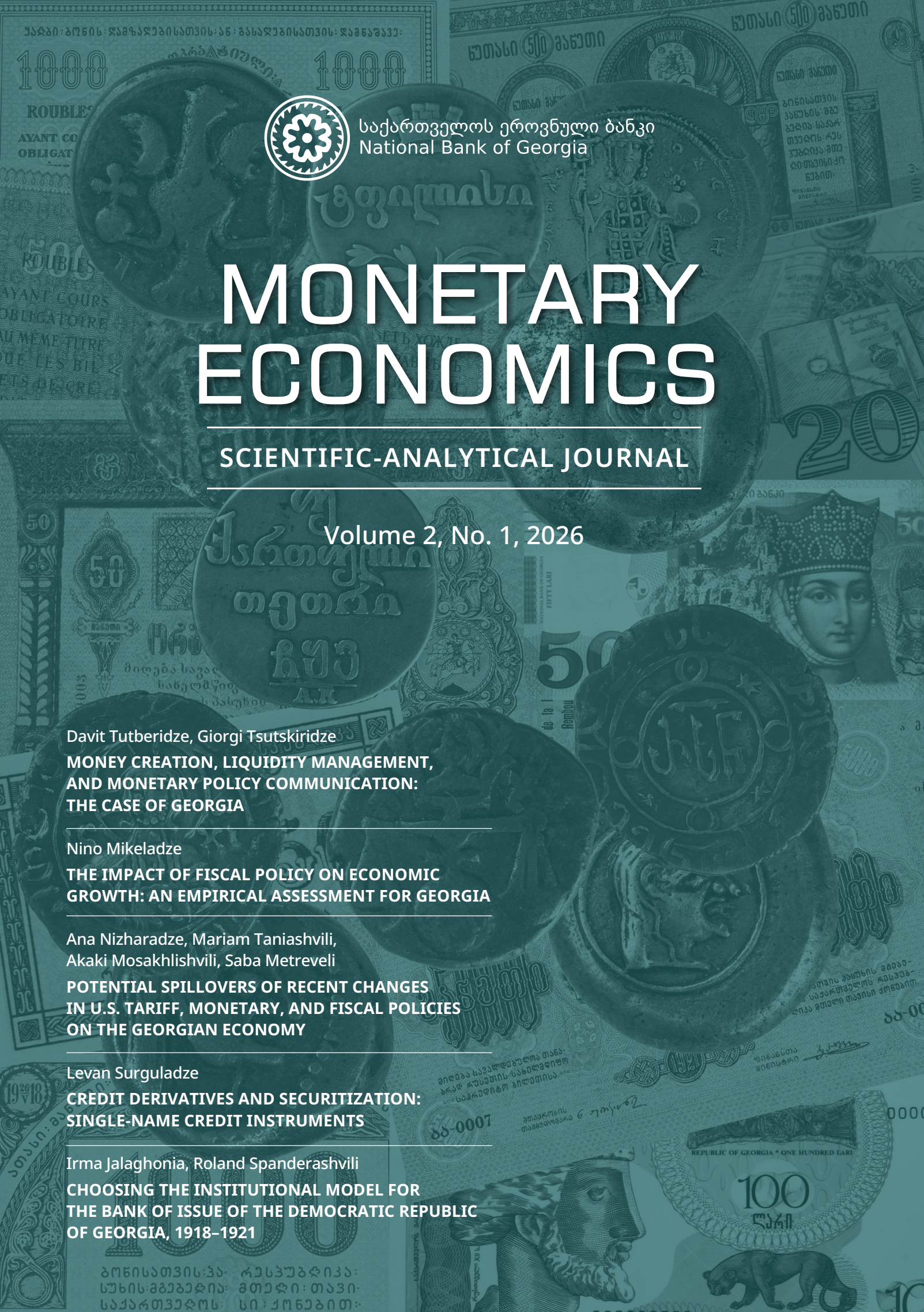

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CONTENT

MONEY CREATION, LIQUIDITY MANAGEMENT, AND MONETARY POLICY COMMUNICATION: THE CASE OF GEORGIA

DAVIT TUTBERIDZE, GIORGI TSUTSKIRIDZE

Abstract

This paper examines the mechanisms of money creation and liquidity management through the lens of the modern institutional view of the monetary system and analyzes these mechanisms within the operational framework of the monetary policy and communication practices of the National Bank of Georgia. The article emphasizes that the traditional view based on the concept of the money multiplier does not adequately describe the functioning of the modern monetary system. Instead, the paper draws on the modern approach according to which commercial banks create money in the process of extending loans, while the central bank accommodates the resulting liquidity demand in the banking system in pursuit of its objective of steering short-term interest rates.

Using data from the Georgian banking system and the National Bank of Georgia, the paper shows that the dynamics of loans, deposits, and reserve money do not mechanically correspond to the logic of the money multiplier. The proximity of the interbank market rate to the policy rate indicates that the operational framework of monetary policy in Georgia is, in practice, based on interest rate management. Moreover, the absence of a stable positive relationship between money growth and inflation suggests that the main monetary policy transmission channel operates through financial conditions, in particular, through the effect on interest rates.

The paper concludes that an institutionally accurate interpretation of the money creation process is important not only for theoretical clarity but also for effective monetary policy communication. This is especially important in the Georgian context, where the National Bank's liquidity-providing operations are often mistakenly perceived as a direct source of inflation. In order to strengthen the proper understanding and credibility of monetary policy, it is therefore essential to clearly distinguish between reserves, broad money, and the inflation formation process.

Keywords: money creation, money supply, liquidity, monetary policy, transmission mechanism, communication.

Introduction

A proper understanding of the mechanism of money creation is essential for adequately explaining how monetary policy functions. Nevertheless, simplified views of money creation still appear in public discussions and in some textbooks, especially those based on the traditional money-multiplier framework, according to which the central bank determines the quantity of reserves in the banking system, while commercial banks expand loans and deposits by repeatedly multiplying those reserves. The academic understanding developed over recent decades has shown that this view does not ac-

curately reflect the functioning of modern monetary systems (McLeay et al., 2014; Disyatat, 2008). In particular, the institutional logic behind such systems implies that whenever a commercial bank extends a loan, it simultaneously creates a new deposit of the same amount, thereby immediately increasing the money supply. This deposit, due to the need for full or partial cash withdrawal, transfer to another commercial bank, or compliance with minimum reserve requirements, generates demand for liquid funds (reserves). Under normal conditions, the banking system largely satisfies this demand itself through the interbank market, while the central bank mainly accommodates only the residual demand through various monetary policy instruments. Accordingly, the central bank stands not at the beginning of the money creation process, but at its end—as the ultimate provider of liquidity (McLeay et al., 2014; Jakab & Kumhof, 2015; Stellinga et al., 2021).

This distinction is important not only for theoretical clarity, but also for understanding how monetary policy works in practice. If reserves are interpreted as a direct quantitative constraint on lending, the central bank's liquidity-providing operations may be mistakenly perceived as direct money creation and, therefore, as a source of inflation. In Georgia, public commentary related to the National Bank's liquidity-providing operations often reflects the view that reserves supplied to commercial banks through refinancing loans are converted into broad money in circulation and inevitably generate inflationary pressure. Similar reasoning can also be found in the teaching of economic theory at universities, where the money-multiplier framework is still sometimes presented as an accurate description of how the monetary system functions, often relying on popular textbooks such as Mankiw (2007) and Blanchard (2008).

Such misinterpretations have important consequences: if market participants and the broader public equate reserve provision with broad money creation, standard liquidity operations by the National Bank may trigger unjustified inflationary expectations, complicate monetary policy communication, and potentially affect the credibility of the inflation-targeting framework. This problem can be understood as forming part of the discourse on the "communication challenges" of monetary policy in the academic literature (Woodford, 2003; Blinder et al., 2008; Coibion & Gorodnichenko, 2015), within which active and transparent central bank communication is considered crucial. Thus, a clear analysis of the institutional context of the monetary system is a key factor for effective monetary policy communication and implementation.

In the operational framework of modern monetary policy, the purpose of liquidity management is to regulate short-term interest rates: the central bank aligns the supply of reserves with the banking system's demand for liquidity in order to ensure smooth settlement and keep market rates close to the policy rate. Accordingly, the effect on financial conditions is transmitted mainly through the price of liquidity—that is, the interest rate—rather than through direct quantitative control over monetary aggregates (Disyatat, 2008; Bindseil, 2014). It is precisely through this channel that the central bank fulfills its primary mandate of price stability: by deliberately influencing financial conditions, it affects lending, aggregate demand and, ultimately, inflation.

The purpose of this article is to address three interrelated issues. First, the paper describes the institutional mechanism of money creation and liquidity management as presented in the modern monetary economics literature. Second, using the example of the operational framework of the National Bank of Georgia, it shows how this mechanism functions in practice and to what extent it corresponds to the modern view of money creation. Finally, the paper discusses the importance of interpreting the money creation process for monetary policy communication and shows how common perceptions regarding the money supply, reserves, and inflation may differ from the actual operational mechanism of the monetary system.

Literature Review

The literature on money creation encompasses several distinct theoretical perspectives, which Gross and Siebenbrunner (2019) group into three main approaches: the "intermediation view", the "fractional reserve view", and the "money creation view".

According to the intermediation view, commercial banks function merely as intermediaries of financial resources. In this perspective, banks lend only the funds they have mobilized from depositors and therefore do not actively participate in the creation of the money supply. In this case, the bank's function is essentially limited to reallocating savings, while its profit arises from the difference between interest income earned on loans and the interest expense incurred on attracting deposits.

The fractional reserve view already recognizes the role of the banking system in the growth of the money supply. According to this perspective, the banking system increases the money supply by repeatedly lending out mobilized deposits. In this process, the central bank controls money creation by imposing reserve requirements. It is within this framework that the concept of the so-called money multiplier emerges, which, as described in a number of textbooks (e.g., Mankiw, 2008; Mishkin, 2021), is the inverse of the reserve requirement ratio and defines the maximum theoretical limit of lending. This approach is often referred to as the exogenous theory of money (Sieron, 2019).

In contrast to these perspectives, the money creation view is based on the idea that commercial banks create deposits directly in the process of extending loans. In this framework, the deposit arises as a consequence of the loan, not the other way around. Accordingly, the central bank does not stand at the beginning of the money creation process; rather, it reacts to it by accommodating the resulting demand for reserves in the banking system. For this reason, this approach is often referred to as the endogenous theory of money (Fontana & Venturino, 2003). In recent years, this interpretation has gained broad acceptance, becoming increasingly prominent in both the academic literature and the official publications of central banks.

The traditional fractional-reserve view of money creation was criticized as early as Tobin (1963), who noted that the explanation based on the money multiplier is overly simplified and cannot fully capture the actual functioning of the banking system. He pointed out that banks can indeed create deposits, but their lending capacity is not unlimited and depends significantly on financial conditions, especially interest rates and demand for credit. In this respect, his position leans substantially toward the endogenous money theory.

Later, Kaldor (1982) described the money creation process by banks even more explicitly, emphasizing the causal relationship according to which the granting of a loan creates a deposit, and not vice versa. Moore (1986) developed the endogenous money theory more systematically and positioned it as an alternative framework to the then-dominant monetarist view. Nevertheless, for many years the traditional interpretation of money as exogenous continued to dominate the economics literature, treating bank lending as the reallocation of pre-existing monetary resources.

The global financial crisis of 2008–2009 gave renewed significance to these debates. Post-crisis monetary policy, especially quantitative easing programs, showed in practice that large expansions of central bank balance sheets do not automatically lead to corresponding increases in bank lending and deposits. This empirical observation is difficult to reconcile with the exogenous money theory, according to which the money supply is ultimately determined by reserve money created by the central bank. The theoretical foundations of the modern view of money creation have developed substantially in recent years. Jakab and Kumhof (2015) show that models in which banks create purchasing power through lending provide a more accurate description of macroeconomic dynamics than tradi-

tional models. Faure and Gersbach (2021) propose a general equilibrium model of the two-tier money creation process, in which the interaction between commercial banks and central banks is represented within a unified framework. Using agent-based models, Gross and Siebenbrunner (2019) conclude that endogenous money theory is fully compatible with the practice of reserve management in the banking system. These studies suggest that the functioning of the modern monetary system is more naturally explained by models that view banks as active creators of money.

Against this background, central bank explanations of the money creation process acquire particular importance. The Bank of England explicitly states that money creation begins with the extension of loans by commercial banks, while the central bank reacts to the resulting liquidity demand (McLeay et al., 2014). Similar explanations were later provided by the Deutsche Bundesbank (2017). The President of the Swiss National Bank publicly addressed widespread misconceptions about money creation and the limitations of monetary targeting (Jordan, 2018). A similar institutional view is also emphasized in the research of the Bank for International Settlements (BIS), which notes that banks create deposits in the process of extending loans, while central banks implement monetary policy by steering short-term interest rates (Borio, 2019).

These debates about the mechanism of money creation are closely linked to the practical implementation of monetary policy. Different views about how money is created in the banking system have led to different interpretations of how monetary policy actually works. In modern monetary systems, central banks generally do not attempt to directly control the money supply quantitatively. Instead, they manage short-term interest rates and adjust the supply of liquidity to the banking system's demand. Disyatat (2008) notes that a significant share of misconceptions about monetary policy stems precisely from the incorrect assumption that the central bank controls the money supply by determining the quantity of reserves. Bindseil (2014) describes in detail the operational framework through which central banks use open-market operations and standing facilities to keep short-term interest rates close to the targeted policy level.

These issues are also highly relevant in the context of monetary policy communication. It is widely recognized in the economic literature that the effectiveness of monetary policy depends on the expectations of economic agents. For example, Woodford (2003) argues that modern monetary policy can largely be viewed as a process of "managing expectations". Blinder et al. (2008) point out that central bank communication has become one of the key instruments of monetary policy, while Coibion and Gorodnichenko (2015) show that the level of information available to economic agents significantly affects the effectiveness of monetary policy transmission. In this context, the existence of misconceptions about money creation becomes not only a theoretical problem but also a practical one, since it may affect monetary policy communication and policy effectiveness. Nevertheless, relatively little attention has been paid to the importance of the institutional interpretation of money creation for monetary policy communication and how it is reflected in the monetary policy practice of specific countries.

This paper addresses precisely this underexplored issue. It links the modern view of money creation to the operational framework of monetary policy and shows, using the example of the National Bank of Georgia, the significance of this view for effective monetary policy communication.

Analytical Framework of Money Creation and Liquidity Management

The modern literature on money creation presents a mechanism of operational interaction between the banking system and the central bank, within which commercial banks play a significant role in the money creation process, while the central bank provides the liquidity conditions necessary for the sound functioning of the financial system and the

effective implementation of monetary policy. When a commercial bank extends a loan, it simultaneously records a new asset—a claim on the borrower—and a corresponding liability in the form of a deposit. As a result, the act of lending directly creates a deposit and thereby increases broad money in the economy. Since the deposit arises as a consequence of the loan rather than the reverse, bank lending in modern monetary systems cannot be viewed simply as the reallocation of pre-existing savings.

It should also be noted that in the modern economy deposits are not created solely through bank lending. Deposit dynamics may also be related to other channels, including the conversion of foreign-currency deposits into local currency, government spending, and other balance-sheet operations. Nevertheless, bank lending is one of the main mechanisms through which deposits are created, and this is the channel on which the present analysis focuses.

Deposits created through lending, in turn, generate banks' demand for liquid funds. When deposits move between banks through transfers, or when depositors withdraw part of their funds in cash, individual banks may develop an additional demand for reserves. Such demand may also arise from the need to meet reserve requirements. Under normal conditions, a significant part of this demand is satisfied by the banking system itself through the interbank market. However, at the sector-wide level, the total quantity of reserves ultimately depends on central bank operations. Therefore, when liquidity demand exceeds the amount supplied through other sources, the central bank provides additional reserves.

In the operational framework of modern monetary policy, the main purpose of such liquidity-providing operations is not the direct quantitative control of the money supply. Central banks generally aim to manage short-term interest rates, as it is through this channel that they influence financial conditions in the economy. To achieve this, the central bank adjusts the supply of reserves to match the banking system's demand for liquidity, ensuring that short-term market rates remain close to the targeted policy rate.

Thus, the operational mechanism of money creation and monetary policy can be understood as a cycle of interconnected stages. Commercial banks create deposits by extending loans and thereby increase the money supply in the economy. The subsequent movement and use of these deposits generate demand for liquid funds. The central bank, in turn, then provides the required reserves so that short-term market interest rates remain close to the targeted policy level. In this way, monetary policy affects bank lending conditions, economic activity, and ultimately the dynamics of inflation.

It is in this context that the correct interpretation of the money creation process becomes important for understanding both the operational practice of monetary policy and its communication. The analytical framework described above provides the basis for examining the functioning of this mechanism using data.

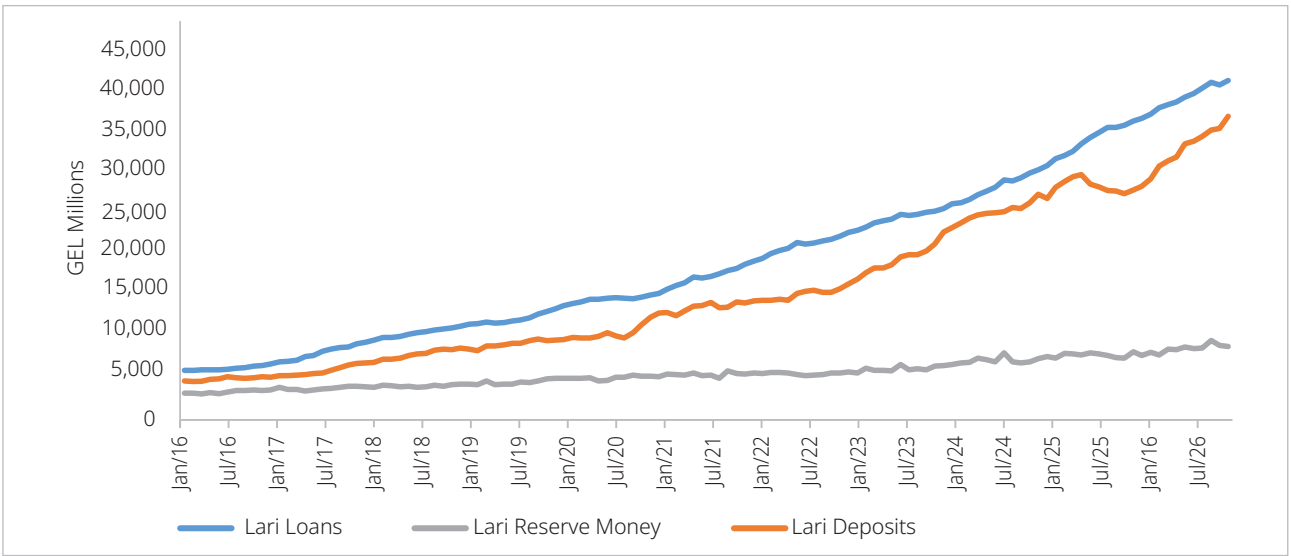
Illustration of the Mechanism of Money Creation and Liquidity Management

In this section, using data from the Georgian banking system, we present several empirical observations that reflect different stages of the mechanism described above. The diagrams below are intended not to provide a causal evaluation of the relationships discussed, but rather to illustrate those practical aspects of the functioning of the monetary system that were described in the analytical framework.

Figure 1 presents the dynamics of lari-denominated loans, deposits, and reserve money in Georgia. It shows that over the past ten years the loan portfolio has increased 7.4 times. Over the same period, the deposit portfolio increased 8.7 times, although its trajectory exhibits more noticeable fluctuations than that of loans. This pattern is consistent with the interpretation that the expansion of lending is accompanied by the creation of new deposits, and

that the existing volume of deposits does not in itself represent a pre-determined constraint on lending. This is especially clear when compared with the dynamics of reserve money, which follows a markedly different trajectory and has increased only threefold over the last ten years.

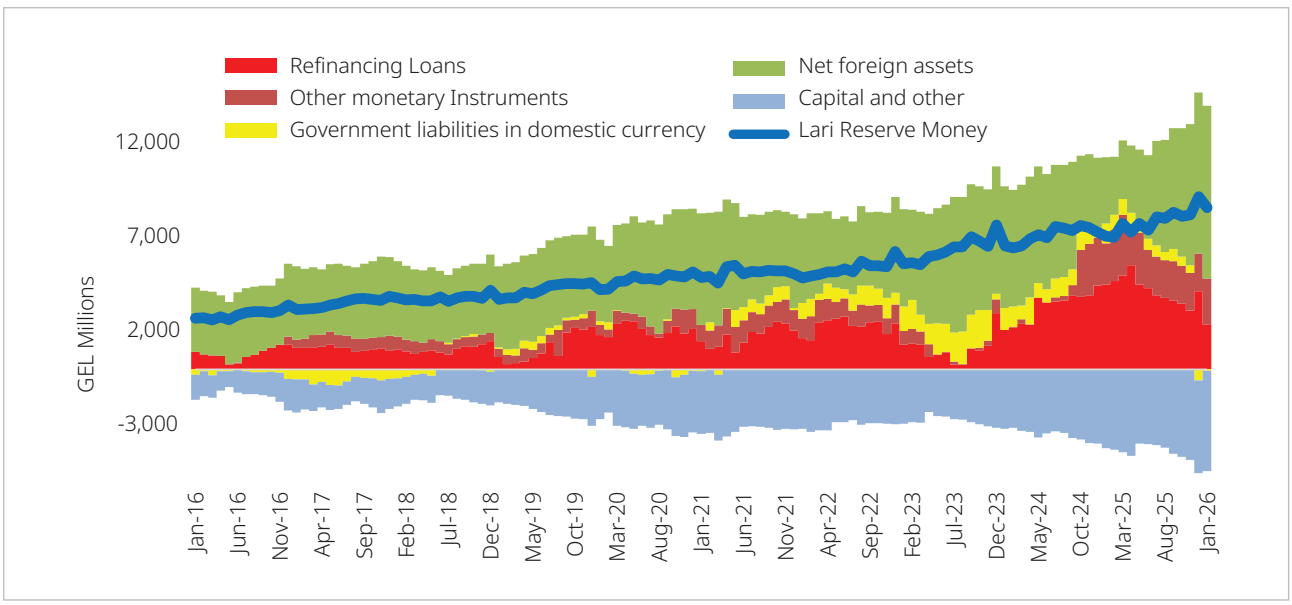
Figure 1. Loans, Deposits, and Reserve Money



Source: National Bank of Georgia.

In view of the above, it is important to analyze how the reserve money required in the banking system is formed, as shown in Figure 2, which illustrates the dynamics of lari-denominated reserve money and its main balance-sheet components. The volume of reserve money is determined by the combined influence of these items, including net foreign assets, lari-denominated government liabilities, the capital of the National Bank, and other balance-sheet items, including monetary policy instruments such as refinancing loans and other operations.

Figure 2. Reserve Money and Its Main Sources

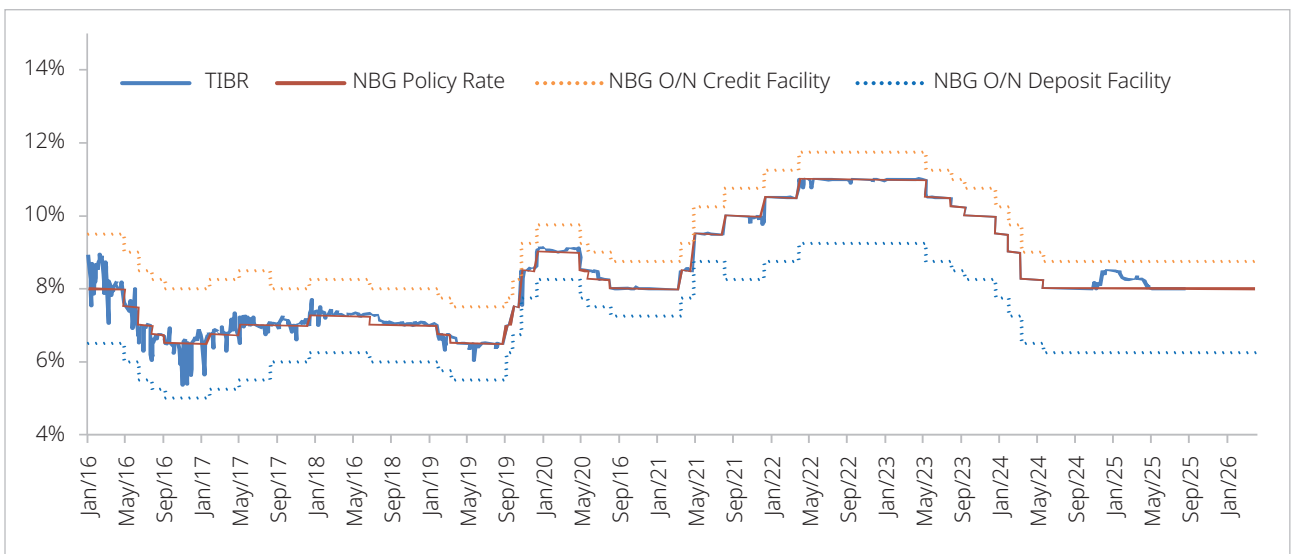


Source: National Bank of Georgia.

The figure shows that the individual components of reserve money fluctuate significantly over time, while the overall trajectory of reserve money is relatively smoother, suggesting that changes in individual components are often offset by other components. This is consistent with the operational framework of monetary policy, within which the central bank manages banking system liquidity through open-market operations, including refinancing operations. It is under such conditions of liquidity management that short-term interest rates are formed in the interbank market, which we consider in the next figure.

Figure 3 shows the dynamics of the National Bank's policy rate, the interbank market rate (TIBR), and the monetary policy corridor in Georgia. It demonstrates that the interbank market rate generally remains close to the policy rate and stays within the monetary policy corridor. This indicates that liquidity management operations in the banking system effectively keep short-term market interest rates near the targeted policy level. In other words, the National Bank's operational instruments—including refinancing operations and other open-market operations—create a liquidity environment in which the interbank market interest rate rests around the policy rate.

Figure 3. Policy Rate and Interbank Market Rate

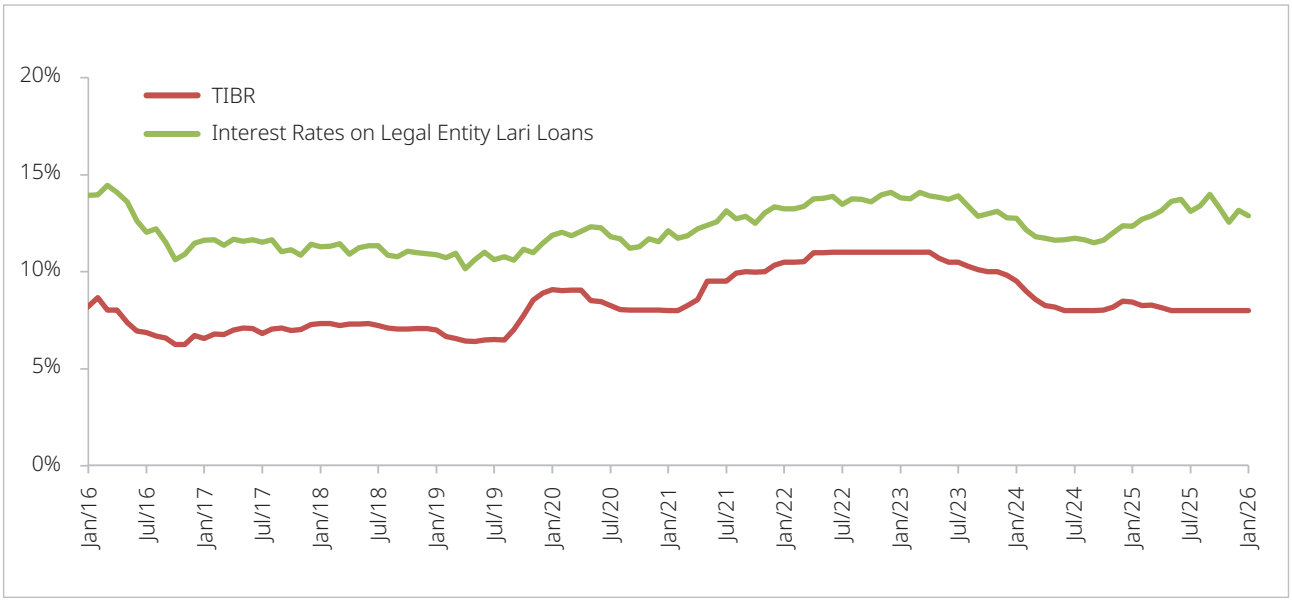


Source: National Bank of Georgia.

The data presented therefore reflect one of the main features of the operational framework of monetary policy: the central bank influences financial conditions primarily through short-term interest rates. These rates constitute the starting point for the transmission of monetary policy to bank lending conditions.

Figure 4 shows the relationship between interbank market rates and the average interest rates on lari loans extended to legal entities. A clear and consistent relationship is evident: changes in the interbank market rate are generally accompanied by movements in loan interest rates in the same direction. This relationship reflects the monetary policy transmission mechanism, according to which short-term market rates affect the price of bank lending. Accordingly, changes in monetary policy are transmitted to the economy through lending rates and influence credit conditions.

Figure 4. TIBR and Loan Interest Rate



Source: National Bank of Georgia.

It is sometimes argued that, contrary to the transmission mechanism described above, inflation dynamics may be more directly linked to money supply growth (see, for example, Khorguashvili, 2024). According to this argument, money growth may affect inflation not immediately, but with a certain time lag. To assess this claim, we present the statistical correlation between annual growth in the money supply (M2) and annual inflation from 2001 through February 2026, considering different sample periods and different lags.

Table 1. Correlations between the Annual Growth Rate of the Money Supply and Annual Inflation

PERIOD	2001–2026	2001–2010	2011–2016	2017–2026	2017–2026 (1-month lag)	2017–2026 (3-month lag)	2017–2026 (6-month lag)	2017–2026 (9-month lag)	2017–2026 (12-month lag)
Correlation	34.80%	68.70%	-8.30%	-30.90%	-33.80%	-35.40%	-35.20%	-32.30%	-30.20%

Source: National Bank of Georgia; authors' calculations.

The correlation calculated for the full period (2001–2026) is not very informative, because it covers different monetary policy regimes. Therefore, the overall period is conditionally divided into two stages: 2001–2010, when monetary policy was oriented primarily toward monetary aggregates, and 2010–2026, when the National Bank of Georgia had fully transitioned to an inflation-targeting regime.

As Table 1 shows, the relatively high correlation between money growth and inflation over the full period is driven mainly by the strong positive relationship observed in 2001–2010. Since 2010, following the shift to inflation targeting, this positive relationship has virtually disappeared. This is consistent with the current monetary policy framework, in which the National Bank's operational instrument is

not the targeted management of the growth of any monetary aggregate but the short-term interest rate.

In later years, especially after 2016, the correlation between money growth and inflation even turns sharply negative. This pattern may partly be related to the impact of measures promoting larization, which increased demand for lari as a savings instrument. As a result, the growth rate of the lari money supply accelerated, but this expansion was not accompanied by a corresponding rise in inflation over the same period.

The analysis of the time lags presented in Table 1 yields a similar result. If money growth had a systematic delayed effect on inflation, one would expect the correlation to strengthen as the lag length increased. However, the results show the opposite pattern: as the lag increases, the correlation not only fails to rise but gradually declines.

Taken together, the above figures and table effectively illustrate the mechanism of the functioning of the monetary system described in the analytical section. The expansion of bank lending is accompanied by the growth of deposits, which generates demand for liquid funds in the banking system. The central bank, in turn, uses its operational instruments to meet this demand and creates conditions under which short-term market interest rates are formed close to the targeted policy level. As a result, changes in monetary policy affect bank lending conditions and, ultimately, economic activity. At the same time, the data do not reveal a simple and stable relationship between money growth and inflation, which reinforces the conclusion that the main channel of monetary policy transmission operates through interest rates.

Implications for Monetary Policy Communication in the Georgian Context

The theoretical and empirical analysis presented above shows that a correct interpretation of the money creation process is essential for understanding modern monetary policy, and that effective policy communication critically depends on how well economic agents understand this mechanism.

In Georgia's public discussions, one periodically encounters the interpretation that the National Bank's refinancing loans amount directly to "money printing" and therefore inevitably create inflationary pressure. Such claims are based on the traditional multiplier perception of money creation, according to which reserves supplied to the banking system are mechanically transformed into broad money. However, as the preceding analysis demonstrates, within the operational framework of modern monetary policy, the central bank's provision of liquidity primarily serves to manage short-term interest rates, rather than to directly increase the quantity of broad money.

A failure to properly understand this distinction may have important practical consequences. First, the mistaken perception that the National Bank's standard liquidity operations are inflationary may unjustifiably intensify inflation expectations. Second, such views may complicate the proper interpretation of monetary policy decisions, especially in cases where an increase in liquidity provision is driven by operational objectives rather than by a desire to provide additional monetary stimulus. Third, if reserve dynamics are systematically equated in public perception with a determinant of inflation, this may undermine confidence in the inflation-targeting regime and weaken the effectiveness of monetary policy communication.

Under such conditions, it is especially important for the National Bank of Georgia's communication to consistently and clearly explain several fundamental points. In particular, it is necessary to emphasize that reserve money and broad money are conceptually distinct categories and that the link between them is neither mechanical nor stable. It is also important to present refinancing operations as instruments of banking system liquidity management,

whose main purpose is to keep short-term market interest rates close to the policy rate. At the same time, when explaining the monetary policy transmission mechanism, particular attention should be paid to the fact that the effects of policy on economic activity and inflation are transmitted mainly through the channels of interest rates, lending conditions, and expectations, rather than through the automatic control of any monetary aggregate.

The data presented in this paper also support this interpretation. On the one hand, the comparison of the dynamics of loans, deposits, and reserve money shows that these variables follow different trajectories, which is inconsistent with the simple logic of the multiplier view. On the other hand, the sustained proximity of the interbank market rate to the policy rate indicates that the National Bank's operational framework is in practice indeed oriented toward the management of short-term interest rates. In addition, the absence of a stable positive relationship between money growth and inflation, especially under inflation targeting, weakens the argument that growth in reserve money or broad money should automatically translate into inflationary processes.

Accordingly, in the Georgian context, monetary policy communication should not be limited merely to the public announcement of decisions and forecasts. It should also include a broader and more systematic explanation of the institutional mechanism within which the modern monetary system functions. In particular, it would be desirable for communication to draw a clearer distinction between liquidity management, money supply dynamics, and the inflation-formation process. Such an approach would help reduce simplified and erroneous perceptions of money creation, improve understanding of monetary policy signals, and lower the probability of misinterpreting the National Bank's operational actions.

In a broader context, the effective communication of the modern institutional view of money creation can be regarded as an important supporting component of the inflation-targeting regime. When economic agents understand that the central bank's operational actions are directed toward the management of interest rates rather than the direct control of the quantity of money, the monetary policy reaction function also becomes more understandable. This, in turn, enhances the greater predictability, credibility, and overall effectiveness of monetary policy.

Conclusion

This article examined the mechanism of money creation and liquidity management through the lens of the modern monetary view and analyzed this framework using the operational practice of the National Bank of Georgia as an example. The central argument of the paper is that, in the contemporary monetary environment, commercial banks create money in the process of extending loans, while the central bank responds to the resulting liquidity demand in such a way as to keep short-term market interest rates close to the targeted policy rate. Thus, the role of the central bank in the money creation process should be understood as that of the ultimate provider of liquidity, rather than as an institution exercising predetermined quantitative control over the volume of broad money.

The literature review showed that the traditional view based on the money multiplier has gradually been replaced by an interpretation that regards commercial banks as active creators of money. This modern approach is increasingly reflected both in contemporary academic literature and in official explanations by central banks. The analysis of the operational framework of the National Bank of Georgia confirms that the endogenous interpretation of money creation provides a more accurate account of the practical mechanism of monetary policy than the traditional multiplier view.

The empirical illustrations presented in the paper also showed that the dynamics of loans, deposits,

and reserve money in Georgia do not conform to the assumption that the growth of broad money is the result of a mechanical multiplication of reserves supplied by the central bank. At the same time, the proximity of the interbank market rate to the policy rate indicates that the main function of the National Bank's operational framework is the management of short-term interest rates. Meanwhile, the absence of a stable positive relationship between money growth and inflation, especially under the inflation-targeting regime, shows that in Georgia the main channel of monetary policy transmission operates through interest rates rather than through the automatic dynamics of monetary aggregates.

One of the paper's principal conclusions is that an institutionally correct interpretation of the money creation process is important not only for theoretical accuracy, but also for the effectiveness of monetary policy communication. If the National Bank's liquidity-providing operations are perceived in public discourse as a direct and automatic source of inflation, this may hinder the correct interpretation of monetary policy signals, reinforce incorrect expectations, and weaken policy credibility. Accordingly, under modern monetary policy conditions, special importance is attached to communication that clearly distinguishes between reserves, broad money, and the inflation formation process.

Ultimately, the case of Georgia shows that an adequate description of the functioning of the modern monetary system requires shifting attention away from traditional notions of quantitative money control and toward the mechanisms of interest rate management, operational liquidity provision, and expectations formation. It is within this framework that both a better understanding of the practical operation of monetary policy and an improvement in its communication in support of the objective of price stability become possible.

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THE IMPACT OF FISCAL POLICY ON ECONOMIC GROWTH: AN EMPIRICAL ASSESSMENT FOR GEORGIA

NINO MIKELADZE

Abstract

The economic events related to the COVID-19 pandemic once again confirmed the necessity of implementing fiscal policy aimed at reducing the budget deficit. A central consideration in fiscal consolidation is its impact on economic development and sustainability. Furthermore, it is critical to determine which fiscal instruments can optimize economic conditions while minimizing adverse pressure on broader macroeconomic indicators.

The analysis conducted within the framework of this paper includes an evaluation of various instruments used to reduce the budget deficit in Georgia and reflects on their potential impact on both Georgian macroeconomic indicators and inclusive economic growth.

The research reveals that a reduction in government consumption—specifically, in the compensation of employees and purchases of goods and services—ultimately leads to an increase in Gross Domestic Product (GDP) in the country. Regarding taxes, an increase in value-added tax (VAT) has a small but positive impact on Georgia's GDP.

The paper identifies the reduction of government consumption and the increase of indirect taxes as the most effective means to achieve inclusive economic growth in Georgia in parallel with a decline of the budget deficit.

Keywords: Budget deficit, fiscal consolidation, inclusive growth, government consumption, Gross Domestic Product.

Introduction

When designing fiscal policy, it is essential to conduct a preliminary analysis of how tax and expenditure instruments are expected to perform before they are implemented. Recent global shocks have brought forward scholarly and policy debates regarding both the quantitative and qualitative outcomes of changes in fiscal policy and the broader consequences they generate.

According to the Organic Law of Georgia on Economic Freedom[1], the ratio of the budget deficit to GDP must not exceed 3%, and the ratio of government debt to GDP must not exceed 60%. In the event that these threshold indicators are exceeded due to crises and economic shocks, it becomes necessary to return them to the acceptable limits, which is carried out through fiscal consolidation. In this context, it is important to discuss the various paths of fiscal consolidation and the potential impact of fiscal policy on the economy—an issue that has gained increased relevance as a result of recent global disruptions (Bedianashvili et al., 2024, 2025).

1. See https://matsne.gov.ge/ka/document/view/1405264?publication=3.

In a changing economic environment, it is necessary to determine in advance the expected effects of any fiscal measures to be implemented. Despite the growing relevance of this topic, the potential macroeconomic consequences of fiscal consolidation have not been adequately studied, creating the need for an in-depth analysis that can guide the selection of fiscal policy instruments tailored to the national economy.

Given that the impact of fiscal policy on various macroeconomic indicators—unlike monetary policy—is often not immediate and is characterized by time lags, this analysis focuses on the results revealed not only in the short term but also in the medium and long term. Furthermore, reducing the budget deficit should not lead to a direct deterioration of living standards or a significant decline in economic activity. This also implies observing the dynamics of inclusive growth, since the core goals of fiscal policy—beyond regulating economic cycles—are macroeconomic stability and the redistribution of income. It should be noted that studies confirm the possibility of achieving both goals through fiscal policy (Calderon & Serven, 2004; Yeboua, 2021).

In this analysis, the fiscal policy instruments used for deficit reduction are categorized into expenditure and revenue components. The expenditure side examines both current and capital expenditures, while the revenue side focuses on direct and indirect taxes. Following standard classifications in the literature, current expenditures are further disaggregated into subcategories. Among these, government current consumption—comprising employee compensation and the purchase of goods and services—holds particular significance. Finally, to assess the broader economic impact, the study evaluates how these fiscal instruments affect key macroeconomic indicators: Gross Domestic Product (GDP), private investment, private consumption, exports, imports, inflation, and the real effective exchange rate.

Consequently, this paper investigates the potential impacts of expenditure- and tax-based fiscal consolidation on key macroeconomic indicators. The empirical analysis employs a Vector Autoregressive (VAR) model—specifically, an optimal model approach—using quarterly data from 2010 to 2024, which is a framework well-suited for a relatively short time series. Furthermore, the study evaluates the expected effects of these deficit-reduction instruments on both economic growth and income inequality. This relationship is analyzed through the lens of inclusive growth, utilizing annual data spanning from 2000 to 2024.

Literature Review

The recent prominence of fiscal policy has incentivized researchers to further investigate its impact on economic growth, specifically focusing on identifying the most effective instruments for promoting growth during periods of budget deficit reduction.

The optimal choice between expenditure- and tax-based instruments for deficit reduction depends on several macroeconomic variables. These include a country's fiscal position, its economic structure and level of development, the timeframe for consolidation, the magnitude of the fiscal adjustment, and the prevailing fiscal multipliers.

Fiscal multipliers may be positive in developed nations but negative in developing ones. Furthermore, the magnitude of these multipliers fluctuates across different phases of the economic cycle and is heavily contingent on capital mobility, the exchange rate regime, trade openness, and policy credibility (Batini et al., 2014; Ilzetzki et al., 2011).

Empirical evidence from both developed and developing economies indicates that fiscal consolidation driven by reductions in current expenditures can stimulate economic growth in the medium term (around three years). Conversely, reductions in capital expenditures tend to hinder growth (Ardanaz, 2021). Moreover, it is advisable to examine the causal relationship over an average horizon of three years, as the quantitative effects of fiscal policy on

the economy do not materialize immediately and require analysis from a medium-term perspective.

The literature consistently suggests that revenue-based consolidations are more detrimental to the economy than expenditure-based approaches (Beetsma et al., 2021). Ardagna (2004) corroborates this finding through a panel data analysis of OECD countries. Similarly, Alesina and Ardagna (1998) conclude that tax-based policy shifts are predominantly non-expansionary, whereas expenditure adjustments are more likely to generate expansionary effects.

Maebayashi (2023) highlights that in countries characterized by low productivity, deficit reduction is best achieved through expenditure adjustments, as tax increases can severely depress incomes and complicate fiscal sustainability. Yeboua (2021) demonstrates that pairing tax policies with targeted expenditure strategies—such as reinvesting revenues from direct taxes into capital projects—can successfully offset the economic contraction typically associated with tax hikes. While Blanchard and Perotti (1999) delineate the differing impacts of various fiscal instruments, emphasizing that a comprehensive analysis requires comparing the potential effects of not only the tax and expenditure policies but also the specific decomposition of these measures. For instance, the economic effects of changes in current versus capital expenditures differ markedly. Similarly, distinguishing between direct and indirect taxes is crucial, as they serve distinct policy objectives and are borne by different groups of taxpayers.

Ardanaz et al. (2021) emphasize that the specific composition of fiscal consolidation dictates its economic impact. While a 1% reduction in the expenditure-to-GDP ratio may shrink the real economy by 0.4 percentage points on average, the effect varies significantly by expenditure type. Cutting capital expenditures by 1% of GDP decreases output by an average of 0.7 percentage points over three years. However, concurrently reducing current expenditures may neutralize these adverse effects and even promote medium-term output growth. The contractionary effect of reducing capital expenditures is evident in both the short and medium term. Supporting this, Klyuev and Snudden (2011) demonstrate that in European Union countries, cuts to public investment yield the most pronounced negative impacts during deficit-reduction efforts.

From a theoretical standpoint, the classic work of Keynes (1936) posits that fiscal policy—particularly government spending—plays a critical role in stimulating aggregate demand, especially in the short run. During economic downturns characterized by depressed private sector demand, government intervention remains the most effective mechanism for stabilization. Short-term fiscal stimulus not only mitigates immediate economic damage but also prevents long-term economic scarring.

At the same time, the literature presents findings that are are, in some cases, contradictory. These discrepancies may be explained by country-specific economic characteristics as well as differences in methodological approaches. For example, Pashourtidou et al. (2014) find that a reduction in capital expenditures had a negative impact on economic growth in Cyprus, primarily through its adverse effects on investment and private consumption. The authors emphasize the importance of combining tax and expenditure policies in order to enhance the overall positive impact on the economy. In contrast, Calderon (2004) examines the effects of capital expenditure reductions across 121 countries and finds that such policy measures—characteristic of fiscal consolidation—had a positive impact on economic performance. In the case of Georgia, a study conducted by the Parliamentary Budget Office of Georgia (2015) concludes that fiscal tightening tends to be more successful when implemented through reductions in current expenditures.

It is important to note that fiscal consolidation does not necessarily imply economic contraction. The concept of expansionary fiscal consolidation sug-

gests that deficit-reducing measures may, under certain conditions, lead to economic growth (Afonso & Martins, 2014). According to Keynesian theory, fiscal consolidation may even stimulate private consumption if accompanied by monetary easing. This can be explained by the fact that accommodative monetary policy may partially offset the negative effects of fiscal tightening on private incomes and consumption.

One of the primary objectives of fiscal policy is to promote economic growth. In the contemporary context, however, this objective extends beyond increasing aggregate output and increasingly emphasizes inclusive growth, ensuring that low-income groups also benefit from economic expansion. Empirical evidence suggests that fiscal policy can contribute to achieving both objectives. For instance, Joseph Stiglitz (2012) highlights the significant role of fiscal policy in reducing inequality and underscores the growth implications of redistributive measures. Similarly, Oseni et al. (2023) analyze the relationship between fiscal policy and income inequality, finding that direct taxes and current expenditures have the strongest effects on distributional outcomes.

The evidence on the impact of deficit reduction on inclusive growth remains mixed across countries. Nevertheless, some authors—most notably Bastagli et al. (2012)—argue, based on analyses of both developed and developing economies, that achieving inclusive growth requires the coordinated use of tax and expenditure instruments. In the case of Georgia, empirical findings suggest that increasing, rather than reducing, capital expenditures plays a significant role in fostering inclusive economic growth—particularly approximately three years after implementation (Mikeladze & Bedianashvili, 2024).

Methodology

The choice of fiscal instruments depends on a range of factors. These include the current state of the economy, the available fiscal space, and the feasibility of implementing specific measures—whether through increasing or reducing taxes and expenditures. Equally important is anticipating the economy's response to changes in the use of each fiscal instrument. This response is commonly captured by the fiscal multiplier, which reflects the magnitude and direction of the impact on economic activity.

To assess the effects of different fiscal consolidation instruments on Georgia's key macroeconomic variables, and taking into account the relatively short time series available, after the literature review, the so-called optimal model was selected as the most appropriate empirical framework.

The first step involved determining the variables to be included in the analysis and defining the relevant time horizon. Although macroeconomic data for Georgia are available from 1996 onward, many key variables—particularly fiscal indicators—are only accessible from 2003 or 2010. To construct a sufficiently long time series, quarterly data were used instead of annual observations. Unlike annual data, quarterly data require testing for and adjusting seasonal components, which were incorporated into the analysis. Given that fiscal shocks in this study are defined as changes in fiscal indicators (tax revenues or expenditures), and considering that quarterly fiscal data are primarily available from 2010 onward, the empirical analysis covers the period from the first quarter of 2010 through the fourth quarter of 2024 (2010Q1–2024Q4).

Data on Gross Domestic Product, private investment, private consumption, exports, imports, and inflation were obtained from the National Statistics Office of Georgia (GeoStat). The real effective exchange rate index (December 1995 = 100) was sourced from the National Bank of Georgia. Fiscal variables were drawn from the consolidated budget data published by the Ministry of Finance of Georgia. Direct taxes in the analysis include personal income tax, corporate profit tax, and property tax. Indirect taxes comprise value-added tax (VAT), excise tax, import duties, and other tax categories.

To assess the impact of tax changes, the consolidated budget data were disaggregated not only into direct and indirect taxes, but also by source—income tax, profit tax, and VAT. Income and profit taxes represent the main contributors to direct tax revenues, while VAT constitutes the primary component of indirect taxes.

Expenditure data were also disaggregated in detail. For capital expenditures, the analysis uses the net acquisition of non-financial assets in the consolidated budget. Current expenditures are broken down as follows:

- Government consumption – the sum of compensation for employees and spending on the purchase of goods and services.
- Government transfers – spending on subsidies and social benefits.
- Grants.
- Interest payments.
- Other expenses.

This classification of current spending aligns with various studies, including research specific to Georgia (Tabaghua, 2023). The International Monetary Fund (2013) defines government consumption as the total of employee compensation and goods and services purchases, whereas Perotti (2004) separates compensation from other components, dividing government consumption into salary and non-salary expenditures.

To ensure meaningful economic interpretation, all variables were converted into real terms. GDP was deflated using the GDP deflator, while other variables were adjusted using the Consumer Price Index (CPI). The CPI is based on the 2010 average (2010 = 100) and was converted to 2019 prices, so both real GDP and other variables are expressed in 2019 terms.

Quarterly data exhibit seasonality, and all variables were seasonally adjusted. Stationarity was tested using both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. As the variables were found to be non-stationary, their natural logarithms were taken. Once the log-transformed series were confirmed to be stationary, first differences were used for the analysis.

Given that the purpose of this study is to evaluate the effects of fiscal shocks on various dependent variables, a Vector Autoregressive (VAR) model was deemed appropriate. The VAR framework is widely used for analyzing economic time series, as it allows one to assess how a dependent variable responds to both other endogenous variables and its own lagged values.

Following the approaches of Blanchard and Perotti (2002) and Perotti (2004), the VAR model can be represented in its simplified form as:

$$X_t = A(L)X_{t-1} + U_t \quad (1)$$

Where X_t represents the vector of endogenous variables, A(L) denotes the matrix of lagged coefficients, and U captures the vector of residuals for these variables. The equation also includes a constant term, dummy variables, and a linear time trend.

A similar specification can be found in Karagöz and Keskin (2016), where the equation is presented in a more expanded form. Accordingly, the standard VAR model, consisting of n variables with p lags, can be expressed as:

$$y_t = c + \sum_{i=1}^{p} y_{t-p} b_i + Dz_t + \varepsilon_t \quad (2)$$

Where y_t includes an n endogenous variable and is represented in an n x 1 vector at time (t), (D) is an n x d matrix of parameters, and z_t denotes a d x 1 vector of exogenous variables. The vector (c) is an n x 1 constant term, while b_i represents an n x n matrix of coefficients for each lag. The term $\boldsymbol{\varepsilon}_t$ captures the n x 1 vector of residuals, often referred to as "white noise".

It should be noted that, given the relatively small number of observations in the model—quarterly data over 15 years, yielding 60 observations per variable (2010Q1–2024Q4)—the VAR model may not fully capture underlying economic relationships or causal dynamics in some cases.

To maintain model tractability, fiscal shocks are disaggregated into separate categories: tax-based shocks (arising from changes in income tax, profit tax and VAT) and expenditure-based shocks. For the endogenous variables, the VAR model is estimated separately for each variable to allow the identification of the impact of fiscal shocks on that specific outcome. Accordingly, two models are presented for each dependent variable.

$$X_t \equiv \begin{cases} GDP \\ private\ consumption \\ Private\ investment \\ export \\ import \\ inflation \\ REER \end{cases}$$

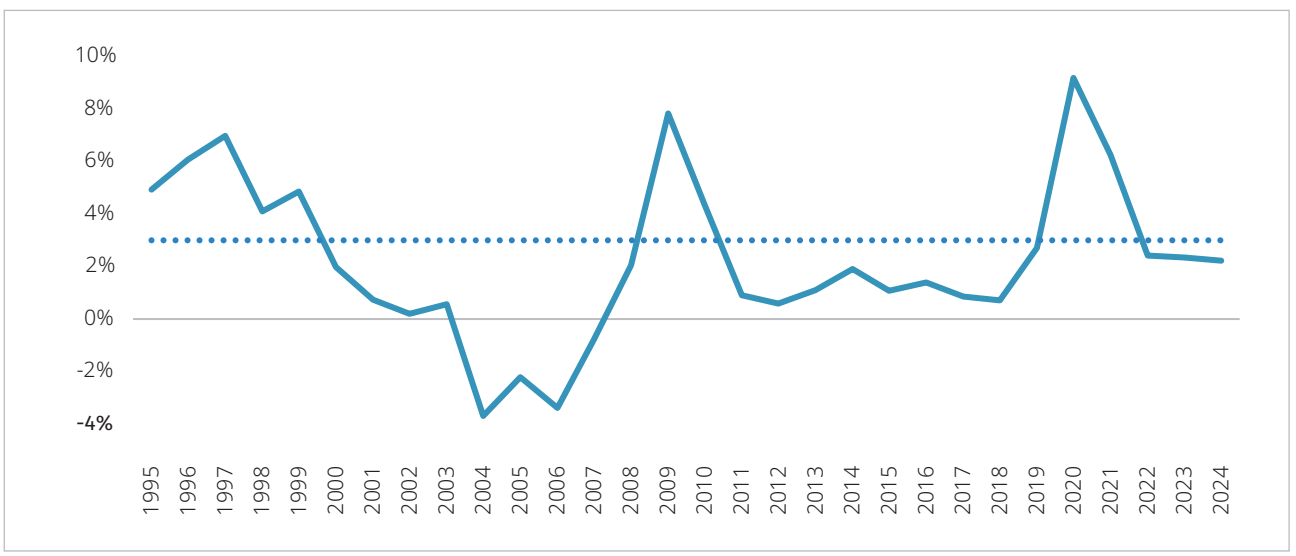
The real data were seasonally adjusted, and the stationarity of the time series was tested to examine the behavior of the selected variables.

Subsequently, VAR models are constructed to analyze the interactions between fiscal shocks and macroeconomic outcomes. Specifically, the analysis considers both reductions in current spending components (government consumption, transfers, grants, interest payments, and other spending) and capital expenditures, as well as increases in tax components—direct taxes (income and profit taxes) and indirect taxes (VAT). The effects of these fiscal measures are evaluated across key macroeconomic indicators, including GDP, private consumption, private investment, exports, imports, inflation, and the real effective exchange rate.

Data Analysis

As previously noted, the purpose of this paper is to examine the role of fiscal policy measures implemented to reduce Georgia's budget deficit and to assess the impact of these instruments on the economy. As illustrated in Diagram 1, the country's budget deficit exceeded the 3% threshold during crisis periods. Consequently, reducing the deficit and creating fiscal space required the tightening of fiscal policy through fiscal consolidation.

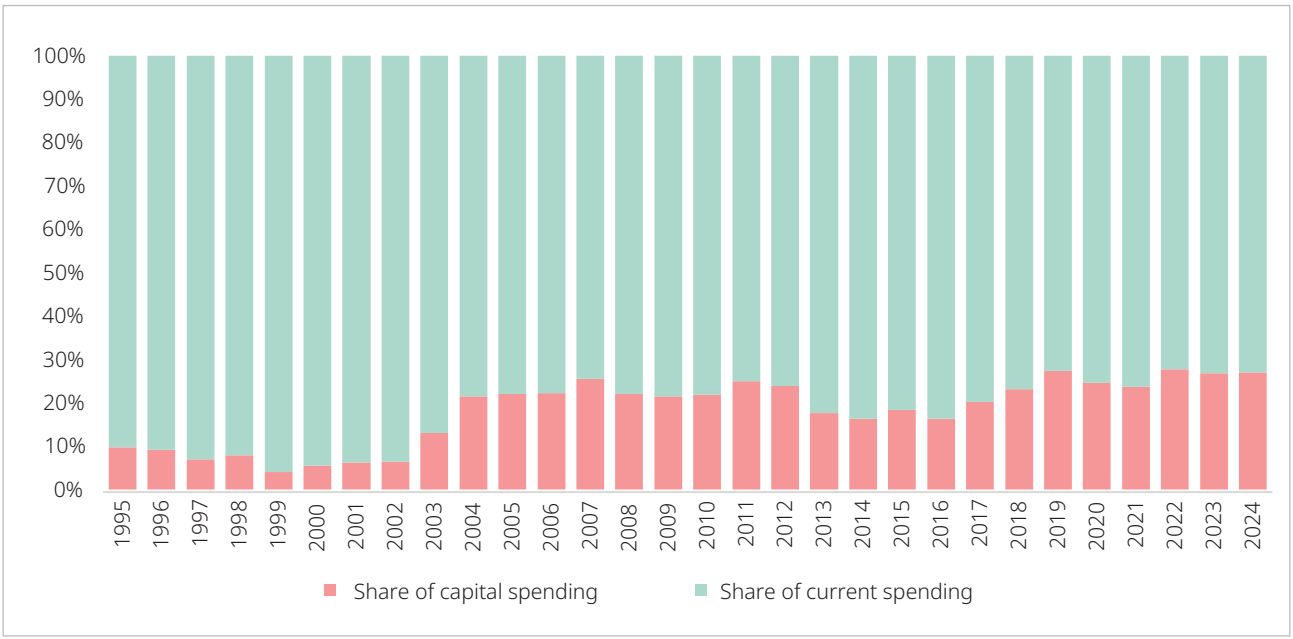
Diagram 1. Budget deficit to GDP (%)



Source: Ministry of Finance of Georgia (MOF).

When analyzing the instruments utilized for deficit reduction, it is crucial to recognize the constraints imposed by Georgia's Organic Law on Economic Freedom. Specifically, this legislation prohibits the introduction of new taxes or the elevation of existing statutory rates—with the exception of excise taxes—without a national referendum. As a result, fiscal consolidation in Georgia has predominantly been achieved through expenditure compression. Furthermore, as illustrated in Diagram 2, the changing composition of total government spending highlights a consistent reduction in current expenditures, identifying it as the primary mechanism for narrowing the deficit in practice.

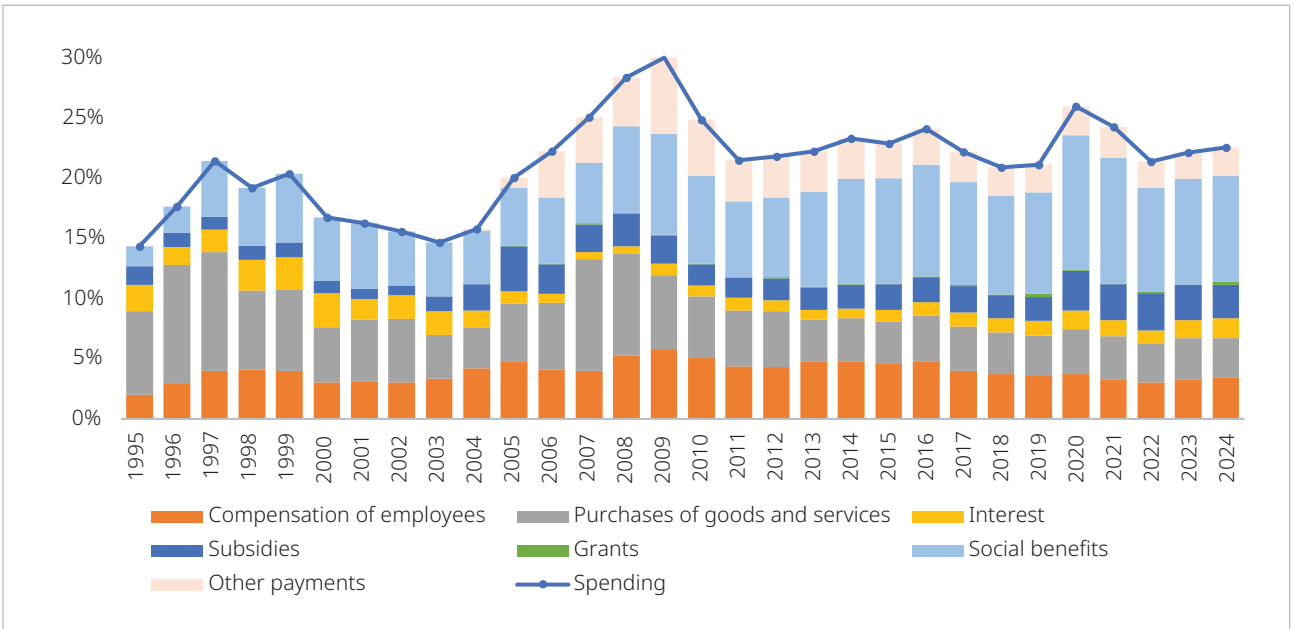
Diagram 2. Current and capital spending as a share of total spending



Source: MOF; author's calculations.

Since current expenditures have been disaggregated into several components for this analysis, Diagram 3 illustrates the share of each component of general government spending in GDP over time. As shown, government consumption—which includes both employee compensation and purchases of goods and services—and government transfers, comprising social security and subsidies, are the largest contributors to GDP. Accordingly, changes in these components are likely to have the most significant impact on economic activity.

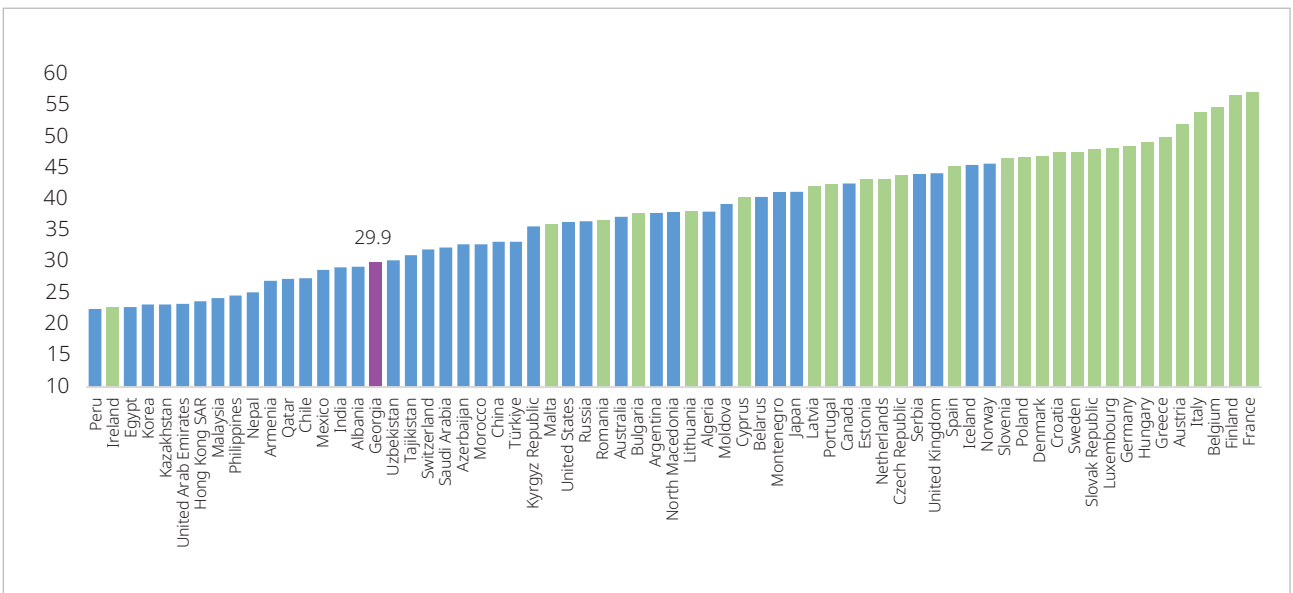
Diagram 3. Budget spending as a share of GDP by year



Source: MOF; GeoStat; author's calculations.

The size of government spending is often linked to a country's level of development: more developed countries generally have greater resources and a higher capacity for public expenditure. Georgia, as a small open economy, has a relatively small government, as measured by the share of government spending in GDP. Diagram 4 clearly shows that the size of government in leading EU countries (marked in green) is substantially higher than in Georgia.

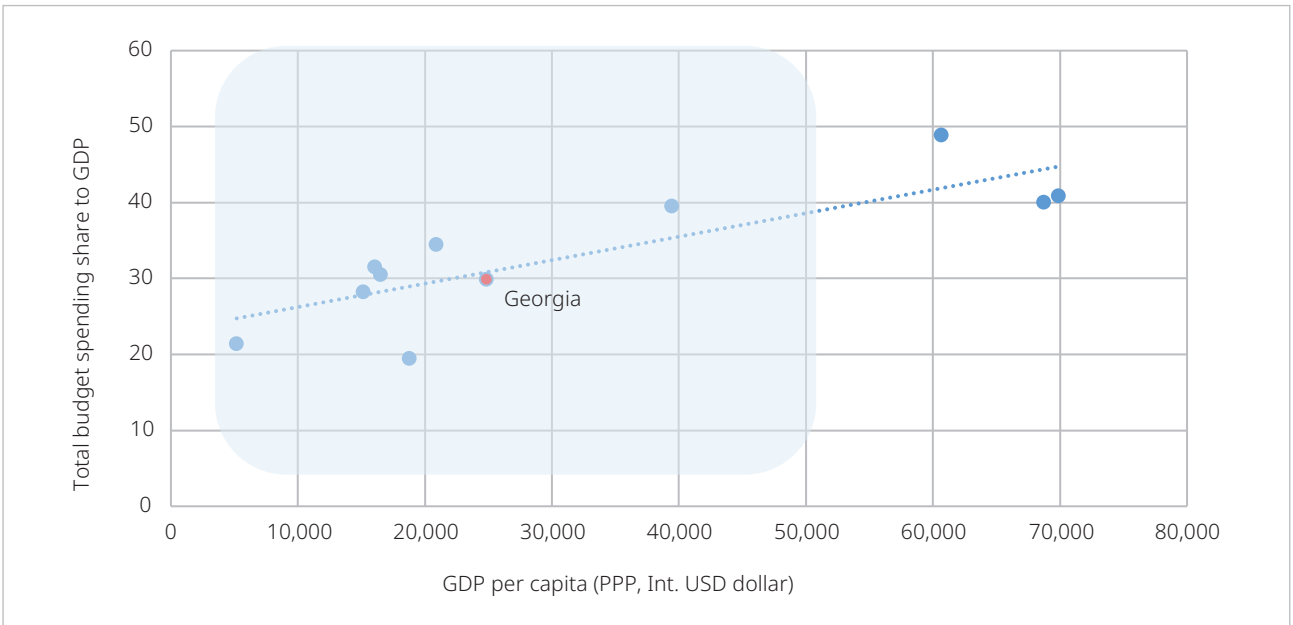
Diagram 4. Government size for Georgia and other countries



Source: IMF.

We can also observe the extent to which GDP per capita is correlated with total budget expenditures. For comparison, we selected both groups of countries whose GDP per capita levels are relatively close to Georgia's, including European transition economies, as well as groups of countries with much higher average income levels, including the G7 and leading European Union member states. The results show that in the group of highly developed countries, where GDP per capita is higher, budget expenditures are also greater compared with those of developing countries. Georgia is located approximately on the trend line (see Diagram 5), which provides grounds to assume that, alongside economic development, budget expenditures will also increase, meaning that the country will have greater resources for public spending.

Diagram 5. Budget spending and GDP per capita for Georgia and other countries



Source: MOF; IMF.

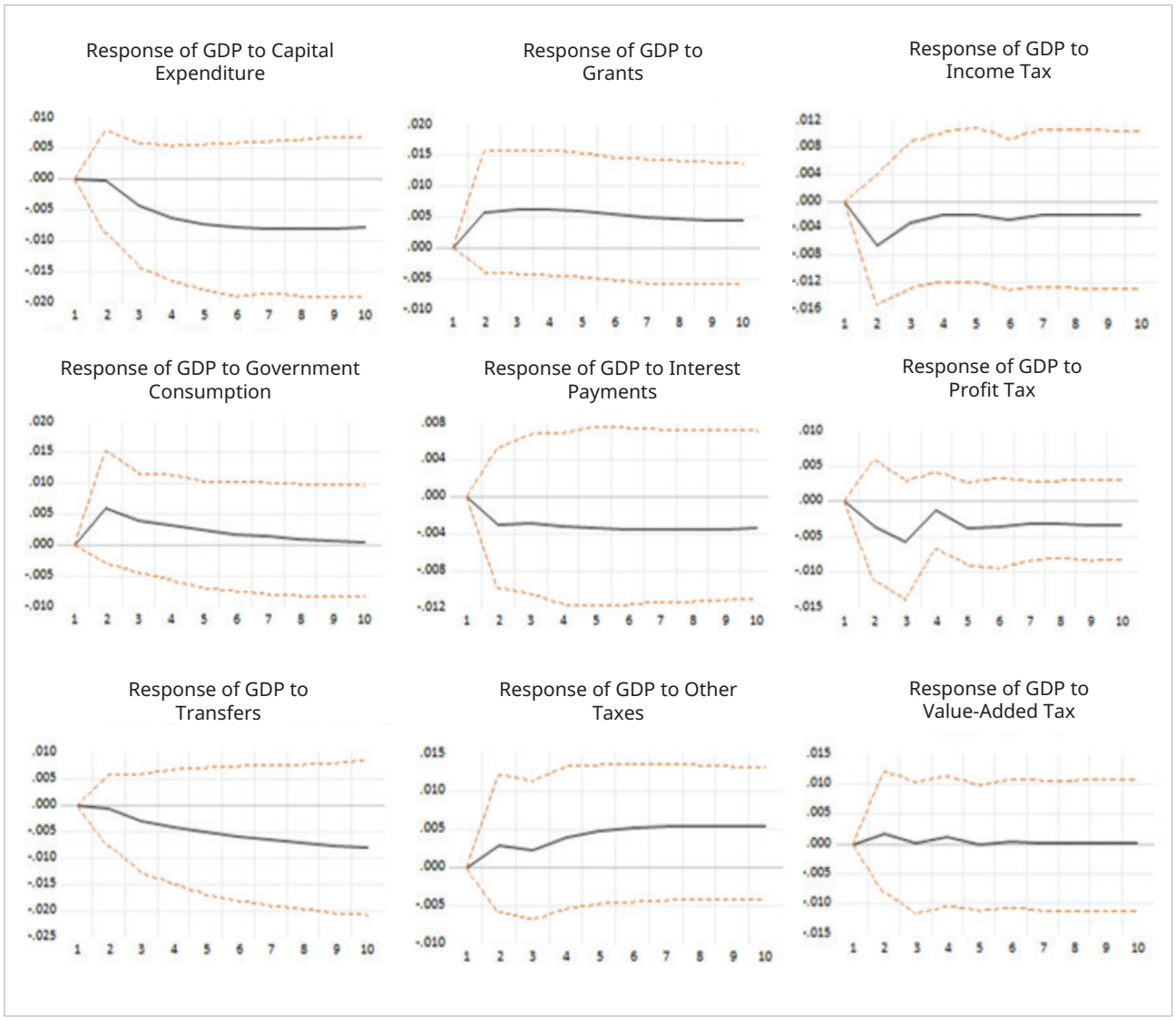
Description of the Results

The primary variable of interest when examining the impact of fiscal policy changes is the Gross Domestic Product (GDP). Diagram 6 specifically illustrates the effect of fiscal consolidation on GDP volume.

During the analysis, stationarity and cointegration tests were conducted, data were converted into real terms, and seasonal adjustments were applied. The models underwent rigorous diagnostic checks, including lag length selection, autocorrelation checks, residual normality tests, and heteroskedasticity testing. Based on this comprehensive methodology, results were derived for fiscal consolidation implemented through both expenditure cuts and tax increases. These findings were obtained using an impulse-response function.

As the results demonstrate, a reduction in capital expenditure leads to a decline in GDP starting from the third quarter, with no significant impact observed prior to that. A decrease in GDP is also evident following a reduction in transfer payments. Conversely, a reduction in government consumption leads to an increase in GDP. Similar growth is observed when grants and other expenditures are reduced.

Diagram 6. Response of GDP to fiscal shocks via spending reductions and tax increases through a VAR model



Source: Author's calculations.

Turning to the impact of tax increases, as illustrated in the diagram, a rise in VAT— an indirect tax—results in a marginal increase in GDP. Conversely, an increase in personal income and corporate profit taxes (direct taxes) lead to a decline in GDP.

A similar analysis was conducted for the remaining variables. The examination of how expenditure cuts and tax increases affect private consumption and private investment revealed that a reduction in capital expenditures initially boosts private consumption, but subsequently dampens it. In the case of government consumption, its reduction has a marginal yet mostly positive effect on private consumption. Tax increases initially reduce consumption; however, in the case of direct taxes, this is followed by a slight increase. By contrast, a rise in VAT exerts a persistently negative impact on private consumption.

In analyzing the effects of fiscal shocks on exports and imports, external demand is incorporated as an exogenous variable in the export VAR model, while

imported inflation serves the same purpose in the corresponding import model. To calculate the external demand index, we utilize data regarding the GDPs of selected countries alongside their respective shares in Georgia's total exports.

For the external demand index, the following approach is employed:

$$\textit{external demand index}_t = \sum_{i=1}^{15} w_i * GDP_i \quad (1)$$

Where t denotes the time period, i is a country, w_i shows the portion of each country in exports, and GDP_i denotes real GDP.

To calculate imported inflation, we used the National Statistics Office of Georgia's (GeoStat) classification of consumer basket items into domestic, imported, and mixed categories. Based on this classification, we isolated the price changes of imported goods and their corresponding weights in the consumer basket. The sum of each imported good's percentage price change multiplied by its weight in the consumer basket provides a measure that reflects inflation attributable solely to imported products.

The results of this analysis indicate that a reduction in capital expenditures marginally increases exports, particularly during the first four quarters. Similarly, a reduction in government consumption is associated with higher export growth during the first three quarters. This may be explained by the fact that a decline in public spending creates additional space for private sector expenditures, which in turn stimulates production and, consequently, exports. With regard to taxation, an increase in corporate profit tax initially boosts exports but subsequently leads to a decline. This may be linked to rising production costs: a higher profit tax reduces the after-tax return on capital, which increases marginal production costs and ultimately leads to higher prices.

In the case of imports, a reduction in capital expenditures leads to a stronger increase in imports—and consequently a greater deterioration in GDP—than a reduction in government consumption. Meanwhile, a decrease in transfers has a heterogeneous effect on imports. With regard to tax instruments, an increase in VAT results in the most pronounced decline in imports, as this tax directly affects consumption. By contrast, an increase in income tax initially raises imports but subsequently leads to a decline.

VAR models were also constructed for inflation and the exchange rate. For inflation, when the Real Effective Exchange Rate (REER) is treated as an exogenous variable, the results indicate that an increase in corporate profit tax exerts a significant upward pressure on inflation, as it drives up production costs. In the REER VAR model, imported inflation was selected as an exogenous variable. An increase in VAT, which is ultimately reflected in product prices, leads to an appreciation of the exchange rate.

To determine the impact of fiscal policy on inclusive growth, tax policy is represented as changes in direct and indirect taxes, while expenditure policy is represented as changes in current spending and capital expenditures.

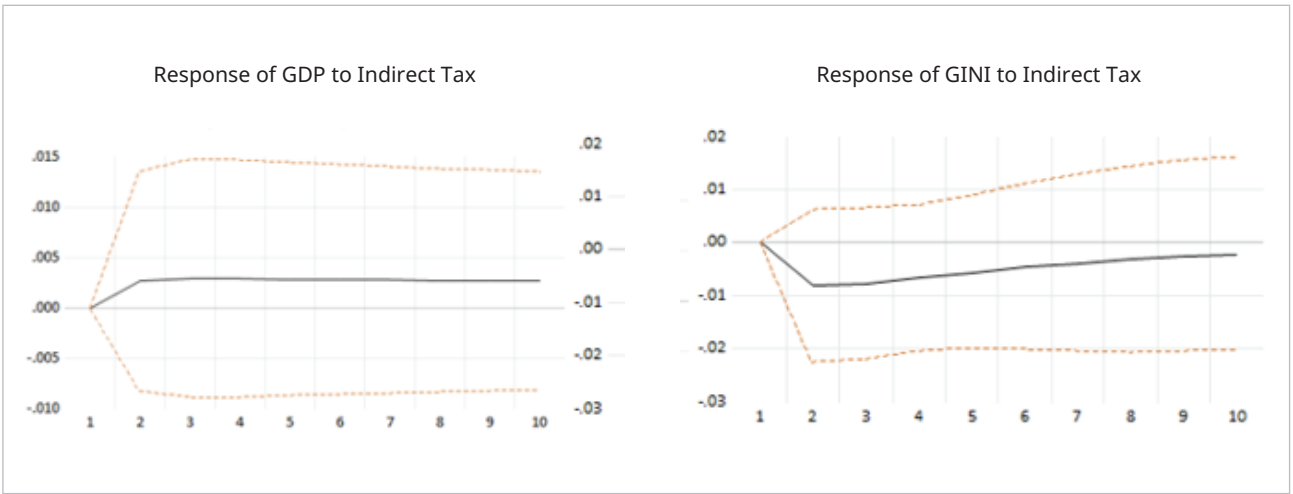
An analysis of annual data for the period 2000–2024 shows that a reduction in capital expenditures leads to economic contraction and is accompanied by an increase in the Gini index. Fiscal consolidation implemented through reductions in current spending stimulates economic growth for a period of two years; however, it simultaneously increases inequality. Furthermore, when only the compensation of employees and the purchase of goods and services are isolated from current spending (which we define as government spending), the economy expands over a two-year period while income inequality declines, indicating inclusive economic growth.

When evaluating tax increases, the analysis reveals that raising indirect taxes drives inclusive economic growth—manifesting simultaneously as economic expansion and a reduction in the Gini index.

Both a reduction in government consumption and an increase in indirect taxes exert a positive influence on inclusive growth. Notably, it is the expansion, rather than the reduction, of capital expenditures that fosters inclusive economic growth, with the most significant effects materializing three years post-implementation (Mikeladze and Bedianashvili, 2024).

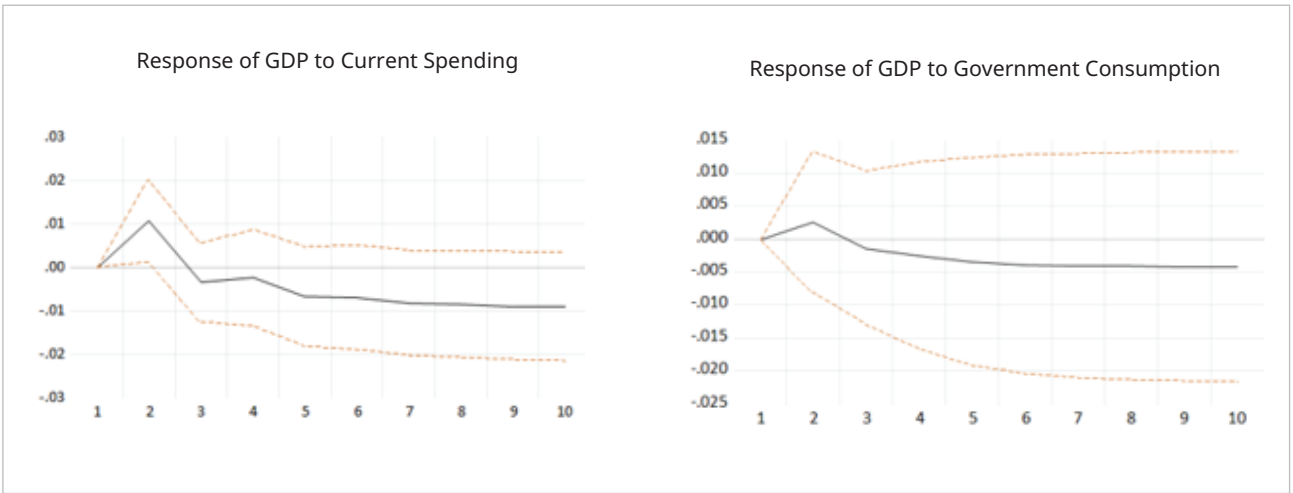
Consequently, the findings indicate that increasing indirect taxes is the most effective policy measure for promoting long-term inclusive growth. For short-term outcomes, reducing government consumption can be utilized, yielding positive effects on inclusive growth for a duration of up to two years. This outcome seems logical as the other components of current spending primarily consist of subsidies and social security payments and cutting these provisions would likely contract private consumption and exacerbate income inequality. Ultimately, if the objective is to secure lasting, positive effects and broader economic improvement, fiscal consolidation is best achieved through an increase in indirect taxes.

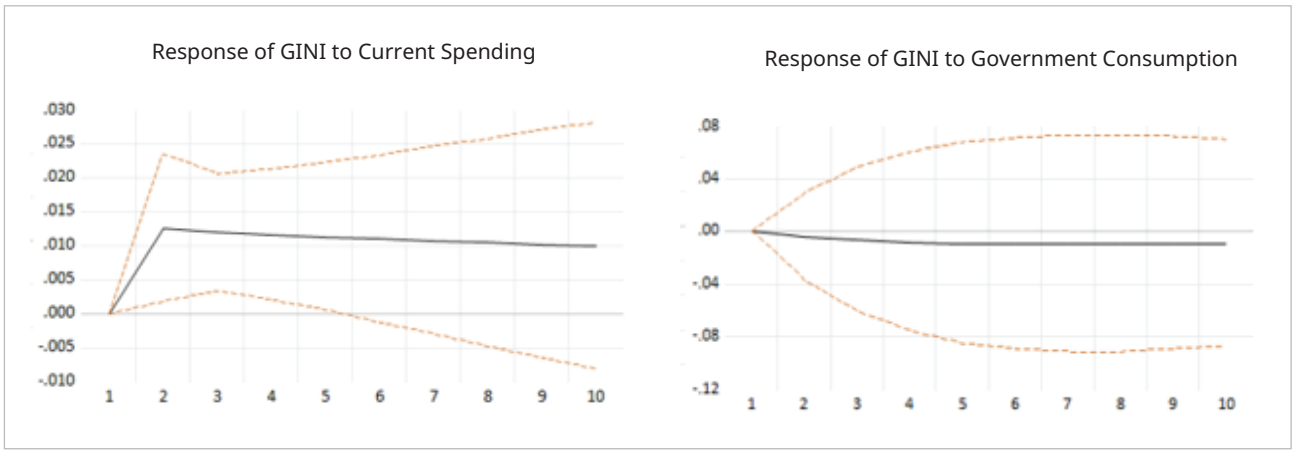
Diagram 7. Impact of fiscal consolidation on inclusive economic growth through an increase in indirect tax



Source: Author's calculations.

Diagram 8. Impact of fiscal consolidation on inclusive economic growth through a decrease in current spending





Source: Author's calculations.

Conclusion

Given that fiscal policy—unlike monetary policy—does not exert an immediate impact on macroeconomic indicators, we evaluated its effects over both the short and medium term. Moreover, it is crucial to assess the impact of fiscal consolidation across all strata of the population, as a fundamental objective of fiscal policy—alongside the regulation of economic cycles—is the redistribution of income.

Naturally, the deployment of different fiscal instruments during the consolidation process can yield divergent effects on the broader economy. An analysis of the available data reveals that reducing government consumption is the most effective measure for stimulating inclusive economic growth. However, this effectiveness is limited to a two-year horizon, after which it begins to exert a negative influence. To achieve a sustainable, long-term impact on inclusive growth, increasing revenues from indirect taxes proves to be the superior approach.

In terms of fiscal policy's broader macroeconomic impact, the findings indicate that positive economic outcomes are best achieved by implementing fiscal consolidation through either a reduction in government consumption or an increase in VAT. The utilization of these specific instruments not only successfully reduces the budget deficit but also concurrently fosters positive developments across several key economic variables.

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POTENTIAL SPILLOVERS OF RECENT CHANGES IN U.S. TARIFF, MONETARY, AND FISCAL POLICIES ON THE GEORGIAN ECONOMY

ANA NIZHARADZE, MARIAM TANIASHVILI, AKAKI MOSAKHLISHVILI AND SABA METREVELI

Abstract

This paper examines the impact of recent shifts in United States (U.S.) tariff, monetary, and fiscal policies on Georgia's small, open, and partially dollarized developing economy. Although Georgia's bilateral trade with the United States is limited in scale, the assessment indicates that recent U.S. policy changes may still exert a notable impact, transmitted predominantly through financial channels. The elevated U.S. fiscal deficit, persistent inflationary pressures, and higher yields on long-term Treasury securities have contributed to a tightening of global financial conditions and increased volatility of capital flows. Against this backdrop, this paper underscores the central role of the interest rate, capital flow, and exchange rate channels in the transmission of U.S. shocks to the Georgian economy. In particular, higher U.S. interest rates increase global borrowing costs, amplify debt-servicing and refinancing risks, and tighten domestic credit conditions, while exchange rate movements have a pronounced impact on balance sheet positions and inflation dynamics, especially given Georgia's still-high degree of dollarization. Other channels, including remittances, commodity prices, and structural shifts in global trade patterns, further shape the macroeconomic outlook. The paper concludes that Georgia's macroeconomic resilience critically depends on adopting a pragmatic, forward-looking policy framework that accounts for heightened global uncertainty, as well as close monitoring of its financial spillovers and strengthening domestic buffers to absorb shocks arising in an increasingly fragmented international environment.

Keywords: Dollarization, economic policy, economic fragmentation, trade policy, monetary policy, financial transmission channels, global financial conditions, emerging market economies.

Introduction

Recent changes in U.S. economic policy, including tighter monetary policy, fiscal expansion, and shifts in tariffs and migration policy, have intensified global macro-financial uncertainty and altered the transmission mechanisms of external shocks. This may have notable implications for small open economies, including Georgia. Although the U.S. economy remains resilient—supported by a strong labor market, robust consumer spending, rapid technology adoption, and productivity gains—persistent inflation and an elevated fiscal deficit have pushed long-term Treasury yields higher and contributed to heightened financial-market volatility. Against this backdrop, global macro-financial conditions have tightened, while capital flows and risk premia have become increasingly sensitive to U.S. policy signals (IMF, 2025a). As the anchor of the international financial system, the United States continues to exert significant influence through its dominance in glob-

al capital markets, the role of U.S. Treasuries as the global risk-free benchmark, and the widespread use of the U.S. dollar in international trade and finance (Boz et al., 2025). Consequently, shifts in U.S. policies propagate widely, shaping financial conditions, as well as exchange-rate dynamics across both advanced and emerging economies.

According to the International Monetary Fund's (IMF) *Global Financial Stability Report* (IMF, 2025a), despite appearing calm on the surface, global markets are increasingly vulnerable to disorderly adjustments. At the same time, stretched asset valuations in the U.S. and rising fiscal risks in advanced economies exert pressure on long-term Treasury yields and term premia, reflecting uncertainty regarding long-term fiscal sustainability and the neutral level of interest rates. Moreover, heightened policy uncertainty stemming from renewed protectionist measures, evolving monetary-policy expectations, and global fragmentation has amplified volatility in financial markets and capital flows, while the modest weakening of the U.S. dollar in early 2025 only partially eased the tight global financial conditions facing emerging economies.

For Georgia, spillovers from U.S. policy shifts could be transmitted through several interrelated channels. Direct trade exposure to the United States remains modest, implying that the immediate effects of U.S. tariffs on Georgian exports and imports are limited. However, indirect trade effects arise through the global economic slowdown associated with heightened uncertainty, weaker external demand among Georgia's key trading partners (the European Union, Turkey, and China), and disruptions or reallocations in global supply chains. Furthermore, heightened global uncertainty also affects business and consumer sentiment, investment decisions and commodity prices, all of which are central to Georgia's macroeconomic outlook and inflation dynamics. As a small, open, and partially dollarized economy, Georgia may be particularly vulnerable to the interaction between global interest rates, capital flows, exchange-rate dynamics, and domestic balance-sheet exposures. Specifically, other things being equal, an increase in U.S. interest rates raises the servicing costs of debt denominated in U.S. dollars (for the government, banks, and companies alike), reflecting the impact of both the risk free rate and the term premium. Furthermore, banks with dollarized liabilities or reliance on foreign-currency funding face higher financing costs, which may lead to tighter domestic financial conditions and dampen credit growth.

Elevated interest rates in the U.S. reduce investors' risk appetites toward emerging markets and often lead to portfolio reallocation toward U.S. dollar-denominated assets. For Georgia, this may result in weaker capital inflows, trigger episodic capital outflows, widen interest rate spreads, and exacerbate exchange rate volatility. Given the high degree of financial dollarization and widespread U.S. dollar invoicing in Georgia, exchange rate movements exhibit a strong pass-through to domestic prices, amplifying imported inflation pressures (Metreveli et al., 2025).

Against the backdrop of recent structural changes, the neutral interest rate in the United States has likely increased (for example, Feroli et al., 2025), making its transmission to Georgia's neutral rate particularly noteworthy. This, in turn, may place the need for policy adjustment by the National Bank of Georgia (NBG) on the agenda in order to contain capital outflows and safeguard financial stability. In this context, it is noteworthy that the NBG has adopted a forward-looking, scenario-based policy framework, which supports macroeconomic stability amid an increasingly fragmented and uncertain global economic environment.

Literature Review

The IMF's *Global Financial Stability Report* (GFSR) (IMF, 2025a) notes that, at first glance, global financial markets appear stable: asset prices have rebounded following earlier stress episodes, volatility has declined, and financial conditions across many advanced and emerging economies have eased

to some extent. However, risks to financial stability remain elevated, and the prevailing "calm" may conceal underlying structural vulnerabilities that, in the event of an adverse shock, could trigger a sharp asset-price correction or precipitate a financial crisis. While the tendencies identified in the GFSR are presented in a global scope, the publication places particular emphasis on the United States, given its central role in the international financial system and the lessons underscored by the 2008 global financial crisis. The U.S. remains the anchor of global financial markets, with its monetary policy, capital flows, and asset price dynamics exerting widespread spillovers across both advanced and emerging economies.

According to the GFSR, asset valuations across major economies, including the United States, remain stretched. Risk asset prices remain well above fundamentals, following only a brief correction observed in early 2025. The IMF cautions that elevated stock valuations pose a growing threat to global financial stability, warning that a disorderly adjustment (whether triggered by weaker growth prospects or rising long-term yields) could lead to a sharp tightening of financial conditions. The report highlights that the high concentration of market capitalization in a narrow group of large technology and AI-related firms amplifies the potential for sudden corrections. Given that a substantial share of U.S. household wealth is now tied to equity market performance, a disorderly adjustment could transmit through negative wealth effects, dampening consumption and economic growth. These developments, while primarily concentrated in advanced economies, carry broader implications for global financial conditions and capital flows toward emerging markets.

Deepening government deficits in advanced economies, particularly in the United States, have led to increased issuance of sovereign bonds. The U.S. fiscal deficit reached approximately 6% of GDP in 2025, pushing the federal debt-to-GDP ratio above 120% (Congressional Budget Office, 2025). These fiscal pressures have already affected U.S. financial markets in several noteworthy ways. Firstly, an increased sovereign bonds supply, particularly when accompanied by a longer-maturity shift, puts pressure on term premia and long-term yields, which in turn raises benchmark borrowing costs for both corporations and households. Studies of the U.S. Treasury market (for example, Liang, 2025) point to episodic liquidity-stress events, while market commentary suggests that increased issuance at longer maturities, and the associated rise in yields, reflect both supply-side pressures and heightened investor concerns. Secondly, a higher-yield environment alters the attractiveness of risk assets: equities must now compete with higher "risk-free" rates, increasing downward pressures on asset valuations (Damodaran, 2024). The resilience and liquidity of the U.S. Treasury market remain a core anchor for global financial markets; yet when signs of strain emerge, such as sudden yield spikes or temporary liquidity dips, the resulting spillovers can be substantial. This further underscores the fact that U.S. fiscal policy is not merely a domestic matter but also contributes to upward pressures on global benchmark yields.

Overall, the GFSR underscores that, while financial markets currently appear stable, the underlying foundations are becoming increasingly fragile. The elevated public debt, persistent inflationary pressures, and tighter monetary conditions have reduced the policy space available for an effective response to future shocks. As a result, adverse shocks in advanced economies, including the U.S., heighten the risk of larger and more persistent output losses, and increased financial market volatility, as a constrained policy space limits timely stabilization and intensifies pressures on financial markets.

A 2025 Bank for International Settlements (BIS) study (Juselius et al., 2025) notes that, from a trade channel perspective, a weaker U.S. dollar could weigh on export performance in some emerging market economies (EMEs) by dampening U.S. import demand or eroding price competitiveness. Yet many EMEs (including Georgia), having limited

reliance on exports of goods to the U.S. but sizable short-term dollar liabilities, tend to benefit the most from such conditions as the effects through the financial channel outweigh those from the trade channel. The recent BIS analysis underscores the multifaceted effects of U.S. dollar depreciation on emerging market economies, particularly against the backdrop of the monetary easing in the United States in 2025. In a reversal of the multi-decade high reached in early 2025, the U.S. dollar subsequently depreciated by approximately 5% against a broad basket of EME currencies before stabilizing, supporting a rally in EME financial assets. Additionally, the easing of global financial conditions may have partly supported the economic resilience of EMEs, despite elevated tariffs and global trade uncertainty (Amaral et al., 2025; Maechler, 2025). Subsequently, several transmission channels are identified through which U.S. dollar depreciation can benefit, or in some cases challenge, EMEs through balance-sheet effects.

The financial channel of the exchange rate has been central to explaining the procyclicality of global liquidity in response to exchange rate movements (Bruno & Shin, 2015). A weaker dollar strengthens the balance-sheet position of EME borrowers with unhedged U.S. dollar liabilities and domestic currency assets by improving creditworthiness, thereby supporting their demand for credit. Meanwhile, for global banks with diversified loan portfolios, improvements in borrowers' creditworthiness and solvency reduces banks' credit tail risk, thereby relaxing lenders' value-at-risk constraints. This enables banks to expand their credit supply in U.S. dollars and thus ease financial conditions. Since U.S. dollar credit serves as a key source of working-capital finance for supply chains, the easing of EME credit conditions under a weak-dollar environment helps to sustain trade activity. Recent evidence indicates that trade in intermediate and capital goods embedded in global value chains proved particularly resilient in 2025, outperforming other trade categories despite heightened geopolitical uncertainty—findings that are consistent with Bruno and Shin (2023). In the event where EME currencies appreciate, foreign investors' unhedged EME asset holdings gain in U.S. dollar terms, strengthening investors' balance sheets and potentially fueling further inflows, a dynamic that can reverse when the dollar strengthens (Bruno et al., 2022; Carstens & Shin, 2019; Hofmann et al., 2022). In 2025, portfolio inflows to EMEs increased during the global "risk-on" episode, easing domestic financial conditions and coinciding with a compression of sovereign yield spreads. While such inflows can raise EMEs' exposure to external shocks, current capital inflows remain modest, with foreign holdings of local-currency-denominated bonds remaining below their 2010s peak.

In emerging and developing market economies, domestic investors increasingly hold unhedged foreign assets. For example, commercial banks and other financial institutions are allocating a growing share of capital to foreign-currency-denominated assets, such as bonds and equities; while exporters increasingly retain U.S. dollar revenues rather than converting them into domestic currency. The effects thus run counter to those on foreign investors' balance sheets: when the U.S. dollar depreciates, the unhedged portion of these portfolios loses value, often prompting reduced risk-taking and a tightening of domestic financial conditions. While FX hedging practices have expanded, less developed markets and maturity mismatches continue to leave investors exposed to exchange-rate and funding risks.

Thus, the BIS findings imply that the net effects of U.S. dollar depreciation depend on the composition and hedging of external balance sheets. Currently, for many EMEs, including Georgia, a weaker U.S. dollar generates a net positive boost by easing borrowers' foreign currency debts and simultaneously benefiting foreign investors holding EME assets through valuation gains on the unhedged part of their portfolios. However, as EMEs gradually transition toward net creditor positions, policymakers should also monitor the growing importance of foreign asset-side valuation channels, which could alter the transmission mechanism over time.

There is a broad body of international literature studying and analyzing this topic. Among others, Akinci et al. (2018) provide clear evidence that sharp increases in U.S. financial uncertainty, such as heightened volatility in financial markets or a tightening of credit conditions, transmit to emerging market economies through the international credit channel. In periods of elevated uncertainty in the U.S., global risk aversion increases, leading to tighter credit conditions, reduced cross-border lending, and higher financing costs for EMEs. As international banks reduce their risk exposure and rebalance their portfolios toward safer U.S. assets, EMEs experience capital outflows, a depreciation of domestic currencies, and a contraction in domestic credit supply. These effects ultimately dampen economic activity, raise borrowing costs, and increase financial vulnerabilities in emerging market economies.

The Effects of Recent U.S. Trade Policy Shifts on the Georgian Economy: Direct and Indirect Channels

Within the 2025 framework of the new U.S. administration's tariff policy, Georgia was among the countries on whose exports to the United States saw a 10% baseline tariff imposed. According to the initial assessment, which was based on 2024 data and on the assumption that the tariff effect would be fully passed through, the direct impact of the U.S. tariff policy on Georgia was expected to be weak (National Bank of Georgia, 2025). Specifically, given that the share of the U.S. in Georgia's total exports amounted to only 2.2% in 2024, and that the price elasticity of demand for Georgia's exports is estimated at 0.45 (World Bank, 2023), demand for Georgian exports in the U.S. market was expected to decline by approximately 4.5%. As a result, the U.S. share in Georgia's total export basket was expected to decrease only marginally, from 2.2% to about 2.1%. According to available data, in 2025, the U.S. share in total exports declined to 1.6%.

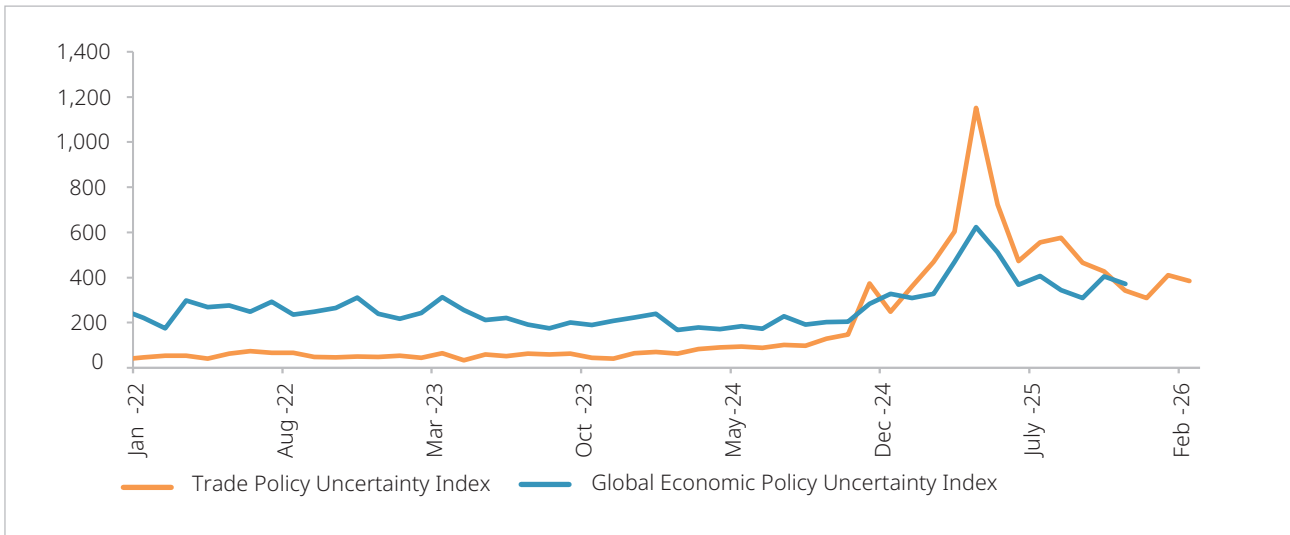
According to the initial assessment, it was also expected that the 25% tariff imposed by the U.S. on automobiles would have a more noticeable, though still limited, impact on Georgia's import structure, particularly through the channel of the used car market. Assuming full pass-through of the tariff effect and taking into account the price elasticity of demand for imports of 0.79 (World Bank, 2023), imports of automobiles from the U.S. to Georgia were projected to decline by approximately 10.7%. However, in contrast to these estimates, according to 2025 data, the volume of automobile imports from the U.S. actually increased on an annual basis. This development is likely explained by the pre-purchasing of automobiles. According to the International Monetary Fund's assessment (IMF, 2025b), the modest global impact of tariffs on real economies in 2025 may also be related to advance import purchases and the rapid reconfiguration of supply chains.

In general, a contraction in automobile import volumes could have two adverse effects for Georgia. On the one hand, a significant share of such imports are oriented toward re-exports, thereby generating value added within the Georgian economy. On the other hand, imported automobiles account for a substantial share of total tax revenues, both in the form of customs duties and value-added tax (VAT). Moreover, given the 54% share of the U.S. in Georgia's automobile imports and the 1.76% weight of automobiles in the consumer price index (based on 2024 data), the direct contribution to overall inflation, assuming no substitution effects, was initially estimated at approximately 0.24 percentage points. However, observations of the used car price index in 2025 indicate a declining trend, which, alongside the aforementioned advance purchases, is likely explained by a partial shift in demand toward automobiles produced in the European Union and China.

Overall, the direct impact of the U.S. tariff measures on Georgia has so far proven to be limited, having only marginal effects on trade, inflation, and fiscal revenues. It should also be noted that the subsequent removal by the United States of restrictions on key export products, such as ferroalloys and aluminum, further reduced the potential direct impact of the shock.

Despite some moderation from its recent peaks, both the Economic Policy Uncertainty Index and the Trade Policy Uncertainty Index (see Figure 1) remain elevated by historical standards, reflecting persistent volatility in global policy expectations and pronounced trade tensions. Although a temporary trade truce between the U.S. and China has lowered the effective tariff rate on Chinese imports from 57% to 47%, the ultimate trajectory of tariff policy remains subject to frequent revision.

Figure 1. Economic Policy and Trade Policy Uncertainty Indices



Source: FRED; Caldara et al. (2020).

One of the main channels through which the heightened uncertainty caused by changes in U.S. tariff policy affects economies is through the sentiment of market participants. In an uncertain environment, both consumers and businesses typically adopt precautionary behavior. Households, for example, increase their savings to buffer against potential risks and reduce consumption. Simultaneously, firms become more cautious, often postponing planned investments and shifting to a 'wait-and-see' approach. A decline in investment slows capital formation, hampers productivity growth, and ultimately places downward pressure on the economy's potential output. In this context, heightened uncertainty simultaneously generates constraints on both the supply and demand sides of the economy: while weaker demand gives rise to disinflationary pressures, supply-side disruptions carry inflationary risks.

Heightened global uncertainty, as stated above, dampens market sentiment and slows economic activity, with important implications for small, open economies, including Georgia. In this context, beyond the direct impact of U.S. tariffs on Georgia's bilateral trade, indirect effects may arise through reduced global demand, particularly if economic activity slows in Georgia's major trading partner countries amid escalating trade tensions. As a result of the new U.S. tariff policy, China, European Union countries, Turkey, Kazakhstan and other countries may face declining external demand and trade volumes for their products. Under such circumstances, partner economies may reduce imports, including those from Georgia. This potentially creates second-round effects on Georgia's export dynamics, even if the country is not a primary target of U.S. tariffs.

At the same time, however, the uncertainty surrounding U.S. trade policy and ongoing economic fragmentation is likely to accelerate the diversification of global trade, prompting multinational firms to reassess their production strategies and reallo-

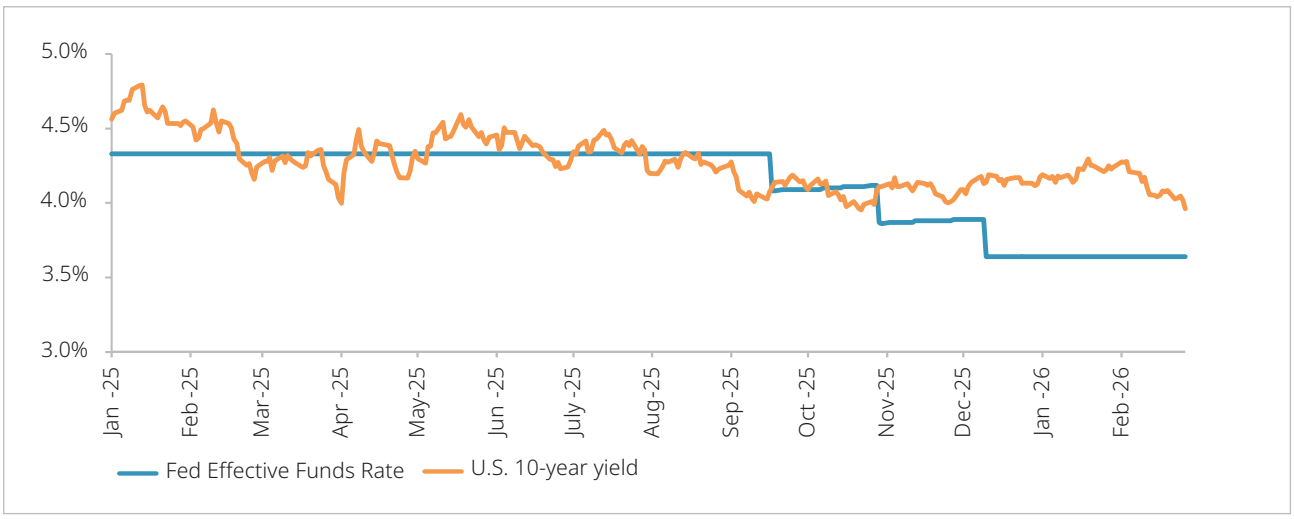
cate supply chains. In an effort to mitigate exposure to tariff barriers, particularly by reducing reliance on China, production may increasingly shift toward alternative markets. While the bulk of such relocation is expected to favor large regional economies, strategically located small countries such as Georgia stand to benefit over the longer term by positioning themselves as reliable hubs for light manufacturing, logistics, and exports of higher value-added products. In particular, the diversification and regionalization of supply chains strengthen Georgia's role as a key node along the "Middle Corridor", creating new opportunities for export redirection. Rising demand for transit and transportation services could increase related revenues, support improvements in the current account balance, and partially offset the adverse effects stemming from weaker external demand.

Ultimately, while Georgia may not be directly involved in the trade conflict between the U.S. and China, the scale of these trade tensions is expected to affect Georgia's economy through a combination of price, production, and demand-side shocks. Whether these effects are predominantly negative or create new opportunities will largely depend on the flexibility of Georgia's economy in adapting to changes in the global trading environment over the longer term.

Spillovers through Financial Channels

Beyond the transmission of tariff policy effects through both direct and indirect channels, the United States, as a central participant in the global financial system, has a major influence on international financial market trends and global financial conditions. Accordingly, it is important to consider and assess the risks for the Georgian economy arising through these financial channels.

Figure 2. Fed Effective Funds Rate and U.S. 10-year Yield



Source: FRED.

Recently, the U.S. economy has been characterized by relatively strong, though uneven growth, still-elevated inflationary pressures, and significant uncertainty surrounding the future trajectory of monetary and fiscal policy. On the one hand, labor market resilience and rapid productivity gains, particularly those associated with advances related to Artificial Intelligence (AI), support price stability. On the other hand, if the inflationary process proves more persistent than anticipated, it may require the Fed to pursue a relatively tight monetary policy stance for a longer period. U.S. financial markets have exhibited heightened volatility, while long-term Treasury yields remain elevated (see Figure 2), partly reflect-

ing the divergence from traditional "flight-to-safety" patterns. These dynamics suggest a reassessment of long-term fiscal risks, changing expectations regarding the future level of the neutral interest rate, and broader uncertainty surrounding U.S. macroeconomic policy. Taken together, these factors alter global credit conditions and raise the level of the equilibrium interest rate.

Against the backdrop of the Federal Reserve System's cautious and moderately restrictive monetary policy, market expectations have also increased, with investors anticipating that interest rates will remain elevated for a longer period ("higher for longer") (Federal Reserve Bank of Atlanta, 2025). Meanwhile, fiscal policy in the United States remains expansionary, which further heightens risks. Large budget deficits driven by high government spending exert additional pressure on yields and heighten risks to long-term debt sustainability. Combined with elevated uncertainty, these factors increase the risk premium associated with holding long-duration assets, the so-called "term premium". As a result, the combination of moderately tight monetary policy and expansionary fiscal conditions increases financial market volatility and ultimately tightens global financial conditions.

Given the United States' leading role in the global financial system, its monetary and fiscal decisions have a significant impact on emerging markets. For small open economies such as Georgia, the transmission of U.S. policy is particularly pronounced through financial channels, shaping domestic financing conditions, capital flows, and exchange-rate dynamics. The structural characteristics of Georgia's economy—including high trade openness, a current account deficit that creates the need to attract external financing, and a still-elevated degree of financial dollarization—amplify the transmission of external shocks through financial channels.

Among the financial transmission channels, the interest rate channel is particularly noteworthy. U.S. Treasury securities serve as the global risk-free benchmark. Accordingly, changes in the stance of U.S. monetary policy or a reassessment of fiscal risks are rapidly reflected in global borrowing costs. Persistently high Treasury yields—driven by tight monetary policy, growing fiscal pressures, and shifts in expectations regarding the long-run neutral rate—raise global risk-free rates and term premia, ultimately tightening external financing conditions for emerging markets. For Georgia, this directly translates into higher borrowing costs for the sovereign, corporate, and banking sectors for foreign-currency-denominated borrowing, as well as leading to an increase in the servicing burden of existing liabilities of this type. At the same time, higher rollover costs intensify refinancing risks, while domestic long-term interest rates adjust upward broadly in line with movements in global benchmarks.

In addition, recent surges in investment in software and information-processing equipment suggest that U.S. capital formation opportunities are expanding. This trend signals that the U.S. equilibrium (neutral) interest rate may be gradually rising, as productivity gains and innovation-driven economic expansion support higher long-term returns on capital. Such structural forces reinforce demand for technology-intensive assets, even during periods when the U.S. dollar weakens. In this context, through the uncovered interest parity (UIP) channel, a structurally higher neutral interest rate in the United States exerts upward pressure on Georgia's neutral rate. As a result, the NBG may need to maintain a relatively tight monetary stance over the medium term and communicate a higher domestic interest-rate trajectory to prevent a deterioration in inflation expectations. This, in turn, would slow domestic credit growth and ultimately weigh on investment and economic activity.

The financial spillovers to Georgia also operate through changes in global capital mobility and shifts in risk sensitivity. Higher yields on U.S. Treasury securities enhance the relative return and attractive-

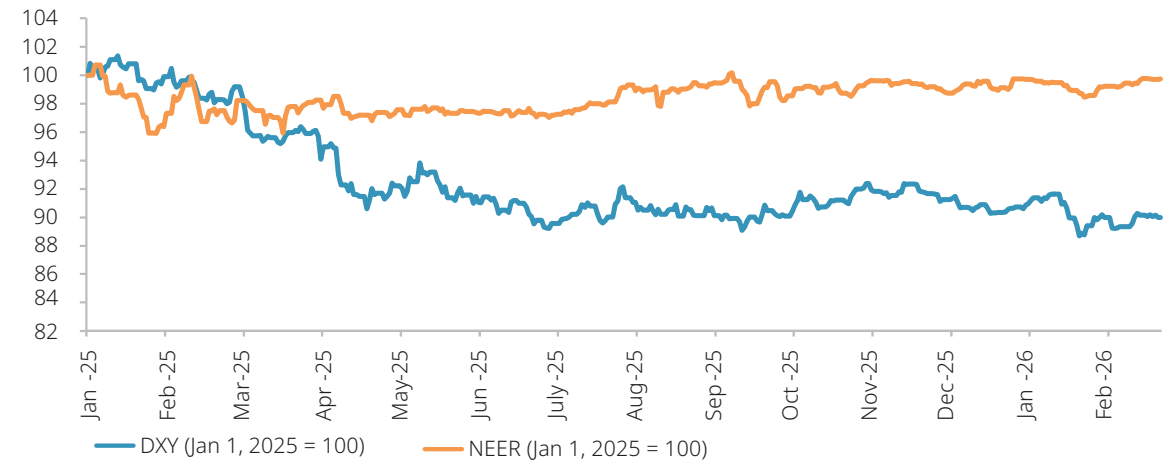
ness of U.S. dollar-denominated assets, prompting international investors to reallocate capital from emerging markets toward advanced economies. This typically leads to a widening of sovereign and corporate spreads and, in some cases, short-term capital outflows from countries such as Georgia. These processes, in turn, exert pressure on domestic financial markets and liquidity conditions.

The combination of higher U.S. yields and subdued capital inflows may create depreciation pressures on the Georgian lari. A weaker lari, in turn, would raise import costs and intensify domestic inflationary pressures. While exchange rate adjustment may partially offset the impact of capital outflows by improving export competitiveness, the net effect would depend on the structure of trade and the composition of external financing sources. Given the relatively high exchange rate pass-through to domestic prices in Georgia, such depreciation would ultimately amplify imported inflation and may require a tightening of monetary policy.

The high degree of dollarization and the widespread use of the U.S. dollar in trade invoicing fundamentally shape the global transmission mechanism of U.S. monetary policy. Typically, an appreciation of the U.S. dollar increases the domestic-currency value of foreign-currency-denominated liabilities, weakens borrowers' balance sheets, and amplifies credit risks in the banking sector. By contrast, the weakening of the U.S. dollar following the peak in January 2025 (see Figure 3) has created a significant supportive factor. In economies such as Georgia, where a substantial share of private- and banking-sector liabilities are denominated in U.S. dollars, a weaker dollar directly improves borrowers' balance sheets. The resulting decline in the local-currency value of these liabilities strengthens borrowers' solvency and creditworthiness, and supports demand for credit. Such balance-sheet improvements also ease financial conditions through an expansion in credit supply: when banks face lower credit risk and stronger collateral positions, they are more willing to expand lending, thereby supporting investment and domestic demand. In Georgia's context, where economic agents remain significantly exposed to dollar-denominated liabilities, this mechanism implies that U.S. dollar depreciation may provide a meaningful tailwind to financial conditions and real economic activity. Ultimately, lower corporate financing costs contribute to disinflationary pressures and create scope for monetary policy easing.

Given the widespread use of U.S. dollar invoicing in Georgia's external trade, a global depreciation of the dollar is also likely to affect import prices and put downward pressure on imported inflation in the short run. The magnitude and direction of this impact, however, will largely depend on the dynamics of Georgia's nominal effective exchange rate (NEER). In the event of a global U.S. dollar depreciation, if the currencies of Georgia's major trading partners appreciate against the dollar by more than the lari, the resulting depreciation of the Georgian NEER would reduce foreign exporters' revenues in their domestic currencies. In response, exporters may raise U.S. dollar–denominated prices upon contract renewal, thereby intensifying imported inflation pressures. Nevertheless, in the short term, this effect is likely to remain limited due to price stickiness in U.S. dollar–denominated contracts.

Figure 3. The U.S. Dollar Nominal Effective Exchange Rate (DXY) and GEL Nominal Effective Exchange Rate (NEER) Indices



** Decline in DXY and NEER means USD and GEL depreciation.*

Source: Bloomberg; NBG.

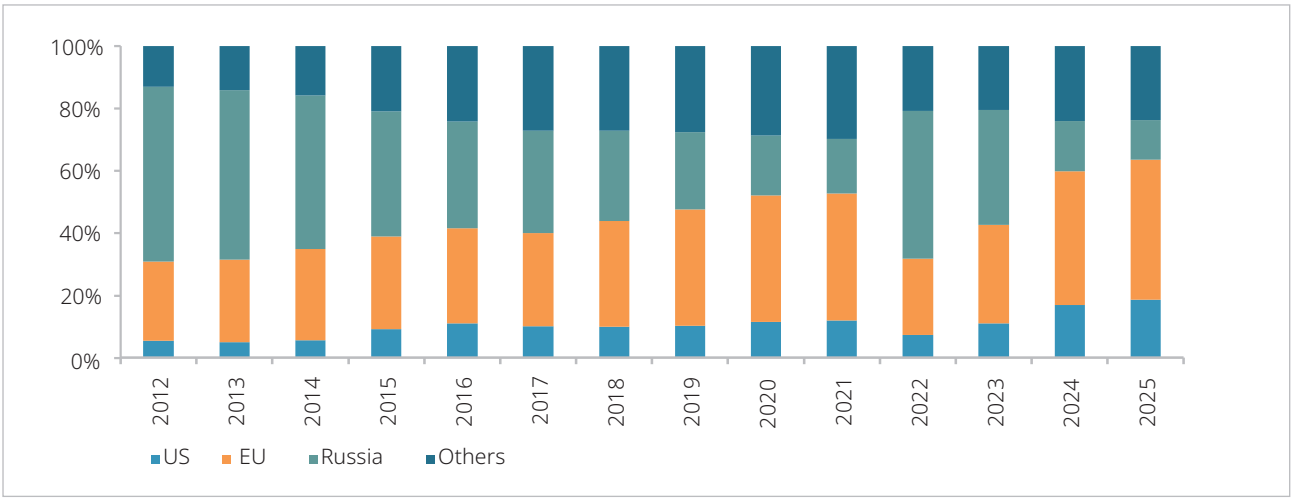
Additional Transmission Channels

While the financial channel—operating through global interest rates, capital flows, and exchange rate dynamics—constitutes the primary mechanism through which U.S. fiscal and monetary developments are transmitted to Georgia, the following sections explore additional significant transmission pathways. The broader global conditions shaped by U.S. policy choices influence commodity price dynamics and remittance flows. These factors respond to changes in migration policy, global demand, and risk sentiment. Although these channels are more indirect, they affect domestic consumption, inflation, and the external balance in Georgia.

The migration policy of the U.S. can influence remittance flows to Georgia. Tighter migration measures in the United States may reduce the number of employed Georgian migrants, while a slowdown in economic activity in the U.S. and in other major remittance-sending countries and regions, such as the European Union, could weaken migrants' incomes and, consequently, reduce the total volume of remittances to Georgia. However, as of 2025, remittance flows grew by 8.6% year on year, and the share of remittances from the United States has continued an upward trend (see Figure 4).

Remittances constitute an important source of private consumption in Georgia. A decline in remittance inflows would weaken domestic demand and, in turn, slow economic growth, generating disinflationary pressures through the demand channel. At the same time, remittances play a significant role in foreign currency inflows; a reduction would therefore worsen the current account balance. As a result, depreciation pressures on the exchange rate could emerge, contributing to higher imported inflation through increased prices of foreign goods. It should also be noted that, over the medium term, in the event of a contraction in labor supply resulting from migration policy changes at a time when firms' demand for labor remains broadly unchanged, wage-based inflationary pressures may intensify—particularly in sectors that have historically relied on migrant labor. This dynamic poses additional inflationary transmission risks whereby increases in export prices in the United States could contribute to higher imported inflation in Georgia.

Figure 4. Remittances to Georgia by Country of Origin



Source: NBG.

In 2025, global oil markets continued to exhibit elevated volatility, although the overall price trajectory was downward, largely reflecting weaker global economic activity and increased oil supply. U.S. policy played a central role in shaping oil price dynamics: intensified trade tensions, expectations of higher tariffs, and uncertainty stemming from U.S. economic policy weakened global demand prospects and exerted downward pressure on oil prices. Although episodic geopolitical tensions in the Middle East led to temporary price increases, demand-side factors remained dominant.

The combination of weak global demand and increased supply in 2025 created a disinflationary environment for oil-importing economies, including Georgia. The decline in international prices, together with a relatively stable lari exchange rate, has reduced domestic petroleum prices and contributed to a moderation in inflation. However, uncertainty remains elevated, reflecting geopolitical risks in oil producing regions, unexpected U.S. trade or sanctions policy changes, and the possibility of OPEC+ revising its production strategy.

Conclusion

Recent changes in the United States policy point to multiple channels through which spillovers may affect the Georgian economy. While the direct impact of the 2025 U.S. tariff measures on Georgia is limited, the indirect effects transmitted through global demand, commodity prices, remittance flows, and investor sentiment are notable.

From the perspective of U.S. spillovers to Georgia, financial channels play a dominant role. The expansionary U.S. fiscal policy, elevated issuance of U.S. Treasury securities, and persistent inflationary pressures have contributed to higher global interest rates and tightened financing conditions for emerging markets, including Georgia. These dynamic raises borrowing costs for both the government and corporate sectors, heightens refinancing risks, and exerts upward pressure on domestic interest rates through interest-rate and capital-flow channels.

Exchange rate volatility caused by changes in U.S. policy has exerted additional pressure on imported inflation in Georgia, particularly given the per-

sistently high levels of dollarization. However, at the same time, the globally weak position of the U.S. dollar has partially offset this pressure, including through improvements in balance sheets and lending conditions. Notably, the indirect effects arising from international trade disruptions and the restructuring of supply chains have created both challenges and opportunities, especially regarding Georgia's integration into the "Middle Corridor" and export sectors.

It should be noted that any impact analysis is complicated by the high level of uncertainty surrounding changes in U.S. trade policy. The volume of imposed tariffs and their scope were revised multiple times throughout 2025, and in February 2026 a significant portion of them was overturned by the U.S. Supreme Court. Following this, the administration introduced temporary tariffs and announced further increases.

Overall, against the backdrop of current uncertainty, Georgia's macroeconomic resilience will depend on the proactive management of economic policy, including vigilant monitoring of financial spillovers, the strengthening of domestic buffers to absorb shocks, and maintaining a forward-looking, risk-management policy framework. Notably, since early 2025, the NBG has adopted a new, scenario-based approach to monetary policy communication, under which policy decisions are informed by the evolution of multiple scenarios. This transition enhances the transparency and clarity of the central bank's reaction function, strengthens policy transmission channels, and minimizes welfare losses during periods of elevated volatility. In an increasingly fragmented global environment, this strategy bolsters Georgia's capacity to adapt to shifting economic and trade policies, allowing the country to capitalize on emerging opportunities while mitigating the impact of external shocks.

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CREDIT DERIVATIVES AND SECURITIZATION: SINGLE-NAME CREDIT INSTRUMENTS

LEVAN SURGULADZE

Abstract

This paper presents a reduced-form framework for the quantitative market valuation of single-name credit risk and related derivatives, deriving default probabilities from observable credit default swap (CDS) spreads. It reviews single-name instruments and distinguishes two dimensions of credit exposure: loss risk arising from the default event itself, and loss risk arising from market-assessed changes in credit quality (spread risk). It shows how each instrument isolates or combines these two components. Using observable CDS spreads, the paper derives the term structure of default probabilities and obtains pricing expressions for a standard CDS. It highlights the recovery rate and contractual provisions that materially affect valuation and the hedging effectiveness between the underlying bond and the CDS; considers a realistic approach for Georgia based on the use of CDS-type contracts backed by high-quality collateral for risk management; and summarizes the mechanisms through which credit default swaps contributed to the emergence and amplification of systemic stress during the 2007–2009 global financial crisis, especially under conditions of high leverage and concentrated counterparty exposures.

Keywords: credit risk, risk transfer, credit default swap (CDS), market valuation, default probability, recovery rate, credit spread, premium, hedging, Georgia, the global financial crisis.

Introduction

Credit risk is often treated as synonymous with "default risk." In financial markets, however, it has two distinct dimensions: (i) default risk – the possibility of a jump-to-default event in which the issuer fails to meet its obligations; and (ii) credit-quality (spread) risk – the change in market-assessed credit quality, reflected in movements in credit spreads and rating migrations. Single-name credit derivatives are specialized instruments for separating, hedging, and transferring these two dimensions of credit exposure (risk) (Duffie & Singleton, 2003).

The emergence of a specialized market for credit risk transfer was driven by the need for balance-sheet structures to have instruments that would permit the hedging or reallocation of credit risk without selling the underlying loans or bonds. This need arose from concentration limits, capital-management considerations, and the desire to separate credit risk from funding.

Although the rapid development of single-name credit derivatives in Georgia – particularly of a liquid credit default swap (CDS) market – is unlikely, the purpose of this paper extends beyond describing the current market. Its objectives are threefold: (i) to examine the terminology and instrument framework associated with credit risk, so that banks and investors can rely on comparable methods for valuation, hedging, and risk measurement; (ii) to iden-

tify the relevant preconditions and outline a practical path for the safe implementation of credit risk transfer; and (iii) to strengthen the conceptual and methodological foundations of structured finance, especially securitization and asset-backed products, for which a legal framework already exists in Georgia (Parliament of Georgia, 2022, 2023)[1] and for which market infrastructure is gradually emerging.

The paper also considers what the practice of single-name credit derivatives in Georgia could realistically look like and identifies the minimum institutional preconditions required for their development.

Overview of Single-Name Credit Derivatives

This subsection reviews the main types of single-name credit derivatives, their economic substance, and their practical uses.

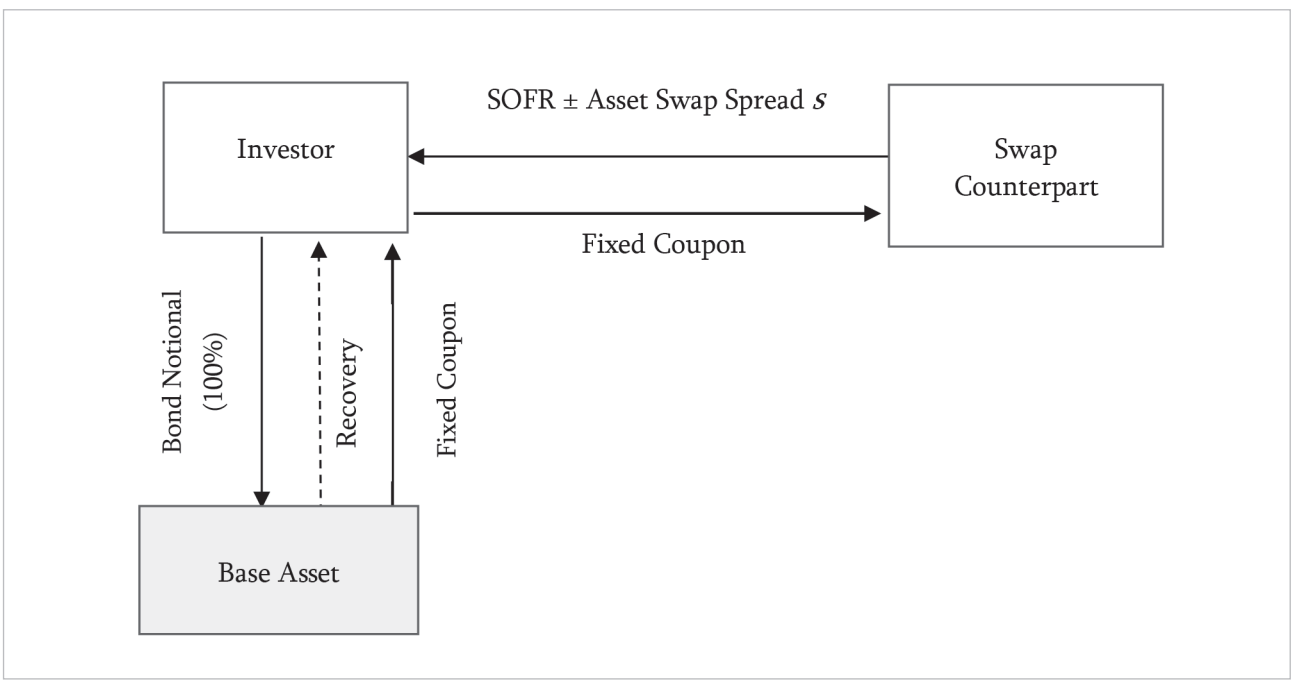
A **floating-rate note (FRN)** is a debt security whose coupon is periodically reset and linked to an overnight risk-free reference rate plus a fixed credit spread (Duffie & Singleton, 2003).

$$C_{FRN}=\text{Reference Rate} + s$$

On reset dates, the price of an FRN typically returns close to par, while between reset dates it carries limited interest-rate risk. When the issuer's credit quality deteriorates, the required spread rises and the outstanding FRN trades at a discount; when credit quality improves, it trades at a premium.

A **par asset swap** is a structured transaction that allows an investor to hold a credit instrument while removing interest-rate or foreign-exchange risk – through an interest-rate swap or a currency swap, respectively – thereby largely retaining only the credit-risk exposure (Tavakoli, 2001; Duffie & Singleton, 2003) (see Diagram 1).

Diagram 1. Par Asset Swap



Source: Author's illustration.

1. Regulations that have been in effect from 2024.

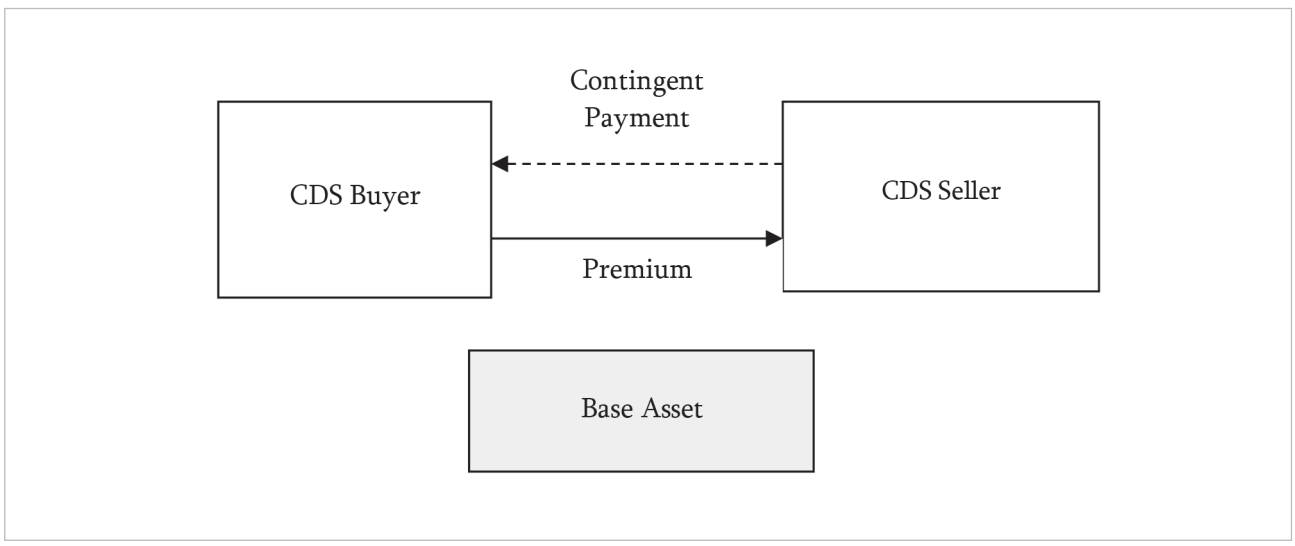
The economic and risk profile of an asset swap is similar to that of a FRN; accordingly, it is often viewed as a synthetic floater, since it transforms a fixed-coupon bond into a floating-rate asset. In determining the asset-swap spread, the benchmark is the term structure of swap rates – the interest-rate swap curve – which ensures that the swap has zero value at inception.

If the bond is trading above or below par at inception, the difference from par is settled through an upfront payment. The asset-swap spread is then set so that the bond and the interest-rate swap together form a zero-value synthetic floating-rate position. The sign of the spread depends on the difference between the bond's yield and the benchmark swap curve: if the bond's yield exceeds the relevant benchmark, the spread is usually positive; if it is lower, the spread may be negative.

If the underlying asset defaults, the interest-rate swap does not terminate automatically. The investor may therefore incur a loss on the defaulted asset while at the same time remaining subject to the obligations of the interest-rate swap. Accordingly, the asset-swap investor bears both the credit risk of the underlying asset and the market-value risk of the swap – exposures that become particularly salient upon default.

A **credit default swap (CDS)** is a financial contract in which the buyer pays the seller a periodic premium in exchange for a contingent payment if a credit event occurs with respect to the underlying asset, such as default, postponement of obligations, restructuring, or bankruptcy (ISDA, 2014; Duffie & Singleton, 2003) (see Diagram 2).

Diagram 2. Standard Credit Default Swap



Source: Author's illustration.

A CDS is one of the most actively traded contracts in the credit derivatives market. It is often described as "insurance" against default on the underlying asset. Unlike traditional insurance, however, a CDS does not require ownership of the underlying asset and allows investors to both buy and sell credit risk without holding the underlying asset. CDS contracts therefore make it possible to trade credit risk in either direction (buy/sell), which improves price discovery and market efficiency (Duffie & Singleton, 2003; O'Kane & Schlögl, 2001; J. P. Morgan, 1999).

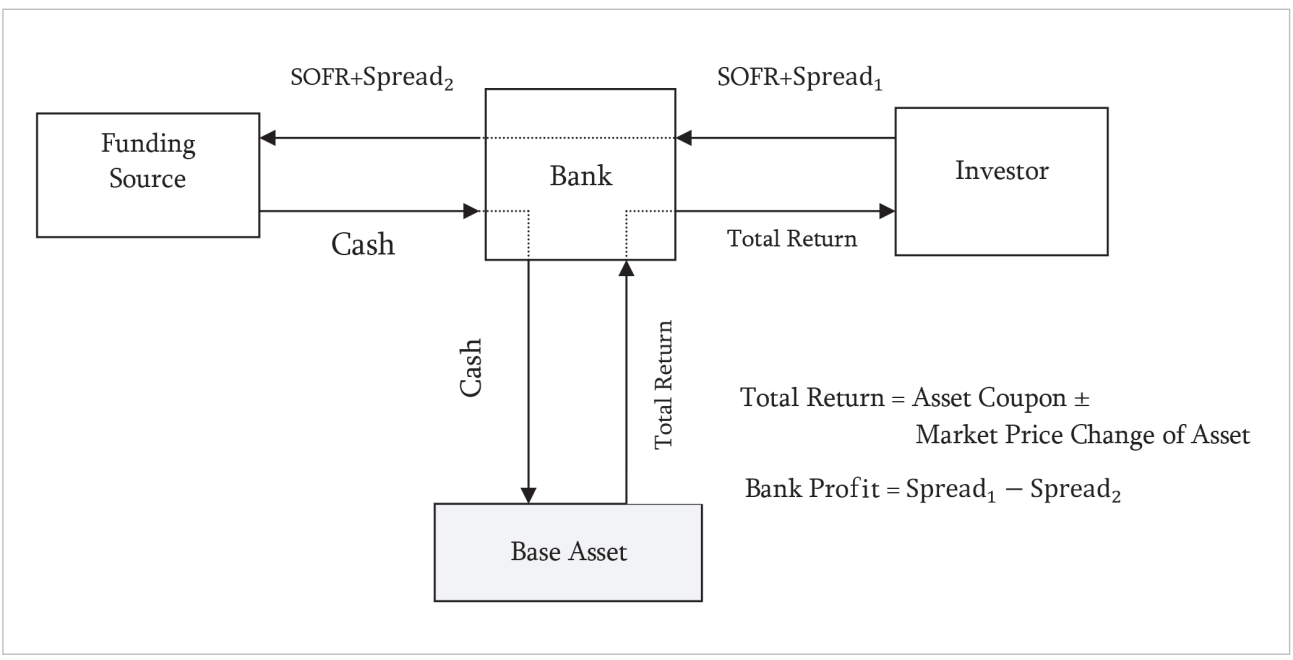
A CDS hedges both default risk and the risk of changes in market-perceived credit quality (spread risk). However, because a CDS contract is written on the nominal value of the underlying asset, it cannot fully hedge the spread risk of an underlying instrument whose market price differs materially from par. Hedging effectiveness thus depends on the contractual terms.

A **total return swap (TRS)** is an off-balance-sheet transaction that transfers the full economic exposure of the underlying asset – including both credit risk and interest-rate risk (Tavakoli, 2001; Schönbucher, 2003) (see Diagram 3).

In a standard TRS, the investor pays the Secured Overnight Financing Rate (SOFR) plus a spread and receives the full return on the underlying asset (coupon plus any price appreciation/depreciation) without holding the asset itself. The investor thus takes a synthetic long position in the underlying asset and bears the risks of credit deterioration, default, and rising interest rates; in the event of default, the investor compensates the bank for the corresponding loss.

A TRS allows the investor to assume or transfer ("buy" or "sell") the full economic exposure to the underlying asset without the operational burden of a direct investment, while also agreeing funding terms in advance. The instrument is also used to hedge exposures without removing the asset from the balance sheet. Highly rated banks, in turn, benefit from their lower funding costs, earn the spread differential, and take a short position in the TRS.

Diagram 3. Standard Total Return Swap

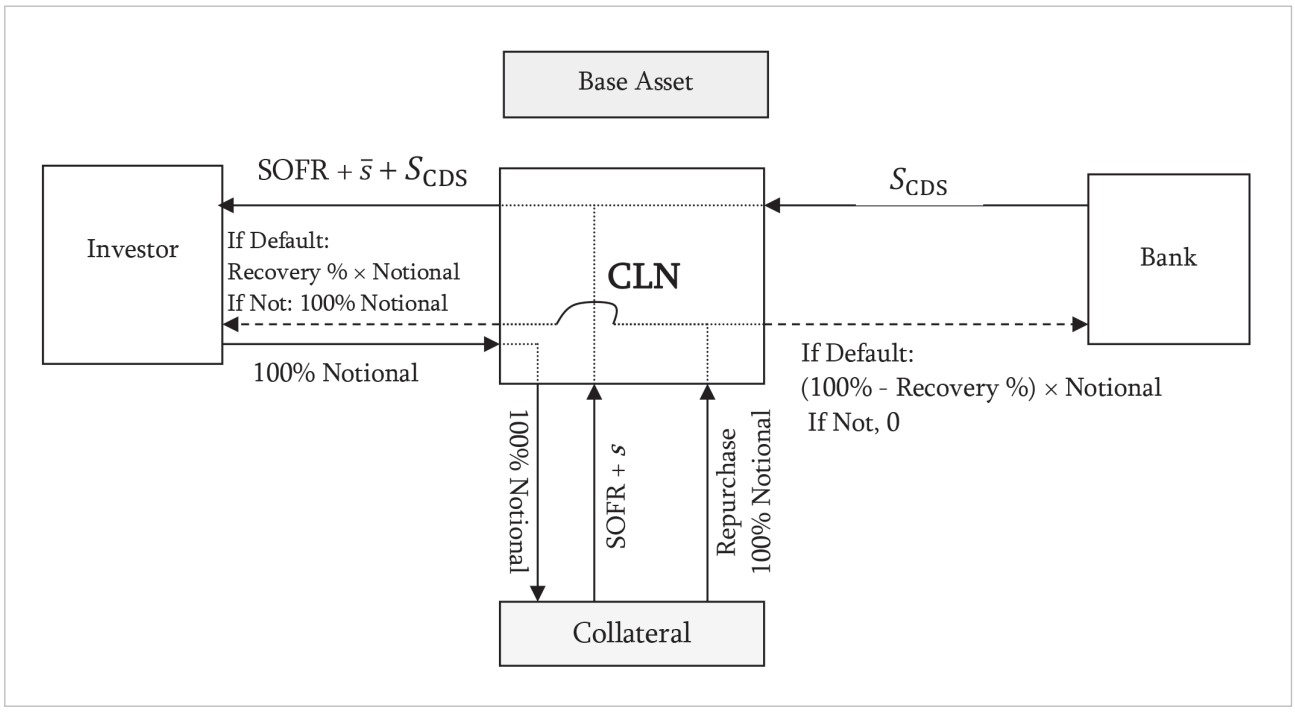


Source: Author's illustration.

A **credit-linked note (CLN)** is a funded structured debt instrument that gives the investor funded exposure to the credit risk of an underlying asset in exchange for an enhanced yield (Tavakoli, 2000; Schönbucher, 2003) (see Diagram 4).

A CLN typically embeds a credit derivative – most commonly a CDS, a TRS, or a credit spread option – and packages that exposure in the form of a cash security.

Diagram 4. Standard Credit-Linked Note



Source: Author's illustration.

Notation:

- 100% principal: the amount invested by the investor in the CLN.
- Collateral: high-quality assets generating a return of SOFR + s.
- $\bar{S}_{CDS}$: annual CDS premium paid by the bank to the CLN.
- s: spread generated by the collateral.
- s: the spread component of the CLN coupon, equal to s net of the issuer's / transaction manager's margin, fees, and structuring costs (per annum).
- Recovery %: the recovery rate following default of the underlying asset.
- (100% - Recovery %) × Notional: CDS payoff upon default of the underlying asset.

The CLN structure transforms a CDS into a funded note. At inception, the investor pays 100% of principal, which is invested in high-quality collateral and generates a return of SOFR + s. At the same time, the CLN sells CDS protection to the bank on the underlying asset and receives a periodic CDS premium (S_{CDS}). If no default occurs, the investor receives a coupon equal to SOFR + $\bar{s}$ + S_{CDS}. If the underlying asset defaults, the bank receives the CDS payoff: (100% – Recovery %) × Notional. This payment is funded by reducing the investor's principal, so the investor recovers only Recovery % × Notional.

Economically, the investor's position is equivalent to selling CDS protection to the bank while holding high-quality collateral. The bank, in turn, buys CDS protection from a highly rated, collateralized counterparty. The valuation and risk management of a CLN can therefore be carried out by decomposing it into its underlying components – the cash flows of the CDS and the collateral – and valuing each separately (Tavakoli, 2000).

Reduced-Form Modeling Framework for Single-Name Credit

Default-Risk Intensity and the Term Structure of Default Probabilities

A reduced-form framework is used to model the default profile of a single-name credit or a credit basket, in which default is treated as an exogenous

event and modeled through the default counting process J (a Poisson process). The foundations of this approach are developed in Jarrow and Turnbull (1995) and Jarrow, Lando and Turnbull (1997), while its practical interpretation and application to the valuation of credit derivatives are discussed in Schönbucher (1998) and O'Kane and Schlögl (2001).

The key stochastic variable is the time to default, τ, that is, the time remaining until the first "jump" of the J process. This section develops a quantitative framework for describing the default profile of a single-name credit.

The present value of a promised credit payment due at time T is:

$$PV_{\text{Credit Payoff}} = \text{Notional} \times \text{E}[e^{-\int_0^T r_t dt} \times \text{I}_{\{\tau>T\}}] \quad (1)$$

where τ is the time to default, and I is an indicator function that takes the value 1 if $\tau>T$ and 0 if $\tau<T$. r_t is the short-term risk-free interest rate. We assume zero recovery in the event of default. Equation (1) is the standard reduced-form representation of the present value of risky cash flows (Duffie & Singleton, 2003; Schönbucher, 2003).

Historically, there is often a lag of several years between an interest-rate shock and its reflection in the default process. Therefore, we assume that risk-free interest rates and the default process are independent. Under this assumption, equation (1) simplifies to:

$$PV_{\text{Credit Payoff}} = \text{Notional} \times df_T \times [1 - P_T] \quad (2)$$

where df_T is the risk-free discount factor for maturity T, and P_T is the cumulative probability of default by time T.

In reduced-form models, the default process is exogenous, unlike in Merton's structural model, where default arises endogenously from the firm's balance sheet (Merton, 1974). Calibration is typically performed using observable credit instruments–risky bonds, asset swaps, and CDS.

The default profile of an asset may be characterized by three equivalent quantities:

- Cumulative default probability P_t: the probability of default by time t.
- Marginal default probability $p_{\Delta t}$: the probability of default over the interval (t,t+Δt).
- Conditional marginal default probability $\overline{p}_{\Delta t}$: the probability of default over the interval (t,t+Δt), conditional on survival up to time t.

These probabilities are related by:

$$P_t = \int_0^t p_x dx \quad (3)$$

We introduce the hazard rate as follows:

$$\overline{p}_{\Delta t} = \frac{p_{\Delta t}}{1-P_t} = \frac{\frac{dP_t}{dt}\Delta t + O(\Delta t^2)}{1-P_t} \approx \frac{\phi_t}{1-P_t}\Delta t \equiv h_t \Delta t \quad (4)$$

where $\varphi_t \equiv dP_t/dt$ is the density of default probability. Accordingly, h_t is the conditional density of default probability:

$$h_t = \frac{\varphi_t}{1-P_t} \quad (5)$$

Thus, $h_t \Delta t$ is the (marginal) probability of default over the next "instantaneous" interval following time t, conditional on survival up to time t.

It is important to distinguish between h_t and φ_t. $\varphi_t \Delta t$ is the probability of default over the interval $(t,t+\Delta t)$ as seen "today" (at time zero). By contrast, $h_t \Delta t$ is the probability of default over the same interval as seen at time t, conditional on survival to that point in time. Despite their different interpretations, φ_t and h_t describe the same default profile.

From equation (4) we obtain the following differential equation:

$$\frac{dP(u)}{1-P(u)} = h(u)du \quad (6)$$

with boundary condition $P(0) = 0$. Integrating both sides of equation (6), we obtain:

$$\int_{P(0)}^{P(t)} \frac{dP(u)}{1-P(u)} = \int_0^t h(u)du \quad (7)$$

After straightforward integration and algebraic rearrangement, this yields:

$$P(t) = 1 - e^{-\int_0^t h(x)dx} \quad (8)$$

The survival probability up to time t is, therefore, $exp\,(-\int_0^t h(x)dx)$ and from (5) and (8) we obtain:

$$\phi(t) = h(t) \times e^{-\int_0^t h(x)dx} \quad (9)$$

The formal similarity between forward interest rates and hazard rates ("forward default probabilities") makes it possible to apply well-known interest-rate modeling approaches. However, modeling the dynamics of the hazard rate is necessary only when pricing spread options or studying its correlation with other risk factors. For the valuation of single-name credit derivatives, it is generally sufficient to work with a deterministic term structure of hazard rates inferred from observable market data.

Let us summarize the main assumptions:
- the default process is exogenous;
- the hazard rate is deterministic;
- the default distribution is continuous; and
- risky cash flows are discounted using the risk-free curve.

In valuing credit instruments and credit derivatives, we work in a discrete-time framework for the default distribution. Let the interval from t_0 to maturity $T \equiv t_n$ be divided into n periods such that $0 \leq t_0 < t_1 < \ldots < T$. For the moment, we assume that default is observed only discretely, at the end of each relevant period. Under this assumption, the discrete analogues of relationships (1) – (9) are obtained by replacing integrals with sums over the corresponding discrete intervals.

This assumption implies that the cumulative default probability is constant within each interval, which is not fully consistent with equation (8) or with the definitions of cumulative and marginal default probabilities. Nevertheless, it does not materially affect the market valuation of a single-name credit derivative.

Valuation of a Risky Credit Asset

Before turning to the valuation of derivatives written on an individual credit asset, it is useful to consider the valuation of the risky credit asset itself within the reduced-form framework, using risk-neutral default probabilities and risk-free discounting consistent with the methodology used to value CDS contracts. It is important to note that risk-neutral default probabilities do not coincide with real-world default probabilities, under which expected cash flows are discounted at a rate that reflects both the time value of money and the credit risk premium. Nevertheless, valuation in the risk-neutral and real-world settings is equivalent: in the former, the risk adjustment is embedded in the probabilities, while in the latter it is embedded in the discount rate. Both approaches yield the same result.

The valuation logic is straightforward: each promised cash flow is discounted to the present and weighted by the probability that the issuer survives until the payment date; this is supplemented by the expected recovery in default scenarios. This is the standard reduced-form valuation logic (Lando, 2004; Schönbucher, 2003) and reflects the assumed recovery or claim convention.

By definition, the clean price of a risky bond as of the close of business today (COB) is given by:

$$\mathrm{B_{COB}} = 100 \times \frac{PV_{\mathrm{COB}} - \mathrm{Accrual}(t_{\mathrm{COB}} - t_{-1})}{\mathrm{Notional_{COB}}} \quad (10)$$

where PV_{COB} is the present value of all promised cash flows. Accrual (t_{COB} - t_{-1}) is calculated using the coupon formula $Coupon_i = m \times r_i + c$ and the relevant day-count convention (e.g., ACT/360):

$$\mathrm{Accrual}(t_{COB} - t_{-1}) = \mathrm{Notional_{-1}} \times \mathrm{Coupon_1} \times \frac{(t_{COB} - t_{-1})}{360} \quad (11)$$

Here, r_i is the floating rate determined under the contract on reset dates, while m is the contractually specified multiplier. If $m=0$, then $\mathrm{Coupon_i}=c$, and the bond is a fixed-coupon bond. t_{-1} denotes the day preceding COB. Given the claim definition and the default probabilities for each period, the present value of all scheduled cash flows can be computed. If the claim is defined as principal plus accrued interest, then:

$$PV_{COB} = \sum_{i=1}^{n} d\bar{f}_i \times \left[(1 - P_i) \times (\text{Principal}_i + \text{Coupon}_i) + R \times (P_i - P_{i-1}) \times (\text{Balance}_{\text{i-1}} + \frac{1}{2} \times \text{Coupon}_i)\right] \quad (12)$$

where P_i is the cumulative probability of default by the end of period i, $d\bar{f}_i$ is the risk-free discount factor for the i-th cash flow, and $(P_i - P_{i-1})$ is the marginal (incremental) probability of default in period i (Duffie & Singleton, 2003). $\text{Balance}_{\text{i-1}}$ denotes the outstanding principal amount prior to the i-th payment date. The factor 1/2 reflects the approximation that default occurs at the midpoint of the period, in which case accrued interest is approximated by one-half of the coupon due at the end of the period.

Other claim conventions (e.g., recovery of market value or recovery of par) imply alternative adjustments; for present purposes, we retain the "principal + accrued interest" convention used in equation (12). An analogous practical framework for CDS pricing is discussed in Hull and White (2000).

Term Structure of Default Probabilities from the CDS Market

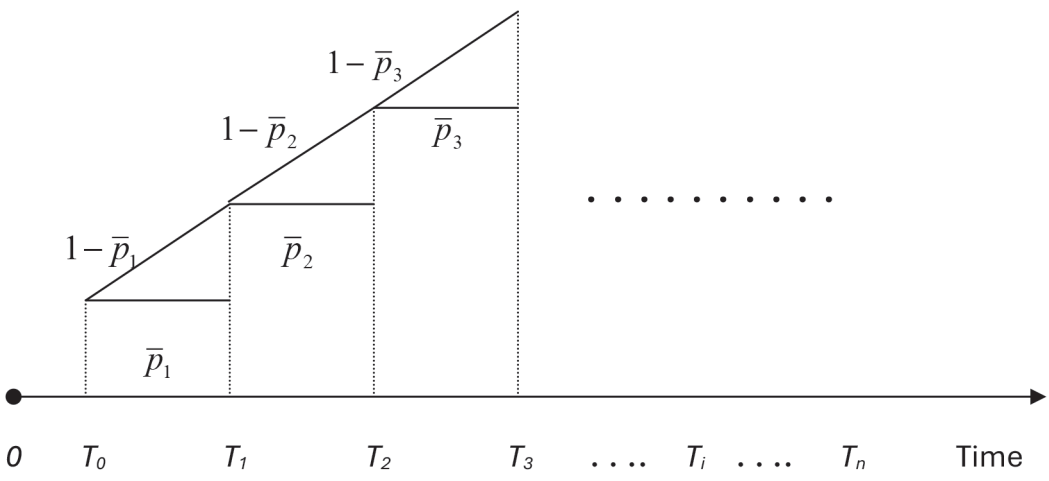
In standard market practice, hazard rates and the corresponding default probabilities for each period are obtained by sequential (recursive) calibration. The inputs are observable fair CDS spreads and the no-arbitrage condition; accordingly, under a fair premium, the value of the CDS is zero.

In the "default tree" shown in Diagram 5, at the beginning of any period i there are two possible scenarios: the credit instrument either defaults with conditional marginal probability $\bar{p}_i$ or survives with probability $1-\bar{p}_i$. Here, $\bar{p}_i$ is the conditional marginal probability of default in period i, conditional on the credit instrument having survived to the beginning of that period. The corresponding unconditional marginal default probability is $p_i = (1 - P_{i-1}) \times \bar{p}_i$ while the cumulative default probability is

$$P_i = \sum_{k=1}^{i} p_k$$

where $\bar{p}_i$ corresponds to the previously defined $\bar{p}_{\Delta t}$ when $\Delta t = t_i - t_{i-1}$.

Diagram 5. "Default Tree" for a Single-Name Credit



Source: Author's illustration.

Consider a CDS with maturity T_n. Let the quoted market spreads be s_n, let the expected recovery rate be R, and, for simplicity, let the notional be normalized to 1. If the quoted market spreads are fair, then the present value of the expected premium cash flows must equal the present value of the expected protection cash flows in the event of default.

In a continuous-time framework, settlement upon default may occur at the moment of default. Standard CDS contracts, however, settle on scheduled payment dates; we therefore use a discrete-time formulation:

$$\sum_{j=1}^{i} df_j \times \left[p_j \times \left(1 - R - \frac{s_i}{2}\right) - \left(1 - P_j\right) \times s_i\right] = 0 \qquad (13)$$

$$i = 1,2,\ldots,n$$

In this equation, we assume that default occurs on average at the midpoint of the relevant period[2], while the premium accrued over half of that period is paid at the end of the same period.[3] The effect of the premium-accrual convention is discussed below.

If all observable CDS spreads $(s_1, s_2, s_3,\ldots,s_n)$ are available in the market, then an analogue of equation (13) exists for each maturity. Using $P_j = \sum_{k=1}^{j} p_k$ these linear equations can be solved sequentially for $p_1, p_2,\ldots, p_n$. If a market spread is unavailable for a particular maturity, interpolation may be used.

For the term structure of cumulative default probabilities, we derive a simple recursive expression that yields full calibration without solving a separate system for each maturity:

$$P_t = \left(P_{t-1} + \frac{\tilde{s}_t}{1-\tilde{s}_t/2}\right) / \left(1 + \frac{\tilde{s}_t}{1-\tilde{s}_t/2}\right), \quad t = 1,2,\cdots,T \qquad (14)$$

where $\tilde{s}_t$ is the spread normalized by the loss rate upon default:

$$\tilde{s}_t = \frac{s_t}{1-R} \qquad (15)$$

The recursive expression in equation (14) is computationally efficient. In the case of a flat term structure of spreads ($s_1=s_2=\ldots=s_t=s$), for any risk-free discount curve, it admits the following simple closed-form solution:

$$P_t = 1 - \left(\frac{1-\tilde{s}/2}{1+\tilde{s}/2}\right)^t \qquad (16)$$

Equations (14) – (16) define the calibration under the above conventions and allow us to express the term structure of cumulative default probabilities through observable market CDS spreads.

An alternative representation of cumulative default probabilities is the discrete analogue of equation (8), under a constant hazard / spread rate within each interval: $P_t = 1 - exp\left[-\sum_{i=1}^{t} \tilde{s}_t\right]$ This expression provides a good approximation to equation (14), with accuracy of order $O(\tilde{s}^2)$.

If accrued premium is settled at the end of the period and default occurs on average at the midpoint of the period, then equations (14) – (16) are consistent with that convention. If accrued premium is instead settled at the moment of default, the same equations still provide a good approximation. The next section quantifies the correction associated with the timing of default and the acceptable bounds of this approximation.

Modeling the Time to Default

In the preceding sections, we assumed that default occurs on average at the midpoint of the relevant period; equivalently, for annual payment periods, one-half of the annual premium was assumed to accrue in the event of default. Since this approximation affects the calibration and valuation equations, it is important to assess its accuracy.

For a risky asset, the remaining time to default, τ, is a random variable and may be expressed in terms of the variable u, where u is a uniformly distributed random number on the interval from 0 to 1:

2. A numerical correction for this assumption is discussed below.

3. Premium accrual normally continues until the occurrence of the credit event (default), although some sovereign CDS conventions may differ. The standard market convention is used here.

$$\tau = -\frac{1}{h} \times Log[1-u] \quad (17)$$

where *h* is the constant hazard rate of the underlying asset. We are interested in values of τ that fall within the interval *(t-1, t),* that is,

$t-1 < -\frac{1}{h} \times Log[1-u] < t$. or, equivalently,

$$1 - e^{-h(t-1)} < u < 1 - e^{-ht}.$$

It is well known that the probability density function of a uniform distribution on the interval (a,b) is:

$$f(u;a,b) = \begin{cases} \frac{1}{b-a}, & a < u < b \\ 0, & \text{otherwise} \end{cases} \quad (18)$$

We define the time to default, measured from the beginning of the period, as $\theta \equiv \tau - (t-1)$, where $0<\theta\leq 1$.

Let $a=1-e^{-h(t-1)}$ and $b=1-e^{-ht}$. Then the average time to default within the one-year interval (t-1,t] is:

$$E_{(t-1,t]}[\theta] = -\frac{1}{h} \times \int_a^b \frac{\log(1-u)}{b-a} du$$

Integration yields:

$$E_{(t-1,t]}[\theta] = \frac{1}{h} - \frac{1}{e^h - 1} \quad (19)$$

Accordingly, the average time to default from today within the interval (t-1,t] is:

$$E_{(t-1,t]}[\tau] = (t-1) + \frac{1}{h} - \frac{1}{e^h - 1} \quad (20)$$

To express this result in terms of observable market spreads, we use the approximate relationship between h and the loss-rate-normalized spreads $\tilde{s}$, implied by equations (8) and (16):

$$h = -Log\left(\frac{1-\tilde{s}/2}{1+\tilde{s}/2}\right), where\ \tilde{s} = \frac{s}{1-R} \quad (21)$$

Expanding in powers of $\tilde{s}$, we obtain:

$$E_{(t-1,t]}[\tau] = t - \frac{1}{2} - \frac{\tilde{s}}{12} - \frac{\tilde{s}^3}{180} + O(\tilde{s}^5) \quad (22)$$

Thus, in any one-year period, the average time of default occurs slightly earlier than the midpoint of the period. This deviation increases with the level of the spread: a riskier credit tends, on average, to default somewhat earlier within the relevant interval, though not later than its midpoint.

It should be noted that equation (21) is obtained under the same approximation that default occurs on average at the midpoint of the period. However, the corresponding correction is of higher order in $\tilde{s}$ and, as a rule, may be neglected. Such higher-order corrections only become noticeable for credits with very high spreads (i.e., near-certain default).

Market Valuation of a Standard Credit Default Swap

Consider a CDS written on a single-name credit instrument, with notional N, recovery rate R, maturity T years, and contractual annual premium rate S. Suppose that, for the instrument in question, the observable market term structure of CDS spreads is $s_1, s_2, \ldots, s_T$.

For a single-name credit, the term structure of default probabilities is obtained from equation (14). The present value (PV) of a standard CDS may be written as the present value of the protection cash flows in the event of default minus the value of the premium cash flows paid by the CDS buyer:

$$PV_{CDS} = Notional \times \sum_{i=1}^{T} df_i \times [p_i \times (1 - R - S/2) - (1 - P_i) \times S] \quad (23)$$

where S/2 reflects the convention that premium accrues up to the midpoint of the premium period in the event of default. In equation (23), the marginal default probabilities may be expressed in terms of cumulative default probabilities, $P_i = P_i - P_{i-1}$, obtained from equation (14). Equation (23) is consistent with the convention under which both the protection payment and the accrued premium are settled on the final date of the default period. If settlement occurs at the moment of default, the relevant cash flows are discounted from that time instead, which may have a noticeable effect in the case of long maturities and high spreads.

The fair spread is obtained by solving the equation $PV_{CDS} = 0$ for S.

In the previous section, we introduced the spread normalized by the expected loss rate, $\tilde{s}$, in equation (15). This concept arises naturally from CDS pricing, because the observable market spread s depends on the expected loss rate (1-R): all else being equal, as (1-R) declines, the quoted spread declines as well, since the protection payment in default becomes smaller. For this reason, s̃=s/(1-R) is a more natural measure, as it represents the observable market spread per unit of loss rate. By the same logic, it is natural to normalize the premium as well: S̃=S/(1-R).

Equation (23) also highlights another natural quantity: the loss given default (or the "notional at risk"), defined as the contractual notional multiplied by the loss rate of the asset, N×(1-R). Since the value of a credit-sensitive contract is proportional to the notional N that cannot be recovered in the event of default, as R→1, both this quantity and the present value of the contract converge to zero. Accordingly, the calibration equations for valuing the CDS and the underlying asset, and for computing sensitivities may all be written in terms normalized by the loss rate (1-R).

This approach provides a useful de-parameterization of the model. By working with normalized quantities, the valuation formulae become simpler and the dependence on the loss rate becomes more transparent.

In the case of a flat market term structure of spreads and any risk-free discount curve, the present value of the CDS admits the following simple closed-form expression:

$$PV_{CDS} = \tilde{N} \times \frac{\tilde{s}-\tilde{S}}{1-\tilde{s}/2} \times \sum_{k=1}^{T} df_k \left(\frac{1-\tilde{s}/2}{1+\tilde{s}/2}\right)^k \qquad (24)$$

where Ñ=N×(1-R) is the "notional at risk" (loss given default); s̃ is the loss-rate-normalized observable spread, assumed to be the same across all maturities considered; $\tilde{S}=S/(1-R)$ is the premium per unit of notional at risk; df_k is the risk-free discount factor to the end of period k; and T is the number of years remaining to maturity. All quantities are expressed on an annual basis.

Equation (24) is useful for the rapid valuation of single-name CDS contracts, and its implementation in spreadsheets or scripts is straightforward. It is also convenient for the analytical computation of spread delta and higher-order sensitivities.

The analytical relationships presented here, within a discrete-time framework, are sufficient for the market valuation of CDS under the "end-of-period" settlement convention.

Non-standard CDS contracts, such as those involving guaranteed premiums or a pre-specified amortization schedule for the notional, can be handled within the same discrete-time cash-flow framework by modifying either the premium schedule or the time profile of the notional at risk.

Quantitative Valuation Example of a Standard Single-Name CDS

Consider a standard single-name CDS contract written on a credit asset with a notional amount of USD 1,000,000, for example, a bond with a 10-year maturity. The expected recovery rate in the event of default is 50%, while the CDS premium is 150 basis points, paid annually by the buyer to the seller. For simplicity, we assume annual payments, but the same methodology also applies to quarterly payments, which are the market standard.

If the underlying bond defaults, the CDS seller pays the bond's notional amount minus the recovered value and minus the premium accrued up to the time of default within the relevant period. All payments are made at the end of the annual payment period. The observable term structure of CDS spreads in the relevant market (for tenors of 1, 2, ..., 10 years), expressed in basis points, is:

[100, 130, 160, 180, 200, 220, 230, 240, 245, 250]

These spreads represent fair market spreads on liquid CDS contracts written on the bond in question. For example, the 5-year CDS trades at 200 basis points, the 7-year CDS at 230 basis points, and so on. The annual risk-free discount factors (for ex-

ample, from the USD SOFR Overnight Index Swap curve) are:

[0.98, 0.96, 0.94, 0.92, 0.90, 0.88, 0.86, 0.84, 0.82, 0.80]

In the event of default, the CDS contract may incorporate one of two premium-accrual conventions:

– one-half of the annual premium is paid to the seller at the end of the relevant payment period; or
– the premium accrued up to the moment of default is paid to the seller at the end of the relevant payment period.

If the contract uses the first convention, then CDS valuation based on equations (14), (15) and (23) is exact. In this case, the seller always receives one-half of the annual premium, regardless of when default occurs within the payment period. If the contract uses the second convention, the valuation is approximate. The quality of the approximation depends on how well the midpoint of the period represents the expected time of default. As noted earlier, the difference between the two conventions only becomes material in the case of very high ("near-default") spreads.

For the present value of the CDS, we obtain: PV_{CDS}=USD 72,619.16. This value is exact under the settlement rule specified above and under the first type of accrual convention, and it is a very good approximation under the second type. The term structure of cumulative default probabilities may also be computed (see Table 1). It is worth noting that the assumption of a flat spread yields a conservative valuation of long-maturity CDS.

Table 1. Calculations of the Term Structure of Cumulative Default Probabilities

Year	Risk-free discount factors	Term structure of spreads (bp)	Cumulative default probability - Recursive calibration (Eq. 14)	Cumulative default probability - Closed form under flat term structure of spreads (Eq. 16)
1	0.98	100	0.0198020	0.0198020
2	0.96	130	0.0509466	0.0506739
3	0.94	160	0.0927517	0.0915434
4	0.92	180	0.1366610	0.1341260
5	0.90	200	0.1861300	0.1812910
6	0.88	220	0.2404640	0.2320590
7	0.86	230	0.2860520	0.2753430
8	0.84	240	0.3326880	0.3189190
9	0.82	245	0.3720370	0.3566640
10	0.80	250	0.4109310	0.3935330

Source: Author's calculations

Valuation of a Single-Name CDS by Monte Carlo Simulation

A single-name credit default swap may also be valued using Monte Carlo simulation. Although the market value of a single-name CDS can be obtained analytically, the Monte Carlo method remains useful for comparing results and for examining the effects of default timing and accrual conventions in greater detail.

In the simulation, the time to default, τ_j, is generated across many scenarios. For each simulated scenario j, if $\tau_j > T$, the asset survives to maturity; if $\tau_j \leq T$, settlement occurs upon default in accordance with the selected accrual convention. For each outcome, the contractual cash flows are known, and the average of the net cash flows across all scenarios provides an estimate of the current value of the CDS.

Consider a CDS identical to that in the previous example, with a flat term structure of spreads fixed at 250 basis points, a maturity of 10 years, and the same risk-free discount curve. Each reported result is based on the average over 10 million simulated scenarios.

Under the "mid-period accrual" convention, the analytical valuation is USD 70,695.54, while the Monte Carlo valuation is USD 70,694.59, indicating virtually perfect agreement. Under the "accrual-to-default" convention, the Monte Carlo valuation is USD 70,742.74, which is slightly higher than under the mid-period accrual convention.

These results confirm that the valuation under the accrual-to-default convention is very close to that obtained under the mid-period accrual convention, though marginally higher. At the same time, the results are consistent with the findings from equation (22): *within a given period, the expected time of default occurs slightly earlier than the midpoint of the period.*

Asset Hedging with CDS and the Term Structure of Default Probabilities Implied by the Cash Market

In the preceding sections, the valuation of cash instruments and corresponding CDS contracts implicitly assumed that the observable spreads in the cash and CDS markets are identical. In general, this is not the case. Although the difference is often not large, the two spreads will only be equal under certain conditions and assumptions. There are several reasons for the discrepancy; in this section, we examine one of them.

Both cash-market instruments and CDS contracts are sensitive to two components of credit risk: default risk and the risk of migration in credit quality (i.e., spread widening). The framework used here expresses both in the same metric – a spread over the benchmark risk-free yield. Accordingly, caution is required when comparing spreads observed in the cash and CDS markets for the same underlying asset. Differences may arise from the contractual terms of the CDS itself. For example, two CDS contracts written on the same asset, one providing for full payment of accrued interest in the default period and the other for partial or zero payment, will have different market spreads. Accordingly, at least one of them, and possibly both, will differ from the corresponding spread observed in the cash market. At this stage, we do not consider other causes, such as liquidity or segmentation.

The requirement that observed spreads be equal across the two markets implies the possibility of fully hedging the bond's credit risk with the corresponding CDS (the no-arbitrage condition). However, in practice, perfect hedging is possible only under certain conditions, including contractual ones. In all other cases, hedging is imperfect, and this is reflected in a spread differential.

In assessing the quality of hedging a bond with a CDS, several factors are important: the contractual definition of compensation in the event of default, coupon and accrual effects, the conditions under which the CDS obligation is triggered, and the con-

ventions governing premium accrual and settlement. The quality of the hedge remains dependent on the extent to which the CDS and the bond align in their definitions of the credit event, their settlement rules, and their accrual and settlement calendars.

The probability of default of a bond over the period (t-1,t), i.e., the marginal default probability p_t, may be computed from observed bond prices using the following recursive expression:

$$p_t = \frac{\bar{B}_t - B_t - \sum_{i=1}^{t-1} df_i \left(F_t^{(i)} - R \times C_i\right) \times p_i}{df_t \times (1-R) \times C_t} \qquad (25)$$

where B_t and $\bar{B}_t$ are, respectively, the prices of risky and risk-free bonds of maturity t with identical contractual characteristics. Their difference aggregates the effect of default risk up to maturity t, under the chosen recovery and claim convention. The summation subtracts the part of that difference already "explained" by default occurring in earlier periods *(i=1,2,...t-1).* Accordingly, $df_t \times (1-R) \times C_t \times p_t$ represents the present value of the expected default loss over the period *(t-1,t)* under the chosen C_t convention, while p_t is the marginal default probability implied by calibration to observable market prices (i.e., the risk-neutral marginal default probability).

$F_t^{(i)}$ denotes the value, as of the end of period i of the remaining promised cash flows of the bond up to time *t*, namely those specified for periods *i+1,i+2,...,t* in calibration. In other words, it is the forward price of the *t*-maturity bond at the end of period *i*, conditional on the bond not having defaulted by then. By definition, the cumulative probability of default up to time *t* is $P_t = \sum_{i=1}^{t} p_i$. C_i is the contractually defined compensation claim per unit of notional submitted by the bondholder in the event of default. If the claim equals par, then $C_t=1$. If it includes par plus a coupon accrued up to default, then C_t=1+Accrual(t). For simplicity, we assume that period-end dates coincide with coupon payment dates and that each period is one year in length. In that case, if C_t includes an accrued coupon, a typical approximation is C_t=1+Annual Coupon /2. The extension to quarterly and other payment frequencies is straightforward. Thus, given the observed bond prices and the definition of C_t, p_t is obtained recursively from equation (25).

Consider the following example: a 30-year bond with notional amount of USD 1,000,000 and an annual coupon of 7% is hedged with a CDS of the same maturity and notional, carrying a fixed premium of 400 basis points. The expected recovery rate is 50%, while the USD SOFR-based risk-free discount curve is fixed at 5%. In the event of default, the investor's compensation claim is defined as par plus one-half of the annual coupon. This is consistent with the assumption used above that default occurs, on average, at the midpoint of the period. Settlement takes place at the end of the relevant period.

We compute the dependence of the market value of the portfolio – consisting of the bond and the corresponding CDS – on the observable market spread (see Diagram 6), with the contractual CDS premium held fixed. In an idealized setting in which cash-market and CDS-market conventions fully align, the purchased CDS neutralizes the bond's default risk. The portfolio, however, still retains spread sensitivity because the bond has a high spread duration, whereas the CDS premium is fixed.

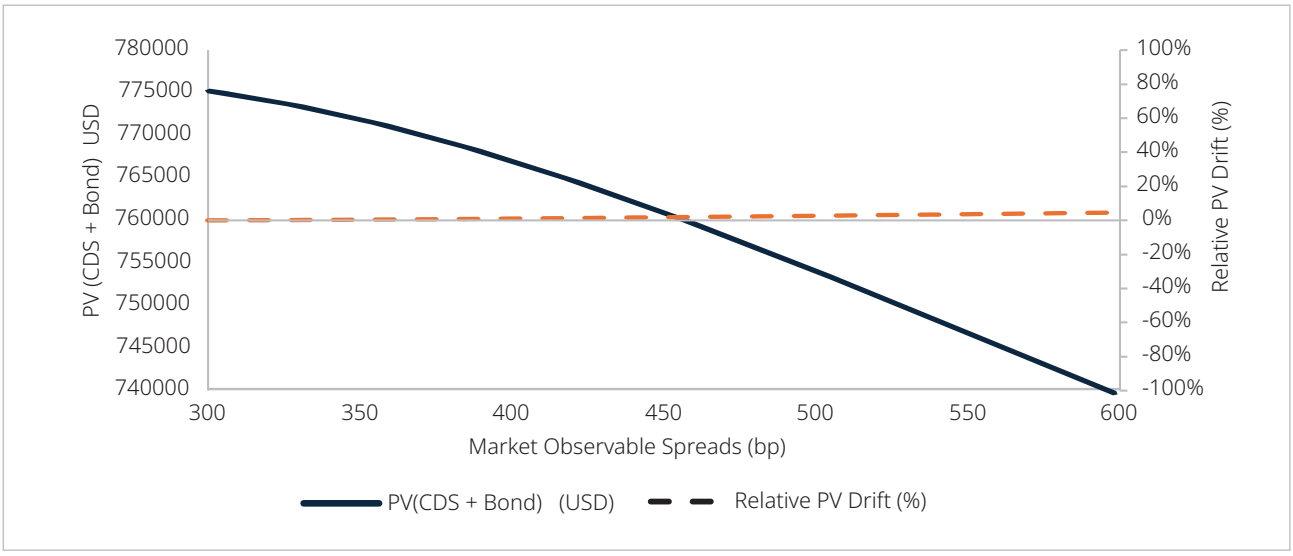
To illustrate hedge quality, Diagram 6 also includes an auxiliary curve – the relative present value (PV) drift, which measures the deviation of the hedged position's PV from the chosen benchmark level *PV(300 bp):*

$$PV_{Drift}\ (s) = [PV(300\ bp) - PV(s)] / (PV(300\ bp) \times 100\%$$

Under perfect hedging, PV(s) would be horizontal and the drift would be zero. The deviation measures the residual market exposure arising from coupon/premium accrual and settlement conventions, as well as from the asymmetry of the bond and CDS cash flows. Over the broad-spread range considered (300 bp to 600 bp), the relative PV drift is approximately 4.5%, which provides a quantitative measure of hedging error.

In conclusion, CDS instruments should be valued using CDS market spreads, while bonds should be valued using cash-market spreads. At the same time, a CDS not only hedges spread movements, but also introduces positive convexity with respect to default: in the event of default, the payoff on the hedged position may exceed the bond's "no-default" market price, which also gives the transaction a speculative component.

Diagram 6. Dependence of the Market Value of a CDS-Hedged Bond Portfolio (vertical axis) on the Market Spread and Hedge Quality



Source: Author's illustration

CDS and the 2007–2009 Crisis: Risk Multipliers and Lessons

Credit default swaps did not cause the global financial crisis of 2007–2009, but they did contribute to the amplification of systemic stress. From an economic perspective, a CDS creates an unfunded, highly leveraged exposure to credit risk: it allows market participants to take exposure to a large credit-risk notional with minimal initial cash outlay. This may be reasonable when collateralization, diversification, and risk control – including internal limit systems – are robust. Where these safeguards are weak, however, it becomes a source of destabilization.A CDS can be bought or sold without holding the corresponding cash bond or loan. This allows market participants to use CDS contracts to take exposure to the same reference entity in amounts that often exceed the notional amount of the debt instruments actually outstanding. If a bond with notional N generates a loss of N×(1-R) in the event of default, then a CDS written on that same bond may generate the same loss and corresponding payment obligation for the protection seller. The number of CDS contracts written on the same reference entity – whether by the same participant or others – is not inherently limited. As a result, exposure to the same credit risk can be "multiplied". In turn, large notional positions created through multiple CDS contracts may accumulate on the same reference entity, generating numerous contingent payment obligations and claims.

Aggregate contingent obligations may exceed the volume of cash debt instruments many times over. Before the global financial crisis, total CDS notional outstanding peaked at approximately USD 62.2 trillion by the end of 2007 (ISDA, 2007). According to U.S. banking data, in the fourth quarter of 2007 the notional amount of credit derivatives held by U.S. banks reached USD 14.4 trillion, of which 98% consisted of CDS (OCC, 2008).

From a systemic perspective, what matters is not only the total notional volume – many positions offset each other – but also the fact that large gross volumes create dense linkages among counterparties. Widening spreads may, in turn, trigger collateral calls and transform liquidity shortages into a source of destabilization (Brunnermeier, 2009; Stulz, 2010).

A CDS contract creates counterparty risk: the buyer depends on the seller's ability to perform, while the seller depends on premium payments and contractual performance by the buyer. As CDS positions expand, market participants become connected through a network of bilateral contracts, which in practice is often concentrated among a small number of large dealers. As a result, both the density of the network and the concentration of exposures on key counterparties increase. A problem for any such counterparty can rapidly transmit stress to portfolios that are not directly linked through the underlying assets. This transmission mechanism concerns, above all, the technical infrastructure of the system – netting arrangements, collateral practices, and the resilience of key counterparties – rather than merely the size of net economic exposures.

In periods of stress, widening CDS spreads generate immediate mark-to-market losses for protection sellers and may trigger additional collateral calls. If many institutions simultaneously need to post cash or high-quality collateral, they may be forced to reduce leverage through asset sales, which can further widen spreads and intensify liquidity shortages. Such feedback effects may arise even in single-name credit markets and become particularly severe when exposures are concentrated among a small number of major counterparties (BCBS-IOSCO, 2015).

The global financial crisis of 2007–2009 clearly demonstrated that contractual definitions and settlement conventions are critical for pricing. For developing markets, the safest approach is to confine credit risk transfer to limited, strictly collateralized over-the-counter transactions, supported by high-quality collateral requirements, sound risk management and control frameworks, internal limit systems, operational readiness, transparent pricing rules, and effective dispute-resolution procedures.

Single-Name Credit Derivatives in Georgia: Scope and Preconditions

Georgia does not yet have the market depth and standardized secondary trading necessary to support a liquid market in single-name credit derivatives. The constraints are not conceptual but institutional. Credit risk exists on bank balance sheets and in corporate finance, but it has not yet evolved into a quoted, tradeable term structure of credit spreads. Accordingly, the first step is not to create a derivatives market artificially, but rather to identify safe and useful instruments that can operate within the constraints of the existing infrastructure. Under Georgia's conditions, the near-term focus of single-name credit derivatives should be on CDS-type contracts. Other instruments, including asset swaps, total return swaps, and credit-linked notes, are likely to remain bespoke transactions until both the market infrastructure and the benchmark data required for valuation are in place.

The examples below reflect bilateral over-the-counter practice and do not presuppose the existence of a liquid, standardized secondary CDS market in Georgia:

- Sovereign CDS as a hedging instrument: In practice, international investors may use CDS-type contracts based on Georgian sovereign bonds to hedge the credit risk of Georgian Eurobonds, especially when liquidity in the secondary Eurobond market is limited or when adjusting the position is operationally more difficult.
- Bespoke CDS on large issuers: A credit default swap may be arranged bilaterally on large Georgian issuers with access to international funding markets; such transactions, however, are typically less standardized and less liquid than sovereign CDS.
- Transfer of concentrated loan or debtor risk: A

bank or large corporate may transfer part of a concentrated single-name credit exposure to a counterparty through a strictly collateralized bilateral CDS. Such a transaction requires robust documentation, regular revaluation, and strong collateral and enforcement discipline.

– Access to a specific credit risk without purchasing the cash instrument (synthetic/unfunded exposure): Market participants may use CDS contracts to assume or reduce credit exposure when they do not wish, or are unable, to acquire the corresponding cash instrument.

The development of single-name credit derivatives requires benchmark pricing that is comparable over time and sufficiently robust. This includes regular observable yields on sovereign and large issuers, reliably calibrated pricing models and benchmarks for loans, and a risk-free discount curve in the relevant currency. Where local cash markets are illiquid, benchmark curves rely on a combination of observable prices and model-based interpolation. Accordingly, valuations should be treated as indicative and remain subject to conservative model-risk controls.

Important preconditions for the existence of credit derivatives include the enforceability of close-out of mutual claims, clear mechanisms for collateral enforcement, and practical familiarity with ISDA-standardized documentation.[4] Without robust netting, risk positions remain at the gross level, increasing capital and liquidity costs and weakening the economic rationale for hedging.

In developed markets, counterparty-risk mitigation is achieved primarily through regular revaluation of contracts and, where necessary, the posting of additional collateral. In a small market, this is particularly critical: where collateral arrangements are weak, the counterparty risk may outweigh the benefits of hedging the risky asset. Minimum operational discipline includes frequent revaluation of contracts, collateralization, and effective dispute-resolution procedures.

The natural users in Georgia may include: (i) banks, for the hedging of concentrated exposures; (ii) insurers, for the mitigation or transfer of long-term default risk, or for assuming synthetic (unfunded) exposure; and (iii) large corporates, for managing counterparty risk in major receivables exposures and financing structures.

Potential reference entities are, in practice, those for which observable and continuously available public quotations exist, and for which a clear and documented definition of a credit event is available. These include, first and foremost, the sovereign, then large banks and the largest companies with transparent capital structures.A realistic path for the development of single-name credit derivatives may be described in three phases:

Phase 0: Benchmark pricing and credit curves (without tradeable CDS). Publication of standardized credit curves for issuers based on observable quotations, using a transparent methodology and consistent assumptions.

Phase 1: Targeted CDS transactions under strict collateral rules (for hedging or synthetic exposure). Over-the-counter CDS transactions based on robust documentation, strict collateralization, and conservative valuation policies.

Phase 2: Broader participation and standardization. Establishment of standard maturities and, potentially, infrastructure resembling central clearing.

4. The International Swaps and Derivatives Association (ISDA) is the international derivatives market association whose standard master documentation (the ISDA Master Agreement) is widely used for over-the-counter derivatives. It sets out the principal legal mechanisms governing credit events, settlement, close-out, and netting.

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CHOOSING THE INSTITUTIONAL MODEL FOR THE BANK OF ISSUE OF THE DEMOCRATIC REPUBLIC OF GEORGIA, 1918-1921

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Abstract

This paper examines the process of establishing the legal foundations for a central bank by the government of the Democratic Republic of Georgia (1918–1921). It explores the government's deliberations over alternative central bank models, the development of criteria for selecting the most suitable model of a bank of issue for the country, and the distribution of managerial functions within the institution.

The article outlines the arguments in favor of the so-called "pure state-owned bank" model, as well as the efforts to address its inherent weaknesses by subordinating the bank to parliament (rather than the government), ensuring managerial autonomy, and grounding decision-making in the principle of collegiality. Furthermore, it analyzes the contradictory nature of the final adopted framework and highlights its deviation from classical central banking principles, most notably the authorization of the bank to provide settlement and credit services to both legal entities and individuals.

Keywords: Right of issuance, state bank, bank of issue, Democratic Republic of Georgia, Central Bank, management and administration.

Introduction

World War I caused severe damage to the economies of the countries directly involved. The Russian Empire was particularly hard-hit, where defeat on the battlefield was followed by the February and October Revolutions of 1917. As a result, the country's economy teetered on the brink of collapse. An extremely difficult situation also emerged in Transcaucasia, including in Georgia. Production of manganese, coal, copper, gold, lead, leather, and timber declined sharply or ceased entirely. Persistent inflation drastically reduced the population's purchasing power, while the monetary system fell into disorder as large sums of cash[1] were withdrawn from banks and savings institutions, paralyzing credit operations (Anchabadze, 2009).

After the collapse of the Russian Empire in 1917, political authority in Transcaucasia passed to the Transcaucasian Commissariat. This was followed by the creation of the Transcaucasian Democratic Federative Republic. When this short-lived federation dissolved after a month, Georgia declared itself an independent democratic republic on 26 May 1918. Two days later, in Tbilisi, Azerbaijan and Armenia likewise proclaimed their independence.

1. At the time, branches of commercial banks of the Russian Empire, several local commercial and mortgage banks, as well as credit societies and savings institutions were operating in Georgia.

Immediately after declaring independence, the government of Georgia made the stabilization of the money supply and the financial sector one of its top priorities. The government recognized the importance of a national currency and sound monetary policy for state-building and economic development. However, many domestic and foreign factors hindered the implementation of contemporary ideas for creating a sovereign financial system. Nonetheless, establishing a state bank of issue and introducing a national currency were identified as the government's foremost strategic tasks (Eradze, 2024).

At the time of the declaration of independence, the Tbilisi branch of the Russian State Bank still formally existed; however, in practice, it was no longer part of a unified, centralized system and operated under the subordination of the Transcaucasian Seim. It was through the use of its technical facilities that a temporary monetary unit—Transcaucasian bons—was issued, circulating in parallel with the imperial Russian ruble. After 26 May 1918, this branch came under the control of the independent Georgian government. In July 1918, given an acute cash deficit, the government decided to temporarily continue issuance of Transcaucasian bons (Javakhishvili, 1998).

Official deliberations concerning a state bank commenced on 3 June 1918. During a session of the Finance and Budget Commission of the National Council[2], the Minister of Trade and Industry, Giorgi Zhuruli, asserted that the National Bank of Georgia must possess the right of issuance grounded in firm guarantees. Nevertheless, owing to the lack of gold reserves and the inaccessibility of international loans, he proposed that the state could ensure currency issuance through the nationalization of forests, Chiatura manganese, "white charcoal" (binchotan), and the Borjomi estates (Central State Historical Archive of Georgia (CSHA), Fund 1836, File 26).

Around the same time, efforts to select a model for the state bank of issue were led within the government by Konstantine Kandelaki, Deputy Minister of Finance (and Minister from 14 March 1919), and within the National Council by Iason Lortkipanidze, Deputy Chairman of the Finance and Budget Commission (CSHA, Fund 1833, File 26). The initial draft of the state bank's charter was submitted to the government in January 1919; however, its detailed review was delayed due to the ongoing electoral campaign in the country. As a result, the document was not presented to the newly elected Constituent Assembly until 30 May (CSHA, Fund 1833, File 26). The draft charter of the state bank was accompanied by a report from the Minister of Finance, Konstantine Kandelaki.

The Right of Issuance

The views of the government of independent Georgia regarding the state bank were clearly articulated in Kandelaki's report. Specifically, he noted that "the currency issue, discount policy, and numerous other matters closely tied to the state's central bank often hold decisive importance in determining the character of the state's trade and industry, as well as the trajectory of its productive forces' development" (CSHA, Fund 1833, File 26).[3]

The Minister of Finance profoundly understood the significance of the right of issuance as the defining attribute of a central bank's status. "It is precisely the privilege of issuance", wrote Kandelaki, "that enables a bank endowed with such a right to become, de facto, the central bank for all credit institutions within the state—the 'bank of banks'—and places in its hands the reins for distributing and regulating all credit and money circulation. Today, almost universally, the right of issuance resides in the hands of the central bank" (CSHA, Fund 1833, File 26).

The government of independent Georgia was firmly resolved to grant the monopoly of issuance to the

2. This was a provisional representative body, established in May 1918, which functioned until the election of the Constituent Assembly (the first parliament) on 14 February 1919.

3. The style and punctuation in the provided quotations have been preserved exactly as in the original Georgian text.

state bank. "The question of to whom the right of issuance should be granted", the Minister of Finance noted, "which has been a matter of dispute in various states at different times, is indisputably clear to us: It is impossible for several issuing banks to exist in the Republic of Georgia; this right must be granted to a single bank, which, undoubtedly, will be the state bank" (CSHA, Fund 1833, File 26).

Selection of the Model for the Bank of Issue

A working group established within the Ministry of Finance of independent Georgia thoroughly studied the contemporary international experience regarding the organization of central banks (banks of issue) and determined that there were three options to be considered:

1. A completely independent, pure joint-stock company model (as in Britain);
2. A mixed model (as in Germany); or
3. A pure state bank model (as in Russia).

In his report, Kandelaki characterized each model in considerable detail. Discussing the British experience, he drew attention to the fact that the Bank of England was a joint-stock company which, despite being granted the right of issuance by the state, operated independently from the government within the framework of its charter. The Minister of Finance saw the advantage of this model in the fact that "the shareholders, through their participation, fortify trust in the bank among the affluent circles of society, since it is clear to the latter that the shareholders will not easily yield the bank's coffers to the government for purposes other than the bank's direct mandate". The Minister of Finance pointed out that "fluctuations in state policy and the various resulting changes within the government should not directly affect the state bank". At the same time, "neither can the state afford to completely let go of the regulation of monetary affairs—which is of paramount importance to the state—and hand it over entirely to private shareholders" (CSHA, Fund 1833, File 26).

The peculiarity of the German bank (*Reichsbank)* model, in Kandelaki's view, was that its "principal funds belonged to the shareholders, although the bank was managed by the government". The Minister of Finance considered the positive aspect of this model to be that "in this type of bank, the role and trust of private capital are fused with government leadership; the cooperation and mutual control of these two sides are preserved here. To this day, banks of this type have justified their purpose everywhere[4] and have also spared the government the expenses of organizing the bank" (CSHA, Fund 1833, File 26).

Kandelaki did not conceal that he fundamentally agreed with the superiority of this type of central bank; however, during Georgia's transitional period, he did not

> … perceive sufficient public confidence in the government—particularly regarding control over money—to consider the establishment of a mixed-ownership state bank on this principle to be realistically feasible; meanwhile, conceding these principles, developed through long-standing practice and experience, must be considered impossible, especially when Georgia's future state bank is tasked with creating and organizing the entire monetary system. Therefore, I believe that if practice demonstrates to us the advantage and feasibility of transforming the bank into a joint-stock institution, this will be convenient to do in the future as well. (CSHA, Fund 1833, File 26).

Thus, the Minister of Finance of independent Georgia did not rule out the possibility of reorganizing the country's central bank into a mixed model format in the future.

The Russian State Bank model was considered as the third model for the bank of issue. Kandelaki directly pointed out that "in Russia, the state bank is a government institution, the principal funds here

4. Kandelaki named France and Switzerland as examples here.

were deposited by the state, and the management and administration are completely in the hands of the government (the case is the same in Bulgaria, Sweden, and Finland)". The main flaw of this model, in his opinion, was that the Russian State Bank was completely subservient to the government, specifically the Ministry of Finance, which allowed the government to use it for "fiscal purposes", that is, for financing the budget deficit through the issuance of money (CSHA, Fund 1833, File 26).

On the other hand, the Social-Democratic (Menshevik) government of independent Georgia, whose decisions were largely guided by ideological considerations, maintained that the right of issuance should be vested in a state-owned bank. Accordingly, while acknowledging the superiority of the mixed model of a central bank, Kandelaki observed: "We are compelled to propose the organization of the State Bank of Georgia on a different basis." He indicated that the Bank of Issue should not be subordinate to the Ministry of Finance, unlike in Russia; rather, it was to be placed under the direct authority of the legislative body. As noted in the government's explanatory memorandum: "Under this arrangement, the State Bank of Georgia will be a purely state institution, but at the same time it becomes obvious to everyone that any means of its utilization by the government for fiscal purposes is eliminated; it will not be as independent as European state banks, but neither will it be as subservient to the agency as the Russian bank. This will necessarily strengthen trust in the bank in the eyes of the public" (CSHA, Fund 1833, File 26).

Iason Lortkipanidze, a member of the Constituent Assembly from the National Democratic Party, was also against transferring the right of issuance to a private joint-stock company. As the Deputy Chairman of the parliament's Budget and Finance Commission, he prepared an explanatory memorandum on the draft charter of the state bank. He emphatically noted that

> … issuance is not merely a right, it is the paramount duty of the bank, and only to the extent that the bank earns trust will it be better realized, and the value of the money issued by the bank will be more solid and stable. Neither the gold reserve, let alone other guarantees, can solidify the foundation of the issuance if the bank's organization or its management gives rise to any suspicion. But an even greater danger that awaits us if… we hand over the right of issuance to a private joint-stock company is a random composition of general assemblies, upon which the entire policy of the bank and its management and administration will depend (CSHA, Fund 1833, File 26).

As an additional argument against transferring the right of issuance to a private joint-stock company, Lortkipanidze considered the fact that, unlike European countries, Georgia lacked "firmly established other banks", which, as shareholders, could provide a "seriously grounded" management and administration for a joint-stock company endowed with the right of issuance. He continued:

> Due to the absence of such other large institutions, which alone have the capacity to acquire the majority of shares and keep them permanently in their portfolios, the shares of the future state bank [bank of issue] will be acquired primarily either by weak institutions or by random private individuals, and they will be unable to hold onto these shares for a long period. Ultimately, the same bacchanalia will erupt around this bank as we observe around certain Russian banks. This, in turn, will deprive the bank of the authority and strength necessary for maintaining trust and systematic operation. (CSHA, Fund 1833, File 26)

At the same time, Lortkipanidze shared the position of Kandelaki, the Minister of Finance, regarding the risks associated with transferring the right of issuance to a fully state-owned bank. He wrote:

> In the matter of gaining and maintaining trust, the future bank will face no fewer obstacles if it is directly a state institution, as presented by the Ministry. Distrust towards the state bank is provoked by two potential aspects of its operation: the first is that the state bank, upon the request—or better said, the order—of the government, can conduct so-called extra-statutory operations; the second is that, upon the order of the same government, the bank can lend the treasury an amount of money that is incompatible with the financial condition of the state. The Georgian people will not fear that our government will force the state bank to execute extra-statutory operations. On the one hand, the government will not be of the kind to impose detrimental affairs upon the bank, and on the other, our country is too small for any such coercion by anyone to remain undisclosed and uncensured. However, it is exceedingly difficult to convince our people and, generally, our future creditors—whether domestic or foreign—that the government will not seek to cover current expenses with money taken from the bank. At a time when the budget is so large that it cannot be covered by regular revenues, and when we have not yet even begun to think about a large loan, people will inevitably develop a suspicion that our treasury will turn to the bank and borrow from it disproportionately (CSHA, Fund 1833, File 26).

In Lortkipanidze's opinion,

> ... the organization of the state bank [bank of issue] will be satisfactory if the management and administration are primarily in the hands of the government, while private institutions and individuals hold the minority share of that same management and administration. This will occur only if the bank is built on the principle of a joint-stock company, but the majority of the shares, no less than 2/3, belong to the government, and 1/3 to private shareholders; only the participation of personally interested institutions and individuals, even in the form of a minority, can earn the bank the trust it requires (CSHA, Fund 1833, File 26).

Thus, Lortkipanidze, unlike the members of the government, supported a mixed model for the bank of issue. Although he was not against adopting the presented model, he demanded, as a compromise, the inclusion of additional articles in the charter stating that the government is granted the right to amend this charter based on the principle of joint-stock companies (CSHA, Fund 1833, File 26).

Governance Structure and Operations of the State Bank

The government of the Democratic Republic of Georgia introduced a significant modification to the Russian State Bank model, which, in the opinion of the authors of the bank's charter, was intended to ensure the independence of the institution: the bank was to be subordinated to parliament. Parliament was granted the authority to elect (appoint) the bank's governor. The head of the bank of issue in Sweden was appointed by a similar procedure, where, as indicated in the explanatory memorandum from the Ministry of Finance, a pure state bank model also operated at the time. Furthermore, the charter provided for the principle of collegial management. "We preferred collegial management", stated Kandelaki, "such a rule exists in almost all state banks in Europe, and practice has fully justified it" (CSHA, Fund 1833, File 26).

The "executive function" of the state bank was entrusted to the bank's Management Board, which operated under the supervision of the bank's Council.

The Management Board consisted of the governor, the deputy governor, and two members. The deputy governor and the members of the Management Board were approved by parliament, upon the nomination of the governor and with the consent of the Council. The Management Board was tasked with "directing the bank's activities, controlling operations, appointing audits, drawing up the annual budget, and submitting it to parliament". The bank's Management Board convened as needed, but no less than once a week. Decisions were made by majority vote, and in the event of a tie, the governor's vote was decisive (CSHA, Fund 1836, File 309).

The Council of the state bank, according to the charter, constituted its supervisory body. It was composed of twelve members, elected (appointed) by parliament for a three-year term, chosen "from among persons well-known in the republic for their activities in the commercial-industrial, public-economic spheres, or in science". The Council consisted of a chairman, a deputy chairman, and seven members. Besides them, the bank's governor and one representative each from the Ministry of Finance and the Ministry of Trade and Industry were considered members. A member of the Council could simultaneously be a member of the Constituent Assembly (parliament). Council meetings were scheduled once a month, and in the event of a tie during voting, the chairman's vote was decisive (CSHA, Fund 1836, File 309).

The Council was tasked with "oversight of the general activities of the bank, the bank's cash vaults, valuables, and accounting; developing proposals to be submitted to parliament; reviewing budget estimates prior to their submission to parliament; setting and altering interest rates on loans and deposits; writing off bad debts; and, upon the nomination of the Management Board, appointing and dismissing the managers of bank branches, the chief cashier, the chief accountant, and the bank inspector". All other employees were appointed and dismissed by the bank's Management Board. All bank officials, as well as members of the Management Board and the Council, signed a written pledge of confidentiality (CSHA, Fund 1836, File 309).

As is evident from the institutional structure, the Council of the state bank possessed broad authority that extended beyond a purely supervisory function; in particular, it held the prerogative to establish and modify interest rates. It may, therefore, be argued that the bank's policy was effectively determined by the Council in close interaction with the Management Board. Given that two government representatives were ex officio members of the Council and that Council members could simultaneously serve as members of parliament, the bank of issue was potentially subject to significant influence from the ruling political force.

The organizational structure of the state bank comprised the head office, branches, and agencies. The bank was authorized to establish branches in the major commercial and industrial centers of the republic, while its agencies were limited to performing basic banking operations.

The bank's operational year ran from 1 January to 31 December. An annual report, prepared by the Management Board and reviewed by the bank's Council, was submitted to the State Comptroller. During the preparation of budget estimates, as well as in subsequent periods, the bank was subject to an audit by the State Comptroller. The audit findings were forwarded to the Management Board for an appropriate response and were subsequently discussed at a meeting of the bank's Council. The State Comptroller was required to submit a report on the bank's annual budget to parliament no later than 1 July. Finally, the governor of the bank was required to present the bank's annual report to parliament by 1 September. In addition, the bank was obliged to periodically publish a balance sheet reflecting its principal accounts.

In its operational structure, the State Bank of the Democratic Republic of Georgia did not represent a typical central bank in the modern sense. Alongside the functions of currency issuance, acting as the state's fiscal agent, and serving as the bank of banks, it also provided services to legal entities and individuals. In this regard, Lortkipanidze wrote: "In our small state, this bank must become not only the principal but the sole regulator of money circulation; it must be the reservoir into which all free money enters and from which it is distributed to strengthen trade, industry, and the economic sector; therefore, the volume of entrusted funds will be of the utmost importance... The entrusting of money, however, will be founded solely on trust" (Collection of Legal Acts of the Democratic Republic of Georgia 1918-1921, 1990). This view was also shared by the government, which believed that the purpose of the state bank was "to facilitate trade, industry, and the economy in general in the form of credit, and to regulate money circulation within the

state" (Collection of Legal Acts of the Democratic Republic of Georgia 1918-1921, 1990).

According to the charter, the state bank performed the following types of operations:

- Discounting of bills of exchange and other term obligations – the bank accepted domestic and foreign promissory notes, obligations of state and private companies, coupons, and checks.
- Issuance of loans – the bank engaged in credit operations through the pledging of non-perishable goods, bills of lading and receipts of shipping and transport institutions, railway freight notes, and metals; and through the pledging of all types of securities guaranteed by the government and local self-governments, and bonds of mortgage and credit institutions. Upon the decision of the bank's Council, it was also possible to issue loans against the pledge of foreign state bonds.
- Acceptance of deposits – the bank accepted term and demand deposits. Deposits were accepted from individuals, commercial-industrial partnerships and societies, public institutions, banks, and other credit institutions. Securities, precious metals, all kinds of valuables, and old documentation were also accepted as deposits.
- Trading in promissory notes and precious metals – by resolution of the Council, the bank could engage in the buying and selling of promissory notes and checks. By resolution of the Council and in agreement with the Ministry of Finance and the Ministry of Trade and Industry, the bank was permitted to conduct the buying and selling of gold and silver in Georgia and abroad.
- Fund transfers and commission operations – the bank executed correspondent transfers, issued letters of credit, and provided commission services for private individuals, banking and credit institutions, and commercial-industrial organizations.
- Treasury and state operations – the cash funds of the state treasury were deposited into the state bank interest-free; it could pay interest using state loan coupons, issue new coupon sheets, and exchange bonds; conduct drawings of the state lottery, pay the value of the tickets drawn, place the winning funds into premium loan tickets, and perform identical operations with government-backed loans; sell newly issued state and government-backed securities, convert issued loan bonds into new ones, and pay the redemption price of the bonds through the treasury account; and collect state taxes on the appropriate accounts of the treasury (Collection of Legal Acts of the Democratic Republic of Georgia 1918-1921, 1990).

Adoption of the Charter and the Law, and the Opening of the Bank

The parliamentary consideration of the state bank's charter began on 2 June 1919. Following discussions in the Budget and Finance Commission, the draft was returned to the government with comments. On 23 September, the Minister of Finance resubmitted a revised version of the charter to parliament. On 6 October, parliamentary factions presented their opinions, after which an article-by-article review commenced in a plenary session on 7 October that continued through the end of the month. Beginning on 11 November, the Budget and Finance and Legal Commissions worked on the "Decree on the Establishment of the State Bank", which was subsequently transformed into a law and adopted by parliament in a plenary session on 31 December 1919.

At its session on 16 March 1920, the Constituent Assembly of Georgia elected Iason Lortkipanidze as Governor of the State Bank; Nikoloz Eliava, Chairman of the Assembly's Budget and Finance Commission, as the Chairman of the Council; and Svimon Mdivani, Deputy Chairman of the Constituent Assembly, as the Deputy Chairman of the Council. The following individuals were elected as members of the Council: Vasil Berelashvili, Giorgi Zhuruli, Diomide Topuridze, Adam Porakashvili, Konstantine Meskhi, Parmen Chichinadze, and Ivane Tsagareli (Republic Newspaper, 1920).

Despite the election of the Governor and Council members, the appointment of the Management Board and the allocation of a building for the bank were delayed. As a result, the state bank was not opened until 24 July 1920. At the opening ceremony, the Minister of Internal Affairs, Noe Ramishvili, addressed the audience on behalf of the government; remarks were also delivered by the Chairman of the Council, Nikoloz Eliava and the Governor Iason Lortkipanidze (Spanderashvili, 2019).

It can thus be observed that the establishment of the state bank (bank of issue) in independent Georgia was a protracted process: more than a year elapsed between the submission of the charter to parliament and the opening of the bank. During this period, the country lacked a fully-fledged national currency. Initially, banknotes of the Russian imperial ruble performed the function of a means of payment. In early 1918, bons of the Transcaucasian Commissariat entered circulation and, due to an acute shortage of cash, the government of independent Georgia temporarily granted them legal tender status and continued their issuance until July 1919. In that month, the bons of the Democratic Republic of Georgia were introduced into circulation. In the absence of a central bank following independence, their issuance was performed by the Ministry of Finance (Javakhishvili, 1998).

Conclusion

The process of establishing the State Bank of the Democratic Republic of Georgia (1918–1921) took place under extremely difficult conditions. In the aftermath of the Russian Empire's defeat in World War I, the two revolutions of 1917, the collapse of the empire, and the resulting economic breakdown, Georgia—as well as the wider region—was engulfed in economic and financial chaos. In response, the government and the National Council of independent Georgia carefully examined international experience in organizing banks of issue. Taking into account the prevailing economic and political realities, they chose the model of a so-called "pure" state bank, which envisaged the subordination of the state bank not to the government, but to parliament.

The management structure of the state bank was based on the principle of collegiality, with clearly delineated functions among the governor, the board of directors, and the Council. However, the Council's authority extended somewhat beyond the traditional scope of a supervisory body, and the rules governing its composition created risk of political influence over the bank's activities. It is also noteworthy that, under its charter, the bank performed not only the functions of a bank of issue, a bank of banks, and the government's fiscal agent, but also provided settlement and credit services to both individuals and legal entities. This arrangement does not fully correspond to the typical operational structure of a central bank; however, given the circumstances of the time, it may have been a reasonable, albeit temporary, solution.

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INFORMATION FOR AUTHORS

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Article Structure:

1. Introduction
2. Literature Review
3. Theoretical Section – The economic model/theory on which the article is based
4. Data Analysis
5. Results and Discussion
6. Conclusion

The length of the article should be between 2,500 and 5,000 words.

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Example: Smith, J. (2020) *Global economics*. London: Routledge.

b. Chapters in Books

- Author (surname first, then initials);
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- Editor(s) – first initial, then surname;
- Title of the book, in italics;
- Place of publication;
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- Page numbers.

Example: Green, T. (2018) 'Innovation in education'. In: Black, K. (ed.) *Modern learning theories.* 2nd edn. Oxford: Oxford University Press, pp. 55–70.

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- Author(s);
- Year of publication;
- Article title;
- Name of newspaper/journal, in italics;
- Volume/issue number;
- Month and date (for newspapers) or month/quarter (for journals), if volume/issue is not available;
- Page numbers.

Example: Taylor, A. and Brown, M. (2019) 'Climate change and agriculture',
Journal of Environmental Studies, 45(3), pp. 215–230.

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- Author(s) or organization responsible for the website;
- Year (use *no date* if unavailable);
- Title of the webpage or document in italics;
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Example: World Health Organization (2022) *Mental health and COVID-19*. Available at: https://www.who.int/mental-health-covid (Accessed: 30 April 2025).

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