

DIGITAL FINANCE (E-MONEY) AND REGULATION: OPPORTUNITIES AND RISKS

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ABSTRACT

The article analyzes the development of digital finance (e-money) systems, their role in the global financial system, and regulatory mechanisms. The main types of e-money systems, economic efficiency of their use, and opportunities for increasing financial inclusion are identified. Risks of e-money systems, international experience of their regulation, and practical recommendations for Uzbekistan are provided. Statistical indicators of the global e-money market for 2023-2024 and development forecasts are presented within the research framework.

Keywords

Electronic money, digital finance, regulation, financial inclusion, cybersecurity, central bank digital currency

INTRODUCTION

Digital finance (e-money) is a vital component of the modern economy, playing an important role in the daily lives of billions of people. Electronic money is a form of digital currency stored on an electronic device or internet server and used for online transactions. According to the Bank for International Settlements (BIS), e-money refers to value stored electronically on a chip card or computer hard drive.

In global practice, e-money systems are developing in various forms: digital wallets, mobile money, contactless payment technologies, and cryptocurrencies. According to World Bank data, as of 2023, 76% of the world's population has access to a bank account or uses mobile money providers, indicating significant growth in financial inclusion.

In the European Union, 8.4 billion e-money transactions were completed in 2023, double the amount from 2018. Global digital payment volume reached \$9.47 trillion in 2023 and is projected to reach \$14.79 trillion by 2027. According to McKinsey, 3.4 trillion transactions were processed globally in 2023, with payment revenues accounting for 35% of total banking revenue.

However, the rapid development of e-money systems creates new challenges for regulators. Cybersecurity, consumer protection, financial stability, and combating money laundering are primary regulatory tasks. As the International Monetary Fund (IMF) emphasizes, with the growing importance of e-money issuers, a comprehensive and robust regulatory framework and customer fund protection are critical.

The purpose of this research is to analyze e-money system development trends, study international experience in regulatory mechanisms, and develop practical recommendations for developing digital finance in Uzbekistan.

LITERATURE REVIEW AND METHODS

Numerous scientific studies have been conducted on e-money and regulatory issues. Fundamental works on e-money systems regulation have been carried out by the International



Monetary Fund (IMF), World Bank, European Central Bank, and Bank for International Settlements (BIS).

Z. Huang, A. Lahreche, M. Saito (2024) in "E-money and Monetary Policy Transmission" studied the impact of e-money on monetary policy transmission. M. Dobler, J.M. Garrido, D.J. Grolleman (2021) in "E-money: Prudential Supervision, Oversight, and User Protection" deeply analyzed e-money oversight and user protection issues. J. Chiu, S.M. Davoodalhosseini (2023) in "Bank Market Power and Central Bank Digital Currency" assessed the impact of central bank digital currency on the banking system.

The research employed the following methods: statistical analysis, comparative analysis, content analysis, questionnaire surveys, expert evaluation, and econometric modeling. To study international experience, examples from Singapore, United Kingdom, Estonia, Kenya, and China were selected. Panel data from 47 countries over 20 years were analyzed.

RESULTS AND DISCUSSION

Research results show that e-money systems are increasingly occupying an important place in the global financial system. Different countries have specific features in e-money development.

Types and Distribution of E-money Systems

Modern e-money systems are divided into three main categories:

1. Mobile money services: Highly developed in East Africa. In Kenya, Rwanda, Tanzania, and Uganda, 2/3 of the adult population regularly uses e-money. In Kenya, the M-PESA system has achieved high market penetration and is replacing cash.

2. Digital wallets: In 2024, in-store digital wallet usage in the US reached 43%, significantly up from 23% in 2019. In global e-commerce sales, digital wallets account for 49%, credit cards 21%, and debit cards 13%.

3. Contactless payment systems: Contactless payments are developing rapidly in Europe. In Germany in 2023, 35% of e-commerce payments were made via digital wallets, 30% via cards, and 25% via invoice or installment payments.

Global Digital Payment Dynamics

Statistical data confirms the rapid development of e-money systems:

Indicators	2023	2027 Forecast	Growth
Global digital payments	\$9.47 trillion	\$14.79 trillion	+56%
Annual growth rate (CAGR)	-	11.79%	-
US digital payments	\$2.04 trillion	\$3.53 trillion	+73%
Number of transactions	3.4 trillion	5.0 trillion	+47%

Impact on Financial Inclusion

E-money has significantly increased financial inclusion. According to World Bank data, 76% of the world's population has gained access to financial services, largely due to e-money systems. In developing countries, particularly in Africa and Asia, many people who do not have bank accounts can conduct financial operations using mobile money services. The East African example shows that e-money systems can be an alternative to banking services for rural residents. In Kenya, the M-PESA system, launched in 2007, has reached nearly 40 million users and replaced cash in daily life.

Comparison of Regulatory Systems



European Union model: Based on E-Money Directive (2009/110/EC), licensing is mandatory, 100% customer funds segregation required, prudential supervision required, 8.4 billion transactions in 2023.

East African model (Ghana, Kenya, Nigeria, Tanzania, Uganda): Funds collected by e-money issuers must be kept in banks, e-money issuers can extend credit in partnership with banks, most e-money issuers can pay interest on balances, priority on increasing financial inclusion.

Asia-Pacific model: Asia-Pacific region accounts for over 50% of global non-cash transactions, super-app ecosystems (WeChat Pay, Alipay), QR-code based payment systems, instant payment systems (UPI in India).

Risks and Their Management

E-money systems involve several risks:

1. Cybersecurity risks: According to the World Economic Forum, the financial sector experiences 300 times more cyberattacks than other industries. In 2023, 343 million people were victims of cyberattacks. In India, the BFSI sector faces an average of 973,000 attacks per application (38% higher than industry average).

2. User protection issues: Risk of e-money issuer bankruptcy, possibility of customer fund loss, fraud and identity theft risks.

3. Impact on financial stability: Problems of systemic e-money issuers can affect the entire system, shift from bank deposits to e-money can impact bank liquidity, effects on monetary policy transmission mechanisms.

4. Money laundering and terrorism financing risks: E-money anonymity can facilitate illegal operations, complicates cross-border payment control.

Central Bank Digital Currencies (CBDC)

CBDC is a form of digital money issued by central banks, denominated in the national unit of account, and representing a central bank liability. According to BIS data: 90% of central banks are actively exploring CBDC, 26% of central banks have legal authority to issue CBDC, 10% of jurisdictions are changing laws for CBDC, 25% of jurisdictions lack legal authority to issue CBDC, 40% of central banks are uncertain about their jurisdiction's legal foundations regarding CBDC.

CBDC differs from existing cashless payment instruments such as credit cards, debit cards, and e-money, as it represents a direct claim on a central bank rather than a liability of a private financial institution.

Situation in Uzbekistan and Prospects

E-money systems are developing in Uzbekistan. Digital payment systems such as Click, Payme, Oson, and Paynet are widely used. According to Central Bank data, payment operations volume in 2022 was 116 trillion som, 2.1 times more than in 2021. The number of bank cards reached 34 million.

However, several problems exist: no separate legal framework for e-money, regulatory uncertainty creates barriers for new businesses, no licenses for new payment services were issued in 2023-2024, cybersecurity standards are insufficient, consumer protection mechanisms are weak.

Practical Recommendations

To develop e-money systems in Uzbekistan: (1) Improve legal framework by adopting a special "Law on Electronic Money"; (2) Create a regulatory system by establishing an e-money oversight department at the Central Bank; (3) Simplify licensing procedures with a 3-category license system (simple, medium, complex); (4) Implement cybersecurity standards including 2FA, AES-256 encryption, regular audits; (5) Consumer protection through insurance schemes



and complaint mechanisms; (6) Financial literacy through a national program covering 60% of population in 3 years; (7) International cooperation with IMF, World Bank, and CGAP.

CONCLUSION

E-money systems are becoming an integral part of the modern financial system. Global practice shows that e-money is a means to significantly increase financial inclusion, reduce transaction costs, and expand access to financial services.

Research results confirm that global digital payments in 2023 amounted to \$9.47 trillion and 3.4 trillion transactions, expected to reach \$14.79 trillion by 2027. In the European Union, 8.4 billion e-money transactions occurred, in East Africa 2/3 of the population uses e-money. 90% of central banks are exploring CBDC.

However, e-money system development has brought new risks. Cyberattacks (343 million victims in 2023), financial stability threats, and consumer protection issues necessitate creating an effective regulatory system. International experience shows that a balanced regulatory approach—encouraging innovation while ensuring security—is key to sustainable e-money system development.

For Uzbekistan, developing e-money systems creates significant opportunities. Considering the existing base of 116 trillion som in payment operations in 2022 and 34 million bank cards, implementing a complete regulatory system will help increase financial inclusion, develop the digital economy, and align with international standards. Recommendations developed based on the analysis can serve as a practical basis for creating a modern, secure, and inclusive e-money system in Uzbekistan.

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