

# **The Evolution of FinTech in Emerging Markets:**

## **The Effect of FinTech Adoption on Remittances**



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## Abstract

FinTech is disrupting various areas of financial services and redefining how the market is served. Remittance services are also being transformed by FinTech solutions that are faster and cheaper. Remittance payments are significant for emerging markets economies. This thesis explores the remittances sector in emerging markets context to understand the characteristics of the market and observe success factors for FinTech implementation. The study focuses on three areas: remittance cost reduction, promoting FinTech adoption, and increasing financial inclusion. It analyzes six country mini cases from the top remittance recipient regions, to observe the impact FinTech adoption has on remittance cost and financial inclusion. It highlights factors like infrastructure development, regulation environment, financial intermediaries, compliance requirements, and technology simplicity that are affecting FinTech adoption. It also explores the role of traditional financial institutions in the FinTech ecosystem and how the financial sector can reach the unbanked segment in emerging markets. It observes trends in the case countries and generates insight based on facts, which is useful for FinTech companies implementing their solutions in emerging markets and for regulators wanting to create a conducive environment for FinTech growth. FinTech challengers need to adjust their solutions to serve the market by utilizing the infrastructure available. Regulators need to govern the financial industry without restricting innovation in the sector. The thesis demonstrates the impact of FinTech on the remittance industry.

**Keywords:** FinTech, remittances, emerging markets, infrastructure development, remittance service providers, money transfer operators, incumbents.

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## Glossary

| Abbreviations | Definitions  |
|---------------|--|
| AfCFTA        | African Continental Free Trade Area                    |
| API           | Application Program Interface                          |
| FDI           | Foreign Direct Investment                              |
| EGP           | Egyptian Pound   |
| FinTech       | Financial Technology                                   |
| GDP           | Growth Domestic Product                                |
| IDR           | Intermediation, Disintermediation and Reintermediation |
| IFC           | International Finance Corporation                      |
| IMF           | International Monetary Fund                            |
| INR           | Indian Rupee   |
| IOM           | International Organization for Migration               |
| iOS           | iPhone Operating System                                |
| KES           | Kenyan Shilling  |
| KSA           | Kingdom of Saudi Arabia                                |
| LMICs         | Low- and Middle-Income Countries                       |
| MTO           | Money Transfer Operator                                |
| MXN           | Mexican Peso   |

|       |   |
|-------|---|
| NVMs  | Newly Vulnerable Markets                                    |
| NGN   | Nigerian Naira  |
| ODA   | Official Development Assistance                             |
| PHP   | Philippine Peso   |
| PSD   | Payment Service Directive                                   |
| RSP   | Remittance Service Provider                                 |
| SDGs  | Sustainable Development Goals                               |
| SWIFT | Society for Worldwide Interbank Financial Telecommunication |
| UAE   | United Arab Emirates  |
| UN    | United Nation   |
| USA   | United States of America                                    |
| USD   | United States Dollar  |

## 1. Introduction

Millions of people from developing countries migrate to North America, Europe and other developed regions looking for better economic opportunities and an improved quality of life. According to IOM (2020), there were a total of 272 million international migrants in 2019. Asia, Europe, and North America each hosted around 84, 82 and 59 million of these international migrants, respectively. Every year migration increases due to violence and conflict, poor economic conditions, political instability, and natural disasters. Large numbers of people migrate to stable areas to reside and look for employment opportunities. In 2019, nearly two thirds of the total number of international immigrants, which is around 176 million, were labor migrants who resided in high-income countries. These migrants often send money to support their families back in their native countries. In 2018, more than 200 million migrant workers sent USD 689 billion to their home countries, of which USD 529 billion went to developing countries (UN, 2019). In that year, the top 3 countries that received the most remittances were India (USD 78.6 billion), China (USD 67.4 billion) and Mexico (USD 35.7 billion). The top 3 countries where remittances originated from were the United States (USD 68.0 billion), United Arab Emirates (USD 44.4 billion) and Saudi Arabia (USD 36.1 billion) (IOM, 2020). The top 3 recipients are all developing countries and the top remittance originating countries are either developed or have high income from the oil and gas industry.

Remittances are a half a trillion USD annual industry and have significant impact on the economics of the recipient countries. Remittances increase domestic savings and improve financial intermediation, which could in turn improve the growth prospects of countries (Ratha D., 2013). They have the potential to impact economies at the macro level. Originating from private sources, remittances are over three times the combination of official development assistance (ODA) and foreign direct investment (FDI) received by developing countries (UN, 2019). FDI and ODA are very important components of developing a country's economy, whether in contributing to efforts in eradicating poverty, creating employment, infrastructure development or accelerating GDP growth, both have substantial impact on the economies. Due to the higher influx of capital, remittances have far more significance and implications on economies of developing countries. The World bank estimates the total remittances received by low-income and middle-income countries in 2020 amounted to USD 540 billion, which is slightly lower than the previous year due to COVID 19 (World Bank, 2021). The GDP contributions of remittances for low-income and middle-income countries are 2.6% and 1.6%, respectively (The World Bank, 2020). In addition, remittances are the source of foreign currencies, for many developing countries



that could be used to repay hard currency loans, for importing products and other activities in the international market. It represents one of the largest sources of foreign exchange earnings for low-income and middle-income countries (Ahmed, Mughal, & Martinez-Zarzoso, 2021).

Remittance payments are crucial in achieving global goals. When migrants send money to their homeland, they contribute for at least seven of the seventeen SDGs. In particular; SDG 1: No Poverty, SDG 2: Zero Hunger, SDG 3: Good Health and Well-Being, SDG 4: Quality Education, SDG 6: Clean Water and Sanitation, SDG 8: Decent Work and Economic Growth, and SDG 10: Reduced Inequality (UN, 2019). Therefore, remittances contribute indisputably to sustainable development goals in many fronts mainly in the efforts to eradicate poverty and bring global prosperity.

There are a large number of families in developing countries who rely on income obtained from family members living and working abroad. Even small amounts of money that each migrant remits home make up about 60% of the families' household income, of which 75% of remittances are used to cover essentials such as food, medical expenses, school fees or housing expenses. The rest is for saving or investing (UN, 2019). Therefore, the main recipients of remittances are the low-income populations with a lack of access to resources and will use the remitted money to cover basic needs.

The cost of remittance is absurdly high (CGAP, 2015). A World bank (2021) report released in March 2021 states that the average global cost of remittance is 6.38% of the principal amount. Hence, migrants in the developed world regularly spend a portion of their income obtained from working long hours with minimum wages to support their family back home and cover the high remittance cost. The high cost puts a financial burden on both sides; on migrants who remit, and, on the recipient, who consequently benefits less from their family members' efforts abroad (Ahmed, Mughal, & Martinez-Zarzoso, 2021).

The total volume of remittances has increased by 54% since 2010. The decline in average remittance cost is 3.29% over a decade. In 2009, the global average remittance cost was 9.67%. Even if there is an improvement compared to remittances cost a decade ago, the cost remains high.

The issue of cost of remittances is very crucial, so as a result many multilateral organizations including the UN, World Bank and IMF are getting heavily involved. The UN has committed to reducing the cost to less than 3% by 2030, through SDG 10.c (UN, 2021). Thus, compared to the current average cost of 6.38%, there is a

long road ahead to achieve the targeted UN sustainable development goal in this regard. The UN is working to eliminate remittance intermediaries that charge more than 3%.

Cost of remittances vary by remittance channel and geography. Financial institutions are using the opportunity presented such as the lack of technological solutions and channels for sending money abroad to exploit people who use remittance services. Banks are the most expensive type of service provider, with an average cost of 10.66 %, while money transfer operators (MTOs) have 5.43% average cost (The World Bank, 2021). Even though they are expensive, Banks and MTOs are the most widely used channels. Mobile operators are the cheapest remittance service providers with an average cost of 3.12% but account for less than 1% of total remittance amount (The World Bank, 2021). The biggest money transfer operators are Western Union and MoneyGram. Sub-Saharan Africa is the most expensive region to remit money to with an average cost of 8.02%. South Asia has the cheapest remittance cost with an average cost of 4.64% (The World Bank, 2021).

As a master's student of Business Administration and Information Systems focusing on digitalization, I am trained to find digital technological solutions for business problems such as these. My educational background and work experience combine the areas of information technology and finance. Therefore, the topic at hand centered around FinTech adoption is a thesis topic that merges my two areas of interests.

The reason why this thesis focuses on FinTech in the emerging markets context and in the specific area of finance, remittances, is partly due to my personal life experiences. I come from Ethiopia, a Sub-Saharan country where remittance costs are the highest globally. I have experienced challenges related to remittances firsthand. The transaction costs are high, and payments are not settled in real time, taking at least a day. I am curious to explore why that is the case and why development progress in the area is still lagging. I believe introducing and widely adopting FinTech solutions to provide remittance services is the best way to solve the challenges related to cost and speed to settlement.

Given the importance of remittances to a developing country's economy, reducing the cost of remittance is an area that needs attention. Although there are different studies of remittances globally, the area is yet to be fully explored. Different multilateral organizations include remittance on published annual reports. There are also academic works, consulting company reports and government studies on the topic. However, most works tend to focus on reporting the current situation rather than providing solutions to the issue at hand.

Since the cost of widely used channels for remittances are high, it is necessary to look for other channels and solutions that are cheaper and faster to make international money transfers. My thesis explores the overall FinTech industry in emerging markets focusing on financial sub sector remittance.

FinTech is a powerful tool for sustainable economic development and financial inclusion benefiting groups in the bottom of the economic pyramid. This is true for emerging markets, which represents the majority of the population. FinTech adoption for remittance services could be a solution to the problem of high transaction costs. FinTech solutions for money transfer and payment which includes remittances solutions, are used by 75% of global consumers (EY, 2019, s. 5). However, the adoption of these solutions in developing countries is low.

The thesis addresses the following overarching question with three sub questions below:

- How can successful adoption of FinTech innovations in emerging markets contribute to economic development, implementation of digital financial services, transaction cost reduction and facilitating financial inclusion?
  - ✓ Will FinTech adoption in emerging markets help to decrease the cost of remittances?
  - ✓ Is implementation of remittances solutions promoting adoption of digital financial services in emerging markets?
  - ✓ Is FinTech a key tool for financial inclusion?

To address the research questions presented above, the thesis explores the FinTech revolution in emerging markets mainly focusing on remittances.

This thesis will be developed using high level qualitative and quantitative analysis of secondary data looking at countries and regions as cases. The methodology includes the analysis and interpretation of data obtained from different articles, reports and books on the area of FinTech in emerging markets settings. The theories of newly vulnerable markets, technological innovation, process disruption and industry transformation, and network externalities are used to understand and explore FinTech in emerging markets.

The focus of this thesis is to understand the development and impact of FinTech in emerging markets in terms of economic development and financial inclusion in relation to remittances. It is structured starting with an introductory chapter, which gives the background facts on the topic, a summary of literature, and theories in relation to the topic at hand. I will then highlight the industry context specifically to remittance solutions. After that, I will explore how FinTech operates in emerging markets in relation to theories identified. In addition, the

chapter formulates hypotheses that will be explored and tested. Then, a summary of methods and data used will be presented. The next section presents my analysis work in the research and the result of the exploration. I will also discuss the findings and lessons learned. The thesis concludes by explaining the academic and industry contributions and limitations.

## 2. Background literature and relevant theory

This chapter presents literature and theories that are related to the general FinTech industry and remittances services. It explores different scientific methods that lay the foundation for FinTech adoption in emerging markets. The chapter begins by defining relevant terminologies that are related to FinTech and remittances. Then, a high level description about the evolution of FinTech will be presented. Following that, factors and characteristics that affect FinTech adoption will be discussed by adopting a theoretical framework. Finally, theories that are relevant to answer the research questions will be explored one by one.

The theories that will be used are newly vulnerable markets, technological innovation, process disruption and industry transformation, and network effects. I believe these theories are relevant to explore the topic of this thesis and to address the research questions. In many industries, emerging markets are attractive to enter, whether to launch new products or extend current offerings. These markets are known to be risky but have higher growth rates than developed countries. In many cases emerging markets are yet to be penetrated, which present untapped potential and demand to be served by newly entrants. Therefore, the thesis will be exploring these characteristics of emerging markets for the remittance sector, using the theory of newly vulnerable markets. Companies attempt to understand the nature of technology evolution to create accurate forecasts, take advantage of investment and market opportunities, and maintain or grow market shares (Adomavicius, Bockstedt, Gupta, & Kauffman, 2007). Whenever technological innovations are introduced to new markets, they have the potential to disrupt the current processes and ways of serving the market. Process disruptions result in favourable conditions for new business models to emerge and further lead to industry transformation. When exploring the adoption of remittance technologies, network effects in relation to emerging markets will be explored. In addition to three theories mentioned above, the thesis will explore FinTech implementation factors using the 3D framework developed by (Ng, Kauffman, Griffin, & Hedman, 2021).

## 2.1. Terms, definitions, and industry concepts

FinTech is defined as technological innovations enabling business models that can facilitate disintermediation, change how the market creates and delivers value, address privacy concerns, address regulatory and law-enforcement challenges, provide new ways for innovation, and create opportunities for inclusive growth (Dhar & Stein, 2017). Therefore, FinTech innovations result in changes to business models to optimize the way of creating and delivering value to the market. This thesis defines FinTech as digital technological innovations and solutions that transform how the financial sector operates and serves its customers. Digital Innovations are processes that are enabled by digital technologies that lead to new forms of production and consumption of products and services (Yoo, Henfridsson, & Lyytinen, 2010).

FinTech solutions are implemented in various areas of finance including digital payment services to create cashless society, digital currencies, facilitate instant transactions through mobile banking, remittances to make international money transfers, insurance services etc.. However, the focus of this thesis is on the financial sub sector of remittances. Remittances are defined as foreign workers sending part of their earnings in the form of cash or goods to support their family living back in their native land (Ratha, 2018).

Since the remitters are working outside their country and sending money back home, remittances involve international transfers, which require different financial and technological capabilities to make the transactions possible. Remittances are more complicated than domestic transfers which are between local banks, even within the same bank, using the same currencies and governed by the same law. Generally, remittances involve currency conversion, and financial corridors located in the sending and receiving countries. Banks, MTOs, post offices and mobile operators provide remittances service for a transaction fee.

FinTech has evolved and showed major developments throughout the years. Looking at remittance channels in the past and how they evolved throughout the years, there are several changes in the process and the intermediaries involved. Before the current remittance systems emerged, money used to be transferred primarily by informal channels called Hawala. The hawala system works through payment settlement without physical money transfer, through brokers located in sender and recipients' countries (Cassara, 2006). Even now, the hawala system still exists and is used by people who don't want to use the formal channels. In addition to hawala, people used postal services for remittances.

The financial industry was transformed over the years with the introduction of SWIFT, mobile banking, digital wallets, and other innovations. In 1973, SWIFT was introduced, which created a way to transfer money

globally (Meek, 2018). SWIFT provides a secure network to transfer money and it is widely used by banks and other financial institutions. Although banks were the main players for international transactions, money transfer operators such as Western Union and MoneyGram became the main channel for remittances. MTOs are preferred by customers because of their lower prices. The introduction of online payment systems such as PayPal made money transfers fast and cheap. Currently, there are multiple mobile operators that are used for remittance services.

All this was made possible due to innovations in different levels of layered architecture that are continuously changing how the market is served. Digital characteristic of innovation enables generativity in multiple levels. According to Yoo et al (2010), layered architecture consists of four layers: device, network, service, and contents, in which innovation can be carried out in any of the levels. The FinTech innovation could be at the device layer, where physical devices like contactless card reader machines or dongles can be connected to swipe cards in order to serve customers in a new way. The network layer focuses on physical and logical networks that can be used for transmission, which can be seen as networking devices and transmission protocols. Service layer is concerned about the application functionality that serves users. Remittance solutions like mobile apps are mainly on service level in which it changes the process of how the services are delivered to customers. Throughout the years, remittance services delivery channels and methods are changing and showing progress due to different financial technological innovations. Remittances are transforming, from sending cash by hawala or postal services, to payment transfers in banks or MTOs physical branches, to wire transfers enabled by internet banking, and now to mobile solutions.

The implementation and adoption of FinTech solutions are affected by different factors. I will explain these factors by adopting the 3D framework developed for cashless payments to remittances. The three characteristics are digitalization of the local implementation environment, novelty of technology solutions, and national infrastructure development (Ng, Kauffman, Griffin, & Hedman, 2021).

The first dimension, digitalization of the local implementation environment characterizes the extent to which the local business environment is able to effectively support innovation implementation (Ng, Kauffman, Griffin, & Hedman, 2021). When looking at this in terms of remittances, it is important to consider digitalization of remitting individuals; are they using enabling technologies like digital phones, are users familiar with similar mobile apps and solutions, and what is the education level of users? FinTech solutions for remittances can be better adopted if the customers are smartphone users or have access to other digital devices to utilize the

remittance solutions. Another consideration is, if customers use similar solutions, for instance do they use mobile banking apps in their everyday life? The literacy rates of potential users must be taken into consideration. Will users be able to understand and use the remittances solutions, is there a language barrier to use a certain solution or can it support both sending and receiving countries' language. All these factors contribute to the successful implementation and adoption of FinTech solutions.

Second dimension is technology solution novelty, which identifies the nature of the solution that is to be supported, based on whether it involves complex and high-performance services, which are new and different for the country or the locality in which the implementation is being conducted (Ng, Kauffman, Griffin, & Hedman, 2021). Another factor that affects the implementation rate is relative novelty of a given remittance technology solution in a country at a specific time. When technological solutions are less complex, they have more acceptance by users. Remittance solutions are usually used by recipients as a notification and account managing platform, which is simple to use for the average user. It is also the same for relative novelty of technologies. If the technology is well known, it can be adopted faster. This could be due to the same side network effect, where remittance receivers are growing because of other users on the same side and vice versa.

National infrastructure status is the third dimension of the framework. The development status of the national infrastructure is an important factor for implementation of FinTech solutions. Infrastructures are enablers for any innovation because the success of their operation depends on the availability and the strength of the infrastructure. Lack of infrastructure development in emerging markets is a big challenge for successful implementation of FinTech solutions. Developing countries sometimes are able to leapfrog their legacy infrastructures by using mobile payment solutions, (Ng, Kauffman, Griffin, & Hedman, 2021). According to a news article by the UN (2019), around 50% of global remittances goes directly to rural areas in developing countries. In most rural areas of developing countries, access to electricity and the internet is very limited. Underdevelopment of infrastructure makes it challenging to introduce new solutions that can support remittances. For instance, it is difficult to introduce mobile solutions if the area does not have the basic infrastructure to power cell phones.

In addition to the three factors above, laws and regulations in emerging markets can be considered as the fourth dimension. There is a pattern looking at the relationship between country regulations and the implementation of FinTech solutions. It is important to see if the laws and regulations in place provide a conducive environment for FinTech adoption. When laws of a country favor and encourage innovations in the

financial sector by opening up different areas it will result in higher adoption and growth of FinTech solutions in the country. The reverse is also true, when the laws are restrictive and closed the successful implementation rate goes down and adoption will be limited.

## 2.2. The relevance of newly vulnerable market theory

The markets that offer the greatest advantage to new entrants have been termed newly vulnerable markets (NVMs) (Clemons, Croson, & Weber, 1996). It is a viable strategy for many new entrants to introduce their offerings to NVMs. However, is the remittance sector in emerging markets newly vulnerable?

When introducing a product and service to a new market, it is important to understand the market's characteristics for successful penetration. The same is true for the remittance sector, for effective implementation and adoption of remittance solutions, understanding emerging markets is crucial. FinTech strategy to penetrate the emerging market could be targeting the bottom of the pyramid, the unbanked segment, which is the unstructured market who use traditional remittance channels. The newly vulnerable market theory is relevant to understand the condition of a new market in relation to three components: attractive to attack, difficult to defend and newly easy to enter.

The remittance industry in emerging countries is attractive to attack because of cost advantage and unexploited market opportunity that is yet to be served. Even though FinTech solutions such as mobile operators offer the cheapest and fastest way of remitting, only a small percentage of people use such channels to send money. New entrants can capture these opportunities in the market by offering FinTech solutions to serve demand. FinTech challengers have a business model that is supported by technology, which enables them to minimize cost. For instance, mobile operators provide service online with no physical branches, which decrease human resource and office related costs. These remittance service providers can offer better prices to the market and still be profitable due to their lower cost. Therefore, potential for high profitability comes from both lower cost and high volumes which makes the market attractive to attack.

The second dimension of NVMs is difficult to defend. In emerging markets, technological changes in the financial sector are often perceived as a threat to the traditional providers and incumbent players like banks and MTOs (AfricInvest, 2016). FinTech innovations disrupt the market and force incumbents to reconsider their way of conducting business in multiple areas. When challengers get into new markets, it is often hard for incumbents to replicate the FinTech innovators strategy immediately, due to their old systems and legacy technologies that are in place. FinTech innovations in the area of remittance involve business model innovations that change the



way value is delivered to customers. Unlike new product and process innovations, competitors might find it difficult to imitate or replicate an entire novel activity system (Amit & Zott, 2012). Therefore, often emerging markets are difficult to defend.

The other component of NVMs is newly easy to enter. This can be explained as a new opportunity that arises due to regulatory, technological or distribution changes that reduces barriers to entry in a market (Clemons & Thatcher, 2008). Emerging markets are going through transformation and growth in multiple fronts, which includes the financial sector. Some emerging countries' governments are changing their laws and regulations, liberalizing the financial services sector to support economic growth. Overall, there is a growth focus in emerging markets as share in international transactions increase, due to initiatives such as the African Continental Free Trade Area (AfCFTA) and other changes in regulations (Seeh, 2021). However, this component of NVM needs to be explored based on each case country at a later point of the thesis.

### 2.3. Innovation, disruption, and transformation of the remittance market

In this subsection, the theory of technological innovation, process disruption and industry transformation will be explored in the financial sub sector of remittances. The theory explores where the FinTech Revolution phenomena comes from in the various sub sectors of financial services, what are the technologies, what are the disruptions and changes, and how is the industry being transformed (Adomavicius, Bockstedt, Gupta, & Kauffman, 2007). Therefore, the various technologies available for remittance, how the industry is disrupted and transformed will be explored.

The channels available for remittances are banks, MTOs, postal services and mobile operators. Different remittance channels use technology at different levels. Some use it as a support for operations while others use it as the core of the service offering. Companies are required to make major changes to survive in the market when industry is transformed due to business process disruptions. FinTech innovations emphasize an information-based transition that often causes business process disruption and industry transformation, moving toward cashless payments involves greater complexity for countries and firms that must undergo extensive changes – with no certainty of success ((Clemons, Kauffman, & Weber, 2017), (Gomber, Kauffman, Parker, & Weber, 2018)).

Remitting through banks involves international wire transfers between sending and receiving banks. The payment instruction will be shared over a secured network (SWIFT) to correspondent banks, and it will be paid out to the recipients and the payment will be settled between the two banks at a later point. The transaction might

take several days depending on the country. The banks profit from remittances fee, which is a percentage of the principal amount to be transferred, and also foreign exchange fee when converting currencies. In the past, banks have been at the center of the cross-border payments market, which was led by a few dominant global correspondent banks with little competition. This resulted in various challenges, including a lack of transparency, long settlement periods, high transaction costs, and limited accessibility (Seeh, 2021).

MTOs are defined by IMF (2009) as financial companies (but usually not banks) engaged in cross border transfer of funds using either their internal system or access to another cross-border banking network. These companies have local representations in the receiving end that will execute payment and deposit the money to the recipient account. Although banks are dominant in high value cross-border payments, traditional MTOs are leading players in small transfers like remittance by leveraging their large physical presence across the world. MTOs charge less fee than banks but still have high rates due to the existence of intermediaries and physical offices.

Mobile operators are FinTech innovators that provide digital remittance services through a mobile app with absence of physical offices. These remittance operators use innovative solutions to provide their services, which are easy and fast to use. Mobile operators are the focus of this thesis and will be explored further in the next chapter.

The remittance market is getting disrupted by continuous innovations. New entrants continue to put incumbents under pressure, challengers are winning market share in the sender front-end, and mobile wallets are gaining traction as a pay-out medium for remittance payments (Seeh, 2021). Although the average cost of remittance is going down, the way incumbents serve the market has not changed. It involves a relatively slow and expensive process compared to what FinTech challengers are offering. FinTech challengers are slowly disintermediating the traditional remittance system and taking market share from incumbents. Analyzing this alongside the theory of intermediation, disintermediation and reintermediation (IDR) cycle, in Chircu & Kauffman (1999), first traditional players and their correspondents were intermediated in the market. Then, challenger FinTech service providers enter the market, and they disintermediate the traditional way of remitting. The reintermediation stage is expected to be seen in the future, however currently traditional remittance service providers are leveraging their current market share, networks, financial position, and customer base to protect their position without making major changes to push back FinTech challengers.

New specialized players are challenging the dominance of incumbent banks by offering innovative solutions to traditional pain points (Seeh, 2021). The disruption brought by challengers tries to eliminate the need for intermediaries that facilitate the remittances process. If both the sender and receiver are customers of the mobile operator the transfer can be made directly to the mobile money account. Intermediaries include representatives in the receiver's countries that perform currency exchange and carry out the final hand into the recipient. The industry transformation is not only the elimination of intermediaries, but also the medium of the service is different. The process is done over a mobile device on both the sender and receiver's ends. Senders can remit money with a mobile app and receivers can get the money using just the mobile app, instead of going to a bank or MTOs branch to make the transaction. Therefore, the innovations are bringing business model innovation and transforming how the whole industry operates.

#### 2.4. The role of network effects

Network effects is the value of the remittance platform that is enhanced by other users of the platform and compatible products. The presence of network effects in remittance platforms increase adoption by creating more value for users in terms of cost, speed, and ease of use. The impact of network effects in FinTech solutions adoption, can be observed in both, presence of other users, and compatibility of other products.

The way remittance apps are setup, at least one side, the sender or receiver, needs to be the customer of the remittance operator. The transfer can be made from/to the mobile wallet using the app. Although it is possible to make the transfer with one party onboard in the mobile app, it requires the involvement of other mobile operators or banks on the other end to make the transaction possible. The intermediaries might charge senders or receivers additional fees, depending on the entities and the countries involved. All these intermediaries increase the time and the cost of remittances. Remitters can send and their recipients can get the payment through the same platform. Therefore, the presence of other users in the platform increases the value of the apps because it creates an opportunity for customers to remit to other users in a faster and cheaper way.

However, this is not always possible for both sides to be on the same platform because of different reasons, such as the mobile operator does not operate in all countries, regulation restrictions might prevent operation. In this case, other local operators in the sending or receiving side that are compatible with the mobile operator get involved in the remittance process. The absence of expensive channels such as banks, still allow remitters to get value from the network effect that is generated from the compatibility.

### 3. Research context

In this chapter, the thesis explores the general FinTech trends to establish context and understand the remittance industry in emerging markets. This includes the FinTech ecosystem, FinTech trends, and challenges in emerging markets. In addition, the chapter explores the trends in the remittance industry.

#### 3.1. FinTech ecosystem

Innovative businesses need to interact, create partnership, and share resources to succeed in the market. According to Moore (1993), a business is not just a member in a single industry, but a part of an ecosystem crossing multiple industries. All ecosystems include participants that contribute, and facilitate value creation, directly or indirectly. Value is created for users, through the cooperation of participants performing different roles. Each player leverages its position within the ecosystem to create and capture value.

Iansiti & Levien (2004) define keystone organization in their article as, central players that hold position of power to influence the ecosystem. Keystone players interact with many smaller companies in the ecosystem to enable value creation. Niche players are differentiated specialists adding diversity and valuable capabilities to keystone organization and the overall ecosystem. The article identifies several roles in business ecosystems, but this thesis only explores a few roles that are more relevant to the topic of research.

The FinTech ecosystem supports a diversity of niche players to encourage innovation in different areas of finance. FinTech startups are positioned as niche players in the ecosystem, focusing on one or a few areas of finance such as payment services, personal banking, digital wallets, remittances, insurance, retail investing, online banking, or crowdfunding. In contrast, incumbents like banks provide a variety of services all together. Often, niche players depend on keystone players to create value to users. Niche players differentiate themselves in the market and exploit keystone capabilities to create value. They can build unique capabilities on top of the keystone platform to provide their services. Keystone players have financial and technology capability in large scale to interconnect ecosystem participants, and without keystone players the ecosystem will collapse. In ecosystems, keystone firms provide a platform while niche players add value to the platform (Rong, Hu, Lin, Shi, & Guo, 2014). For instance, in open banking independent developers pull customer data from the banks to provide additional services to customers through APIs. FinTech startups tend to focus on specific, niche areas and scalability efforts are driven by accessing data through banks (Singh, Chandrashekar, & Singh, 2020). In

most cases, FinTech startups do not own the customers, rather they are adding value to the customers of traditional financial institutions. All these interactions and cooperation promote innovations in different areas and help to create a growing healthy ecosystem.

The FinTech ecosystem is growing continuously through innovation and cooperation among ecosystem participants. Some incumbents partner with FinTech or acquire a startup in order to maintain their position in the ecosystem as key players. Startups can benefit from the incumbents' financial position and status in the market. Incumbents have a reputation and customer base that are built over the years. They can benefit from the creativity and technology of startups without making a drastic change. It is a way to leapfrog their legacy systems and retain their customers from being taken by FinTech challengers.

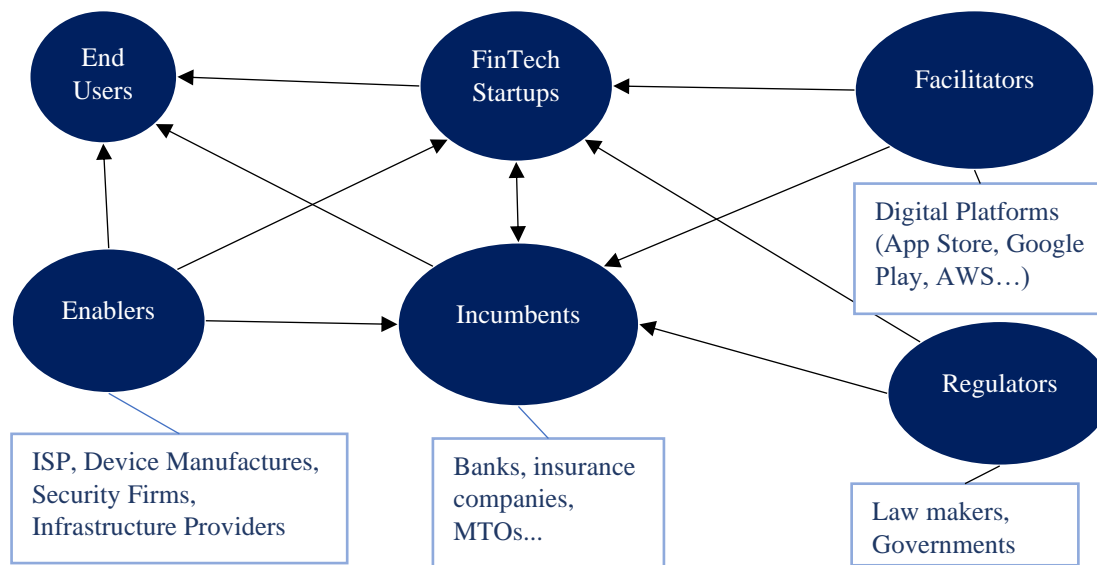


Figure 1 FinTech Ecosystem

The thesis categorizes the roles in the FinTech ecosystem to 6 groups, as indicated in the above figure. End users are the parties that benefit from the value created by the ecosystem. There are incumbents, traditional financial institutions, despite their outdated operation they are in the center of the ecosystem. That is because they are still the core provider of financial services, and other players in the ecosystem need to interact with them at different levels. Thus, traditional financial institutions remain important for the ecosystem to function properly. FinTech startups are challengers that bring financial innovations to the market. The enablers category are the players that provide hardware, software and network capabilities used by the ecosystem. The products

and services enablers provide, is required for the ecosystem to operate, even if they are not directly involved. Facilitators are groups that provide a platform for the ecosystem participants to deliver their value. For instance, if a FinTech startup develops a remittance app for iOS, the app needs to be made available in the App Store for users to access it. Then regulators in the ecosystem give the rules and regulations that the ecosystem is governed by. All participants contribute to the ecosystem in different levels and are crucial to the FinTech ecosystem. The categories listed here might not be exhaustive, rather it is a broad classification to group the participants in the ecosystem.

### 3.2. FinTech trends and challenges in emerging markets

According to a report published by World Bank, (2017), globally about 1.7 billion adults are unbanked without access to financial institutions or mobile money providers. The largest portion of this population segment resides in developing countries. The report identifies reasons for not using financial institutions, such as lack of money, account costs, financial institutions located far away, lack of trust, lack of necessary documentation etc.

FinTech companies such as Ripple Impact, M-PESA, Paytm, Lemonade, Square and several others are promoting financial inclusion in different areas of FinTech, by creating an opportunity for people to access services using their mobile phones. Mobile phones, the internet and other infrastructures can drive financial inclusion (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2017). The growing penetration of smartphones in emerging markets and access to the internet, create a conducive environment for adoption of FinTech solutions. The percentage of mobile phone ownership among adults in emerging economies has risen to around 83% (Seeh, 2021). Smartphone ownership is expected to increase further in the future, which is a good way to increase financial inclusion through FinTech. Many studies show that millions of adults all over the world opened their first account to receive payments digitally. FinTech companies offer consumers faster and cheaper services, in user friendly platforms that can be easily accessed by mobile phones. Unlike incumbent institutions, FinTech platforms have less documentation requirements to register, in some cases an email or a phone number is enough to sign up and access services. Therefore, more and more people in emerging markets are benefiting from financial inclusion that is created by FinTech.

The level of FinTech development varies in different countries. FinTech is far more developed and integrated in some emerging markets. The development level depends on different factors such as level of digitalization, infrastructure development, regulatory barriers and FinTech investments. In large Asian emerging

markets like China and India, the FinTech industry is advanced and well-integrated. Several FinTech companies are involved in providing digital financial services. Factors such as stable macroeconomic fundamentals, growing middle class, increasing demand for fast and cheap digital services, regulators support and incumbents' willingness to collaborate with FinTech companies contribute to the development of FinTech in Asian countries (Alexander, Shi, & Solomon, 2017).

The FinTech sector is experiencing accelerating growth in both Africa and Asia continents, however the development of FinTech in Africa is lower due to different factors like, poor infrastructure development, regulatory barriers and currency fluctuations. Although Africa has the highest mobile penetration rate in the world, it is not backed by the necessary infrastructure such as electricity and reliable internet. Thus, the poor condition of the infrastructure is limiting FinTech adoption. For instance, M-PESA, one of the biggest money transfer operators in Africa, was not able to penetrate the South Africa market because of strict digital wallet regulations, and low mobile network subscription rates (Alexander, Shi, & Solomon, 2017). When it comes to finance, customers want to have a secure and reliable provider. People will be less inclined to use digital payments if network outages or other technical problems undermine their dependability (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2017). One reason why people prefer traditional financial institutions in these regions is because they have a more reliable channel to provide their services, they have physical presence and if something goes wrong customers can get assistance in person. Traditional financial institutions have been around for years and are more trusted by customers. For FinTech companies the main medium to provide their services is being affected by underdevelopment of enabling infrastructures, which are affecting the quality of their services. Thus, current customers are less likely to keep using the FinTech service and recommend it to potential users.

Regulation wise, some countries have very restrictive laws which impose structural barriers for many FinTech companies to access the markets. To obtain a license for financial services, companies could face bureaucracy that requires a lot of time and money. Other countries totally closed their financial sector for foreign companies. Some others are more open to adopting FinTech in their economies but do not have the laws and regulations to accommodate the FinTech sector. For instance, there is a lack of regulation and directives like Europe's Payment Services Directive (PSD) in place to manage the opening of financial services to third parties service providers.

Hence, the rate of FinTech adoption in the region is influenced by the factors discussed above and how the factors influence one another. Despite all the barriers that are limiting FinTech development in the region, some African countries such as Kenya and Tanzania have success in FinTech areas like digital payments with M-PESA. Comparing the Asian and African market, mainly in Asia incumbents cooperate with FinTech companies, on the other hand in Africa incumbents and FinTech companies usually compete with each other.

FinTech companies provide faster, cheaper, secure, and transparent financial services to their customers. Customers in emerging markets are becoming aware of the benefits of FinTech, are demanding better service from traditional financial institutions or are adopting FinTech solutions. Economic activities that are performed in cash are not transparent and less likely to be traced. This contributes to corruption and money laundering in many countries. For instance, when remittance payment is done in informal channels it can be used to move illegal money internationally and inject it to the world economy. Governments are realizing the benefits of FinTech to economic development and financial transparency, and they are changing the laws and providing infrastructure to support the FinTech development.

International FinTech companies are showing a growing interest in emerging markets. FinTech investments in emerging markets are increasing every year. In the past five years, emerging markets saw mega FinTech deals like Branch, WorldRemit, OPay, MoneyTap, and several other deals were closed in these regions. FinTech investment has increased across emerging markets over the last five years, totaling USD 23billion. across regions (Catalyst Fund & Briter Bridges, 2021). In the figure below, the thesis presents the growing investment on FinTech for the past five years in three different emerging regions, Africa, Latin America, and South Asia.

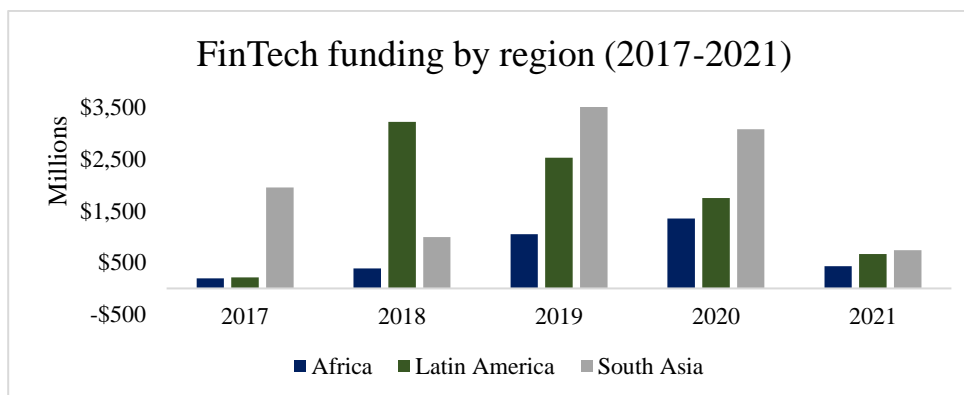


Figure 2 FinTech funding by region over the last 5 years. Source: Adapted from: Catalyst Fund & Briter Bridges (2021)



In the years 2020 and 2021, COVID 19 pandemic has a negative impact on FinTech investments in emerging markets. However, many studies suggest that COVID 19 has a positive impact, in terms of accelerating digitalization of financial services, due to global restrictions-imposed people are forced to use digital financial solutions to transact during lockdowns.

### 3.3. Overview of remittances market

As the focus of this thesis is on financial sub sector remittance, I will take a closer look at the remittance market and its trends. The annual remittance flow is more than half a trillion USD. Primarily, remittance originates from developed countries and flows to the developing world. The top remittance recipient countries are located in Asia, Africa and Latin America regions. The figure below shows the top ten remittance recipient countries in 2020.

| Countries   | Remittance amount in billion USD | Change from 2019 |
|-------------|----------------------------------|------------------|
| India       | 83.1                             | -0.2%            |
| China       | 59.5                             | -13.0%           |
| Mexico      | 42.9                             | +9.9%            |
| Philippines | 34.9                             | -0.7%            |
| Egypt       | 29.6                             | +10.5%           |
| Pakistan    | 26.1                             | +17.4%           |
| France      | 24.5                             | -8.8%            |
| Bangladesh  | 21.8                             | +18.4%           |
| Germany     | 17.9                             | -2.0%            |
| Nigeria     | 17.2                             | -27.7%           |

Table 1 Top 10 remittance receiving countries in 2020 in billion USD. Source: Adapted from Statista (2021)

World Bank (2021) reported that, despite the global pandemic (COVID 19), remittances flow showed resilience. The total remittance amount decreased by a small percentage, 2.4%. Even some countries showed an increase in remittance inflow, due to migrants sending more money to help their family in times of crises. In 2020, from the top ten remittance recipient countries shown in the above figure, Mexico, Egypt, Pakistan, and Bangladesh showed 9.9%, 10.5%, 17.4%, and 18.4% remittance inflow increase respectively, compared to the previous year.

Remittance involves international transactions and transfers that are made through different formal and informal channels. Formal channels for remitting are banks, MTOs, mobile operators, and post offices. The most widely used channels are banks and MTOs. Over the past decade the average remittances cost was decreasing for all formal channels except for post offices, due to declining number of transactions (The World Bank, 2021). In 2021, banks showed a slight increase in average cost. The table below presents the latest figures, of average remittance cost by remittance service provider (RSP).

|                         | <b>2020</b> | <b>2021</b> | <b>Change</b> |
|-------------------------|-------------|-------------|---------------|
| <b>Banks</b>            | 10.51%      | 10.66%      | +0.15%        |
| <b>MTOs</b>             | 5.99%       | 5.43%       | - 0.57%       |
| <b>Mobile Operators</b> | 3.37%       | 3.12%       | -0.25%        |
| <b>Post Offices</b>     | 7.49%       | 8.79%       | +1.3%         |

*Table 2 Average remittance cost by RSP. Source: Adapted from World Bank (2021)*

Although there are no clear figures on remittance flow through informal channels, it is known that there is significant flow through unofficial networks without being recorded by financial institutions or government organizations. In many cases, sending money through informal channels is cheaper. A key factor that causes migrants to use informal channels when sending money back home is the high cost of transferring funds through formal channels (Gibson, McKenzie, & Rohorua, 2006). Formal channels have higher transaction fees in addition to currency exchange fees when providing remittance services, so a considerable number of people prefer to use informal channels. Illegal migrants who are staying and working in host countries illegally use informal channels to send money. Informal channels are not secure, there is no guarantee the money will be delivered. It also creates opportunities for money laundering and other illegal activities because all flows are in cash without legal documents.

## 4. Theory model and hypotheses

### 4.1. Conceptual model and theory

In this chapter, the thesis develops conceptual models to visually represent hypotheses and research questions to be explored. Thus, hypotheses formulated will be explored in mini cases to evaluate and test assertions. Since the aim of this thesis is to explore emerging markets in the area of FinTech focusing on remittances, it explores essential factors that affect cost of remittance, FinTech adoption, and financial inclusion. To evaluate and test speculations made in the hypotheses, factors including infrastructure development, laws and regulations, technology readiness etc. in case countries will be considered.

Looking at the hypotheses in relation to scientific methods and theories that are discussed in chapter 2, the thesis explores the component of NVM theory, newly easy to enter to emerging markets due to changes in laws and regulations. Innovation disruption that is brought by the FinTech industry is transforming the financial sector. Governments and policy makers are taking different initiatives to accommodate FinTech into their financial sectors to increase adoption. Network effects can further increase FinTech adoption in emerging markets. The strategy followed by several FinTech companies entering emerging markets, targeting the bottom of the pyramid with simplified services, which is the population segment that is last to be served by traditional financial institutions. Therefore, FinTech companies can penetrate emerging markets serving the demand of the poor unbanked segment promoting financial inclusion.

In the below figure, the thesis models each hypothesis that is later to be tested using case countries and different FinTech solutions implemented in the areas of remittance. The assertions made by the hypothesis represented by X, bring the predicted outcome Y, in the presence of conditions that are represented by Z. Therefore, if X brings the outcome Y in the presence of conditions (Z) the hypothesis (H) is true or conditionally true.

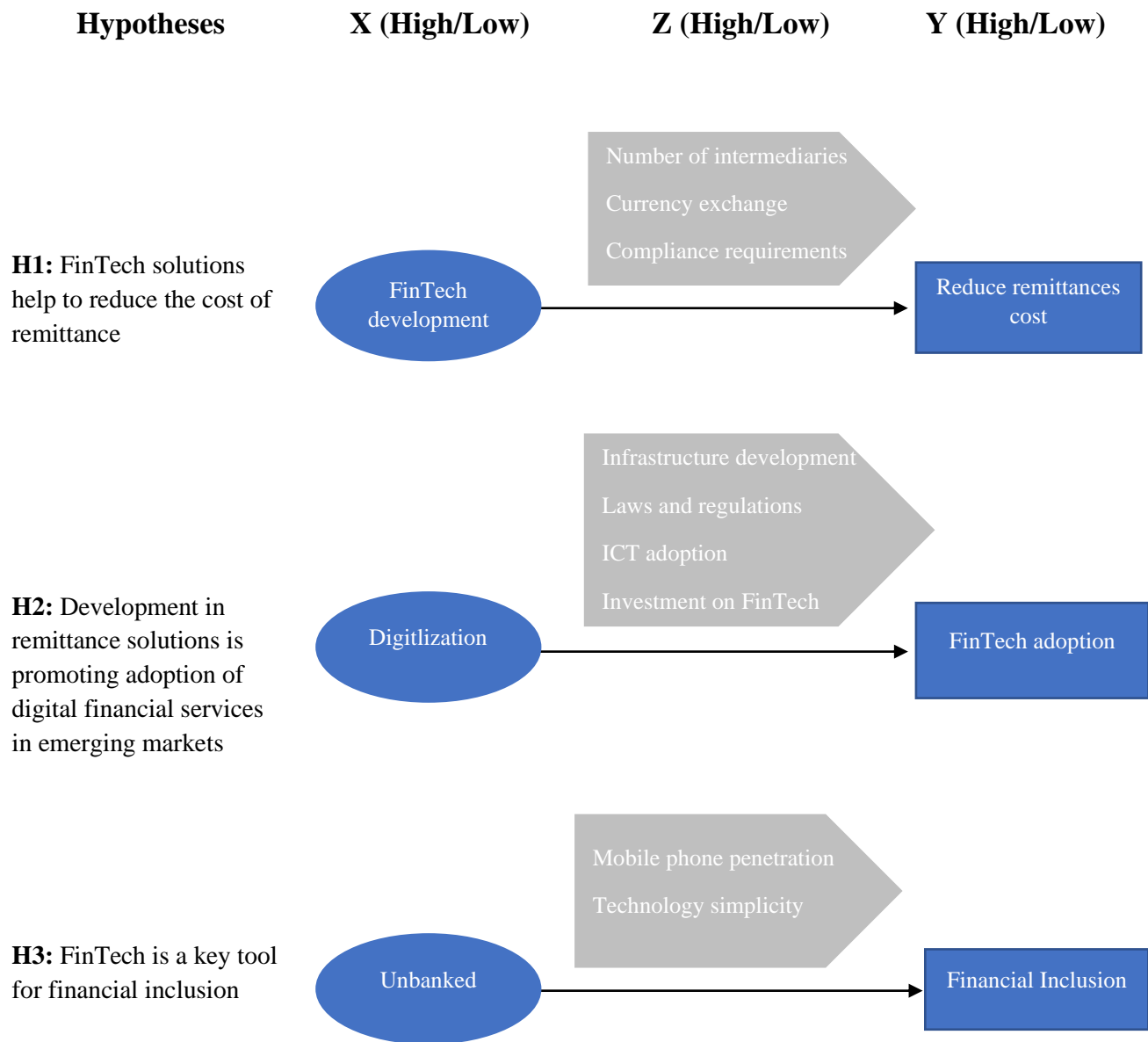


Figure 3 Theory Model: visual representation of the hypothesis

## 4.2. Hypotheses

The hypotheses represented in the above model will be presented and explained below. The thesis evaluates the assertions made by the hypotheses by using mini country cases in emerging markets. The mini cases and factors explored do not represent all aspects of FinTech in emerging markets. The thesis presents some limitations in chapter 8.

### H1: FinTech solutions help to reduce the cost of remittance.

The first hypothesis in this thesis is to evaluate the impact of FinTech solutions on remittance cost in the presence of different factors. The cost of remittances is affected by the number of intermediaries involved, currency exchange fees and compliance requirements of the sending and receiving countries. The involvement of multiple intermediaries in the process of remittance increases cost. Each intermediary wants to benefit from facilitating transactions that eventually increase the price customers need to pay. In addition to channel used, the instrument used for sending and disbursing funds affects remittances cost. The form of pay in and payout depends on the intermediary's outlet availability and customer's choice of instrument. Cost component of remittance includes transaction and foreign exchange fees. Customers are charged high foreign exchange margins when remitting, in addition to transaction processing fee. Some MTOs and banks use exchange rate spreads to hide their high transaction fee. So even if their transaction fee appears to be low, it is highly compensated by foreign exchange margins. Foreign exchange factor is a crucial component for emerging countries because there are currency fluctuations, and the value of their currency might be decreasing compared to the developed countries where remittance mainly originates. The other factor is compliance requirements of the sending and receiving countries. In some countries when regulation is strict it might require additional cost to comply with rules and regulations of the host countries when providing services. Financial institutions need to follow the rules given by the country they are operating and there are costs associated with that, which ultimately affect the remittance cost. There are countries in emerging markets that allow remittance to be paid out only through banks. Many developing countries would not allow their residence to have foreign currency accounts which brings the foreign currency exchange cost.

### H2: Development in remittance solutions is promoting adoption of digital financial services in emerging markets.

The second hypothesis tries to explore the relationship between remittance solutions and FinTech adoption in different settings, using the mini cases. FinTech adoption rate and penetration in a country can be affected by infrastructure development, laws and regulations, ICT adoption, and FinTech investment in the

country. Infrastructures are enablers for implementation of FinTech solutions. Whether it is electricity or the internet, the availability of infrastructures affects adoption and penetration of FinTech solutions because the technologies are facilitated by the infrastructures. The other factor is laws and regulations that govern the financial sector of the case countries. The existence or absence of laws and regulations impacts the implementation of FinTech solutions because companies need to comply with the rules when providing services. Laws regulation can support the implementation of FinTech by setting requirements. On the other hand, the presence of strict regulation might restrict implementation and FinTech adoption. ICT adoption in terms of level of digitalization and mobile phone penetration is the other factor that affects FinTech adoption in emerging markets. The relative digitalization level of the implementation environment affects the level of penetration of FinTech. The level of smartphone penetration, the simplicity of FinTech solutions (high or low tech), affects FinTech adoption. The last factor to be considered affecting FinTech adoption is investment on FinTech. The level of investment can impact the penetration of FinTech. In some emerging markets FinTech has gotten focus from different investors and the level of investment is increasing. Even some governments give emphasis to the sector and support FinTech adoption through their policies.

### H3: FinTech is a key tool for financial inclusion

The final hypothesis explores the impact of FinTech on financial inclusion in case countries. The thesis tries to observe how FinTech impacts the financial sector in emerging countries and how it promotes people to use financial institutions. The impact of FinTech on financial inclusion in emerging markets will be evaluated by considering factors such as mobile phone penetration and the level of complexity of services that are introduced by FinTech companies. Large number of people residing in emerging markets are unbanked. The implementation of low-tech solutions that can be accessed using mobile phones might facilitate financial inclusion. The strategy of some FinTech companies is to focus on poor and unbanked individuals that lay on the bottom of the pyramid. Instead of focusing on corporate clients and wealthy individuals that are already being targeted and served by traditional financial institutions. In addition, the thesis explores remittance contributions to economic development in emerging markets that can be observed as a ripple effect from financial inclusion through FinTech.

## 5. Methods and data

In this chapter, the methods used for the thesis will be presented. The content of the chapter includes, description of data collection methods, data analysis methods, and role of theories and evidence. In addition, reasons for choosing specific methods and approaches will be presented. Explanations about why it was appropriate to use a certain method over others will be given. This includes primary and/or secondary data; qualitative and/or quantitative techniques; and deductive or inductive approach. Methods are defined as procedures and techniques that are used to collect and analyze data to answer research questions (Saunders, Lewis, & Thronhill, 2015). Thus, methods are tools and components that are used to address the research questions.

### 5.1. Research methods

To analyze the problem of remittances cost and FinTech adoption in emerging markets, three hypotheses were formulated in this thesis. The thesis tests these hypotheses using a theoretical analysis approach, relying on existing theories and literature. It intends to blend theoretical explanation with confirmatory qualitative and quantitative observations in case countries. The aim with this approach is to provide new insights with qualitative and quantitative analysis of FinTech in emerging markets focusing on remittances. The reason for choosing this method is because there is extensive data and literature on FinTech in different emerging countries, and the theoretical approach serves better when examining countries as cases. If the thesis was focusing on specific companies in different markets instead of the markets themselves, empirical approach might serve better.

The thesis did not start by making initial assumptions, which would be confirmed, rather it has different speculations about the adoption of FinTech in emerging markets, particularly in remittances, based on observations of the world. At the beginning the question was about the relationship between FinTech adoptions in emerging markets and its impact on transaction cost reduction, implementation of digital financial services, economic development, and financial inclusion. Thus, hypotheses were formulated at a later point to explore the general speculations in mind. Therefore, theories and literature available in the area were used to explore the hypotheses made in the thesis.

### 5.2. Data collection

There are various ways of collecting data depending on objective, purpose of research and resources available at disposal. The objective of this thesis is to have a general understanding of remittances in emerging

markets, answering research questions that are formulated, and testing hypotheses. Therefore, qualitative and quantitative research methods are used together to analyze secondary data on the topic of remittances in emerging markets. This thesis mainly relies upon extensive literature review of the topic area. The secondary data obtained from the detailed review can be used for further analysis and hypothesis testing. The research problem at hand does not indicate a single type of knowledge area or method that needs to be implemented, rather there are multiple ways of addressing the research questions. Although the data obtained was collected for other purposes, not aiming this thesis, it is possible to utilize it. However, it is important to consider the quality of data and whether it fits the topic under research. The quality of data used in this thesis is evaluated in terms of sample size, the primary objective of data collection, representativeness, and the methods that were used for analysis. Data is validated using multiple reliable sources and analyzed in a way that fits the objective of this thesis.

The thesis uses data collected from secondary research to explore focus countries and regions. Secondary data is a powerful tool for providing context and it is efficient way of bringing together a large amount of data, particularly where access to the field may be difficult (Smith, 2009). It requires a large amount of resources to collect primary data. To collect data for the thesis, in depth literature review and analysis was made. There is a large amount of data available focusing on emerging markets at country level. Therefore, this thesis reuses data about emerging markets and remittances from reliable sources collected for different purposes. Secondary data obtained can be further analyzed to provide additional or different knowledge, interpretation, and conclusion (Bulmer, Sturgis, & Allum, 2009).

Data collection methods used for this thesis is desk research from various archives, official reports, and records from various sources. There is extensive data available on FinTech and emerging markets from numerous sources. Archives about the topic area accessed from electronic sources to gather facts and evidence that is relevant for analysis. The process involves searching articles and reports done by businesses, academic bodies, and governmental institutions to gather relevant information on remittance solutions in different settings. Then, relevant knowledge is identified and extracted from the different sources. Level of information available for each country and case varies. Different organizations collect data regularly about remittances for various purposes and the thesis utilizes the data obtained from different sources to explore remittances in emerging market contexts. The sources include academic journals, global reports by multilateral organizations such as UN, IMF and World Bank, country reports, such as annual reports on economic status, industry studies on



remittances prices worldwide through various payment channels. Different leading consultant companies like EY, CGAP and Dalberg also publish reports about remittances with particular focus on developing countries. Data obtained from these sources typically include information about data collection methods, the original purpose of collecting data and other details about the study. The information is useful to assess data quality and whether it fits the need of this thesis. Data with similar geographical and topical scope as this thesis, is mainly used for exploring case countries' remittance market. When the data is found to be relevant to the research topic, further desktop research is conducted for cross checking and verifying facts using multiple sources to increase credibility. The thesis also uses multiple sources to find more evidence that can be useful to generate insights.

For many research questions and objectives, the main advantage of using secondary data is the enormous saving in resources in terms of time and money (Vartanian, 2011). The studies that have been done by these organizations are large scale that represent well the status of the remittances market globally. These organizations have the time, money, and other resources to conduct large scale detailed studies. The institutions mainly based their reports and studies on surveys and other primary sources to capture and report the conditions of these markets. In addition, these institutions depend on experts to collect and analyze large amounts of data. The reports and studies published are by leading experts that extract knowledge from the data.

### 5.3. Data analysis

The next step after finding relevant data for the topic of study and evaluating its quality, is data analysis. The approach taken by this thesis is to take mini-country cases from each top remittance recipient region. South Asia, Africa and Central America are the top remittances recipient regions. The countries chosen for this thesis are, India and Philippines from South Asia, Egypt, Nigeria, and Kenya from Africa, and Mexico from Central America, which gives a total of six mini cases. All the case countries are emerging markets and receive large amounts of remittance, which fits the scope of this thesis. For further analysis the thesis explores FinTech companies providing remittance services in case countries. The thesis gives emphasis to high remittance recipients countries to have a better understanding of the market. Similarly looking at FinTech solutions for remittances, the focus is on widely used FinTech channels and solutions. The thesis analyzes different FinTech companies in various settings to help test theory based on different conditions. The mini cases are first explored separately using available facts and evidence to understand the characteristics of each market and analyze trends. Insights emerged from each case can be used to understand general patterns among cases. Based on similarities

and differences across cases, the thesis tries to drive relevant insights. Conclusions generated from mini cases exploration are explained by theories and supported by evidence.

To test hypotheses under investigation, the thesis analyzes data obtained in case countries focusing on factors affecting remittance cost, FinTech adoption and financial inclusion. Thus, it gives description of cases, presents facts about countries and FinTech companies in relation to theories identified, explores factors and indicators relevant for hypothesis testing. It presents important factors such as technological environment, national infrastructure development, regulation environment etc. for each case countries, that are relevant conditions to test formulated hypotheses. Facts and observations are used to test hypotheses in case settings and draw conclusions based on evidence. Theories are used to formulate testable assertions and explain case observations. Hypothesis and research questions are formulated by an iterative process involving multiple revisions. Empirical theories are used to evaluate evidence and generate new insights in the topic area.

The thesis mainly uses qualitative data and deductive methods are implemented to analyze the secondary data collected. Deductive approach is a way to analyze data by using existing theory to shape the qualitative research process and aspects of the analysis (Saunders, Lewis, & Thronhill, 2015). Unlike the inductive approach, the thesis uses predetermined theories, which are used to formulate research questions and objectives. The constraint of using deductive approach to qualitative analysis is that theories can be too restrictive in relation to issues identified in the data, which limit its exploration (Saunders, Lewis, & Thronhill, 2015). The goal of this thesis is not to fit the data available to theories, rather using available theories to explore the data. Whenever the theory used in this thesis is restricting data exploration, other theories were combined to explore further and reduce the restrictions imposed by the theory.

Theories explored in this thesis are the basis to look at the remittance and FinTech industry. The newly vulnerable market theory is used to analyze case countries' conditions for FinTech implementation and adoption, in terms of attractiveness to attack and barriers to enter the markets. The theory of network effect is implemented to see the dynamics in the two sides of the remittance market (sender and receiver). Innovation, disruption, and industry transformation theory is used to observe disruptions due to innovation, which is transforming the remittance industry.

## 6. Analysis and result

In this chapter the thesis explores country mini cases in relation to remittance FinTech solutions that have been implemented in emerging markets. It investigates the factors that affect remittance cost, FinTech adoption, and financial inclusion across 6 countries in Asia, Latin America, and Africa. The case countries are India, Mexico, Philippines, Egypt, Nigeria, and Kenya, are presented one by one in the next section. The countries have different levels of digitalization, infrastructure development, regulation environment and FinTech investment. Thus, the thesis explores and makes comparative analysis of FinTech implementation conditions in these countries. Then, the summary of findings and result interpretation will be presented.

### 6.1. Analysis

#### **India**

India has the largest remittance inflow in the world, receiving USD 83.149 billion in 2020, which accounts 3.17% of the annual GDP (The World Bank, 2020). Statistics show the average transaction cost to remit to India in 2020 was 5.4%, a decade ago the cost was around 7%. There is a cost decline compared to past transaction cost, however the cost is still higher than the target set by SDG (less than 3%). India ICT adoption score is 32.1 (ranked 120th in the world), infrastructure development score 68.1 (ranked 70th in the world) 87.5% of the population has access to electricity, mobile cellular telephone subscriptions score is high (86.9), and only 34.5% of adult population uses internet (Schwab, 2019)<sup>1</sup>. The national infrastructure is developing but in recent years the development rate is decreasing. Statista (2020) estimates 54% of India's population use smartphones. More than 80% of India's adult population have bank accounts. Despite all the growth the country is showing, the level of digitalization and infrastructure development is insufficient. The value of the local currency (INR) has shown a decline over the decade and the exchange rate went from around 45 INR per USD in 2011 to around 73 INR per USD in 2021.

India being the largest remittance recipient country in the world attracts many companies to the market. There are several companies that provide remittance services. Venmo, World Remit, Xoom, TransferWise,

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<sup>1</sup> From (Schwab, 2019) WEF Global Competitiveness Report, country level measurements with score or percentage cutoff were taken for ICT adoption (score 70 or above), infrastructural development (score 70 or above), electricity (60% or above), mobile cellular telephone subscriptions (score 70 or above), and access to the internet (60% or above). Based on the benchmarks set the factors for indicators are determined as high or low.

Remitly, Paytm, InstaReM can be mentioned among many that are participating in facilitating remittance flow to India. The market share is fragmented but due to large remittance volume, many FinTech companies and traditional operators are attracted to the market. India's FinTech sector is among the fastest growing markets in the world. India receives billions in FinTech investment every year and the amount is expected to grow in the future. Traditional financial institutions partner with FinTech companies to provide digital financial services.

Paytm, Indian based FinTech company founded 2010, that provides digital payment services. The company offers a variety of financial services including bill payments, top ups services, digital payments, and remittance services to millions of people across the country. Paytm provides digital wallets as well as digital bank accounts to its customers. The bank accounts enable more services such as virtual cards, overseas payments and other services that are normally provided by traditional banks. Overseas payments can only be received through a payment bank account, not the Paytm wallet. Therefore, the receiver needs to be a registered user at Paytm payments Bank. Customers can deposit money to the Paytm digital bank account using debit/credit cards or cash in partner outlets. Opening Paytm a bank account or wallet is easy and can be done using the mobile app. The identity of customers is authenticated virtually and quickly. Large customer base built in India's domestic market is being leveraged for international remittances. Remittance money received by customers can be used for a variety of services that are enabled by Paytm. The company's digital only presence is beneficiary to manage cost and compete in the market. Due to the successful adoption in the India market, Paytm attracted several investments over the years and valued in billions of dollars.

Founded in 2014 in Singapore, InstaReM provides cost effective international remittance services mainly focusing on Southeast Asian countries. The company has a strong presence in India and handles remittance to and from the country. The volume of remittance transactions flowing through the company is increasing every year. The company works with financial institutions across the globe to facilitate remittances. It is known for faster, cheaper, transparent, and convenient services. The company uses digital platforms to provide its services. Due to the company's platform automated nature, operational cost significantly reduced and enable them to offer lower prices. The price InstaReM charges is very competitive and has no margin on foreign exchange. Recently the company rebranded itself as Nium, was able to attract several investments to expand to new markets and new areas of service. The company desires to be all in one platform, where customers can send and receive money internationally, and enable them to spend it using different digital services provided by the company.

Financial regulatory environment in India is fragmented and no set of laws and regulations that are organized in one place to govern FinTech market. However, there are compliance requirements FinTech companies need to follow to provide their services in the country. Regulators allow partnership between banks and FinTech companies to accelerate growth of the FinTech ecosystem and promote financial inclusion. KYC compliance requirements is strict to prevent illegal activities. Regulators in the country understood the compliance requirements will increase operation cost, thus they enabled FinTech companies to conduct KYC virtually. This way the companies can comply with the requirements and still maintain lower cost. The government understands the importance of FinTech and remittance to the economy and tries to support it with its policies.

The India FinTech and remittance market indicators can be summarized as small number of intermediaries, decreasing currency value, high compliance requirement, low infrastructure development, conducive regulatory environment, low ICT adoption, growing investment on FinTech, high mobile penetration rate, and high-tech solution characterizes the market.

## **Mexico**

In 2020, Mexico ranks third globally in remittance flow receiving USD 42.88 billion, which contributes 3.985% to the annual GDP. Statistics show the average transaction cost to remit to Mexico in 2020 was 4.18%, which showed improvement compared to 5.966% in 2011. However, the transaction cost is still higher than the SDG target. Mexico ICT adoption score is 55 (ranked 74<sup>th</sup> in the world) and infrastructure development score 72.4 (ranked 54<sup>th</sup> in the world), 100% of the population has access to electricity, mobile cellular telephone subscriptions score is high (93) and 65.8% of the adult population has access to internet (Schwab, 2019). The national infrastructure is relatively developed but in recent years the development rate is decreasing. The digitalization level of the country relative to other emerging markets is high. Statista (2020) reported 85.7 percent of households in Mexico own a mobile phone and 54.4% are smartphone users. More than 50% of Mexico's adult population is unbanked and heavily relies on cash transactions. The value of the local currency (MXN) has shown a decline over the decade and the exchange rate went from around 14 MXN per USD in 2011 to around 20 MXN per USD in 2021.

Most of Mexico's remittance originated from the US due to the large number of Mexicans living there. Due to the large amount of remittance flowing to Mexico, multiple FinTech companies are attracted to Mexico's market. International companies such as Xoom, World Remit, Remitly, Wise are used for digital remittance

services to Mexico. MTOs are the most used remittance channel to Mexico due to wide availability and are relatively cheaper than banks. Significant majority of money remit through MTOs who provide cash in/out option to their customers. FinTech companies offer cheaper rates, but money transactions need to be initiated by digital means. The challenge results due to Mexico's informal economy that heavily uses cash. Most economic activities in Mexico are performed in cash.

Xoom is a PayPal service established 2001, provides digital remittance services to users around the world. The company offers remittance service for a cheaper price than traditional providers. The company charged a flat transaction fee and markup on the exchange rate. There could be additional fee depending on pay out option, for instance cash pick up has additional fee. Senders can make payments through PayPal, bank transfers, debit-credit cards and recipients can receive money through bank deposit or can be picked in cash. Xoom enables remittance as bill payments and top up services to different central and Latin American countries. It has partnered with telecom providers, power companies, and other utility providers which enables remitters to settle payment directly using Xoom. Statistics show that most of the digital remittance transfer from the US to Mexico is through Xoom.

The FinTech industry is growing, and the Mexican government is making reforms to support innovation in the financial sector. The Bank of Mexico is the main regulatory body of the financial sector. To promote fairness through competition the government encourages both incumbents and FinTech companies to innovate and promote financial inclusion. The government imposed strict requirements for licensing and reporting to protect the interest of the consumer. Some of financial services are only open for banks. FinTech companies are subjected to strict regulations and compliance requirements that limits the growth of FinTech. To encourage growth of FinTech and increase the use of financial services, regulators need to reduce barriers to enter the market and create room for innovation.

Mexico's FinTech and remittance market indicators can be summarized as small no of intermediaries, decreasing currency value, high compliance requirement, high infrastructure development, restrictive regulatory environment, high ICT adoption, growing investment on FinTech, high mobile penetration rate, and high-tech digital solutions characterizes the market.

## **Philippines**

Large number of Filipinos live outside their country and send money back to their native land. According to the World Bank (2020), the Philippines received USD 34.913 billion in remittance, which accounts for 9.658% of the country's GDP. Statistics show the average transaction cost to remit to the Philippines in 2020 was 4.568%, which showed improvement compared to 6.158%, a decade ago. The transaction cost is declining over the years, yet it is higher than the SDG target. Philippines ICT adoption score is 49.7 (ranked 88th in the world), infrastructure development score 57.8 (ranked 96th in the world), 88.3% of Philippines population have access to electricity, mobile cellular telephone subscriptions score is high (91.8) and 60.1% of the adult population uses internet. (Schwab, 2019). The level of national infrastructure development is insufficient and the level of digitalization is promising needs to be improved. Statista (2020) estimates 72.1% of the population use smartphones. Studies show that the significant majority (71%) of adult Filipinos are unbanked. The value of the local currency (PHP) has shown a slight decline over the decade and the exchange rate went from around 43 PHP per USD in 2011 to around 50 PHP per USD in 2021.

Due to the large amount of remittance flowing to the Philippines every year, there are several international and domestic players in the FinTech market that facilitate remittance flowing into the country. Azimo, TransferWise, World Remit, iRemit can be mentioned among the international players and PayMaya and GCASH are examples of domestic providers. FinTech based remittance service providers challenge traditional players such as banks and MTOs by providing lower fees, better foreign exchange rates and fast services.

In 2004 GCASH was launched by Globe Telecom, a major telecommunications service provider in the Philippines, to offer financial services using mobile phones. It is one of the first mobile wallet services in the Philippines market. GCASH partnered with hundreds of MTOs across the globe to facilitate remittance services. Global Telecom leverages its telecom infrastructure in place to enable mobile financial services through GCASH. In addition to international remittance services, GCASH provides other complementary services in the domestic market to attract users to the mobile platform. The company focused on the unbaked segment to be early adopters because they do not have bank accounts to receive remittance and have potential to be banked. GCASH partnered with different agents and banks that are located in remote rural areas to provide its services. The strategy focus of GCASH at first was international remittance to increase mobile wallets adoption in the local market, however it failed to gain big momentum in the remittance market. Therefore, GCASH shifted its

focus to mobile wallets in the domestic market to later enable pushing international remittance. This strategy enabled GCASH to build a customer base in the Philippines and offer international remittance services. A significant domestic ecosystem allowed GCASH users that eventually receive international remittances to conduct many downstream activities such as paying bills, domestic transfers, and savings (Baltao, 2012). Senders can remit through partner MTOs in foreign countries and recipients can access the money sent with a GCASH account. The remittance funds can be cashed out through GCASH outlets, agents, and mobile wallets. When agents are involved, users need to pay additional fees. Only small percentages of transactions are purely digital. However, during COVID 19 pandemic the use of digital wallets for transactions jumped significantly and the company has got millions of new users in the local market.

The financial market of the Philippines is regulated by the central bank, Bangko Sentral ng Pilipinas (BSP). Due to the importance of remittance to the Philippines economy the government tries to create a conducive environment to support the sector through its policies. Regulators made changes to accommodate FinTech solutions into the country's market. The policies encourage the existence of non-bank providers in the financial market and also enable services through agents. Agents need to acquire a license before being cash in and out stations. The licensing process is simple and makes sure regulation requirements are met. The government simplified licensing and compliance requirements for remittance providers to reduce transaction cost and support the large amount of remittance flowing to the country. In addition, policy makers made it easier to make cross border partnership, which is beneficial to facilitate remittance through partners across the globe. The Philippines government is taking different initiatives to facilitate FinTech penetration in the country. The regulators have made efforts to engage market participants in constructive dialogue, simplify compliance and shape a thriving market through clear and intentional policy (Sbeih, Cook, & Staschen, 2019). To some level FinTech companies can self-regulate such as conducting due diligence on potential partners, and the government will be playing a monitoring role. This enables innovation without too many restrictions but still be able to manage risks. Unlike banks who require several documents to open an account, the basic requirement for customers to use mobile based financial services is to provide a valid ID. Money can only be sent to registered users to prevent illegal activities such as money laundering and terrorist financing.

International FinTech players that facilitate remittance flowing to the Philippines provide their services by using mobile apps. The service medium requires a higher level of digitalization. Therefore, access to smartphones and the internet is a requirement to make the service possible. Studies show that app-based



remittance providers have higher penetration in the Philippines regions with better infrastructure. FinTech companies are leveraging technology development to offer cheaper, faster, secure, and convenient services. For instance, the UK based company TransferWise, now known as Wise, offers fast services for cheaper fees with market currency exchange rate. Its American based competitor Remitly offers transparent fees, speed and convenience for customers sending money from around the world to the Philippines.

The FinTech sector in the Philippines has got attention from private investors and the public due to positive prospects and importance to the economy. Conducive legal environment created by regulators, high remittance flow to the country, growing awareness of digital financial services, increasing infrastructural environment and financial inclusion opportunities driving investment in the sector. Considering the number of unbanked population segments there is large potential in the market that is yet to be tapped. Although the number of unbanked is high, mobile penetration rate in the country is high which can be used as a medium for financial services. Some government bodies are providing services using FinTech to increase efficiency in government offices and to promote adoption.

The Philippines FinTech and remittance market indicators can be summarized as multiple intermediaries, slightly decreasing currency value, low compliance requirement, low infrastructure development, conducive regulatory environment, low ICT adoption, growing investment on FinTech, high mobile penetration rate, and low-tech solution characterizes the market.

## **Egypt**

Egypt receives the largest remittance in Africa. According to the World Bank (2020), the country received USD 29.603 billion in remittance in 2020, which accounts 8.154% of the annual GDP. Statistics show that, the average remittance cost increased from 4.152% in 2011 to 4.925% in 2020. According to WEF (2019), Egypt ranked 106th globally in ICT adoption with a score is 40.6 and, ranking 44th in the world with a score 59.1, 99.8% of the population has access to electricity, mobile cellular telephone subscriptions score is 79.4 and 46.9% adults using the internet. More than half of the population use smartphones. Statistics show that around 67% of the population is unbanked. The level of digitalization is insufficient. The country is showing good development in infrastructure, but the level of digitalization is insufficient.

Wise, formerly known as TransferWise, was launched in 2011 in the UK aiming to make international money transfer cheaper and transparent. It disrupted traditional institutions by aggressive marketing campaigns

exposing high transaction fees and exchange rate markups. The company attracted investment to scale its operation globally. Rebranding was done by adding multiple currencies accounts, debit cards, and business accounts. Wise created money without borders with international bank accounts, which enable customers to hold money in multiple currencies and spend it without paying for foreign exchange. The way Wise settles international money transfers is a little different from other digital remittance providers. When a customer uses Wise, the money gets transferred locally to Wise's account in the country of origin and the recipient gets the money from Wise's local account in the receiving country, without the money crossing international borders. Thus, the money doesn't leave the sending country, rather payment is settled by local transactions in the sender and receiver countries. Local transactions are cheap, even free and handled fast, which enabled Wise to offer cheaper and faster services. The company also promotes transparency by clearly showing all fees upfront and using mid-market rate to exchange currency. Wise provides its services purely digital, thus customers on both sides need to have a bank account or other digital means to initiate and receive money. Only senders need to have a Wise account and the receiver can get the money from their bank account for a small extra fee. In addition to process innovation that disrupted how the international money transfer market operates, Wise reduced operational cost from full online presence. Wise works in partnership with challenger banks such as LHV in Estonia, N26 in Germany and Starling Bank in the UK to provide international money transfer services. It is regulated by dozens of authorities around the world. It implements KYC procedures to prevent money laundering and other illegal activities.

Although banks and traditional MTOs dominate the remittance market in Egypt, different FinTech companies including Wise, World Remit, and Remitly are trying to serve Africa's biggest remittance recipient country. Majority of remittance funds that are sent to Egypt originate from the US, UK, and UEA, markets that are highly targeted by Wise. Remittance sent to Egypt through Wise settled with a cheaper transaction fee and interbank exchange rate. Recipients can receive the money from their local account. The money is received by the local currency Egyptian Pound (EGP). The Egyptian currency value showed a huge decline over the decade, in 2011 the exchange rate was 5.7 EGP per USD and in 2021 it is around 15.7 EGP per USD.

Financial market in Egypt is regulated by the Central Bank of Egypt (CBE). The government is making reforms to support the growing FinTech industry in Egypt. This includes policy reforms and funding to support innovation in the financial industry to promote financial inclusion. For instance, recent reforms allow FinTech companies to get licenses to provide banking services. More reforms are coming in digital micro financing,

insurance tech and other FinTech areas. The government is working to promote favorable conditions for digital financial services, however some areas of FinTech are overregulated and are unregulated. There are strict KYC, reporting, and security requirements financial institutions need to comply with. In addition, the government imposed strict control to foreign currency that is impacting how remittance is received.

The Egypt FinTech and remittance market indicators can be summarized as few intermediaries, decreasing currency value, high compliance requirement, low infrastructure development, conducive regulatory environment, low ICT adoption, growing investment on FinTech, high mobile penetration rate, and high-tech solution characterizes the market.

## **Nigeria**

World Bank (2020) reported that Nigeria received USD 17.208 billion remittance in 2020, which contributed 3.981% to the annual GDP. Statistics show the average transaction cost to remit to Nigeria in 2020 was around 7%, a decline compared to 10.11% a decade ago. The current remittance cost is more than double the SDG target. In terms of ICT adoption Nigeria ranked 118th in the world with a score 33.4, ranked 130th in infrastructure development with a score 31.6%, 59.8% of the population has access to electricity, mobile cellular telephone subscriptions score is 88.2 and 42% of the adult population uses the internet. (Schwab, 2019). The national infrastructure development and digitalization is insufficient but showing progress every year. Around 50% of the population is estimated to use smartphones. Studies show that Nigeria is the most unbanked country in Africa with more than 50% of adults not using financial institutions.

Large amount of remittance sent to Nigeria is believed to be sent through informal channels. This is due to high transaction cost and foreign exchange margin charged by remittance service providers. There is a lack of hard currency in the country and the foreign currency policy is unfavorable to recipients using formal channels. The conversion rates provided by banks is unattractive and lower than black-market exchange rates. The value of the local currency (NGN) is showing a significant decline in value over the years. In 2011 the exchange rate was 150 NGN per USD, and in 2021 it is around 410 NGN per USD. To encourage the use of formal channels and get more hard currency to the country, the central bank gives incentives for every hard currency sent to the country. Due to this measure the amount of remittance received through formal channels started to increase.

The share of digital remittance providers in Nigeria is small compared to other remittance channels. Most of Nigeria's remittance inflow originates from the US and UK and remitted through MTOs and banks. Wise is one of the FinTech companies that provide remittance services to Nigeria. The procedure of Wise is simple, senders can create Wise accounts and pay through digital means. Money is converted to the local currency and deposited in the recipient's account in Nigeria. If the recipient uses Wise, it can be deposited directly to that account. The cost of Wise is way cheaper than traditional providers and has an attractive exchange rate. Other FinTech companies such as World Remit, Azimo and Remitly also provide remittance services to Nigeria. In addition to bank deposits, the other remittance providers give cash pickup options.

The financial market in Nigeria is regulated by multiple governmental bodies including Central Bank of Nigeria (CBN). The government strongly promotes financial inclusion and digital payments through its policies. Regulations are updated frequently to support the growing FinTech landscape in the country. The government made reforms in licensing requirements and created regulatory sandbox to enable the growth of FinTech in the country. Compliance requirement on capital, KYC and reporting requirements is strict to prevent illegal activities and protect customer interest. In general, the Nigeria FinTech market is well regulated but in some areas such as digital ledger technology, cryptocurrency the laws are not clear. Regulators are trying to create open and conducive environment for innovation, at the same time protect the interest of the customers. The government supports partnerships between incumbents and FinTech to accelerate financial inclusion through existing infrastructure and technological innovation. That is one of the reasons why FinTech investment in the country is increasing. Investment originated from international investors and domestic sources is increasing, focusing on payments, mobile money, and digital banks.

Nigeria's FinTech and remittance market indicators can be summarized as multiple intermediaries, decreasing currency value, high compliance requirement, low infrastructure development, strict regulatory environment, low ICT adoption, growing investment on FinTech, high mobile penetration rate, and high-tech solution characterizes the market.

## **Kenya**

According to the World Bank (2020), Kenya received USD 3.1 billion in remittance in 2020, which accounts 3.1% of the annual GDP. Statistics show the average transaction cost to remit to Kenya in 2020 was 8.4%, which showed significant improvement compared to a decade ago, 13.1%. However, compared to the target set by SDG, to bring the cost of remittance less than 3% there is a long road ahead. Kenya ICT adoption

score is 35.7 (ranked 116<sup>th</sup> in the world), infrastructure development score 53.6 (ranked 110<sup>th</sup> in the world) 73.4% of the population has access to electricity, mobile cellular telephone subscriptions score is high (80.3) and only 17% of adult population uses internet (Schwab, 2019). The national infrastructure development and level of digitalization is inadequate, but is growing every year. More than 70% of the population have access to financial services.

In 2007 Vodafone's Kenya associate, Safaricom, launched M-PESA a mobile phone-based money transfer operator. To offer financial services via mobile phones disrupted the market because M-PESA was the first mobile based financial service in Kenya. M-PESA was launched to facilitate basic payment services and it gain popularity by large number of people in short amount of time. In 2006, only 19% of the population were banked but the mobile phone penetration was 30% (AFI, 2010). M-PESA leveraged mobile phone accessibility to reach the unbanked population and penetrate Kenya market. Thus, M-PESA provides services for millions of people who have mobile phones but are unbanked. Customers only need a mobile phone, not necessarily a smartphone, to access M-PESA's low-tech services. Customers can go to the nearest M-PESA agent to register and cash in/ cash out money. Money is received in real time that can be transferred to bank accounts or can be spent at any M-PESA merchant account. Over the years M-PESA expanded its services to bill payment, salary payments, school fees, topping up, credit, remittances, and other financial services.

Vodafone reported that 60% of formal remittance to Kenya is facilitated through M-PESA. In general, M-PESA do not have physical presence in the countries remittances funds originate from, therefore they work in partnership with traditional MTOs and other FinTech companies. M-PESA works with MTOs (Western Union MoneyGram, MTN money, Dahabshiil etc.) and other mobile based remittance service providers (World Remit, Remitly, Azimo etc.) to facilitate remittance flow from all over the world. This way M-PESA leverages the traditional MTOs vast network and FinTech companies' customers base in countries remittance fund originates from. Senders can use MTOs or FinTech remittance solutions and the remittances can be received by M-PESA account. Although M-PESA was not primarily built for remittance services, it utilized the existing mobile infrastructure and customer base to add international money transfers and facilitate remittance services. The remittance technology is not novel, rather was integrated with an existing mobile platform which is well known and accepted by many people. Thus, international remittance is a complementary service to existing M-PESA offerings. M-PESA was able to add value to customers by enabling them to use remittance received to pay bills, deposit to digital wallet, transfer to bank account or cash out. Cash out can be done through thousands of agents

found across the country. The money is deposited or cashed out by the local currency (KES). The value of the local currency has been decreasing and the exchange rate went from 80 KES per USD in 2011 to 110 KES per USD in 2021.

The financial market is regulated by the Central Bank of Kenya. At the time M-PESA was launched there were no laws and policies that regulate the digital financial market because it was the first of its kind. That is why over the years the Central bank of Kenya is trying to catch up with FinTech growth in the country by introducing several new laws to regulate the digital financial market without limiting the growth. Regulatory environment in Kenya is conducive to enter the financial market and it encourages innovation, which benefits the economy and promotes financial inclusion. Digital financial services providers are not strictly regulated as banks, and it is relatively easier to access the financial market. The requirements applicable to banks are not requested to digital financial service providers. In addition, it is not a requirement for the FinTech companies to partner with banks to provide their services.

Kenya is becoming a FinTech hub because of the conducive technological environment, developed ecosystem and the success achieved by M-PESA is encouraging investors to get involved in the market. Local players such as Equity bank partner with international telco Airtel to establish Equitel, aiming to reach very remote areas that have not been reached by banks and telecom companies before (Chitavi, Cohen, & Hagist, 2021).

The Kenya FinTech and remittance market indicators can be summarized as multiple intermediaries, decreasing currency value, low compliance requirement, low infrastructure development, conducive regulatory environment, low ICT adoption, growing investment on FinTech, high mobile penetration rate, and low-tech solution (no need for smart phones or internet) characterizes the market.

## 6.2. Result

In this section the thesis summarizes findings from the six country mini cases (see summary overview in Table 3). Then results will be explored and interpreted in detail together with the research questions. It also explores patterns across cases by comparing the different countries. It studies how the different factors affect each other.

| Country     | Findings  |
|-------------|---|
| India       | <ul style="list-style-type: none"> <li>• Remittance cost declining because intermediaries are being eliminated by use of FinTech solutions which is supported by conducive regulatory environment</li> <li>• The country has high FinTech adoption rate even if infrastructure development is insufficient</li> <li>• Growing level of financial inclusion through FinTech</li> </ul>                       |
| Mexico      | <ul style="list-style-type: none"> <li>• Relatively low remittance cost even with use of channels other than FinTech</li> <li>• The FinTech adoption rate is low but it is showing growth</li> <li>• Low financial inclusion despite the availability of enabling infrastructure the habit of using cash is limiting the use of digital channels</li> </ul>   |
| Philippines | <ul style="list-style-type: none"> <li>• Declining remittance cost due to the use of digital remittance solutions</li> <li>• FinTech adoption is growing even if enabling infrastructure development is limited, FinTech companies serve the market using low tech solutions</li> <li>• Low financial inclusion but growing due to FinTech adoption</li> </ul>  |
| Egypt       | <ul style="list-style-type: none"> <li>• Remittance cost is still high due to the wide use of MTOs and banks</li> <li>• FinTech adoption is growing due to increase in FinTech investment and focus from the government</li> <li>• Low financial inclusion but growing due to the regulatory support</li> </ul>   |
| Nigeria     | <ul style="list-style-type: none"> <li>• High remittance cost due to exchange rate fees and the involvement of multiple intermediaries</li> <li>• Increasing FinTech adoption due to increasing FinTech investment</li> <li>• Low financial inclusion because people use informal channels and use cash. The enabling infrastructure is not reliable</li> </ul>   |
| Kenya       | <ul style="list-style-type: none"> <li>• High remittance cost due to the involvement of multiple intermediaries</li> <li>• FinTech adoption is high, even if infrastructure development is insufficient. M-PESA uses low-tech solution</li> <li>• M-PESA had high impact increasing financial inclusion Regulators are highly supportive to promote financial inclusion through FinTech adoption</li> </ul> |

*Table 3 Summary of mini-case findings*

The thesis addresses the three hypotheses formulated from the research questions through the country mini cases analysis.

**(H1) Remittance cost:** FinTech companies offer cheaper transaction fees and mid-market exchange rates when providing remittance services. Some FinTech companies allow their customers to set up multi-currency accounts so that they receive money in the same currency as the money is transferred without worrying about exchange rates. Customers see fees clearly upfront including the exchange rate and transaction fee. FinTech companies usually not charge cancellation and changing fee to their customers. FinTech companies are the cheapest channel for remittance. Technological and business innovations enable FinTech companies to reduce operational cost and offer better price than traditional channels. Most front and back-end activities are automated, which enabled FinTech companies to provide remittance faster services for cheaper price. Automation of service that is done by several companies, decrease cost of serving customers and enable to offer competitive price. Remittance can be done through mobile apps or websites, which improves accessibility. It is convenient for customers because they can remit money at anytime and anywhere using the internet, no need to go to physical branched or wait for opening hours. The money can be transfer to a bank account, collected in cash, deliver to home, or added to mobile wallet. Compliance requirements in the financial sector is expensive. However, for digital remittance service providers it is less strict compared to traditional services providers, which helps FinTech companies to reduce operational cost and offer cheaper price to the market. For instance, Paytm in India conducts KYC online to minimize cost but at the same time to comply with the regulation.

The virtual presence of FinTech companies force FinTech companies to partner with banks, MTOs and agents to facilitate remittances in non-digital form. Remittance technologies are mainly utilized by users sending remittance money and traditional methods are used to disbursement it. Remittance capabilities in emerging markets is underdeveloped compared to the developed world where most remittances originate. If both sender and receiver use the same remittance solution transaction cost can be reduced, else intermediaries need to get involved to facilitate remittance. Every intermediary wants to charge fees for facilitating payments, which increase the overall transaction cost. That is the case in Kenya, remittance cost is decreasing but still high despite high FinTech adoption and financial inclusion. M-PESA uses multiple intermediaries to facilitate transactions because the company does not have presence in the remitting countries. That is why M-PESA heavily relies on partnership with the traditional remittance services providers to provide services. M-PESA uses the network of partners in remitting countries to receive money and use agents to disburse funds in Kenya. To decrease the cost



of remittance, FinTech companies should work more to build network effects and serve both sides. FinTech companies try to eliminate intermediaries through automations and digital disbursement options involving business and technological innovations. For example, Xoom enables Mexicans living abroad to pay bills directly instead of sending the money to Mexico for a cost and let their families pay the bills. Wise on the other hand make local transfers in the sender and receiver countries instead of moving the money internationally through intermediaries.

Even now the many channels for remittance are traditional banks and MTOs but the presence of FinTech options in the market is forcing them to lower their prices and offer customers competitive offers. This can be observed across the globe, the cost of remitting through traditional channels is decreasing due to competition in the market. Process disruption that is brought by FinTech companies is transforming the financial industry.

**(H2) FinTech Adoption:** To increase FinTech adoption, technological solutions need to be backed by infrastructure development, regulatory environment, ICT adoption, and investment on FinTech. Infrastructure are enablers for FinTech, it affects adoption and penetration level. The main service channel for FinTech companies enabled by infrastructure development and ICT adoption. Infrastructures such as electricity and the internet are used by customers to access FinTech solutions through mobile phones and other digital outlets. People want reliable channels for remittances and any other financial activities. For instance, in Nigeria even if access to electricity and internet is high, there are frequent interruptions and people do want to rely on such systems to manage their financial activities. ICT adoption and smartphone adoption creates opportunities for FinTech penetration. In case countries the insufficient level of infrastructure development is limiting FinTech adoption. However, in the case of M-PESA in Kenya and G-CASH in the Philippines the parent companies leveraged their telecom infrastructure to enable their services even if the national infrastructure development is insufficient. M-PESA success in the Kenya market can be attributed to Safaricom's mobile infrastructure which was already in place and is utilized to provide financial service. The same is true for G-CASH in the Philippines, Globe telecom used its telecom infrastructure for GCASH services. In the case of Mexico, the enabling infrastructures are present but due the habit of using cash, FinTech adoption is limited. Fintech adoption increases when it is bundled with other digital payment services. For instance, Paytm in India, urged domestic adoption of mobile wallets to integrate international remittance. Due to the domestic offering more people start using Paytm for remittance services. When multiple services are offered at one place it promotes adoption.

Laws and regulation in the financial sector are important for healthy FinTech ecosystem growth. The sector needs to be regulated to protect users and prevent illegal activities. However, regulators need to be careful not to limit innovation and Fintech growth with their regulations. For instance, Nigeria over regulates the financial sector which is affecting growth of the FinTech industry. In Kenya on the other hand, the absence of regulation when M-PESA first entered the market was beneficial for the company for easy entry with small cost. Yet Safaricom and Vodafone had to impose self-regulation to protect the overall image of the company. They implemented KYC to prevent money laundering and other operational risks from security concerns. Thus, laws and regulation need to be developed enough to support FinTech and open enough not to limit implementation and adoption. That is why case countries are making regulatory changes and reforms, which is making the markets newly easy to enter the markets. Thus, FinTech investment is rising in the countries and more people are adopting FinTech solutions.

**(H3) Financial inclusion:** FinTech promotes financial inclusion if it is enabled by infrastructure development and regulation. The growth in mobile phone penetration has created opportunities for FinTech companies to serve case countries with mobile phones. More people are getting access to financial services through their mobile phones. However, the challenges arise when FinTech companies have high tech solutions which cannot be accessed through basic devices that are common in the case countries. To see examples, M-PESA and GCASH use low-tech solutions to reach the market. The nature of the FinTech solutions in both cases is low tech, and it does not require smart phones to use the basic services. FinTech companies such as M-PESA vastly expanded financial inclusion in Kenya, while financial inclusion in Kenya was at just 26% in 2006, today 83% of the population has access to at least basic financial services (Chitavi, Cohen, & Hagist, 2021). M-PESA services can be accessed by any phone which is well-integrated with the existing mobile money platform across Kenya. M-PESA was well known for its other offerings and adding remittance service was easy because the technology was not novel, rather it is integrated on top of the existing services. The simplicity of technology is important in these markets. Low-tech solutions encourage unbanked people to start using financial services easily through their devices. In most cases, complex services are targeted for corporate customers and wealthy individuals, which is dominated by banks. Thus, it is not necessary to be highly digitalized to adopt FinTech.

To summarize, the volume of remittance money that is sent to developing countries is high. It has significant development impact because the amount is bigger than development assistance received by emerging markets and is more stable than foreign direct investment (Chehade, Navarro, & Sobol, 2017). During these mini

case studies, I observed FinTech's role in reducing remittance cost. The increasing use of FinTech providers, the cost of sending remittances has been declining, while the speed of transactions has been increasing, this holds special importance for developing countries because remittances constitute one of the biggest flows of funds from the developed to the developing world (Cortina & Schmukler, 2018). FinTech companies provide the cheapest and fastest remittances service. As a result of attractive service offerings from FinTech companies more people are adopting FinTech solutions. Due to ease of access to services, Fintech is promoting financial inclusion.

## 7. Discussion and interpretation

In this chapter, the thesis discusses learnings and surprises from findings. It presents reflections on findings and seeks to make useful suggestions.

### 7.1. Learnings

Remittance flowing from the developed world to emerging markets is large and has a significant development impact on recipients. It is important for individual recipients and also the economy as a whole. Most of the remittance money received by families in emerging markets is used to pay for necessities and the rest for saving and investment. Remittance benefits emerging markets economies by stimulating economic activities, such as spending, saving, investing and it is also a source of foreign currency. That is why reducing the cost of remittance is important and highly benefits emerging economies. Reducing the cost of remitting is an important policy objective, which can help to increase the contribution of remittances to the formal economy, enhance financial inclusion and increase the net income of receiving households (Ahmed, Mughal, & Martinez-Zarzoso, 2021). Due to the increasing use of FinTech solutions, the cost of remittance is decreasing.

In the present, technology is being used to create solutions for remittance payments, and other areas of finance to make services cheaper, faster, more transparent, and accessible. FinTech solutions support remittance transactions with speed and convenience for both senders and receivers. FinTech solutions supported by growing infrastructure and regulation are promoting financial inclusion in emerging markets. In addition, these solutions reduce the price customers need to pay for financial services.

Infrastructure development and the regulatory environment in emerging markets are insufficiently developed to fully support the FinTech evolution. FinTech solutions need to be accessible with available

channels enabled by infrastructure. FinTech companies need to utilize whatever the current infrastructure offers and integrate it with their solutions to serve the markets. To reach remote areas where access to infrastructure is limited and a lot of people are financially excluded, FinTech companies need to make efforts to simplify offerings. Offering low-tech solutions that can be accessed by basic devices even without the internet, create opportunities for many people residing in emerging markets to access financial services.

International remittance is a complex payment transfer involving multiple countries and currencies. Each country has a different level of development and regulations supporting technological innovations in the financial sector. FinTech solutions for remittance serve well when bundled together with other financial services. FinTech adoption is more likely to accelerate when FinTech solutions serve multiple purposes all in the same platform. Users can get more value from the same FinTech platform when it serves multiple services. Integrating remittance solutions with digital payment services creates convenience for users to shop or pay bills without moving remittance money received to a bank account or withdrawing it in cash. Thus, building a customer base in the domestic market offering different services is more likely to encourage the use of the same solution for international remittance.

In services such as remittances, it is hard to reach every market and provide services firsthand, because it covers a wide geographical scope that requires different approaches. Targeting each market directly requires a large amount of resources and it might not be feasible. It is a wise strategy for companies to leverage partnerships for money collection, disbursement, and services that are outside their reach. They can leverage the knowledge, experience and network partners have in domestic markets to provide services. However, the involvement of intermediaries makes services cost more. Thus, FinTech companies should create innovative partnerships, for instance, Xoom has partnered with utility services providers in different countries to enable remitting individuals to pay bills in their native countries directly. Thus, Xoom is providing remittance services in partnership and still minimizing the involvement of intermediaries so that users can access services for a cheaper price. The best way to eliminate intermediaries is by building a customer base through network effect to serve both sender and recipient of remittance funds in the same platform. This is because the need to involve intermediaries arise when users are on different platforms and additional parties need to get involved to facilitate services.

## 7.2. Surprises

The market share of digital remittance service providers is very small compared to banks and MTOs. Despite all the benefits in terms of cost and speed remitters can get, FinTech solutions are slow to be adopted. Remittance solutions are more on the developed world side where remittance funds originate. Emerging markets are destinations for remittances, money is generated from migrants working in the developed world sending back money to their native land. Digital remittance solutions are used by some remitters residing in the developed world. In most cases, recipients do not use FinTech solutions to receive remittance rather receive money in cash or bank account. Lack of trust in financial institutions, and society in the habit of using cash can limit FinTech adoption. For instance, the percentage of Mexico's unbanked population is very high due to these reasons. Some FinTech companies focus on the banked population segment because the unbanked segment does not trust financial institutions, so they compete with incumbents to serve the banked population.

A viable strategy for FinTech companies to be successful in cooperation rather than competition. In any ecosystem, businesses need to interact to make services possible. It is not always possible to eliminate all intermediaries because FinTech companies cannot survive by themselves. FinTech can form partnerships with traditional financial institutions to leverage their infrastructure and network. Incumbents have experience in financial services, have an extensive network, deep pockets, and a large customer base. FinTech companies are relatively small but have technological capabilities and innovative financial solutions. Therefore, they can work together to grow the FinTech ecosystem. The percentage of unbanked people in emerging markets is large. The best way to access the untapped potential in emerging markets is through cooperation not competition for market share. If more people are financially included through FinTech the market size will grow. Thus, incumbents' profit will not necessarily shrink even if their market share is taken by challengers because there will be a bigger demand to serve (creating a bigger pie to share). Incumbents should be willing to get disrupted and add FinTech solutions to their offerings through partnerships. Else it would be a matter of time before FinTech challengers start reducing their market share. Among other reasons, the growth in the Asian FinTech market can be attributed to such cooperation between FinTech companies and traditional financial institutions.

## 8. Conclusion

In this final chapter, the thesis presents contributions and key takeaways based on the insights from the analysis. Then it concludes by exploring the limitations of this thesis.

### 8.1. Contributions and key takeaways

This thesis contributes knowledge and insights about remittance and FinTech in emerging markets. It provides insights to remittance service providers and governments to build strategies and policies. It also contributes knowledge to other academics studying the dynamics of FinTech and remittance in the context of emerging markets. FinTech companies and regulators need to understand challenges that are related to digital remittance solutions.

This thesis highlighted factors that affect remittance cost, FinTech adoption, and financial inclusion in emerging markets. It explores challenges that affect FinTech implementation and adoption. The challenges need to be considered for future FinTech implementations, to successfully address issues such as remittance costs and financial inclusion through innovation. The thesis contributes general knowledge to FinTech adoption in different emerging markets settings. FinTech companies need to consider the interplay and dynamics between the factors when implementing their solutions. They need to leverage current infrastructure, technology, and network available to enable services. For instance, it is not always the best strategy to provide high-tech digital services for emerging markets where access to smartphones, the internet, and electricity is limited. So, the gap between what emerging markets have and what FinTech innovations require needs to be bridged with low-tech solutions and utilizing partner networks to provide services. Digital remittance providers should consider integrating remittance services with domestic payments and other financial services. Offering users multiple services in one place accelerates FinTech adoption and financial inclusion.

Governments need to be careful not to restrict innovation and growth of the FinTech sector by overregulating it. Financial sectors certainly need strong regulation and compliance requirements, but it needs to leave room for innovation and growth. Regulators need to balance between policing to protect consumer interest, national economy, preventing illegal activities, and creating a conducive environment for innovation in the financial sector. In addition, governments need to develop national infrastructure which enables FinTech innovations. Users want reliable financial services, and they are more likely to adopt digital solutions if it is supported by good infrastructure.

## 8.2. Limitations

The thesis was developed based on data obtained from secondary sources. Since the data is not collected having this thesis in mind, there could be misalignment when it is repurposed for this study. To ensure the quality of the thesis, data used was collected from reliable sources. Also, facts were cross-checked by referring to multiple sources.

The level of detail for mini cases varies depending on the availability of data. In the case countries, India, the Philippines, and Kenya more information was provided in relation to local settings, and in mini-cases Mexico, Egypt, and Nigeria were considered with fewer details. Since the objective of this thesis is not to conduct fully developed case studies, the level of information obtained was sufficient to do the analysis for the paper. The geographical scope of FinTech companies explored also differs. For instance, Paytm, GCASH and M-PESA focus on the local markets of case settings, on the other hand, Xoom, Wise, and InstaReM have an international presence. The thesis doesn't expect all FinTech companies to originate and focus on the local market of case countries. Additionally, Wise is explored in multiple case countries (Egypt and Nigeria) because it is a popular digital channel in both markets. The thesis presents two FinTech companies for mini case country India to see differences in implementations. Some markets are dominated by a few remittance providers, and other markets are fragmented due to the existence of multiple providers. The nature and condition of the FinTech landscape in each country varies thus requiring different approaches.

The cases discussed in the thesis are high-level overview intended to address the research questions in relation to some factors. It does not represent all aspects of case countries' challenges, experiences in terms of success and limitations. Therefore, additional factors that affect FinTech adoption in emerging markets can be considered. For instance, factors such as the relative novelty of the technology, market entry timing, and competition in the market affect the rate of FinTech adoption and penetration. This can be observed in the case of M-PESA in Kenya, when it was first introduced one of the success factors is the absence of competition in the market enabled successful adoption in a short amount of time. M-PESA is no longer the only provider in the country but being the first entrant enabled to set the expectations of customers and lead the market. FinTech adoption can also be considered in relation to human factors such as the habit of using cash, technological and financial literacy. Even if technology enabling factors are present, users might not know or be willing to use FinTech solutions. However, these additional factors are out of the scope of this thesis.

Lastly, the thesis did not do comparative analysis across regions rather focuses on the countries and remittance services providers serving the markets. Since countries for mini cases were taken from different areas with top remittance inflow, exploring patterns across regions and aggregating results would be important to understand regional trends.



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