



Symposium on Natural and Applied Sciences

Hosted Online from London, United Kingdom

Date: 5th February, 2026

Website: <https://econferencia.com>

THE IMPACT OF CENTRAL BANK DIGITAL CURRENCY IMPLEMENTATION ON THE MONETARY TRANSMISSION MECHANISM

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Abstract

The rapid digitalization of financial systems has prompted central banks worldwide to explore the introduction of Central Bank Digital Currency (CBDC) as a new form of sovereign money. This study examines the impact of CBDC implementation on the monetary transmission mechanism, focusing on its implications for interest rate channels, credit channels, expectations management, and financial stability. The research analyzes theoretical frameworks, global pilot experiences, and potential macroeconomic outcomes associated with CBDC adoption. Findings suggest that CBDC can enhance the efficiency, speed, and transparency of monetary policy transmission while introducing new risks related to banking sector disintermediation and financial stability. The paper concludes with policy recommendations for optimizing CBDC design to strengthen monetary policy effectiveness.

Keywords: Central Bank Digital Currency, Monetary Policy, Transmission Mechanism, Digital Finance, Interest Rate Channel, Financial Stability, Central Banking, Monetary Innovation.

Introduction

The evolution of digital technologies has fundamentally transformed financial markets and payment systems. In recent years, central banks have increasingly



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considered issuing Central Bank Digital Currency (CBDC) to complement physical cash and enhance payment efficiency. Institutions such as the Bank for International Settlements and the International Monetary Fund highlight that CBDC could reshape the structure of monetary systems and influence macroeconomic policy frameworks.

The monetary transmission mechanism refers to the process through which central bank policy decisions affect economic variables such as inflation, output, and employment. Traditional channels include interest rates, credit supply, exchange rates, and expectations. However, digital currencies may alter these channels by providing direct access to central bank liabilities for households and businesses.

This paper aims to explore how the introduction of CBDC may influence the effectiveness of monetary policy transmission. It examines theoretical foundations, global experiences, and potential macroeconomic implications to provide a comprehensive understanding of the topic.

Research Methodology

This study employs a mixed methodological approach combining qualitative and quantitative analysis.

First, a theoretical analysis is conducted based on modern monetary theory and digital currency frameworks to identify key transmission channels affected by CBDC. Academic literature, policy reports, and working papers published by central banks and international organizations form the theoretical foundation.

Second, comparative analysis is used to evaluate pilot projects and experimental implementations in various countries. Case studies help identify patterns and practical implications for monetary policy.



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Third, a conceptual modeling approach is applied to assess how CBDC affects liquidity distribution, banking intermediation, and policy rate pass-through. This includes scenario analysis considering different design options such as interest-bearing versus non-interest-bearing CBDC.

Finally, synthesis and policy evaluation methods are used to develop recommendations for improving the effectiveness of monetary policy in a digital currency environment.

Main Discussion Concept of CBDC and Monetary Policy

Central Bank Digital Currency represents a digital form of sovereign currency issued and regulated by a central bank. Unlike cryptocurrencies, CBDC maintains price stability and is backed by state authority. Its introduction could significantly change the structure of financial intermediation and payment systems.

CBDC can be designed for retail or wholesale use. Retail CBDC provides access to the general public, while wholesale CBDC is used primarily by financial institutions. Each design has different implications for monetary transmission.

Interest Rate Channel

One of the most important transmission channels is the interest rate channel. CBDC could strengthen this channel by allowing central banks to apply policy rates directly to digital balances. This would improve the pass-through of policy changes to market rates and enhance monetary control.

An interest-bearing CBDC could provide central banks with a new tool to influence savings and consumption decisions directly. However, it may also increase volatility in bank deposits during periods of financial stress.



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Credit Channel

CBDC may influence the credit channel by affecting banks' funding structures. If households shift deposits from commercial banks to CBDC accounts, banks may face reduced liquidity, potentially constraining lending capacity.

At the same time, improved payment efficiency and data transparency could enhance credit risk assessment and support financial inclusion, thereby strengthening credit markets in the long term.

Expectations Channel

The expectations channel refers to how economic agents adjust their behavior based on anticipated policy actions. CBDC could improve communication between central banks and the public by providing real-time signals about policy stance.

Programmable features may allow targeted policy measures such as direct transfers or conditional stimulus payments, improving policy credibility and effectiveness.

Financial Stability Implications

While CBDC can enhance monetary control, it also introduces new risks. The possibility of rapid digital bank runs during crises is a major concern. Therefore, careful design choices such as holding limits or tiered remuneration structures are essential to mitigate risks.

Practical Results

The analysis indicates several practical outcomes associated with CBDC implementation.



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First, monetary policy transmission becomes faster due to real-time settlement and reduced intermediation layers. Policy changes can affect economic behavior more quickly compared to traditional systems.

Second, transparency improves as central banks gain better access to transaction data, allowing more accurate economic forecasting and policy calibration.

Third, financial inclusion may increase as digital currency provides access to secure payment systems for unbanked populations, expanding the reach of monetary policy.

However, potential challenges include reduced profitability of commercial banks, cybersecurity risks, and the need for strong regulatory frameworks to maintain financial stability.

Conclusion

The introduction of Central Bank Digital Currency represents a transformative development in modern monetary systems. CBDC has the potential to enhance the effectiveness of the monetary transmission mechanism by improving interest rate pass-through, strengthening policy communication, and increasing financial inclusion.

However, its impact depends significantly on design features and regulatory frameworks. Policymakers must balance innovation with financial stability considerations to avoid unintended consequences such as bank disintermediation and systemic risks.

Overall, CBDC offers significant opportunities to modernize monetary policy, but careful implementation and continuous monitoring are essential to maximize benefits and minimize risks.



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