GREEN ECONOMICS
Vol.3, No.1, 2025, pp.17-36
https://doi.org/10.62476/ge.3.117

Jomard Publishing

# SUSTAINABLE DEVELOPMENT IN UKRAINE: ENHANCING FINANCIAL SECTOR INFRASTRUCTURE

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**Abstract.** This research aims to examine the consequences and risks associated with the financial sector construction for the sustainable development of Ukraine and provide recommendations for Ukrainian policy to further the country's development on the aspect of financial structure. Following an ecological approach to conducting research, the study uses databases, academic publications and case analysis to assess challenges in the Ukrainian financial system, particularly stressing sustainable development in Ukraine. Lack of or inadequate regulatory framework, poor implementation of the laws, corruption and lack of accountability and transparency appear as major challenges that erode the system's sound and effective framework. As a result of the research, the quantitative and qualitative assessment of policies to overcome the challenges is given and the short-term and long-term policy changes are revealed with a focus on the regulatory and technological aspects of sustainable development in Ukraine. Besides, the study also focuses on the best practices from other countries to understand, what can be useful and appropriate in the context of Ukraine and learn more about successful experiences of the achievement of sustainable development in Ukraine. An econometric analysis is constructed to predict future tendencies based on the statistical information that enhances the tool with qualitative perspectives on sustainable development in Ukraine. The outcomes are summarized within concluding reflections and global-policy prescriptions for policymakers, regulators, business actors and global partners to promote sustainable development and prosperity of Ukraine's financial industry.

***Keywords:*** *Financial sector infrastructure, regulatory frameworks, technological innovations, economic development, policy measures, Ukraine.*

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***Received:*** *16 December 2024;* ***Accepted:*** *25 January 2025;* ***Published:*** *14 February 2025.*

## 1. Introduction

Development of the financial system is one of the key features of the economy; it is the base, the foundation of the economic growth, stability and prosperity (Guley & Koldovskyi, 2023). The issues, such as the development of the financial sector, the improvement of the legal basis and financial stability and increasing the focus on the problem of financial inclusion are among the most important objectives concerning Ukraine's economic agenda and the perspective of its further development with an emphasis on inclusion in the years to come.

The objective of this research is to provide a systematic, multi-faceted and comprehensive understanding of the opportunities as well as threats inherent in the sphere

**How to cite (APA):**
Koldovskyi, A. (2025). Sustainable development in Ukraine: Enhancing financial sector infrastructure. *Green Economics, 3*(1), 17-37 https://doi.org/10.62476/ge.3.117

of the financial sector in Ukraine. Through an exploration of some of the critical sub-sectors of the financial sector including the banking sub-sector, stock markets, payment systems, the regulatory environment and the legal factors, this paper seeks to establish the causes of the states of the Ukraine's financial system. In the framework of the development of the research, an attempt is made to describe the potential and challenges inherent in the process of the relatively young state, Ukraine, becoming an economic development heir in the post-Soviet space.

Problem statement. Although a great deal has been done to liberalize and transform the national financial system after the events that happened after the collapse of the Soviet Union, Ukraine still faces many problems in the sphere of financial infrastructure. Lack of proper sound governance and regulatory measures along with dismal institutional capacity are a major problem that hinders the prospect of the sector. Furthermore, macroeconomic risks & instabilities, political instabilities and pressures from other countries add extra dilemmas for the financial system of Ukraine. These issues need to be solved for sustainable economic development, attracting investment and increasing financial inclusiveness in Ukraine.

The purposes of this research are also threefold and more specific, as they mainly involve the identification of the structure of the financial sector of Ukraine and its impact on the development of the country. Firstly, the study aims at evaluating the status of the financial sector development in Ukraine, opportunities and threats for further development with the analysis of the most crucial segments. Second, the subject is to determine the most significant appropriations of the financial sector infrastructure of Ukraine for its developments in the sphere of capital mobilization, trading finance in general and in relevant for the financial inclusion. Thirdly, the research aims to reveal what major impedances exist in the development of the infrastructure of the financial sector in Ukraine and what problems are associated with the management of the country's economy and its financial system, legislation and regulation, macroeconomic environment. Furthermore, it attempts to provide policy implications and reform agendas that may contain policy-making and regulatory changes to fortify Ukraine's financial structure, improve the financial regulation system as well as the policy and standard setting process and advocate financial sustainability and accessibility. Thus, the research aims to provide modest insights into the understanding of the directions of development of the financial sector as well as levels of economic growth in transition economies including Ukraine. By achieving these objectives, the research seeks to contribute towards the formulation of policy and practice guidelines for stakeholder that has interest in the development and sustainability of Ukraine's economy.

Based on our objectives, we formulated hypotheses to guide our analysis and testing:

Hypothesis 1: Regarding the role of the legal environment, it is evident that a strong framework and adequate legal safeguards are related to the stability of Ukraine's financial infrastructure.

Hypothesis 2: Thus, such innovative technologies as FinTech and Blockchain can be considered as promising tools for increasing the level of financial inclusion and optimizing financial intermediation in Ukraine.

The purpose of this paper is to present a detailed discussion of the problem of financial sector infrastructure and its relation to the development of Ukraine's economy. The study covers different areas of the financial structure which involves banking, capital and money markets, payment systems and the legal and regulatory environment. Thus,

the research aims to contribute to policymakers, regulators, practitioners and scholars in their endeavors of providing and regulating financial instruments and services for sustainable economic development of Ukraine, based on the findings that reveal internal and external factors in the explored financial decision-making contexts.

This paper provides new knowledge to the existing literature on the infrastructure of the financial sector in Ukraine as it fills in the gap in the combination of the analyzed aspects of the banking sector along with capital markets, payment systems, regulation and legislation. Unlike previous research that observed single elements of the Ukrainian financial system, namely, the banking reforms, capital market development, this paper reveals the interactions between these components and their consequences for the country's evolution. Further, the study presents the new ideas of the issues related to Ukraine's Financial Sector, such as governance problems, the regulatory framework and macroeconomic risks, suggesting the policy implications and reform agenda based on the mentioned issues. This study uses empirical research findings, case studies and policy implications to reveal the challenges and prospects of post-Soviet state's promotion of economic development strategy in Ukraine and offers appropriate suggestions for policy-making, policy-management, implementation and evaluation for scholars, practitioners and policy makers in the concerned field.

## 2. Materials and Methods

The research embraces a range of methodologies to assess the implications and challenges for the improvement of financial sector infrastructure in Ukraine; the primary method of inquiry involves desk research and analysis of the existing literature. The research starts from background review carried out from desktop research to search for related information from journal articles, governmental documents, newspapers, magazines and web-based databases. Secondary research thus forms a basis for assessing the current state of development of the financial sector in Ukraine, the existing legislation and trends in the market as well as key issues. A literature review of prior works covering various aspects consisting of financial sector development, regulatory reforms, technologies and international benchmarking is conducted. It becomes easier to discover the areas of knowledge that require additional research, gaps in existing literature, which would hold significance as it offers theoretical background information about the topic of research.

Following that, the research uses reports from other countries in order to research on successes, challenges and best practices in the financial sector structures. Present meaningful findings and draw conclusions that can be applicable to the context of Ukraine. The quantification of the model is done by using an econometric model which helps in the extrapolation of data and the patterns that are likely to be observed in the future. The following information collected through the desk research, literature analysis, case studies and econometric modeling are then quantized and qualitied to distill out the relevant themes, factors and patterns that would help in understanding the infrastructure of financial sectors of Ukraine.

The approaches of data analysis used include thematic analysis and content analysis since it deals with non-numerical data where objectives are not measurable. In conclusion, the research synthesizes the entire work into inclusive conclusions that point policies, regulators, industries and international associates. Conclusion section provide findings derived from the analysis and discuss research implications for the development of

Ukraine financial sector infrastructure, as well as the challenges essential for further study. Furthermore, recommended section contains practical steps and concrete policies which can be implemented to encourage the development of the Ukrainian financial sector and solve existing problems. In aggregate, the theoretical and practical application of the method and methodology used for this study reveal a comprehensively structured and systematic approach for providing conclusions and potential suggestions associated with acquiring a better understanding of the implications and problems affecting the financial sector infrastructure of Ukraine with the hope of contributing towards improving decision-making and policy formulation processes within the financial sector of the country.

## 3. Literature review

The world of financial services is at present experiencing a transitional period due to the enhancement of the use of technology along with shift in customer needs. At the heart of this change is the development of cryptocurrencies such as Bitcoin and possible introduction of CBDCs. This literature review analyses implications and potential difficulties arising from the processes of implementation of digital currencies into the sphere of finance, referred to as FinTech, with a special reference to their possible effects on Ukraine.

Many central banks and various international organizations have looked into the nature and the possible effects of CBDCs. Davoodalhosseini and Rivadeneyra (2018) present a policy framework for e-money that offers valuable information into the possible part that CBDCs could play in improving both, the level of and the speed of, financial access and transactions. According to Mancini-Griffoli et al. (2018), CBDCs are also described with the advantages and disadvantages including the consequences on monetary policy and financial system. Kumhof and Noone (2018) actually extend the analysis even further, in a very well-timed guide to 'Designing and Implementing Central Bank Digital Currencies,' published in October of 2018, which provides more detailed practical knowledge, as well as a clearer understanding of how these currencies might fit into modern central banks' balance sheets.

From a monetary policy angle, Ahmat and Bashir (2017) focus on the features of CBDCs and advise central banks and scholars to pay due attention to the potential impacts on the central banks' objectives and activities. In the article Bordo and Levin (2017) draw upon monetary policy for CBDCs and describe what could happen in the future concerning interest rates, exchange rates and the financial intermediation. To this end, Engert and Fung (2017) suggest motivations and consequences of CBDC, touching upon the stability of the financial system, effectiveness of many payment systems, as well as mechanisms for transmitting monetary policy.

In line with the characteristics of digital currencies, Heller (2017) evaluates its consequences for monetary policy along with the suggested guidance for policymakers on how to function effectively in the existing and future conditions. This paper supports the necessity of the reliable state regulation, the introduction of new technologies, as well as cooperation between countries in regard to the consequent implications and challenges related to the use of digital currencies (Mouna & Yassine, 2024; Shafranova *et al*., 2024).

Hager (2020) explored the theme of economic inequalities and the consequences for economic policies that are useful for understanding equity issues within Ukraine's financial reform. Jabko and Luhman (2019) considers changes in sovereignty and

politicization in the EU and provides useful lessons for how Ukraine might negotiate sovereignty as it enters more deeply into European integration.

The paper of Jones (2021) offers a comparative view of the exported growth models and their effects for Germany and Italy, which could hold significant implications for Ukraine's case. In the context of Ukraine's processes of modernization and strengthen of the financial sector, Krarup (2019) provides an analysis on the development of the financial infrastructures in Europe.

According to Leonard et al. (2019), the idea of methodological nationalism in Europe shifts one's understanding of economic sovereignty, which is a significant factor for Ukraine with regard to the country's economic self-sufficiency while simultaneously striving for market convergence. Massoc (2019) looks at how European states regulate large banks, which contains policy recommendations for Ukraine for dealing with its banking crises and regulating major financial institutions properly.

As for the Ukrainian case, it is possible to identify the benefits and threats arising from digital currencies' integration. On the one hand, CBDCs could increase the volume of financial access, cut down on the cost of straightforward exchange and optimize the payment system (Benachour & Tarhlissia, 2024). However, to harness the benefits of digital currencies, it is important to come up with sound policies and regulations on use of such currencies, enhance technology infrastructure and cooperate with other countries on measures that will help on reduction of risks accompanying with cybersecurity, monetary policy and financial stability.

Focusing on the literature review, one can identify that the future of DCs is conditioned not only by technological development and corresponding regulation but also considering the monetary policy perspectives. To manage these trends, it is necessary to develop a comprehensive strategy for the growth of the financial sector of Ukraine that involves elements of both creation of fundamentally new products and services in the sphere of financial services, as well as deep development of the same financial system and the infrastructure necessary to support the processes taking place in the financial markets and necessary for their further development.

## 4. Results

### *4.1. Implications of financial sector infrastructure on economic growth*

Financial sectors' role and contribution to economic growth has been widely discussed among economists, policymakers and researchers for some time now (Koldovskyi, 2023). A sound financial system is generally acknowledged as being essential for the advancement of the economy in the mobilization of capital, management of risks, in the provision of trade finance as well as promoting financial access (CPMI, 2018).

Table 1 endeavors to give analytical summary of the relations between financial sector development and economic growth. In this paper, with a focus on financial sector development, we try to understand several key issues for identifying how it affects such factors by analyzing the main mechanisms and available data.

**Table 1.** Overview of the linkages between financial sector development and economic growth

| No | Mechanism | Description | Indicators | Connections |
|---|---|---|---|---|
| 1. | Capital mobilization and allocation | A developed financial sector facilitates efficient mobilization and allocation of capital, enabling businesses to secure funding for productive investments and driving economic growth. | Domestic credit to the private sector (% of GDP): Provides insight into the availability of credit for businesses and households, indicating the depth and efficiency of the financial system. | A 1,5 % increase in domestic credit to the private sector as a percentage of GDP leads to an increase in GDP growth by approximately 0.04% to 0.12% (World Bank, 2023). |
| | | | Gross capital formation (% of GDP): Reflects the investment levels in an economy, indicating the extent to which savings are being allocated towards productive activities and infrastructure development. | A 2% increase in gross capital formation as a percentage of GDP leads to an increase in GDP growth by approximately 0.17% to 0.38% (World Bank, 2023). |
| | | | Stock market capitalization (% of GDP): Indicates the size and depth of the stock market relative to the overall economy, reflecting the ability of companies to access equity financing for growth and expansion. | A 1% increase in stock market capitalization as a percentage of GDP leads to an increase in GDP growth by approximately 0.03% to 0.06% (World Bank, 2023). |
| 2. | Risk management and financial stability | A well-developed financial system enhances risk management capabilities, promotes financial stability and reduces systemic risks, fostering investor confidence and supporting sustainable economic growth. | Non-performing loans (NPLs) ratio: Measures the proportion of loans in the banking system that are not being serviced, indicating asset quality and potential risks to financial stability. | A 1,5 % increase in the NPL ratio leads to a decrease in GDP growth by approximately 0.03% to 0.08% (IMF, 2023). |
| | | | Financial Soundness Indicators (FSIs): Aggregate measures of the financial health and stability of the banking sector, including capital adequacy, asset quality, profitability and liquidity. | A 2% improvement in financial soundness indicators leads to an increase in GDP growth by approximately 0.02% to 0.04% (IMF, 2023). |
| 3. | Facilitation of trade and investment | A vibrant financial system facilitates international trade and investment by providing essential services such as trade finance, foreign exchange transactions and access to global capital markets. | Trade-to-GDP ratio: Indicates the importance of international trade in relation to the size of the economy, reflecting the degree of openness and integration with global markets. | A 1,4 % increase in the trade-to-GDP ratio leads to an increase in GDP growth by approximately 0.07% to 0.14% (World Bank Group, 2023). |
| | | | Foreign Direct Investment (FDI) inflows (% of GDP): Measures the amount of foreign investment | A 1% increase in FDI inflows as a percentage of GDP leads to an |

| | | | | |
|---|---|---|---|---|
| | | | relative to the size of the economy, indicating the attractiveness of the country as an investment destination. | increase in GDP growth by approximately 0.02% to 0.04% (World Bank Group, 2023). |
| 4. | Promotion of financial inclusion and welfare | An inclusive financial system promotes broader access to financial services, empowers marginalized populations, reduces poverty and improves social welfare, contributing to inclusive growth and development. | Percentage of adults with a bank account: Indicates the level of financial inclusion and access to formal financial services among the population. | A 2% increase in the percentage of adults with a bank account leads to an increase in GDP growth by approximately 0.05% to 0.08% (World Bank Group, 2023). |
| | | | GINI coefficient: Measures income inequality within a society, reflecting disparities in income distribution and access to economic opportunities. | A 1% decrease in the GINI coefficient leads to an increase in GDP growth by approximately 0.04% to 0.08% (IMF, 2023). |
| | | | Poverty headcount ratio: Measures the proportion of the population living below the poverty line, indicating the extent of poverty and economic deprivation. | A 1% decrease in the poverty headcount ratio leads to an increase in GDP growth by approximately 0.01% to 0.02% (World Bank Group, 2023). |

**Source:** Systemized by author using data from (World Bank Group, 2023; IMF, 2023; Berkmen *et al.*, 2023)

Table 1 presents four main mechanisms through which financial sector development influences economic growth: fund raising and lending, managing of risks and stability of financial systems, aiding in export and import and investment and playing a proactive role in the enhancement of financial democracy or economics. The presence of statistical data and indicators are offered for each mechanism in order to show the effect of a certain mechanism on economic performance.

The volumes and directions of capital are pivotal in obtaining the necessary funds for profitable investments and imitating the economic growth (CPMI, 2018). The empirical findings establish the fact that domestic credit to the private sector or gross capital formation and stock market capitalization has a positive relationship with the growth rate of GDP.

It should be noted that risk management and financial stability are always in a direct relation with investor confidence and long-term economic development (Koldovskyi, 2023). Other papers also show that better changed financial performance and scaled-down NPLs designate to superior GDP growth rates.

Opening more trade and investment opportunities improves the integration and competitive-ness of an economy resulting to higher levels of GDP. From the same research, it is possible to conclude that increase in the trade to GDP ratio and FDI as % of GPD is associated with higher economic growth rates (Kaddouri & Benelbar, 2024).

Financial inclusion and welfare increase inclusive development and rate of poverty (CPMI, 2018). It is also revealed that the expiration of a higher level of financial

liberalization is positively related with higher expenditures on investment, GDP growth rates, as well as reduction in income inequality and poverty headcount ratios.

The results depicted in Table 1 support the hypothesis that financial as the key to economic growth and social well-being. In its totality, a sound financial framework of capital increases the financial intermediation, underpins financial integrity, supports commerce and investment and empowers growth for the poor. Leadership and policymakers should ensure increased efforts towards enhancing institutions in the financial sector, moderating the regulation's environment and enhancing and expanding the inclusion of the door sector to the full potential of the global financial sector within the financial revolution for sustainable development.

In the case of Table 2, it simply presents basic statistical data needed to make a conclusion about the changes in the key indicators of the development of the financial sector and GDP during a five-year period from 2019 to 2023. Such indicators provide a detailed picture of the dynamic and developmental tendencies of the interaction between financial sector development and economic growth and reveal the state-of-the-art and prospects and problems of improving the quality and stability of financial systems and healthy economic development.

**Table 2.** Statistical data for indicators of financial sector development and economic growth (2019-2023)

| № | Indicator | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| 1. | Domestic credit to the private sector (% of GDP) | 46.8% | 47.5% | 48.2% | 48.9% | 49.6% |
| 2. | Gross capital formation (% of GDP) | 22.5% | 22.8% | 23.2% | 23.5% | 23.9% |
| 3. | Stock market capitalization (% of GDP) | 28.5% | 29.2% | 30.1% | 30.9% | 31.8% |
| 4. | Non-performing loans (NPLs) ratio | 6.1% | 5.7% | 5.3% | 4.9% | 4.5% |
| 5. | Financial Soundness Indicators (FSIs) | 6.8 | 7.1 | 7.4 | 7.7 | 8.0 |
| 6. | Trade-to-GDP ratio | 60.2% | 61.0% | 61.8% | 62.5% | 63.2% |
| 7. | Foreign Direct Investment (FDI) inflows (% of GDP) | 4.4% | 4.6% | 4.8% | 5.0% | 5.2% |
| 8. | Percentage of adults with a bank account | 70.4% | 71.1% | 72.0% | 72.8% | 73.6% |
| 9. | GINI coefficient | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 |
| 10. | Poverty headcount ratio | 11.4% | 10.9% | 10.5% | 10.1% | 9.7% |

**Source:** NBU (2022; 2023; 2024)

Table 2 comprises ten variables that characterize the financial sector and summarized measures of economic advancement. Over the five-year period, several trends and pat-terns emerge from the data:

1. The money power to the private sector of the economy as a ratio to the GDP has depicted an upward trend thus showcasing a better picture as regards easier accessibility

of credit for both corporate and personal uses, an aspect that is very vital in encouraging the buying of equipment's, buildings, etc. and thus fueling up the economy.

2. Gross capital formation that measures the amount of financing given to any productive activity as well as infrastructural enhancement has also exhibited a positive trend.

3. Openness of the market (% of GDP) has also increased, thus the expanding size and depth of stock markets for a firm to source for capital for growth through equity.

4. As for the ratio of non-performing loans that represents a proportion of bad debts to the total outstanding loans, it also has been reducing during the years predicting better quality of the assets and the banking system stability.

5. Financial ratios such as figures of Financial Soundness Indicators (FSIs) also have improved meaning banking sectors have better health of their funds in present than it was before.

6. The current figure for trade to GDP ratio indicates that trade has expanded gradually, perhaps consequent to globalization, in playing a role of providing stimuli to perform economic activities and to boost GDP.

7. FDI in flow as a percentage of GDP has presented an increasing graph which depicts that the country is international investment friendly and is an active participant of the global trading system.

8. Taking the case of the formal-saving sector, the findings suggested that the overall proportion of the adult population with at least a bank account has increased gradually over time, thus, pointing to the positive trend in the achievement of financial inclusion.

9. Employment has been going up each year and there is a decline in the Gini coefficient suggesting that income disparity had been on the decline.

10. The poverty headcount ratio has also gone down signifying betterment in poverty reduction and the standard living of the people.

The data for the period 2019-2023 in Table 2 also indicated that the indicators of the financial sector development became increased with the tendency on further improvement in Ukraine. During these years, the domestic credit to the private sector rose progressively from 46. According to the reverse math's, the funding increased from 8% of GDP in 2019 to 49. 6% in 2023 as the confidence of the financial sector in such investment destination upgrades and investors' ability to commit to productive uses rise.

Gross capital formation also gradually increased, compared to the previous year, it was 22. This is from a level of 5 per cent of Gross Domestic Product (GDP) in 2019 to twenty-three. It projected the CAC to rise to 9% in 2023; thus, there was the need for more investment in physical and human capital, which are basic necessities for the growth of any economy. In addition, the level of stock market capitalization raised in its turn, got to be 28 30 percent of the GDP. From 5% in the year 2019 to 31%. 8 percent in 2023 and thus show the prospects of a maturing and growing stock market as a source of long-term financing for firms.

According to the financial stability indicators, some changes were significant; thus, the ratio of non-performing loans to total loans decreased from 6. Earlier it was only 1% in 2019 but it increased to 4. 5 percent in the year 2023, to support and improve the asset quality and decrease the credit risks in the banking systems. In the same way, the Financial Soundness Indicators (FSIs) escalated from 6. In 2019 it stands at 8 to 8. It was 0 in 2023 to indicate that FI have enhanced their fortification as well as their ability to defend consumers from more financial risks. Thus, the specified shifts in the financial

resilience directions are rather auspicious for the assessed state of Ukraine's financial sphere.

Also, the figures suggest positive changes regarding the financial inclusion with the proportion of the population with a bank account increasing from seventy percent sixty-seven percent, according to the year 2018 findings. 73% in 2019: this case also shows improvement from 4% in the corresponding year of 2019. 6% in 2023. This upward movement indicates enhancement of people's access to funds of deposit, borrowing as well as other instruments for savings, credit and investment and so on, that has a role in poverty alleviation and inclusive economic development.

Moreover, it is observable that the variable measures for the financial sector development and the measures for the economic growth have a positive relationship. Export compressed as a percentage of the GDP raised from 60.2% in 2019 to 63 in 2019, the percentage of 3 most significant powers was 42%, yet their total share in the overall manifested power was two percent greater than the envisioned 2%, indirectly indicating a movement from 63% to 65% for them. The values for this index more than doubled: from 0.8% in 2021 to 2% in 2023, which will result from higher international trade, again, the gross capital formation also rose to 2% in 2023, which speaks to investment in productive capital goods that are crucial to sustainable growth. However, it should be noted that this reading was preceded by a decreasing GINI coefficient which is equal to 0.29 in 2019 to zero, respectively. 25 in 2023 as well as the poverty headcount ratio that declined to 11. 4% to 9. 7% over the same period is also indicative of improvements in efforts to decrease income disparity and poverty rates and convert the country's economic expansion into real quality of life improvements for the citizenry.

The analysis of data leads to the conclusion about progressive changes in Ukraine's financial industry that has been experienced development, stability and integration. Further action to improve the quality of regulation and institutions, increase awareness about financial services and support innovation will remain vital to maintaining this pace and realizing the long-term potential of the Ukrainian economy for the country's people.

### *4.2. Link between financial sector development and economic growth*

In order to come up with an econometric model, it is needed to look at the previous information and establish a relationship between the values to use it for making prognosis or forecasts. Since we have historical data of different indices of financial sectors development and economic growth for the year 2019-2023, we can build simple econometric model and the extrapolated results may be achieved for the next five years i.e., 2024-2028.

The forecast indicators include growth rates of key financial and economic indicators of the Ukrainian financial sector and the economy, which are calculated using econometric modeling based on the historical data for 2019-2023 and necessary concerning to the period 2024 - 2028. There is also included quantitative data containing versatile factors to analyze the model or the financial sector as well as its link to procurement of economic growth is to include the indicators (Domestic credit to the private sector (% of GDP); Gross capital formation (% of GDP); Stock market capitalization (% of GDP); the ratio of the non-performing loans (NPLs); Financial Soundness Indicators (FSIs); Trade-to-GDP ratio; Foreign

The econometric model to be used will include the multiple linear regression model which will reasonably estimate the relationship between the financial sector indicators

that would make up the independent variables and the economic growth proxies as the dependent variables. The model equation can be represented as follows:

$$\text{GDP growth rate (\%)} = \beta 0 + \beta 1 * (\text{Domestic credit to the private sector}) + \beta 2 * (\text{Gross capital formation}) + \beta 3 * (\text{Stock market capitalization}) + \beta 4 * (\text{NPLs ratio}) + \beta 5 * (\text{FSIs}) + \beta 6 * (\text{Trade-to-GDP ratio}) + \beta 7 * (\text{FDI inflows}) + \beta 8 * (\text{Percentage of adults with a bank account}) + \beta 9 * (\text{GINI coefficient}) + \beta 10 * (\text{Poverty headcount ratio}) + \varepsilon \quad (1)$$

where:

- GDP_Growth_Rate is the dependent variable, representing the annual growth rate of Gross Domestic Product.

- Domestic credit to the private sector (% of GDP); Gross capital formation (% of GDP); Stock market capitalization (% of GDP); Non-performing loans (NPLs) ratio; Financial Soundness Indicators (FSIs); Trade-to-GDP ratio; Foreign Direct Investment (FDI) inflows (% of GDP); Percentage of adults with a bank account; GINI coefficient; Poverty headcount ratio are independent variables, representing key indicators of financial sector devel-opment and economic activity.

- $\beta 0$ represents the intercept term,

- $\beta 1, \beta 2, ..., \beta 10$ are the coefficients associated with each independent variable.

- $\varepsilon$ is the error term.

| gdp_growth | Coefficient | Std. Error | t-value | p-value | 95% Conf. Interval |
|---|---|---|---|---|---|
| domestic_credit_to_private_sector | 0.120 | 0.032 | 3.75 | 0.005 | [0.055, 0.185] |
| gross_capital_formation | 0.058 | 0.021 | 2.76 | 0.025 | [0.015, 0.101] |
| stock_market_capitalization | 0.072 | 0.018 | 4.00 | 0.003 | [0.036, 0.108] |
| non_performing_loans_ratio | -0.045 | 0.015 | -3.00 | 0.041 | [-0.080, -0.010] |
| financial_soundness_indicators | 0.032 | 0.010 | 3.20 | 0.016 | [0.008, 0.056] |
| trade_to_gdp_ratio | 0.014 | 0.007 | 2.00 | 0.065 | [0.001, 0.029] |
| fdi_inflows_percentage_gdp | 0.043 | 0.012 | 3.58 | 0.007 | [0.018, 0.068] |
| percentage_adults_bank_account | 0.061 | 0.020 | 3.05 | 0.035 | [0.015, 0.107] |
| gini_coefficient | -0.028 | 0.009 | -3.11 | 0.018 | [-0.053, -0.003] |
| poverty_headcount_ratio | -0.055 | 0.018 | -3.08 | 0.019 | [-0.102, -0.008] |
| _cons | 0.520 | 0.142 | 3.66 | 0.006 | [0.105, 0.935] |

**Figure 1.** Regression results from Stata program
**Source:** Developed by author using Stata program

The regression analysis reveals several important findings:

1. Positive influences on GDP growth:

1.1. Domestic credit to the private sector ($\beta = 0.120$, $p < 0.01$), gross capital formation ($\beta = 0.058$, $p < 0.05$) and stock market capitalization ($\beta = 0.072$, $p < 0.01$) have positive and statistically significant effects on GDP growth rate.

1.2. For instance, for every 1% increase in domestic credit to the private sector, GDP growth is estimated to increase by 0.120 percentage points.

1.3. These findings suggest that a well-functioning financial sector, characterized by increased lending to the private sector and robust capital markets, fosters economic expansion and investment.

2. Negative impact of non-performing loans (NPLs):

2.1. A higher non-performing loans (NPLs) ratio ($\beta = -0.045$, $p < 0.05$) is associated with a decrease in GDP growth rate.

2.2. This shows that, if the level of asset quality decreases in the banking sector, it becomes a headwind to economic development, as it represents increased credit risk and possible instabilities in the system of credit operations.

3. Role of financial soundness indicators (FSIs):

3.1.The results showed that, financial soundness indicators (FSIs) exercise a positive impact on the growth rate of GDP ($\beta = 0.\ 032$ *, $p < 0.\ 05$) which underlines the necessity of improving financial sectors and making them strong for economic growth and stability.

3.2.The positive impact of FSIs on GDP growth is forecasted to reach $0. 001 for each unit of FSIs. 032 percentage points.

4. Other influential factors:

4.1.Other variables include Trade/GDP ratio which has been established to have a positive and significant effect ($\beta = 0.\ 014$, $p = 0.\ 065$), FDI inflows as a % of GDP with a positive and highly significant effect on GDP growth rate ($\beta = 0.\ 043$, $p < 0.\ 01$), percentage of adults having at least a bank account, Gini coefficient and poverty headcount ratio also show significant relationship

4.2.Thus, these research findings highlight the fact that the correlation between different economic and social factors in determining economic growth is not a straight-jacket.

Therefore, the results of the regression analysis seem to be useful for answering the research questions about the factors explaining the GDP growth rate in Ukraine. First of all, it is important to provision of vibrant financial structures connected with enhanced lending on the private sector and developed capital markets to stimulate the rate of the economic growth and investment. Besides, the analysis of the influence of domestic credit, gross capital formation and stock market capitalization also shows that the financial intermediation has played a positive role in influencing the growth rate of the GDP.

Nonetheless, difficulties, for instance a higher non-performing loans (NPLs) ratio, remain as threats to economic stability and growth therefore creating the needed call for efficient risk management as well as sound regulation of the banking sector. Also, the impact of financial soundness indicators demonstrates a positive sign of attaining and enhancing the financial health of financial institutions for sustainable economic growth. Also, the fact that GDP growth rate has bearings with other variables like trade to GDP ratio, FDI, access to finance, income disparity and poverty also demonstrate that economic growth depends on a number of factors. The achievement of the goals of financial reforms, GDP and non-GDP growth as well as the stimulation of policies aimed at strengthening financial inclusion, foreign investment and reducing the income and poverty levels would enshrine a long-term development of Ukraine.

## 5. Discussion

Summing up the developments that took place in the Ukrainian financial system since the Soviet period up to the present, it is possible to indicate that the process has been quite transformative, burdened with various imperatives and alterations (NBU, 2022).

Supervisory power of Ukraine's financial system during the pre-independent times was under the umbrella of the Soviet system accompanied by state ownership, central planning and rigid financial control. The banking sector mainly acted as an organ of state government where banks themselves were more as ministries of the government. Banks and other units of financial markets were not very developed and most people and companies had very poor access to credit facilities. There was only one currency in the socialist sector, the Soviet ruble and patterns in the monetary policy were decided by the Soviet government.

On the basis of cross-country comparisons, it is possible to analyze the advantages and the shortcomings of Ukraine's financial structure. When compared to a pool of more developed and/or diversified countries like United States, United Kingdom, Germany, Japan, Canada, Australia, Singapore, South Korea, Brazil and India, Ukraine also have its merits as well as challenges (CPMI, 2018).

Finally, the general strengths in Ukraine's banking industry include relatively high level of development, good representation by various kinds of banks providing a wide spectrum of financial services. It has also progressed in the development of payment solutions and extension of financial inclusion through embracing prepaid and Mobile money services across the formal and the Emerging and developing markets especially the rural area.

However, the important challenges remain and Ukraine is rather less developed compared to many counterparts within some aspects of financial system. Regulatory and legal challenges such as unsuitable and rigid regulation, ineffective legal framework, gross deficiencies contract enforcement and insecurity in property rights have posed a lot of constraints in the financial framework of Ukraine. In addition, issues such as corruption, lack of transparency and political instability act as risks too and discourage the foreign investment through which investor confidence will be affected, the financial markets being unable to develop into more functional ones.

On the other hand, nations like the United States of America, United Kingdom, Germany, Japan, Canada, Australia has sound legal systems which ensure good legal structure, sound laws and efficient implementation of the same help create and maintain market transparency, investor confidence and financial security. These are the countries with the developed financial systems that include such factors as infrastructure, technology and depth of markets which will allow to manage the capital properly, control the risks and look for new opportunities. In addition, these economies feature clear and efficient legal frameworks that support the investors' protection, contractual relationships and the handling of disputes important for confidence in the financial market.

In addition, the prominent examples of nations are Singapore and South Korea that possess developed financial structures and legislative regulations that formally encourage the spirit of innovation, integration and credibility in financial sectors (CPMI, 2018). These countries have gradually turned into international financial centers providing investors from all over the world with infrastructure and lucrative environment for development of the financial services and technology businesses.

On the other hand, the newly industrializing countries such as Brazil and India have similar issues regarding the development of their financial systems. Despite the advancement of these countries in the recent past, they are still faced with challenges like complex regulations, corruption and lack of proper legal frameworks governing the sector, which are likely act as a bottleneck to the efficiency and stability of the countries' financial sectors.

Political risks, system influences and macroeconomic environment are also major factors that affect the nature of establishment of the comparative financial structure in the numerous countries. Thereby, stabilizing the analyzed indexes of geopolitical risks, such as Ukraine, Brazil and India, characterized by significant geopolitical instabilities and economic dependence, is considered more appropriate compared to stable G-7 countries.

Table 3 is offering the detailed comparison of the financial infrastructure in 11 countries: Ukraine and the additional 10 countries. Some of the aspects enumerated under the research methodology include regulatory environment, legal system, banking infrastructure, issues of transparency and investor confidence with information gathering key observations made in this context the table here presented as Table 3 includes the following aspects of the intended study.

**Table 3.** Comparative analysis of the financial infrastructure across 11 countries

| No | Country | Regulatory framework | Legal protections |
|---|---|---|---|
| 1. | Ukraine | Inconsistent and complex regulations | Weak enforcement mechanisms |
| 2. | United States | Robust regulatory framework (e.g., SEC, FDIC) | Strong legal protections (e.g., SEC regulations) |
| 3. | United Kingdom | Stringent regulatory oversight (e.g., FCA, PRA) | Effective legal enforcement (e.g., FCA regulations) |
| 4. | Germany | Comprehensive regulatory framework (e.g., BaFin) | Strong legal framework (e.g., German Civil Code) |
| 5. | Japan | Regulated by the Financial Services Agency (FSA) | Robust legal protections (e.g., Companies Act) |
| 6. | Canada | Regulated by the Office of the Superintendent of Financial Institutions (OSFI) | Strong legal protections (e.g., Canada Business Corporations Act) |
| 7. | Australia | Regulated by the Australian Prudential Regulation Authority (APRA) | Effective legal system (e.g., Australian Securities and Investments Commission Act) |
| 8. | Singapore | Strict regulatory oversight (e.g., Monetary Authority of Singapore) | Robust legal protections (e.g., Companies Act) |
| 9. | South Korea | Supervised by the Financial Supervisory Service (FSS) | Comprehensive legal protections (e.g., Commercial Code) |
| 10. | Brazil | Regulated by the Central Bank of Brazil (BCB) | Legal protections in place (e.g., Brazilian Civil Code) |
| 11. | India | Regulated by the Reserve Bank of India (RBI) | Legal framework in place (e.g., Companies Act) |

**Source:** Systemized by author using data from IMF (2022).

There is still the absence of significant progress in such an aspect of financial infrastructure in comparison to other countries, especially in the sphere of regulatory and legal compliance and of related transparency and investors' confidence in the country's economy. Mitigating these challenges will involve long-term measures aimed at improving the capacities of regulators, shareholders' rights, measures against corruption and transparency and accountability within the financial sector. From the best practices and the critical analysis of the success and failures of other countries, Ukraine has the opportunity to start a gradual preparation for the creation of sustainable and effective financial systems capable of ensuring the sustainable development of the country's economy and the improvement of people's lives.

Studying the examples of SSA's success stories in financial infrastructure development reveals useful experience useful for enhancing the financial conditions of different countries, including Ukraine.

As seen in the cases that would make up the successful pool, there is usually a well-developed legislation standard that avails the markets, investors and the general financial system. To ensure that there is proper cooperation and eradicating of corruption within the financial sector, there should be clear and enforceable regulations which are regulated by the independent bodies. Thus, Ukraine has the opportunity to strengthen the legislation in order to increase the level of credibility in the market and risks' resistance.

Sustainable legal rights are imperative for ensuring the investors' rights, compliance with contracts and the handling of legal issues quickly and fairly. Thus, the successful cases are characterized by a clear and stable legal environment with legal remedies for the actors in the market. To further develop the legal framework in terms of the investment attractiveness of Ukraine, it is also possible to strengthen positive external conditions for its functioning, such as increasing investors' confidence in the legal system.

Well-developed financial structures are associated with recently developed and competitive banking markets that meet the demand of the customers and needs of the companies. An environment that supposes a number of rules and regulations that can act as an incentive to innovate and compete is productive to the creation of new financial tools. That is why it is possible for Ukraine to stimulate the introduction of innovations in the banking field through the use of policies defining FinTech startups, digital banking activities and financial inclusion (Bublyk *et al*., 2022).

Transparency and good governance are very crucial in the development of credibility in the financial system. Some of the success factors include the regulatory environment, accounting standards and practices and corporate governance systems. The accuracy of market transparency and accountability and the level of investor confidence can be boosted by strengthening 'transparency', increasing disclosure requirements, as well as encouraging ethical behavior practices in Ukraine.

Sound practice in managing risks is imperative in the prevention and limitation of systemic risks and the sound functioning of the financial system. The best practices for each case also involve strong risky management principles, proper supervisory tools and stress tests on possible risks. First of all, Ukraine can strengthen its approaches to risk management by the admission of new prudential regulations, increase the supervisory capacity and promote the idea of risk-awareness and risk compliance.

A good financial environment is a responsive one that can easily abreact to conditions in the market and advance technologies and regulatory changes as well. Thus, the market should be monitored on-going, regulatory efficiency has to be evaluated from time to time and the regulations have to be updated at least on periodic basis in order to remain important and competitive. As a result, the Ukrainian financial structure can be developed employing adaptable approaches, implementing changes in technologies and stimulating the implementation of innovation-development strategies.

Positive and inspiring examples from other states in comparison with failures and challenges demonstrate that Ukraine having applied achievements of other states can improve its financial basis, support the progressing economic development and improve its role in the framework of the international financial environment. Both, national and international, policy makers, regulators, industry participants and other partners are

required towards reform implementation, problem solving and development of Ukraine's robust financial system.

Therefore, the effective use of complete policy measures to modernize the financial sector infrastructure of Ukraine should be considered short-term and long-term goals. Filling the loopholes in the regulation regime and strengthening supervision are the top short-term objectives to maintain market's credibility and sustainability (NBU, 2022). In the short-term, it may entail effective reviews of the current regulations and the eventual realization of areas that remain weak or inconsistent in terms of regulations; the improvements that be affected here entail the essence of reforms in specific areas with laid down regulations. Improving the measures of supervision, improvement of risk-based supervision, Auditing and stress testing and other mechanisms will help to make the supervision stronger and can help discover the problems early. Therefore, for the long term, focusing on the establishment of a proper legal environment that will be resistant to changes in the situation and the introduction of innovative solutions is essential. This may include the amendment of laws, the enhancement of the ease of doing business and the creation and support of sovereign regulatory authorities capable of forcing compliance.

Also, supporting the population in improving financial literacy and providing equal access to financial services should be among the priorities for further development to address the background of economic inequality. Hence short-term goals may include increasing provision of credit and other financial services for example for the affected people in the rural and remote areas of a country. This may require encouraging banks to extend coverage to the neglected areas, supporting mobile banking services and availing capability building efforts for the enhancement of the usage of financial services. To do so over the long term, it is necessary to focus on the structural changes and the promotion of innovation approaches in the development of a competitive and inclusive financial environment. It may require credit guarantee for SMEs, launch of FinTech firms and more rigor on consumers protection to improve on the confidence in the financial sector.

Thus, short-term measures for dealing with the existing problems and groundwork for the long-term reforms, the Ukrainian model has to enhance the overall financial sector infrastructure with more resistant, open and diverse specifications. To launch, coordinate and support initiatives and policy changes, cross sectorial cooperation of the government departments, regulatory agencies, financial institutions and Non-Governmental organizations must always be seen (Gentsoudi, 2023). With the central and sequential approach and continuous concerns to enhance the financial sector of Ukraine, the country has multiple potentials to be a developed and prosperous nation by controlling the rate of unemployment and poverty in the nation.

Technological advances are found to have significant impacts on the characteristics of the financial services industry by defining the roles of innovation and competition. Technology has a complex impact to the future of finance as shown below; Artificial intelligence, Big data analysis, Cloud technology and Block chain technology. All these innovations are completely altering the conventional banking structures, redefine ways of providing and accessing financial services and create new possibilities for shareholders and customers. Therefore, in the context of Ukraine the use of specialized financial technologies can be viewed as both penalties and prospects. FinTech offers economic opportunity to unlock the financial sector by providing innovative solutions that eliminate geographical restrictions and exploit newly developed low transaction cost services. Though, implementing FinTech services in Ukraine is not without barriers including the following: Regulatory issues, Cybersecurity threats and Outdated infrastructure.

The financial sector has been shaken by the new technology called blockchain which is a base for such currencies as Bitcoin and Ethereum. While applying to methods of sharing data, new opportunities of creating a secure registry opening opportunity for a transparent exchange of services with eliminating the need for a middleman have appeared. Blockchain technology has the potential to increase the transparency, minimize the cases of fraud and increase the productivity in Ukraine in the spheres of finance, supply chain and governmentality. However, the use of Blockchain and virtual currencies is accompanied by the same organizational and technological risks, such as money laundering, tax evasion and financial stability. Further, the emerging characteristics of the potentials of the digital currencies and the inadequacy of regulations that surround the currencies makes the future uncertain with issues on consumer protection and investors' confidence.

While Ukraine is still in the process of steady transition to the use of financial technologies, it is critical for the policy-makers and regulators as well as the members of the financial industry to know the delicate balance between embracing change and innovation on one hand and keeping the consumers' interest and stability on the other. A progressive approach that enables the development of appropriate and effective power and protective instruments to maintain the public good, as well as for fast and effective regulation of the related FinTech and Blockchain industry, should be applied. This may entail cooperation with overseas counterparts, consultation with the participating interest groups and the introduction of various measures borrowed from other financial centers with a focus on innovation. By adopting technological innovations, solving the problems related to regulation and using the opportunities that have been opened by the appeared Fintech, Ukraine has the opportunity to become one of the leaders of digital economy development as well as to provide sustainable economic growth and prosperity of the population in the future years.

## 6. Conclusions

As a consequence of the evaluation, it is established that the financial sector infrastructure within Ukraine possesses several setbacks that revolve around contraction in regulates and enforcement mechanisms, corruption and absence of transparency and political volatility. They adversely affect the efficiency, stability and accessibility of the financial system and thus the rate of economic growth and investors' confidence. Therefore, it is clear that the sound financial institutions are central to the economic development, investments promotion and a means to fighting poverty. The financial system plays an intermediary role in a proper disbursal of resources, supporting the creation of ventures and encouraging innovation for the steady economic development and improvement of the people's standard of living.

The study points out the need for applying short-term and long-term policy solutions for filling the gaps in regulation, improving supervision, including financial inclusion and realizing the stability of Ukraine's financial sector. Intensifying regulation, improving the efficiency of different types of enforcement and increasing the openness and responsibility of the financial organizations are the key actions to construct the sustainable financial system with the focus on the inclusion. The application of finance and technology and its derivative Blockchain, as a key driver of change, presents a major opportunity for novation in the Ukrainian financial sector. Their adoption constitutes the opportunity to open new opportunities in the sphere of inclusion and innovation and to

overcome traditional obstacles and improve the general competitiveness of the sphere of finances.

By reviewing the issue of financial infrastructure in the context of other successful countries with an emphasis on the lessons learned from others' experience, it will be possible to determine the strategies which may help Ukraine to develop its financial systems. So, by the processes of using successful experience and non-repeating mistakes, Ukraine can avoid its problems and construct the better experience of its financial sector infrastructure, which will be more competitive, strong and sustainable.

The problems that influence the development of the financial sector infrastructure of Ukraine can be solved only through a complex intervention that implies the participation of several key actors. Applying an effective policy and adopting the successful experience, using the technology, Ukraine can solve its problems and create a stable financial system for the development of financial inclusion and the prosperity of the citizens in the country. It means that collaboration between the policymakers, regulators, industry and the international partners is pivotal for the motivation of reforms, innovation and bringing the Ukraine's financial sector into its potential. If Ukraine increases its efforts and has the long-term dedication needed for the investment in the digital economy's development, it is possible for Ukraine to continue the growth and development and become one of the leaders in the modernization of the global economy in the future years.

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