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The Development of Blockchain-Based Digital Currencies and Their Impact on the Global Financial System

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Abstract

Digital currencies are disrupting traditional financial concepts, garnering global attention. This theoretical study delves into blockchain-based digital currencies, analyzing their developmental trajectory and potential impact on the global financial landscape. By deconstructing the technological core of digital currencies, the research reveals how they challenge existing monetary system mechanisms. The paper focuses on Central Bank Digital Currency (CBDC) strategies across nations, extrapolating their potential effects on monetary policy formulation, cross-border transaction efficiency, and the development of inclusive finance. The study indicates that digital currencies have the potential to reshape the payment ecosystem, catalyze financial innovation, and enhance transaction efficiency, while simultaneously potentially triggering a series of regulatory challenges and financial stability risks. The article examines the potential impacts of digital currencies on traditional banking systems, monetary policy transmission mechanisms, and the international monetary system, and analyzes their potential in promoting financial inclusivity. Based on theoretical derivations, this paper proposes the construction of a new regulatory paradigm adapted to the digital currency era, including recommendations for improving legal frameworks, strengthening cross-border collaboration, and balancing privacy protection with regulatory requirements, aiming to strike a balance between financial innovation and system stability. The research provides a theoretical foundation for understanding the future development trends of digital currencies and their profound impact on the global financial system.

Keywords

Blockchain, Digital Currency, CBDC, Financial Innovation, Global Financial System

1. Introduction

The rapid development of blockchain technology has positioned digital currencies as emerging financial instruments that are profoundly altering the global financial landscape. This study aims to comprehensively explore the developmental trajectory of blockchain-based digital currencies and their multifaceted impact on the global financial system. The emergence of digital currencies can be traced back to the 2008 publication of the Bitcoin whitepaper by Satoshi Nakamoto, which ushered in a new era of decentralized digital currencies. In recent years, as blockchain technology has matured and its applications have expanded, digital currencies have evolved from niche experiments to significant factors influencing the global financial system. Academic research on digital currencies has primarily focused on technological innovation, economic impact, and regulatory challenges. Böhme et al. (2015) conducted an in-depth analysis of Bitcoin's economic principles, revealing the operational mechanisms of decentralized digital currencies. Baur et al. (2018) examined the characteristics of digital currencies as investment assets, discussing their correlation with traditional financial assets. Regarding Central Bank Digital Currencies (CBDCs), Auer et al. (2020) provided a comprehensive review of CBDC projects by major central banks worldwide, exploring the potential impacts of CBDCs on monetary policy and financial stability. Simultaneously, digital currencies have introduced new regulatory challenges, with Houben and Snyers (2018) analyzing the risks and response strategies in anti-money laundering and counter-terrorism financing. Furthermore, the enhancement of cross-border payment efficiency by digital currencies has garnered widespread attention, with Niepelt discussing how CBDCs could reshape the international monetary system. Building on previous research, this study will systematically analyze the current state of digital currencies, their technical characteristics, economic impacts, and regulatory challenges, with a particular focus on their profound influence on the global financial system. Through multidimensional theoretical analysis and empirical research, this paper aims to provide a comprehensive theoretical framework for understanding financial innovation and risks in the digital currency era, offering valuable references for policymakers and market participants.

The structure of this study is as follows: Chapter 2 introduces the technical foundations and current state of digital currencies; Chapter 3 analyzes the impact of digital currencies on the global financial system; Chapter 4 discusses the regulatory challenges posed by digital currencies; Chapter 5 proposes corresponding regulatory strategies; Chapter 6 explores future development trends of digital currencies; finally, the conclusion is presented.

2. Technical Foundations and Current State of Digital Currencies

2.1. Blockchain Technology Principles and Their Application in Digital Currencies

Blockchain, as the core technological support for digital currencies, provides a

revolutionary technical foundation for the issuance and circulation of digital currencies through its characteristics of decentralization, immutability, and transparency. Essentially a distributed ledger technology, blockchain ensures the security and immutability of transactions through cryptographic principles and consensus mechanisms. In the field of digital currencies, blockchain technology is primarily applied to transaction recording, account management, and value transfer (Chowdhury et al., 2021). Taking Bitcoin as an example, it uses the Proof of Work (PoW) consensus mechanism to verify transactions and generate new blocks, ensuring network security and decentralization (Nakamoto, 2008). Ethereum introduced smart contract functionality, greatly expanding blockchain application scenarios and laying the foundation for decentralized finance (DeFi) development.

In recent years, to address scalability and energy consumption issues in blockchain, new consensus mechanisms such as Proof of Stake (PoS) and Layer 2 scaling solutions like the Lightning Network have emerged, further enhancing the transaction efficiency and scalability of digital currencies. These technological innovations have not only strengthened the practicality of digital currencies as a means of payment but also provided possibilities for constructing more complex financial applications, driving the rapid development of the entire digital currency ecosystem.

2.2. Major Types of Digital Currencies and Comparison of Their Characteristics

The digital currency market has formed a diversified ecosystem that can be broadly categorized into three main types: decentralized cryptocurrencies, stablecoins, and Central Bank Digital Currencies (CBDCs). Decentralized cryptocurrencies, represented by Bitcoin and Ethereum, are characterized by decentralization and fixed or predictable supply, but exhibit high price volatility. Stablecoins, such as USDT and USDC, aim to maintain price stability by pegging to fiat currencies or other assets, combining the convenience of cryptocurrencies with the stability of fiat currencies (Böhme et al., 2015). CBDCs are digital forms of fiat currency issued by central banks, combining the technological advantages of digital currencies with the credit backing of fiat currencies. This diverse digital currency ecosystem provides users with a variety of choices while bringing new opportunities and challenges. Decentralized cryptocurrencies offer new possibilities for financial innovation, stablecoins play an important role in cross-border payments and daily transactions, and the emergence of CBDCs has the potential to further enhance the efficiency and inclusivity of the financial system. However, the competition and complementary relationships between different types of digital currencies also warrant in-depth study. **Table 1** provides a comprehensive comparison of these major digital currency types, highlighting their key characteristics and differences.

Table 1. Comparison of major digital currency types.

Characteristic	Decentralized Cryptocurrencies	Stablecoins	CBDCs
Issuer	Decentralized network	Private companies	Central banks
Price stability	Low	High	High
Transaction anonymity	High	Medium	Controllable
Smart contract support	Partial support	Partial support	Optional
Cross-border usage convenience	High	High	Depends on policy
Regulatory difficulty	High	Medium	Low

Source: Bank for international settlements.

2.3. Progress of Major Global Digital Currency Projects and Their Impact

Digital currency projects are flourishing globally, profoundly impacting the financial landscape. In the realm of decentralized cryptocurrencies, Bitcoin and Ethereum continue to dominate. As of 2024, Bitcoin's market capitalization has exceeded $1 trillion, becoming an important allocation asset for institutional investors. Ethereum has successfully transitioned to a PoS mechanism through the "Merge" upgrade, significantly reducing energy consumption and laying the foundation for sustainable development. In the stablecoin sector, the market capitalizations of USDT and USDC continue to grow, playing crucial roles in cross-border payments and cryptocurrency transactions. Notably, central banks worldwide are actively advancing CBDC projects. China's digital yuan has undergone large-scale pilot programs in multiple cities, with transaction volumes continuously expanding. The European Central Bank's digital euro project has entered the experimental phase and is expected to be officially launched in the coming years. While the Federal Reserve has taken a relatively cautious approach, it is actively researching the feasibility of a digital dollar. The progress of these CBDC projects not only affects domestic monetary systems but may also reshape the international monetary landscape (Baur et al., 2018). These digital currency projects are reshaping the global financial ecosystem, driving financial innovation, improving payment efficiency, while also bringing new regulatory challenges and financial stability considerations. Table 2 summarizes the progress of major global CBDC projects, illustrating the current stages and expected launch timelines of various initiatives.

Table 2. Progress of major global CBDC projects.

Country/Region	CBDC Project	Current Stage	Expected Launch
China	Digital Yuan	Large-scale pilot	Before 2025
Eurozone	Digital Euro	Research phase	Around 2026
United States	Digital Dollar	Research phase	Undetermined

Continued

Sweden	e-krona	Pilot phase	After 2026
Japan	Digital Yen	Proof of concept	Undetermined

Source: Atlantic council CBDC tracker.

3. Impact of Digital Currencies on the Global Financial System

3.1. Disruption to Traditional Banking Systems and Payment Systems

The rise of digital currencies has had a profound impact on traditional banking systems and payment systems (Auer et al., 2020). To begin with, decentralized cryptocurrencies and stablecoins have provided individuals and businesses with new channels for value transfer that bypass traditional banking systems, potentially reducing dependence on bank intermediary services. This disintermediation trend may lead to bank deposit outflows, affecting banks' funding sources and profit models. Furthermore, the introduction of digital currencies, especially CBDCs, may alter the mechanism of money creation. If CBDCs adopt a model that directly faces the public, central banks may partially replace commercial banks' deposit creation function, which will have a structural impact on the entire banking system. Third, the 24/7 operation and low-cost advantages of digital currencies are reshaping the payment ecosystem. Traditional banks face pressure to upgrade their payment infrastructure to maintain competitiveness. However, this also provides banks with opportunities for innovation, such as developing new blockchain-based financial products and services. Facing these challenges, traditional banks are actively exploring digital transformation strategies, including collaborating with fintech companies and developing their own digital currency solutions. Meanwhile, regulatory bodies are striving to balance financial innovation with system stability to ensure a smooth transition of the financial system. Table 3 offers a comparative overview of traditional banking services and digital currencies, emphasizing the key differences in their operational characteristics.

Table 3. Comparison of traditional banking services and digital currencies.

Feature	Traditional Banking Services	Digital Currencies
Transaction speed	Slow (especially cross-border)	Fast
Transaction cost	High	Low
Availability	Business hours	24/7
Cross-border convenience	Low	High
Intermediary dependence	High	Low
Financial inclusivity	Limited	High potential

Source: World bank global financial inclusion database.

3.2. Impact on Monetary Policy Formulation and Transmission Mechanisms

The widespread adoption of digital currencies has multi-faceted impacts on the formulation and transmission mechanisms of monetary policy. At the outset, the widespread use of decentralized cryptocurrencies may weaken central banks' control over money supply, affecting the effectiveness of monetary policy. Especially when cryptocurrencies become the main medium of exchange in some economies, it may lead to currency substitution phenomena, weakening the status of fiat currencies (Houben & Snyers, 2018). In addition, the introduction of CBDCs provides new tools for monetary policy. Through CBDCs, central banks can more directly and precisely regulate money supply, potentially improving the transmission efficiency of monetary policy. For example, CBDCs can enable the effective implementation of negative interest rate policies or rapid distribution of stimulus funds during economic crises. Additionally, the transparency and traceability of digital currencies help improve the real-time accuracy of economic data, providing a better information basis for monetary policy decisions. However, this also brings new challenges, such as how to balance privacy protection and financial stability. In the face of these changes, central banks are actively researching and adapting. For instance, some central banks are exploring how to incorporate CBDCs into existing monetary policy frameworks and how to achieve more flexible monetary policy operations through smart contracts. At the same time, it is necessary to consider the potential impact of digital currencies on financial stability, with the prevention of systemic risks becoming an important consideration in policy-making. Table 4 outlines the various impacts of digital currencies on monetary policy, highlighting both potential challenges and opportunities.

Table 4. Impact of digital currencies on monetary policy.

Aspect	Impact
Money supply control	Potential weakening (cryptocurrencies); Potential strengthening (CBDCs)
Policy tools	Addition of CBDCs as a policy tool
Interest rate transmission	Potentially improved efficiency (CBDCs); Potential challenges (cryptocurrencies)
Economic data collection	Improved real-time accuracy
Financial stability	New risks and challenges

Source: International monetary fund working paper.

3.3. Impact on the International Monetary System and Cross-Border Payments

The development of digital currencies is profoundly changing the international monetary system and cross-border payment landscape. First, decentralized cryptocurrencies provide a global payment method for international transactions that

does not rely on any single country or institution, potentially challenging the dollar-dominated international monetary system. Second, the introduction of CBDCs by major economies may reshape the landscape of international reserve currencies. For example, the internationalization of the digital yuan may increase the use of RMB in international trade and investment, enhancing its status as a reserve currency. Third, digital currencies, especially CBDCs, have the potential to significantly improve the efficiency and reduce the cost of cross-border payments. By establishing cross-border interoperability mechanisms for CBDCs, near real-time international settlements can be achieved, reducing intermediaries and associated fees. This has positive implications for promoting international trade and investment flows. However, it also brings new challenges, such as how to coordinate monetary policies and regulatory requirements of different countries.

Facing these changes, international organizations such as the International Monetary Fund (IMF) and the Bank for International Settlements (BIS) are actively studying the impact of digital currencies on the international monetary system and exploring the possibility of establishing a global CBDC collaboration framework (Chen & Bellavitis, 2020). At the same time, countries are strengthening international cooperation in the field of digital currencies to address potential currency competition and financial stability risks. Table 5 provides a comparative analysis of traditional cross-border payment systems and digital currency-based alternatives, showcasing the potential improvements in efficiency and transparency.

Table 5. Comparison of traditional cross-border payment systems and digital currency-based cross-border payments.

Feature	Traditional Cross-border Payments	Digital Currency-based Cross-border Payments
Settlement time	2 - 5 business days	Near real-time
Transaction cost	High	Low
Transparency	Limited	High
Traceability	Limited	Strong
Intermediaries	Many	Few
Exchange rate impact	Large	Potentially smaller

Source: SWIFT gpi data.

4. Regulatory Challenges and Countermeasures for Digital Currencies

4.1. New Challenges in Anti-Money Laundering and Counter-Terrorism Financing Regulation

The anonymity and cross-border nature of digital currencies have brought new challenges to anti-money laundering (AML) and counter-terrorism financing (CFT) efforts. Primarily, the anonymous or pseudonymous nature of decentralized cryptocurrency transactions increases the difficulty of tracing fund flows, providing

potential channels for money laundering and terrorist financing activities. Moreover, the global nature and rapid transaction characteristics of digital currencies make cross-border fund flows more frequent and concealed, increasing the complexity of regulation (Bank for International Settlements, 2021). Third, the emergence of new financial intermediaries such as cryptocurrency exchanges requires regulatory authorities to adjust and expand existing regulatory frameworks. Facing these challenges, regulatory authorities in various countries are adopting multiple measures: strengthening Know Your Customer (KYC) and Customer Due Diligence (CDD) requirements, implementing transaction monitoring systems to identify suspicious transaction patterns, establishing international cooperation mechanisms to enhance information sharing and collaborative regulation, and developing new regulatory technologies (RegTech) using artificial intelligence and big data analysis to improve regulatory efficiency. Despite these challenges, the technological characteristics of digital currencies also provide opportunities to enhance AML/CFT effectiveness. For example, the traceability of blockchain can help construct more comprehensive transaction history records, aiding in the identification of complex money laundering networks. The key is to find a balance between protecting user privacy and maintaining the integrity of the financial system.

4.2. Financial Stability and Systemic Risk Prevention

The rapid development of digital currencies poses new challenges to financial stability, with potential systemic risks requiring high attention from regulatory authorities (Financial Action Task Force, 2019). The high volatility of the cryptocurrency market may trigger asset bubbles and drastic market adjustments, impacting investors and related financial institutions. At the same time, the widespread use of stablecoins may affect traditional money markets, especially when the issuance of stablecoins increases significantly, potentially triggering "run" risks. Third, the introduction of CBDCs may change the deposit structure of the banking system, affecting banks' credit creation capabilities. Furthermore, cross-border use of digital currencies may accelerate capital flows, increasing the volatility of financial markets. Facing these potential risks, regulatory authorities are taking the following measures: establishing digital currency market monitoring mechanisms to assess systemic risks in real-time, formulating regulatory frameworks for stablecoin issuance and management to ensure adequate reserves and liquidity, considering the impact on financial stability when designing CBDCs, such as setting usage limits or tiered interest rates, and strengthening cross-border regulatory cooperation to prevent cross-border financial risks caused by digital currencies. Regulatory authorities need to find a balance between promoting innovation and maintaining financial stability. This requires establishing a flexible regulatory framework that can quickly respond to technological changes and market developments while maintaining effective control over systemic risks. **Table 6** outlines the major financial stability risks associated with digital currencies and their potential prevention measures, emphasizing the need for proactive regulatory strategies.

Table 6. Major financial stability risks posed by digital currencies and their prevention measures.

Risk Type	Potential Impact	Prevention Measures
Market volatility	Asset bubbles, investor losses	Market monitoring, investor education
Stablecoin risks	Runs, liquidity shocks	Reserve management, regulatory framework
CBDC impact on banks	Deposit outflows, credit contraction	CBDC design optimization, quota management
Cross-border capital flows	Exchange rate fluctuations, capital flight	Cross-border cooperation, capital flow management

Source: Financial stability board.

4.3. Consumer Protection and Investor Education

As the digital currency market rapidly develops, consumer protection and investor education have become increasingly important. First, the complexity and high risk of the digital currency market expose ordinary investors to significant financial risks. Many investors may not fully understand the technical principles and market risks of digital currencies, making them susceptible to market manipulation or fraudulent activities. Second, the security issues of digital currency wallets and trading platforms pose a major challenge, with hacking attacks and fund theft incidents occurring from time to time (Tang et al., 2024). Third, the decentralized nature of digital currencies may render traditional financial consumer protection mechanisms ineffective. Facing these challenges, regulatory authorities and industry participants are taking the following measures: strengthening investor education to raise public awareness of digital currency risks, establishing security standards and best practices for digital currency trading platforms, setting up investor protection funds to provide certain safeguards for potential losses, requiring digital currency service providers to enhance transparency in information disclosure, and developing dispute resolution mechanisms specifically for digital currencies. Effective consumer protection and investor education can not only reduce losses for individual investors but also enhance the health and credibility of the entire digital currency market. Regulatory authorities need to work closely with industry participants to jointly build a safe, transparent, and fair digital currency ecosystem.

5. Future Development Trends of Digital Currencies

5.1. Technological Innovation and New Application Scenarios

Technological innovation in the digital currency field is continuously advancing, opening up new application scenarios (Nan, 2022). Initially, in terms of blockchain foundational technology, Layer 2 scaling solutions such as the Lightning Network and Rollups are improving transaction throughput and reducing fees, making digital currencies more suitable for daily micropayments. Furthermore, the development of cross-chain technology is breaking down barriers between different blockchain networks, enhancing asset interoperability. Third, the application of privacy protection technologies such as Zero-Knowledge Proofs (ZKP) is helping digital currencies strike a balance between protecting privacy and meeting

compliance requirements. In terms of application scenarios, digital currencies are combining with other emerging technologies such as the Internet of Things (IoT) and Artificial Intelligence (AI) to create new business models. For example, automated payment systems implemented through smart contracts can support machine-to-machine (M2M) economic activities. Furthermore, digital currencies may become important mediums of value exchange in the metaverse economy. These innovations will not only enhance the technical performance of digital currencies but also expand their application boundaries, potentially reshaping business models across many industries. However, this also brings new technical and regulatory challenges that require ongoing research and policy adjustments.

5.2. Globalization Trends of CBDCs and Their Impact

The development of Central Bank Digital Currencies (CBDCs) is showing a globalization trend, potentially reshaping the international monetary system. As of 2024, multiple major economies have initiated or advanced CBDC projects, with some already entering pilot or implementation stages. This trend is driven by multiple factors, including improving payment system efficiency, enhancing financial inclusivity, and responding to challenges from private digital currencies. The global development of CBDCs may have the following significant impacts: innovating international payments, intensifying currency competition, improving financial inclusivity, providing new monetary policy tools, and presenting international regulatory challenges. CBDCs' cross-border use may significantly improve international payment efficiency and reduce costs. The internationalization of major economies' CBDCs may affect the existing international reserve currency landscape. CBDCs can provide basic financial services to the unbanked population. CBDCs offer new avenues for implementing unconventional monetary policies. The cross-border use of CBDCs requires the establishment of new international coordination mechanisms. The global development of CBDCs will have a profound impact on the international financial system, potentially changing the landscape of currency competition, cross-border payment models, and international financial cooperation mechanisms. However, this process also faces many challenges, such as unifying technical standards and coordinating cross-border regulation, which require joint efforts from the international community.

5.3. Integration of Decentralized Finance (DeFi) and Traditional Finance

Decentralized Finance (DeFi), as an important component of the digital currency ecosystem, is gradually integrating with the traditional financial system, creating new financial service models. DeFi utilizes smart contracts and blockchain technology to provide a series of innovative financial services, such as decentralized lending, automated market makers (AMM), and yield aggregators. These services often outperform traditional financial products in terms of efficiency, accessibility, and transparency. However, DeFi also faces challenges in regulation, security,

and scalability. As DeFi develops, we are seeing traditional financial institutions begin to explore how to integrate DeFi advantages, while DeFi projects are seeking compliance and institutionalization. This integration trend is mainly manifested in the following aspects: traditional financial institutions participating in DeFi, the institutionalization of DeFi, the emergence of hybrid financial products, and the convergence of infrastructure between traditional financial systems and DeFi. The integration of DeFi and traditional finance will potentially bring more efficient and inclusive financial services, but it also needs to address challenges in technology, regulation, and risk management. Policymakers and market participants need to work together to build a new financial ecosystem that balances innovation and stability. Table 7 compares the characteristics of DeFi and traditional finance, while also suggesting possible integration directions, highlighting the potential for a new, hybrid financial ecosystem.

Table 7. Comparison of DeFi and traditional finance characteristics and possible integration directions.

Characteristic	Traditional Finance	DeFi	Possible Integration Direction
Intermediaries	Reliant on intermediaries	Disintermediation	Smart contract-managed semi-centralized services
Accessibility	Limited	Globally open	KYC-compliant open financial services
Transparency	Relatively opaque	Highly transparent	Enhanced information disclosure and audit systems
Innovation speed	Slower	Rapid	Rapid innovation within regulatory sandboxes
Security	Institutional guarantees	Technological guarantees	Multi-layer protection combining technology and institutions

Source: World economic forum.

6. Conclusion

The rapid development of digital currencies is profoundly changing the global financial landscape, bringing new opportunities for financial innovation, inclusive finance, and economic efficiency improvement. From decentralized cryptocurrencies to Central Bank Digital Currencies (CBDCs), digital currencies are reshaping monetary concepts and financial service models in diverse forms. This study, through in-depth analysis of the technical foundations of digital currencies, their current development status, and their multi-faceted impact on the global financial system, reveals the complexity of financial innovation and risk management in the digital currency era. Facing the challenges brought by digital currencies, building adaptive regulatory frameworks, strengthening international cooperation, and balancing innovation and stability have become key tasks. In the future, as technology continues to advance and application scenarios expand, digital currencies are expected to further enhance the efficiency and inclusivity of the financial system. However, this process is also accompanied by many uncertainties, requiring continuous attention and collaboration from policymakers, financial institutions, and the technology community. Looking ahead, the development trajectory of

digital currencies will largely depend on the interaction of technological innovation, market demand, and policy environment. Establishing a safe, efficient, and inclusive digital currency ecosystem requires not only technological breakthroughs but also achieving balance in innovation, regulation, and international coordination. Through these efforts, digital currencies have the potential to become an important force in driving the modernization and inclusive development of the global financial system.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Auer, R., Cornelli, G., & Frost, J. (2020). *Rise of the Central Bank Digital Currencies: Drivers, Approaches and Technologies. BIS Working Papers No 880*. https://www.bis.org/publ/work880.htm

Bank for International Settlements (2021). *CBDCs: An Opportunity for the Monetary System*. Bank for International Settlements.

Baur, D. G., Hong, K., & Lee, A. D. (2018). Bitcoin: Medium of Exchange or Speculative Assets? *Journal of International Financial Markets, Institutions and Money, 54,* 177-189. https://doi.org/10.1016/j.intfin.2017.12.004

Böhme, R., Christin, N., Edelman, B., & Moore, T. (2015). Bitcoin: Economics, Technology, and Governance. *Journal of Economic Perspectives, 29,* 213-238. https://doi.org/10.1257/jep.29.2.213

Chen, Y., & Bellavitis, C. (2020). Blockchain Disruption and Decentralized Finance: The Rise of Decentralized Business Models. *Journal of Business Venturing Insights, 13,* e00151. https://doi.org/10.1016/j.jbvi.2019.e00151

Chowdhury, M. U., Suchana, K., Alam, S. M. E., & Khan, M. M. (2021). Blockchain Application in Banking System. *Journal of Software Engineering and Applications, 14,* 298-311. https://doi.org/10.4236/jsea.2021.147018

Financial Action Task Force (2019). *Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers*. https://www.fatf-gafi.org/en/publications/Fatfrecommendations/Guidance-rba-virtual-assets-2021.html

Houben, R., & Snyers, A. (2018). *Cryptocurrencies and Blockchain: Legal Context and Implications for Financial Crime, Money Laundering and Tax Evasion*. European Parliament.

Nakamoto, S. (2008). *Bitcoin: A Peer-to-Peer Electronic Cash System*. https://www.ussc.gov/sites/default/files/pdf/training/annual-national-training-seminar/2018/Emerging_Tech_Bitcoin_Crypto.pdf

Nan, X. (2022). Realization Technology of Digital Currency Hubee. *Open Access Library, 9,* 1-13. https://doi.org/10.4236/oalib.1109324

Tang, J., Li, X., & Qu, W. (2024). Blockchain and Digital Transformation of University Asset Management. *Open Journal of Applied Sciences, 14,* 85-100. https://doi.org/10.4236/ojapps.2024.141007