Internship Report

on

Mobile Financial Services:

Risks and Implications of Adoption in Bangladesh

Submitted by

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Letter of Acknowledgement

I would like to express my unending gratitude to my supervisor Associate Professor Mohammad Tariq Hasan, PhD for his guidance and patience with me as I overcame many challenges before. It would not have been possible to complete this report, without his support. He has guided me how to proceed in every step of the way.

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I would also like to thanks United International University, its Administration and Staff for being supportive and providing me the opportunity to complete my degree in spite of my short comings. This institution has enriched my life both professionally and personally.

Finally, I would like to thank Allah, the most Gracious and most Merciful as it would not be possible for me to move an inch without His Will.

Letter of Transmittal

December 9, 2024

Mohammad Tariq Hasan, PhD
Associate Professor (Accounting)
School of Business & Economics
United International University
Madani Avenue, Dhaka 1212

Subject: Submission of project paper titled 'Mobile Financial Services: Risks and Implications of Adoption in Bangladesh'

Dear Sir,

It is with great pleasure that I am submitting my project paper titled 'Mobile Financial Services: Risks and Implications of Adoption in Bangladesh'. I have used the best of my abilities to write this paper while learning a lot about the mobile banking market in Bangladesh and how it might be improved, I am also highly appreciative of all the constructive criticism I received from you throughout the process of writing this paper. I am looking forward to your feedback and available to answer any queries regarding the subject matter.

Best Regards,

_____

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Declaration

I, Sohana Haider ID- 114 141 016, here by declare that this project paper titled 'Mobile Financial Services: Risks and Implications of Adoption in Bangladesh' is entirely my own original work, except instances where other works have been properly cited. This paper has not been submitted anywhere else for any other degree in my name. All sources used has been properly mentioned. I have adhered to the academic integrity guidelines of United International University.

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LIST OF ACRONYMS

PIN-Personal Identification Number

SMS- Short Messaging services

MFI- Microfinance Institutions

BB- Bangladesh Bank

OTP- One Time Password

USSD-Unstructured Supplementary Service Data

MFS – Mobile Financial Services

Abstract

This study examines the state of adoption of mobile financial services in Bangladesh along with the risks and implications it brings. We explore the state of MFS in other countries and compare it to the situation in Bangladesh. Through this study we have found that the MFS market is oligopolistic in nature, with Bkash occupying the dominant position. We chose to focus on the three major providers Bkash, Nagad and Rocket. We found that MFS bring a provide an essential service to earners with families in remote areas. It also helps generate income for agents. We found that the MFS faces risks in the form of cyber risks, operational risk, regulatory risks and user risks. We recommended focusing on increasing technological literacy to help increase adoption rates. We also recommended more robust security features in the applications in order to prevent theft and hacking. We hope that MFS company will ensure that USSD will function properly in the event of an internet outage so people will be able to access their money. We also recommended that Bangladesh bank be more stringent in its governance of MFS to ensure security and prevent misuse of users' money. These recommendations will ensure greater adoption of MFS and bring banking to the large unbanked population of Bangladesh.

Keywords: *Mobile banking, Cyber risks, technological literacy, Mobile Financial Institutions, Bangladesh.*

CHAPTER 1: INTRODUCTIONS

1.1. Background of the Study

Mobile Financial Services can be described as any service that allows customers of banks and non-banking financial institutions to access their devices to through mobile phones. It all started with the introduction of SMS Banking by City bank called City wallet in October 2009 (Parvin, A 2013) then over time as technological infrastructure has advance and the internet access became more wide spread smartphones and smart banking applications have become more ubiquitous in our society. Dutch-Bangla Bank (DBBL) pioneered its mobile banking service, Rocket, on March 31, 2011. According to the Population and Housings Census of 2022, 55.89% of the population of Bangladesh owns phones (Mahmudul Hasan 2022, The Daily Star) and 47% of that percentage of the phone users of Bangladesh owned smartphones. This number is projected to grow to 65% by 2025 (Halima Binte Islam TBS 2022). In urban areas this percentage is much higher than that in rural areas. There is also a large gap in technological literacy between various demographics in Bangladesh. So, it is inevitable that the people will utilize their smart phones and internet connections to make their lives convenient through the time saving and convenient nature of mobile banking.

In July 2021 Bkash entered the scene and quickly became the popular platform for peer-to-peer money exchange. It later added additional services such as making shopping payments, recharging phone balance, paying utility bills and transferring money to and from bank accounts and cards. Yet in spite of all these advantages came reports of peoples accounts being hacked and their money being stolen (Benazir, 2022; Masum et al., 2024). As people began to store larger amounts of money in their mobile banking accounts they also began to worry if their money is safe in the hands of these companies, and whether the stringent rules and regulations that make banks trustworthy also applied to these companies. While conducting the literature review, we have discovered most the existing studies have focused on the adoption and expansion of the mobile banking market. They talked how it would help to provide banking services to the unbanked. Very few studies were conducted focused specifically on the risks and dangers that

mobile banking poses, specially to those who are not financially and technologically literate. This study hopes to explore these and other questions related to mobile banking in Bangladesh.

1.2. Objectives

The purpose of this study is examining effects of the wide spread adoption of mobile financial services, how the major MFS companies compete with each other, the various risks it brings and examines ways to mitigate those risks. Some of the main risks include cyber risks, operational risks, regulatory risks, user risks, credit risk (Hasan, Alam, & Huq, 2011). We will also explore how other countries have mitigated those risks and how different demographics in Bangladesh are affected differently by these risks (Benazir, 2022; Hasan et al., 2011).

CHAPTER 2: LITERATURE REVIEW

2.1. Theoretical Background

Technology Acceptance Model, or TAM in short, tries to determine whether a person will willingly adapt to a new technology or not. It suggests that two factors, Perceived usefulness and perceived ease of use. Perceived usefulness is the extent to which a technology will improve a person's job performance, and perceived ease of use how much effort it will take to use a particular technology. When it comes to mobile banking this model lacks the factor of trust necessary for a person to adapt a technology which will help him to manage his finances. This leads to the Theory of Planned Behavior, or TPB. TPB adds to TAM two more factors: perceived credibility and perceived financial cost (Luarn & Lin, 2005; Miraz, Hasan, Sumi, Sarkar, & Hossain, 2022; Miraz, Saleheen, et al., 2022). According to previous studies, perceived Self-Efficacy which is a judgement of how well one can handle the actions needed to use a new technology (Agarwal, Sambamurthy, & Stair, 2000; Marakas, Johnson, & Palmer, 2000; Miraz, Hasan, Masum, Alam, & Sarkar, 2020; Miraz, Hasan, Rekabder, & Akhter, 2022; Miraz, Saleheen, et al., 2022; Miraz et al., 2024). So, over all five factors:

1. Perceived Usefulness
2. Perceived Ease of Use
3. Perceived Credibility
4. Perceived Financial Cost
5. Perceived Self-efficacy

These will lead to Behavioral Intention, that is, whether a person will intend to use mobile banking. This study showed that all of these factors had a significant positive correlation on the adoption of mobile banking (Luarn & Lin, 2005). In the study, Yu,Shi (2009) used the TAM research model to determine an individual's behavior when it comes to SMS bases mobile banking in New Zealand. They too referred to (Luarn & Lin, 2005) and their extended TPB model to conduct their analysis, and found that the above mentioned five factors show a strong positive correlation with how likely a person from New Zealand is likely to use have Behavioral Intention to use SMS mobile banking (Yu, 2009). Aboelmaged and Gebba (2013) aimed to extend their understanding of the

TAM and TPB models and came to the conclusion that perceived usefulness was highly significant, while perceived ease of use was not that significant.

2.2 Mobile Banking in the Rest of the World

If we explore the adoption rates in other countries, we can find that different populations react differently to the various factors of mobile banking adoption. For example in India concerns over security has put a halt to the extensive growth of mobile banking (Gupta et al., 2017). Even though financial institutions and the government has taken various steps to assuage the fears of the public through education and policy changes, the adoption rates of urban customer s are influenced by perceived risk and the extent of control the have over their transactions(Gupta et al., 2017). Meanwhile in the US even though mobile banking services similar to those in Low-income countries are available, adoption rates remain low. This is because of challenges in the societal, perceptual and organizational level. There are lapses in the inter organizational relationships between banks, mobile operators, credit card companies and retailers (Kim et al. 2009). However recently there has been wide spread adoption NFC based payment methods offered by tech companies such as Apple Pay and Google pay, with up to 21% of the US population adopting Apple Pay (*Apple Pay vs. Google Pay*, 2023).

In developing countries like Kenya mobile banking is often used to target low-income demographic, in remote areas, away bustling city centers. The most important component of this business model are the banking agents, who usually are small retail outlets who will provide the services, customer care and cash management. Since it is expensive and not profitable enough to operate conventional banks in these remote, low-income areas, mobile banking through local agents is the main method to access banking services in such areas. Previous studies have revealed that the number of mobile banking agents in Nairobi, Kenya far out pass the number of all other financial service agents combined (Mwaura, 2018; Wambari, 2009). Kenya's leading mobile service providers have launched money transfer services aimed at facilitating "micro-payments" via mobile phones (Ndege, 2015). These services seek to establish a preferred e-

commerce platform in a country where credit card penetration remains low, especially among the unbanked population. A notable example is M-PESA, an innovative mobile payment solution that allows users to perform basic financial transactions through their mobile phones (Burns, 2015; Hughes & Lonie, 2007; Mas & Radcliffe, 2010).

The case of Kenya is quite similar that of Bkash, Nagad and Rocket in Bangladesh. Bkash started operating in July 22 2011 as a joint venture between BRAC Bank Limited, Bangladesh and Money in Motion LLC, USA (Yesmin et al., 2019). At that time around 70% of Bangladeshi's were living in rural areas. Most of them depended on working members of their family migrating to urban areas to find well paid jobs and sending that money back home to their dependent families. This is this main target market that Bkash was after. Offering an easy solution to these workers to send money home. This demographic often does not have access to proper education, so financial illiteracy, unavailability of bank branches and their inability to understand the complications of the banking system leaves them most at risk from fraud, lack of security , theft, financial instability and dependency on third parties to bring the money home (Yesmin et al., 2019). Bkash managed to solve all of these problems through agent banking. They also tried to educate their consumers through massive advertising campaigns about how to keep their accounts and money safe.

2.3 Mobile Banking in Bangladesh

According to Akhter & Khalily, (2020) the richest 20% have the highest access of financial services, while the poorest 20% have the lowest. So, there is a large potential market to provide Mobile Banking services through Microfinance Institutions in the low-income groups. Banking industry in Bangladesh is growing and it has good prospect along with high-risk exposure, which need to address by the regulatory body (Hasan et al., 2011; Hasan, Rekabder, Akter, & Sayem, 2009). In 2011 Bangladesh bank introduced guidelines for MFSs which can operate as wing of a bank. In developed countries mobile financing services are usually provided by tech companies such as Apple pay and Google pay. In South Asian countries since it is led by banks, it should fall under

the jurisdiction of the central bank, that is Bangladesh bank in Bangladesh. The central bank should regulate the MFSs to ensure maximum flexibility and expansion while minimizing risks. MFS should strive to increase financial literacy and safety measure through the use of marketing. Using smart national Identification cards as a basis for registering for such services should minimize risk of crime and increase traceability of transactions. In order to prevent crimes such as money laundering and informal inter country trade BB has set limits on daily transactions(Akhter & Khalily, 2020).

In the research conducted by Hossain & Haque, (2020) , they found that 48% of their sample stated security concerns are the biggest disadvantage of mobile banking. 32% found using mobile services to be too complicated. 2% said the high transaction charges were a big deterrent, and 16% found there to be no disadvantages to mobile banking. When asked for suggestions 38% suggested that making mobile cheaper will make it a lot more attractive and 22% were of the opinion that faster data transmission would the experience of mobile banking a lot smoother. Respondents were asked about factors that could improve mobile banking implementation, 54% claimed that secure communications, followed by 24% who said better network coverage, and connectivity are the main factors that would maximize mobile banking implementation (Hossain & Haque, n.d.). Khan, (2017) demonstrated that trust, cost, convenience, ease of use and Network availability is strongly positively correlated with usage. However strangely this study found that security is negatively correlated with mobile banking usage. This could be interpreted as people who had more fears about security, such as those with low literacy were more inclined to use mobile banking because of lack of options and access from conventional banking channels.

Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Cost Influences, security, Gender, age, experience, Voluntariness of use were the factors affecting the usage of mobile banking as a payment option (Rahman & Islam, 2022). The occurrence of the COVID-19 pandemic spearheaded the adoption of mobile banking worldwide as social distancing forced people to do cashless transactions out of necessity (Sun & Chang, 2021). In a study

researchers found that customers complained about high transaction charges such as cashing out and sending money charges (*An Impact Study on Mobile Financial Services (MFSs) in Bangladesh*, n.d. 2018). A number of customers had negative experiences such as hijacking and blackmailing by cyber criminals. Another illegal common occurrence is the inward remittance by migrant workers middle eastern countries, Malaysia and Singapore etc. Even though the volume of such transactions is not that high, it can increase significantly if counter measures are not taken. The middle men in these transactions charge their clients discriminately depending on the situation of the client. Most of these victims are families of migrant workers in the rural areas of Bangladesh. They found that these middle men collect funds from workers abroad then the instruct local agents who are in cohorts with them to 'cash out' to the relatives of the workers who gave the money to the middlemen abroad.

CHAPTER 3: RESEARCH METHODOLOGY

This study uses secondary research methodology, utilizing existing literature, data, and reports to analyze the risks associated with mobile financial services. The key components of the methodology are as follows:

3.1 Data Collection:

- Primary data was collected by conducting a small survey of local agents.
- Secondary data is collected from a wide range of reputable sources, including:
    - Academic journals and conference papers.
    - Industry reports from organizations like Bangladesh Bank
    - Government publications and regulatory documents.
    - News articles and case studies related to mobile financial service risks.
- Online databases such as Google Scholar, Sci-hub were used to access peer-reviewed articles.

3.2 Selection Criteria:

- Sources were chosen based on relevance to the research topic and credibility.
- Priority was given to materials discussing security, operational, regulatory, and user-related risks of mobile financial services.

3.3 Data Analysis:

- A qualitative analysis approach was applied to combine observations from the collected sources.
- Comparative analysis was conducted for data from different banks and mobile banking companies.

3.4 Scope and Limitations:

- As this research is based on secondary sources, the findings are limited by the availability and accuracy of the referenced data.
- No primary data collection was conducted.

3.5 Ethical Considerations:

- All referenced sources are appropriately cited to maintain academic integrity and acknowledge the work of original authors.

CHAPTER 4: FINDINGS & ANALYSIS

4.1. Operational status of MFS Providers in Bangladesh

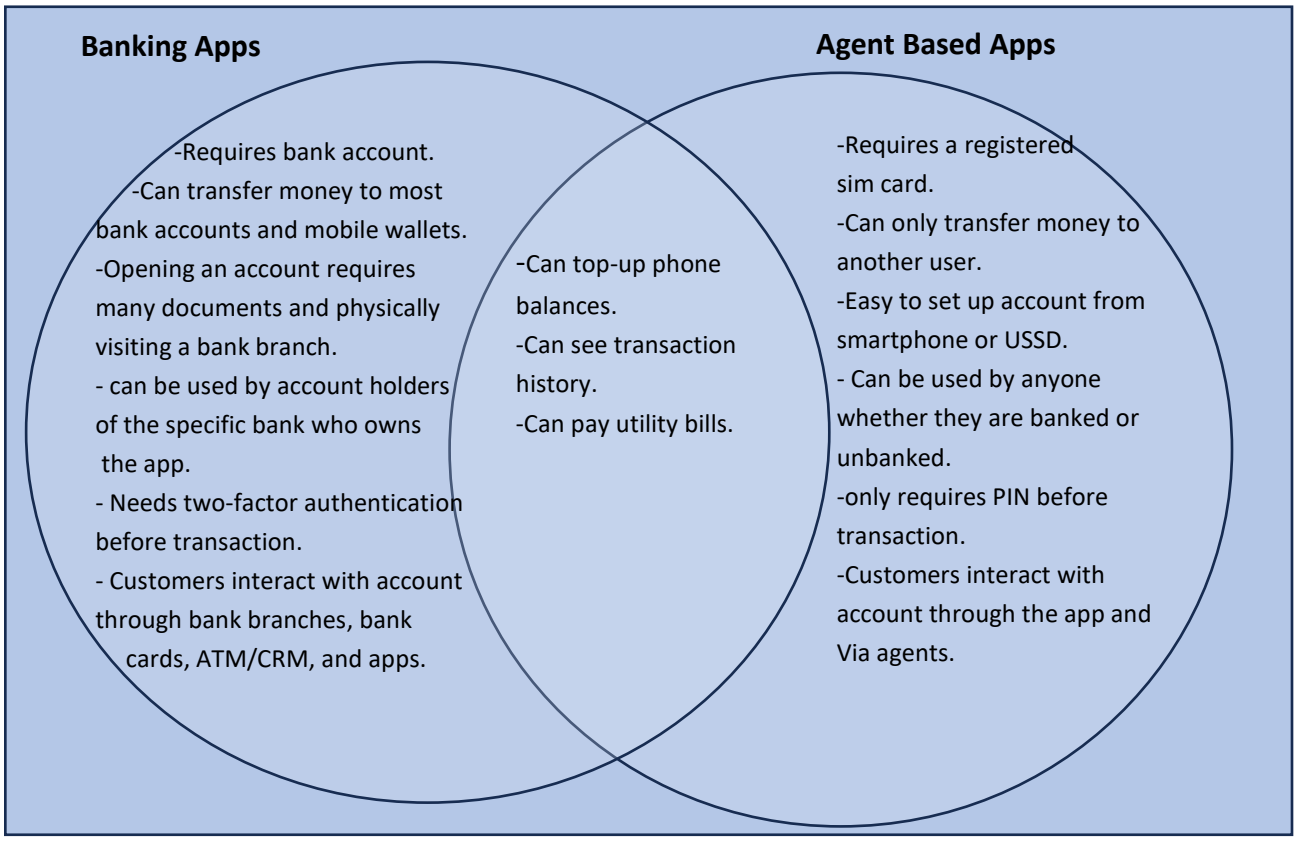

***FIGURE 1** VENN DIAGRAM COMPARING FEATURES OF MFS*

Mobile Financial Services can be broadly divided into two categories –

1. Banking Apps which are directly operated by the banks which own them, and serve as an extension of conventional banking services. They are only available to the account holders of each respective bank. They provide services such as easy balance checking, transaction History, card balances, money transfer via RTGS (Real Time Gross Settlement), BEFTN (Bangladesh Electronic Fund Transfer System), NPSB (National Payment Switch Bangladesh) channels, mobile to-ups etc. Their users consist of people who already have access to conventional banking and simply want to have more control and fast

information about their accounts. Banks provide these apps simply to enhance customer experience for their account holders and to compete with other banks by providing better service.

2. The Agent Based Apps which are not tied to any Bank account but to an individual's mobile phone number, registered via National Identification Documents or Passports. These applications are the main focus of our study.
    a) **Bkash**- The Current market Leader of Mobile Banking. It started operating in 2011 but has since become the most popular MFS provider. It later added additional services such as making shopping payments, recharging phone balance, paying utility bills and transferring money to and from bank accounts and cards ("bKash," 2024).

    b) **Rocket**- "Dutch Bangla Bank pioneered Mobile Banking in Bangladesh. It was the first bank to offer banking facilities through a wide range of mobile phones. Rocket is a Banking process without bank branch which provides financial services to unbanked communities efficiently and at affordable cost" (*Dutch-Bangla Bank*, n.d.).

    c) **Nagad**- Nagad was launched on March 26, 2019 under the financial authority of the Bangladesh Post Office, with a mission "to provide comprehensive, digital, and ever-evolving financial services to the country's people and small businesses."

    d) **SureCash**- SureCash is a mobile financial service (MFS) platform developed by Progoti Systems Limited. It is currently accessible through six scheduled banks: Rupali Bank Limited, First Security Islami Bank Limited, Bangladesh Commerce Bank Limited, Jamuna Bank Limited, National Credit & Commerce Bank Limited and National Bank Limited (*Mobile Money Infosheet: SureCash*, 2016).

Table. 1 *List of All Mobile Banking Apps and their Parent Organizations:*

Banking Apps	Agent Based Apps
CItyTouch – City Bank	Bkash- Brac Bank & Money in Motion LLC
NexusPay – DutchBangla Bank	DBBL Rocket- DutchBangla Bank
MyPrime- Prime Bank	Nagad- Bangladesh Post Office
Islami Bank MCash- Islami Bank	Sure Cash- Progoty Systems ltd & others
OK Wallet- One Bank	Others
Bank Asia SMART App – Bank Asia	
EBL SKYBANKING- Eastern Bank	
SC Mobile -Standard Chartered Bank	
AB Direct Internet Banking – AB Bank	
PI Banking- Pubali Bank	
BDBL Digital Bank- Bangladesh Development Bank	
MTB Smart Banking – Mutual Trust Bank	
BRAC Bank Astha- Brac Bank	
CellFin- Islami Bank	
Sonali eSheba- Sonali Bank	
DBL Go- Dhaka Bank	
IBBL iSmart- Islamic Bank	
FSIB Cloud- First Security Islamic Bank	
IFIC Amar bank- IFIC Bank	
EXIM Aiser- EXIM Bank	

4.2 Market Composition of Major Agent Based MFS

Bkash has dominated the agent-based market soon after its inception after over taking Rocket.

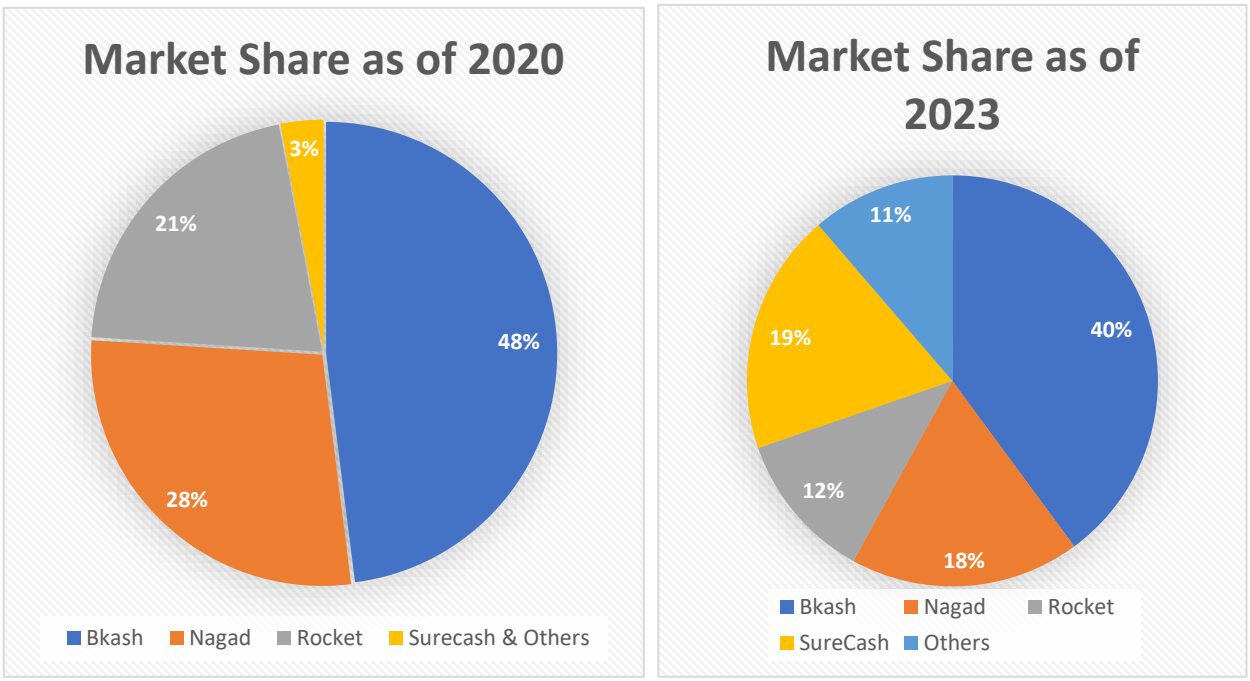

FIGURE 2: MARKET SHARE OF MFS

However, in recent years SureCash and other newer competitors have been capturing some of the market, minimizing the share of the existing giants Bkash, Nagad and Rocket. In December 2018 the total number of MFS transactions in Bangladesh was 32,116 crores Taka. In 2020 COVID-19 and the need of social distancing catalyzed the growth of the MFS market to 81,099 crores transactions in December 2021. Since then it has only kept growing and has reached assize of 124,548 crores in December 2023. According to Parvez, (2024) The Bangladesh Bank has been granting licenses for mobile financial services (MFS) to incorporate unbanked individuals into the formal financial system.(Competition Landscape of the MFS Industry in Bangladesh, n.d.) So even though Bkash, and Nagad has been losing their share of the market, their revenue and hence their profitability has been increasing.

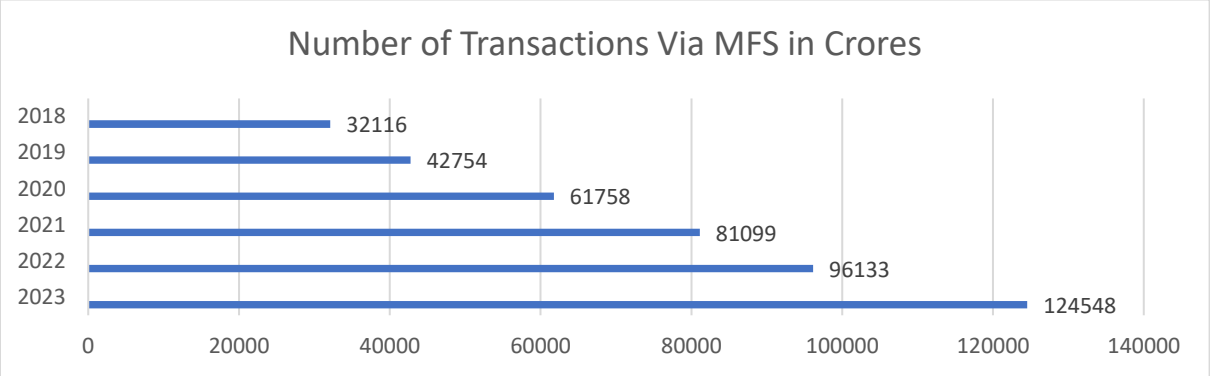

FIGURE 3: GROWTH OF MFS TRANSACTIONS

Table 2: Revenue comparison of Major MFS in Taka

YEAR	BKASH	NAGAD	ROCKET	SURECASH
2020	26,245,031,468	11,120,000	N/A	N/A
2021	23,284,752,508	33,100,000		
2022	28,547,708,941	45,000,000		
2023	41,906,986,868	55,137,558		

A full comparison of the performance of Rocket and SureCash could not be conducted since Financial Statements of these two businesses were not made available publicly. However, by comparing the top two MFS providers, we can see that Bkash is significantly ahead in terms of revenue.

4.3 How Top Tier MFS Compete

A. Agent Benefits

Since the Bkash, Nagad and Rocket depend on its agents to provide its services to the remotest parts of Bangladesh, it is of utmost importance to gain a large number of agents to cover the widest possible customer base.

Bkash charges its customers 18.50Taka per 1000 Taka Cash Out through its agents. Of this Cash out charge the agent receives 4.10 Taka per 1000 Taka Cash out. If they are using the bkash agent app they get 4.30 Taka per 1000 Taka(Team, n.d.). The remaining revenue is shared between the distributer, mobile operator and Bkash(*bKash Playing a Role in Users' Income Generation*, 2021). Bkash operators also receive a Cash in commission of 4.1 Taka per 100Taka.

Nagad Charges 12.5 taka per 1000 Taka for Cash Out, according to information collected from local agents they get to keep 4.1 Taka per 1000 Taka Cash out. Nagad pays its agents a Cash In commission depending on the amount. The lowest is 4.1% for Taka 1-4999 and goes upto 6% for Taka 20000-30000 (Anik, 2021).

Rocket As per information from local agents, **Rocket** Charges 18 Taka per 1000 Taka Cash Out, out of which the agents keep 4.35 Taka per 1000 Taka Cash out. They receive 4.75 Taka as Cash in Commission per 1000 Taka.

In conclusion, even though Rocket and Nagad are offering better terms to their agents, Bkash earns them the most because it has the most users and largest volume of transactions.

B. Marketing

Information on the marketing Budgets of these 3 companies were not available publicly. But by simply observing our surroundings we can assume that Bkash is the most aggressive with its marketing. Nagad has good visibility and we often see advertisements of Nagad, even though its less often than Bkash. Meanwhile Rocket barely has any visibility. The only time we are reminded of its existence is when we see a small banner hanging at an agent's shop surrounded by numerous banners and stickers of Bkash. Rocket also provides its services at DBBL Booths.

C. Features

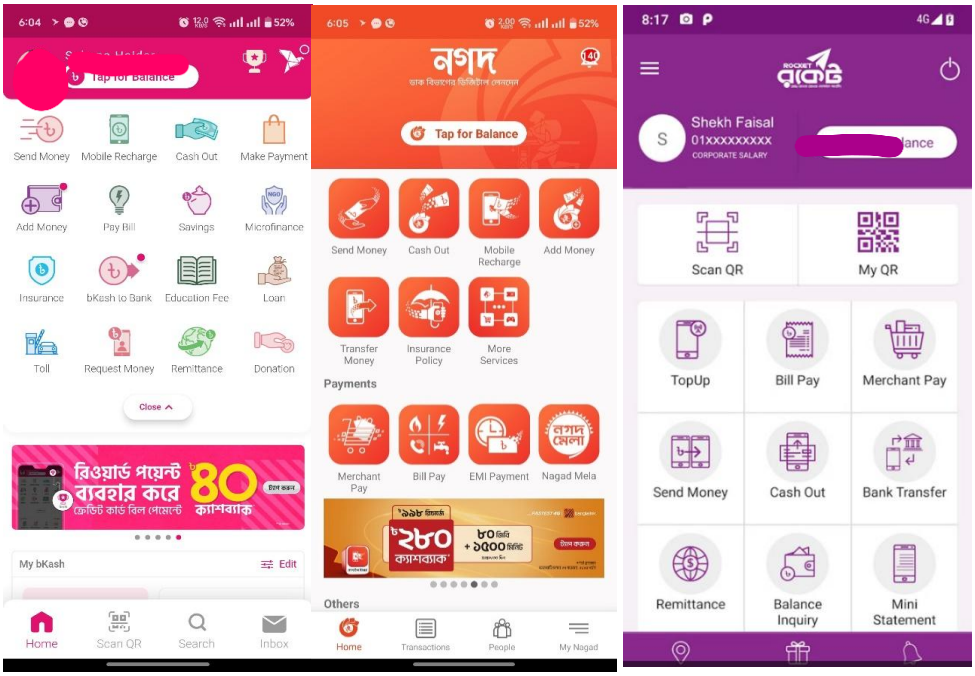

FIGURE 4: HOME SCREENS OF BKASH, NAGAD AND ROCKET

It is apparent that of the 3 major MFS's Bkash is the most feature rich option and is also accepted at most places as an alternative to cash. Saving schemes, loans and microfinancing are some

features that are unique to Bkash. Nagad and Rocket has all the essential features but are not as widely accepted as an alternative to cash.

D. Profit sharing-

Nagad introduced its "Munafa" scheme where it adds 1.5% profit if the user has a minimum balance of taka 5000 in their account for 1 month. The rate of profit increases according the slab set by the company.

Table 3: Nagad Profit rate (*Nagad*, n.d.-b)

Balance/ Slab	Annual Profit rate
0-4,999.99	0%
5,000-49,999.99	1.5%
50,000-99,999.99	2.5%
100,000-199,999.99	3.5%
200,000-300,000	7.5%

Bkash soon introduced its own interest scheme, albeit with a much lower percentage of interest.

Table 4: Bkash Interest Rate(*Interest on Savings*, n.d.)

Balance/ Slab	Annual Profit rate
0-4,999.99	0%
5,000-50,000.99	0.5%
50,001-150000.99	1%
150,001-250000.99	2%
250,000.99	3%

Rocket does not offer any profit or interest to its customers.

So, in this case Nagad is most profitable for its users.

- **Charges**- Bkash charges its customers 1.85% cash out charge while Nagad is charging 1.25% Cash Out. Rocket also charges its customers at the rate of 1.8%. so, in this case Nagad is the clear winner. Bkash also charges its user for simply sending money, this might be because they are taking advantage of their position as a market leader.

- Overall, judging from the numbers it seems like Nagad is the better option, yet they lag behind Bkash in terms of users and acceptability. Nagad should focus on marketing and advertising its benefits to potential customers in order become a strong competitor to Bkash.

4.4 Risk Assessment

Types of risk that users face:

A. Cyber Risks

Cyber risks are threats that have the potential to compromise user confidentiality and sensitive by means of a technological attack. In a country like Bangladesh, where the goal of agent-based MFS is to provide banking to the unbanked, the target market is often those with low levels of financial and technological literacy. This creates an environment is perfect for cyber-criminal to exploit. There are multiple ways a cyber-criminal could try to steal money from MFS users. The most common way is phishing by calling or texting a user posing as a customer representative from the MFS company. The criminal asks for sensitive information such as phone numbers, PIN and OTP. Using this information, they are able to get access to a user's account and are able to Cash Out all the money in the account, leaving the users with an empty account. Another avenue for hacking is through malware employing key loggers. This happens when people download applications from unofficial sources, chances are they might contain viruses that can steal data and send it to a server hosted by the criminal. Another cyber risk is when insiders of an MFS company misuse their position to get access to personal data of users. The data could also be used

for identity theft or other nefarious purposes. Such incidents of hacking will erode customer trust and make other users wary of using MFS, especially older people who are not tech savvy and are paranoid about getting hacked.

B. Operational Risks

Operational risks could be the disruption of services during day-to-day operations. A big example of an operational risk was seen during the internet shut down of the July 2024 uprising. When the internet was shut down no one was able to access their accounts which depended on the internet connection. Even USSD systems were not functioning properly. This left users who depended on Bkash, Nagad or Rocket for their money cut off from their own money. Other examples of operational risks could be server overload, software bugs and errors, mismanagement and bad customer service by agents who sometimes charge extra for cash out. Agents also face liquidity issues sometimes, then they are unable to provide Cash Out services.

C. Regulatory Risks

Regulatory risks could be disruptions in operations due to non-compliance with rules and regulations. Nagad faced this situation in August 2024, when its digital banking license got suspended by Bangladesh Bank for not complying with any of the licensing conditions. (Express, n.d.; *Nagad Does Not Meet License Conditions for Third Time*, 2021) MFS need to follow the guidelines set by Bangladesh Bank.(*Guideline_v3_ict.Pdf*, n.d.) Failure to follow these guidelines can result in disciplinary actions by Bangladesh bank (Hasan et al., 2009). Another regulatory risk could be MFS's facing punishment for its users who use the app for illegal remittance.

D. User Risks

User risks are faced when using a service due to human error. The most common error done by users is making a mistake while inputting the mobile number of the recipient of 'Send Money' or 'Mobile Recharge'. Or they could overstate the amount of money they

intended to send, by typing an extra zero for example. In this situation it is highly unlikely that the user recovers their money. It is rare that a person will be honest enough to return the money. Some other risks could be forgetting their PIN, or typing the wrong PIN too many times leading to the app getting locked. Such errors are extremely common in a country with low digital literacy. As a result, such users are sometimes reluctant seek help from customer service helplines and often just accept their losses. Such negative experiences create a negative perception in the user's mind and acts as a deterrent from using the service more often.

4.5 Policies to Mitigate Risks

A. Cyber Risks

In order to counter the phishing attempts by thieves, Bkash has heavily advertised and promoted safety precautions to its users. They are never to share their PIN and OTP with anyone, even with customer representatives and agents. They cautioned their users that anyone asking for this private information are not affiliated with their company, because customer representatives are trained to not ask for such information. As an additional security measure, Bkash and other MFS has made it so that the application will not open if the sim card associated with the account is not inside the phone. This will make it so that even if a thief gets access to a user's PIN and OTP they will not be able to access the account and the money in it. The only way for a thief to access an account is if they steal the whole phone, is able to unlock it and reset the PIN. In such a case the only thing a user can do is call their sim card provider and deactivate the sim as soon as they realize their phone has been stolen. Also remotely wiping all data on the phone via Google's Find my phone, or Apples iCloud Find my devices features. However unfortunately the people most likely to fall into a thief's phishing are often not technically literate enough to use such features, thus the best measure for them is to simply not share any sensitive information and to have a proper PIN or biometric lock on their phone.

B. Operational Risks

MFS company should ensure that even in the event of an internet outage or during political unrest, at least the USSD channels should remain functional. This so that people whose only access to banking is through these MFS services to become stranded without access to their money. They should have back up servers in case of server failure or server over load. Software updates should be properly tested for bugs before being rolled out to the Play Store or App store. Agents should be provided training to ensure they provide good customer service and function ethically. They could also be trained to better manage their cash flows in order to prevent liquidity problems.

C. Regulatory Risks

In order to ensure that MFS comply with all rules & regulations Bangladesh Bank should enforce strict penalties and conduct regular audits to prevent situations like that of Nagad. Bangladesh Bank should also ensure that customers money is not misused like in the case of Nagad and Third Wave. The MFS companies themselves must be compliant to guidelines set by Bangladesh Bank in order to avoid penalties and license revocation.

D. User Risks

In order mitigate user risks MFS companies should educate customers via marketing and advertising to be more careful while conducting transactions. Copy-pasting phone numbers can help prevent typing a wrong digit and sending money to the wrong person. The applications can require the users to input the money amount twice to make sure they have typed the right amount. Even though this will make the user experience more cumbersome but will reduce the chance of human errors. Another thing companies can do is encourage users to seek help from customer representatives by making calling the helplines cheaper.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 Conclusion

In conclusion, it can be said that mobile financial services served as a boon to the unbanked. It gave earners a safe way to send money home to their families. Even among those who have access to traditional banking, it serves as a convenient way to recharge their phones, share money with friends and family, pay utility bills and education fees and even donate money to trustworthy charities. Even though these services come with its own set of cyber, operational, regulatory and user risks, the benefits gained far outweighs the negatives. Observing the market of MFS, we can see that it is of oligopolistic nature. The positive side of this is more streamlined services and acceptability. However, the dominance of Bkash must be challenged in order to prevent it from becoming a monopoly. They already are taking advantage of their market position by charging the highest from their customers.

5.2 Recommendations

In order to address the risks faced by the MFS industry we have the following recommendations:

- **Increasing technological and financial literacy**

  This initiative can be taken by the government or through a collaborative campaign between the major MFS companies, increasing literacy will increase perceived usefulness and perceived ease of use and reduce perceived risk. It will increase adoption which benefit all the MFS companies and even the government by bringing in more people under the umbrella of banking.

- **Introducing more competition**

  Bangladesh Bank should provide incentives to smaller MFS companies to increase their market share. More competition in the market will drive down costs for the customers and prevent Bkash from becoming a monopoly.

- **Improving Regulatory Frameworks**

  Since MFS fall under the jurisdiction of Bangladesh Bank, they should establish strict and enforceable guidelines and conduct regular audits to prevent misuse of customers money.

- **Increasing security in the applications**

  MFS companies should integrate biometric security features in addition to PIN and two factor authentication. Doing so will make it even harder for thieves to get access to people's accounts. They can also enhance their software security to prevent hackers from getting information through malware and keyloggers.

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