The Value Proposition of Stablecoins in South Africa's Evolving Digital Payment Landscape: A Comparative Analysis of Transaction Efficiency, Financial Inclusion, and Regulatory Frameworks

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1 Abstract

This paper examines the value proposition of stablecoins within South Africa's evolving payment ecosystem through qualitative comparative analysis and established theoretical frameworks. The research investigates whether stablecoins offer meaningful advantages over existing regulated digital payment infrastructure or merely replicate established services with additional complexity and risk exposure.

Drawing from Brazil's implementation of Pix as a benchmark for effective digital payment system design and utilizing theoretical frameworks from Adrian and Mancini-Griffoli (2021) and Catalini et al. (2022), this study analyzes stablecoins across technical, economic, and institutional dimensions. The analysis reveals that while stablecoins demonstrate theoretical advantages in cross-border transactions and programmable payment functionality, their benefits within domestic payment contexts are constrained by the capabilities of modern, well-designed payment infrastructure.

The findings suggest that in jurisdictions with robust, interoperable, and inclusive digital payment systems under appropriate regulatory oversight, stablecoins primarily serve niche use cases rather than providing broad-based improvements to payment efficiency or financial inclusion. This conclusion has significant implications for policymakers, financial institutions, and technology developers operating within emerging economies implementing comprehensive payment system modernization programmes.

Keywords: stablecoins, digital payments, financial inclusion, payment systems, South Africa, financial technology, regulatory frameworks

2 Introduction

2.1 Research Context and Motivation

The global financial landscape has witnessed unprecedented innovation in digital payment technologies over the past decade, with stablecoins emerging as a prominent category of crypto assets designed to maintain stable value relative to reference currencies or baskets of assets (Adrian & Mancini-Griffoli, 2021). Proponents argue that stablecoins represent a fundamental innovation in digital payment infrastructure, offering potential solutions to longstanding challenges in cross-border payments, financial inclusion, and programmable money applications (Catalini et al., 2022).

However, the emergence of sophisticated, government-backed digital payment platforms in several emerging economies presents a compelling counter-narrative to the necessity of blockchain-based payment solutions. Brazil's Pix system, launched in November 2020, exemplifies this trend, achieving remarkable adoption rates and transaction volumes while providing instant, low-cost payments through traditional banking infrastructure enhanced with modern technological capabilities (Duarte et al., 2022).

Similarly, South Africa's ongoing payment system modernization, anchored by the South African Reserve Bank's (SARB) Vision 2025 strategy and the implementation of PayShap, raises fundamental questions about the residual value proposition of stablecoins in jurisdictions with well-functioning digital payment infrastructure.

2.2 Research Objectives and Questions

This research addresses a gap in the literature concerning comparative advantages and limitations of stablecoins within evolving national payment systems. The primary research question is:

In countries with high-functioning, low-cost interoperable digital payment systems under public oversight, do stablecoins offer residual value, or do they replicate existing services with added complexity and risk?

Subsidiary questions examine:

1. How stablecoins compare to existing infrastructure in terms of theoretical capabilities and practical implementation challenges

2. Relative contributions to financial inclusion objectives based on accessibility requirements
3. Regulatory framework differences and their implications for innovation and consumer protection
4. Unique cross-border and programmability capabilities and their practical significance

2.3 Scope and Limitations

This analysis focuses on South Africa, using Brazil's Pix as a comparative benchmark, and employs qualitative comparative analysis based on verifiable sources. The research examines stablecoins broadly, encompassing fiat-collateralized, crypto-collateralized, and algorithmic variants. The temporal scope covers 2020-2025, capturing stablecoin emergence alongside next-generation payment infrastructure development.

Critical limitation: This study is constrained by the lack of comprehensive, publicly available quantitative data on payment system performance, adoption patterns, and user preferences in South Africa. The analysis therefore relies on theoretical frameworks, international experience, and limited verifiable data rather than empirical measurement of South African conditions.

2.4 Dissertation Structure

We proceed to chapter 2 with a review of the literature, examining theoretical frameworks for understanding digital payment systems and stablecoin economics. Chapter 3 outlines the analytical methodology and acknowledges data limitations. Then chapters 4-6 present comparative analyses of transaction efficiency, financial inclusion impacts, and regulatory frameworks. Chapter 7 synthesizes findings and discusses policy implications, while chapter 8 concludes with recommendations acknowledging the research limitations.

3 Literature Review

3.1 Theoretical Foundations of Digital Payment Systems

Traditional payment system theory, grounded in network economics and transaction cost analysis, emphasizes network effects, interoperability, and settlement finality in determining system efficiency.

These frameworks require extension to address blockchain-based payment systems and stablecoins adequately.

Adrian and Mancini-Griffoli (2021) provide a comprehensive framework for understanding digital money, positioning stablecoins within a broader taxonomy including central bank digital currencies (CBDCs), enhanced traditional systems, and private digital money. Their analysis emphasizes how design choices determine risk-return profiles, particularly redemption mechanisms, backing assets, and governance structures.

The theoretical framework suggests that the value proposition of different digital money forms depends critically on the quality and characteristics of existing payment infrastructure. In jurisdictions with efficient, accessible, and low-cost payment systems, alternative digital money forms face structural challenges in achieving widespread adoption.

Catalini et al. (2022) develop formal stablecoin economic theory, demonstrating how design choices influence stability, efficiency, and systemic risk. Their framework highlights trade-offs in collateralization approaches and reserve management importance. Crucially, their analysis suggests stablecoin benefits are most pronounced where existing payment infrastructure exhibits significant cost, speed, or accessibility deficiencies.

3.2 Payment System Modernization in Emerging Economies

Recent literature extensively documents payment system modernization success in emerging economies, with Brazil's Pix receiving particular attention. Frost et al. (2024) provide comparative analysis of fast payment systems, identifying key design principles: open architecture, 24/7 availability, and comprehensive education programmes.

Duarte et al. (2022) examine Pix's design and implementation, highlighting critical success factors including integration with existing banking infrastructure, strong regulatory oversight, and mandated participation by major financial institutions. Within 18 months, Pix processed over 2 billion monthly transactions, demonstrating the potential of well-designed infrastructure without blockchain technology.

The success of Pix validates the theoretical proposition that traditional payment infrastructure, when properly modernized, can achieve outcomes that match or exceed those promised by blockchain-based alternatives. Key performance metrics include rapid adoption (over 150 million

users), high transaction volumes (billions monthly), and low costs for users.

The South African context presents parallels to Brazilian experience. The SARB's Vision 2025 initiative emphasizes accessible, efficient, and inclusive payment infrastructure (SARB, 2024a). PayShap implementation demonstrates similar design principles including real-time processing, universal bank participation, and financial inclusion focus.

3.3 Stablecoin Landscape and Regulatory Approaches

The stablecoin landscape has evolved rapidly, with global market capitalization reaching significant levels by 2024. However, growth has been accompanied by increased regulatory scrutiny and stability events highlighting risks from inadequate reserve management and governance (SARB, 2023b).

Regulatory approaches vary significantly across jurisdictions, reflecting different perspectives on the balance between innovation and consumer protection. The SARB's approach emphasizes robust reserve backing, transparent governance, and appropriate risk management frameworks, reflecting concerns about potential financial system vulnerability amplification if adoption reaches systemically significant levels.

The theoretical literature on stablecoin regulation emphasizes the importance of functional regulation - treating similar economic functions similarly regardless of underlying technology. This approach suggests that regulatory advantages sometimes attributed to stablecoins may diminish as frameworks mature and achieve technological neutrality.

3.4 Comparative Analysis Frameworks

The development of appropriate frameworks for comparing payment systems across multiple dimensions represents an ongoing challenge in the literature. Carstens and Nilekani (2024) propose a comprehensive analytical framework based on the concept of a "Finternet" – a unified financial system infrastructure that enables seamless integration of diverse payment and financial services.

Their framework emphasizes the importance of interoperability, programmability, and regulatory coherence in determining system effectiveness. However, practical implementation of such frameworks faces challenges due to limited availability of comprehensive, comparable data across different payment systems and jurisdictions.

This research acknowledges these data limitations while applying established theoretical frameworks to the specific context of South Africa's payment system evolution and stablecoin value proposition assessment.

4 Methodology

4.1 Analytical Framework

This research employs qualitative comparative analysis based on established theoretical frameworks due to the unavailability of comprehensive quantitative data. The analysis examines payment systems across six dimensions: transaction costs, settlement finality, security, financial accessibility, cross-border interoperability, and programmability.

The framework incorporates both technical and institutional factors influencing system performance and user adoption, drawing primarily from academic literature, central bank publications, and international experience rather than original empirical research.

4.2 Data Limitations

Significant data limitations constrain the scope of this research. All analysis in this dissertation is necessarily qualitative and theoretical due to the lack of comprehensive, publicly available quantitative data.

4.2.1 Data Not Available

Transaction Cost Analysis: No reliable, comprehensive transaction cost data is publicly available for PayShap, stablecoin usage, or detailed cost comparisons across payment systems in South Africa. Published fee schedules exist but do not capture total costs including conversion, off-ramp, and operational expenses.

Performance Metrics: Real-time performance data, settlement times, uptime statistics, and reliability metrics for South African payment systems are not publicly available from verifiable sources.

Adoption and Usage Statistics: Detailed adoption data for stablecoins in South Africa, including user numbers, transaction volumes, and merchant acceptance rates, is not publicly available from verifiable sources.

User Behavior Data: No comprehensive, verifiable survey data exists regarding user preferences, barriers to adoption, or comparative experiences across payment systems.

Cross-border Usage: Actual cross-border stablecoin usage patterns, costs, and volumes specific to South Africa are not available from public sources.

4.3 Analytical Approach

Given these limitations, the analysis employs:

1. **Theoretical Framework Application**: Using established economic and technical frameworks to assess relative advantages and constraints
2. **International Comparison**: Drawing insights from documented international experience, particularly Brazil's Pix
3. **Regulatory Analysis**: Examining published regulatory frameworks and policy documents
4. **Technical Capability Assessment**: Analyzing technical specifications and theoretical capabilities of different systems

4.4 Implications of Methodological Constraints

The methodological constraints mean that conclusions are necessarily qualified and based on theoretical assessment rather than empirical measurement. This approach limits the precision of comparative assessments but enables analysis of fundamental structural differences between payment system approaches.

5 Transaction Cost Analysis and Settlement Efficiency

5.1 Theoretical Transaction Cost Structures

The comparative analysis of transaction costs reveals fundamental theoretical differences between stablecoins and traditional digital payment systems. According to the economic framework devel-

oped by Catalini et al. (2022), stablecoin cost structures are primarily determined by underlying blockchain network fees, which are typically fixed per transaction regardless of value but vary significantly based on network congestion.

Frost et al. (2024) identify that successful fast payment systems typically implement flat-fee or zero-fee structures to promote financial inclusion, contrasting with percentage-based fees common in traditional payment systems. This design principle reflects policy objectives to reduce barriers to small-value transactions that comprise the majority of retail payments.

Based on the SARB's Vision 2025 framework, instant payment systems like PayShap are structured to minimize transaction costs, particularly for small-value payments. This approach aligns with international best practices observed in Brazil's Pix system, where low transaction costs have been instrumental in achieving widespread adoption (Duarte et al., 2022).

However, **no comprehensive, publicly available data exists to verify actual transaction costs across payment systems in South Africa**. Published fee schedules do not capture total costs including conversion, off-ramp, and operational expenses that users face in practice.

5.2 Settlement Finality Mechanisms

Settlement finality represents a critical dimension where payment systems differ fundamentally in their architectural approaches. The theoretical framework established by the Bank for International Settlements emphasizes that settlement finality - the point at which a payment becomes irrevocable - varies significantly across payment system architectures (Frost et al., 2024).

Instant payment systems operating through central bank infrastructure provide immediate settlement finality through real-time gross settlement (RTGS) systems. This immediate finality is achieved because transactions are processed through central bank money, eliminating settlement risk between financial institutions.

Stablecoins operating on blockchain networks achieve settlement finality through different mechanisms depending on their underlying blockchain's consensus protocol. Based on public protocol documentation:

- **Bitcoin-based systems**: Typically require 6 confirmations for finality, representing approximately 60 minutes given the ~10-minute average block time

- **Ethereum-based systems**: Achieve practical finality within 12-15 minutes under normal network conditions following the transition to proof-of-stake consensus

The immediate settlement characteristic of properly designed instant payment systems provides theoretical operational advantages for merchants and consumers by eliminating settlement risk and enabling immediate availability of funds.

5.3 Network Capacity and Scalability Constraints

Network capacity and scalability represent fundamental constraints that differentiate traditional payment infrastructure from blockchain-based systems. The BIS analysis by Frost et al. (2024) demonstrates that well-designed instant payment systems can achieve very high transaction throughput by leveraging existing banking infrastructure with modern technological enhancements.

In contrast, blockchain-based stablecoin systems face inherent scalability limitations imposed by their underlying networks. Current blockchain specifications demonstrate significant constraints:

- **Bitcoin**: Approximately 7 transactions per second (protocol limitation)
- **Ethereum**: Approximately 15 transactions per second under standard configurations

While layer-2 scaling solutions promise improved throughput, these remain largely experimental for production payment applications and introduce additional complexity and potential points of failure.

The scalability limitations of blockchain-based systems become particularly acute during periods of high network utilization, when transaction fees can increase dramatically due to congestion. This fee volatility contrasts with the predictable, consistent performance offered by traditional payment infrastructure designed specifically for high-volume retail payment processing.

Data limitation: No comprehensive performance monitoring data is publicly available to verify actual scalability and reliability performance of payment systems in South Africa.

6 Financial Inclusion and Accessibility Analysis

6.1 Accessibility Requirements and Digital Divide

Financial inclusion represents a primary policy objective for South Africa's payment system modernization efforts. According to the World Bank Global Findex Database (2021), 84.4% of South African adults have access to a bank account, providing a substantial foundation for traditional payment infrastructure adoption.

This established banking relationship infrastructure offers important advantages for systems that build upon existing financial services rather than requiring entirely new onboarding processes. The theoretical framework suggests that payment systems with lower barriers to entry and fewer prerequisites are more likely to achieve broad-based adoption.

Stablecoins present a more complex accessibility profile. While blockchain-based systems theoretically enable financial participation without traditional banking relationships, practical access requires several technological prerequisites:

- **Smartphone access**: Required for most stablecoin wallet applications
- **Reliable internet connectivity**: Necessary for transaction initiation and confirmation
- **Advanced digital literacy**: Understanding of private key management, blockchain confirmation processes, and irreversible transaction characteristics
- **Cryptocurrency exchange access**: Required for conversion between stablecoins and local currency

Adrian and Mancini-Griffoli (2021) note that the accessibility of different forms of digital money depends critically on the technological infrastructure and literacy requirements for adoption. The technical requirements for stablecoin usage may create barriers that are particularly challenging for populations that financial inclusion policies aim to serve.

6.2 Infrastructure Requirements Analysis

The infrastructure requirements for different payment systems create varying barriers to adoption. Traditional instant payment systems benefit from leveraging existing telecommunications infras-

tructure through both smartphone applications and basic mobile phone interfaces (USSD-based services).

As documented by Frost et al. (2024), successful fast payment implementations typically provide multiple access channels to accommodate different technological capabilities among users. This multi-channel approach enables financial inclusion across diverse technological access levels.

Stablecoin systems generally require: - Smartphone with internet connectivity - Digital wallet application - Understanding of cryptocurrency management concepts - Access to conversion mechanisms (exchanges, off-ramp services)

The cost and complexity of these requirements may limit accessibility, particularly for underserved populations. **However, no comprehensive survey data is publicly available to quantify these barriers in the South African context.**

6.3 Network Effects and Ecosystem Development

The financial inclusion impact of payment systems depends critically on achieving sufficient adoption to create network effects. Payment systems exhibit strong network externalities - the value to each user increases with the total number of users and merchants participating in the system.

Traditional payment infrastructure benefits from existing banking relationships and merchant acceptance networks that can be leveraged for new payment methods. This installed base provides a foundation for rapid scaling of new payment capabilities.

Stablecoin adoption faces a coordination challenge where consumer adoption depends on merchant acceptance, while merchant adoption depends on consumer demand. Overcoming this coordination problem typically requires either significant subsidies or mandated participation that may be difficult to achieve for private systems.

The network effects literature suggests that established payment infrastructure has significant advantages in achieving the critical mass necessary for sustainable adoption, particularly for domestic payment applications where existing systems already provide basic functionality.

Data limitation: No reliable data on merchant acceptance or user adoption patterns for stablecoins in South Africa is publicly available for analysis.

7 Cross-Border Interoperability and International Integration

7.1 Cross-Border Payment Efficiency Theory

Cross-border payments represent perhaps the most compelling theoretical use case for stablecoins when compared to traditional payment infrastructure. Conventional cross-border payment systems involve multiple intermediary banks, complex correspondent banking relationships, and settlement cycles that can extend several business days.

According to the World Bank Remittance Prices Worldwide database, average fees for cross-border remittances from South Africa reached 6.18% of transaction value in Q4 2024. These high costs reflect the complexity and inefficiencies inherent in correspondent banking arrangements that require multiple intermediary institutions.

Stablecoins offer theoretical advantages in cross-border contexts through direct peer-to-peer transfers that bypass traditional correspondent banking networks. Users can theoretically transfer USD-denominated stablecoins to recipients globally within the time required for blockchain confirmation, with transaction costs determined by blockchain network fees rather than traditional banking margins.

However, practical implementation faces significant challenges. Catalini et al. (2022) note that total cost analysis for stablecoin cross-border payments must account for the full transaction chain, including: - On-ramp costs (converting local currency to stablecoins) - Network transaction fees - Exchange spreads - Off-ramp costs (converting stablecoins to recipient's local currency)

When accounting for these complete transaction chains, the cost advantage of stablecoins may be less substantial than suggested by focusing solely on network transmission costs.

7.2 Regulatory and Compliance Challenges

The global nature of stablecoin networks creates opportunities for regulatory arbitrage that may benefit users but present challenges for regulatory oversight and consumer protection. Users can potentially access stablecoins issued under various regulatory regimes, potentially circumventing local capital controls or other regulatory restrictions.

From a policy perspective, this regulatory arbitrage potential raises concerns about monetary sovereignty and the effectiveness of macroeconomic policy tools. The BIS Committee on Pay-

ments and Market Infrastructures has noted that significant stablecoin adoption may complicate monetary policy implementation and limit exchange rate management effectiveness.

Anti-money laundering and combating the financing of terrorism (AML/CFT) compliance represents another significant challenge for cross-border stablecoin usage. Traditional correspondent banking relationships incorporate established AML/CFT procedures and information sharing arrangements that may be more difficult to replicate in decentralized blockchain-based systems.

The Financial Action Task Force (FATF) guidance emphasizes the importance of applying consistent standards to stablecoin systems, but implementing these standards in decentralized environments presents practical challenges that traditional payment systems with established intermediaries can more readily address.

7.3 Alternative Approaches to Cross-Border Efficiency

The development of central bank digital currencies (CBDCs) and their potential for cross-border interoperability represents an alternative approach to improving cross-border payment efficiency. The BIS Project Dunbar and similar initiatives explore how central bank digital currencies might enable more efficient cross-border payments while maintaining central bank oversight.

For South Africa, future cross-border payment efficiency may depend more on bilateral agreements with other central banks for instant payment system interoperability than on stablecoin adoption. The experience of Singapore's PayNow and Thailand's PromptPay systems demonstrates the potential for bilateral instant payment linkages between countries with compatible regulatory frameworks.

Such developments could provide cross-border capabilities within traditional payment infrastructure that match or exceed stablecoin efficiency while maintaining comprehensive regulatory oversight and consumer protection mechanisms.

Data limitation: No comprehensive data is available on actual cross-border stablecoin usage patterns or costs in South Africa to validate theoretical assessments.

8 Programmability and Smart Contract Functionality

8.1 Theoretical Smart Contract Capabilities

Programmability represents one of the most distinctive theoretical characteristics of blockchain-based payment systems, including stablecoins. Smart contracts enable automated execution of payment logic based on predefined conditions, potentially enabling sophisticated payment arrangements that would be difficult or impossible to implement through traditional payment infrastructure.

According to the theoretical framework developed by Carstens and Nilekani (2024), programmable money capabilities could enable new forms of financial automation including: - Conditional payments triggered by external data feeds - Automated escrow arrangements - Complex multi-party payment splits - Time-locked payments - Integration with Internet of Things (IoT) devices for machine-to-machine payments

These capabilities could prove valuable for business-to-business transactions, supply chain finance, and commercial arrangements requiring automated payment triggers based on external conditions or events.

8.2 Implementation Challenges and Risk Considerations

However, practical implementation of programmable payment functionality faces several significant challenges. Smart contract development requires specialized technical expertise that is currently scarce. Additionally, the immutable nature of blockchain-based smart contracts means that programming errors can result in permanent loss of funds, creating significant risks for complex automated payment arrangements.

The risk profile of smart contract-based programmable payments has been highlighted by numerous high-profile incidents involving substantial financial losses due to smart contract vulnerabilities. These risks may be particularly problematic for small and medium enterprises lacking sophisticated technical capabilities or resources for extensive security auditing.

Traditional payment systems, while offering less programmability, provide established dispute resolution mechanisms and regulatory oversight that offer recourse for users in cases of system malfunction or fraudulent activity. The irreversible nature of blockchain transactions contrasts with

traditional payment systems where users typically have recourse through established processes.

8.3 Alternative Approaches to Payment Automation

Traditional payment infrastructure has begun incorporating similar functionality through application programming interfaces (APIs) and webhook systems that enable automated payment initiation based on external triggers. While these systems may offer less programmability than smart contracts, they provide greater predictability and established recourse mechanisms.

The trade-off between programmability and reliability represents a key consideration for businesses evaluating payment automation options. API-based solutions within traditional payment infrastructure typically provide: - Established dispute resolution mechanisms - Regulatory oversight and consumer protection - Integration with existing business systems - Reversibility in cases of errors or fraud

Smart contract solutions offer greater theoretical programmability but limited recourse in cases of system malfunction or security vulnerabilities.

8.4 Hybrid Models and Future Development

The BIS Innovation Hub research on programmable money suggests that hybrid models combining blockchain programmability with traditional financial infrastructure governance may offer optimal balance between innovation and risk management. Such models are being explored through central bank digital currency initiatives and regulated stablecoin frameworks.

These hybrid approaches could potentially provide programmable payment functionality while maintaining the consumer protections and regulatory oversight that characterize traditional financial systems, though practical implementation faces significant technical and regulatory challenges.

Data limitation: No comprehensive data is available on actual demand for or usage of programmable payment features in South Africa to assess the practical significance of these theoretical capabilities.

9 Regulatory Frameworks and Institutional Considerations

9.1 South African Regulatory Approach

The South African regulatory framework for stablecoins reflects a balanced approach seeking to accommodate innovation while ensuring appropriate consumer protection and financial stability safeguards. The SARB's regulatory stance, as articulated in its stablecoin primer (SARB, 2023a) and financial stability assessments (SARB, 2023b), emphasizes several key principles.

Central to the regulatory framework is the requirement for stablecoin issuers to maintain full reserve backing with high-quality, liquid assets. The SARB's approach requires reserves to consist primarily of government securities and cash deposits at regulated financial institutions, held in segregated accounts subject to regular reporting requirements.

This approach addresses fundamental stability risks that differentiate stablecoins from traditional electronic money, where issuer default risk is managed through prudential regulation and deposit insurance schemes. The regulatory framework recognizes that stablecoin stability depends critically on reserve quality and governance arrangements.

However, several regulatory challenges remain unresolved: - Consumer protection mechanisms for stablecoin users are less developed compared to traditional banking services - Dispute resolution procedures are limited due to the irreversible nature of blockchain transactions - Operational risk management frameworks are still evolving for blockchain-based systems

9.2 International Regulatory Coordination

International regulatory developments increasingly emphasize regulatory consistency between stablecoins and traditional payment instruments with similar economic functions. The European Union's Markets in Crypto-Assets (MiCA) regulation requires stablecoin issuers to obtain e-money institution licenses and maintain reserves equivalent to traditional e-money providers.

This trend towards functional regulation suggests that regulatory advantages sometimes attributed to stablecoins may diminish as frameworks mature and achieve technological neutrality. Jurisdictions with well-developed payment infrastructure tend to adopt more stringent stablecoin regulations, while those with payment infrastructure gaps maintain more permissive approaches.

The Financial Action Task Force (FATF) guidance emphasizes the importance of applying consistent anti-money laundering and combating the financing of terrorism (AML/CFT) standards to stablecoin systems. However, implementing these standards in decentralized blockchain environments presents practical challenges.

Brazil's regulatory approach demonstrates how effective domestic payment infrastructure development can reduce regulatory urgency surrounding stablecoins, as policymakers focus resources on enhancing proven payment systems rather than accommodating speculative technologies.

9.3 Monetary Policy Implications

Potential macroeconomic implications of widespread stablecoin adoption represent critical considerations for central bank policy frameworks. Significant stablecoin adoption could affect demand for central bank money and traditional bank deposits, potentially influencing monetary transmission mechanisms.

Theoretical analysis suggests several potential channels of impact: - **Interest rate transmission**: Reduced effectiveness if significant portions of the economy use stablecoins - **Exchange rate transmission**: Weakened if stablecoins facilitate dollarization - **Credit creation**: Affected if stablecoins reduce demand for bank deposits

However, current adoption levels remain well below thresholds that would create significant macroeconomic effects. The availability of efficient domestic payment alternatives may limit potential for stablecoins to achieve systemically significant adoption levels in jurisdictions with well-functioning payment infrastructure.

9.4 Innovation and Competition Considerations

The regulatory framework must balance multiple policy objectives including financial stability, consumer protection, and promotion of beneficial innovation. The network effects inherent in payment systems create particular challenges for competition policy, as successful payment systems tend toward natural monopoly characteristics.

Concentration concerns exist in both traditional payment markets and emerging stablecoin ecosystems. Regulatory frameworks must consider how to maintain competitive conditions while ensuring appropriate oversight.

The optimal regulatory stance may evolve as both technologies continue developing. Maintaining flexibility while ensuring appropriate oversight requires careful calibration of regulatory requirements to avoid stifling beneficial innovation while protecting consumers and maintaining financial stability.

Data limitation: No comprehensive data is available on actual stablecoin adoption levels or their economic impact in South Africa to inform regulatory calibration.

10 Synthesis and Comparative Assessment

10.1 Theoretical Framework Integration

The comparative analysis across multiple dimensions reveals important insights about the relative positioning of stablecoins versus traditional digital payment infrastructure, though significant data limitations constrain quantitative assessment. The theoretical frameworks developed by Adrian and Mancini-Griffoli (2021) and Catalini et al. (2022) provide useful analytical structure for understanding these relationships.

The analysis demonstrates that stablecoins face fundamental structural challenges in domestic applications that are unlikely to be resolved through technological improvements alone. The network effects enjoyed by established payment infrastructure, combined with regulatory frameworks specifically designed to support traditional financial services, create significant barriers to stablecoin adoption.

Based on the theoretical frameworks, the comparative advantages of different digital money forms depend critically on the quality and characteristics of existing payment infrastructure. In jurisdictions with high-quality, low-cost, and accessible payment systems, the value proposition of alternative digital money forms is necessarily constrained.

10.2 International Experience Validation

The success of Brazil's Pix system, as documented by Duarte et al. (2022), provides empirical evidence supporting the theoretical analysis. Pix achieved over 150 million users within three years while maintaining lower costs and higher reliability than most blockchain-based payment systems.

Key success factors identified include: - Central bank leadership in system design and operation - Mandatory participation by major financial institutions
- Integration with existing banking infrastructure - Comprehensive public education programs - Free person-to-person transfers driving rapid adoption

Brazil's experience demonstrates that traditional payment infrastructure, when properly modernized, can achieve outcomes that match or exceed those promised by blockchain-based alternatives. This validates the strategic focus on enhancing traditional payment infrastructure rather than relying primarily on novel technologies.

10.3 Policy Framework Implications

The analysis suggests that the optimal policy approach involves maintaining openness to stablecoin innovation while prioritizing the development and adoption of comprehensive domestic payment infrastructure as the primary vehicle for achieving financial inclusion and economic development objectives.

Stablecoins appear to offer the greatest theoretical advantages in areas where traditional infrastructure faces structural limitations: - **Cross-border payments**: Where correspondent banking creates significant inefficiencies - **Programmable payments**: Where traditional systems lack automated execution capabilities - **Financial access**: In jurisdictions lacking robust banking infrastructure

However, in jurisdictions with well-functioning payment infrastructure, these advantages may be limited to specialized applications rather than broad-based improvements.

10.4 Research and Data Limitations

This analysis is significantly constrained by the lack of comprehensive, publicly available data on payment system performance, user adoption patterns, and actual cost structures in South Africa. The conclusions are therefore necessarily qualified and based on theoretical assessment rather than empirical measurement.

Key data gaps include: - Actual transaction costs across payment systems - User adoption and behavior patterns - Merchant acceptance rates - Performance and reliability metrics - Cross-border usage patterns

These limitations prevent precise quantitative comparison but enable analysis of fundamental structural differences between payment system approaches.

Critical caveat: The findings should be interpreted as theoretical assessment rather than empirical validation, given the significant data constraints acknowledged throughout this analysis.

11 Conclusions and Policy Implications

11.1 Summary of Research Findings

This dissertation examined the value proposition of stablecoins within South Africa's evolving digital payment landscape through qualitative comparative analysis based on verifiable sources and established theoretical frameworks. The analysis reveals important insights about the relative positioning of stablecoins versus traditional payment infrastructure, though significant data limitations constrain the precision of quantitative assessments.

The theoretical frameworks developed by Adrian and Mancini-Griffoli (2021) and Catalini et al. (2022) suggest that the value proposition of different digital money forms depends critically on the quality and characteristics of existing payment infrastructure. In jurisdictions with high-quality, accessible, and low-cost payment systems, alternative digital money forms face structural challenges in achieving widespread adoption for domestic applications.

The international experience, particularly Brazil's success with Pix as documented by Duarte et al. (2022), provides empirical evidence that well-designed traditional payment infrastructure can achieve rapid adoption and high transaction volumes while maintaining lower costs and greater accessibility than most blockchain-based alternatives. This experience suggests that payment system modernization within traditional frameworks may be more effective than relying on novel technologies for achieving financial inclusion objectives.

However, stablecoins may retain advantages in specific use cases, particularly cross-border payments where traditional correspondent banking arrangements create substantial inefficiencies. The World Bank data showing average remittance costs of 6.18% suggests meaningful room for improvement that stablecoins could potentially address, though practical implementation faces regulatory and infrastructure challenges.

11.2 Policy Recommendations

Based on the analysis and acknowledging the data limitations, several policy recommendations emerge:

Continued focus on domestic payment infrastructure development appears justified based on international experience and theoretical considerations. The success of instant payment systems in multiple jurisdictions suggests this approach can effectively achieve financial inclusion and payment efficiency objectives.

Regulatory frameworks for stablecoins should focus on areas of potential comparative advantage, particularly cross-border payments and specialized programmable payment applications, while ensuring appropriate consumer protection and financial stability safeguards.

International regulatory coordination represents a priority for enabling beneficial stablecoin innovation in cross-border contexts while maintaining appropriate oversight. The regulatory arbitrage potential of global stablecoin networks requires coordinated policy responses.

Ongoing monitoring and research are essential given the rapid pace of technological development and the current limitations in available data for policy analysis.

11.3 Research Limitations and Future Work

This research faces significant limitations due to the unavailability of comprehensive, verifiable data on payment system performance, adoption patterns, and user preferences in South Africa. The analysis relies primarily on theoretical frameworks, international experience, and limited publicly available data rather than empirical measurement of South African conditions.

Future research would benefit from: - Primary data collection through user and merchant surveys - Collaboration with payment system operators to access performance data - Longitudinal studies tracking adoption patterns over time - Experimental research using controlled pilot programs - Regional comparative analysis across multiple emerging economy jurisdictions

The regulatory landscape for both traditional payment infrastructure and stablecoins continues evolving rapidly, requiring ongoing analysis as frameworks mature and technology capabilities advance.

11.4 Final Observations

This research demonstrates the importance of evidence-based policy analysis in rapidly evolving technological domains, while acknowledging the constraints imposed by data availability. While stablecoins offer theoretical advantages in certain applications, their practical benefits appear constrained by the capabilities of well-designed traditional payment infrastructure, particularly for domestic applications.

The policy challenge lies in maintaining openness to beneficial innovation while ensuring that scarce resources focus on approaches most likely to achieve broad-based improvements in payment efficiency and financial inclusion. The international evidence suggests that traditional payment infrastructure modernization may offer more predictable and comprehensive benefits than relying primarily on novel technologies with uncertain adoption trajectories.

However, the complementary role of stablecoins in specific applications, particularly cross-border payments, warrants continued policy attention and appropriate regulatory frameworks that enable innovation while protecting consumers and maintaining financial stability.

Important caveat: These conclusions should be interpreted within the context of significant data limitations that constrain empirical validation of theoretical assessments.

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13 Terms and Definitions

Blockchain: A distributed ledger technology that maintains a continuously growing list of records (blocks) secured using cryptography.

Central Bank Digital Currency (CBDC): Digital form of central bank money that is different from balances in traditional reserve or settlement accounts.

Correspondent Banking: A bilateral arrangement where one bank (correspondent) holds deposits owned by another bank (respondent) and provides payment and other services.

Fiat-collateralised Stablecoin: A stablecoin backed by reserves of fiat currency held in traditional financial institutions.

Financial Inclusion: The availability and equality of opportunities to access financial services.

Instant Payment System: A payment system that enables the immediate or near-immediate transfer of funds between accounts on a 24/7/365 basis.

PayShap: South Africa's instant payment platform launched in 2023, enabling real-time, low-value payments.

Pix: Brazil's instant payment platform launched in 2020 by the Central Bank of Brazil.

Real-Time Gross Settlement (RTGS): A funds transfer system where transfer of money or securities takes place from one bank to another on a "real-time" and "gross" basis.

Settlement Finality: The point at which a payment becomes irrevocable and unconditional.

Smart Contract: Self-executing contracts with terms written directly into code.

Stablecoin: A type of cryptocurrency designed to maintain a stable value relative to a reference asset, typically a fiat currency.

USSD (Unstructured Supplementary Service Data): A protocol used by GSM cellular telephones to communicate with service provider computers.