

DIGITAL CURRENCIES AND BLOCKCHAIN TECHNOLOGY WITHIN CONSERVATIVE MONETARY SYSTEMS: ECONOMIC IMPACTS AND REGULATORY CHALLENGES – JORDAN AS A CASE STUDY

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Abstract

The present study aims to examine digital currencies and blockchain technology within conservative monetary systems, as well as the economic impacts and regulatory challenges associated with their adoption in Jordan. The descriptive–analytical approach was employed due to its suitability for the objectives of the study. The study sample consisted of 352 respondents drawn from individuals participating in the economic process in Jordan, selected using simple random sampling. A measurement instrument was developed for data collection, and its validity and reliability were duly verified.

The findings indicate that digital currencies and blockchain technology within conservative monetary systems have a moderate level of economic impact in Jordan. The results also reveal the existence of numerous regulatory challenges facing the use of digital currencies and blockchain technology within conservative monetary systems in Jordan. Based on these findings, a set of recommendations was proposed, most notably the need for legislative and regulatory authorities to establish a comprehensive legal framework governing the use of digital currencies and blockchain technology. Such a framework should clearly define legal responsibilities, address potential risks, and ensure the protection of users without hindering innovation.

Keywords: Digital currencies; blockchain technology; conservative monetary systems; economic impacts; regulatory challenges.

INTRODUCTION

Digital currencies and blockchain technology have attracted growing attention in contemporary economic literature as technological innovations with significant potential to reshape traditional financial and monetary systems. While conservative monetary systems are grounded in centralized currency issuance, stable fiscal and monetary policies, and the banking sector's intermediation role, decentralized digital currencies introduce an alternative model that challenges these pillars by enabling value transfers without intermediaries, enhancing transparency, and reducing transaction costs. This challenge becomes more pronounced with the diffusion of blockchain technologies, which provide a secure, tamper-resistant infrastructure for recording transactions and may thereby reduce reliance on conventional financial institutions (Habib, Sharma, Ibrahim, Ahmad, Qureshi, & Ishfaq, 2022).

These developments have sparked extensive debate regarding their potential economic impacts for monetary stability, financial sovereignty, and market efficiency. On the one hand, digital currencies are viewed as instruments for promoting financial inclusion, stimulating innovation, and facilitating cross-border trade. On the other hand, their sharp price volatility and potential use in illicit activities raise serious concerns among policymakers in countries with conservative monetary systems, where controlling the money supply and mitigating systemic risks are paramount priorities (Rijal & Saranani, 2023).

Regulatory challenges have emerged as a central axis in the interaction between technological innovation and the preservation of economic stability. Regulatory authorities seek to strike a delicate balance between encouraging technological advancement on the one hand, and ensuring compliance with financial laws and protecting consumers on the other. Accordingly, this study aims to analyze the economic effects of digital currencies and blockchain technology within conservative monetary systems, with particular attention to key regulatory challenges and possible future scenarios (Iskamto & Juariyah, 2023).

In light of the above, the present study investigates digital currencies and blockchain technology within conservative monetary systems, focusing on their economic impacts and regulatory challenges in Jordan as a case study.

Statement of the Problem

Over the past decade, the world has witnessed a rapid expansion in the use of digital currencies and blockchain technology, given the advantages they offer in terms of speed, transparency, and reduced reliance on traditional financial intermediaries. However, this expansion has been met with notable reservations by conservative monetary systems, which seek to maintain monetary stability and control over financial policies, and to prevent risks associated with money laundering and the financing of illicit activities.

The Hashemite Kingdom of Jordan has adopted a cautious stance toward digital currencies, manifested in restricting their use and prohibiting their adoption as an official means of payment, despite their increasing global prevalence. The study problem lies in the absence of an in-depth scientific analysis that examines the economic impacts of this conservative stance, while simultaneously assessing the regulatory challenges faced by monetary authorities in Jordan when dealing with innovative financial technologies such as blockchain within the framework of a conservative monetary system.

Study Questions

In light of the study problem, the present study seeks to answer the following questions:

- What are the key economic impacts of digital currencies and blockchain technology within conservative monetary systems in Jordan?
- What regulatory challenges do digital currencies and blockchain technology face within conservative monetary systems in Jordan?

Significance of the Study

The significance of this study is twofold:

THEORETICAL SIGNIFICANCE:

The academic significance of this study stems from its examination of digital currencies and blockchain technology within the context of conservative monetary systems—a context that has received limited attention in both Arabic and international literature, which often focuses on countries with flexible monetary regimes or advanced technological infrastructures. This study contributes to bridging a knowledge gap by offering a scientific analysis that integrates both economic and regulatory dimensions, with particular emphasis on Jordan as a model of a country that adopts a cautious monetary policy. The significance of the study also lies in its focus on developing a sound theoretical framework that explains and clarifies key concepts related to the study topic. Moreover, the study introduces an analytical framework that may be utilized in future research addressing the interaction between financial innovation and monetary sovereignty in developing economies.

Practical Significance:

The practical significance of this study lies in its potential to provide findings that may benefit policymakers and regulatory authorities in Jordan—particularly the Central Bank and supervisory bodies—by enhancing their understanding of the potential economic impacts of digital currencies and the challenges associated with their regulation. The study may also assist in guiding future policies related to blockchain technologies in a manner that achieves a balance between fostering financial innovation and maintaining monetary and financial stability. Furthermore, the present study may serve as an academic reference for researchers and specialists in the field of digital economics within and beyond the Arab context, especially if translated into multiple languages.

Objectives of the Study

The study seeks to achieve the following objectives:

- To identify the key economic impacts of digital currencies and blockchain technology within conservative monetary systems in Jordan.
- To examine the regulatory challenges facing digital currencies and blockchain technology within conservative monetary systems in Jordan.

Scope of the Study

The scope of the study is defined as follows:

Thematic Scope:

The thematic scope encompasses digital currencies and blockchain technology, conservative monetary systems, economic impacts, and regulatory challenges.

Temporal Scope:

The study was conducted during the first quarter of 2026.

Spatial Scope:

The study was conducted in the Hashemite Kingdom of Jordan.

Human Scope:

The study focused on individuals working in the economic sector.

Key Terms of the Study

Digital Currencies:

Digital currencies are monetary units that are created and exchanged in electronic form, relying on digital technologies and cryptography—often based on distributed ledger systems such as blockchain—to enable the transfer of value without a physical form and with varying degrees of centralization, whether issued by official authorities or traded in a decentralized manner (Zervas, Stiakakis, Athanasiadis, & Tsekourpoulos, 2024).

Operationally, digital currencies are measured through observable indicators such as the level of individual use (e.g., buying, selling, transferring, or saving), degree of awareness, trust in their security, volume of executed transactions, and the trading platforms used. These indicators are assessed using specific measurement tools, including questionnaires, transaction records, or data from trading platforms over a defined period.

Blockchain:

Blockchain is a distributed digital ledger technology that records transactions in interconnected blocks secured through cryptography. These transactions are collectively validated by a network of participants without the need for a central authority, thereby ensuring transparency, data immutability, and the reliability of information exchange (Cao, Wang, Zhang, Feng, Peng, Zhang, & Han, 2022).

Operationally, blockchain is defined as a digital system for recording transactions in a secure, distributed ledger based on cryptography and decentralized verification. In this study, it is measured through indicators such as the level of security, transparency, decentralization, and the speed of transaction validation.

Conservative Monetary Systems:

Adam and Billi (2008) define conservative monetary systems as the frameworks and monetary policies adopted by states to maintain monetary and financial stability through centralized currency issuance, control over the money supply, and reliance on traditional instruments such as interest rates and reserve requirements, while exercising caution in adopting financial innovations that may expose monetary sovereignty or economic stability to risk.

Operationally, conservative monetary systems are traditional, centrally managed systems overseen by central banks and measured in terms of the degree of centralization, monetary stability, and the level of regulation and supervision.

Economic Impacts:

Plivka, Cohany, and Hipple (2000) define economic impacts as the outcomes and changes that occur in macroeconomic or microeconomic performance as a result of adopting specific policies, phenomena, or innovations, including their effects on economic growth through trade and investment, financial stability, and inflation.

Operationally, economic impacts refer to economic outcomes measured through the responses of the study sample to the items of the study instrument.

Regulatory Challenges:

Regulatory challenges refer to the difficulties and issues faced by legislative and supervisory authorities in formulating and implementing legal frameworks and policies governing economic and financial activities, particularly in the context of rapid technological developments. These challenges include achieving a balance between encouraging innovation, ensuring legal compliance, and protecting economic stability and the rights of stakeholders (Howard-Grenville, 2020).

Operationally, regulatory challenges are defined as the obstacles and difficulties encountered by regulatory authorities in developing and enforcing legal and supervisory frameworks, and are measured through the responses of the study sample to the items of the study instrument.

THEORETICAL FRAMEWORK

The Regulatory Framework for Digital Currencies in Jordan

The regulatory framework governing digital currencies in Jordan is characterized by a clearly conservative orientation, as monetary authorities have adopted a precautionary approach aimed at protecting the financial system and maintaining monetary stability. The Central Bank of Jordan has repeatedly affirmed that it does not recognize digital currencies as legal tender, and has prohibited banks and financial institutions under its supervision from engaging in or promoting activities related to them (Central Bank of Jordan, 2022).

This regulatory stance is driven by several considerations, most notably the risks associated with money laundering and the financing of illicit activities, the difficulty of tracing decentralized digital transactions, and the sharp price volatility that characterizes digital currencies. Furthermore, the absence of a unified international legislative framework for regulating digital currencies places additional burdens on national regulatory authorities, particularly with regard to defining legal liabilities and ensuring consumer protection.

Conversely, this conservative stance does not necessarily extend to blockchain technology itself. Official entities in Jordan have shown increasing interest in the non-monetary applications of blockchain, especially in the areas of digital transformation and government services. This reflects a regulatory approach that distinguishes between the risks associated with digital currencies and the broader potential of blockchain technology, thereby opening the door to more balanced future policies (World Bank, 2020).

Digital Currencies

A digital currency, also referred to as electronic money, is defined as any form of currency or monetary asset that is created, managed, stored, and exchanged primarily through digital computer systems, particularly via the internet. Digital currencies encompass several types, most notably digital currencies, virtual currencies, and central bank digital currencies (CBDCs). These currencies may be recorded in distributed online databases or in centralized electronic databases owned by financial institutions or corporations, and may also be stored in digital files or on stored-value cards (Milkau & Bott, 2018).

Digital currencies share several characteristics with traditional currencies; however, they generally lack the familiar physical form of paper banknotes and coins that can be manually exchanged. Nevertheless, they possess a non-traditional material existence arising from interactions among computer systems, between these systems and users, and through the capacity of servers to store, process, and track financial data. This non-conventional

form enables near-instantaneous online transactions and significantly reduces the costs of issuing and circulating money compared to physical currency (Shaw, 2016).

For example, data from the UK economy indicate that banknotes and coins account for only about 3% of total money in circulation, while electronic money—primarily in the form of bank deposits—constitutes approximately 79% of the total money supply. Virtual currencies are typically not issued by governmental authorities and are not considered legal tender. Moreover, they allow the transfer of ownership across geographical borders without being constrained by national boundaries (Sparnkel, 2013).

Digital currencies have witnessed increasing diffusion in recent years; however, they have not yet become a direct substitute for fiat currencies, nor have they been adopted by any government as an official currency. Nonetheless, they represent real value within specific communities that use them as a medium of exchange, a phenomenon particularly evident in online gaming communities where digital currencies are employed for internal transactions (Naheem, 2019).

Modern digital currencies, such as Bitcoin, differ from earlier forms of digital currencies in that they were designed for use within the real economy, as they can be exchanged for government-issued fiat currencies. In comparison with gold, Bitcoin shares several characteristics, including scarcity of supply and a limited quantity available in the market. Its exchange rate, like that of gold, is influenced by supply and demand forces, resulting in notable price volatility. In addition, Bitcoin is easily measurable and divisible, is more portable than gold, and does not require the crossing of physical borders, which facilitates its use and reduces the costs of cross-border transactions (Brittemira, 2014).

The fundamental distinction between Bitcoin and earlier digital currencies lies in its lack of technical dependence on any central authority. Full decentralization constitutes a core feature of Bitcoin; consequently, trust in its stability is not derived from the policies or capabilities of a central institution, but rather from users' confidence in the system itself and in the decentralized mechanisms that underpin the digital currency and ensure its security and continuity (Alsalami, Ullah, & Rafique, 2023).

Digital currencies can be classified into several types, most notably decentralized digital currencies that operate independently of central monetary authorities, as well as central bank digital currencies, which represent official attempts to harness the advantages of financial digitalization while preserving monetary control. Digital currencies are often viewed as financial instruments with a dual nature: they function both as a medium of exchange and as a high-risk investment asset, due to their price volatility and the instability of their value (Sahw, 2016).

Blockchain Technology

Blockchain technology is considered one of the most prominent technological innovations associated with the digital economy. It is a distributed and decentralized digital ledger used to record transactions in an encrypted and secure manner, with data linked in sequential blocks that are difficult to alter or tamper with. This technology relies on a consensus mechanism among network participants, reducing the need for a central authority to oversee or verify transactions (Ghiro, Restuccia, D'Oro, Basagni, Melodia, Maccari, & Cigno, 2021).

The main features of blockchain technology include decentralization, transparency, immutability, and the enhancement of trust among transacting parties. Its applications extend beyond digital currencies to include smart contracts, supply chains, financial services, and digital governance. Blockchain has contributed to reshaping the concept of trust in financial transactions by transferring it from institutions to algorithms and digital systems (Tyagi, Gautam, Goel, & Mann, 2021).

Conservative Monetary Systems

Conservative monetary systems refer to those that adopt cautious monetary policies aimed primarily at maintaining monetary and financial stability and minimizing risks that may threaten the integrity of the financial system. These systems are characterized by strict oversight of payment instruments, financial transfers, and new monetary innovations, with a central emphasis on the central bank as the sole authority empowered to issue currency and regulate monetary policy (Adam & Billi, 2008).

The cautious stance of these systems toward digital currencies stems from several considerations, most notably concerns over losing control of the money supply, risks associated with money laundering and the financing of illicit activities, and the price volatility of digital currencies and their potential impact on economic stability. In this context, the Hashemite Kingdom of Jordan represents a model of a conservative monetary system seeking to balance openness to technological developments with the robustness of the monetary system (Berleman & Hielscher, 2016).

The Relationship between Digital Currencies and Conservative Monetary Systems

The relationship between digital currencies and conservative monetary systems reflects a tension between the demands of financial innovation and the imperatives of monetary stability. On one hand, digital currencies and blockchain technology provide opportunities to develop financial systems, improve payment efficiency, and promote financial inclusion. On the other hand, these innovations present complex regulatory and legal challenges that require monetary authorities to reconsider existing legislative frameworks (Belke & Beretta, 2020).

This tension underscores the need for balanced regulatory approaches that are neither entirely prohibitive nor excessively permissive, but rather carefully designed to leverage modern technologies while minimizing potential risks. This theoretical framework forms the foundation for analyzing the case of Jordan and understanding the regulatory stance toward digital currencies and blockchain technology (Dow, 2019).

The economic and financial literature has addressed digital currencies and blockchain technology from multiple perspectives, varying according to the economic and regulatory contexts of the countries studied. Previous studies relevant to this study can be categorized into three main areas: studies on digital currencies and their economic impacts, studies focusing on regulatory aspects, and studies examining blockchain technology and its applications beyond digital currencies (Belke & Beretta, 2020).

The Monetary-Economic Dimension of Digital Currencies

The monetary-economic dimension of digital currencies represents one of the most debated aspects in contemporary economic literature, due to the way these currencies challenge traditional functions of money and the role of monetary authorities in the economy. In conservative monetary systems, monetary policy is based on controlling the money supply and managing liquidity in line with objectives of economic stability and the preservation of the national currency's value. However, digital currencies, by virtue of their decentralized nature, introduce an alternative monetary model that may limit central banks' ability to effectively perform this role (Mishchenko & Naumenkova, 2021).

This challenge becomes particularly pronounced when digital currencies expand as a medium of exchange or store of value, as it may reduce demand for the local currency, giving rise to what is known as digital currency substitution. Such a shift could negatively impact the effectiveness of traditional monetary policy tools. Moreover, the sharp price volatility of digital currencies undermines their ability to function as a stable store of value, reinforcing their role as speculative instruments rather than reliable money (Said, 2019).

In developing economies with conservative monetary systems, such as Jordan, the sensitivity to these effects is heightened due to the close link between monetary stability and broader financial and economic stability. Therefore, examining digital currencies from a monetary-economic perspective is essential to understand their potential impacts for monetary sovereignty, the role of the central bank, and the sustainability of the financial system (Chiu & Keister, 2022).

Economic Impacts of Digital Currencies in Jordan

Digital currencies and blockchain technology affect the Jordanian economy through a set of interrelated impacts on monetary stability, the banking system, financial inclusion, and oversight of economic activity.

From a monetary stability perspective, digital currencies pose a potential challenge to conservative monetary policies due to their decentralized nature and their lack of direct subjection to traditional control tools used by the central bank, such as money supply management and interest rate policies (Albalawee & Al Fahoum, 2023).

Furthermore, the sharp price volatility of these currencies may encourage speculative behavior rather than use as a medium of exchange, increasing market uncertainty and affecting overall financial stability. At the banking system level, expanded use of digital currencies could reduce the intermediary role of banks and decrease deposit volumes, impacting their capacity to finance economic activities. However, this challenge could become an opportunity if banks adopt blockchain technologies and develop more efficient and secure digital financial services within a clear regulatory framework (Central Bank of Jordan, 2021).

Regarding financial inclusion, digital currencies can expand access to financial services, especially for the unbanked population, and improve the efficiency of financial transfers, particularly cross-border remittances. Nevertheless, limited digital financial literacy, fraud risks, and consumer protection concerns may constrain the practical benefits of these advantages.

Digital currencies also raise concerns related to the expansion of the informal economy and the difficulty of tracking certain transactions, which could negatively affect financial oversight and tax revenues. These considerations explain the caution exercised by Jordanian monetary authorities regarding the spread of these currencies, reflecting their efforts to balance the promotion of financial innovation with the preservation of economic stability (Eobadh, 2022).

Regulatory and Legal Challenges of Digital Currencies in Jordan

1. Absence of a Clear Legislative Framework

The lack of a comprehensive legislative framework governing digital currency transactions represents one of the most prominent challenges facing regulatory authorities in Jordan. Existing financial laws were not originally designed to address decentralized digital monetary instruments, creating a regulatory gap that complicates the effective oversight of these transactions without legislative updates (Central Bank of Jordan, 2022).

2. Risks of Money Laundering and Financing Illicit Activities

Digital currencies pose significant challenges to supervisory authorities in combating money laundering and terrorism financing, particularly due to the use of advanced encryption technologies that may impede tracing the sources of funds. These risks prompt monetary authorities to adopt cautious stances, ranging from restrictions to strict regulation, to safeguard the national financial system (Financial Action Task Force [FATF], 2021).

3. Technical and Institutional Challenges

Regulating digital currencies and blockchain technology requires advanced institutional and technical infrastructure, including specialized personnel, digital supervisory systems, and flexible legislation capable of keeping pace with rapid technological developments. Building such capacities presents an additional challenge in developing economies with limited resources (World Bank, 2020).

4. Balancing Innovation and Regulation

Achieving a balance between promoting financial innovation and maintaining monetary stability is one of the most difficult challenges facing conservative monetary systems. Overly stringent regulation may hinder

innovation, while excessive leniency could expose the financial system to significant risks. This underscores the need for a gradual regulatory approach that allows new technologies to be tested within a supervised regulatory environment (Central Bank of Jordan, 2022).

Previous Studies

Al-Qaisi (2021) conducted a study examining the impact of blockchain technology on the financial statements of Jordanian commercial banks and its relationship with certain financial statement items, including the income statement, other comprehensive income, statement of financial position, statement of changes in equity, and cash flow statement. The study employed a descriptive-analytical approach and a normative method suitable for its objectives. The sample consisted of eight commercial banks that had prioritized the implementation of blockchain technology and were listed on the Amman Stock Exchange between 2009 and 2019. The results indicated that the use of blockchain technology had a measurable impact on the financial statements of Jordanian commercial banks. Laanani, Mahawat, and Shaib (2021) investigated the role of blockchain technology in controlling the money supply from an Islamic economic perspective. Using a descriptive-analytical methodology, the study found that blockchain technology plays a significant role in building a centralized digital monetary system capable of monitoring and tracking money flows, thereby reducing negative behaviors affecting the money supply. Additionally, the technology can help curb interest, limit credit money creation, manage monetary reserves, and regulate various usurious transactions.

Amal (2021) provided a descriptive and exploratory study to explain blockchain technology and its economic Applications. The study highlighted that the industry-based economy increasingly relies on technological tools, with blockchain being the most recent foundational component. Blockchain serves as the basis for digital currencies such as Bitcoin and Ripple, but its applications extend beyond digital currencies. The study concluded that blockchain was developed to address the problem of trust in transactions between two parties without the need for intermediaries, making it an effective technology for value exchange over the internet. Numerous real-world projects already employ blockchain beyond digital currencies, including financial services, property records, and governmental services. The study noted a growing trend across economic sectors to adopt blockchain due to its ability to facilitate efficient, transparent, and cost-effective operations.

Castren, Kavonius, and Rancan (2022) analyzed the integration of central bank digital currencies (CBDCs) within the financial accounts network framework. The study simulated a scenario in which individual and corporate deposits were transferred from the traditional banking sector to the central bank, aiming to model the varied responses of affected institutional sectors. Results indicated that the introduction of a central bank digital currency could lead to reduced funding for commercial banks, potentially impacting other economic sectors. The study also highlighted significant changes to sectoral balance sheets, contributing to volatility in security prices and altering the structure of the financial network. Additionally, the study explored the scenario of introducing a tokenized digital asset, such as a stablecoin issued by a domestic or foreign entity, and its potential effects on financial stability and inter-sectoral relationships.

Alsalmi, Subhanullah, and Rafique (2023) addressed several pivotal issues concerning digital currencies, aiming to achieve two main objectives: first, to analyze and classify digital currencies; and second, to identify related accounting practices and standards. The study focused on two main types of digital currencies: central bank digital currencies (CBDCs) and privately issued digital currencies such as Bitcoin. Results showed that current accounting standards do not provide accurate and comprehensive treatment for digital currencies, despite the rapid growth of the digital currencies market, with an estimated market capitalization of approximately USD 200 billion in 2022. The study emphasized the urgent need to develop specialized accounting standards offering clear guidance on recognition, classification, measurement, and presentation of digital currencies in financial statements. Meanwhile, it suggested that existing accounting standards could be temporarily adapted to include digital currencies, reducing inconsistencies in global accounting practices until a unified standard is issued.

Porrás-González, Martín-Martín, and Guaita-Martínez (2019) reviewed distributed ledger blockchain technology as a tool that provides a secure, transparent, verifiable, decentralized, democratic, efficient, and tamper-resistant method for recording and transferring data. Current discussions indicate that the unique features of blockchain define its potential applications, expected to address inefficiencies in various economic sectors and enable new business models based on distributed markets and technologies. Given the significance of this technological revolution, the study aimed to introduce readers to the theoretical foundations of blockchain technology, review its current and prospective applications, and analyze its potential global economic impacts. To achieve this, a comprehensive review of academic and professional literature was conducted, covering the characteristics and advantages of blockchain, its diverse existing and future applications, and the reasons why its economic impacts are expected to have a worldwide impact.

Distinguishing Features of the Current Study

Previous studies on digital currencies and blockchain technology differ from the current study in several respects. Some studies, such as those by Al-Qaisi (2021) and Laanani, Mahawat, and Shaib (2021), focused on the direct impact of blockchain and digital currencies on bank financial statements or on controlling the money supply from a specific normative perspective, employing a descriptive-analytical methodology to explain relationships between specific variables. Meanwhile, studies like Amal (2021) and Porrás-González et al. (2019) emphasized the technical characteristics of blockchain and its economic applications, illustrating its role in creating secure and

transparent systems and enabling new business models, without directly linking it to conservative monetary environments or state regulatory policies.

Similarly, Castren et al. (2022) analyzed the simulated introduction of central bank digital currencies and their effects on financing, balance sheets, and financial markets, whereas Alsalmi et al. (2023) focused on the accounting framework for digital currencies, their classification, and the need to develop specialized accounting standards.

In contrast, the current study integrates multiple dimensions comprehensively. It examines digital currencies and blockchain technology within the context of conservative monetary systems in Jordan, with a particular focus on both economic impacts and regulatory challenges. This makes the study more comprehensive than previous study, which often addressed only specific aspects—technical, financial, or accounting. The present study combines theoretical analysis, local empirical context, and descriptive-analytical examination of the economic and regulatory environment, providing a holistic perspective not found in prior studies.

Study Methodology

This study adopts the descriptive–analytical study approach, as it is well suited to the objectives of the study, which examines digital currencies and blockchain technology within conservative monetary systems, with a focus on their economic impacts and regulatory challenges in Jordan. This approach enables a systematic description and analysis of the phenomenon under investigation and supports drawing informed conclusions based on empirical data.

Study Population

The study population is very large and unlimited, due to the wide distribution of individuals working across various economic sectors in Jordan, including the commercial, investment, industrial, and service sectors. These individuals are employed in factories, companies, or sole proprietorships and engage, directly or indirectly, in activities involving digital currencies. Their participation in such activities has a direct impact on the Jordanian economy.

Study Sample

The study sample was selected using simple random sampling from the study population. The sample size was determined to be 384 respondents, based on Morgan’s sample size table (Morgan, 1970). The study instrument (questionnaire) was distributed directly to the selected participants under the supervision of the researcher. After collecting the questionnaires, 32 questionnaires were excluded due to their unsuitability for statistical analysis. Consequently, 352 valid questionnaires remained for analysis, representing a response rate of 91.6% of the total sample. Table (1) presents the demographic distribution of the study sample according to gender, age, work experience, and educational qualification.

Table (1) Distribution of the study sample according to gender, age, work experience and academic qualification

	Frequency	Percentage
Gender		
Male	261	74.1
Female	91	25.9
Total	352	100.0
Age		
Under 30 years old	60	17.0
31–40 years	218	61.9
More than 40 years	74	21.0
Total	352	100.0
Work Experience		
Less than 5 years	90	25.6
5–10 years	218	61.9
More than 10 years	44	12.5
Total	352	100.0
Educational Qualification		
Diploma or below	142	40.3
Bachelor’s degree	185	52.6
Postgraduate studies	25	7.1
Total	352	100.0

Data Collection Instrument

A scale was employed as the data collection instrument. It was developed with reference to several previous studies, such as Al-Qaisi (2021), La’nani, Mahawat, and Shuaib (2021), and Amal (2021). The study instrument consisted of two main dimensions:

First dimension: digital currencies and blockchain technology within conservative monetary systems and their economic effects, measured by 10 items.

Second dimension: digital currencies and blockchain technology within conservative monetary systems and the associated regulatory challenges, measured by 10 items.

Validity of the Study Instrument

The validity of the study instrument was verified using two methods:

1. Content Validity

The initial version of the study instrument was submitted for review to a panel of university professors from Jordanian universities, as well as a group of economic experts in Jordan. They were asked to assess the content validity, the relevance of the statements to the study instrument, their suitability for measuring the intended constructs, and the clarity of the items. Accordingly, appropriate modifications were proposed. An agreement criterion of 80% was adopted to determine item adequacy. Based on the reviewers' feedback, some items were revised in terms of wording to enhance clarity, while others were deleted due to redundancy and semantic overlap with other items. Additional items were removed because they were not relevant to the objectives of the study or were inconsistent with the dimension to which they belonged. As a result, the final scale comprised 20 items distributed across two main dimensions.

1. Construct Validity

Construct validity of the scale was assessed by calculating the correlation between each item score and the dimension to which it belongs, based on the responses of the study sample. Table (2) presents the results of these analyses.

Table (2): Pearson correlation coefficients between each item and the total score of its corresponding dimension, used to examine the construct validity of the study scale.

Significant at the 0.01 level of significance ($p < 0.01$)

It is evident from Table (2) that the values of the correlation coefficients between the scale items and the total score of the dimension to which they belong exceed 0.30, which represents the minimum acceptable threshold for item discrimination (Pallant, 2005). This indicates that all items contribute effectively to the scale's total score and

First Dimension		Second Dimension	
Item No.	Correlation Coefficient with Total Score	Item No.	Correlation Coefficient with Total Score
1	.849**	1	.852**
2	.814**	2	.831**
3	.871**	3	.409**
4	.838**	4	.838**
5	.874**	5	.880**
6	.850**	6	.846**
7	.857**	7	.873**
8	.831**	8	.861**
9	.790**	9	.820**
10	.822**	10	.848**

consistently measure the same underlying construct, thereby confirming the construct validity of the scale.

Reliability of the Study Instrument

Cronbach's alpha coefficient was used to examine the reliability of the study instrument. Cronbach's alpha values are considered acceptable as they approach 1.00, as shown in Table (3) below.

Table (3): Reliability coefficients of the study instrument items using Cronbach's alpha

Study Variables	Items	Reliability Coefficient (Cronbach's Alpha)
First Dimension	10	0.953
Second Dimension	10	0.940
Overall Instrument	20	0.970

It can be seen from Table (3) that the Cronbach's alpha values for the scale's sub-dimensions ranged from 0.940 to 0.953, with an overall value of 0.970. These values exceed the standard threshold of 0.60 and are considered acceptable for the present study (Hair et al., 2014).

Scale Scoring Key

The study employed a five-point Likert scale, which was designed in accordance with standard rules and properties of measurement scales as follows:

Response Options				
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

5	4	3	2	1
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Based on the above, the study treated the obtained arithmetic mean values according to the following equation:
 The range of the response options is divided by the number of levels:

$$1.33 = \frac{4}{3} = \frac{(1-5)}{3}$$

This value represents the **class interval**. Accordingly, the levels are interpreted as follows:

Low level: 1.00 – 2.33

Medium level: 2.34 – 3.67

High level: 3.68 – 5.00

RESULTS

This section of the study addresses the study questions by presenting the arithmetic means and standard deviations to examine the responses of the study sample regarding “**Digital Currencies and Blockchain Technology within Conservative Monetary Systems: Economic Effects and Regulatory Challenges.**” The study results are presented as follows:

First: Results Related to Measuring the Economic Effects of Digital Currencies and Blockchain Technology within Conservative Monetary Systems in Jordan

The arithmetic means and standard deviations were calculated to examine the responses of the study sample regarding the economic effects of digital currencies and blockchain technology within conservative monetary systems in Jordan. Table (4) presents these results:

Table (4): Arithmetic means and standard deviations of the study sample’s responses regarding the economic effects of digital currencies and blockchain technology within conservative monetary systems in Jordan, arranged in descending order.

No.	Item	Mean	Standard Deviation	Rank	Level
9	New services based on blockchain, such as digital product tracking, innovative financial services, or non-fungible tokens (NFTs), can generate new sources of income	3.61	0.90	1	Medium
6	Adopting blockchain technology in the financial sector significantly reduces transaction costs and increases efficiency	3.59	0.86	2	Medium
4	Introducing digital currencies in a conservative monetary environment may lead to financial market volatility and affect macroeconomic stability.	3.57	0.88	3	Medium
2	Blockchain technology provides a high level of transparency in financial transactions, reducing risks related to fraud or financial corruption.	3.55	0.90	4	Medium
7	Using digital currencies, organizations can conduct direct transactions with suppliers and customers without relying on banks or financial intermediaries, saving additional fees and increasing profits	3.54	0.92	5	Medium
10	Blockchain can track products and services from the source to the end customer, reducing waste and delays, increasing operational efficiency, and thus profitability.	3.53	0.91	6	Medium
5	Digital currencies can enhance the speed and efficiency of economic transactions compared to traditional methods such as cash and bank transfers	3.51	0.92	7	Medium
3	Using Digital currencies may affect central banks’ ability to control monetary policies and manage the money supply	3.44	0.89	8	Medium
8	Blockchain provides a permanent and transparent record of transactions, increasing the trust of customers and business partners,	3.43	0.93	9	Medium

	encouraging more engagement with profit-oriented organizations				
1	Understanding the nature of digital currencies, such as Bitcoin and stablecoins, is essential to assessing their impact on traditional monetary systems	3.35	0.86	10	Medium
	Overall	3.51	0.75		Medium

It is evident from Table (4) that the arithmetic means of the items measuring the economic effects of digital currencies and blockchain technology within conservative monetary systems in Jordan ranged between 3.61 and 3.35. Item No. 9, which states, “New services based on blockchain, such as digital product tracking, innovative financial services, or non-fungible tokens (NFTs), can generate new sources of income” ranked first, with a mean of 3.61 and a standard deviation of 0.90, representing a medium level. Item No. 6 ranked second, with a mean of 3.59 and a standard deviation of 0.86, also at a medium level.

Item No. 1, which states, “Understanding the nature of digital currencies, such as Bitcoin and stablecoins, is essential to assessing their impact on traditional monetary system's” ranked last, with a mean of 3.35 and a standard deviation of 0.86, also at a medium level. The overall mean for the items in this dimension, which examines the impact of digital currencies and blockchain technology within conservative monetary systems on the economy, was 3.51 with a standard deviation of 0.75, indicating a medium level.

To determine whether digital currencies and blockchain technology within conservative monetary systems indeed affect the economy in Jordan, a One-Sample T-test was conducted. The results are presented in Table (5) below:

Table (5) One Sample T-test to identify the impact of digital currencies and blockchain technology on the Jordanian economy within conservative monetary systems

Scale Mean	Standard Deviation	Test Value (μ)	t-Calculated	t-Critical	df	Significance
3.51	0.75	3.00	12.633	1.96	351	*0.00

: Statistically significant at $p \leq 0.05$.

The results presented in Table (5) indicate that the mean score for the impact of digital currencies and blockchain technology within conservative monetary systems on the economy in Jordan was 3.51, which is higher than the test value ($\mu = 3.00$). The calculated t-value was 12.633, exceeding the critical value of 1.96. Since the scale mean is higher than the test value and the calculated t-value is greater than the critical value, this indicates a statistically significant difference at $p \leq 0.05$. These results suggest that digital currencies and blockchain technology within conservative monetary systems indeed affect the economy in Jordan, according to the perceptions of the study participants.

Second: Results Related to Measuring the Regulatory Challenges Facing Digital Currencies and Blockchain Technology within Conservative Monetary Systems in Jordan.

The arithmetic means and standard deviations were calculated to examine the responses of the study sample regarding the regulatory challenges facing digital currencies and blockchain technology within conservative monetary systems in Jordan. Table (6) presents these results:

Table (6): Arithmetic means and standard deviations of the study sample’s responses regarding the regulatory challenges facing digital currencies and blockchain technology within conservative monetary systems in Jordan, arranged in descending order.

No.	Item	Mean	Standard Deviation	Rank	Level
6	The lack of clarity regarding legal responsibilities in the event of losses or technical breaches constitutes a major regulatory challenge.	3.66	0.89	1	Medium
1	Striking a balance between promoting digital innovation and maintaining monetary stability represents the greatest regulatory challenge for digital currencies and blockchain technology..	3.63	0.92	2	Medium
4	The absence of clear tax regulations for dealing with digital currencies limits their organized adoption..	3.58	0.91	3	Medium
7	The risks of money laundering and financing illegal activities pose a primary regulatory challenge for digital currencies.	3.57	0.90	4	Medium

9	Weak monitoring and supervisory mechanisms over digital currencies trading platforms increase regulatory risks..	3.57	0.90	4	Medium
2	Excessive regulatory strictness may hinder innovation and the economic benefits of blockchain technology..	3.55	0.94	6	Medium
3	Investor and consumer protection remains insufficient under the current regulatory frameworks for digital currencies..	3.50	0.91	7	Medium
5	Weak regulatory and technical awareness among oversight authorities negatively affects the regulation of digital currencies and blockchain technology..	3.50	0.92	7	Medium
10	The absence of a clear legal and legislative framework is among the most prominent challenges facing the regulation of digital currencies in conservative monetary systems.	3.50	0.92	9	Medium
8	The difficulty of legally classifying digital currencies (as money, financial asset, or commodity) poses an obstacle to their regulation.	3.43	0.89	10	Medium
	Overall	3.55	0.73		Medium

It is evident from Table (6) that the arithmetic means of the items measuring the **regulatory challenges facing digital currencies and blockchain technology within conservative monetary systems in Jordan** ranged between 3.66 and 3.43. Item No. 6, which states, “The lack of clarity regarding legal responsibilities in the event of losses or technical breaches constitutes a major regulatory challenge.” ranked first, with a mean of 3.66 and a standard deviation of 0.89, representing a medium level. Item No. 1, which states, “Striking a balance between promoting digital innovation and maintaining monetary stability represents the greatest regulatory challenge for digital currencies and blockchain technology.” ranked second, with a mean of 3.63 and a standard deviation of 0.92, also at a medium level.

Item No. 8, which states, “The difficulty of legally classifying digital currencies (as money, financial asset, or commodity) poses an obstacle to their regulation” ranked last, with a mean of 3.43 and a standard deviation of 0.89, also at a medium level. The overall mean for the items in this dimension, which examines **the regulatory challenges facing digital currencies and blockchain technology within conservative monetary systems in Jordan**, was 3.55 with a standard deviation of 0.73, indicating a medium level.

To determine whether digital currencies and blockchain technology within conservative monetary systems indeed face regulatory challenges in Jordan, a One-Sample T-test was conducted. The results are presented in Table (7) below:

Table (7): One-Sample T-test for Identifying the Regulatory Challenges Facing Digital Currencies and Blockchain Technology within Conservative Monetary Systems in Jordan

Scale Mean	Standard Deviation	Test Value (μ)	t-Calculated	t-Critical	df	Significance
3.55	0.73	3.00	14.069	1.96	351	*0.00

Statistically significant at $p \leq 0.05$.

The results presented in Table (7) indicate that the mean score for the regulatory challenges facing digital currencies and blockchain technology within conservative monetary systems in Jordan was 3.55, which is higher than the test value ($\mu = 3.00$). The calculated t-value was 14.069, exceeding the critical value of 1.96. Since the scale mean is higher than the test value and the calculated t-value is greater than the critical value, this indicates a statistically significant difference at $p \leq 0.05$. These results suggest that digital currencies and blockchain technology within conservative monetary systems indeed face regulatory challenges in Jordan.

DISCUSSION OF RESULTS

The results of the study indicated that digital currencies and blockchain technology within conservative monetary systems in Jordan have economic effects from the perspective of participants in the economic field. These findings may be attributed to the transitional phase that the Jordanian economy is undergoing in dealing with digital currencies and blockchain technology, where there is a general perception of their economic potential, yet practical implementation remains limited. The prominence of the item related to the potential for offering new blockchain-based services can be explained by its tangible and practical aspect of expected economic returns, as it is linked

to the innovation of new business models and the generation of additional income sources. This aligns with global trends toward the digital economy.

The high evaluation of the item related to improving the efficiency of transactions and financial services reflects participants' recognition of blockchain's ability to enhance economic activities and reduce operational costs, even within a conservative monetary environment. Conversely, the lower evaluation of the item concerning the importance of understanding the nature of digital currencies indicates a relative knowledge gap or limited awareness among individuals regarding the fundamental concepts of these currencies, which may affect their ability to assess their economic impacts more accurately.

The overall mean, which fell at a medium level, reflects a balanced and cautious stance, where participants acknowledge the economic opportunities provided by digital currencies and blockchain technology without reaching full confidence or widespread adoption. This cautious stance can be attributed to regulatory constraints, limited local experiences, and the absence of clear legislative frameworks supporting broader use of these technologies. In general, the results suggest that the expected positive economic effects of digital currencies and blockchain in Jordan remain largely theoretical rather than practically realized. These findings are consistent with the results of Al-Qaisi (2021), La'nani, Mahawat & Shuaib (2021), Amal (2021), as well as Porras-Gonzalez, Martin-Martin & Guaita-Martinez (2019).

The study also indicated that digital currencies and blockchain technology face regulatory challenges within conservative monetary systems in Jordan. This finding can be attributed to the novelty of digital currencies and blockchain in the Jordanian legislative environment, accompanied by the relatively slow development of legal and regulatory frameworks capable of keeping pace with the rapid technological advancements. The results also reflect a cautious regulatory stance by relevant authorities, motivated by the need to maintain monetary and financial stability while avoiding potential risks associated with high volatility, technical breaches, and unclear legal responsibilities.

The relatively high focus on the issue of unclear legal responsibilities may result from the absence of explicit legislation defining the rights and obligations of parties in the event of losses or disputes, which reduces confidence in dealing with these technologies. Similarly, the perceived challenge of balancing innovation with monetary stability reflects participants' awareness of the importance of supporting digital transformation on one hand, and maintaining the effectiveness of traditional monetary policies on the other.

The relatively lower evaluation of the difficulty of legally classifying digital currencies may be explained by the potential to address this challenge in the future through legal interpretations or by adopting successful international experiences, compared to more complex challenges related to governance, supervision, and legal accountability. Overall, these results reflect a regulatory reality characterized by gradualism and caution, with participants recognizing the existing challenges at a moderate level, while showing potential for addressing them through the development of legislation and the establishment of flexible and balanced regulatory frameworks. These findings are in agreement with previous studies (Castren et al., 2022; Alsalmi et al., 2023).

Recommendations

The researcher reached a set of recommendations, the most important of which are:

- Legislative and regulatory authorities should establish a comprehensive legal framework to govern the use of digital currencies and blockchain technology, clearly defining legal responsibilities, addressing potential risks, and ensuring the protection of participants without hindering innovation.
- Digital currencies should be clearly classified (as money, a financial asset, an investment instrument, or a digital commodity), as this has a direct impact on standardizing legal, accounting, and tax treatment.
- Awareness and training programs should be intensified for professionals in the financial and economic sectors, as well as for investors and the general public, to enhance understanding of the nature of digital currencies, their mechanisms, and their impact on traditional monetary systems.
- Profit-oriented organizations should be encouraged to adopt blockchain applications in areas such as transaction documentation, supply chains, and financial services, as these provide transparency and trust, contributing to stronger relationships with customers and business partners.

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