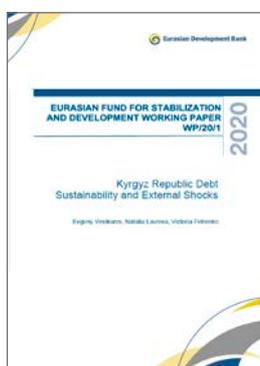
The objective of the first working paper is to bridge the gap in understanding the dynamics of EFSD development and its place in the Global Financial Safety Net (GFSN) and the region’s financial architecture.



EFSD WP/19/2 (EN)

Achieving Stabilization and Development Objectives in a Single Agenda: The Experience of the Eurasian Fund for Stabilization and Development

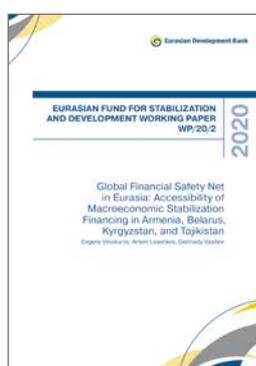
This working paper analyzes the experience of the EFSD, which suggests that in the context of low-income countries, the RFA’s stabilization mandate may benefit from complementing it with developmental agenda.



EFSD WP/20/1 (RU/EN)

Kyrgyz Republic Debt Sustainability and External Shocks

This paper contains a methodological and empirical analysis of the debt sustainability of Kyrgyzstan. The paper assesses the effect of various types of shocks on the country’s debt sustainability.



EFSD WP/20/2 (RU/EN)

Global Financial Safety Net in Eurasia: Accessibility of Macroeconomic Stabilization Financing in Armenia, Belarus, Kyrgyzstan, and Tajikistan

This working paper takes into account six sources of financing — international reserves, swap arrangements, EFSD, IMF, multilateral development banks and bilateral financial support for macrostabilization.



Eurasian Development Bank

E. Vinokurov, N. Lavrova and V. Petrenko

Tajikistan and the Kyrgyz Republic Post-COVID-2019:
Debt Sustainability, Financing Needs, and Resilience
to Shocks

The **Eurasian Fund for Stabilization and Development (EFSD)** amounting to US\$8.513 billion was established on June 9th, 2009 by the governments of the Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, the Kyrgyz Republic, the Russian Federation, and the Republic of Tajikistan. The objectives of the EFSD are to assist its member countries in overcoming the consequences of the global financial crisis, ensure their economic and financial stability, and foster integration in the region. The EFSD member countries signed the Fund Management Agreement with Eurasian Development Bank giving it the role of the EFSD Resources Manager. More information about the EFSD is available at: <https://efsd.eabr.org/en/>

EFSD Working Papers are the main format of the Fund's public research. They reflect the Fund's research on global, regional, and country economic trends, economic modelling, macroeconomic analysis, sectoral analysis, global financial architecture, and other issues. EFSD publications are available at <https://efsd.eabr.org/en/research/>

Address:

1-st Zachatievskiy pereulok,
house 3, block 1,
Moscow, 119034, Russian Federation
Tel: +7 (495) 645 04 45
Fax: +7 (495) 645 04 41
Web: <https://efsd.eabr.org/en/>



Eurasian Development Bank

www.eabr.org