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The role of financial intermediation in the provision of economic growth:  
methodological framework for assessing its efficiency

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## The role of financial intermediation in the provision of economic growth: methodological framework for assessing its efficiency

Despite the fact that the role of the financial sector in economic growth has been studied for many years by many research institutions, including central banks, the views and findings seem still controversial. In particular, Schumpeter (1912) first put forward the opinion that the services provided by financial intermediaries have a positive effect on the economic development and technological innovation.

While some researchers support Schumpeter's idea, others argue that the development of the financial sector simply follows economic growth or that the links between financial and economic development are "*over-exaggerated*" (Lucas, 1988).

Numerous studies refer to the existence of a threshold effect in the relationship between financial sector development and economic growth. Under this framework, the expansion of the financial system or banking sector yields a favorable impact on economic growth up to a specific threshold. However, beyond this threshold level, the degree of correlation between these two variables may diminish.

Some existing studies show that the relationship between bank lending and economic growth varies across countries' income levels. Specifically, Levine et al. (2000), Rioja and Valev (2004b), Shen and Lee (2006), and Huang and Lin (2009) have shown that the positive impact of financial sector development on economic growth is greater in middle-income countries than in high-income countries.

The reason for the relatively weak influence of financial intermediation on economic growth in high-income countries is that in these economies the bank loans and other alternative financing are allocated to the relatively speculative activities rather than more value-added industries.

Directing loans to speculative activities leads to market imbalances by creating bubbles in the asset market. Such a situation increases the risks associated with a financial crisis in the context of economic contraction.

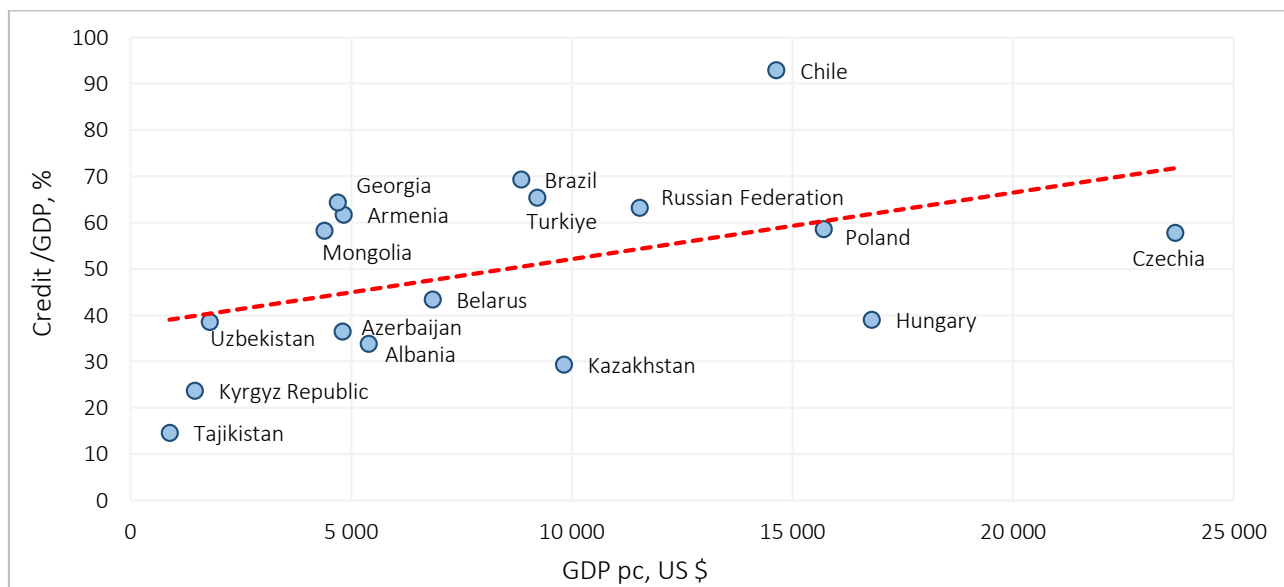
Moreover, in the conditions of excessive availability of financial resources and high competition in those economies, the propensity of many financial intermediaries, including banks, to take high risks increases. While this approach ensures profitability in the short-term, it exposes potential risks to financial stability.

Besides, the expansion of financial intermediation may exacerbate income inequality among population in high-income countries. The negative impact of income inequality on economic growth is explained not only by the increase in spending on social protection, but also by the disruption of social stability.

In low-income countries, inefficient allocation of resources, relatively high level of corruption, lack of quality in credit monitoring as a result of underdevelopment of financial infrastructure and weak regulatory framework limits the positive effect of financial intermediation on economic growth, and may even have a negative impact. In addition, the insufficiency of professionals with the necessary potential and qualifications in the labor market in these countries also causes the expansion of financial resources without any effect to ensure economic growth.

In middle-income countries, the efficiency of financial intermediaries (banks) in redistributing savings is mainly focused on high investment projects in the real sector, and the financing of large infrastructure projects, including transport, energy and communication networks, serve as a foundation for economic growth. Besides, increasing financial inclusion and improved access to credit in these countries will also create a wider opportunity to increase the economic activity of the population and contribute to the trajectory of inclusive economic growth.

**Figure 1: Relationship between bank loans and GDP per capita in middle-income countries<sup>1</sup>**



Source: Authors' own calculations based on data from the International Monetary Fund and the World Bank for 2019

Based on the above considerations, it is important to adapt the financial policy to the specific needs and stages of development of each country. While low-income countries should prioritize building a strong and inclusive financial infrastructure, the middle-income countries should focus on optimizing the positive impact of their developing financial sector. At the same time, it might be argued that high-income countries should address potential distortions in asset markets and ensure a balanced approach to sustaining economic growth.

<sup>1</sup> Except Tajikistan, Chile, Poland, Hungary and the Czech Republic

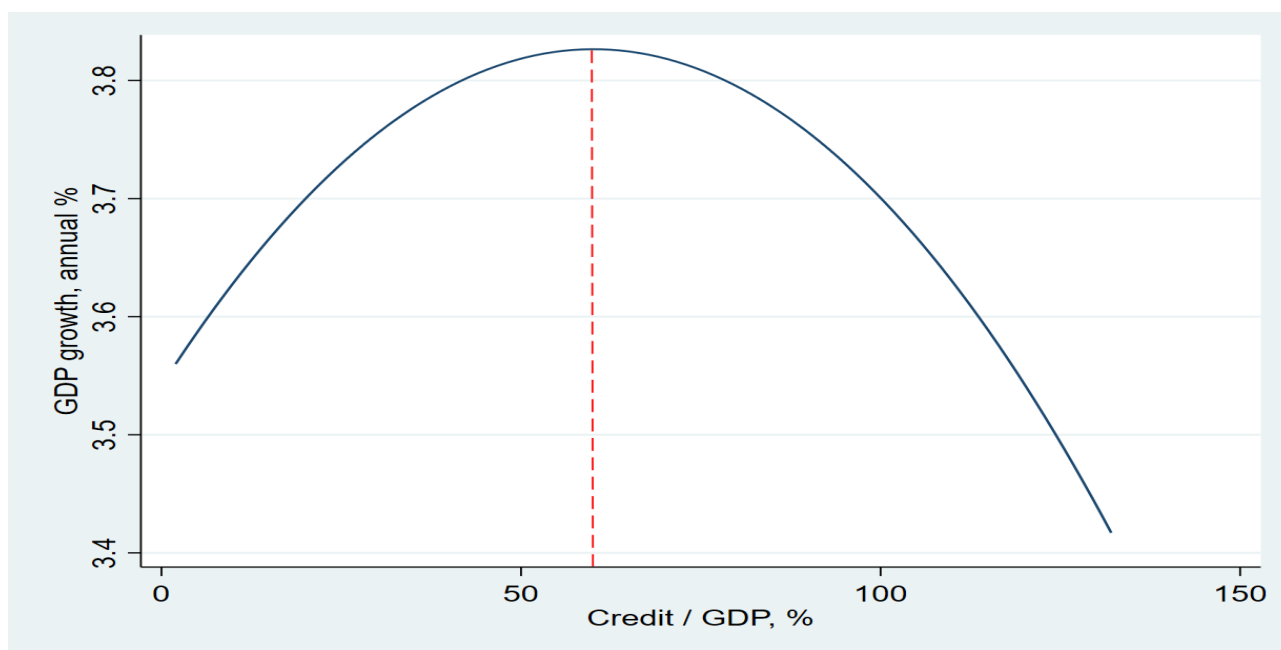
In addition, according to Aghion et al. (2005), when financial development reaches a certain limit, all countries reach a steady-state level of economic growth, and in such countries the positive effect of financial development on GDP gradually disappears.

Similar findings were reported by Arcand et al. (2012) and Cecchetti and Kharroubi (2012). They argue that that some countries have, indeed, "excessive" financial funds. This explains the idea that the positive impact of the financial sector on economic growth has disappeared in many developed countries, and even the observed decrease in economic growth may be related to the excessive amount of bank loans in the economy.

It should be noted that the results of a number of empirical studies conducted in recent years have shown that an increase in the ratio of bank loans to GDP from 80-120% begins to have a negative effect on economic growth (Cecchetti and Kharroubi, (2012), Law and Singh, (2014)).

Moreover, in accordance with the conclusions obtained from the empirical studies of the economists of the International Monetary Fund (IMF) Arcand et al. (2012), as the ratio of the credit to the economy to GDP exceeds 100%, the impact of this financing on economic growth becomes negative.

**Figure 2: The relationship between GDP growth and credit to the private sector % GDP**



Source: Authors' own calculations using the data from the World Bank, WDI

As we graphically analyzed the following relationship using the data for 220 countries for the period 1960-2022, we found out that the relationship between average GDP growth rates and the average ratio of private sector credit to GDP is

positive when the ratio of credit to GDP is approximately between the interval of 0–60%, when it is above 60%, it was observed that the effect on economic growth weakens (Figure 2).

Gregorio and Guidotti (1995) explained such a negative relationship between financial intermediation and economic growth with improperly regulated financial system, particularly insufficient application of prudential measures by the regulator and inconsistent financial reforms.

### **Transmission channels between financial intermediation and economic growth**

In practice, the impact of financial intermediation on economic development is transferred through the following **three transmission channels**, which depend on the assets and liabilities of borrowers and banks (BIS, 2011):

- (I) *borrowers' balance channel;*
- (II) *bank balance channel;*
- (III) *liquidity channel.*

**Borrowers' balance channel:** Borrower's balance sheet channel – applies to both businesses and households, and results from lenders' inability to fully assess the risks associated with borrowers' ability to pay, to fully control their investments, or to meet their full obligations. There are basically two different mechanisms in the operation of this transmission channel.

In particular, in the first mechanism, the characteristics such as the use of assets in the production of goods and services in the economy and their use as collateral play an important role, and any financial fluctuations that cause a decrease in the price of assets will lead to a decrease in consumer spending and production volume and a further decrease in the price of assets by increasing the restrictions on credit provision. In the second one, any financial shock affecting borrowers' net worth will cause their financing costs to change. This in turn, leads to a change in the size of the borrowers' planned expenses and the aggregate demand formed in the economy.

**Bank balance channel:** According to the bank balance channel, negative shocks in the balance sheet of financial institutions reduce economic activity by slowing down lending processes in the economy. In this case, the effects can occur mainly in two cases: (i) banks are unable to fully insulate lending in response to such shocks, and (ii) borrowers become heavily dependent on bank loans.

On the other hand, the bank balance channel can be separated into two distinct components. The first component is the traditional bank lending channel, where shocks to banks' balance sheets affect banks' lending capacity and costs, and are further amplified by fluctuations in interest rates.

The second component is the channel of bank capital, in which a decrease in bank capital causes an increase in the cost of funds for banks, and in turn, an increase in the cost of credit for borrowers. Another factor that bank capital can affect lending comes from regulatory capital requirements, as such requirements place an upper limits on bank assets and thus bank lending.

Capital requirements can further increase the impact of bank capital on lending. In this case, the deterioration of the ratio of bank capital to risk-weighted assets in the conditions of economic contraction can be explained not only by the increase in the volume of the bank's risk-weighted assets, but also by the impact of credit losses on bank capital.

**Liquidity channel:** The third theoretical channel - the liquidity channel is important as a factor determining the ability of banks to give credit, and affects real economic indicators through the traditional bank credit channel or additional transmission channels.

The main mechanism is that, as a result of shocks in bank liquidity, banks, in many cases, may start to liquidate or in other words sell assets on their balance sheets. This in turn, creates an oversupply in the asset market and lowers asset prices.

Falling asset prices will further depreciate assets and significantly worsen banks' balance sheets, putting more pressure on asset sales in the market.

In addition, financial intermediaries (banks) can influence economic growth by performing a number of functions.

#### Box 1

**Redistribution of limited financial resources:** Financial intermediaries (banks) stimulate economic growth by redistributing the available limited resources in the economy to borrowers to finance investment projects or similar prospective purchases.

**Diversification of risks:** Diversifies risks by attracting funds from different sources. This mitigates market imperfections, reduces individual risk for investors, and provides a more stable environment for economic activity.

**Ensuring information efficiency:** Intermediaries analyze information about borrowers, make more informed lending decisions. This information efficiency reduces the likelihood of adverse selection and risk, promoting a healthy lending environment.

**Facilitation of transactions:** Financial intermediaries provide payment services and facilitate transactions, reducing costs associated with the exchange of goods and services. Such efficiency in transactions has a positive effect on economic growth.

**Technological innovation:** Financial intermediaries can foster technological innovation by investing and supporting emerging technologies and businesses. Acceleration of innovations can have a transformative positive effect on various sectors of the economy.

In general, the above-mentioned factors contribute to economic growth in the last stage of the impact phase mainly by increasing **capital investments** and **total factor productivity (TFP)**.

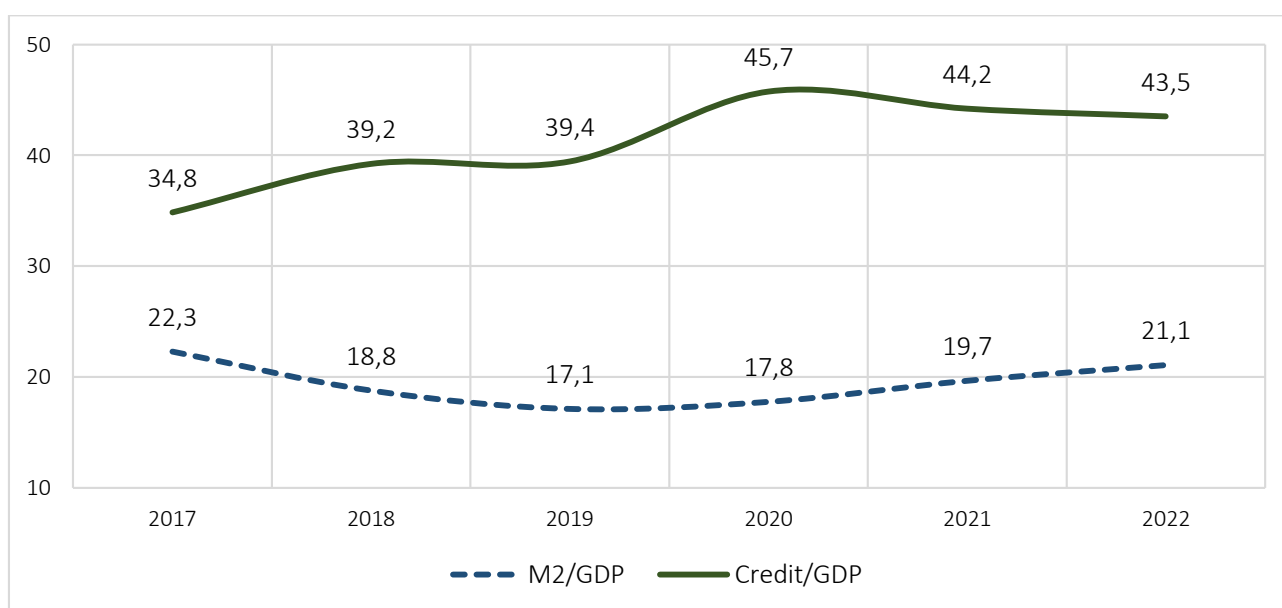
### Analysis of the financial intermediation development in the banking sector of Uzbekistan

Development of financial intermediation in the economy can be monitored using a number of indicators. In particular, in international practice, the ratio of total credit in the banking system to GDP, the ratio of broad money (M2) to GDP and the ratio of the volume of financial services to GDP are widely used as alternative indicators that better reflect the level of financial intermediation in the economy.

If we analyze the changes in these alternative indicators for Uzbekistan, in 2017-2020, the ratio of credit to GDP grew at a rapid pace, contrary to the ratio of M2 to GDP (Figure 3).

It is noted by many economists and analysts that the ratio of credit to GDP at such a rate is a natural process during the implementation of financial and economic reforms. For instance, IMF economists, Johnston and Pazarbmioglu (1999) concluded from their study of 40 developed and developing countries that the volume of financial intermediation increases sharply during the implementation of reforms, and the ratio of credit to GDP increases on average more than the ratio of M2 to GDP.

Figure 3: The development of financial intermediation indicators in Uzbekistan between 2017-2022



Source: Authors' own calculation based on the data derived from Central bank and State Statistics Agency of Uzbekistan

In particular, when comparing the indicators between the periods before and after the reform in the 40 countries mentioned above, it is clear that while the ratio of

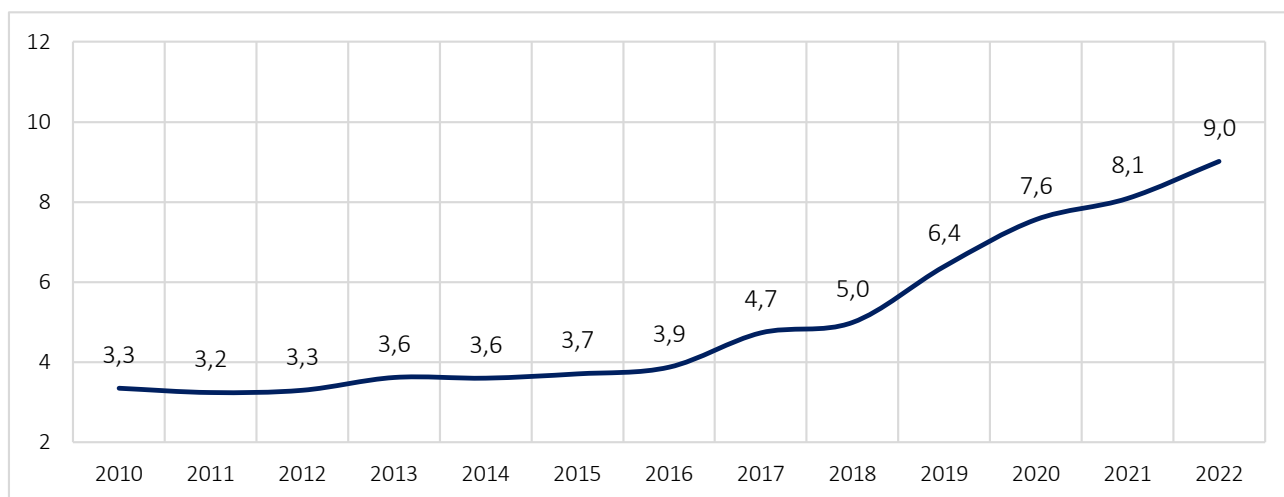
credit to GDP increased by 21 percentage points on average for the countries, the ratio of M2 to GDP increased by 8 percentage points. Moreover, while the difference between the ratio of M2 to GDP and credit to GDP was on average 16 percentage points in the period before the financial reforms, it decreased until 3 percentage points in the post-reform period.

At this point, it is worth noting that such a formation of the ratio of money supply and bank loans to GDP in a broad sense may indicate a relative imbalance in the economy. In particular, this maintenance of the ratio (*inconsistency of the growth of the money supply with the expansion of credit to GDP*) refers to a relatively higher formation of inflationary pressure and possible risks of financial instability (*liquidity problems*).

As the end of 2022, the ratio of broad money supply to GDP in Uzbekistan was 21.1%, and it comparatively lower than many other developing countries, including Azerbaijan (21.6%), Kazakhstan (27.3%), Armenia (32.0%), Moldova (33.8%), Kyrgyzstan (33.9%) and Russia (53.8%).

In addition, the ratio of loans allocated to the economy by commercial banks to GDP for Uzbekistan was 43.5% at the end of 2022, which is slightly lower than the indicators in Russia (52.6%) and Armenia (50.0%), while it is significantly higher than countries such as Tajikistan (10.6%), Azerbaijan (15.1%), Kyrgyzstan (21.9%), Moldova (22.2%) and Kazakhstan (22.4%).

**Figure 4: Dynamics of the ratio of total financial services to GDP in Uzbekistan in 2010-2022, in %**



Source: Author's own calculations based on the data from State Statistics Agency.

It can be noted that the ratio of total financial services to GDP increased by about 5.1 percentage points or from 3.9% to 9.0% over the period 2016-2022 (Figure 4). Besides, the share of financial services in GDP, calculated by added value, increased from 2.4% in 2018 to 3.8% in 2022.



In contrast, the figure calculated by value added method for Uzbekistan (3.8%) was lower than Russia (5.1%), Poland (4.5%) and Georgia (4.1%), but was slightly higher than Kazakhstan (3.1%).

### **Methodology for evaluating the efficiency of financial intermediation**

As noted above, the expansion of financial intermediation can hinder inclusive economic growth in the context of unregulated systems and inefficient allocation of savings. This situation increases the need to evaluate the effectiveness of financial intermediation in ensuring economic growth and develop measures to improve it.

In international practice, two different indicators are used to evaluate the effectiveness of financial mediation. The first indicator is the spread between the weighted average interest rates on bank loans and deposits. The higher the spread, the lower the efficiency of financial intermediation. The level of the indicator may reflect inefficiencies in the banking sector, low competition between banks, and attempts by unstable banks to cover loan losses.

In particular, the research findings of King and Levine (1993) and Fry (1995) show that a large spread between loan and deposit rates indicates an inefficient financial system, and a high difference has a negative effect on economic growth.

The second alternative indicator is the ratio of reserve money to deposits. In this case, reserve money includes cash in circulation, required and excess reserves in the banking system. In this case, the ratio of cash in circulation to deposits represents the efficiency of banks in attracting deposits, excess reserves represent the efficiency of banks' use of funds, and required reserves are usually higher in times of financial depression.

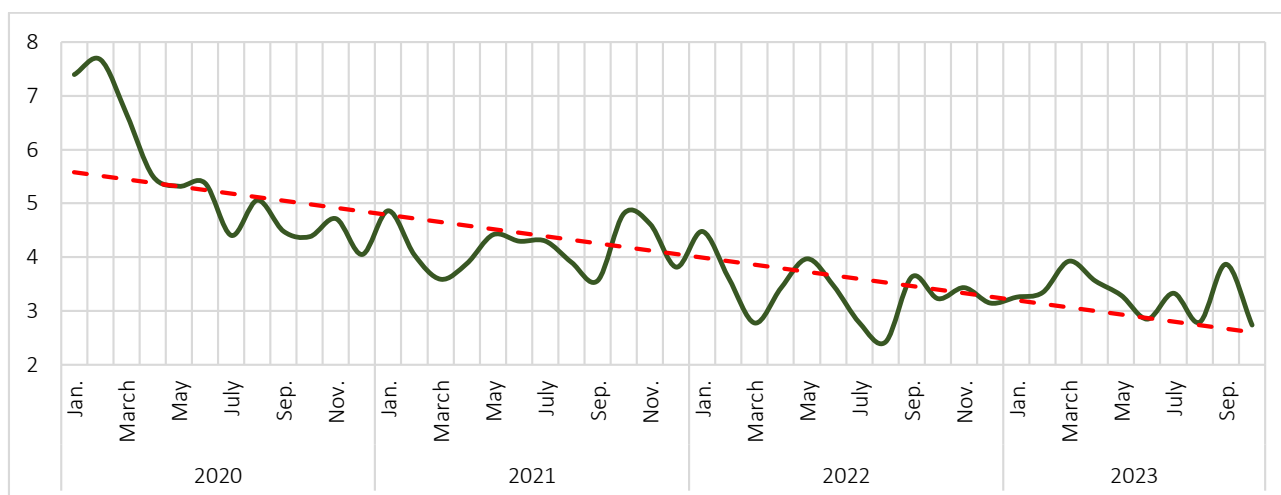
Based on this, the high formation of the ratio of reserve money to deposits indicates the low efficiency of intermediation in the financial system and means that it limits its role of supporting economic growth.

### **Analysis of efficiency of financial intermediation in Uzbekistan**

In recent years, the difference between interest rates on loans and deposits has been decreasing in the banking system of Uzbekistan (Figure 5). In particular, in the first quarter of 2020, the difference recorded an average of 7.3%, while the indicator in October 2023 was only 2%.

It should be noted that the outbreak of the pandemic in Uzbekistan and the introduction of restrictions on credit interest rates by the regulator led to a sharp fall of the spread. It was observed that the weighted average interest rate on loans dropped from 26% at the beginning of 2020 to roughly 19% by the end of the year.

**Figure 5: Spread between the weighted average interest rates on loans and deposits in national currency by commercial banks in Uzbekistan, in %**

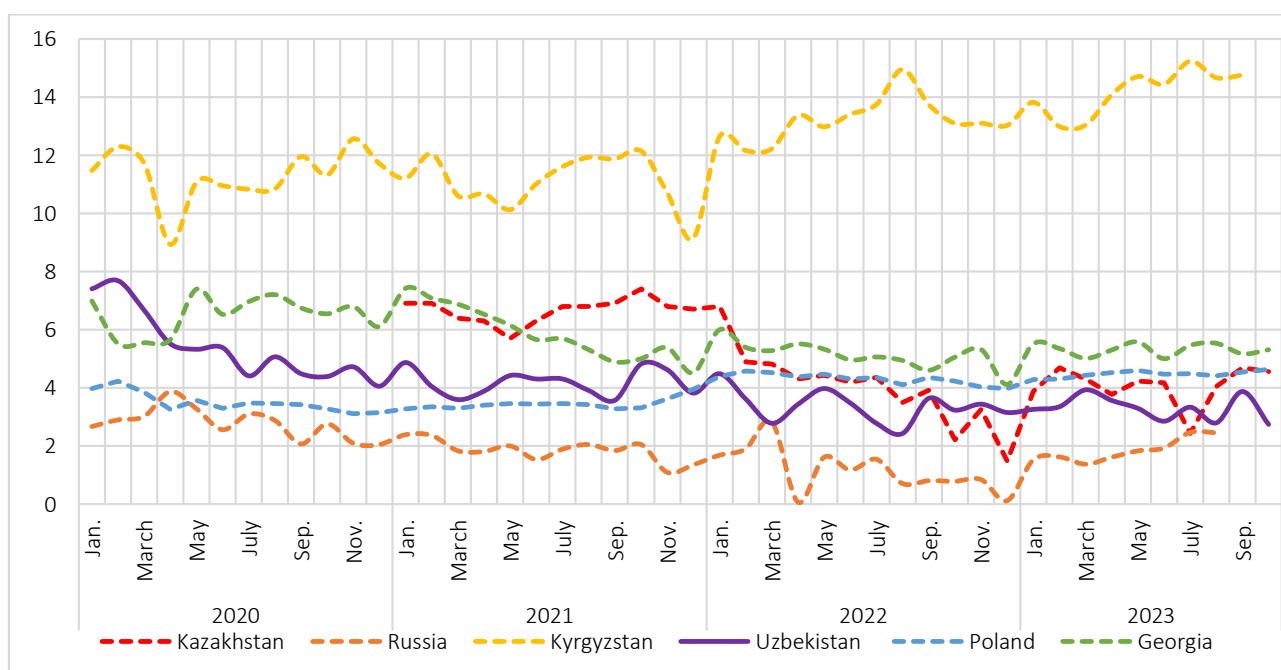


Source: Authors' own calculation based on the data from Central bank of Uzbekistan

In the following periods, despite the slight increase in the interest rate on loans, the improvement of the competitive environment between commercial banks due to the entry of new foreign banks into the market and the offer of deposit types at relatively attractive interest rates led to a further reduction of the gap.

For comparison, in 2020-2022, the average spread calculated for the banking system of Uzbekistan ( 4.3%) was higher than Russia (1.9%) and Poland (3.8%), while while it was lower than countries such as Kazakhstan (5.3% - for 2021-2022), Georgia (5.8%) and Kyrgyzstan (11.9%) (Figure 6).

**Figure 6: Spread between weighted average interest rates on national currency bank loans and deposits in partner countries, in %**



Source: Authors' own calculations based on the data derived from central banks of these countries

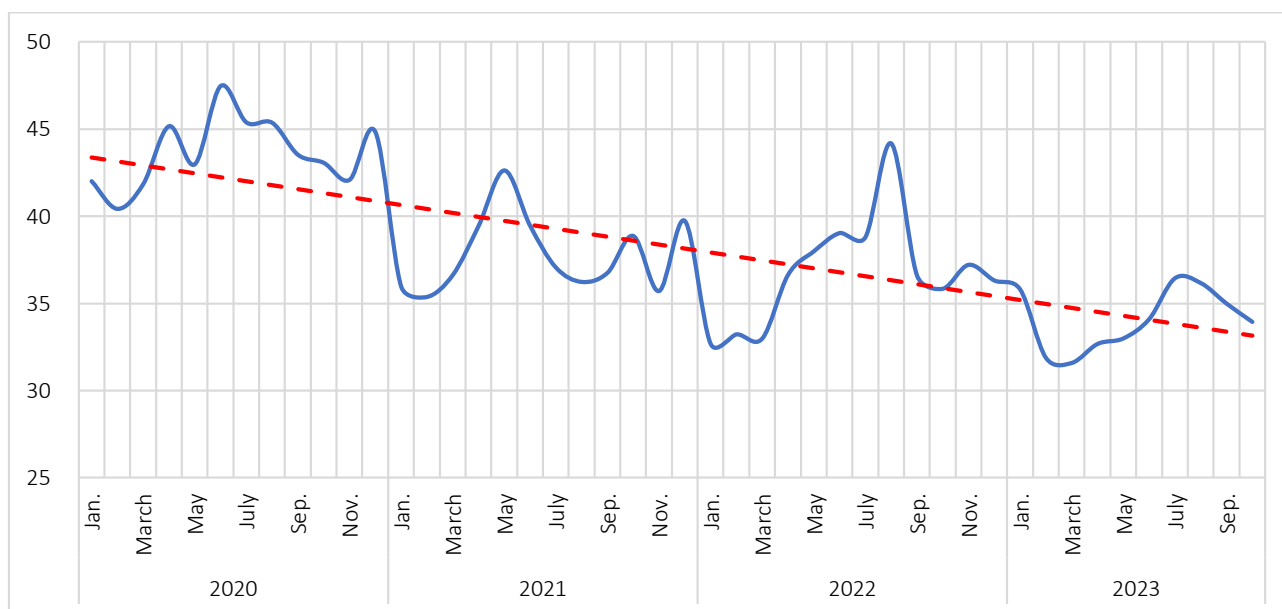
Moreover, the underlying spread was roughly 7% for developing countries, and 6% for developing European and Central Asian countries between the period of 2003-2017.

According to the results of a study conducted by IMF economists Feyen and Huertas (2020) on about 140 countries, the reduction of the spread between the loan rates and deposit rates in developing countries occurs while the development of the country's financial system.

Furthermore, within the framework of this research, another alternative indicator widely used in evaluating the efficiency of financial intermediation, and the change in the ratio of reserve money to deposits was analyzed.

Looking at the change in the trend of this indicator in Uzbekistan between 2020 and 2023, we can easily notice that the ratio decreased 8 percentage points or from 42% at the beginning of 2020 to about 34% by October 2023. Such a decrease in the ratio serves as an indication of the increase in the efficiency of the financial intermediation of banks in Uzbekistan.

**Figure 7: The ratio of reserve money in the banking system of Uzbekistan to the total volume of deposits, in %**



Source: Authors' own calculations based on the data derived from Central bank of Uzbekistan

When the financial indicators of more than 40 developing countries that implemented structural and financial reforms in 1970-1990 were analyzed, significant changes occurred between the indicators before and after the reforms. In particular, it can be noted that while the ratio of reserve money to deposits decreased from 35% before the period of reforms to 30% in the period during which the reforms were in progress, after the completion of the reforms, the ratio decreased even to 26%.

Based on above mentioned analysis, we can conclude that such a change of this ratio in Uzbekistan means that commercial banks have increased the efficiency of using available funds and their credit allocation capabilities. It should also be noted that the decrease in the ratio means that the resilience of the banking sector to financial shocks is relatively decreasing.

For comparison, as of January 1, 2023, the ratio for Uzbekistan (35.8%) was higher than Poland (22.7%), Kazakhstan (25.1%), Russia (32.4%) and Georgia (32.6%), while it was lower than Armenia (45.2%) and Azerbaijan (57.6%).

### Experience of countries that implemented financial reforms

Achieving sustainable economic growth often requires the implementation of a series of reforms in the financial sector, but the implementation of reforms in the wrong sequence or insufficient regulation by the regulator can cause macroeconomic imbalances and even a financial sector crisis.

Financial reforms implemented in the economies of Chile, Indonesia and the Philippines in the 70s and 80s of the last century and their negative consequences can be cited as an example.

#### Box 2

##### Chile experience

In the pre-reform period, banks were the main basis of the financial sector of the country's economy in the conditions of hyperinflation and high fiscal deficit, and about 95% of them were state-owned banks. At the initial stage of the reforms, initial priorities set for privatization of state-owned banks, allowing them to borrow funds from abroad without any obstacles, and the liberalization of the capital account.

In the first three years of the reforms, inflation rate decreased, GDP growth was achieved, and the real exchange rate improved by 30% (the peso appreciated), and the number of commercial banks increased from 21 to 41 (*of which 17 are foreign banks and 19 are private banks*).

However, financial reforms have created a number of problems. In particular, the lack of restrictions on the concentration of ownership in the privatization of local banks and, as a result, the acquisition of banks by large conglomerates, the lack of regulation of the system of bank loans between related parties, and the lack of requirements for the classification of loans and the creation of reserves served as the main factor in the collapse of the financial system.

Moreover, the volume of national currency loans allocated to the private sector increased rapidly compared to the volume of deposits. This increase in the volume of loans was mainly due to the lack of bank supervision in granting loans to related parties and the fact that company shares were used as collateral for bank loans, stock and property prices became speculative. Later, as the business sector began to experience financial difficulties as a result of an inappropriately valued exchange rate and high financing costs, it became more difficult for businesses to borrow from banks and capitalization of interest payments became common. In addition, in the first years of the crisis period, the share of non-performing loans reached 21%, and four years later it reached 62%.

In general, the crisis of the financial system was mainly caused by the lack of restrictions on the concentration of ownership in the privatization of banks, the fact that most of the credit growth corresponded to loans allocated to related entities, and the weakness of prudential control in the banking system.

*For reference, the ratio of credit deposits issued by commercial banks to GDP was less than 15% in the pre-financial reform period (1970-74) and exceeded 60% during the crisis period (1982-83). Meanwhile, Chile's economy increased by 7.5% on average during the period of financial reform, while the country's GDP in real numbers decreased by (8.0) during the crisis.*

### Box 3

#### Indonesia experience

1982-1990 was an important period for the Indonesian economy, and the financial liberalization reforms were implemented during this period. In the pre-reform period, investments in the economy were made mainly with state funds, and most of these funds were formed through revenues from oil sales. State banks include 76% of the system's assets, and the upper limit of loan and deposit interest rates was strictly defined in these banks.

Financial sector reforms began in 1983 with the abolition of interest rate caps on most categories of deposits and all loans. Since February 1984, indirect instruments of monetary control were introduced and reforms in discount window policy was held. Also, in 1983 and 1986, the Indonesian government implemented programs related to exchange rate devaluation, reductions in fiscal spending (including public investment), gradual deregulation of trade and industry, and financial sector reform. These measures allowed the economy significantly reduce the imbalance in the external and internal sectors, while maintaining growth in GDP, private investment and non-oil exports.

Nevertheless, while the share of Bank Indonesia in the formation of credit supply in the financial sector decreased, the number of financial institutions (banks) in the sector did not increase, and as a result, the volume of savings of the private sector did not change. By mid-1987, however, deteriorating conditions in the external sector forced a shift in monetary policy toward exchange rate protection, with interest rates becoming more flexible. Subsequently, the Indonesian government implemented a number of measures related to the empowerment of banks and non-bank financial institutions: (1) allowing all domestic commercial banks to freely open new branches throughout the country; (2) allow non-bank financial intermediaries and foreign banks to open one branch in all cities; (3) simplification of the licensing procedure for new private banks.

Also, reserve requirements were eased from 15% to 2% , and the procedure for taxing interest income on bank deposits was abolished. In addition, restrictions on interbank borrowing were lifted and extensive institutional and regulatory reform of capital markets, including the privatization of banks began.

In summary, the implementation of the above reforms served to increase financial intermediation in the Indonesian economy.

### The Philippine Experience

The financial reforms carried out in the country in 1980-1984 were focused mainly on the division of the segmentation of the activities of various financial institutions, the gradual liberalization of interest rates, and the transition to an indirect system of monetary control.

The immediate results of financial reforms in 1981-1983 were reflected in the sharp increase in the number of financial intermediaries in the sector and the volume of loans to the private sector. Despite the growth of real interest rates, the growth of the volume of loans was much higher than the growth rate of the volume of deposits in the sector.

The emergence of mistrust in the stock market due to some financial fraud by intermediaries led to large-scale defaults. Following this, large-scale capital outflows and a reduction in financial intermediation occurred. In particular, in the next three years of the crisis, the volume of loans allocated to the private sector decreased by 53% in real terms, and the ratio of the volume of non-performing loans to the volume of total loans increased by 30% in large state banks. Such a crisis in the financial sector, in turn, had a serious negative impact on the real sector. In 1984-1985, the country's GDP in real terms decreased by 7%.

## Empirical results

As part of this research, the impact of bank loans on economic growth was empirically evaluated for Uzbekistan on the basis of annual data between 1999-2022. The Ordinary Least Squares method was used in the empirical evaluation. According to the results of the analysis, a 10% increase in the volume of credits, ensured an average growth of GDP by roughly 2% when other factors remained unchanged (Table 1).

**Table 1: Regression results**

Variables	(1)	(2)	(3)	(4)	(5)
Credit	0.435*** (0.0324)	0.396*** (0.0242)	0.330*** (0.0241)	0.229*** (0.0196)	0.232*** (0.0179)
Inflation		-2.441*** (0.456)	-2.920*** (0.577)	-1.143** (0.398)	-1.293*** (0.369)
Foreign investments			0.0978** (0.0355)	0.0291 (0.0207)	0.0380* (0.0194)
Gross capital stock				0.281*** (0.0431)	0.253*** (0.0419)
Human capital					0.00767* (0.00396)
Constant	4.934*** (0.268)	7.998*** (0.604)	7.098*** (0.971)	0.829 (1.078)	0.748 (0.980)
The number of observations	24	23	18	18	18
R- sq.	0.891	0.950	0.977	0.995	0.996

Furthermore, the improvement of foreign direct investment, gross capital stock and human capital have positive effects on GDP, while the impact of inflation on economic growth is negative.

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