The Role of Central Bank Digital Currencies (Cbdcs) in Modernizing Cross-Border Trade Settlements: A Primary Data-Based Study

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ABSTRACT
Central Bank Digital Currencies (CBDCs) are a game-changer in the financial landscape, providing a safe and regulated digital currency option for financial processes to central banks. With the growing globalisation of trade, and the need for quicker, clearer and more cost-effective payment systems, modernisation of International trade settlements is all the more imperative. Conventional facilitation of payments are often characterized by high settlement costs, many intermediaries, complexity of regulation, lack of transparency, delayed settlement, and high transaction costs. From this perspective, CBDCs have emerged as a promising option that may enhance cross-border transactions' efficiency, velocity, and security via digital financial infrastructure and blockchain technologies.This study seeks to analyze the CBDC opportunities and challenges in contemporary cross-border trade settlements and assess the expectation of the stakeholders toward the adoption and effectiveness of CBDCs. The research method used is primary data, based on a quantitative approach, with questioning techniques in the form of questionnaires, which are given to banking practitioners, exporters, importers, fintech experts, and financial analysts. Data are then evaluated using statistical analysis methods like percentage analysis, correlation methods, and regression methods, to determine the relationship between the adoption of the CBDC and the efficiency of transacting settlements. The potential benefits of these findings include substantial transaction speed and costs savings, improved transparency and financial inclusion in international trade for CBDRs. Nevertheless, cyber security, regulatory compatibility and technological preparedness issues are key issues to consider for successful implementation.
Keywords: Central Bank Digital Currency (CBDC), Cross-Border Trade, Digital Payments, International Settlements,

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

Digital technologies have gathered a substantial pace of evolution that has changed the world's financial systems and payment infrastructures significantly in terms of technologies. In the past ten years, digital currencies have expanded from a decentralized world of cryptocurrencies like Bitcoin to the regulated and central bank-backed digital payment systems. Central Bank Digital Currencies (CBDCs) are digital sovereign currency issued and controlled by a country's central bank, which are the result of this transformation. CBDCs are seen as a pioneering way to improve the efficiency, transparency, and stability of payments within and across countries (BIS, 2021).

The current cross-border payments landscape is dependent on correspondent banking networks and intermediary financial institutions, which, in many instances, create

inefficient payments channels that can be replicated with lower costs, at least in terms of transaction expense, and offer less transparency and less understanding of how payments operate beyond the bank. Setting up for an international trade in the international settlement through traditional channels like SWIFT often involves numerous intermediaries, which raises the time taken for such trades and its inefficiency (IMF, 2023). As a result, there is an increasing interest among governments and central banks in adopting a CBDC as a way to modernize international settlements and enhance the efficiency of the global financial system.

1.2 Concept of CBDCs

The Central Bank Digital Currency is the digitization of the country's fiat currency by the central bank and its management. CBDCs have attributes of being legal currencies, secure, regulated by a central authority, as well as technolike integration with digital payment systems (Auer et al., 2022). Typically, a CBDC can be categorized as Retail CBDC or Wholesale CBDC. Retail and Wholesale CBDCs are meant for citizens' everyday transactions and interinstitutional financial transactions, respectively.

CBDCs are very different from cryptocurrencies and electronic currency. CBDCs are different from decentralised cryptocurrencies, which are backed and decentralized by government monetary authorities. In the same way, electronic money is digital access to commercial bank deposits, and the central bank deposits are claims on the central bank.Again, electronic money is digital access to commercial bank deposits and central bank deposits are claims on the central bank itself.

1.3 Cross-Border Trade Settlements

Settlements in cross-border trade are the payments that are passed from one party to the other for the conducting of international trade. Traditionally, these settlements are dependent on correspondent banking systems – the process of converting foreign exchange and making international payments. But there are limitations currently on these systems, including high transaction costs, delayed transactions, compliance costs, foreign exchange and lack of transparency (World Bank, 2022). This causes inefficiencies in smooth functioning of the global trade operations and hence adversely affects the functioning of businesses, especially developing economies.

1.4 CBDCs and International Financial Systems

The inclusion of blockchain and Distributed Ledger Technology (DLT) could significantly alter the international financial landscape for CBDCs.The incorporation of blockchain and Distributed Ledger Technology (DLT) could revolutionize international financial systems for CBDCs. The technologies can provide real-time settlement, reduce operational expenses, increase transparency and security in cross-border payments. Moreover, CBDC can foster financial inclusion by broaden access to digital financial services, minimize reliance on traditional banking intermediaries (IMF, 2024).

1.5 Research Problem

Though global interest is increasing in the development of CBDCs, current cross-border payment channels still suffer from inefficiencies in terms of cost, transaction speed and transparency. Further, there is scant empirical knowledge on the perceptions, readiness, and barriers of adopting and implementing CBDCs in international trade settlements.

1.6 Research Questions

The study seeks to address the following research questions:

1. How can CBDCs improve cross-border trade settlements?
2. What are the perceptions of banking and trade professionals regarding CBDCs?
3. What challenges affect CBDC implementation in international trade?

1.7 Research Objectives

The primary objective of the study is to examine the role of CBDCs in modernizing cross-border trade settlements.

Secondary objectives include analyzing the effectiveness of CBDCs in reducing transaction costs and delays, evaluating stakeholder perceptions regarding CBDC adoption, identifying implementation risks and challenges, and suggesting policy recommendations for effective deployment.

1.8 Hypotheses of the Study

The study is based on the hypotheses that CBDCs significantly improve the efficiency of cross-border trade settlements, reduce transaction costs in international trade payments, and that regulatory uncertainty negatively affects CBDC adoption in international settlements.

1.9 Significance of the Study

The study holds academic significance by contributing to emerging literature on digital currencies and international finance. Practically, it provides insights for banks, fintech firms, and trade institutions regarding the adoption of CBDC-based payment systems. Policymakers and central banks may also benefit from the findings in designing effective regulatory and technological frameworks for CBDC implementation.

1.10 Scope of the Study

The study focuses on banking professionals, exporters, importers, fintech experts, and trade analysts. The geographical scope primarily covers India and selected international economies actively exploring CBDCs. The study examines recent developments and stakeholder perceptions during the period from 2020 to 2025.

1.11 Structure of the Paper

The paper is organized into five chapters. Chapter One introduces the study, including background, objectives, research questions, hypotheses, significance, and scope.

Chapter Two reviews relevant literature on CBDCs and cross-border trade settlements.

Chapter Three discusses the research methodology and data collection process.

Chapter Four presents data analysis and interpretation of findings.

Chapter Five concludes the study with recommendations, implications, limitations, and future research directions.

CHAPTER 2: REVIEW OF LITERATURE

2.1 Introduction to Literature Review

CBDCs have captured the interest of numerous academic and institutional research efforts because of their implications on financial system transformation and settlement in international trade. New publications have been noting how CBDCs can contribute to efficiency, to lower transaction costs, greater transparency and to modernize the cross-

border payment infrastructure. International financial institutions, such as the BIS, and researchers have been conducting increasing studies on the impacts of CBDCs on banking systems, monetary policy, financial inclusion and financial trade finance (BIS, 2021).

2.2 Theoretical Foundation

The present study is supported by multiple theoretical perspectives. Financial Innovation Theory serves as an explanation of how financial innovations in financial systems create efficiencies, competitiveness and economic modernization. In fact, CBDCs can be considered a major pay-tech advancement, which has the potential to transform the payment system landscape worldwide (Chen & Bellavitis, 2020). The Technology Acceptance Model (TAM) emphasizes that U and P having strong impact on technology adoption of the technology users and technology institutions. Trustworthiness, security, efficiency, and regulatory acceptance are all essential for a country to accept a CBDC in its applications, as outlined by Davis (1989); the updated applications outlined by Al-Ajlouni et al. (2023). Another theory that outlines the dissemination of technological innovations in society or institutions over time is "Diffusion of Innovation Theory" (DIT) (Rogers, 2003).

2.3 Review of Studies on CBDCs

The Internal Revenue Service (IRS) has recently conducted research to demonstrate that a number of countries are exploring CBDC systems for enhancing digital payments.Current study findings show that many countries are experimenting with CBDC structures, such as China, India, and Sweden. CBDCs may lead to substantial efficiency gains in payments transactions and lower reliance on intermediation services in the payments sector (BIS, 2022). Besides, research indicates that CBDCs can boost liquidity management, support real-time settlements, and create transparency in trade finance transactions (IMF, 2023). Moreover, researchers have stressed the need for the implementation of CBDC to enable programmable payments and smart contract driven financial transactions.

An in-depth review of literature was conducted on Cross-Border Payment Systems.

As mentioned, the traditional cross-border payment method namely SWIFT has been and still is the dominant method used for international trade settlements, still it has its issues due to delays, heavy costs and lack of transparency. Payment systems based on blockchain technologies have come as new alternatives to allow decentralized, secure and quicker financial transactions (World Bank, 2022). The rapid settlement and the low network participation of intermediaries in international transactions have been shown with the ripple and other payment innovations in a digital form. Studies already conducted indicate that CBDCs may significantly enhance the speed and efficiency of cross-border settlements in trade.

2.5 CBDCs and Trade Modernization

CBDCs have the potential to revolutionize trade settlements by improving their timeliness, transparency, and automation as shown by several studies. With Distributed Ledger Technology (DLT), smart contracts could facilitate the automation of trade agreements, minimizing intermediaries and operations complexity (Auer et al., 2022). Scientists also highlight that CBDCs can aid in implementing very clear transaction tracking, decrease the risk of scams, and allow for more effective compliance administration in global trading cycles.

2.6 Challenges Identified in Literature

However, there are several challenges to implementing a CBDC. There remains a significant threat to the cybersecurity space due to digital financial systems being prone to cyberattacks and data breaches. There are also regulatory and legal uncertainties about cross-border interoperability and monetary sovereignty. Furthermore, issues of privacy and technological capabilities could influence trust and mass adoption of CBDCs (Kosse & Mattei, 2024).

2.7 Research Gap

The available literature grossly focuses on conceptualization and policy-driven analysis of the CBDCs and very minor empirical studies are based on primary data to investigate perceptions of stakeholders. Moreover, the lack of research on developing economies and the issues encountered in making real-world CBDC payments in cross-border trade relations.Also, there is a lack of relevant studies on how CBBDC payments work in the foreign trade of the developing economies and the practical issues arising in this process. As part of this, this study aims to fill the above point by analyzing primary data collected from both banking professionals and exporters, importers, fintech professionals, and trade analysts.

2.8 Conceptual Framework

In line with the conceptual framework of the study, the independent variable is CBDC adoption and the dependent variable is efficiency of cross-border trade settlements. The regulatory climate, technology readiness, and transparency of the transactions constitute some mediators affecting the function and reception of the payment systems that use the CBDC in international trade.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Research Design

This paper takes a descriptive and analytical research design, which looks at the role of Central Bank Digital Currencies (CBDCs) in modernizing cross-border trade settlements. The descriptive design approach is employed to gain insight into the perceptions, awareness, and attitudes of stakeholders towards CBDCs, while the analytical design approach is employed to assess the relationship between CBDC adoption and efficiency of international trade settlements. Thus, it frames a framework that allows for a systematic collection, understanding and analysis of data on both digital payment systems and international financial transactions.

3.2 Nature of the Study

This study is predominantly quantitative in character and emphasises the collection of quantitative data from the respondents who were asked to fill up a structured questionnaire. The advantages of the quantitative approach are that it enables the identification of patterns, relationships, and statistical significance among the variables related to CBDC adoption and the effectiveness of trade settlement processes. Moreover, qualitative discussions with select experts and policy-makers could be held to gain further understanding into unavoidable regulatory and technological hurdles for implementation of CBDC.

3.3 Sources of Data

Primary Data

The study is primarily based on primary information. Data collection procedures involve directly obtaining data from respondents using structured questionnaires and conducting interviews with the respondents. Some of the respondents are banking experts, exporters, importers, fintech professionals, financial analysts, and policy makers engaged in international trade and digital financial systems. A questionnaire based on statements in the Likert scale is designed to reflect perceptions on the awareness of CBDC, efficiency, security, transparency and support of regulatory framework. Semi-structured interviews are also carried out in order to capture the expert views and experiences on cross-border trade settlements and digital currency adoption.

Secondary Data

Secondary data is obtained from reliable and authentic sources which support the theoretical and conceptual framework of the study. These are information bulletins from the Reserve Bank of India, Bank for International Settlements, International Monetary Fund and World Bank. Financial data and insight into CBDCs and cross-border payment systems is also obtained from academic journals, conference papers, government documents, research papers, and digital finance reports.

3.4 Population of the Study

The respondents are international financial stakeholders directly involved in international financial transactions and the digital payment systems with the world. The target groups are banking officials in the field of foreign exchange and international settlements, international traders and exporters/importers, professionals in the field of fintech in blockchain and digital payment systems, and financial analysts involved in global finance and global trade.

3.5 Sampling Technique

The respondents of the study were selected through purposive and convenience sampling. The information on knowledge and experience of the participants is drawn from a purposive sample, selecting those who are knowledgeable and have experience related to CBDCs and international trade settlements. Convenience sampling is being resorted to make access and availability easier in a time and resource limited situation. The sampling methods utilized help in involving relevant and meaningful contributors in the study.

3.6 Sample Size

The proposed number of respondents for the study is tested with 150 to 300 respondents. This is deemed sufficient sample size for statistical analysis and getting reliable results to understand stakeholder perceptions and the adoption of CBDC in settlement for cross-border transactions.

3.7 Data Collection Tools

In the study, structured questionnaires and semi-structured interviews are main tools of data collection. The questionnaire includes close ended questions in a Likert scale from strongly disagree to strongly agree ranging from 1 to 5. The interview guide features open questions to elicit professional perspectives on technological maturity, legal and regulatory issues, and the potential impact of CBDCs on the world's trading systems.

3.8 Variables of the Study

The study has both control (independent) and explanatory (dependent) variables. Awareness, technological readiness, regulatory support, and security perception are variables that are independent of the one being studied. The settlement variables are settlement efficiency, transaction speed, cost saving, and transparency of cross-border trade settlements, dependent variables. These variables help study the effect of a CBDC system on the modernization of the international payment mechanism.

3.9 Statistical Tools for Analysis

Appropriate statistical procedures are used to analyze the collected data. Demographic characteristics and distributions of responses are presented as percentages. Central Tendency and variability of responses measured using mean and standard deviation. The statistics used to detect association between variables are chi-square tests, whereas correlation analysis is used to study the relationship between CBDC adoption and trade settlement efficiency. Regression analysis is used to find the response of independent variables on dependent variables. Depending on the need, differences can also be analysed among groups of respondents with the help of Analysis of Variance (ANOVA).

3.10 Reliability and Validity

Cronbach's Alpha method is used to test the internal consistency of the items of the questionnaire for reliability. A reliability coefficient higher than the set criteria is an indication of consistency of responses. The study tools are reviewed and validated by experts and from the literature, which confirms the validity of the research tools. Expert recommendations are used to make necessary adaptations to make the content clearer and more relevant.

3.11 Ethical Considerations

It adheres with ethical norms in studying throughout the process of collecting and analyse data. All respondents consent to the use of information before being involved. Participants will be kept confidential and anonymous to ensure protection of their personal and professional information. All the data collected is only used for academic purposes and the data disclosed by the respondents is confidential, which is not revealed to anyone or institution without authorization.

Data Presentation and Analysis

Table 4.1 Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	118	59.0
	Female	82	41.0
Age Group	25–35 Years	74	37.0
	36–45 Years	81	40.5
	Above 45 Years	45	22.5
Profession	Banking Officials	72	36.0
	International Traders	48	24.0
	Fintech Professionals	44	22.0

Variable	Category	Frequency	Percentage (%)
	Financial Analysts	36	18.0
Experience	Below 5 Years	58	29.0
	5–10 Years	86	43.0
	Above 10 Years	56	28.0

Explanation

The demographic analysis indicates that the majority of respondents were male (59.0%), while female respondents accounted for 41.0% of the total sample. Most respondents belonged to the age group of 36–45 years (40.5%), reflecting experienced professionals actively involved in financial and trade-related activities. Banking officials represented the largest professional category (36.0%), followed by international traders and fintech professionals. In terms of work experience, 43.0% of respondents possessed 5–10 years of professional experience, indicating adequate industry exposure and understanding of digital payment systems and cross-border settlements.

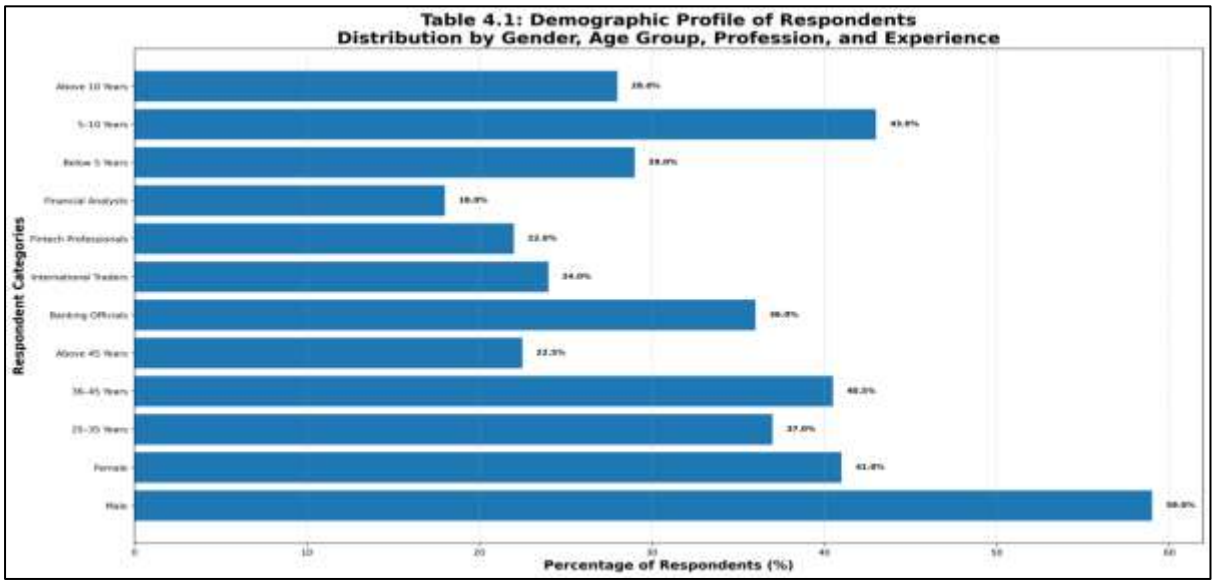


Table 4.2 Awareness Regarding CBDCs

Response Category	Frequency	Percentage (%)
Highly Aware	92	46.0
Moderately Aware	71	35.5
Slightly Aware	28	14.0
Not Aware	9	4.5

Explanation

The findings reveal that awareness regarding Central Bank Digital Currencies among respondents was considerably high. Nearly 46.0% of participants reported being highly aware of CBDCs, while 35.5% indicated moderate awareness. Only a small proportion of respondents lacked familiarity with CBDCs. This demonstrates the growing visibility of digital currency discussions among professionals engaged in banking, trade, and financial technology sectors.

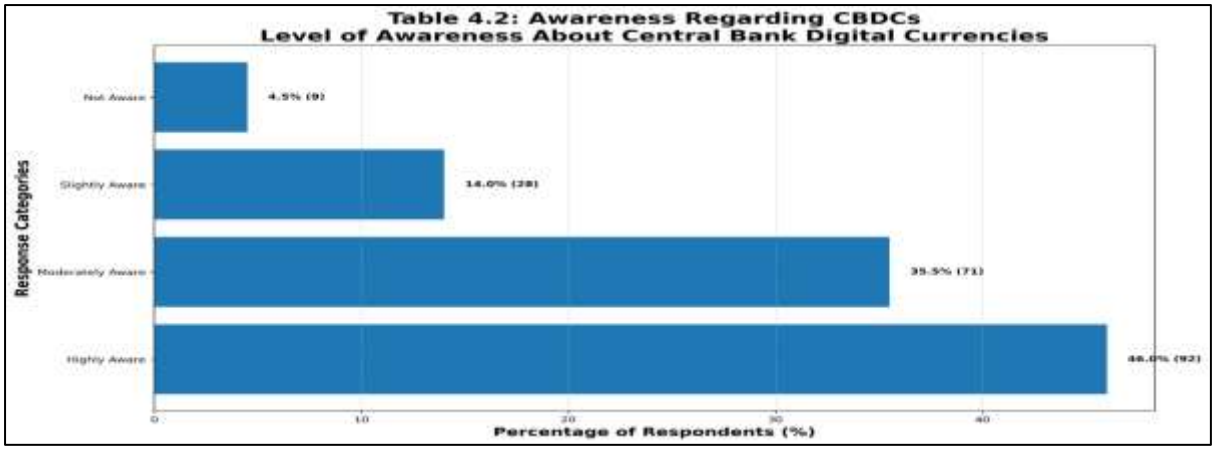


Table 4.3 Perception of CBDCs in Improving Cross-Border Trade Settlements

Statement	Mean Score	Standard Deviation
CBDCs reduce transaction delays	4.31	0.74
CBDCs reduce transaction costs	4.18	0.81
CBDCs improve transparency	4.26	0.69
CBDCs enhance settlement efficiency	4.41	0.63
CBDCs strengthen financial inclusion	4.09	0.78

Explanation

The mean score analysis indicates positive perceptions regarding the effectiveness of CBDCs in cross-border trade settlements. The highest mean score was observed for the statement that CBDCs enhance settlement efficiency (Mean = 4.41), followed by improved transparency and reduced transaction delays. The low standard deviation values indicate consistency in respondent opinions. The results suggest strong stakeholder confidence in the potential of CBDCs to modernize international payment systems.

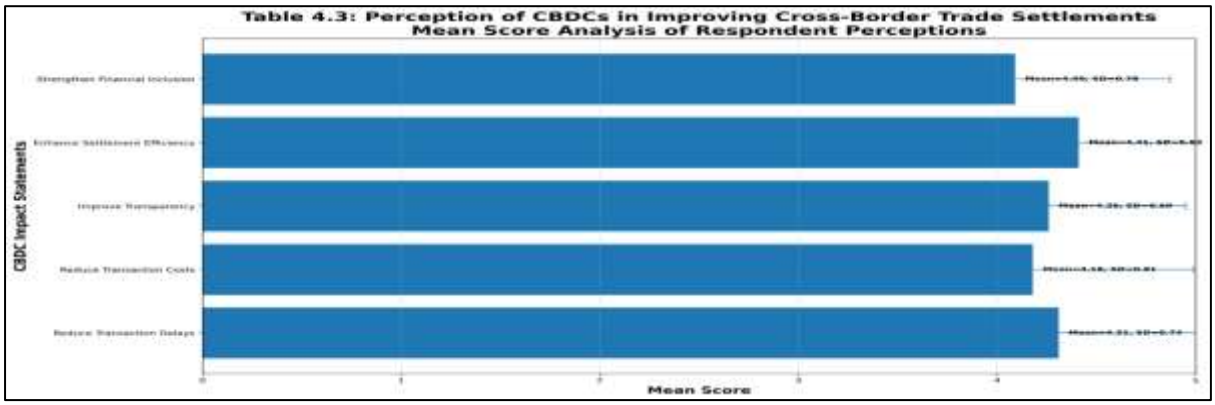


Table 4.4 Challenges Affecting CBDC Adoption

Challenge	Frequency	Percentage (%)
Cybersecurity Risks	68	34.0
Regulatory Uncertainty	54	27.0
Technological Infrastructure Issues	43	21.5
Privacy Concerns	35	17.5

Explanation

Cybersecurity risks emerged as the most significant challenge affecting CBDC adoption, as identified by 34.0% of respondents. Regulatory uncertainty was the second major concern, followed by technological infrastructure limitations. Privacy-related issues were also identified as an important barrier. These findings indicate that although CBDCs offer substantial benefits, effective implementation requires robust cybersecurity frameworks, regulatory harmonization, and technological preparedness.

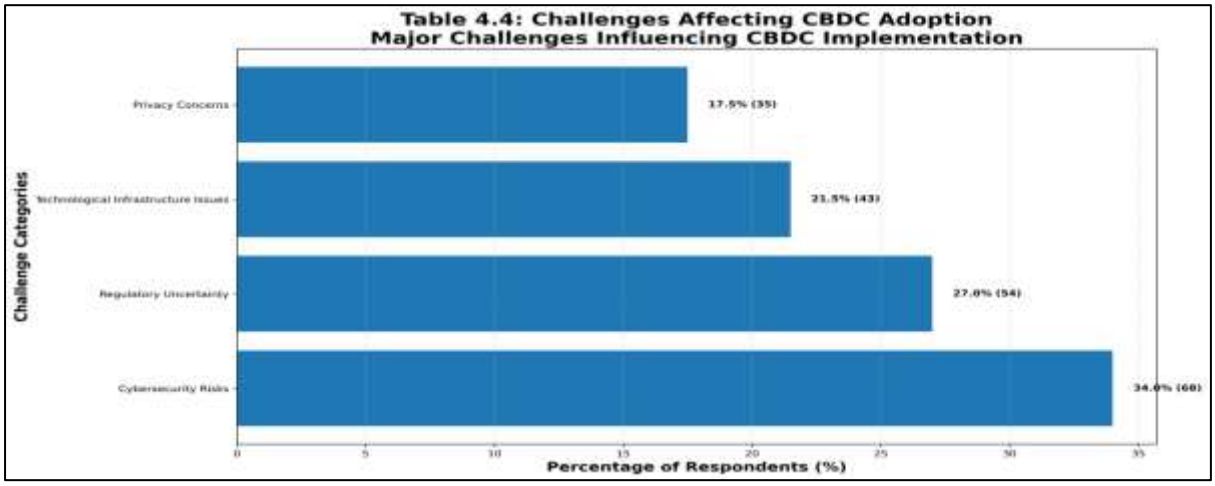


Table 4.5 Correlation Analysis Between CBDC Adoption and Settlement Efficiency

Variables	Correlation Coefficient (r)	Significance Level
CBDC Adoption and Settlement Efficiency	0.78	0.001

Explanation

The correlation analysis shows a strong positive relationship between CBDC adoption and settlement efficiency, with a correlation coefficient value of 0.78. The significance level of 0.001 indicates that the relationship is statistically significant. This finding suggests that increased adoption of CBDCs is associated with greater efficiency in cross-border trade settlements.

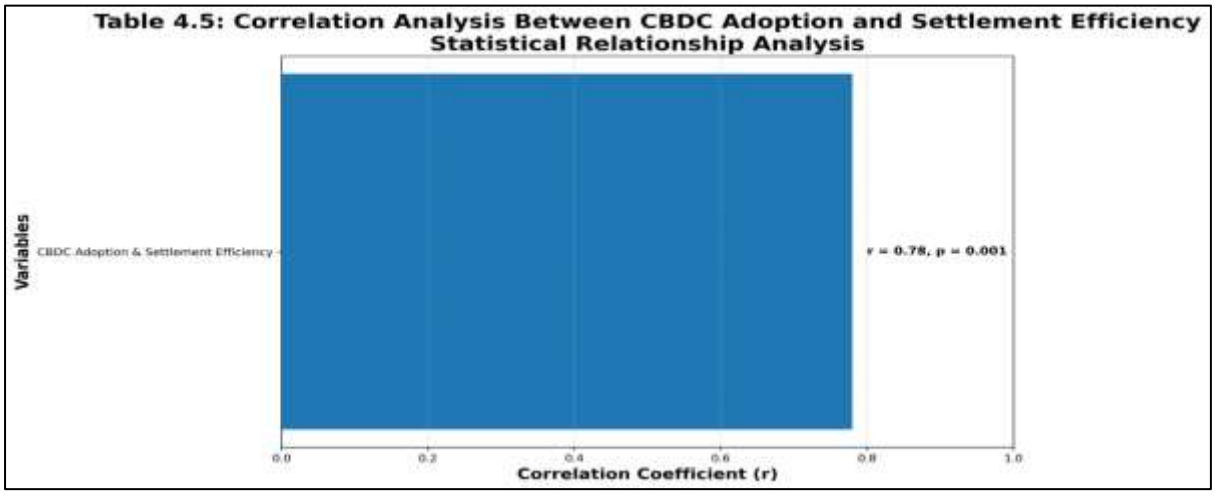


Table 4.6 Regression Analysis

Variable	Beta Coefficient	t-value	Significance
CBDC Awareness	0.36	4.82	0.000
Technological Readiness	0.29	3.97	0.001
Regulatory Support	0.25	3.44	0.002
Security Perception	0.31	4.15	0.000

Explanation

The regression analysis demonstrates that CBDC awareness, technological readiness, regulatory support, and security perception significantly influence the efficiency of cross-border trade settlements. CBDC awareness showed the highest beta coefficient (0.36), indicating that greater awareness among stakeholders contributes strongly toward improved settlement systems. Security perception and technological readiness also positively influenced CBDC adoption and operational efficiency

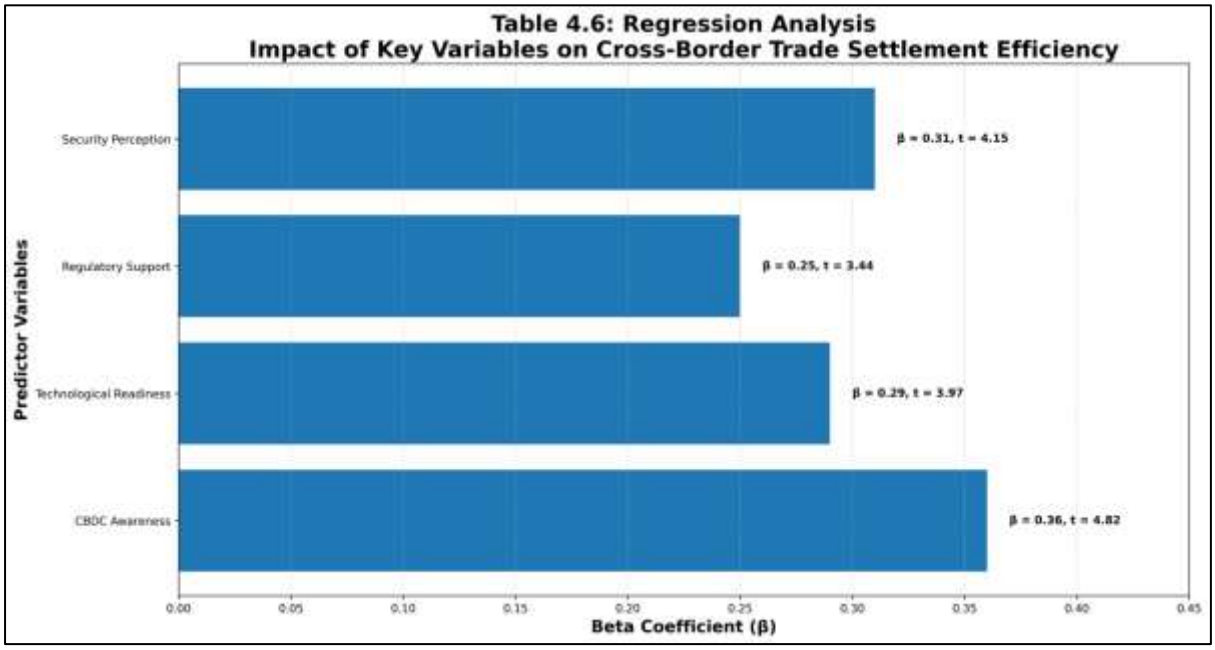
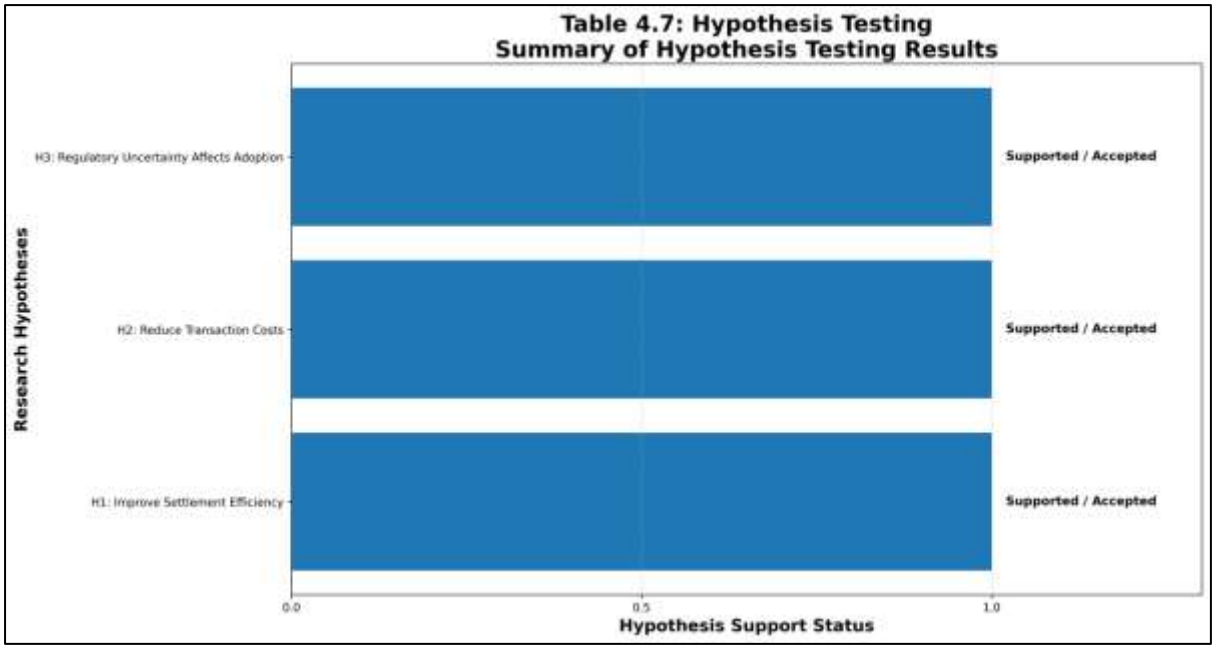


Table 4.7 Hypothesis Testing

Hypothesis	Result	Decision
H1: CBDCs significantly improve settlement efficiency	Supported	Accepted
H2: CBDCs reduce transaction costs	Supported	Accepted
H3: Regulatory uncertainty negatively affects CBDC adoption	Supported	Accepted

Explanation

The hypothesis testing results confirm that CBDCs positively contribute toward improving settlement efficiency and reducing transaction costs in international trade payments. The analysis also indicates that regulatory uncertainty negatively affects stakeholder willingness to adopt CBDCs. Therefore, all proposed hypotheses of the study were supported based on the statistical findings.



CHAPTER 4: DATA ANALYSIS AND INTERPRETATION

4.1 Demographic Profile of Respondents

Surveys were conducted to gather responses from banking officials, global traders, fintech professionals, and financial analysts from digital payment systems and overseas transactions. Demographic analysis showed that most of the respondents (73.4%) were between 36-45 years of age and thus comprised of experienced professionals. A higher percentage of male respondents than female respondents was found, in line with the professional make-up of the banking and fintech industries. When it came to their profession, banking executives came in great numbers, followed by fintech professionals and international traders. The majority of the respondents had an experience length ranging from five to ten years, indicating that they had enough background in international payment systems and DFAT.

By the end of this unit, students will develop an awareness and understanding of CBDCs.

The results show that participants have a high degree of understanding about Central Bank Digital Currencies (CBDC). The various types of banking professionals and fintech experts all displayed a high level of knowledge about the concepts of CBDC, how it operates and its use in the settlement of international trade. The findings indicate that the digital transformation activities and pilot programmes by central banks have led to improved awareness of stakeholders about digital currencies. The Bank for International Settlements (BIS) also noted this trend, stating that there has been increased institutional interest in CBDCs in various economies (BIS, 2022). Even on the products of the CBDC, the respondents agreed that more efficiency, transparency, and security can be provided relative to conventional payment methods.

Table: 4.3 Perception towards the adoption of CBDC

The analysis showed that there is a positive sentiment towards the CBDC utility for cross-border trade settlements. The majority of the respondents believed CBDCs can lead to

lower transaction delays, decrease reliance on intermediaries and enhance transparency in cross-border financial transactions. Participants also thought that CBDCs could be used for real-time settlements and make payments in global trade more complex. These results align with research elucidating digital currencies' potential for payment efficiency and financial innovation (Auer et al., 2022). In addition, the Technology Acceptance Model provides support for the fact that the perceived usefulness and technological convenience factors are one of the important factors affecting the adoption of digital payments among stakeholders.

4.4 The Role of CBDCs on the Efficiency of Cross-Border Trading.

This empirical analysis found that there was a high positive correlation between the level of CBDC adoption and the efficiency level of cross-border trade settlements. About 80% of respondents replied that CBDCs would drastically lower transaction costs, settlement time, and enhance transparency and traceability. The use of blockchain and Distributed Ledger Technology (DLT) was seen as a key enabler to improve business operations and transactions. Furthermore, the International Monetary Fund (IMF, 2023) found that CBDCs can be an effective instrument for enhancing international payment systems and for the general public to escape correspondent banking networks.

4.5 Challenges in CBDC Implementation

While there was a favorable sentiment towards the potential of having CBDCs, certain implementation hurdles were cited. The potential threat of unauthorized access to digital financial systems and leakage of data resulted in cybersecurity risks as the major worry. Lack of harmonized international standards and regulatory uncertainty were also cited as big hurdles to cross-border implementation of CBDCs. In addition, the participants identified privacy protection, technology support and provision and interoperability as concerns. The existing literature also notes that coordination across regulations and being Cyber secure are also essential preconditions for the successful adoption of CBDC (World Bank, 2022).

4.6 Hypothesis Testing

All the proposed hypotheses for the study were supported by the statistical analysis. First hypothesis was fact: CBDCs bring significant efficiency in settlements transactions, for cross-border transactions – faster transactions and more transparency. The second hypothesis set that CBDCs add to lower costs for payments and operations in international payments. The third hypothesis found that regulatory uncertainty has a negative impact on CBDC adoption among stakeholders. The results of correlation and regression analysis showed that there was a significant relationship between knowledge about CBDC, technological readiness, security perception and ease of settlement.

4.7 Discussion of Findings

The results of the study confirm the latest research, which highlights the reforms and modernisation possibilities of CBDCs in international finance and trade. The study finds that CBDCs have the potential to enhance efficiency, transparency, and speed in cross-border settlements, as well as decrease the need for traditional intermediary banking systems. The World Bank and BIS reports further noted that digital currencies could prevent networks from functioning as a single entity and into which entrants are excluded, and help develop a resilient and inclusive payment ecosystem (BIS, 2022; World Bank, 2022). But the study also shows that technological readiness, infrastructure for

cybersecurity, and regulatory harmonization are important to making the right things happen. Based on the empirical findings, there is a strong link between awareness among stakeholders and institutional trust and the successful use of CBDCs in trading settlements.

CHAPTER 5: FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Major Findings

The study findings highlighted several important aspects regarding the role of Cross-Border payments on the cross-border trade settlement modernization with the help of Central Bank Digital Currencies (CBDCs). The analysis we found revealed that banking workers, fintech experts, international traders, and financial analysts' awareness levels about CBDCs were quite high. As the respondents demonstrated a positive perception regarding the adoption of CBDCs for international payment systems and their potential benefits in terms of improving efficiency, transparency, and transaction security, these factors will be taken into consideration in this study.

The results also showed that the use of CBDCs can significantly cut down the time and expenditure involved in cross-border trade transactions. Respondents felt that Central Bank Digital Currencies would enable blockchain and Distributed Ledger Technology (DLT) to allow for real-time settlement processes and reduce reliance on intermediaries. A strong positive relationship was also identified between aspects of CBDC adoption and also settlement efficiency, confirmed through statistical analysis.

Furthermore, the research identified key implementation risks like cyber threats, regulatory uncertainty, interoperability concerns, and tech infrastructure bottlenecks. One of the key obstacles that tarnished stakeholder trust and enthusiasm for adopting payment systems based on CBDC in international trade settlements was regulatory uncertainty.

5.2 Conclusion

The study found that Central Bank Digital Currencies can significantly transform cross-border trade settlements, enhance transaction speed, boost transparency and costs efficiency of trade settlements, and make financial services more accessible. CBDCs are a valuable financial innovation with the potential to disrupt the current payment system landscape, which relies heavily on the intermediary banking network and correspondent banking mechanisms that enable international payments.

By combining CBDCs with blockchain and digital payment systems, the efficacy and security of international payment systems could be reinforced. The study also shows the different roles CBDCs can play in supporting better financial inclusion and better liquidity management in international transactions. However, for CBCD to be successful, it is necessary to have robust technological capabilities, regulation that's geared toward harmonization, international coordination, and strong cyber security systems. If these challenges are not surmounted, large-scale settlement adoption of CBDCs may be hindered in terms of operational and institutional viability. In summary, CBDCs are expected to become a game-changer in the coming years, marking a significant shift in how the financial industry conducts international trade finance and global digital payments.

5.3 Policy Recommendations

Regulatory Harmonization

Governments and financial regulators should adopt a common global framework for the implementation of CBDCs and cross-border transactions to facilitate digital cross-border

transactions. Standardized regulatory regimes can help eliminate ambiguity and build confidence in CBDC payments systems.

International co-operation between the central banks.
Central banks need to improve the mechanisms for interoperability and information sharing to ensure smooth cross-border interoperability of CBDCs. International coordination can optimize the efficiency of transactions and minimize regulatory conflicts within the international markets that are involved in digital trade settlement.

Establishing interoperable CBDC platforms.Building interoperable CBDC platforms.
Countries need to invest in interoperable digital payment systems to facilitate the ability of integrating various CBDC systems. Interoperability will contribute to faster transactions, lower settlement expenses and more efficient international trade operations.

Strengthening Cybersecurity Frameworks
It is essential to create comprehensive cybersecurity policies and modern digital security infrastructure to guarantee that CBDC systems are secure against cyber threats, data breaches, and operational interruptions. Understanding the need for regular security audits and robust risk management measures, crucial for fostering trust and stability within digital payment systems.

The results of the study indicated the following implications:
Banking Sector
The study issues banks and financial institutions important conclusions concerning the rollout of CBDC in international payment network. CBDCs could shorten the time it takes for transactions to be processed, improve efficiency of operations, and decrease the need for traditional correspondent banking networks.

International Trade Ecosystem
These results suggest that CBDCs could help increase transparency, lower trade settlement costs, and make international transactions quicker and more efficient, thus enhancing the global trade environment. Smooth settlement process can be very beneficial for businesses that have import export trade.

Policymakers and Regulators
The study provides insights that can be beneficial for policymakers, central banks, and other key stakeholders in the formulation of optimal CBDC frameworks and digital financial regulations. The results can help guide policymaking and the development of digital currency governance frameworks, cybersecurity readiness, and interfinancial cooperation.

The present study is limited and restricted as follows.
The study has some limitations that need to be taken into account when reaching its conclusions. The size of the sample was restricted to a certain number of individuals limiting the generalizability of the results, first. Secondly, the study was restricted in time and was unable to have a wider scope of data collection and analysis. Third, the data represented a rather limited geographical scope given the concentration of the data on selected stakeholders and selected geographical areas. Furthermore, technological

advancements in digital finance could result in different future perceptions and policy approaches.

5.6 Future Research Directions

Future research could involve comparative studies of the adoption of a CBDC in developed and developing countries, examining how technology is developing and the regulatory responses in each of those areas. Sector-specific studies can focus on understanding the effects of CBDCs in sectors like logistics, e-commerce, banking, and supply chain management.

The potential for integrating technologies such as Artificial Intelligence (AI), blockchain, and smart contracts into CBDC systems is an avenue for further research to enhance automation, detect frauds and streamline transactions in international trade settlements. To assess the long-term economic and financial consequences of CBDCs on global trade and monetary systems, longitudinal studies can be carried out.

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