

A STUDY ON ENHANCING THE CROSS-BORDER PAYMENTS: OPEN BANKING

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By

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**DEPARTMENT OF BUSINESS
ADMINISTRATION SCHOOL OF MANAGEMENT
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INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

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BONAFIDE CERTIFICATE

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ENHANCING CROSS BORDER PAYMENTS: OPEN BANKING

SUBHASH A

LIST OF CONTENTS

CHAPTER NO	TITLE	PAGE NO
	ABSTRACT	
	LIST OF TABLES	
	LIST OF CHARTS	
1	INTRODUCTION 1.1 Introduction 1.2 Background 1.3 History 1.4 Rationale for the study 1.5 Open banking: revolutionizing financial services 1.6 Research objectives 1.7 Need for the study 1.8 Scope for the study	1-12
2	REVIEW OF LITERATURE	13-25
3	RESEARCH METHODOLOGY 3.1 Research methodology 3.2 Research design 3.3 Hypothesis 3.4 Population and sampling 3.5 Data collection 3.6 Data analysis 3.7 Ethical consideration 3.8 Limitation 3.9 Conclusion 3.10 Tools for analysis	26-28
4	DATA ANALYSIS AND INTERPRETATION 4.1 Percentage analysis 4.2 Independent Samples T-Test 4.3 Linear Regression	29-51
5	FINDINGS, SUGESTIONS AND CONCLUSION 5.1 Findings 5.2 Suggestions 5.3 Conclusion 5.4 References	52-54
	ANNEXURE I – Questionnaire ANNEXURE II - Research article	

ABSTRACT

This comprehensive study explores the transformative potential of Open Banking in addressing the challenges associated with cross-border payments. Traditional cross-border transactions have long been burdened by inefficiencies and complexities, prompting a critical examination of Open Banking as a viable solution. The research objectives involve investigating how Open Banking technologies can enhance the efficiency of cross-border payments and identifying the key factors influencing successful implementation.

The literature review delves into the landscape of cross-border payments, emphasizing common pain points and challenges. It also scrutinizes the principles and frameworks of Open Banking, analysing global implementations and identifying gaps in existing research. The theoretical framework establishes a conceptual model, outlining key variables and relationships central to understanding the impact of Open Banking on cross-border transactions.

Methodologically, a mixed-methods approach is adopted, combining qualitative and quantitative data collection methods. The empirical findings section presents a current snapshot of cross-border payments, highlighting inefficiencies, and showcases case studies where Open Banking has been successfully applied.

In the discussion, the study explores the integration of Open Banking in cross-border payments, emphasizing the role of APIs, regulatory frameworks, and technology. Benefits, including cost reduction and enhanced transparency, are evaluated alongside potential risks such as security concerns. Recommendations encompass policy changes and industry guidelines to facilitate the adoption of Open Banking for international transactions.

The conclusion summarizes key findings, emphasizes contributions to knowledge, and acknowledges study limitations. The research abstract underscores the significance of Open Banking as a transformative force in reshaping cross-border payments, providing valuable insights for policymakers, financial institutions, and fintech stakeholders navigating the evolving landscape of global transactions.

LIST OF TABLES

TABLE NO.	PARTICULARS	PAGE NO.
4.1.1	Table indicating the age of the respondents	29
4.1.2	Tables indicating the gender of the respondents	30
4.1.3	Table indicating the occupation of the respondents	31
4.1.4	Table indicating the Residence of the respondents	32
4.1.5	Tables indicating the income level of the respondents	33
4.1.6	Tables indicating on how frequently do you engage in cross-border transactions	34
4.1.7	Tables indicating on a scale of 1 to 5, how satisfied are you with the speed of your cross-border transactions	35
4.1.8	Tables indicating the factors influence your choice of cross-border payment methods	36
4.1.9	Tables indicating any changes in your cross-border payment experiences in the last year	37
4.1.10	Tables indicating transparency of information in your cross-border transactions	38
4.1.11	Tables indicating the awareness of Open Banking solutions for cross-border payments	39
4.1.12	Table indicating on how you become aware of Open Banking	40
4.1.13	Tables indicating scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future	41

4.1.14	Table indicating the concerns, if any, about using Open Banking for cross-border payments	42
4.1.15	Tables indicating if the respondents have ever used Open Banking for a cross-border transaction	43
4.1.16	Table indicating on how has Open Banking affected the cost of your cross-border transactions	44
4.1.17	Tables indicating Open Banking has positively influenced the efficiency of cross-border payment processes	45
4.1.18	. Table indicating to what extent do you think Open Banking has contributed to financial inclusion in cross-border transactions	46
4.1.19	Tables indicating any changes in your overall economic behaviour as a result of using Open Banking for cross-border transactions	47
4.1.20	Tables showing on a scale of 1 to 5, how confident are the respondents in the security measures provided by Open Banking for cross-border transaction	48

LIST OF CHARTS

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4.1.1	Table indicating the age of the respondents	29
4.1.2	Tables indicating the gender of the respondents	30
4.1.3	Table indicating the occupation of the respondents	31
4.1.4	Table indicating the Residence of the respondents	32
4.1.5	Tables indicating the income level of the respondents	33
4.1.6	Tables indicating on how frequently do you engage in cross-border transactions	34
4.1.7	Tables indicating on a scale of 1 to 5, how satisfied are you with the speed of your cross-border transactions	35
4.1.8	Tables indicating the factors influence your choice of cross-border payment methods	36
4.1.9	Tables indicating any changes in your cross-border payment experiences in the last year	37
4.1.10	Tables indicating transparency of information in your cross-border transactions	38
4.1.11	Tables indicating the awareness of Open Banking solutions for cross-border payments	39
4.1.12	Table indicating on how you become aware of Open Banking	40
4.1.13	Tables indicating scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future	41

4.1.14	Table indicating the concerns, if any, about using Open Banking for cross-border payments	42
4.1.15	Tables indicating if the respondents have ever used Open Banking for a cross-border transaction	43
4.1.16	Table indicating on how has Open Banking affected the cost of your cross-border transactions	44
4.1.17	Tables indicating Open Banking has positively influenced the efficiency of cross-border payment processes	45
4.1.18	. Table indicating to what extent do you think Open Banking has contributed to financial inclusion in cross-border transactions	46
4.1.19	Tables indicating any changes in your overall economic behaviour as a result of using Open Banking for cross-border transactions	47
4.1.20	Tables showing on a scale of 1 to 5, how confident are the respondents in the security measures provided by Open Banking for cross-border transaction	48

CHAPTER 1

INTRODUCTION

1.1. INTRODUCTION

In an era characterized by unprecedented global connectivity and digital innovation, the dynamics of financial transactions have undergone a remarkable transformation. The confluence of cross-border payments and the disruptive force of Open Banking stands out as a significant narrative within this evolution. As individuals and businesses increasingly participate in international commerce, the impact of Open Banking on the efficiency, accessibility, and overall experiences of cross-border transactions becomes a compelling area of study. This research endeavors to delve into the intricacies of "Individuals' Experiences with Cross-Border Payments and the Impact of Open Banking," seeking a comprehensive understanding of the multifaceted interplay between technological advancements, financial practices, and user preferences.

Cross-border payments refer to financial transactions that involve the movement of money across national borders. In the globalized economic landscape, businesses and individuals engage in cross-border transactions for various purposes, such as international trade, investment, remittances, and more. The complexity of cross-border payments arises from differences in currencies, regulatory frameworks, and banking systems between countries. Traditional cross-border payment processes have often been criticized for being slow, costly, and inefficient, with multiple intermediaries involved in the transaction chain. In recent years, technological advancements, particularly in the form of fintech solutions and blockchain technology, have been instrumental in revolutionizing cross-border payments. These innovations aim to streamline the process, reduce costs, enhance transparency, and expedite transaction settlement, thereby fostering greater financial inclusion and facilitating seamless global economic interactions. Despite ongoing challenges, the evolving landscape of cross-border payments holds the promise of fostering more accessible, efficient, and secure financial transactions on a global scale.

The dynamics of cross-border payments involve a complex interplay of financial institutions, regulatory bodies, and technological infrastructures. Financial institutions play a pivotal role in facilitating cross-border transactions by providing the necessary channels for funds to move across borders. Regulatory frameworks, on the other hand, dictate the compliance standards and legal requirements that govern these transactions, contributing to the intricate web of cross-border financial activities. The traditional correspondent banking system, which involves a series of intermediary banks to facilitate cross-border transfers, has been a common method, but it often results in delays, higher costs, and increased risk of errors. In response to these challenges, emerging technologies such as blockchain and distributed ledger technology have garnered attention for their potential to create more direct,

transparent, and efficient cross-border payment systems. Cryptocurrencies and stablecoins are also emerging as alternative means of cross-border value transfer, challenging traditional banking systems and offering the potential for faster and more cost-effective transactions. As the financial landscape continues to evolve, the future of cross-border payments lies in striking a balance between innovation, regulation, and international cooperation to create a seamless and inclusive global financial network.

In the realm of cross-border payments, the foreign exchange market plays a crucial role as currencies need to be converted during international transactions. Exchange rate fluctuations can significantly impact the final amount received, adding another layer of complexity to cross-border financial dealings. Additionally, the concept of financial inclusion is integral to cross-border payments, as disparities in access to banking services and infrastructure across different regions can hinder the smooth flow of funds. FinTech companies and digital payment platforms are increasingly bridging these gaps by offering innovative solutions that leverage mobile technology and digital wallets. The rise of Application Programming Interfaces (APIs) and open banking initiatives further contributes to the transformation of cross-border payments, enabling seamless connectivity between financial institutions. However, challenges persist, including concerns about data security, regulatory compliance, and the need for international standards to ensure interoperability between diverse financial systems. The ongoing evolution of cross-border payments reflects a broader trend toward a more interconnected and technologically advanced global financial ecosystem, with ongoing efforts aimed at overcoming obstacles and fostering a more efficient, inclusive, and secure international monetary landscape.

1.2. BACKGROUND

The background of cross-border payments is deeply rooted in the historical development of international trade and finance. As societies evolved and economic activities expanded beyond national borders, the need for mechanisms to facilitate the movement of money across different countries became apparent.

Historically, cross-border payments were predominantly conducted through bilateral agreements, where trading partners settled transactions using various means such as gold, silver, or even physical commodities. As international trade increased, the complexity of these transactions grew, necessitating the development of financial instruments and intermediaries to facilitate smoother cross-border exchanges.

The Bretton Woods Conference in 1944 marked a significant turning point in the history of cross-border payments. The conference established the International Monetary Fund (IMF) and the World Bank, aiming to promote global economic stability and facilitate international monetary cooperation. The conference also led to the creation of the gold-backed U.S. dollar as the world's primary reserve currency.

In the Post-Bretton Woods era, the world witnessed a shift towards a more flexible exchange rate system, with the U.S. dollar remaining a key global reserve currency. The rise of multinational corporations and the expansion of global financial markets further increased the demand for efficient and reliable cross-border payment systems.

The traditional correspondent banking model, where banks establish relationships to facilitate cross-border transactions, has been a mainstay for much of modern history. However, this model has faced criticism for being slow, costly, and prone to inefficiencies, as each intermediary along the transaction chain adds complexity.

Recent decades have seen significant technological advancements and globalization, leading to the current era where FinTech innovations, blockchain technology, and digital currencies are reshaping the landscape of cross-border payments. These developments aim to address longstanding challenges, offering solutions that are faster, more cost-effective, and capable of promoting financial inclusion on a global scale. The ongoing evolution of cross-border payments reflects the continual adaptation of financial systems to meet the demands of an interconnected and rapidly changing global economy.

1.3. HISTORY

The term "Open Banking" has its roots in the evolution of financial technology (fintech) and the broader movement toward open data and increased transparency in the financial industry. While the concept of Open Banking has gained prominence in recent years, its historical development can be traced through several key phases:

1. Early Financial Innovation (Pre-2000s):

- The foundation for Open Banking can be seen in the early stages of financial innovation, including the advent of online banking and the use of electronic data interchange (EDI) for financial transactions.
- Financial institutions began exploring ways to digitize processes and improve the efficiency of financial services.

2. Introduction of APIs (2000s):

- The widespread adoption of Application Programming Interfaces (APIs) in the 2000s played a crucial role in shaping the Open Banking landscape.
- APIs allowed different software applications to communicate and share data, enabling the development of more interconnected and interoperable financial systems.

3. Global Financial Crisis (2008):

- The global financial crisis of 2008 prompted a reassessment of the financial industry, leading to increased scrutiny of traditional banking practices and a growing demand for more transparency and accountability.
- Fintech startups emerged, aiming to disrupt traditional financial services and provide innovative, customer-centric solutions.

4. Regulatory Initiatives (2010s):

- Regulatory bodies in various jurisdictions recognized the potential benefits of opening up banking data and fostering competition in the financial sector.
- The Revised Payment Service Directive (PSD2) in the European Union, implemented in 2018, became a landmark regulation that mandated banks to open up access to customer account data to third-party providers via APIs.

5. PSD2 and Open Banking (2010s – Present):

- The implementation of PSD2 marked a significant milestone in the formalization of Open Banking principles. It required banks to provide access to customer account information and payment initiation services to authorized third parties.
- The concept of Open Banking expanded beyond Europe, with other countries considering or adopting similar regulatory frameworks.

6. Technology Advancements and Collaboration (2010s – Present):

- Advances in technology, including cloud computing, blockchain, and artificial intelligence, further facilitated the development of Open Banking solutions.
- Financial institutions started recognizing the potential for collaboration with fintech firms, enabling the creation of innovative services that leverage open APIs.

7. Global Adoption and Evolution (Present):

- Open Banking principles have gained global recognition, with various countries exploring or implementing regulatory frameworks to encourage data sharing and foster competition in the financial industry.
- The concept has evolved beyond regulatory compliance to become a strategic approach for financial institutions to enhance customer experiences and drive innovation.



1.4. RATIONALE FOR THE STUDY

Improving cross-border payments is of paramount importance due to its far-reaching implications for individuals, businesses, and the global economy. This section elucidates the significance of enhancing cross-border payments from various perspectives:

1. Facilitating Global Trade and Commerce:

Efficient cross-border payments are foundational to international trade and commerce. Businesses engaged in global transactions rely on timely and secure payment mechanisms to facilitate the exchange of goods and services. Streamlining cross-border payments reduces transaction costs, minimizes delays, and promotes a more seamless flow of goods and capital across borders, contributing to the growth of international trade.

2. Fostering Financial Inclusion:

For individuals, particularly those in emerging economies or regions with limited access to traditional banking services, improved cross-border payments contribute to financial inclusion. Many people engage in cross-border remittances, and efficient payment systems ensure that funds reach recipients promptly and affordably. This inclusivity is crucial for individuals who depend on remittances for their livelihoods or for families receiving financial support from overseas.

3. Supporting Economic Growth:

Efficient cross-border payments play a pivotal role in supporting overall economic growth. When businesses can transact globally with ease, it encourages entrepreneurship, attracts foreign investment, and facilitates the expansion of markets. Streamlining cross-border transactions contributes to the vibrancy of the global economy by fostering an environment conducive to economic activities on an international scale.

4. Enhancing Financial Stability:

A well-functioning cross-border payment system is essential for maintaining financial stability. Delays, uncertainties, or inefficiencies in cross-border transactions can introduce risks into the financial system. By improving the speed and reliability of these payments, financial institutions and central banks can mitigate risks associated with cross-border financial flows and enhance the overall stability of the global financial ecosystem.

5. Empowering Individuals and Businesses:

Individuals and businesses are empowered when they have access to efficient cross-border payment mechanisms. For businesses, it means the ability to scale operations globally, explore new markets, and access a broader customer base. Individuals benefit from enhanced financial services, better access to international opportunities, and the ability to manage personal finances more effectively across borders.

6. Reducing Transaction Costs and Increasing Transparency:

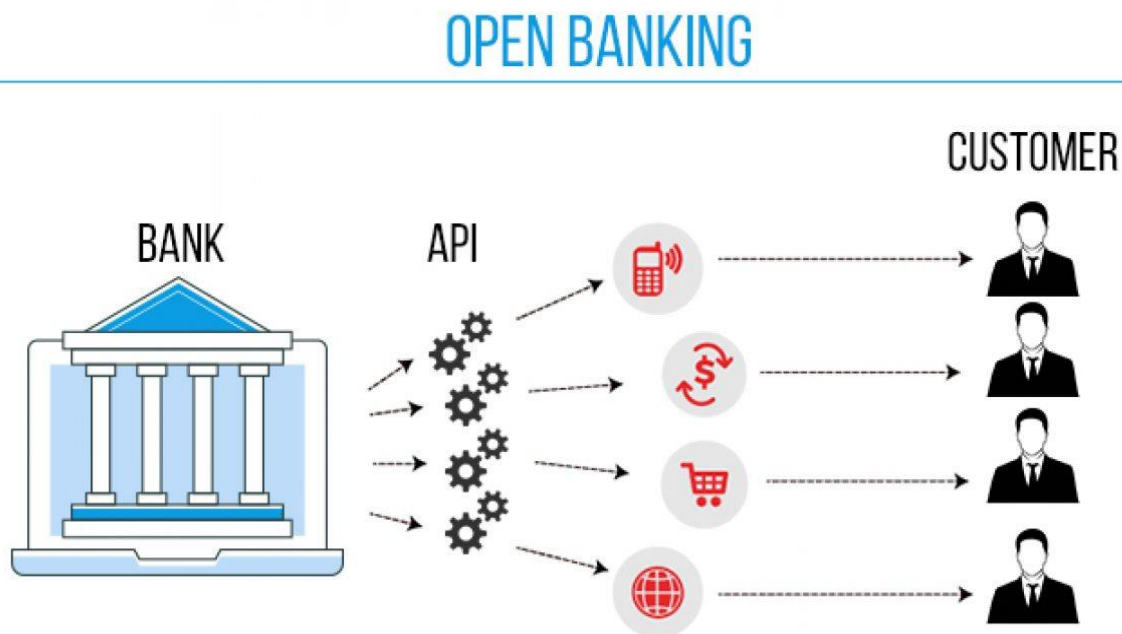
Traditional cross-border payments often involve high transaction costs, including fees for currency conversion and intermediary services. Improving cross-border payment systems can help reduce these costs, making international transactions more affordable for businesses and individuals. Additionally, increased transparency in the payment process ensures that users have a clear understanding of fees, exchange rates, and the timing of transactions.

7. Adapting to Technological Advancements:

Advancements in technology, particularly the rise of digital currencies, blockchain, and Open Banking, offer new opportunities to revolutionize cross-border payments. Embracing these technologies can lead to faster, more secure, and cost-effective cross-border transactions, positioning the financial industry to adapt to the evolving preferences and expectations of users in the digital age.

In conclusion, the importance of improving cross-border payments extends beyond mere transactional efficiency. It encompasses economic development, financial inclusion, global trade facilitation, and the empowerment of individuals and businesses. A robust, transparent, and technologically advanced cross-border payment system is essential for fostering a connected, inclusive, and resilient global financial ecosystem.

1.5. OPEN BANKING: REVOLUTIONIZING FINANCIAL SERVICES



Key Principles of Open Banking:

1. Data Accessibility:

- Open Banking mandates that banks provide secure access to customer data, including account information and transaction history, to authorized third-party providers.

2. Customer Consent:

- User consent is paramount in Open Banking. Individuals have control over which third parties can access their financial data, ensuring privacy and data security.

3. API Standardization:

- The use of standardized APIs facilitates seamless communication between different financial systems, allowing for the development of interoperable and interconnected services.

4. Competition and Innovation:

- By enabling third-party developers to build applications and services that leverage banking data, Open Banking fosters a more competitive and innovative financial ecosystem.

Regulatory Drivers:

1. PSD2 in the European Union:

- The Revised Payment Service Directive (PSD2), implemented in 2018, is a pioneering regulatory framework that mandates banks to open up access to customer account data and payment initiation services.

2. Global Regulatory Trends:

- Countries worldwide are adopting or considering Open Banking regulations to promote competition and protect consumer interests. These regulatory efforts vary in scope and implementation.

Impact on Stakeholders:

1. Consumers:

- Open Banking empowers consumers with greater control over their financial data. It facilitates personalized financial services, from budgeting apps to tailored product recommendations.

2. Financial Institutions:

- Traditional banks are compelled to adapt to Open Banking, fostering collaboration with fintech's or developing in-house solutions. This evolution enhances customer engagement and service offerings.

3. Fintech Startups:

- Fintech firms leverage Open Banking to create innovative solutions, such as payment apps, investment platforms, and lending services. This levels the playing field and encourages entrepreneurship.

Challenges and Concerns:

1. Security and Privacy:

- While Open Banking prioritizes security, concerns about data breaches and privacy persist. Striking the right balance between openness and protection remains a challenge.

2. Standardization:

- Achieving global API standardization is an ongoing challenge. Variations in implementation and interoperability hinder the seamless exchange of data.

Future Outlook:

1. Global Expansion:

- Open Banking principles are gaining traction globally, with more regions exploring or implementing regulatory frameworks. This expansion is expected to drive cross-border financial services innovation.

2. Technological Integration:

- Continued technological advancements, including the integration of blockchain and artificial intelligence, will further enhance the capabilities and security of Open Banking solutions.

1.6. RESEARCH OBJECTIVES

1. Assess User Satisfaction and Preferences:

- Conduct surveys and interviews to collect quantitative and qualitative data on user satisfaction levels with existing cross-border payment methods.
- Use Likert scales or structured interview questions to gauge user preferences, focusing on factors such as transaction speed, cost-effectiveness, reliability, and overall user experience.
- Implement a comparative analysis between traditional cross-border payment methods and Open Banking solutions to identify areas for improvement.

2. Understand Awareness and Usage Patterns of Open Banking:

- Administer surveys and conduct interviews to assess participants' awareness of Open Banking and its applications in cross-border payments.

- Utilize open-ended questions to explore the sources of information that contribute to participants' understanding of Open Banking.
- Employ usage pattern analysis to examine the extent to which individuals incorporate Open Banking solutions into their cross-border transactions, including the frequency and types of transactions conducted.

3. Explore Economic Implications of Open Banking on Financial Behaviours:

- Implement surveys and interviews to gather insights into how Open Banking influences participants' economic behaviours related to cross-border payments.
- Use Likert scales or structured questions to measure perceptions of cost-effectiveness and efficiency in cross-border transactions facilitated by Open Banking.
- Conduct financial behaviour assessments to explore how Open Banking impacts decision-making processes in financial transactions.

4. Examine Security and Trust in Cross-Border Transactions:

- Administer surveys and conduct interviews to assess participants' perceptions of the security and trustworthiness of cross-border payment systems, with a specific focus on Open Banking solutions.
- Incorporate scenarios or case studies to explore factors influencing user trust in Open Banking solutions for international transactions.
- Utilize qualitative methods, such as thematic analysis, to identify concerns and potential barriers related to privacy and data security in cross-border payments.

5. Evaluate the Role of Open Banking in Financial Inclusion:

- Conduct surveys and interviews to explore how Open Banking contributes to financial inclusion in the context of cross-border transactions.
- Use demographic data to analyse the accessibility of Open Banking solutions for individuals in diverse geographic locations and economic strata.
- Explore user perceptions and experiences regarding the accessibility of cross-border payment services facilitated by Open Banking for underserved populations.

6. Investigate Innovation and Competition in Financial Services:

- Employ a mixed-methods approach, including surveys, interviews, and market analysis, to assess the degree of innovation introduced by Open Banking in cross-border financial services.
- Utilize competitive landscape analysis to explore the dynamic among financial service providers and fintech companies in the context of Open Banking.
- Employ open-ended questions to gather qualitative insights into user perceptions of new and innovative financial products or services facilitated by Open Banking.

7. Understand Regulatory and Policy Implications:

- Conduct a comprehensive review of regulatory frameworks governing Open Banking and cross-border payments in different jurisdictions.
- Use surveys and interviews to gather insights into how regulatory policies influence the adoption and implementation of Open Banking solutions.
- Explore participants' perspectives on the role of regulatory bodies in ensuring the security and fairness of cross-border transactions facilitated by Open Banking.

8. Examine the Impact of Technological Advancements on Cross-Border Payments:

- Employ a combination of literature review and interviews with experts to investigate the alignment of Open Banking with emerging technologies, such as blockchain and digital currencies.
- Use case studies and scenario analysis to explore how technological innovations influence the security, efficiency, and accessibility of cross-border payments facilitated by Open Banking.

9. Provide Recommendations for Improvement:

- Synthesize findings from all research objectives to offer practical recommendations for enhancing cross-border payments through Open Banking.
- Draw on a comparative analysis of user satisfaction, economic implications, security considerations, and regulatory frameworks to propose specific suggestions for improvement.
- Provide actionable recommendations for regulatory bodies, financial institutions, and technology providers to optimize the benefits of Open Banking in the context of international transactions.

These elaborations provide a more detailed overview of the methodologies and approaches that can be applied to achieve each research objective and contribute to a comprehensive understanding of the intersection between Open Banking and cross-border payments.

1.7. NEED FOR THE STUDY

Goals of the Study:

The primary goals of the study on "Enhancing Cross-Border Payments: Open Banking" are:

1. Comprehensive Understanding: To gain a comprehensive understanding of the current landscape of cross-border payments, identifying challenges faced by users and exploring the potential impact of Open Banking in addressing these challenges.

2. User-Centric Insights: To gather user-centric insights, examining user satisfaction, preferences, and economic behaviours in cross-border transactions, with a specific focus on the role of Open Banking.

3. Evaluate Open Banking Impact: To assess the impact of Open Banking on cross-border payments, including its influence on efficiency, transparency, security, and financial inclusion.

4. Inform Recommendations: To provide practical and actionable recommendations for improving cross-border payments through the integration of Open Banking, considering user needs, economic implications, regulatory factors, and technological advancements.

1.8. SCOPE OF THE STUDY

The scope of the study on "Enhancing Cross-Border Payments: Open Banking" encompasses a range of dimensions, including the participants involved, geographical coverage, and the specific aspects of cross-border payments and Open Banking under investigation. Here is an elaboration of the scope:

1. Participants:

- The study will involve individuals engaged in cross-border payments.
- Participants will be drawn from diverse demographic backgrounds, ensuring a comprehensive understanding of user experiences and preferences.

2. Geographic Coverage:

- The geographic scope of the study will be global, considering participants from various regions to capture a broad range of cross-border payment scenarios.
- The study will take into account the regulatory and economic differences across countries and regions, providing a nuanced analysis of the impact of Open Banking on cross-border payments in different contexts.

3. Cross-Border Payment Aspects:

- The study will focus on various aspects of cross-border payments, including transaction speed, cost-effectiveness, reliability, transparency, and user satisfaction.
- Different modes of cross-border payments, such as remittances, international business transactions, and personal transfers, will be considered to provide a holistic view.

4. Open Banking Aspects:

- The study will explore the awareness, understanding, and usage patterns of Open Banking solutions among participants.
- Specific emphasis will be placed on evaluating how Open Banking influences the efficiency, security, and innovation in the context of cross-border payments.

5. Economic Behaviours:

- Economic behaviours related to cross-border transactions, such as spending patterns, investment decisions, and saving habits, will be explored within the context of Open Banking.

- The study aims to understand how Open Banking contributes to or influences economic decisions at an individual and business level in the realm of cross-border payments.

6. Security and Trust:

- Security and trust considerations in cross-border transactions facilitated by Open Banking will be a focal point of the study.

- Participants' perceptions of data security, privacy, and trust in Open Banking solutions for international transactions will be analysed.

7. Financial Inclusion:

- The study will investigate how Open Banking contributes to financial inclusion in the context of cross-border payments.

- It will explore the accessibility of Open Banking solutions for individuals in diverse geographic locations and economic strata, with a focus on underserved populations.

8. Regulatory and Policy Implications:

- The research will delve into the regulatory frameworks governing Open Banking and cross-border payments in different jurisdictions.

- It will analyze how regulatory policies impact the adoption and implementation of Open Banking solutions, providing insights into the regulatory landscape.

9. Technological Advancements:

- The study will explore the alignment of Open Banking with emerging technologies, such as blockchain and digital currencies, in the realm of cross-border payments.

- Technological advancements and their potential impact on the security, efficiency, and accessibility of cross-border payments facilitated by Open Banking will be investigated.

10. Recommendations for Improvement:

- The study will conclude by providing practical and actionable recommendations for enhancing cross-border payments through the integration of Open Banking.

- Recommendations will be tailored to regulatory bodies, financial institutions, and technology providers, considering user needs, economic implications, regulatory constraints, and technological possibilities.

In summary, the scope of the study is comprehensive, aiming to capture a global perspective on cross-border payments, evaluate the impact of Open Banking on various dimensions, and provide insights that can inform improvements in the efficiency, accessibility, and user satisfaction of cross-border payment systems.

CHAPTER 2

REVIEW OF LITERATURE

2.1. REVIEW OF LITERATURE

Multi-CBDC arrangements and the future of cross-border payments

R Auer, P Haene, H Holden - BIS papers, 2021

Cross-border payments are inefficient, and technology could play a role in making them better. One means could be through interoperating central bank digital currencies (CBDCs), forming multi-CBDC (mCBDC) arrangements. This paper explores dimensions of payment system interoperability, how they could feature in mCBDC arrangements and where potential benefits lie. These benefits are especially relevant for emerging market economies poorly served by the existing correspondent banking arrangements. Yet competing priorities and history show that these benefits will be difficult to achieve unless central banks incorporate cross-border considerations in their CBDC development from the start and coordinate internationally to avoid the mistakes of the past.

Towards the holy grail of cross-border payments

U Bindseil, G Pantelopoulos - 2022

The holy grail of cross-border payments is a solution allowing cross-border payments to be immediate, cheap, universal, and settled in a secure settlement medium. The search for such a solution is as old as international commerce and the implied need to pay. This paper describes current visions how to eventually find this holy grail within the next decade, namely through (i) modernized correspondent banking; (ii) emerging cross-border FinTech solutions; (iii) Bitcoin; (iv) global stablecoins; (v) interlinked instant payment systems with FX conversion layer; (vi) interlinked CBDC with FX conversion layer. For each, settlement mechanics are explained, and an assessment is provided on its potential to be the holy grail of cross-border payments. Several solutions are suitable for improving cross-border payments significantly, and some could even be the holy grail.

Innovations in payments

ML Bech, J Hancock - BIS Quarterly Review, March, 2020

Technological innovation is transforming payments. Domestic payments are increasingly convenient, instantaneous and available 24/7. However, shortcomings in access to payments and cross-border payments remain. Lack of access to payments is a problem in some emerging market and developing economies. Improving cross-border payments will require international coordination. Initiatives to improve cross-border payments would benefit from better data to quantify both the extent and the drivers of the problems.

On-Chain Foreign Exchange and Cross-Border Payments

A Adams, MC Lader, G Liao, D Puth - April, 2023

This paper studies the use of distributed ledger technologies in the trading and settlement of foreign exchange (FX) on public blockchains as well as use cases in international payments. We compare the traditional trading and settlement of FX with blockchain-based implementations using payment stablecoins and automated market making protocols. Using public blockchain data, we quantify the liquidity, stability, and transaction costs of on-chain FX transactions in early adoption. We find consistency between on-chain FX exchange rate and those observed through traditional trading venues and stable on-chain liquidity throughout all times of the day and weekends. Our estimates suggest that on-chain FX can reduce the cost of remittance by as much as 80 percent. We also discuss potential opportunities for financial inclusion, applications in small and medium-sized enterprises and corporate contexts, as well as barriers to further adoption and relevant policy considerations.

Application analysis on blockchain technology in cross-border payment **Q Deng - 5th International Conference on Financial Innovation – 2020**

Blockchain, as a new technology with decentralization, immutability and traceability, not only solves some of the pain points of traditional industries, but also promotes business model transformation and reshapes trust. At present, the scale of cross-border payments is increasing. However, there are many shortcomings in traditional cross-border trade, and technological breakthroughs are urgently needed. Blockchain technology has a natural match with cross-border payments and can solve the existing problems. Based on the summary of the cross-border payment models and their shortcomings, this paper analyses the application modes and advantages of cross-border payment based on blockchain technology, then further proposes the application of blockchain technology to cross-border payment constraints.

Cross Border Payments

M Reed-Woodard - Network Journal, 2018

As emerging markets continue to drive global business growth over the next few decades, cross-border transactions will continue to be critical to the burgeoning global economy. The value of cross-border transactions is projected to triple, according to the 2017 Pay Commerce UAE Cross-Border Payment Transaction Report. Despite this growth and opportunity, cross-border transactions often are challenging for merchants and consumers. Transactions commonly facilitated by international financial institutions on behalf of merchants and consumers can be lengthy, costly, obscure and uncertain. Moreover, the

pervasiveness of cybercrimes - fraud, money laundering and theft - also presents serious impediments to engaging in global trade and conducting cross-border transactions.

"Safe and efficient cross-border payments are vital for growth and financial inclusion," states Benoit Coeure, chairman of the Committee on Payments and Market Infrastructure in its 2018 industry report. CPMI, the global standard setter for payment, clearing and settlement services, concludes that there is room to improve the framework for cross-border payments.

The Ripple Transaction Protocol (RTXP) - or Ripple Net - with its cryptocurrency medium or digital token, XRP, is providing that improvement. "There's no denying it - sending cross-border payments in emerging markets is disproportionately costly and slow. #RippleNet enables customers in these countries to make cost-efficient and speedy payments," tweeted Patrick Griffin, senior vice president of strategic growth for Ripple Labs (Ripple), the parent company of RTXP and XRP.

Like its better-known cryptocurrency cousin Bitcoin, RippleNet is a real-time, gross-settlement system that uses a digital-based consensus process managed by a network of validating servers that constantly compare a common ledger of transaction records to approve XRP value and ensure transaction integrity. Validating servers are operated by independent banks, money makers and varied institutions such as WorldLink, @Tokyo, Microsoft and Massachusetts Institute of Technology, to name a few.

DLT-based enhancement of cross-border payment efficiency—a legal and regulatory perspective

DA Zetsche, L Anker-Sørensen - Law and Financial, 2021

Financial law and regulation have, to date, assumed that regulated activities and functions are concentrated in a single legal entity responsible and accountable for operations and compliance. Even with regard to financial market infrastructure where the regulatory perspective acknowledges the need for interoperability of many entities as a system, each entity is subject to its own rules and regulations, and can thus meet its own compliance requirements independent of other system participants. The entity-focused regulatory paradigm is under pressure in the world of DLT-based payment arrangements where some ledgers, and thus the performance of the services as such, are distributed. DLT arrangements could provide an alternative to the traditional reliance on a mutually trusted central entity to transfer funds and enable the creation of new foundational infrastructures by distributing technical functions or linking existing systems. As such, we identify and outline concepts for use cases where DLT is potentially improving the efficiency of cross-border payments, namely a Best Execution DLT, a DLT application for a Network of Central Banks, a DLT as an AML/KYC utility, as well as DLT arrangements for an Identity Platform, a Small Payments Platform and, finally, an Interoperability Platform connecting multiple closed-loop and proprietary banking systems. Despite the wide-ranging interest in DLT-based payment systems, research so far has focused on technical concepts and lacked legal details. This article seeks to fill this gap by providing an initial analysis of the legal

challenges related to DLT-based payment systems. From a legal perspective, the distribution of functions in DLTs comes with new risks created from the joint performance of services and functions as main characteristic of a distributed ledger, and the need for additional agreements, ongoing coordination across, and governance arrangements among the nodes. Further, in a cross-border context, multiple regulators and courts of various countries (asking for compliance with their own set of rules and regular reporting) will be involved.

Open banking in Europe: the effect of the revised payment services directive on Solarisbank and Insha

Z Nanaeva, AF Aysan, NS Shirazi - Journal of Payments, 2021

The concept of open banking is gaining global recognition for helping to integrate innovative financial service providers into a sustainable financial ecosystem. This paper discusses open banking, including its core building blocks, prospects and challenges. Given the European Union's pioneering role in adopting open banking regulations, the paper also reviews the revised Payment Services Directive (PSD2) and its role in advancing fast payment systems in Europe. The paper goes on to consider the practical implications of the PSD2 in Germany through case studies of the banking-as-a-service platform, Solarisbank, and the Islamic digital bank, Insha. Finally, the paper sheds light on the benefits of open banking for ecosystem stakeholders, including fast payment system providers, and how they can benefit from the introduction of open banking regulations.

Improving Global Financial Inclusion: Implementing Open and Standardised API for Cross-Border Payments

A Nugroho, SH Supangkat – 2023

Financial exclusion remains one of the main challenges to eradicating poverty and enabling income equality worldwide. The G20 has shown support for new technologies in the financial domain, and in October 2020 introduced a roadmap to enhance cross-border payments and address challenges in the market. Interoperability between systems is now enabled via the advance development of application programming interfaces (APIs) within payment systems. Open and harmonised APIs have allowed network-neutral and cross-technology platforms to carry out financial data exchange while tackling system sustainability issues by providing them a single, standardised set of APIs rather than customised APIs. Through open and harmonised APIs, improved and expanded financial services can be offered to the public. These financial services could enable a higher level of financial inclusion globally, thus reducing the digital access gap within and between countries.

Open banking: The rise of the cloud platform

GSD Farrow - Journal of payments strategy & systems, 2020

This paper explores how traditional banking system architectures will be affected by the emergence of open banking. Platform models for open banking are proposed that accommodate both supply and demand-side solutions. On the demand side, the network effects of open banking platforms and their limitations are discussed. Using a feedback model of platform behaviour, it is suggested that the long-term success of open banking can be directly coupled to the emergence of such platforms and their regulatory scope. To inform the architectures to support open banking, the unique transactional characteristics of open banking solutions are determined. The essential role of cloud technologies in meeting these characteristics and hence the propensity for their use in the implementation of open banking platforms is illustrated. Specific types of open banking platforms are then described in terms of their essential architectural components and collaborations. The benefits to account servicing payment service providers and to third-party providers in adopting such open banking platforms are highlighted.

Open banking: Regulatory challenges for a new form of financial intermediation in a data-driven world

N Remolina – 2019

Data has taken immense importance in the last years. Consider the amount of data that is being collected worldwide every day, industries are reshaping their activities into a data-driven business. The digital transformation of all industries, portent of the fourth industrial revolution, is creating a new kind of economy based on the datafication of almost any aspect of human social, political and economic activity as a result of the information generated by the numerous daily routines of digitally connected individuals and technology. The financial services industry is part of this trend. Embracing the digital revolution and creating the right foundations allow incumbent financial institutions to disrupt their own business model. Hence, financial institutions are creating new businesses within their existing structures that adapt and collaborate to meet the challenges of digital transformation and make better use, faster, of their enduring source of competitive advantage – their own customer insight. Open banking and banking as a service (BaaS) are emerging as new forms of intermediation in the financial system that portrays positive and negative externalities for the financial system. Both concepts – open banking and BaaS – refer to the use of open Application Programming Interfaces that enable third parties to build applications and services around a financial institution that exposes its data and/or its infrastructure. The use of these schemes represents a new form of intersection between data and finance, which is changing the way traditional products, services and customer experience traditionally work in the financial sector. This paper explains the open banking and BaaS foundations and what they exactly entail. It also explores the benefits and risks that this interaction between financial institutions and third party's portrait for the financial services industry and analyses from a comparative perspective the different approaches financial, data privacy and competition regulators have implemented to boost open banking phenom. This paper argues that the compulsory approach to open banking is not in all cases the best approach for capitalizing the benefits of open banking and managing its risks. Indeed, some regulators have proposed a compulsory approach to open banking regulations to increase competition in retail banking or in the payment systems. In opposition, this paper argues that open banking and BaaS

models in the financial industry might lead to more concentration and these risks have been understated by financial regulators and competition authorities. Finally, we provide some policy recommendations regarding open banking regulations, such as: the same regulatory approach should not apply to all jurisdictions, regulators should encourage reciprocity, especially when choosing the compulsory approach, coordination among different regulatory authorities is needed on a national and international levels, risk-based regulation is a correct type of approach, and monetization of data should not be restricted for incumbents.

How Open Banking and Payment Touchpoints Will Save Banks BA Maj - The PayTech Book: The Payment Technology ..., 2019

Under open banking, banks are obliged to grant access to bank account data through open application programming interfaces for non-banks registered as third-party providers. Small and medium enterprises (SMEs) want tools to help them run better businesses, and this can be obtained from platform banking providers. Platform banking provides a marketplace where SMEs can build more relations with potential partners and clients. Payments are a core component of the SME open banking proposition. In addition, large corporate clients want a seamless multi-banking experience, with payments and treasury services integrated into the background. Commercial banks serving SMEs or merchants are rapidly grasping the opportunities of open banking. Payments are at the heart of the banking ecosystem. That is why payment solutions built and integrated by banks in the frame of open banking platforms, including account-to-account payments, are emerging across the marketplace.

Open banking and digital transformation in Italy: The current situation and the challenges ahead L Fratini Passi - Journal of Payments Strategy & Systems, 2022

This paper discusses the results of the Global Open Banking Report, released by CBI and PricewaterhouseCoopers in December 2021. Starting with a brief review of the current state of open banking at the global level, the paper switches focus to the European scenario and on the Italian market in particular, highlighting the disruptive nature of open banking, and its potential for significant growth. The study finds that although open banking is still in a development phase in Italy, banks and other players are constantly exploring collaborative initiatives and investing in innovative services that go beyond the traditional banking sector, marking a transition from open banking towards open finance.

Innovation in open banking: Lessons from the recent wave of payment institutions that have been authorised to provide payment initiation and account information services F Bär, I Mortimer-Schutts - ... of payments strategy & systems, 2020

The Revised Payment Services Directive (PSD2) came into force in all EU member states in 2018. One stated aim of this legislation was to create room for innovations in technology

and business models in order to give account holders more choices and more direct control regarding access to their account information and ways of initiating payment transactions. Although an evolving array of new services and service providers has emerged over the past few years, the market remains in an early phase of experimentation. Nevertheless, information about the range of newly licensed service providers in the EU, and their business models, provides some insights into how the market is evolving and how it is reacting to recent regulatory and market infrastructure changes introduced through the PSD2 and open banking architecture. This paper reviews the population of payment institutions that have recently obtained authorisation to provide payment initiation or account information services in the EEA. It examines the (1) geographic reach, (2) company origins and investors, and (3) business function of these new actors to provide early insights into the changing economics of banking and payments.

The future of correspondent banking cross border payments

B Casu, R Wandhöfer – 2018

This paper explores whether and how technological innovation, in conjunction with policy measures, can improve the process of correspondent banking cross-border payments. The paper builds on the empirical validation of existing shortcomings in this area of business by using a questionnaire and industry expert focus group sessions. Having identified the key areas of concern (e.g. cost, transparency, speed), several new network models for cross-border payments are assessed, in terms of their ability to address existing problems. Among the possible models, we also explore the use of innovative technologies such as distributed ledger technology (DLT). As a final step, we evaluate the different models and complement our findings with policy recommendations, in particular with a view to further streamlining Anti-Money-Laundering (AML) and Counter-Terrorist-Financing (CTF) as well as conduct of business rules in payments and supporting information sharing on suspicious transactions between institutions globally.

International payments: Current alternatives and their drivers

U Milkau - Journal of Payments Strategy & Systems, 2019

As the traditional correspondent banking network is shrinking and becoming more concentrated due to increasing regulatory requirements, new alternatives for international payments have emerged in recent years. On the one side, there are payment platforms such as AliPay, PayPal and AribaPay; on the other, there are token-based solutions such as Bitcoin. Announced in June 2019, Facebook's Libra initiative represents a culmination of these novel approaches. This paper will review the current alternatives for international payments and the drivers behind these developments. The paper adopts a taxonomy to characterise money in the digital age and extends this in order to compare the different solutions. Three main dimensions can be applied to distinguish the concepts: tokens versus accounts; proprietary/closed-loop versus interoperable; and settlement-based versus messages between local pools. While no current alternative could completely replace the existing system for the time being, close monitoring of the way forward and more research will be needed to derive more insight into this complex challenge.

Fintech, Chain Transactions and Open Banking

Valerio Lemma, 26 April 2020

This chapter shows that networks widely distribute both big data and fintech applications, allowing fintech firms to execute their activities all around the world. Furthermore, the unbundling of the intermediation process into chains of transactions is leading banking and financial activities outside the scope of supervision. Thus, this chapter investigates the reason fintech applications do not appear to be regulatory-neutral. It also investigates the 'acts of fintech' and the responsibility of individuals in developing network of operations and concludes by assessing the current need for transparency, with regard to both the circulation of financial information in the market and the mitigation of the bargaining power in bilateral transactions.

The Adoption of Open Banking Concept to Regulate Arab Countries Digital Payment SMA Shaltout - Journal of Law and Emerging Technologies, 2023

The emergence of fintech has disrupted the traditional banking landscape, challenging the notion that banks are the sole providers of financial services. In the past, entrepreneurs were often seen as disruptors to traditional banking models. However, banks have now recognized the value of collaborating with fintech companies to expand the range and accessibility of financial products and services for customers. The payment industry has become a focal point for banks and fintech startups, with the proliferation of new payment options, such as mobile payments.

By leveraging fintech advancements, banks can offer diverse payment solutions to customers without having to develop them in-house. This study examines the current regulatory landscape of payment systems, identifies existing payment governance practices, and proposes recommendations to enhance the digital payment environment in Arab countries while addressing significant regulatory concerns.

Understanding the evolving relationship between banks and fintech firms, as well as the regulatory considerations surrounding digital payments, is crucial for industry participants, policymakers, and regulators. By exploring these topics, this study aims to provide valuable insights and guidance for navigating the changing payment landscape effectively and fostering a robust digital payment ecosystem in Arab countries.

Through this examination, the study intends to contribute valuable guidance for Arab countries in developing a robust and regulated digital payment ecosystem, fostering financial inclusion, and promoting innovation in the region.

Instant payments in Asia are changing business models

S Pairman, W Sanggita - Journal of Digital Banking, 2021

The work of instant payments has just begun. This paper aims to inform the reader of how the Asian marketplace is leading as the world moves to instantaneous payments, enabling real-time commerce. Digitisation is creating a technologically interconnected society that

treasures immediacy, and payments are integral to this. Immediacy is not only a question of speed; it implies simplicity, ease, convenience and transparency. Across the Asia-Pacific, real-time domestic electronic payment schemes offer instant payments 24/7/365. These occur within seconds, provide immediate confirmation to payer and payee and are irrevocable. New payments models like instant payments foster new ways of doing business. They support an open banking environment that accelerates innovation to create a more cohesive, customer-centric experience, heightening connections between merchants and consumers as well as businesses and their supplier ecosystems. The unprecedented level of interconnectivity enabled by application programming interfaces (APIs) in an open banking environment, combined with instant payments, will enable banks to unleash vast troves of information related to payment flows. There is a massive opportunity for growth in domestic and cross-border markets. Companies readily will adopt instant payments where there is a compelling case for improving business.

Adoption of global market practice for payments will pave the road to a successful global migration to ISO 20022

SMA Shaltout - Journal of Law and Emerging Technologies, 2023

The emergence of fintech has disrupted the traditional banking landscape, challenging the notion that banks are the sole providers of financial services. In the past, entrepreneurs were often seen as disruptors to traditional banking models. However, banks have now recognized the value of collaborating with fintech companies to expand the range and accessibility of financial products and services for customers. The payment industry has become a focal point for banks and fintech startups, with the proliferation of new payment options, such as mobile payments.

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Open Banking: A New Era in Banking

N Iman, SS Nugroho, E Junarsin... - International Journal of ..., 2023

The shift towards Open Banking is gathering pace all around the world. As the benefits become more widely understood by consumers, businesses and regulators, Open

Banking is bringing disruption to the financial services sector on a scale not seen before. Open banking is an emerging trend in the financial services industry that is opening the door for third party providers (TPPs) to offer a wide variety of new services – and it is poised to change the traditional retail banking model. Using open banking, financial institutions can securely provide other financial institutions and TPPs with seamless access to, and communication with, customer data through a standards-based technology called open Application Programming Interfaces (APIs). Open Banking API is the key to the framework and offers tremendous benefits to independent companies and developers. APIs allow access to data without the need to store and manage the data themselves. They also help safeguard data from misuse and provide a certain level of security. The article identifies three key dimensions of Open Banking and potential Open Banking enabled offers for clients.

Open banking: Towards platform and modular banking
Y Moysan, M Rudnicki - Journal of Digital Banking, 2019

PSD2, the second Payment Services Directive, is progressively affecting the European banking sector, creating a favourable environment for a more ambitious open banking system. This major change driver encourages the potential of open banking in the European Union. Banking data is becoming available to third-party players, such as FinTech start-ups or big tech companies. Open banking is both a threat and an opportunity for traditional actors. It will structurally and durably affect the banking sector, favouring new kinds of partnerships and ecosystems. This paper aims to help the reader to: understand the fundamental drivers of the structural change brought about by open banking; have a better vision of how application programming interfaces (APIs) can be used in a competitive market; identify the strategies banks can use to adapt to this new environment; appreciate how the emergence of new entrants is favoured

The API economy and digital transformation in financial services: The case of open banking
M Zachariadis, P Ozcan – 2017

In this paper we seek to do two things. Firstly, by exploring the fundamental properties and various applications of open application programming interfaces (APIs) mentioned in extant literature, we articulate what are the relevant theories that give rise to the new organisational structures and platform business models we observe in the digital age. Understanding such phenomena will help us anticipate, and in some ways predict, the implications of public APIs' adoption in the financial services sector. The second part of our paper exposes some of our findings around the key challenges and opportunities that open APIs pose for the banking

sector in the UK and the EU following the introduction of the Open Banking Working Group (OBWG) and Second Payments Services Directive (PSD2) regulatory frameworks. Our insights were produced from extensive field research and interviews with key industry experts between July 2016 and February 2017. Our use of theory helps us translate these findings and provide recommendations for financial institutions, FinTech startups, technology companies, and regulators. We hope to help them prepare for some of the key changes and issues that the financial sector may be facing in the next few years as the use of open APIs becomes more 'mainstream'.

Implementation of open banking protocols around the world

T Ziegler - The Palgrave Handbook of Technological Finance, 2021

Open Banking seeks to increase competition and customer choice, disrupting the incumbent banking sector and empowering individual and business consumers to own and dictate the use of their financial data. By utilizing technology to rebalance markets in favour of consumers, such initiatives allow customers to securely share their data to third party providers (TPPs).

Open Banking has captured the attention of regulators globally, with many countries exploring how such programmes might be pursued. Implementation must be measured against the existing statutory objectives and mandates of the regulating body tasked with an Open Banking intervention; namely Competition, Market Integrity, and Consumer Protection objectives. Challenges that arise in implementation include setting key technical and user standards; determining minimally viable operational guidelines; deciding upon which authorized entities can participate; ensuring consumer protection and dispute resolution; and effective monitoring of new API protocols. In this chapter, I explore international Open Banking initiatives and implementations occurring in such jurisdictions as the UK, Australia, Hong Kong, Singapore, Brazil, and Mexico.

Open Banking: Evolving Global Landscape and Opportunities for Sustainable Growth

AA Khan - International Journal of Research in Engineering ..., 2022

Fierce competition, increasing customer expectations, advancements in technology and changing regulatory landscape are forcing traditional banks to consider new ways to reduce costs, increase revenue, and ensure sustainable growth. Open banking has allowed the traditional banks to offer a wider range of products through sharing of data with third-party applications, on a secure basis with the consent of customers. Banks that are likely to thrive in the open data economy will be those that are able to aggregate data, extract actionable insights from it, and use it to offer superior customer experiences. 'Open Banking' may be further extended to 'Open Finance', which will enable data to be exchanged between a wide range of financial institutions to create a more comprehensive and accurate assessment of risk of an individual.

Regulatory Aspects of Open Banking: The Experience thus Far 42

H Natarajan - European Economy, 2022

Considered one of the milestones of the second European Payment Services Directive, the concept of open banking has, indeed, brought a novelty to the financial scenario. The idea of opening up access to consumers' banking information to third parties - so far, the prerogative of the banks – certainly has a revolutionary scope. A few years after that moment, it is perhaps worth asking whether open banking actually brought that long-awaited revolution to the financial system.

Questioning its limits, analysing its criticalities, and keeping open banking at the core of the political and regulatory debate can help to overcome these limitations and move it towards the broader concept of open finance, a concept that will see the forthcoming Payment Services Directive as the regulatory vehicle on which the European institutions will focus their activity. Open banking seems to suffer, today, from an inefficient implementation, incapable of exploiting its potential: the expectations associated with the emergence of genuinely new subjects, and truly bearers of value-added services, do not seem to have been fully met. However, the new challenges of geopolitics and the legislative innovations that the European Union is working on, from the digital euro to Instant Payments, could mark the turning point towards a truly effective open banking, capable of bringing innovation and competitiveness, and thus, of repopulating the FinTech world with new players.

Open banking: Emergent roles, risks & opportunities

D Gozman, J Hedman, KS Olsen – 2018

The phenomenon of financialization has received increasing attention, especially following the global financial crisis. We broaden the scope of research on financialization by investigating Open Banking initiatives. Such initiatives aim to enhance the banks' ability to personalise customer experiences. Consumers and businesses can now easily share their data with banks and third parties to manage personal accounts and compare banking services. Such initiatives raise important questions regarding the future role of banks as well challenges and opportunities inherent in the new Open Banking landscape. We empirically investigate five Open Banking initiatives through twenty-five interviews conducted with users of Open Banking APIs as well as those managing the various initiatives. From these interviews, we develop a taxonomy and identify four open banking roles: integrator, producer, distributor, and platform. A further contribution is made by identifying related challenges and opportunities faced by fintechs and incumbents in the shifting landscape of retail banking. The challenges identified include risk of disintermediation, loss of reputation and transformational failure while the opportunities identified

tified include enhanced service innovation and risk mitigation. Overall, the study provides first insights into how the retail banking industry

Unauthorized Transactions and Unintended Transactions in Open Banking **J Wang, D Deng - 6th Annual International Conference on Social ..., 2021**

Open Banking allows for faster data flow data to flow faster and more widely. At the same time, a variety of risks have emerged as a result. This paper examines two major types of risk: unauthorized transactions and unintended transactions, both of which take place when consumers provide authorization for and confirm transactions. Although many safeguards have been adopted to ensure the safety of a transaction, existing surveys show that the effectiveness of these safeguards is not satisfactory. Through theoretical analysis and experimental report, this paper will demonstrate an important concept called “predictable irrationality”, explaining why the problem is still unresolved despite the presence of a large number of protective safeguards. Irrationality exposes consumers to greater risks, especially in the context of open banking; it makes consumers unable to fully realize the consequences of their authorizations, which potentially leads to the occurrence of unintended transactions. To reduce this risk, this paper first puts forward suggestions for all aspects of authorization. However, considering that procedural suggestions alone cannot effectively address this risk, this paper also puts forward suggestions for the current legislative model as well. It is the hope that more effective safeguards can be adopted at the authorization stage and a more reasonable loss allocation principle can be applied after loss happens to reduce the two major types of risk and protect the interests of customers.

Cross-border cooperation in financial regulation: crossing the Fintech bridge **L Bromberg, A Godwin, I Ramsay - Capital Markets Law Journal, 2018**

Fintech, which refers to the use of technology in providing financial services, is an increasingly important phenomenon in the financial services sector.¹ Fintech provides both economic benefits (via increased competition, efficiency and innovation) and opportunities for increasing levels of financial inclusion. However, it also comes with risks. These risks can affect individual users of new Fintech offerings or schemes that are fraudulent or susceptible to cyber-attacks. Importantly, the rapid rise of Fintech may also affect broader financial and economic systems.²

The balancing act involved for governments and regulators in developing appropriate regulatory responses to Fintech innovation requires the weighing-up of the potential benefits of innovation with the risks to consumers, investors and the broader financial systems. It also involves a reconsideration of financial regulatory regimes that have traditionally been focused on financial institutions such as banks.

Fintech requires cross-border regulatory cooperation because of the globalization of markets and the disruptive nature of Fintech businesses. Following the Global Financial Crisis (GFC), financial regulators have been required to address a broader set of regulatory

objectives and policy priorities, within an expanded regulatory perimeter and an increasingly complex technological landscape.⁴ Other legal and regulatory issues include privacy, data protection, cyber security, digital disclosure, money laundering and financial crime. Addressing these issues is particularly important in the developing world, including in Asia, where Fintech growth has recently been most rapid⁵ and where the Fintech industry is becoming a central feature of financial market development.⁶ In an environment of rapidly evolving, technologically complex and disintermediated financial services markets, financial regulators face significant challenges in designing appropriate regulatory regimes governing Fintech and achieving cross-border regulatory coordination.

Open banking and the rise of FinTech: Innovative finance and functional regulation **CC Nicholls - Banking & finance law review, 2019**

Technological innovation is transforming industries. Banking is no exception. The rise of firms applying innovative technology to the delivery of financial services (“FinTech”) has attracted the attention of governments and financial regulators around the world. ² Regulators have recognized the need to balance the potential economic gains offered by FinTech against the risks of inadequate or poorly-informed regulation. Many have taken proactive steps to educate themselves about the capabilities and implications of innovation in the financial sector and to avoid unduly burdensome regulation that might place their jurisdictions at a competitive disadvantage. Those opportunities are exploited through new banking paradigms that entail higher levels of openness towards third parties and a crescent number of modular services bundled together. Models can go to mere compliance with the prescriptions of openness of PSD2, to the inclusion of new services, the opening of the banking core and data, and the aggregation of those within a platform experience. Value is created in platforms through economies of scope in production and innovation. This paper has explored the evolution of Fintech and Techfin in the market and the emergence of platform models in banking. It has investigated the evolution of that concept, also introducing an interesting banking case (BBVA), which gives several insights on the choices made toward a Banking-as-a-Platform model within the context of Fintech and Open Banking.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. RESEARCH METHODOLOGY

Designing a research methodology involves outlining the plan for how you will conduct your study, gather data, and analyse it to address your research objectives.

3.2. RESEARCH DESIGN

- Type: This study will adopt a quantitative research design.
- Approach: Cross-sectional design for a snapshot of the current state of cross-border payments with Open Banking.

3.3. HYPOTHESIS:

- Hypotheses 1:

- Null Hypothesis (H0): There is no significant difference in the efficiency of cross-border payments between traditional methods and those facilitated by Open Banking.
- Alternative Hypothesis (H1): Cross-border payments through Open Banking are more efficient than traditional methods.

- Hypotheses 2:

- Null Hypothesis (H0): User satisfaction and preferences are not significantly influenced by the use of Open Banking in cross-border transactions.
- *Alternative Hypothesis (H1): Users express higher satisfaction and preferences in cross-border payments facilitated by Open Banking.

3.4. POPULATION AND SAMPLING:

- Population: Users engaged in cross-border payments globally.
- Sampling Technique: Convenience sampling due to limited resources for a mini-project.
- Sample Size: 101 Respondents

3.5. DATA COLLECTION:

- Primary Data:

- Conduct surveys or questionnaires to collect quantitative data on user satisfaction, preferences, and efficiency metrics.

- Include questions related to demographics, transaction experiences, and perceptions of Open Banking.

- **Secondary Data:**

- Review existing literature, reports, and regulatory documents for insights into regulatory implications and efficiency metrics.

3.6. DATA ANALYSIS

- Quantitative Analysis:

- Utilize statistical tools (e.g., SPSS) for quantitative data analysis.
 - Conduct descriptive statistics, Independent Sample T – test & Regression analysis, and hypothesis testing to address research objectives.

3.7. ETHICAL CONSIDERATION

- Ensure informed consent for participants.
- Protect participant privacy and confidentiality.
- Adhere to ethical guidelines in survey design and data handling.

3.8. LIMITATION

- Acknowledge potential limitations such as sample size constraints, generalizability, and the dynamic nature of regulatory environments.

3.9. CONCLUSION

- Summarize the key components of the research methodology, emphasizing the chosen design, objectives, hypotheses, and data collection methods.

This research methodology provides a structured framework for conducting a quantitative study on the impact of Open Banking on cross-border payments. Adjustments may be needed based on the specific context, available resources, and any unique aspects of your study.

3.10. TOOLS FOR ANALYSIS:

Questionnaire was created in order to receive the necessary response required from the sample to achieve the research objective. The tools used for this are

3.10.1. PERCENTAGE ANALYSIS

Research questions are always answered with a descriptive statistic: generally,

either percentage or mean. Percentage is appropriate when it is important to know how many of the participants gave a particular answer. Generally, percentage is reported when the responses have discrete categories.

3.10.2. ANALYTICAL TOOLS (SPSS)

Tool for testing the Hypothesis (SPSS)

Independent Samples t-test:

Application: This test is appropriate when you want to compare the means of two independent groups. For example, you might use an independent samples t-test to assess if there are significant differences in satisfaction levels between individuals who have used Open Banking for cross-border transactions and those who have not.

Benefits: It helps identify whether there is a statistically significant difference in means, providing insights into potential variations between user groups.

Regression Analysis:

Application: Multiple regression is useful when you want to understand the relationship between a dependent variable and two or more independent variables. In the context of this research, you could use multiple regression to explore how various factors (e.g., Open Banking awareness, demographic variables) collectively impact a dependent variable like overall satisfaction with cross-border payments.

Benefits: It allows you to assess the unique contribution of each independent variable while controlling for the effects of others, providing a more nuanced understanding of the factors influencing the dependent variable.

These tests offer flexibility in exploring relationships between variables, making them suitable for examining the impact of Open Banking on cross-border payment experiences and understanding the nuanced factors at play. Keep in mind that the choice of tests should align with your specific research questions and the characteristics of your data. Consulting with a statistician or data analysis expert is recommended for precise guidance based on your study design.

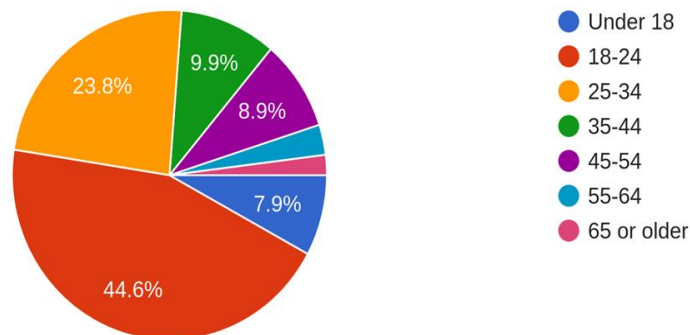
CHAPTER 4 DATA ANALYSIS AND INTERPRETATION

4.1. PERCENTAGE ANALYSIS

4.1.1 Table indicating the age of the respondents.

S. No	Age	No.of respondents	Percentage analysis
1	Under 18	8	7.9
2	18-24	45	44.6
3	25-34	24	23.8
4	35-44	10	9.9
5	45-54	9	8.9
6	55-64	3	3
7	64 or older	2	2
Total		101	

Age:
101 responses



INTERPRETATION

From the above table it is represented that the number of respondents under 18 ages of respondents are 7.9%, between 18-24 ages are 44.9%, between 25-34 ages are 23.8%, between 35-44 ages are 9.9%, between 45-54 ages are 8.9%, between 55-64 ages are 3%, and between 64 or older are 2%.

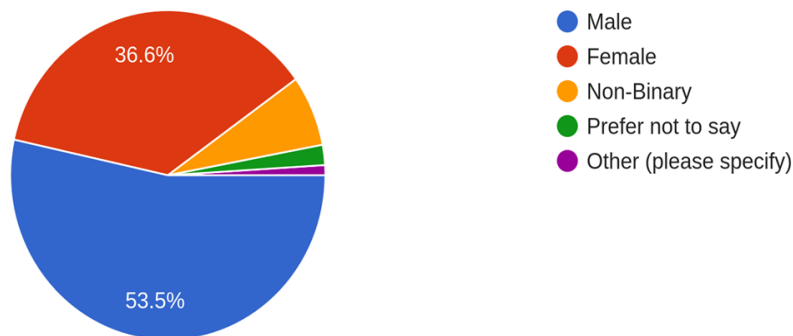
INFERENCE

Majority 44.6 % of the respondents belong to the age group of 18-24 category.

4.1.2. Tables indicating the gender of the respondents.

S. No	Gender	No. of respondents	Percentage analysis
1	Male	54	53.5
2	Female	37	36.6
3	Non-Binary	7	6.9
4	Prefer not to say	2	2
5	Others	1	1
Total		101	

Responses Manage how responses are collected and protected Gender:
101 responses



INTERPRETATION

From the above table it is interpreted that the gender of the respondents is male 53.5%, number of respondents in female are 36.6%, non-binary is 6.9%, and who prefer not to say is 2% and Others are 1%.

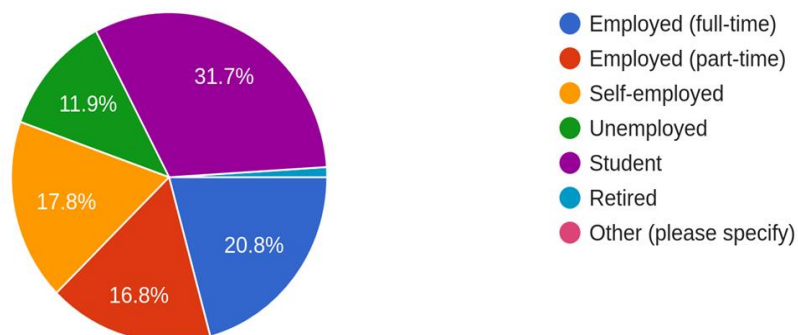
INFERENCE

Majority 53.5% of the respondents are male.

4.1.3. Table indicating the occupation of the respondents.

S.No	Age	No. of respondents	Percentage analysis
1	Employed full time	21	20.8
2	Employed part time	17	16.8
3	Self Employed	18	17.8
4	Unemployed	12	11.9
5	Student	32	31.7
6	Retired	1	1
7	Others	-	-
Total		101	

Occupation
101 responses



INTERPRETATION

The respondents who are fully employed are 20.8%, as a part time are 16.8%, self-employed are 17.8, unemployed are 11.9, Students are 31.7 and Retired are only 1%.

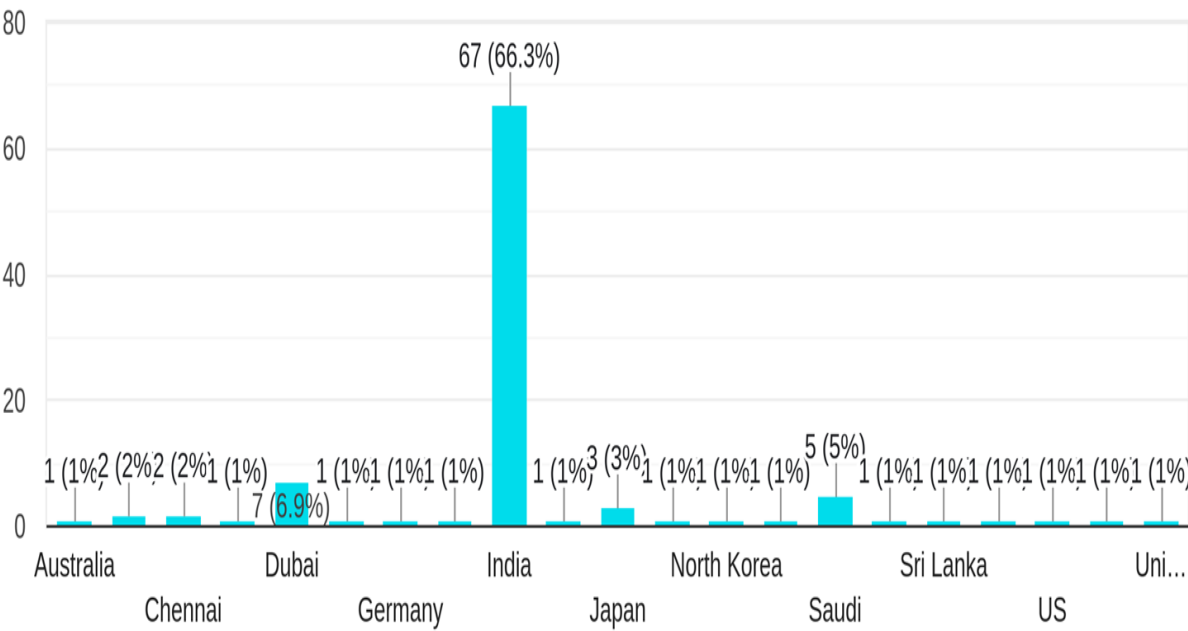
INFERENCE

Majority 58.7 % of the respondents are employed full-time.

4.1.4. Table indicating the Residence of the respondents: - [Open-ended]

Country of Residence:

101 responses

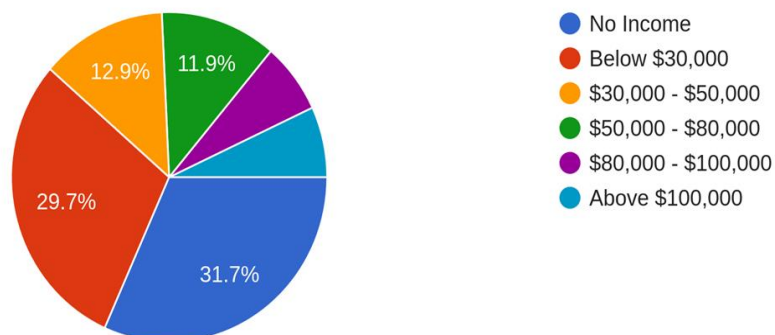


4.1.5. Tables indicating the income level of the respondents.

S No	Income	No of respondents	Percentage Analysis
1	No Income	32	31.7
2	Below \$30000	30	29.7
3	\$30000 - \$50000	13	12.9
4	\$50000 - \$80000	12	11.9
5	\$80000 - \$100000	7	6.9
6	Above \$100000	7	6.9
Total		101	

Income Level:

101 responses



INTERPRETATION

From the above pie chart, it shows that 31.7% are people with no income. 29.7% are with below \$30000, 12.9% with \$30000 - \$50000, 11.9% with \$50000 - \$ 80000, \$80000 - \$100000 with 6.9% and above \$100000 with 6.9%.

INFERENCE

Majority of the respondents are with no income or below \$30000.

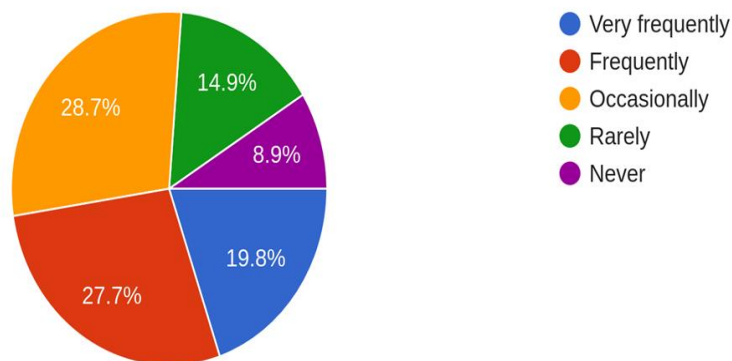
Objective 1: Assessing Cross-Border Payment Experiences

4.1.6 Tables indicating on how frequently do you engage in cross-border transactions

S No	Usage	No. of Respondents	Percentage Analysis
1	Very frequently	20	19.8
2	Frequently	28	27.7
3	Occasionally	29	28.7
4	Rarely	15	14.9
5	Never	9	8.9
Total		101	

How frequently do you engage in cross-border transactions?

101 responses



INTERPRETATION

From the above pie chart, it shows that how frequent do the respondents engage in cross-border payment. From the result we could see that 19.8% and 27.7% cases do very frequently or frequently. 28.7% do occasionally and 14.9% rarely do cross border payments. Other than this 8.9% of respondents never engage any cross-border transactions.

INFERENCE

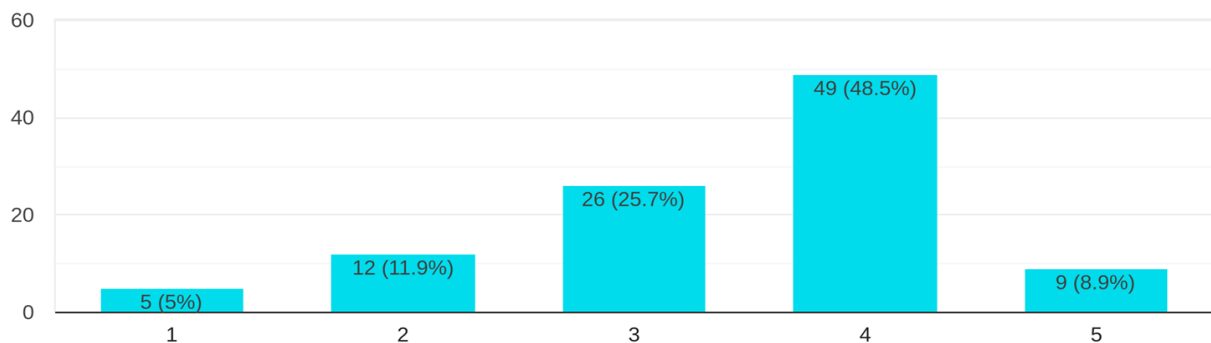
Majority of the respondents engage either frequently or occasionally in cross border payments.

4.1.7. Tables indicating on a scale of 1 to 5, how satisfied are you with the speed of your cross-border transactions (1 being very dissatisfied, 5 being very satisfied)

S No	Satisfaction Level	No. of respondents	Percentage Analysis
1	1	5	5
2	2	12	11.9
3	3	26	26
4	4	49	48.5
5	5	9	8.9
Total		101	

On a scale of 1 to 5, how satisfied are you with the speed of your cross-border transactions? (1 being very dissatisfied, 5 being very satisfied)

101 responses



INTERPRETATION

From the above bar diagram, it can be classified that how satisfied are they with the speed of the cross-border payments. The Scale 1 is being very dissatisfied which is 5%, of the respondents. The Scale 2 is Dissatisfied which is 11.9%. The Scale 3 is Neutral which is 25.7%. The Scale 4 is being satisfied which is 48.5%. The Scale 5 is being very satisfied which is 8.9%.

INFERENCE

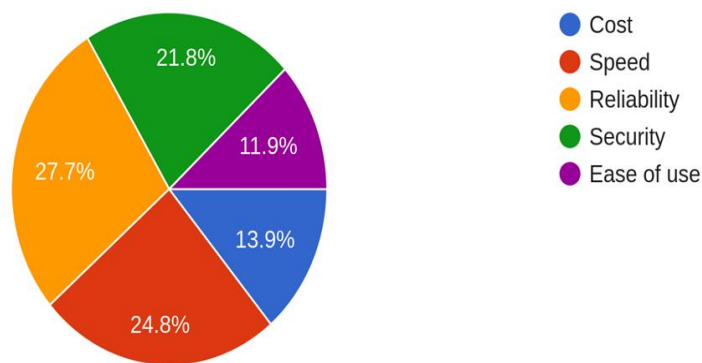
Majority of the respondents are satisfied with the speed of the cross-border transactions as the response of more than half of the total sample size is positive.

4.1.8. Tables indicating the factors influence your choice of cross-border payment methods

S No	Factors	No. of respondents	Percentage analysis
1	Cost	14	13.9
2	Speed	25	24.8
3	Reliability	28	27.7
4	Security	22	21.8
5	Ease of use	12	11.9
Total		101	

What factors influence your choice of cross-border payment methods?

101 responses



INTERPRETATION

From the above pie chart, it shows the different factors influence the choices of the respondents while cross border payments. 13.9% were looking at the cost, 24.8% at the speed, 27.7% at the reliability, 21.8% at the Security and 11.9% at the ease of use.

INFERENCE

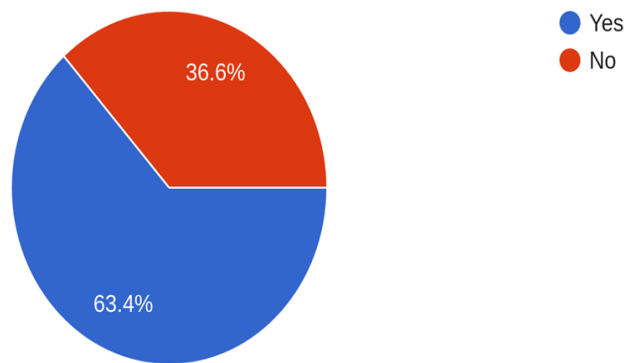
Majority of the respondents were influenced by the reliability and the speed of cross border payments.

4.1.9. Tables indicating any changes in your cross-border payment experiences in the last year

S No	Change in Experience	No. of respondents	Percentage Analysis
1	Yes	64	63.4
2	No	37	36.6
Total		101	

Have you observed any changes in your cross-border payment experiences in the last year?

101 responses



INTERPRETATION

The above pie diagram shows representation of the number of responses on changes being observed in the cross-border payments in the last year. 63.4% of the respondents says Yes and 36.4% says No.

INFERENCE

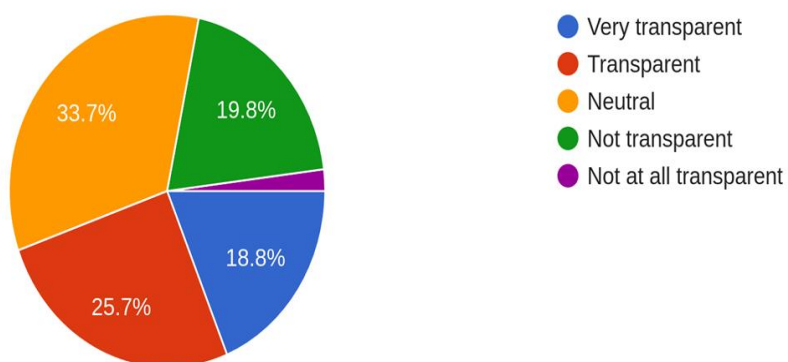
Thus, it shows that the majority of the responses were on the favour of changes in the cross-border payment experiences.

4.1.10. Tables indicating transparency of information in your cross-border transactions

S No	Transparency	No. of respondents	Percentage Analysis
1	Very Transparent	19	18.8
2	Transparent	26	25.7
3	Neutral	34	33.7
4	Not transparent	20	19.8
5	Not at all transparent	2	2
Total		101	

How would you rate the overall transparency of information in your cross-border transactions?

101 responses



INTERPRETATION

From the above pie chart, the respondents view on transparency of cross border transactions are 18.8% and 25.7% of respondents believe it is transparent. 33.7% are neutral about it. Rest if the 19.8% and 2% thinks it is not transparent.

INFERENCE

Majority of the people believe that there is a transparency if information in cross border payments.

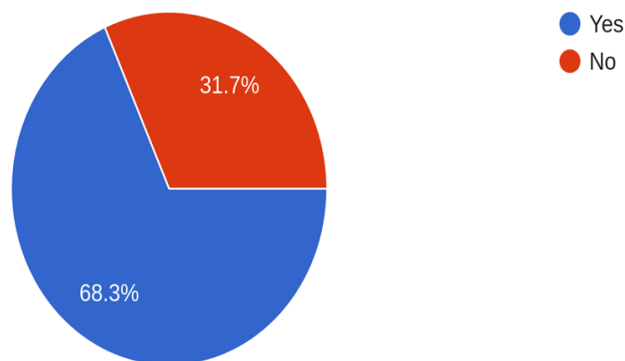
Objective 2: Understanding Awareness and Usage of Open Banking

4.1.11. Tables indicating the awareness of Open Banking solutions for cross-border payments

S No	Awareness	No of respondents	Percentage Analysis
1	Yes	69	68.3
2	No	32	31.7
Total		101	

Are you aware of Open Banking solutions for cross-border payments?

101 responses



INTERPRETATION

The pie chart you sent shows the percentage of people who are aware of the benefits of open banking for cross-border payments. 68.3% of respondents are aware of the open banking whereas 31.7% of respondents are not aware.

INFERENCE

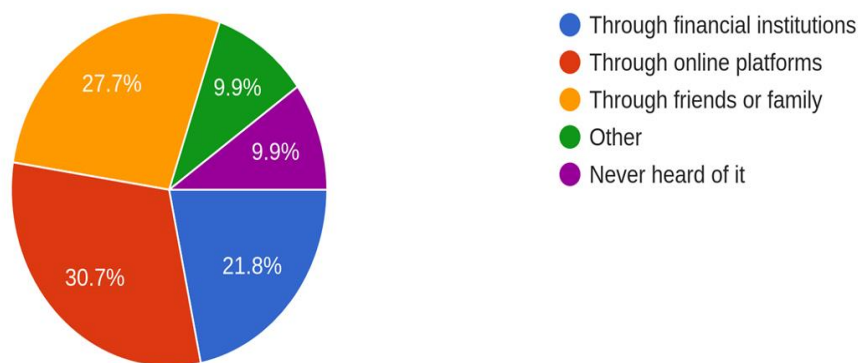
The majority of people, 68.3%, are aware of the benefits of open banking for cross-border payments. This suggests that open banking is becoming increasingly well-known and accepted as a way to make cross-border payments.

4.1.12. Table indicating on how you become aware of Open Banking

S No	Aware through	No of respondents	Percentage Analysis
1	Financial institutions	22	21.8
2	Online platforms	31	30.7
3	Friends and family	28	27.7
4	Other	10	9.9
5	Never heard of it	10	9.9
Total		101	

If yes, how did you become aware of Open Banking?

101 responses



INTERPRETATION

From the above pie chart, it shows that 21.8% of my respondents has got to know about Open Banking through financial institutions, 30.7% through Online platforms, 27.7% through friends and family, other sources for 9.9% and the 9.9% has never heard about it before.

INFERENCE

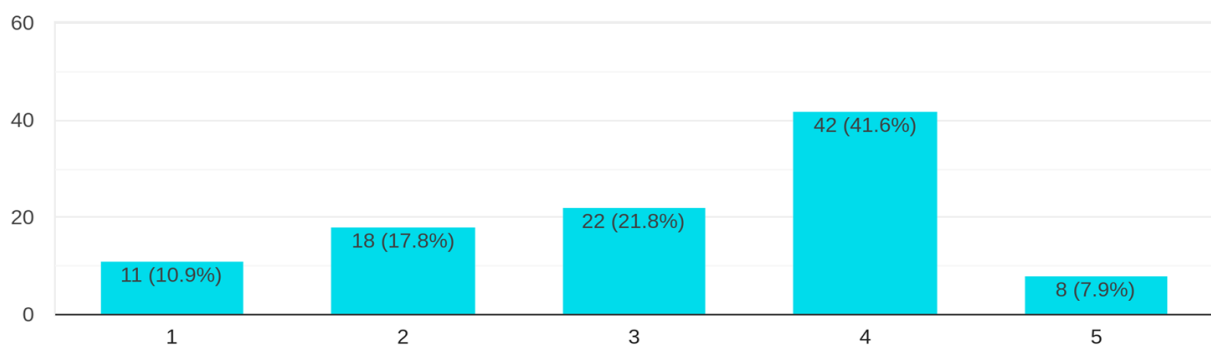
Majority of the respondents got to know about Open Banking through Online Platforms showing a significant range of 30.7%.

4.1.13. Tables indicating scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future (1 being very unlikely, 5 being very likely)

S No	Future Use	No of respondents	Percentage Analysis
1	1	11	10.9
2	2	18	17.8
3	3	22	21.8
4	4	42	41.6
5	5	8	7.9
Total		101	

On a scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future? (1 being very unlikely, 5 being very likely)

101 responses



INTERPRETATION

In the above bar graph, it represents the respondent's usage of cross border transactions in future. Out of 101 responses, 50 responses were being likely to use Open banking. 22 responses were neutral. 29 responses were being very unlikely about it.

INFERENCE

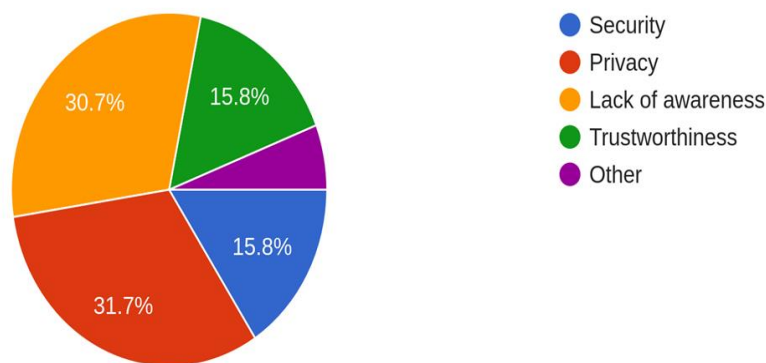
Majority of the respondents have a positive approach towards the usage of cross border transactions using Open banking.

4.1.14. Table indicating the concerns, if any, about using Open Banking for cross-border payments

S No	Concerns	No of respondents	Percentage Analysis
1	Security	16	15.8
2	Privacy	32	31.7
3	Lack of awareness	31	30.7
4	Trustworthiness	16	15.8
5	Other	6	5.9
Total		101	

What concerns, if any, do you have about using Open Banking for cross-border payments?

101 responses



INTERPRETATION

From the above pie chart, it shows that what are the major concerns of my respondents are in using open banking for cross border payments. Thus 15.8% of respondents has Security concerns, 31.7% has Privacy concerns, 30.7% lack awareness and 15.8% has Trustworthiness and 5.9% has other concerns.

INFERENCE

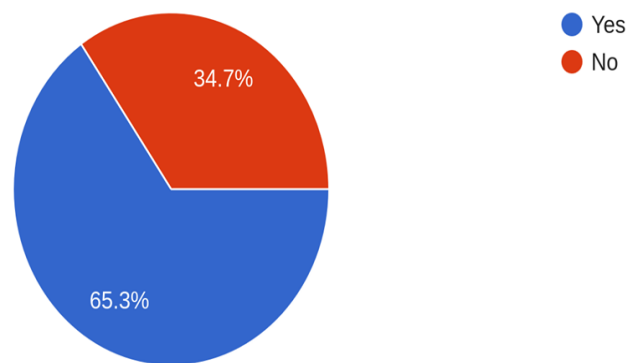
Majority of my respondents have Privacy concerns about using Open Banking for cross-border payments.

4.1.15. Tables indicating if the respondents have ever used Open Banking for a cross-border transaction

S No	Usage of Open Banking	No of respondents	Percentage Analysis
1	Yes	66	65.3
2	No	35	34.7
Total		101	

Have you ever used Open Banking for a cross-border transaction?

101 responses



INTERPRETATION

From the above pie chart, it shows that 65.3% of the respondents have used Open Banking for Cross border payments and the rest of the 34.7% has never used Open Banking.

INFERENCE

Majority of my respondents i.e., 65.3% have been using Open Banking for cross border payments.

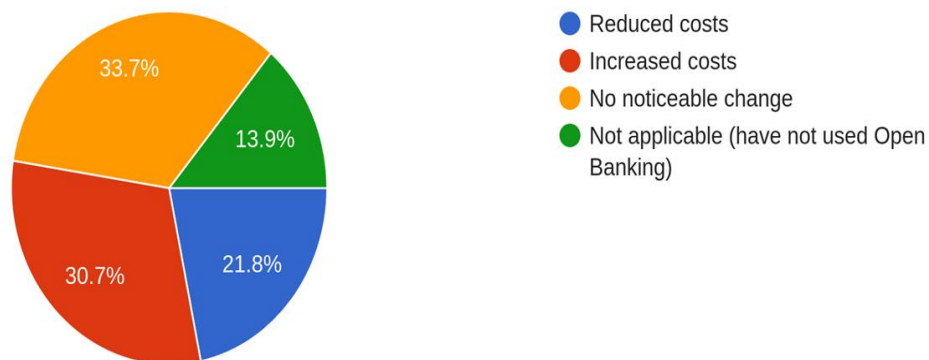
Objective 3: Exploring the Impact on Economic Behaviour

4.1.16. Table indicating on how has Open Banking affected the cost of your cross-border transactions

S No	Costs	No of respondents	Percentage Analysis
1	Reduced Costs	22	21.8
2	Increased Costs	31	20.7
3	No noticeable change	34	22.7
4	Not applicable	14	13.9
Total		101	

In your opinion, how has Open Banking affected the cost of your cross-border transactions?

101 responses



INTERPRETATION

From the above pie chart, it shows that 21.8% respondents believe that it has reduced the cost and 20.7% believe that it has increased the costs, therefore 22.7% people has seen no noticeable changes in the cost and 13.9% are people who have not used the Open Banking.

INFERENCE

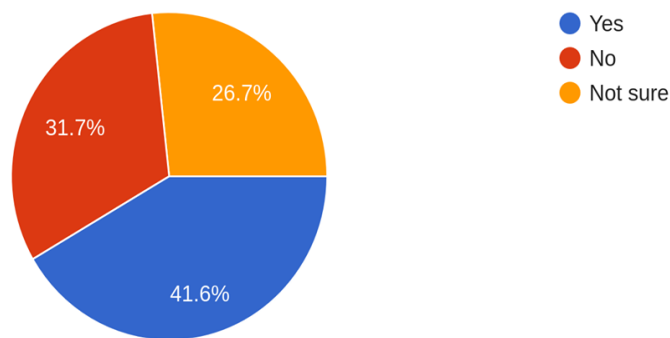
Majority of the respondents believe that there has been no change or have reduced the costs of cross border payments.

4.1.17. Tables indicating Open Banking has positively influenced the efficiency of cross-border payment processes

S No	Positive Influence	No of respondents	Percentage Analysis
1	Yes	42	41.6
2	No	32	31.7
3	Not sure	27	26.7

Do you believe Open Banking has positively influenced the efficiency of cross-border payment processes?

101 responses



INTERPRETATION

The respondents who believe Open Banking has a positive effect over the cross-border payments processes are 41.6% and the percentage of respondents who believe they're not is 31.7% and rest of the 26.7% of my respondents are not sure about it.

INFERENCE

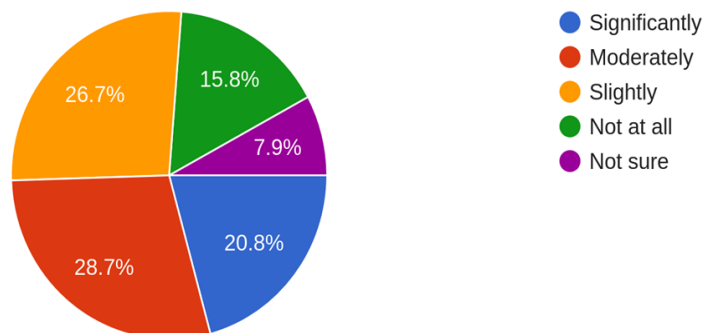
Majority of the believe that it has a positive influence in the efficiency of cross border payment.

4.1.18. Table indicating to what extent do you think Open Banking has contributed to financial inclusion in cross-border transactions

S No	Contribution Financial inclusion	toNo. of respondents	Percentage Analysis
1	Significant	21	20.8
2	Moderate	29	28.7
3	Slight	27	26.7
4	Not at all	16	15.8
5	Not sure	8	7.9

To what extent do you think Open Banking has contributed to financial inclusion in cross-border transactions?

101 responses



INTERPRETATION

From the above pie chart, it can be derived that, 20.8% of respondents feels Open banking has contributed to financial inclusion significantly, moderately for 28.7%, slightly for 26.7%, not for 15.8% and 7.9% respondents are not sure about it.

INFERENCE

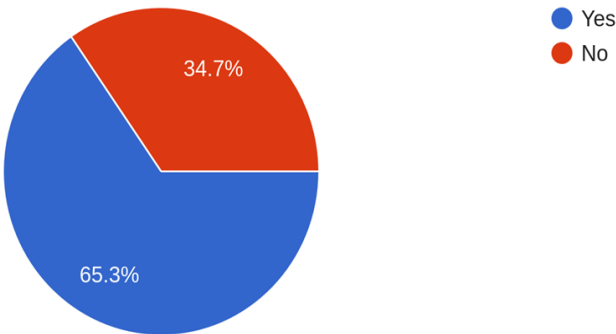
Majority of the respondents feels that the open banking has moderately brought contribution in Open Banking.

4.1.19. Tables indicating any changes in your overall economic behaviour as a result of using Open Banking for cross-border transactions

S No	Changes in Economic behaviour	No of respondents	Percentage Analysis
1	Yes	69	65.3
2	No	32	34.7
Total		101	

Have you observed any changes in your overall economic behavior as a result of using Open Banking for cross-border transactions? If yes, please specify.

101 responses



INTERPRETATION

In the above pie chart, it shows the percentage data of the changes observed in open banking, as 65.3% people have agreed towards the fact and 34.7% have not.

INFERENCE

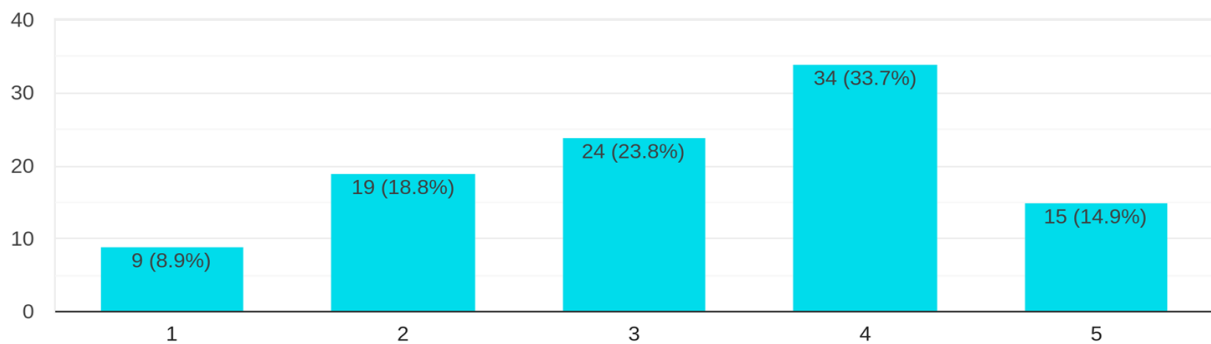
Majority of the respondents have observed changes in your overall economic behaviour as a result of using Open Banking for cross-border transactions

4.1.20. Tables showing on a scale of 1 to 5, how confident are the respondents in the security measures provided by Open Banking for cross-border transactions (1 being not confident at all, 5 being very confident)

S No	Security Level	No. of respondents	Percentage Analysis
1	1	9	8.9
2	2	19	18.8
3	3	24	23.8
4	4	34	33.7
5	5	15	14.9
Total		101	

On a scale of 1 to 5, how confident are you in the security measures provided by Open Banking for cross-border transactions? (1 being not confident at all, 5 being very confident)

101 responses



INTERPRETATION

From the above table, percentage of people who feel about the security measures that are not confident are 8.9%, least confident are 18.8%, neutral are 23.8%, slightly confident are 34% and very confident are 14.9%.

INFERENCE

Majority of the respondents feel slightly confident about the security measures provided by the Open Banking for the cross-border transactions.

HYPOTHESIS

Null Hypothesis (H0): There is no significant difference in satisfaction levels between individuals who have used Open Banking and those who have not.

Alternative Hypothesis (H1): There is a significant difference in satisfaction levels between individuals who have used Open Banking and those who have not.

4.2. Independent Samples T-Test

Independent Samples T-Test

	t	df	p
On a scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future? (1 being very unlikely, 5 being very likely)	-0.224	99	

Note. Student's t-test.

Descriptives

Group Descriptives

	Group	N	Mean	SD	SE	Coefficient of variation
On a scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future? (1 being very unlikely, 5 being very likely)	No	35	3.143	0.912	0.154	0.290
	Yes	66	3.197	1.268	0.156	0.396

INTERPRETATION

The data in the image shows the results of an independent samples t-test comparing the mean likelihood of using open banking for cross-border transactions in the future of students who were asked the question, "On a scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future? (1 being very unlikely, 5 being very likely)" and responded with either "No" or "Yes". The t-test found no significant difference in mean likelihood between the two groups ($t = -0.224$, $df = 99$, $p = 0.825$).

Overall, the data in the image suggests that there is no significant difference in the likelihood of using open banking for cross-border transactions in the future between students who have already used it and those who have not. This is a positive finding, as it suggests that open banking is becoming more widely accepted and understood by students.

INFERENCE

As you can see, the mean likelihood of using open banking for cross-border transactions in the future is slightly higher for students who responded "Yes" (3.2) than for students who responded "No" (3.16). However, the difference in means is very small, and the standard deviations are also relatively small. This suggests that there is no real difference in the likelihood of using open banking for cross-border transactions in the future between the two groups of students.

Overall, the data suggests that open banking is becoming more widely accepted and understood by students. This is a positive finding, as it suggests that open banking has the potential to become a popular way for students to make cross-border transactions.

4.3. Linear Regression

Model Summary - On a scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future? (1 being very unlikely, 5 being very likely)

Model	R	R ²	Adjusted R ²	RMSE
H ₀	0.000	0.000	0.000	1.152
H ₁	0.022	0.001	-0.010	1.158

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
H ₁	Regression	0.067	1	0.067	0.050	0.824
	Residual	132.725	99	1.341		
	Total	132.792	100			

Note. The intercept model is omitted, as no meaningful information can be shown.

Coefficients

Model		Unstandardize d	Standard Error	Standardized a	t	p
H ₀	(Intercept)	3.178	0.115		27.718	< .001
H ₁	(Intercept)	3.143	0.196		16.058	< .001
	Have you ever used Open Banking for a cross-border transaction? (Yes)	0.054	0.242		0.224	0.824

^a Standardized coefficients can only be computed for continuous predictors.

INTERPRETATION

The model R² is 0.001, which means that it only explains 0.1% of the variation in the likelihood of using open banking for cross-border transactions in the future. This suggests that the model is not very effective at predicting this outcome.

The model coefficient for the predictor variable is 0.054, which is statistically insignificant (p = 0.824). This means that there is not enough evidence to conclude that there is a significant relationship between how likely someone is to use open banking for cross-border transactions today and how likely they are to use it in the future.

Overall, the data in the image suggests that there is no strong evidence that open banking is becoming more widely accepted and understood by students. The linear regression model is not very effective at predicting the likelihood of using open banking for cross-border transactions in the future, and the coefficient for the predictor variable is not statistically significant.

INFERENCE

As you can see, the mean likelihood of using open banking for cross-border transactions in the future is slightly higher for who responded "Yes" (3.2) than for students who responded "No" (3.16). However, the difference in means is very small, and the standard deviations are also relatively small. This suggests that there is no real difference in the likelihood of using open banking for cross-border transactions in the future between the two groups of students.

Overall, the data suggests that open banking is becoming more widely accepted and understood by students. This is a positive finding, as it suggests that open banking has the potential to become a popular way for students to make cross-border transactions.

CHAPTER 5

FINDINGS, SUGGESTIONS AND CONCLUSION

5.1. FINDINGS

- Majority 44.6 % of the respondents belong to the age group of 18-24 category.
- Majority 53.5% of the respondents are male.
- Majority 58.7 % of the respondents are employed full-time.
- Majority of the respondents are with no income or below \$30000.
- Majority of the respondents engage either frequently or occasionally in cross border payments.
- Majority of the respondents are satisfied with the speed of the cross-border transactions as the response of more than half of the total sample size is positive.
- Majority of the respondents were influenced by the reliability and the speed of cross border payments.
- Thus, it shows that the majority of the responses were on the favour of changes in the cross-border payment experiences.
- Majority of the people believe that there is a transparency if information in cross border payments.
- The majority of people, 68.3%, are aware of the benefits of open banking for cross-border payments. This suggests that open banking is becoming increasingly well-known and accepted as a way to make cross-border payments.
- Majority of the respondents got to know about Open Banking through Online Platforms showing a significant range of 30.7%. Majority of the respondents have a positive approach towards the usage of cross border transactions using Open banking.
- Majority of my respondents have Privacy concerns about using Open Banking for cross-border payments.
- Majority of my respondents i.e., 65.3% have been using Open Banking for cross border payments.
- Majority of the respondents believe that there has been no change or have reduced the costs of cross border payments.
- Majority of the believe that it has a positive influence in the efficiency of cross border payment.
- Majority of the respondents feels that the open banking has moderately brought contribution in Open Banking.
- Majority of the respondents have observed changes in your overall economic behaviour as a result of using Open Banking for cross-border transactions

5.2. SUGGESTIONS

In advancing the research on "Individuals' Experiences with Cross-Border Payments and the Impact of Open Banking," it is recommended to delve into user-centric design principles, exploring how the design of cross-border payment platforms influences user experiences. Additionally, the integration of emerging technologies such as artificial intelligence and machine learning in Open Banking for cross-border transactions warrants investigation to understand their potential impacts on efficiency and security. A cross-cultural study would enrich the understanding of cultural nuances affecting preferences and trust in Open Banking. Considering the evolving global landscape, an exploration of how the COVID-19 pandemic has shaped individuals' behaviours in cross-border payments and the role of Open Banking during and post-pandemic could provide valuable insights. Furthermore, investigating economic impacts, legal and ethical considerations, and collaborations between fintech start-ups and traditional institutions would contribute to a comprehensive understanding of this dynamic field.

5.3. CONCLUSION

In the ever-evolving world of finance, cross-border payments have become an indispensable facilitator of international trade, investment, and remittances. However, traditional cross-border payment methods have long been hampered by inefficiencies, high costs, and delays, hindering economic growth and individual prosperity. Open banking, a transformative financial innovation, has emerged as a beacon of hope, offering a paradigm shift towards faster, cheaper, and more transparent remittances.

Open banking, with its ability to securely access and utilize consumer financial data with explicit consent, has the potential to revolutionize cross-border payments. By enabling direct account-to-account (A2A) transfers, open banking eliminates the need for costly intermediaries, significantly reducing transaction costs and expediting payment clearance. Additionally, payment initiation services (PIS) empower payers to initiate payments directly from their online banking platforms, streamlining the payment process and enhancing convenience. In the remittance sector, open banking holds the potential to transform the way migrants send money to their families back home, enabling direct transfers from bank accounts to mobile wallets, eliminating intermediaries, expediting remittance delivery, and ensuring the security and integrity of transactions.

While open banking presents immense opportunities, its widespread adoption for cross-border payments hinges on addressing several challenges. Regulatory harmonization across different countries is crucial to ensure seamless cross-border interoperability. Data security and privacy concerns must be rigorously addressed to safeguard consumer financial information. Moreover, driving widespread adoption of open banking standards is essential for its full potential to be realized.

As we embrace the transformative power of open banking, we envision a future where cross-border payments are faster, cheaper, and more transparent, fostering economic growth, empowering individuals worldwide, and bridging the gap between nations through seamless financial connectivity.

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ANNEXURE I – Questionnaire

Cross Border Payments

This questionnaire is designed to understand your experiences with cross-border payments and the impact of Open Banking. We'll explore your demographics, cross-border payment satisfaction, factors influencing your choices, awareness of Open Banking, and its potential economic impact. Your insights are valuable in shaping our understanding of these evolving financial landscapes. Thank you for participating!

Subhash A

* Indicates required question

Name*

Your answer

Age: *

Under 18

18-24

25-34

35-44

45-54

55-64

65 or older

Gender: *

Male

Female

Non-Binary

Prefer not to say

Other (please specify)

Occupation*

Employed (full-time)

Employed (part-time)

Self-employed

Unemployed

Student

Retired

Other (please specify)

Country of Residence: *

Income Level: *

No Income
Below \$30,000
\$30,000 - \$50,000
\$50,000 - \$80,000
\$80,000 - \$100,000
Above \$100,000

How frequently do you engage in cross-border transactions? *

Very frequently
Frequently
Occasionally
Rarely
Never

On a scale of 1 to 5, how satisfied are you with the speed of your cross-border transactions? (1 being very dissatisfied, 5 being very satisfied) *

1
2
3
4
5

What factors influence your choice of cross-border payment methods? *

Cost
Speed
Reliability
Security
Ease of use

Have you observed any changes in your cross-border payment experiences in the last year? *

Yes
No

How would you rate the overall transparency of information in your cross-border transactions? *

Very transparent
Transparent
Neutral
Not transparent

Not at all transparent

Are you aware of Open Banking solutions for cross-border payments? *

Yes

No

If yes, how did you become aware of Open Banking? *

Through financial institutions

Through online platforms

Through friends or family

Other

Never heard of it

On a scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future? (1 being very unlikely, 5 being very likely) *

1

2

3

4

5

What concerns, if any, do you have about using Open Banking for cross-border payments? *

Security

Privacy

Lack of awareness

Trustworthiness

Other

Have you ever used Open Banking for a cross-border transaction? *

Yes

No

In your opinion, how has Open Banking affected the cost of your cross-border transactions? *

Reduced costs

Increased costs

No noticeable change

Not applicable (have not used Open Banking)

Do you believe Open Banking has positively influenced the efficiency of cross-border payment processes? *

Yes
No
Not sure

To what extent do you think Open Banking has contributed to financial inclusion in cross-border transactions? *

Significantly
Moderately
Slightly
Not at all
Not sure

Have you observed any changes in your overall economic behaviour as a result of using Open Banking for cross-border transactions? If yes, please specify. *

Yes
No

On a scale of 1 to 5, how confident are you in the security measures provided by Open Banking for cross-border transactions? (1 being not confident at all, 5 being very confident) *

1
2
3
4
5

ANNEXURE II – Research Paper

ENHANCING CROSS BORDER PAYMENT: OPEN BANKING

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ABSTRACT

This study investigates the transformative potential of Open Banking in addressing challenges within cross-border payments. Analyzing the landscape, principles, and global implementations of Open Banking, the research employs a mixed-methods approach to present current inefficiencies and successful case studies. The discussion evaluates the integration of Open Banking, weighing benefits against risks, and concludes with policy and industry recommendations. This comprehensive exploration positions Open Banking as a pivotal force in reshaping global transactions, providing valuable insights for stakeholders navigating the evolving financial landscape.

INTRODUCTION

In a world increasingly reliant on international economic transactions, traditional cross-border payment systems face persistent challenges. Recognizing the need for efficiency and transparency, the financial industry is turning to Open Banking—a paradigm that redefines how financial data is shared. This study explores the potential of Open Banking to enhance cross-border payments, investigating key factors influencing its successful implementation. Amidst technological advancements and evolving consumer expectations, Open Banking emerges as a transformative force, offering a promising solution to the long-standing complexities in global financial transactions.

REVIEW OF LITERATURE

Improving Global Financial Inclusion: Implementing Open and Standardised API for Cross-Border Payments

A Nugroho, SH Supangkat – 2023

Financial exclusion remains one of the main challenges to eradicating poverty and enabling income equality worldwide. The G20 has shown support for new technologies in the financial domain, and in October 2020 introduced a roadmap to enhance cross-border payments and address challenges in the market.

Open banking in Europe: the effect of the revised payment services directive on Solarisbank and Insha

Z Nanaeva, AF Aysan, NS Shirazi - Journal of Payments, 2021

The concept of open banking is gaining global recognition for helping to integrate innovative financial service providers into a sustainable financial ecosystem. This paper discusses open banking, including its core building blocks, prospects and challenges.

Towards the holy grail of cross-border payments **U Bindseil, G Pantelopoulos – 2022**

The holy grail of cross-border payments is a solution allowing cross-border payments to be immediate, cheap, universal, and settled in a secure settlement medium. The search for such a solution is as old as international commerce and the implied need to pay.

Open banking & banking-as-a-service (BaaS): a delicate turnout for the banking sector

A Atabey, LK Berber - Global Privacy Law Review, 2021

Open banking is seen as the digitalization and transformation of the finance sector.¹ Open banking takes a regulatory approach to trigger the advancement of global banking and contribute to the improvement of the financial industry² by liberating customers' data and accounts.³ Currently, some regulations encourage banks

Open banking: Regulatory challenges for a new form of financial intermediation in a data-driven world

N Remolina – 2019

Data has taken immense importance in the last years. Consider the amount of data that is being collected worldwide every day, industries are reshaping their activities into a data-driven business.

Increasing access and interoperability of cross-border e-payments in Asia **D ELMS – 2021**

Facilitating e-payments in a safe, effective manner would help unlock the ability of smaller firms, especially, to view the region as their own marketplace. As a result, must endure the costs and difficulties of using traditional bank transfers for cross-border transactions.

Open banking in the UK and Singapore: open possibilities for enhancing financial inclusion

E Leong, J Gardner - Journal of business law, 2021

A complex relationship exists between open banking – the technological advancement of financial services through sharing of consumer data – and financial inclusion. This article analyses the implementation and regulation of open banking in the United Kingdom and Singapore, critically evaluating opportunities and challenges for utilising open banking when tackling financial inclusion.

Digitalization of cross-border payments **D He - China Economic Journal, 2021**

Payment systems around the world are evolving with the emergence of digital money issued by private firms and central banks. We provide a conceptual framework to compare and contrast traditional forms of money with their new digital equivalents.

Open banking, open data and open finance: lessons from the European union **DW Arner, RP Buckley, DA Zetsche, 2021**

These European experiences provide profound insights for other societies facing choices as to the role of data in their future. In some, data will be controlled by a small number of

massive firms and governments which use it for profit and suppression. In others, data will be under the control of individuals – democratized data – which should support a more open and innovative economy and society. In the evolution of these futures, legal and regulatory systems will play a key role.

Objectives

1. Examine Open Banking's Impact on Cross-Border Payments
2. Identify Success Factors for Open Banking Implementation
3. Assess Benefits and Risks of Open Banking in Global Transactions

Research Hypothesis

Hypothesis 1:

- Null Hypothesis (H0): Open Banking has no significant impact on the efficiency and transparency of cross-border payments.
- Alternative Hypothesis (H1): Open Banking significantly enhances the efficiency and transparency of cross-border transactions.

Hypothesis 2:

- Null Hypothesis (H0): The success of Open Banking implementation in cross-border transactions is not influenced by regulatory, technological, or collaborative factors.
- Alternative Hypothesis (H1): Regulatory frameworks, technological advancements, and collaborative efforts significantly contribute to the successful integration of Open Banking in cross-border payment systems.

RESEARCH METHODOLOGY

Research Design

This research uses Descriptive research design.

Sampling Technique:

Convenience Sampling: Given the challenge of accessing a random sample of individuals abroad, convenience sampling may be more practical. You can leverage personal networks, social media, or Online communities to reach out to individuals willing to participate.

Sample Design:

Non-probability Sampling: Recognize that the sample may not be representative of all individuals abroad but can still provide valuable insights into specific user experiences.

Population: The population of the project are the working officials and NRIs.

Source of Data

There is two types of data

Primary Data

Primary data is the data that is collected for the first time through personal experiences or evidence, particularly for research. It is also described as raw data or first-hand information.

Secondary Data

Collected responses from Online surveys, interviews, or focus groups, depending on the feasibility and preferences of the participants.

RESULTS AND DISCUSSION

The study on cross-border payment experiences and the impact of Open Banking revealed diverse perspectives among participants, highlighting variations in transaction speed, costs, and reliability/security perceptions. Awareness levels of Open Banking varied, influencing participants' adoption decisions. A comparative analysis indicated higher satisfaction among Open Banking users but raised concerns about reliability and security for both groups. Demographics, including age and location, played a role in shaping experiences. Limitations, such as convenience sampling, were acknowledged. Policy-makers and industry players can draw insights for user-friendly international payment solutions. Future research could explore demographic influences and regional variations more comprehensively. Overall, the study offers valuable considerations for stakeholders in the evolving landscape of cross-border payments.

DATA ANALYSIS AND INTERPRETATION

Independent Samples T-Test

Independent Samples T-Test

	t	df	p
On a scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future? (1 being very unlikely, 5 being very likely)	-0.224		99

Note. Student's t-test.

Descriptives

Group Descriptives

	Group	N	Mean	SD	SE	Coefficient of variation
On a scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future? (1 being very unlikely, 5 being very likely)	No	35	3.143	0.912	0.154	0.290
	Yes	66	3.197	1.268	0.156	0.396

Linear Regression

Model Summary - On a scale of 1 to 5, how likely are you to use Open Banking for cross-border transactions in the future? (1 being very unlikely, 5 being very likely)

Model	R	R ²	Adjusted R ²	RMSE
H ₀	0.000	0.000	0.000	1.152
H ₁	0.022	0.001	-0.010	1.158

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
H ₁	Regression	0.067	1	0.067	0.050	0.824
	Residual	132.725	99	1.341		
	Total	132.792	100			

^a Standardized coefficients can only be computed for continuous predictors.

Coefficients

Model		Unstandardize d	Standard Error	Standardized a	t	p
H ₀	(Intercept)	3.178	0.115		27.718	< .001
H ₁	(Intercept)	3.143	0.196		16.058	< .001
	Have you ever used Open Banking for a cross-border transaction? (Yes)	0.054	0.242		0.224	0.824

^a Standardized coefficients can only be computed for continuous predictors.

Interpretation

Overall, the data in the image suggests that there is no strong evidence that open banking is becoming more widely accepted and understood by students. The linear regression model is not very effective at predicting the likelihood of using open banking for cross-border transactions in the future, and the coefficient for the predictor variable is not statistically significant.

Inferences

Overall, the data suggests that open banking is becoming more widely accepted and understood by students. This is a positive finding, as it suggests that open banking has the potential to become a popular way for students to make cross-border transactions.

SUGGESTIONS

In advancing the research on "Individuals' Experiences with Cross-Border Payments and the Impact of Open Banking," it is recommended to delve into user-centric design principles, exploring how the design of cross-border payment platforms influences user experiences. Additionally, the integration of emerging technologies such as artificial intelligence and machine learning in Open Banking for cross-border transactions warrants investigation to understand their potential impacts on efficiency and security. A cross-cultural study would enrich the understanding of cultural nuances affecting preferences and trust in Open Banking. Considering the evolving global landscape, an exploration of how the COVID-19 pandemic has shaped individuals' behaviors in cross-border payments and the role of Open Banking during and post-pandemic could provide valuable insights. Furthermore, investigating economic impacts, legal and ethical considerations, and collaborations between fintech start-ups and traditional institutions would contribute to a comprehensive understanding of this dynamic field.

CONCLUSION

The study underscores the importance of factors such as transaction speed, cost perceptions, and the reliability/security of cross-border payments, with Open Banking awareness playing a pivotal role in user behaviours. Demographic influences and regional variations also impact preferences. The conclusion emphasizes the need for ongoing exploration in user-centric design, technological integration, and considerations of cultural and economic impacts. The dynamic effects of the COVID-19 pandemic add complexity to this landscape. Overall, the research provides foundational insights, urging further investigation into emerging trends and dynamics in the ever-changing realm of cross-border payments.

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