FINANCING THE ROMANIAN ECONOMY THROUGH INNOVATIVE FINANCIAL INSTRUMENTS IN A DIGITAL AND SUSTAINABLE CONTEXT

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Abstract: In a world marked by accelerated digitalization, recurring economic crises, and growing pressures from climate change and the transition to a sustainable economy, national economies must rethink their financing strategies. Given this context, innovative financial instruments are gaining importance, providing flexible and adaptable solutions to the needs of a dynamic and globalized market. Financing the national economy involves mobilizing and allocating the resources required for the development and functioning of key sectors such as infrastructure, education, and health, with the aim of fostering sustainable economic and social progress. This paper examines both public financing (through the state budget and governmental mechanisms) and private financing (through investments, bank loans, and capital markets), using a qualitative approach to assess Romania's position in the field. The findings highlight the need to understand the main sources of financing — internal, such as national savings, taxes, and private contributions, and external, including loans from international financial institutions, foreign direct investment, and grants — in order to boost the sustainable growth of the national economy in the current digital context.

Keywords: Romania, innovative financial instruments, digital and sustainable growth
JEL Classification: O33, Q56, G28, O52, E62, G23

1. Introduction

Romania, as a Member State of the European Union, has the opportunity to leverage innovative financial instruments to accelerate economic development, enhance financial inclusion, and support green, digital, and social infrastructure projects. Innovative financial instruments refer to financing mechanisms that go beyond traditional channels such as bank credit, budgetary funding, or sovereign bond issuance. These instruments include crypto-assets and digital currencies (CBDCs), crowdfunding and peer-to-peer lending platforms, green, social, and sustainable bonds, ESG- or impact-based derivatives, as well as asset tokenization and financial blockchain solutions, including the tokenization of SME assets. What these tools share in common is the use of advanced technology, a strong focus on sustainability, and an openness to broad and inclusive participation by both investors and citizens.

2. Methodology

This study employs a qualitative research approach, aiming to explore the relationship between innovative financial instruments and sustainable economic growth in the digital era, with a specific focus on Romania. The analysis is based on a comprehensive review of scientific literature, institutional reports, and empirical data published by international organizations such as the European Investment Bank, IMF, and World Economic Forum. The qualitative method allows for an in-depth examination of the mechanisms through which digital technologies and financial innovations—such as fintech solutions, crowdfunding, green bonds, and digital currencies—contribute to economic resilience and sustainability. By synthesizing theoretical insights and practical examples, the research highlights how these instruments can enhance financial inclusion, efficiency, and transparency. The study also considers Romania's national context, assessing the current stage of digital financial transformation, the regulatory environment, and the potential of public–private partnerships in accelerating sustainable development. Based on the findings, the paper formulates recommendations for policymakers aimed at fostering innovation-friendly regulation, improving financial literacy, and supporting the integration of sustainability principles into financial strategies.

3. Literature review

The concept of financial technology (FinTech) has become one of the most dynamic and debated topics in recent economic and financial research. It represents the integration of digital technologies into financial services, reshaping the way individuals, firms, and governments access and manage capital. FinTech encompasses innovations such as digital payments, blockchain, artificial intelligence, and alternative financing platforms, which collectively promote financial inclusion, efficiency, and sustainability. Its rapid development has sparked extensive scholarly debate regarding its potential to drive sustainable growth and support the achievement of the Sustainable Development Goals (SDGs).

Early contributions to this discussion include the study of Cen and He (2018), who examined the interplay between FinTech, green finance, and sustainable development, emphasizing how digital financial solutions can channel resources toward environmentally friendly projects. Their work set the foundation for later analyses that linked technological innovation with the green transition. Shortly after, Vovchenko et al. (2019) explored the FinTech ecosystem as a key instrument for achieving sustainable development, highlighting the structural interdependence between financial innovation, digitalization, and economic resilience.

In the same year, Zetzsche, Buckley, and Arner (2019) emphasized FinTech's role in promoting financial inclusion and sustainable growth, arguing that new financial technologies could reduce global inequalities by improving access to finance for underserved populations. This perspective marked a shift in the literature toward considering FinTech not only as a driver of efficiency but also as a tool for equity and sustainability.

The discussion was deepened by Pawłowska, Staniszewska, and Grzelak (2022), who empirically assessed the impact of FinTech on sustainable development. Their findings suggested that FinTech innovations can enhance transparency and efficiency in financial markets while stimulating green investments, thus directly supporting the SDGs. Continuing this line of inquiry, Danladi et al. (2023) investigated collaborative approaches to FinTech adoption in developing economies, demonstrating that partnerships between governments, financial institutions, and technology providers are essential for achieving inclusive and sustainable financial systems.

Recent studies have expanded this focus both geographically and methodologically. Chen et al. (2024) analyzed the Chinese experience, illustrating how FinTech, combined with green finance and natural resource management, can revolutionize sustainable economic growth. Similarly, Dar, Badwan, and Kumar (2024) conducted a bibliometric analysis to map the evolution of research connecting FinTech and sustainable development, identifying a rapid increase in publications after 2020, which confirms the growing academic and policy relevance of the topic.

Finally, Magableh et al. (2025) provided one of the most comprehensive literature reviews to date, synthesizing global evidence on the role of FinTech innovations in driving sustainable development. Their study identified several promising research avenues, such as the digitalization of green finance, ESG-oriented FinTech models, and the use of artificial intelligence in sustainable investment strategies.

Overall, the reviewed literature shows that FinTech is a relatively new but rapidly expanding research field, increasingly recognized as a catalyst for sustainable and inclusive economic growth. However, despite the global proliferation of studies, the application of FinTech to the context of Romania remains limited. The Romanian experience is rarely analyzed in the international literature, especially regarding the interplay between innovative financial instruments, digitalization, and sustainability. Therefore, our research aims to address this gap by examining Romania's progress and challenges in integrating FinTech solutions to support sustainable economic development in the digital era.

4. The innovative instruments and the sustainable growth in Romania in the digitalization era

Digitalization is the main driver of financial transformation. Emerging technologies such as blockchain, artificial intelligence, machine learning, robotic process automation (RPA), and Open Banking facilitate:

- the reduction of transaction costs;
- greater transparency;
- improved access to financial services in disadvantaged areas;
- data-driven decision-making in real time.

In Romania, FinTech solutions such as Revolut, Salt Bank, Pago, and various online investment platforms have rapidly gained ground. These examples demonstrate how innovation can fundamentally reshape the relationship between citizens and the financial system.

Crypto-assets and Digital Currencies: An Opportunity or a Challenge?

Volatile, crypto-assets have shown a remarkable capacity to attract capital. They can serve as valuable tools for crowdfunding initiatives or as digital assets for international trade. At the same time, central bank digital currencies (CBDCs), such as the forthcoming digital euro, offer stability and regulatory oversight while preserving the efficiency and benefits of digitalization.

Table 1. Presentation of examples Crypto-assets and digital currencies

Type of Crypto-asset/Digital Currency	Description	Examples	Source
Cryptocurrencies	Digital currencies used for financial transactions.	Bitcoin (BTC), Ethereum (ETH), Litecoin (LTC)	CoinMarketCap
Utility tokens	Crypto-assets that give access to products or services on a platform.	Binance Coin (BNB), Uniswap (UNI)	CoinGecko
Security tokens	Tokens that represent a form of investment and are regulated by financial authorities.	Polymath (POLY), tZERO	Investopedia
Stablecoins	Stable digital currencies, tied to traditional assets, such as the dollar or gold.	Tether (USDT), USD Coin (USDC), DAI	CoinTelegraph
CBDC Coins (Central Bank Digital Currencies)	Digital currencies issued and regulated by central banks.	e-Krona (Sweden), Digital Yuan (China)	Bank for International Settlements

Source: author's processing.

For Romania, the use of these types of assets could support the digitalization of public payments, reduce the underground economy, and promote the inclusion of unbanked populations in the financial system.

Green and Social Bonds – Sustainable Financing of the Future

Specific-purpose debt instruments, such as green, social, and sustainable bonds (ESG bonds), are becoming increasingly important for financing projects in areas such as green infrastructure, energy efficiency, education, and healthcare. At the European level, demand for these products has grown exponentially. In Romania, the Ministry of Finance launched its first green bond issuance in 2023, which generated significant investor interest. By diversifying these instruments and involving local authorities, the country can attract external financing without relying exclusively on the state budget or European funds.

Table 2. Main green project plans of the authorities, 2021-2030

Design	Investment required (billion euros)
National Integrated Energy and Climate Change Plan 2021-2030	15.80
National Long-Term Renovation Strategy (according to Scenario 2)	13.78
Investment plan for the development of transport infrastructure for the period 2020-2030	28.4
National Waste Management Plan (2017)	1.15
Total	59.13

Source: National Committee for Macroprudential Supervision, Analysis of the CNSM Working Group for supporting green financing.

According to the CNSM Report, the volume of financing aimed at mitigating the effects of climate change is estimated by the United Nations to reach **USD 830 billion annually by 2050**, in the energy sector alone, with a relatively balanced distribution between developed and emerging countries.

Participatory Financing: Crowdfunding and Peer-to-Peer Lending

For SMEs and start-ups, access to capital is often constrained by the strict requirements of the banking system. Crowdfunding and peer-to-peer lending platforms provide a viable alternative, enabling investors to directly support projects they believe in.

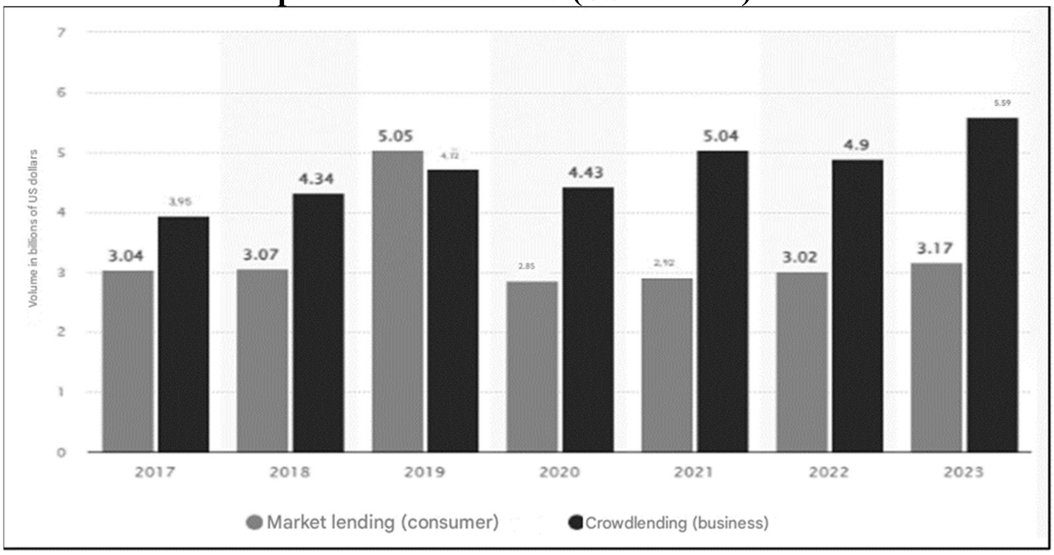
Table 3. Crowdfunding market in Europe (2023)

Type of financing	Traded value (USD billions)	Source
Crowdlending (business)	5.59	statistically
Marketplace lending (consumers)	3.17	statistically
Total crowdfunding in Europe	Almost 10.00	statistically

Source: Author's processing.

The data presented in Table 3 illustrate the growing importance of crowdfunding and peer-to-peer lending in Europe, confirming that alternative finance has become a significant component of the modern financial ecosystem. This trend is further depicted in Chart 1, which highlights the steady increase in transaction values for both consumer and business lending over recent years.

Chart 1. Value of peer-to-peer lending transactions for consumers and businesses in Europe from 2017 to 2023 (USD billion)



Source: https://www.statista.com/statistics/412400/europe-alternative-finance-transaction-value-p2p-lending/

Romania regulated the field of crowdfunding in 2022, in line with European legislation. This step established the legal framework necessary for the development of the sector, which is essential for supporting the entrepreneurial ecosystem.

Challenges and Risks in Adopting Innovative Tools

These instruments are promising, but also present several challenges:

Insufficient or fragmented regulation;
Cybersecurity risks;
High volatility (particularly in the case of crypto-assets);
Limited financial literacy and lack of trust in new technologies.

It is therefore essential for regulators to work closely with the private sector to create a safe, transparent, and flexible framework that encourages innovation without compromising the stability of the financial system.

5. Conclusions and recommendations for Romania

In order for Romania to fully exploit the potential of these instruments, it is necessary to develop a national financial digitalization strategy, attract investments in technological infrastructure and digital education, encourage public–private partnerships to finance strategic projects, support the capital market through fiscal and legislative measures, and promote financial literacy among the population.

Conclusions and Personal Recommendations

Increased Accessibility to Finance. Innovative tools such as crowdfunding platforms and peer-to-peer lending are democratizing access to capital for SMEs and start-ups. They represent an important alternative to traditional financing, enabling small businesses to grow even in the absence of significant resources or access to major banking institutions. For instance, platforms such as Kickstarter and Seedrs have demonstrated the capacity to attract substantial funding for start-ups, channeling capital from a diverse investor base.

Stimulating Innovation and Competitiveness. Innovative financial instruments support the implementation and adoption of emerging technologies such as fintech, blockchain, and artificial intelligence, thereby accelerating the modernization and efficiency of economic processes. These solutions contribute to enhancing enterprise competitiveness and strengthening the entrepreneurial ecosystem. Examples such as Revolut and Klarna have redefined the user experience in payments and personal financial management.

Promoting Sustainability. Innovative financial instruments—such as green bonds and ESG (environmental, social, and governance) funds—play a key role in supporting the transition toward a greener economy. They allow investors to direct capital toward projects that contribute to environmental protection and sustainable development. For example, several European governments, including the Netherlands, have issued green bonds to finance environmentally friendly projects such as green infrastructure.

Challenges of Integrating Sustainability. Integrating sustainability criteria into the financial system remains complex, primarily due to the lack of standardization and adequate infrastructure. For instance, the absence of uniform ESG reporting standards creates challenges in monitoring and evaluating the environmental and social performance of companies.

Detailed Recommendations for the Implementation of Innovative Financial Instruments

Developing a Supportive Regulatory Framework. It is essential to create a tailored regulatory environment—a controlled space in which fintechs and financial start-ups can test new solutions without being constrained by strict initial regulations. Such an environment would allow the assessment of their impact and the adaptation of rules prior to large-scale adoption. Moreover, ESG standards should be standardized to facilitate comparative assessments of companies and to increase transparency and investor confidence in sustainable financial instruments.

Investing in Infrastructure and Education. The development and improvement of digital infrastructure—including widespread access to high-speed internet and the implementation of modern payment solutions—are crucial for the broader adoption of innovative financial instruments. Education and training are equally vital to preparing human resources to use modern financial technologies effectively. Collaboration with educational institutions to develop programs focused on fintech and ESG topics would strengthen the skills of employees and entrepreneurs alike.

Promoting Public–Private Collaboration. Partnerships between regulators and the private sector are essential to the development of innovative financial solutions. Such collaborations facilitate the exchange of knowledge and resources, accelerating implementation while mitigating associated risks. Establishing incubators and accelerators for fintechs can further support start-ups by providing mentorship, resources, and capital for rapid development.

Addressing Security Risks. Cybersecurity must be a top priority given the rise in cyberattacks and digital threats. A strong regulatory framework is necessary to prevent fraud and safeguard the integrity of the digital financial system. Security regulations should be reviewed and updated regularly to reflect technological advances and emerging cyber risks.

Integrating Sustainability into Financial Policies. Promoting sustainable investments through tax incentives, green bond issuance, and other favorable policies is essential for supporting environmentally friendly infrastructure projects. Dedicated investment funds for sustainable initiatives would attract additional resources to ESG-compliant projects, contributing to the growth of a green economy.

The implementation of innovative financial instruments has the potential to transform Romania's economy, driving improvements in efficiency, competitiveness, and sustainability. However, the success of these instruments depends on a clear regulatory framework, strategic investments in digital infrastructure, and robust security measures. Rapid adaptation to new technologies—such as blockchain, central bank digital currencies (CBDCs), and artificial intelligence—will enable Romania to maximize its potential within the global digital economy. Through well-designed strategic actions, Romania can position itself as a key European player in the adoption and implementation of innovative financing, supporting both sustainable economic development and the transition to a greener, more inclusive economy.

Innovative financial instruments are not merely a temporary trend but an essential component of the economic future. In a context where traditional resources are increasingly difficult to access and pressures for digitalization and sustainability are intensifying, these instruments can become a central pillar of Romania's long-term development. With coherent policies, forward-looking regulations, and openness to innovation, Romania has the opportunity to build a modern, inclusive, and sustainable financial system capable of supporting both the real economy and the well-being of its citizens.

Remarks about the research limitations

While this study highlights the growing relevance of innovative financial instruments in promoting Romania's sustainable and digital economic transformation, it also acknowledges certain limitations. The research relies primarily on qualitative analysis and secondary data sources, which may restrict the depth of empirical validation. Future studies could therefore benefit from quantitative approaches and comparative analyses between Romania and other EU Member States to better assess the measurable impact of these instruments on economic performance and sustainability indicators.

Overall, the findings underscore Romania's potential to strengthen its financial ecosystem by integrating innovation, sustainability, and digitalization into coherent public policies. By continuing this research direction, *we can contribute to a more resilient and inclusive financial system, aligned with both European priorities and global sustainability goals.*

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