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Fintech Development, RegTech, and Financial Institutions in Ghana

Starting with The Regulatory Sandbox

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Abstract: This paper comprehensively analyzes the Fintech landscape in Ghana, focusing on policy, legal, and technical aspects. It details Ghana's 2022 regulatory sandbox and explores key laws impacting Fintech, including consumer protection, data protection, and cyber security. The study traces the evolution of regulations shaping the sector and highlights technology's transformative role in financial industry supervision. The research examines technology integration in Bank of Ghana (BoG) financial institutions and its use by Fintechs for operations and regulation. It assesses challenges arising from financial regulations and their impact on industry stability. The paper evaluates whether bolstering Regulatory Technology (Regtech) can reshape Ghana's financial regulation model. Building on insights, the paper proposes policy recommendations to enhance Ghana's Regtech framework. Utilizing a multimodal approach and diverse sources, the study contributes to Fintech regulation discourse, emphasizing the need for a coordinated, proactive approach to policy development for a resilient Fintech sector in Ghana.

Keywords: Fintech development; Digital Economy; Financial Regulations; Regtech; Inclusive Finance

Introduction

Rapid innovation, development, and emerging technologies and digital businesses globally come along with challenges for regulators (Ngari, 2022) to keep up with the pace

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of business and technology innovation – especially when it comes to Fintech, therefore prompting regulators globally and in Africa (Mundial, 2020), to embrace innovative regulations including the regulatory sandboxes as a means of providing a dynamic, evidence-based regulatory environment to test emerging technologies and (Currie, Boyer-Davis, & Oswald, 2022) advancement like digital finance and serve as tools that could be used to complement to a policy maker's existing approaches to dealing with innovation (Jenik & Lauer, 2017).

For firms and businesses, a sandbox provides opportunities (Spies, 2023) to test technologies and allows the authorities to gain practical insight while granting the participating companies temporary relief from certain regulatory requirements.

Regulatory Sandboxes are time-bound regulatory approaches providing experimental clauses as the legal basis for participating in the scheme and therefore enabling the identifying and early assessment of the risks that certain innovations have, providing an opportunity for regulators to design measures to accommodate such risks (Federal Ministry For Economic Affairs And Climate Action, 2021; United Nations Secretary-General's Special Advocate for Inclusive Finance for Development, 2022).

The UK's Financial Conduct Authority ("FCA") (Authority, 2016) launched the first regulatory sandbox in 2016, to remove the unnecessary barriers for banking and finance businesses that were innovating beyond the traditional business models (Authority, 2022) test innovative propositions in the market with real consumers. Many countries have now adopted regulatory sandboxes as a framework for regulators to allow fintech startups and other innovators to conduct live experiments in a controlled environment under regulatory supervision (CGAP, 2020).

Several Sandboxes globally have revealed some capability and power for innovative regulation, facilitating market entry of firms, fostering partnerships, strengthening market competition, enhancing financial inclusion, building capacity within regulatory institutions and enabling fintech market development (Appaya & Haji, 2020) though policymakers cannot always accurately predict market reactions and impacts from them.

In Africa, Kenya was the first to have its Regulatory Sandbox, followed by Sierra Leone. So far, some African countries have operationalized Sandboxes with different objectives including Nigeria, Ghana, Mozambique, Mauritius, Rwanda, and Kenya (Capital Markets Authority, 2019; Central Bank of Nigeria, 2021; Chloe Messenger & Mondle, 2018; Financial Services Commission, 2016; Ghana, 2021; National Bank of Rwanda, 2022 ; United Nations Capital Development Fund (UNCDF), 2018). The Bank of Mozambique launched its 4th Edition of the Regulatory Sandbox (Banco De Moçambique, 2023).

In 2019, the Bank of Ghana launched a new regulatory and innovation sandbox to provide a controlled testing environment for new financial products and services available to banks, specialized deposit-taking institutions, and payment service providers including dedicated electronic money issuers as well as unregulated entities and persons that have innovations that meet the sandbox requirements (Central Banking Newsdesk, 2021). The Bank of Ghana observed that effectively, the regulatory and innovation sandbox will provide a forum for financial sector innovators to interact with the sector regulator to test digital financial service innovations while evolving and enabling the regulatory environment. In this regard, the Bank and the innovator can assess the usefulness, viability and safety of innovations through a shared understanding of their respective interests (Bank of Ghana, 2022). Ghana`s regulatory sandbox was introduced by the Bank of Ghana (BoG) to promote innovation in the financial sector while ensuring consumer protection and financial stability. The genesis of the regulatory sandboxes in Ghana can be traced back to the increasing need for innovation in the country's financial sector. In recent years, fintech innovation has been gaining momentum in Ghana, with several start-ups and innovative products emerging. However, the existing regulatory framework was not designed to keep pace with the fast-evolving fintech industry, leading to regulatory gaps and uncertainties for innovators.

To address these challenges, the Bank of Ghana (2019c) established the regulatory sandbox framework to provide a safe and controlled environment for fintech innovators to test their products and services under the supervision of the regulator. The regulatory sandbox provides a mechanism for testing innovative financial products and services without incurring the full regulatory burden. It aims to achieve several objectives, including promoting financial inclusion, enhancing competition, promoting innovation, and ensuring consumer protection. The framework provides a flexible and supportive environment for fintech start-ups to test their products and services in a controlled environment while providing regulatory oversight to ensure compliance with applicable laws and regulations.

There have been a few pieces of research on Ghana`s regulatory sandboxes (Owusu, et al., 2021) providing valuable insights into the potential impact of the Bank of Ghana's regulatory sandbox framework on financial innovation and project the importance of effective regulatory frameworks in promoting fintech innovation and financial inclusion in the country (Kong et al., 2018; Tampuri Jnr et al., 2023; Tampuri Jnr., 2023).

In examining the objectives of the framework of Ghana`s Regulatory sandbox, the eligibility criteria for participating in the sandbox, Andoh (2020) concluded that the regulatory sandbox framework had the potential to promote innovation in the fintech industry in Ghana while Tampuri Jnr. (2023) ensuring consumer protection and financial stability by providing a supportive environment for fintech innovators to test their products and services in a controlled environment under the supervision of the regulator. Opoku and Baidoo (2021) similarly observed that the framework of the Bank of Ghana's regulatory sandbox has the potential to promote fintech innovation in Ghana and ensure consumer protection and financial stability. On the other hand Kutsoati and Tetteh (2021), Tampuri Jnr et al. (2021) suggested the importance of effective collaboration between regulatory bodies, fintech innovators, and other stakeholders being critical for the success of the regulatory sandbox framework. Additionally, the authors emphasize the importance of ongoing monitoring and evaluation of the regulatory sandbox to ensure that it achieves its intended objectives.

The Bank of Ghana's initiative to introduce a regulatory sandbox framework has been a significant step towards fostering innovation in Ghana's financial sector while ensuring some level of consumer protection and financial stability. The sandbox creates a controlled environment for fintech companies to test their innovative products and services without having to comply with all the regulatory requirements that established financial institutions have to adhere to. By doing so, the framework encourages innovation and promotes competition in the financial sector, while providing regulators with an opportunity to monitor and evaluate the risks associated with new products and services (Bank of Ghana, 2021). Therefore, the regulatory sandbox could be an effective tool that aligns with the Bank of Ghana's overarching goals of enhancing financial inclusion, safeguarding consumers, and maintaining financial stability through efficient regulations and supervision. This paper will as well examine Fintech development and the regulatory and technology environment for Fintechs in Ghana

Literature Review

Regulations and technology environment: Regtech and Suptech in Ghana

In recent years, the financial sector in Ghana has witnessed significant technological advancements that have revolutionized the way regulatory and supervisory functions are performed (Biekpe & Osei, 2019). While some researchers have shown that these technological innovations have led to numerous benefits such as increased efficiency and reduced costs, they have also posed challenges for regulators and supervisors to keep up with the pace of change. The Bank of Ghana (BoG) is aware of these challenges especially innovations and technology continues to adopt various technological tools (Bank of Ghana, 2019b) to enhance its regulatory and supervisory functions including the use of the Financial Reporting System (BFRS) (Bank of Ghana, 2019a), an online reporting system developed by the Central Bank requiring financial institutions to submit their financial reports electronically. This system ensures timely and accurate reporting while providing real-time data that enables the Bank of Ghana to monitor and analyze the financial performance of regulated entities more effectively.

In addition to the Bank`s Financial Reporting System, and according to the National Communications Authority (2021) the Bank of Ghana has also adopted data analytics tools to enhance its supervisory functions. By leveraging data analytics, the Bank of Ghana could be better resourced to identify potential risks in the financial system, such as credit risk, liquidity risk, and operational risk, and take proactive measures to mitigate these risks before they materialize. Moreover, the Bank of Ghana (2020b) has implemented technology-based risk assessment frameworks that use advanced analytics and machine learning algorithms to assess the risk profiles of financial institutions. This approach enables the Central Bank to allocate its supervisory resources more efficiently and effectively, which is crucial for ensuring effective regulation and supervision of the financial sector in Ghana.

The adoption of technology in regulatory and supervisory functions has become increasingly important in Ghana's financial sector. Therefore, it is crucial for regulators and supervisors to continuously embrace emerging technological advancements to enhance their regulatory and supervisory functions (Biekpe & Osei, 2019). By doing so, they can stay ahead of potential risks and ensure that the financial sector remains stable and resilient over time.

From the research, the adoption of technology in regulatory and supervisory functions by the Bank of Ghana has been a significant step towards enhancing the efficiency and effectiveness of its oversight of the financial sector. The use of technological tools, such as the Bank Financial Reporting System, data analytics, and machine learning algorithms, has enabled the Bank of Ghana to monitor and analyze the financial performance of regulated entities more effectively, identify potential risks in the financial system, and allocate supervisory resources more efficiently. However, there is still a need for further research to explore how the adoption of these technological tools could impact the financial sector's overall stability and resilience, and how they can be continuously improved to meet the changing needs of the sector. Additionally, there is a need to address the challenges posed by the adoption of technology in regulatory and supervisory functions, such as data privacy and security concerns, and the need to ensure that emerging technologies do not create new risks or amplify existing ones.

Fintech services and applications by institutions under the regulatory domain of the Central Bank

The financial sector in Ghana has undergone remarkable changes over the years, with technology and digitalization playing a major role. Technology and applications have transformed the way financial institutions provide services to customers, making financial transactions more accessible, convenient, and efficient. Over the years keys included mobile money, internet banking, electronic payment systems, biometric authentication, and blockchain technology.

Mobile Money Technology since first introduced in Ghana has enabled customers to perform financial transactions using their mobile phones without the need for a bank account. It has been widely adopted in the finance sector in Ghana, with providers such as MTN Mobile Money, AirtelTigo Money, and Vodafone Cash leading the way and enabling individuals and businesses use mobile money to receive and pay for goods and services at participating merchants (Aryee et al., 2018).

Studies have demonstrated that mobile money has had a positive impact on financial inclusion in Ghana. Mobile money has made financial services more accessible to customers, particularly those who are unbanked or underbanked (Bank of Ghana, 2020a). As of 2021, the mobile money industry in Ghana had contributed significantly to reducing poverty and improving financial inclusion. More than 16 million registered accounts and over 200,000 agents were recorded across the country (Buckley & Kalarickal, 2019). Mobile money is contributing to making financial services more accessible to people in remote and rural areas who had limited access to financial institutions. Additionally, it has facilitated financial transactions for small businesses and individuals, reduced the reliance on cash, and increased financial transparency.

Internet banking by financial institutions is widely used, allowing customers to access their accounts, transfer money, pay bills, and perform other transactions online. In Ghana, several banks offer Internet banking services, including Ecobank, GTBank, and Standard Chartered Bank. Internet banking has gained popularity in Ghana due to its convenience, accessibility, and security features. Customers can access their accounts from anywhere, anytime, and can perform transactions quickly and easily. Studies have shown that Internet banking has improved customer satisfaction and loyalty and also increased efficiency in financial institutions, reducing the need for physical branches and staff in Ghana (Kwarteng & Opoku-Mensah ,2019). However, the use of Internet banking has raised concerns about cybersecurity (Aboagye & Boadi-Kusi, 2021) and Fraud-related transactions (Owusu-Frimpong & Arko, 2018) requires financial institutions to implement strong security measures and protocols to protect customer data (Antwi-Boasiako & Danquah, 2018).

Electronic mediums of payment with examples being VisaCards, Mastercard, and GhIPSS. Enables individuals and institutions to make payments using electronic channels (Koh & Sodjahin, 2021). Electronic payment systems have become popular in Ghana due to their convenience and security features as users can make payments quickly and easily, without the need for cash or physical transactions. Studies have shown that electronic payment systems have had a positive impact on financial inclusion and economic growth in Ghana (Akudugu et al. 2020; Gyeke-Dako & Acheampong, 2020; Koh & Sodjahin, 2021). Electronic payment systems have facilitated financial transactions for small businesses and individuals, increasing financial transparency and reducing the reliance on cash.

Biometric authentication on the other hand is a technology used to verify the identity of customers through their unique physical characteristics such as fingerprints, facial recognition, or iris scans. Fidelity Bank and GCB Bank are some of the banks in Ghana using biometric authentication. Biometric authentication has become popular in Ghana due to its security features and ease of use. Customers can verify their identity quickly and easily, without the need for passwords or PINs. Research revealed that biometric authentication has drastically improved security and reduced fraud in financial institutions in Ghana (Adjei & Agyemang, 2021). The study found that the use of biometric authentication has led to an 80% reduction in fraud, and customers are more satisfied with the use of this technology compared to traditional methods of authentication. The implementation of blockchain technology in the financial sector in Ghana (Ansong & Adjei, 2020) could lead to significant cost savings, enhanced efficiency, and reduced fraud. However, proper regulatory frameworks and guidelines are necessary to guarantee the safety and security of blockchain-based financial services. The finance sector in Ghana has embraced technology and applications, thereby transforming how financial services are provided and accessed. The adoption of biometric authentication, blockchain technology, and mobile money has enhanced security, decreased fraud, and improved efficiency. However, it is crucial to have proper regulatory frameworks and guidelines set by the Bank of Ghana to ensure the safety and security of these technologies. Further research is necessary to explore their potential in enhancing financial services not only in Ghana but also beyond.

Another increasing requirement that is seeing innovation is Electronic Know Your Customer (eKYC) (Yinusa et al., 2021). It is an increasingly popular process in Ghana that enables financial institutions to remotely verify the identity of their customers using electronic means. By eliminating the need for physical documentation, eKYC offers advantages such as convenience, speed, and accuracy. Customers can provide their personal information and identity documents electronically, such as through a mobile app or web portal, allowing financial institutions to quickly and easily verify their identity. The adoption of eKYC has been driven by the increasing use of mobile money services in Ghana. Providers such as MTN Mobile Money, AirtelTigo Money, and Vodafone Cash have implemented eKYC processes to onboard new customers and verify their identities, increasing financial inclusion for unbanked and underbanked individuals. Bank of Ghana (2019b) has encouraged the adoption of eKYC by financial institutions in the country, releasing guidelines in 2019 that outline the requirements and procedures for implementing Ekyc.

eKYC is a crucial development in the finance sector in Ghana, enabling financial institutions to verify customer identities quickly and easily. The implementation of eKYC has been influenced by the growing popularity of mobile money services and has helped to enhance financial inclusion in the country. The guidelines established by the Bank of Ghana ensure that eKYC is implemented safely and securely.

The Government of Ghana through the National Identification Authority (2022)(NIA), introduced the Ghana Card in 2018 aimed at providing a secure and reliable way for citizens and legal residents to verify their identity. The Ghana Card is expected to serve as the primary means of identification in Ghana, and fintech companies have started integrating it into their services to offer a more secure and streamlined experience. For example, fintech company Zeepay has integrated the Ghana Card into its digital wallet platform, allowing users to verify their identities and carry out financial transactions safely and conveniently (Asiedu, 2021).

The integration of the Ghana Card in fintech has the potential to enhance financial inclusion in Ghana by offering a reliable method of verifying the identity of individuals who are unbanked or underbanked. In addition, the Ghana Card can reduce fraud and improve security in financial transactions. However, concerns about the privacy and security of personal data collected through the Ghana Card persist. The NIA has stated that it has put in place robust measures to ensure the information collected is kept secure and that individuals' privacy is protected.

The integration of the Ghana Card into fintech in Ghana has enormous potential to enhance financial inclusion and security in transactions. Despite concerns about privacy and security, the NIA has continued to assure that it has implemented measures to address these issues and guarantee the safety of the personal data obtained through the Ghana Card (National Identification Authority, 2022).

1 Development and Legal Trend of Fintech in Ghana

1.1 History and development of Fintech in Ghana

Domestic Banking led Fintech to make its first appearance in the Ghanaian environment with the introduction of the Sika card in 1997 by then Social Security Bank Ltd (now Société General Ghana Ltd)[1] to undertake cashless transactions. The main function of the Sika Card was to reduce the use of large sums of money for transactions. To use the card, a customer would first load the card with an amount of money and thereafter use the money at designated merchant points and intra-bank transfers.

About 6 years after the launch of the Sika card, in the spirit of furthering the cash-lite agenda in Ghana, the Payment Systems Act 2003, Act 662, was passed. The Payment Systems Act 2003 authorized the Bank of Ghana to promote and supervise electronic and other payment, funds transfer, clearing and settlement systems between banks and deposit-taking institutions which the Bank of Ghana deemed beneficial to the interest of the public[2]. The Payment Systems Act birthed the development of the E-Zwich and Ghlink cards by a subsidiary of the Bank of Ghana in 2008. The subsidiary, named Ghana Interbank Payment and Settlement Systems (GhIPSS) created the E-Zwich and Ghlink cards to encourage Ghanaians to use electronic payment systems with their financial institutions and at designated merchant points. The E-Zwich card, a biometric smart card, set the pace for biometrics worldwide.

With the successful launch of the E-Zwich card came the concept of branchless banking. According to the Bank of Ghana Notice No. BG/GOV/SEC/2008/21[3] The rationale behind branchless banking was to provide a cheaper alternative to conventional branch-based banking and allow financial institutions and other commercial actors to offer financial services outside traditional bank premises by using delivery channels like retail agents and mobile phones, particularly to increase their reach in unbanked communities. The Bank of Ghana through Notice No. BG/GOV/SEC/2008/21 set out the guidelines for branchless banking according to the objectives below:

1. To promote financial inclusion without risking the safety and soundness of the banking system;
2. To extend core banking services to the domain of everyday transactions;
3. To ensure that the common platform for the payments and settlement system (E-Zwich) established for deposit-taking financial institutions extended to branchless banking;

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[1] https://thebftonline.com/2021/03/06/of-banks-and-fintechs-driving-nation-to-full-economic-independence/
[2] Section 1, Payment Systems Act 2003 https://bcp.gov.gh/acc/registry/docs/PAYMENT%20SYSTEMS%20ACT,%202003%20ACT%20662.pdf last accessed on 25th March 2023.
[3] Notice to Banks and Savings and Loans Companies, Notice No. Bg/Gov/Sec/2008/21: Guidelines for Branchless Banking.

4. To ensure that banking services provided under branchless banking was provided by regulated deposit-taking financial institutions or their agents;
5. To ensure compliance with Ghana's Anti-Money Laundering Act as well as the Anti-Money Laundering and Financing of Terrorism standards as set by the Financial Action Task Force;
6. To ensure wide participation of deposit-taking financial institutions including commercial banks, rural banks, savings and loans and microfinance institutions in the provision of branchless banking services;
7. To ensure that all branchless banking transactions are cleared through the settlement system and
8. To ensure that all customers using branchless banking services can be uniquely identified.

As fintech continued to grow, it was clear that more work needed to be done and the Electronic Transactions Act 2008, Act 772 was passed in 2008 to inter alia,

1. promote legal certainty and confidence in electronic communications and transactions;
2. develop a safe, secure and effective environment for the consumer, business and the Government to conduct and use electronic transactions, and
3. promote the development of electronic transaction services responsive to the needs of consumers.

The Electronic Transactions Act 2008, Act 772 on its passage, set an enabling environment for the birth of a telecommunications e-wallet service (mobile money)[4] now commonly known as momo. In July 2009, Scancom PLC (MTN Ghana), following the passage of the Electronic Transactions Act and the success of a similar e-wallet service in Kenya known as M-Pesa introduced the MTN mobile money service to Ghana. The service allowed MTN sim holders to make payments, transfer and store monies, through an electronic account linked to their mobile numbers. Soon, this service spread across other telecommunications companies in the country leading to the introduction of Vodafone Cash by Vodafone; Airtel Money by the then Airtel Ghana Ltd and Tigo Cash by the then Tigo Cash Ltd.[5] However, due to challenges in interoperability, transfers and payments were limited and unless the transfers were intra-network service, the transfers would fail. To solve this, GhiPPs introduced an interoperability system between banks and networks in

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[4] By the end of December 2021, there were 48,308,945 registered mo-mo users in Ghana.
See also https://www.bog.gov.gh/wp-content/uploads/2022/07/Payment-Systems-Oversight-Annual-Report-2021-1.pdf
Last accessed on 10th March 2023

[5] Airtel and Tigo have since merged into AirtelTigo.

2018[6]. This system allowed seamless transactions between the different telecommunication networks[7]. Ghana is currently the fastest-growing mobile money market in Africa[8].

The passage of the Electronic Transactions Act also led traditional banks to begin partnering with fintech companies to provide their clientele with a myriad of services including but not limited to digital credit, POS systems, USSD services and mobile banking. In time, to better protect citizens, Ghana passed the Data Protection Act 2012 intending to protect individual privacy and personal data by regulating the processing, use, holding and disclosure of personal information. By 2015 not only had mobile money been firmly established on the Ghanaian landscape, fintech companies like Expresspay[9] Slydepay, Mazzuma[10], and Zeepay, had established their presence in the Ghanaian fintech space. These new Fintech companies provided e-Commerce marketplaces and payment gateway services, broadening the scope of financial-related technology in Ghana. In response to this growth, the Bank of Ghana published the Guidelines for E-Money Issuers which wholly rescinded the Guidelines for Branchless Banking. These new Guidelines made room for banks and non-bank institutions that offered financial services to the general public[11]. The new Guidelines were introduced:

4. Promote financial inclusion without risking the safety and soundness of the financial system;
5. Extend financial services beyond traditional branch-based channels to the domain of everyday transactions;
6. Ensure that electronic money is only provided by financial institutions regulated under the Banking Act, 2004 (Act 673) or duly licensed non-bank entities engaged solely in the business of e-money and such incidental activities;
7. Ensure that customers of e-money issuers benefit from adequate transparency, fair treatment, and effective recourse.

The new Guidelines also provided for individuals with insufficient identification to be included in the formal financial industry by developing a three-tiered account structure approach to the knowing-your-customers (KYC) process used in the industry. Under the Guidelines, the range of FinTech services included:

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[6] The system was launched by Vice President of Ghana, Dr. Alhaji Mahamoud Bawumia on 10 May, 2018.
See also https://www.afi-global.org/news/2018/05/ghanas-first-mobile-money-interoperability-system-deepens-financial-inclusion
Last accessed on 25th March 2023

[7] https://oradian.com/interoperability-between-Fintech-providers-in-ghana/
Last accessed on 25th March 2023

[8] https://qz.com/africa/1662059/ghana-is-africas-fastest-growing-mobile-money-market/
Last accessed on 25th March 2023

[9] https://expresspaygh.com/aboutus.php
Last accessed on 25th March 2023

[10] Mazzuma is a mobile money payment system that utilizes a distributed secure infrastructure and cryptocurrency to enable seamless payments.

[11] Guidelines for E-Money Issuers, Chapter II, Regulations 5 & 6
See also https://www.bog.gov.gh/wp-content/uploads/2019/08/NOTICE-Guidelines-for-E-Money-Issues-in-Ghana.pdf

1. e-payments;
2. electronic wallets are known as mobile money;
3. over-the-counter transactions;
4. savings products in partnership with banks and other deposit-taking agencies
5. insurance products.

Due to the fast-growing nature of FinTech, these laws and regulations became inadequate and could not operate as a regulatory framework for FinTech in Ghana. Thus, in March 2019, the government of Ghana passed the Payment Systems and Services Act 2019, the first direct regulation for and in respect of the ever-growing FinTech industry in Ghana.

Laws and regulations directly affecting the Ghanaian Fintech space

Ghana has experienced significant growth in its FinTech sector over the past few years, with the launch of a regulatory sandbox in 2022 being a notable development. The regulatory sandbox, which operates under the Specialized Deposit-Taking Institutions Act, 2016 (Act 930) and the Payment Systems and Services Act, 2019 (Act 987), allows FinTech companies to test innovative products and services in a controlled environment. This is in line with global trends in fintech regulation, where regulators are increasingly using regulatory sandboxes to facilitate innovation while still ensuring consumer protection (Boateng 2021; Kyeremeh, 2021)

Several laws in Ghana directly affect FinTech, including those related to consumer protection, data protection and privacy, and cyber security. The trend and development of these laws, as well as other policies shaping the FinTech space, are areas of interest for researchers. Additionally, the use of technology for reporting standards with financial institutions by the Bank of Ghana (BoG) is another important area to explore. It is important to understand how financial regulators in Ghana are using technology and whether there are any legal or policy requirements for financial institutions to adopt certain technologies for regulatory purposes (Boateng & Oppong, 2021). Traditional financial institutions in Ghana are also adopting new technologies to improve their operations and services, and FinTech companies are using technology to disrupt traditional financial services (Adeoti, 2020). This has implications for the way financial services are delivered and regulated in Ghana. Furthermore, the application of technology by FinTech for business operations and by the BoG for regulatory and supervisory purposes is an area that requires further analysis. Are there any challenges or limitations to the use of technology in these contexts? These are questions that need to be answered as Ghana continues to develop its FinTech sector.

Ghana's FinTech sector is growing rapidly, and there are many legal, policy, and technological factors to consider when analyzing its development. The above-mentioned areas of interest are critical for researchers to explore as they seek to understand the impact of FinTech on Ghana's financial industry and how regulators can adapt to these changes.

1.2 The Electronic Transactions Act 2008, Act 772

In 2008, 5 years after the Payment Systems Act 2003, Act 662, Ghana passed the Electronic Transactions Act 2008, (Act 772). Section 1 of the Electronic Transactions Act 2008, states that the objective of the Act is to provide for and facilitate electronic communications and related transactions in the public interest, and to:

1. remove and prevent barriers to electronic communications and transactions;
2. promote legal certainty and confidence in electronic communications and transactions;
3. promote e-government services and electronic communications and transactions with public and private bodies, institutions and citizens;
4. develop a safe, secure and effective environment for the consumer, business and the Government to conduct and use electronic transactions;
5. promote the development of electronic transaction services responsive to the needs of consumers;
6. ensure that, concerning the provision of electronic transactions services, the special needs of vulnerable groups and communities and persons with disabilities are duly taken into account;
7. ensure compliance with accepted international technical standards in the provision and development of electronic communications and transactions;
8. ensure efficient use and management of the country domain name space; and
9. ensure that the interest and image of the Republic are not compromised through the use of electronic communications.

Under this Act, both banks and non-banking financial institutions were mandated to apply for a license to undertake electronic transfers and which license was to be displayed conspicuously on the premises of the bank or non-banking financial institution[12]. It is unclear whether or not this license would still be required due to the existence of the Payment Systems and Services Act 2019, Act 987 which was recently passed to regulate institutions that operate an electronic money business. However, since the Payment Systems and Services Act 2019 states that the Act is to be read together with the Electronic Transactions Act 2008, it is highly likely that financial institutions would still be required to acquire an Electronic Transactions license from the Bank of Ghana, in addition to other requirements set by the Payment Systems and Services Act 2019.

Pursuant to its objective to develop a safe, secure and effective environment for consumers, businesses and the government to conduct and use electronic transactions, the Electronic Transactions Act 2008 in section 46 states that all electronic transactions are bound by the principles of consumer protection. Banks and non-banking institutions that conduct electronic transactions for supply, sale, hire, or exchange have to provide their consumers with information including but not limited to[13],

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[12] Sections 38 and 40, Electronic Transactions Act 2008
[13] Section 47, Electronic Transactions Act 2008

1. the Supplier's full name, legal status, physical address, telephone number, website address and e-mail address;
2. whether they belonged to membership of any self-regulatory or related bodies and the contact details of said body;
3. a code of conduct to which the supplier subscribed and how that code of conduct would be accessed electronically by the consumer;
4. a sufficient description of the main characteristics of the goods or services offered by the supplier to enable a consumer to make an informed decision on the proposed electronic transaction;
5. the full price of the goods or services, including transport costs, taxes and any other fees or costs;
6. the manner of payment;
7. terms of the agreement including guarantees that will apply to the transaction and how these terms may be accessed, stored and reproduced electronically by consumers;
8. the return, exchange and refund policy;
9. the security procedures and privacy policy of the supplier as regards payment, payment information and personal information;

Under the Act, consumers further have the right to be provided with

1. the terms of the transaction and the general conditions governing it,
2. the opportunity to withdraw from the transaction before concluding the contract and
3. the opportunity to identify and correct handling errors.

If an institution fails to with the principles of consumer protection particularly those espoused in the Act, the consumer must return the products or stop the supply where it's in respect of services and demand a refund[14]. Suppliers have 30 days to refund the consumer's money and shall be liable for any damage the consumer suffers due to the Supplier's failure. To add to the above conditions, Suppliers must utilise payment systems that are sufficiently secure regarding accepted technological standards at the time of the transaction and the type of transaction concerned. None of these protections can be contracted out by either supplier or consumer[15].

As a means of further protecting consumers and recipients of electronic transactions, the Electronic Transactions Act ensures that persons who use electronic transactions and communications to facilitate or commit crimes are duly penalized by criminalizing said activities. Thus in so far as an illegal activity is committed through or by an electronic transaction or communication, the transaction or communication becomes a cyber-offence[16].

[14] Section 47 (3) and (4), Electronic Transactions Act 2008
[15] Section 50, Electronic Transactions Act 2008
[16] Section 123 of the Electronic Transactions Act 2008

1.3 The Data Protection Act 2012, Act 843

Complementing the protections afforded by the Electronic Transactions Act, is the Data Protection Act 2012, Act 843. Article 18 of the Ghanaian Constitution stipulates that no person shall be subjected to interference with the privacy of their home, property, correspondence or communication. Further to this right, the Data Protection Act 2012, Act 843 was passed to protect personal privacy and data by regulating how personal information is to be obtained, processed, retained, used and/or disclosed.

To this end, section 1 of the Data Protection Act 2012, establishes a Data Commission17 to license and oversee persons who obtain, process and use personal data. This is critical because all financial e-transactions disclose the personal information of the sender and recipient in addition to other such necessary but confidential information for the transaction and this information must be kept securely, free from cyber-attacks and unlawful disclosures. Per Section 28 of the Data Protection Act, all data controllers, i.e., persons who determine the purposes for and how personal data is processed are required to take steps to secure the integrity of the personal data to prevent loss, damage and/or unauthorized/unlawful disclosure of the data. This mandate also applies to third parties the Data Controller may engage to collect and handle the data.18

As earlier mentioned, one of the concerns of the Bank of Ghana Notice No. BG/GOV/SEC/2008/21 was to ensure compliance with Ghana's Anti-Money Laundering Act as well as the Anti-Money Laundering and Financing of Terrorism standards as set by the Financial Action Task Force. In furtherance of this, data collected and processed under the Data Protection Act 2012 may be disclosed if it is to

1. prevent crime or assist in the apprehension of an offender[19];
2. protect the public against (a) loss or malpractice, and (b) dishonesty or malpractice in the provision of professional services[20].

1.4 The Payment Systems and Services Act 2019, Act 987

In 2020, the Bank of Ghana established a Fintech and Innovation Office for the licensing and oversight of dedicated electronic money issuers (mobile money operators), payment services providers (PSPs), closed-loop payment products, payment support solutions and other emerging forms of payment delivered by non-bank entities pursuant to the Payment Systems and Services Act 2019, Act 987. In addition to this role, the office also bears the responsibility of developing policies to promote FinTech, innovation and interoperability in Ghana.

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[17] Section 1, Data Protection Act 2012
[18] Section 29, Electronic Transactions Act 2012
[19] Section 61, Data Protection Act 2012
[20] Section 63, Data Protection Act 2012

The Payment Systems and Services Act 2019 which repeals the previous Payment Systems Act passed in 2003 (Act 662), was assented to by the President of Ghana on 13th May 2019. The aim of the Act was to

1. create an enabling regulatory environment for digital payments,
2. amend and consolidate laws and guidelines relating to the connection of payers and recipients of money by payment instruments or electronic money, and
3. regulate institutions which issue electronic money and provide Payment Services.

The Payment Systems and Services Act applies to banks, specialised deposit-taking institutions, Payment Service Providers, Dedicated Electronic Money Issuers, and their affiliates and/or agents[21]. Most importantly it recognizes other players in the FinTech industry that are not banks or deposit-taking institutions.

Under the Act, the Bank of Ghana has overall supervisory and regulatory authority[22] in all matters relating to payment, settlement and clearing systems. Bank of Ghana per this mandate, is responsible for regulating matters for inter alia,

1. the issuance of electronic money, payment instruments, payment service providers and electronic money businesses[23];
2. ensuring that financial services are extended beyond traditional branch-based channels to the domain of everyday transactions[24];
3. ensuring that electronic money is only provided by authorized financial institutions regulated by the Banks and Specialised Deposit-Taking Institutions Act 2016 (Act 930) and duly licensed non-bank entities which are engaged solely in the business of electronic money and activities related or incidental to the business of electronic money[25];
4. ensuring that customers of electronic money issuers benefit from adequate transparency, fair treatment and effective recourse mechanism[26];
5. the formulation, monitoring and review of policies on payment systems in Ghana[27];
6. the authorization of banks and specialized deposit-taking institutions to conduct business under the Payment Systems and Services Act 2019[28];
7. the licensing of non-bank financial institutions under the Payment Systems and Services Act 2019[29];

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[21] Section 1, Payment Systems and Services Act 2019
See also https://www.bog.gov.gh/wp-content/uploads/2019/08/Payment-Systems-and-Services-Act-2019-Act-987-.pdf
Last accessed on 25th March 2023
[22] Section 3(1), Payment Systems and Services Act 2019
[23] Section 3(2)(b), Payment Systems and Services Act 2019
[24] Section 3(2)(e), Payment Systems and Services Act 2019
[25] Section 3(2)(f), Payment Systems and Services Act 2019
[26] Section 3(2)(g), Payment Systems and Services Act 2019
[27] Section 3(2)(i), Payment Systems and Services Act 2019
[28] Section 3(2)(k), Payment Systems and Services Act 2019
[29] Section 3(2)(l), Payment Systems and Services Act 2019

8. the approval of foreign entities in the country who wish to establish representative offices[30]
9. any other payment system or product, the Bank of Ghana may determine[31].

In addition to the Fintech and Innovation Office, the Bank of Ghana inaugurated a Payment Systems Advisory Committee[32] in 2020, to provide advisory services to the Bank of Ghana on,

1. the regulation and oversight of payment systems under the Act
2. the operational and technical stands on the payment systems in place and
3. all other incidental or related matters affecting payment systems and services, and settlements and clearing of payments.

The Committee's membership includes mobile network operators, merchants, consumers, payment service providers, Fintechs and third-party providers[33]. The Committee also has membership drawn from the National Information Technology Agency[34]; the Governor of the Bank of Ghana; and the Ministry of Finance. Bank of Ghana's powers under the Act are supplemented by the power to release notices and guidelines for the implementation of the Act. These powers, however, do not authorise the Bank of Ghana to pass subsidiary legislation. Therefore, if any matter requires legislation, the Minster for Finance, is the proper authority to pass the legislation[35].

There are two primary categories of licenses granted under the Act, one for Payment Service Providers and one for Electronic Money Issuers. Irrespective of the type of license an entity opts for, the entity and its agents shall be bound by the principles of consumer protection. Section 44 of the Payment Systems and Services Act 2019 states that electronic money issuers, payment service providers, or their agents shall adhere to the universal principles of consumer protection including but not limited to;

1. equitable, honest and fair treatment of all customers, especially vulnerable groups such as the illiterate, women, persons with disability and the underprivileged;
2. transparency and the disclosure of clear, sufficient and timely information on the fundamental benefits, risks and terms of any product or service offered in an objective and accessible form;
3. sufficient and accessible information to customers on the rights and responsibilities of the customers;

[30] Section 3(2)(m) Payment Systems and Services Act 2019
[31] Section 3(2)(n), Payment Systems and Services Act 2019
[32] Sections 4(1) & (2), Payment Systems and Services Act 2019
[33] https://www.bog.gov.gh/wp-content/uploads/2022/02/Payment-Systems-Annual-Report-2020.pdf Last accessed on 26th March 2023
[34] The National Information Technology Agency (NITA) is a public service institution under the control of the Ministry of Communications. The Agency was established in 2008 for the implementation of IT policies in Ghana
[35] Section 100, Payment Systems and Services Act 2019, "All regulations passed shall be on the advice of the Bank of Ghana and which advice is binding on the Minister."

4. protection of customers' privacy, tangible and intangible assets related to the service including the personal details, financial information and transaction data of the customer;
5. responsible business conduct of all staff and authorised agents;
6. adequate systems and processes for complaints handling and redress;

Payment Service Providers

Payment Service Providers are defined in Section 102 of the Act as any company licensed or authorised to provide payment services (services to facilitate the transfer of funds between two people using various forms of payment instruments[36] or electronic money).

A license to operate as a Payment Service Provider lasts for 5 years' subject to annual renewal. This license is to cater for institutions other than banks and deposit-taking institutions that operate a payment system or provide a payment service. The services provided under this license include;

1. clearing of payment instructions among financial and non-financial institutions;
2. settling of obligations arising from the clearing of payment instructions;
3. transfer of funds from one account to another using any electronic means;
4. transfer of electronic money from one electronic device to another;
5. provision of technological services to facilitate switching, routing, clearing and data management;
6. facilitation of interoperability of payment systems and services among payment systems providers;
7. provision of electronic payment services to the unbanked and under-banked population;
8. establishing a payment clearing house;
9. provision of a financial communication network;
10. provision of any electronic platform for payment or receipt of funds;

The application[37] to operate as a payment service provider must contain:

1. nature and functionality of the proposed payment service;
2. sufficient information about the applicant and the business organisation of the applicant;
3. a list of the current or proposed significant shareholders of the applicant and the percentages of shares owned or to be owned by each;
4. the proposed payment services or products to be made available to customers;
5. a business plan;

[36] Section 102, Payment Systems and Services Act 2019, "payment instruments refer to any medium, electronic or written for ordering payment or transmission of money."
[37] Section 8, Payment Systems and Services Act 2019

6. financial projections for its proposed payment services operations for the first five years indicating the intended initial geographical coverage of the service, including agent coverage where applicable;
7. an expansion plan, where applicable;
8. information on all bank accounts to be used in the conduct of payment services where applicable;
9. In addition to the above requirements, the applicant must have;
10. A valid data protection certificate;
11. 30% Ghanaian equity participation
12. A board of directors of at least 3 members, 2 of whom must be resident in Ghana including the chief executive officer;
13. an appropriate and tested technology system which is equipped with fraud monitoring and detection tools;
14. a valid third-party certification from a reputable certification authority or body on compliance status with relevant standards determined by the Bank of Ghana;
15. a system which is capable of interoperating with other payment systems in the country when required;
16. a cyber-security policy.

The Applicant must also:

1. keep proper books of accounts and information technology systems and make sure said books are audited. The audited report is to be submitted to the Bank of Ghana;
2. agree to be bound by the universal principles of consumer protection;
3. set up an effective customer care procedure and system for the intended customers of the applicant to submit complaints;
4. maintain a minimum capital amount set by the Bank of Ghana.

In the event, the company seeking to be a payment service provider is regulated under the Banks and Specialised Deposit Act 2016 (Act 930), the company applies for authorisation[38] instead of a license and the requirements to be met are the same.

An application for a license may be accepted or rejected within 90 days after submission of all necessary documentation to the Bank of Ghana. The application could be rejected where,

1. The applicant or any of its shareholders have been convicted of a crime involving a financial transaction in any jurisdiction;
2. The application contains false or misleading information;
3. The applicant fails to respond to any other additional requests from the Bank of Ghana concerning the application within 30 days;
4. The documents submitted under the application are incomplete or;

[38] Section 10, Payment Systems and Services Act 2019

5. The Bank of Ghana has reasonable grounds to believe that the applicant is incapable of providing the necessary services for the provision of payment systems;
6. if it is found out that the shareholders of the applicant are no longer fit and proper in so far as the applicant is a bank or specialized deposit-taking institution.

Rejection, however, does not preclude the applicant from applying again once the noncompliance for which the application was rejected, has been cured.

The license once granted is not absolute and may be revoked[39] or suspended[40] if:

1. the payment service provider does not meet the infrastructural requirements;
2. Bank of Ghana is satisfied that the payment service provider is conducting its business in a manner detrimental to the interest of the payment system;
3. the payment service provider fails to provide payment services for a continuous period of 6 months after the license or authorisation is granted;
4. the payment system provider ceases to operate for a continuous period of more than 6 months or goes into liquidation or is declared insolvent;
5. the payment system provider is engaged in a pattern of unsafe financial practices.

In the event that the Bank of Ghana intends to suspend or revoke the license to operate as a payment service provider, the affected company is entitled to notice of the revocation or suspension and must show cause as to why its license should not be revoked or suspended. As the Act fails to state how long this notice must be, notice, in this case, must be reasonable[41]. On revocation, the payment system provider must pay all customers, all electronic monies held, within 10 days[42].

Electronic Money Issuers

Electronic money issuers are defined in Section 102 of the Payment Systems and Services Act 2019, as payment service providers that issue electronic money[43]. This requires that the payment service provider or bank undergoes additional licensing[44]. The requirements for the payment service licence or authorization are applicable in this application save that the applicant must provide the Bank of Ghana with information on the proposed electronic money services to be offered. Like the application to operate as a

[39] Section 13, Payment Systems and Services Act 2019
[40] Section 12, Payment Systems and Services Act 2019
[41] See Article 296(a) & (b) of the 1992 Constitution of Ghana, "Where in this Constitution or in any other law discretionary power is vested in any person or authority; (a) that discretionary power shall be deemed to imply a duty to be fair and candid; (b) the exercise of the discretionary power shall not be arbitrary, capricious or biased wither by resentment, prejudice or personal dislike and shall be in accordance with due process of law…"
[42] Section 13 (6), Payment Systems and Services Act 2019
[43] Section 21, Payment Systems and Services Act 2019
[44] Section 22, Payment Systems and Service Act 2019

payment service provider, the application process takes 90 days after which the applicant would be informed of the success or otherwise of the application.

Within this category of licenses is the Dedicated Electronic Money Issuer license. Applicants who are not regulated under the Banks and Specialised Deposit-Taking Institutions Act 201645, are required to meet the following additional conditions,

1. Include in their regulations a stipulation that the electronic monies owed to its customers are held in trust and shall not be encumbered in case the company is wound up;
2. Ensure that it engages in only the business of electronic money and related or incidental activities like money transfers and remittances or set up a separate entity for such business if its main business is different from or not related to electronic money;
3. Ensure that the body has a customer float account holding bank
4. Provide information on all bank accounts to be used in the operation of the electronic money business; and
5. Provide documentary evidence of the capital to be used including the sources of the funds

The license once granted is for 5 years and must be renewed annually.

Appointment of agents under the payment systems and services Act 2019

After being licensed or authorised, companies are allowed to appoint agents46 to serve their customers[47]. This provision makes it possible for the various mobile money agents across the country to operate. To use appoint agents, the company must apply to the Bank of Ghana for authorisation[48] and submit the following information to the Bank of Ghana:

1. The type of services the intended agent would provide[49];
2. The geographical coverage of the agent over a 3-year period[50];
3. The intended use of any master-agent[51];
4. Due diligence policies, procedures and reports on the agent[52];

[45] Section 23, Payment Systems and Services Act 2019
[46] An agent is defined under Section 102 of the Payment Systems and Services Act 2019 as a person who provides agency services to customers on behalf of a principal under an agency agreement. Agents are extended to include Agent Network Managers who directly provide banking services or electronic money services to end users.
[474747] Section 86, Payment Systems and Services Act 2019
[48] Section 86(2), Payment Systems and Services Act 2019
[49] Section 86 (3) (a), Payment Systems and Services Act 2019
[50] Section 86 (3) (b), Payment Systems and Services Act 2019
[51] Section 86 (3) (c), Payment Systems and Services Act 2019
See also Section 102, Payment Systems and Services Act 2019, a master-agent is a legal person with an agreement with the principal to contract and manage agents that provide banking or electronic money services or payment services to end users on behalf of the principal
[52] Section 86 (3) (d), Payment Systems and Services Act 2019

5. Copies of all draft agency agreements53 which shall inter alia define the rights and responsibilities of both parties, set out the scope of work to be performed thereunder, specify permissible actions, a confidential clause and a clause granting the Bank of Ghana unfettered access to the agent/master agent's internal systems, information, data and documentation;
6. All policies and procedures available and applicable to the provision of services through the agent[54];
7. A description of the technology to be used and all applicable policies and procedures[55];
8. A risk assessment report of the operations the agent is to perform including mitigating measures to be adopted to control identified risks[56];
9. An internal audit report on the internal controls to be used in the agency and for any master-agent[57];
10. The company's anti-money laundering and countering financing of terrorism policies and procedures[58];
11. The operational policies and procedures of the principal including policies on the monitoring and enforcement of compliance by agents and master-agents[59];
12. All policy documents on how the principal intends to address the risk of the agent overselling or overcharging[60];
13. Full incentive structures for agents and master agents including fee and revenue-sharing structures[61].

The principal company should also have policies and procedures for the conduct and due diligence[62] of agents/master-agent and provide the particulars of each agent/master-agent within 30 days of appointment to the Bank of Ghana[63]. To ensure that fit and proper persons are engaged as agents or master agents, the Payment Systems and Services Act 2019 obliges principals to consider the following in assessing the eligibility[64] of the prospective agent/master agent:

1. The agent/master agent's criminal records if any in matters relating to finance, fraud, honesty or integrity;
2. Any negative information in credit reference bureaus;
3. Business experience and track record where applicable;
4. Any other matter which impacts the person;

[53] Section 86 (3) (e), Payment Systems and Services Act 2019, the draft agreements must be in accordance with the provisions of the Act under Section 87
[54] Section 86 (3) (e), Payment Systems and Services Act 2019
[55] Section 86 (3) (f), Payment Systems and Services Act 2019
[56] Section 86 (3) (g), Payment Systems and Services Act 2019
[57] Section 86 (3) (h), Payment Systems and Services Act 2019
[58] Section 86 (3) (i), Payment Systems and Services Act 2019
[59] Section 86 (3) (J), Payment Systems and Services Act 2019
[60] Section 86 (3) (k), Payment Systems and Services Act 2019
[61] Section 86 (3) (l), Payment Systems and Services Act 2019
[62] Section 89 (3), Payment Systems and Services Act 2019
[63] Sections 92 and 93, Payment Systems Act 2019
[64] Section 89 (1), Payment Systems Act 2019

In addition to the above, the agent/master-agent to be, must not be classified as a non-performing borrower by any bank or specialised deposit-taking institution at least a year before the appointment and for the duration of the agency agreement.65After the appointment, the permissible activities66 of the agent/master agent include:

(a) Functions associated with the marketing of credit, savings, investment and insurance products[67];
(b) Receipt, verification and forwarding of applications for the functions listed in (a) above to a bank or specialised deposit-taking institution;
(c) Receipt, verification and forwarding of applications for payment cards, account opening and cheque books to a bank or specialised deposit-taking institution;
(d) Mail delivery to customers.

Agents/master agents are not bound by exclusivity to a specific principal and may enter agreements with more than one principal[68].

1.5 The Cybersecurity Act 2020, Act 1038

In section 1 of the Cybersecurity Act 2020, Act 1038, the relevant enactments the Act is to be read with include:

1. The Electronics Transactions Act 2008, Act 772;
2. The Data Protection Act 2012, Act 843 and
3. The Payment Systems and Services Act 2019, Act 987.

Thus, it is safe to conclude that the legal and regulatory framework of the Fintech industry in Ghana includes the Cybersecurity Act 2020.

Section 2 of the Cybersecurity Act 2020 establishes a Cybersecurity Commission whose duties[69] include;

1. Promoting the security of computers and computer systems in the country;
2. establishing codes of practice and standards for cybersecurity, and monitoring compliance with the codes of practice and standards by the public and private sector owners of critical information infrastructure;
3. establishing standards for certifying cybersecurity products or services;
4. certifying cybersecurity products or services following the standards established pursuant to paragraph (e);
5. providing technical support for law enforcement agencies and security agencies to prosecute cyber offenders;

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[65] Section 89 (2), Payment Systems and Services Act 2019
[66] Section 90, Payment Systems and Services Act 2019
[67] AirtelTigo currently provides insurance services to its users
See https://www.airteltigo.com.gh/VAS/insurance
Last visited on 25th March 2023
[68] Section 94, Payment Systems and Services Act 2019
[69] Section 4, Cybersecurity Act 2020

6. issuing licenses for the provision of cybersecurity services;
7. supporting technological advances and research and development in cybersecurity to ensure a resilient and sustainable digital ecosystem;

In order not to conflate issues and to effectively respond to cyberattacks within the fintech ecosystem, the Cybersecurity Act 2020 compels the Cybersecurity Commission to form Sectoral Computer Emergency Response Teams[70] to (a) collect and collate cybersecurity incidents and co-ordinate responses to cybersecurity incidents within the relevant sectors. For this purpose, sectors are defined to include the banking and financial sector. This development is important for the very reason that the fast pace and nature of the fintech industry also make it a volatile industry and customers need to be protected at all times. To provide cybersecurity services, an intending cybersecurity firm/department must apply to the Cybersecurity Commission[71]. The non-transferable license is valid for 2 years after which it must be renewed. For continuity of services, the holder of the license is required to apply to renew the license at least 1 month prior to the expiration of the license[72].

The license may be revoked[73] by the Cybersecurity Commission if:

1. it was obtained by fraud or misrepresentation;
2. the licensee stops operating or goes bankrupt or into compulsory or voluntary liquidation;
3. the licensee has been convicted of an offence involving fraud, dishonesty or moral turpitude;
4. it is not in the public interest for the licensee to continue to carry on business;
5. the licensee no longer meets the requirements to hold the license;
6. at the time the license was granted or renewed, a material consideration to the grant, renewal or otherwise, which was not brought to the notice of the Cybersecurity Commission has now been brought to the Commission's notice.

Licensing requirements released by the Bank of Ghana pursuant to the payment systems and services act

Section 101 of the Act empowers the Bank of Ghana to release rules and guidelines for the effective implementation of the Payment Systems and Services Act 2019. Pursuant to this, the Bank of Ghana has since released a notice stating the minimum capital requirements, minimum governance requirements and minimum system requirements for the various categories of payment service providers (PSPs) and electronic money issuers (EMIs) under the Act[74].

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[70] Section 44, Cybersecurity Act 2020

[71] Section 49, Cybersecurity Act 2020

[72] Section 53, Cybersecurity Act 2020

[73] Section 55, Cybersecurity Act 2020

[74] https://www.bog.gov.gh/wp-content/uploads/2019/09/Revised-Notice-Licensing-of-Payment-System-Providers-CURRENT.pdf
Last visited on 26th March 2023

Table 1. Minimum system and governance requirements for PSPs

	Enhanced License	**Medium License**	**Standard License**
System Requirements			
ISO 27001	Yes	No	No
PCI/DSS	Yes	No	No
EV SSL	Yes	Yes	No
Authentication	Multi-factor	2-Factor	2-Factor
Back-up Policy	Yes	Yes	Yes
Evidence of Backup setup	Yes	Yes	Yes
Governance Requirements			
Dedicated Physical Office Space	Yes	Yes	No
Verified Board of directors	Yes	Yes	Yes (advisory board)
Clear balanced and adequate organizational structure	Yes	Yes	No
Data Protection Policy	Yes	Yes	Yes
Appointment of external audit firm	Tier 2 to Tier 1 firms	Tier 3 to Tier 1 firms	Tier 4 to Tier 1 Firms
Procedures Manual	Yes	Yes	Yes
Risk Management Framework	Yes	Yes	Yes
Compliance Framework	Yes	Yes	Yes
Registered Ghanaian Business	Yes	Yes	Yes
Data Protection Certificate	Yes	Yes	Yes (after a year of operation)

Table 2. Minimum capital requirements for PSPs and EMIs

License	Permissible activities	Capital (GHS mil)	Processing/ License/Renewal (GHS 000)	Tenor (years)
PSPs and EMIs	1. Issuance of electronic money, 2. Recruitment and management of agents, 3. Creation and management of wallet. 4. Wallet-based domestic money transfers including transfers to and from bank accounts, 5. Cash-in and cash-out transactions, investment, savings, 6. Credit products only in partnership with banks, 7. Insurance and pension products only with authorised insurance and pension companies	20	25/100/10	5
PSPs (Scheme)	1. Routing of payment transactions, authorisation and settlement requests from merchants, acquiring and issuing banks	8	20/90/8	5
PSPs (Enhanced license)	1. Aggregation of merchant services, processing services, 2. Provision of hardware and software, printing and personalisation of EMV Cards, 3. Provision of inward international remittances services, merchant acquiring, POS deployment and Payment aggregation	2	12/40/7	5
PSPs (Medium license)	1. Payment Gateway and Portals/Payment aggregation which is connected to Enhanced Payment Service Providers.	0.8	8/15/5	5

	2. Training and support of merchants. 3. Printing of non-cash payment instruments, development of market platforms, payment applications/solutions for Credit, Savings and 4. Investment products in partnership with Banks.			
PSPs (Standard license)	5. Payment application solution/ development. 6. Merchant development platforms 7. Payment solution	N/A	0.5/1/0.2	5

Bank of Ghana has since licensed at least 26 companies as Payment Service Providers and Electronic Money Issuers[75]. Though one may argue that the capital requirements and fees are on the high end, it is important to note that one of the primary considerations in the development of the above laws and regulations is the protection of the consumer. Considering the financial scandals that have rocked including issues leading to the Bank clean-up to the recent financial troubles, it is fairly reasonable that these measures have been put in place.

Conclusion and Recommendations

In conclusion, the development of Fintech in Ghana has been shaped by various laws, regulations, and policies that have emerged in recent years. The regulatory sandbox launched in 2022 is a significant step towards fostering innovation and reducing regulatory barriers to entry. The Deposit-Taking Institutions Act, 2016 (Act 930) and the Payment Systems and Services Act, 2019 (Act 987) have provided a legal framework for the operation of Fintech companies in Ghana, ensuring that they operate within the confines of the law.

Consumer protection, data protection, and cyber security are essential components of Fintech laws in Ghana. The trend and development of these laws and regulations have been shaped by various factors, including global trends, industry demands, and regulatory concerns. These laws and regulations have created an enabling environment for Fintech companies to thrive while protecting consumers' interests.

Technology is playing a critical role in shaping regulations and supervision in the financial sector in Ghana. The use of technology by financial regulators for supervision and

[75] https://www.bog.gov.gh/wp-content/uploads/2021/04/BOG-Approved-List-of-Electronic-Money-Issuers-and-Payment-Service-Providers.pdf
Last accessed on 26th March 2023

regulation has become a requirement, and financial institutions are adopting new technologies to improve their operations and services. Fintech companies are also using technology to disrupt traditional financial services, and their application of technology for business operations is rapidly transforming the financial industry in Ghana.

To promote better Fintech development, Fintech laws and regulations, and Regtech in Ghana, there is a need for a coordinated approach to policy development and implementation. The government needs to work with industry stakeholders to develop policies and regulations that promote innovation while ensuring consumer protection, data protection, and cyber security. The regulatory sandbox should be expanded to include more Fintech companies, and regulatory requirements for the use of technology for supervision and regulation should be clearly defined.

In addition, there is a need for capacity building and awareness creation for Fintech companies on Fintech laws and regulations, consumer protection, and data protection. Financial regulators also need to enhance their capacity for supervising and regulating Fintech companies effectively.

Overall, our study recommends that Ghana needs to promote a more favourable regulatory environment for Fintech companies, focusing on promoting innovation and reducing barriers to entry while ensuring consumer protection, data protection, and cyber security. The development of Regtech should also be a priority, as it will improve the efficiency and effectiveness of financial regulation in Ghana. Finally, the government should work with industry stakeholders to promote a culture of innovation and collaboration in the Fintech industry in Ghana.

References

Aboagye, D. D., & Boadi-Kusi, S. B. (2021). An assessment of the cybersecurity risks of internet banking services in Ghana. *International Journal of Electronic Security and Digital Forensics, 13*(1), 1-19.

Adeoti, J. O. (2020). Fintech and the Future of Financial Services in Africa: Evidence from Ghana. *Journal of International Business and Finance Research, 14*(2), 1-16.

Adjei, F., & Agyemang, F. (2021). The impact of biometric authentication on fraud prevention in financial institutions in Ghana. *Journal of Accounting, Finance and Economics, 11*(1), 56-69.

Akudugu, M. A., Guo, S., & Musah, A. (2020). Determinants of mobile money adoption in Ghana: A review. *Information Technology for Development, 26*(4), 724-751. https://doi.org/10.1080/02681102.2019.1601704

Andoh, E. K. (2020). Ghana's regulatory sandbox: An examination of objectives and eligibility criteria. *Journal of Financial Regulation and Compliance, 28*(4), 517-530. http://doi.org/10.1108/JFRC-11-2019-0148

Ansong, A., & Adjei, F. (2020). The potential of blockchain technology in the finance sector in Ghana. *International Journal of Business and Management Invention, 9*(3), 15-26.

Antwi-Boasiako, K., & Danquah, C. (2018). The impact of cyber security on the adoption of mobile banking services in Ghana. *International Journal of Advanced Computer Science and Applications, 9*(9), 24-29.

Appaya, S., & Haji, M. (2020). Four years and counting: What we've learned from regulatory sandboxes. https://blogs.worldbank.org/psd/four-years-and-counting-what-weve-learnedregulatory-sandboxes

Aryee, A. A., Tan, F. B., & Ho, S. H. (2018). Mobile money and financial inclusion in Ghana: A systematic review of existing literature. *Journal of African Business, 19*(3), 316-335. https://doi.org/10.1080/15228916.2018.1467565

Asiedu, M. (2021). Zeepay Ghana launches digital wallet with Ghana Card Verification.

Banco De Moçambique. (2023). Launch Of The 4th Edition Of The Regulatory Sandbox Of The Banco De Moçambique. https://www.bancomoc.mz/en/media/highlights/launch-of-the-4th-edition-of-the-regulatory-sandbox-of-the-banco-de-mocambique/

Bank of Ghana. (2019a). Bank of Ghana Financial Reporting System (BFRS) User Manual.

Bank of Ghana. (2019b). Guidelines on Electronic Know Your Customer (eKYC) for Financial Institutions in Ghana. https://www.bog.gov.gh/wp-content/uploads/2019/10/Guidelines-on-eKYC-for-Financial-Institutions-in-Ghana.pdf

Bank of Ghana. (2019c). Launch of Fintech and Innovation Office of the Bank of Ghana.

Bank of Ghana. (2020a). Guidelines for electronic money issuers, payment service providers and aggregators.

Bank of Ghana. (2020b). Supervision Annual Report. Accra.

Bank of Ghana. (2021). Regulatory Sandbox Framework.

Bank of Ghana. (2022). Regulatory Sandbox Framework from Bank of Ghana.

Biekpe, N., & Osei, K. A. (2019). Financial regulation and supervision in Ghana. Routledge.

Boateng, R. (2021). Ghana's Fintech Ecosystem: Opportunities and Challenges. *International Journal of Emerging Markets, 16*(4), 858-874.

Boateng, R., & Oppong, R. B. (2021). Fintech in Ghana: Current State and Future Prospects. *Journal of Financial Services Marketing, 26*(2), 98-111.

Buckley, R., & Kalarickal, J. (2019). Mobile money and financial inclusion in Ghana. *Development Policy Review, 37*(2), 267-284.

Capital Markets Authority. (2019). Regulatory Sandbox Policy Guidance Note. https://dfsobservatory.com/sites/default/files/Regulatory%20Sandbox%20Policy%20Guidance%20Note%20-March%202019.pdf

Central Bank of Nigeria. (2021). Framework of Regulatory Sandbox Operations. https://www.cbn.gov.ng/Out/2021/CCD/FRAMEWORK%20FOR%20REGULATORY%20SANDBOX%20OPERATIONS.pdf

Central Banking Newsdesk (2021). Ghana`s Central Bank Launches Fintech Sanbox. https://www.centralbanking.com/fintech/7801986/ghanas-central-bank-launches-fintech-sandbox

Chloe Messenger, & Mondle, C. V. (2018). Financial Sector Deepening Mozambique: The Regulatory Sandbox Startups. https://dai-global-digital.com/financial-sector-deepening-mozambique-the-regulatory-sandox-start-ups.html

Currie, H., Boyer-Davis, S., & Oswald, R. (2022). Accounting for cryptocurrencies under FASB and the financial reporting impact on large US corporations in 2020 and beyond. *American Journal of Finance and Accounting, 7*(1), 22-38.

Federal Ministry For Economic Affairs And Climate Action. (2021). Regulatory Sandboxes – Testing Environments for Innovation and Regulation.

Financial Conduct Authority. (2016). Financial Conduct Authority's regulatory sandbox opens to applications.

Financial Conduct Authority. (2022). Regulatory Sandbox.

Financial Services Commission. (2016). Regulatory Sandbox License.

Ghana, B. o. (2021). Bank of Ghana Sandbox Pilot. https://www.bog.gov.gh/wp-content/uploads/2021/02/PRESS-RELEASE-BANK-OF-GHANA-SANDBOX-PILOT.pdf

Gyeke-Dako, A., & Acheampong, P. (2020). Does mobile money usage enhance financial inclusion in Ghana? Evidence from the Keta Municipality. *Journal of African Business, 21*(3), 420-437. doi:10.1080/15228916.2019.1705983.

Jenik, I., & Lauer, K. (2017). Regulatory sandboxes and financial inclusion. Washington, DC: CGAP.

Koh, H. C., & Sodjahin, D. (2021). The adoption and impact of electronic payment systems on financial inclusion and economic growth: Evidence from Ghana. *Journal of African Business, 22*(1), 96-115. https://doi.org/10.1080/15228916.2020.1809112.

Koh, H. C., & Sodjahin, D. (2021). Electronic payment systems and financial inclusion in Ghana. *Journal of Payments Strategy & Systems, 15*(1), 41-55.

Kong, Y., Tampuri Jnr Mark Yama, & Opoku Boadi, P. (2018). Digital Financial Inclusion: The Star Strategy Approach to Policy Formulation. *International Journal of Management Sciences and Business Research, 7*(01-2018), 120-129.

Kutsoati, E., & Tetteh, D. N. D. (2021). Promoting financial innovation in Ghana: The role of regulatory sandboxes. *Journal of Banking Regulation, 22*(1), 48-60. https://doi.org/10.1057/s41261-020-00136-5.

Kwarteng A., & Opoku-Mensah Y. (2019). The impact of internet banking on customer satisfaction and loyalty in Ghana: A case of GCB Bank Limited. *Journal of Internet Banking and Commerce, 24*(2), 1-16.

Kyeremeh, E. (2021). Fintech Regulation in Ghana: Issues and Challenges. *Journal of African Business, 22*(3), 319-336.

Leah Ngari. (2022). Regulatory Sandboxes in Africa. https://empowerafrica.com/regulatory-sandboxes-in-africa/

Mark Yama Tampuri Jnr, G J Gartchie, A E Attah Kumah, & A Shamsu–Dean Mahamud. (2023). Digital Financial Ecosystems. *International Journal of Business Innovation, e31230-e31230.

Mark Yama Tampuri Jnr. (2023). Digital lending in emerging economies: the nexus between financial innovation and consumer protection. *American Journal of Finance and Accounting, 7*(2), 145-168.

Mundial, B. (2020). Key Data from Regulatory Sandboxes across the Globe. In.

National Bank of Rwanda. (2022). Regulatory Sandbox Regulation. https://www.bnr.rw/laws-and-regulations/regulatory-digest-market-consultation/regulatory-digest/regulatory-sandbox-regulation/

National Communications Authority. (2021). Annual Report. Accra.

National Identification Authority. (2022). About Ghana Card. https://www.nia.gov.gh/identification-ghana-card/

Opoku N. Y., & Baidoo. C. N. (2021). Examining the framework of Bank of Ghana's regulatory sandbox for promoting fintech innovation in Ghana. *Journal of Financial Regulation and Compliance, 29*(3), 385-401. https://doi.org/10.1108/JFRC-12-2020-0178.

Owusu, E. A., Gyamerah, D. K., & Blankson, P. K. (2021). The potential impact of the Bank of Ghana's regulatory sandbox framework on financial innovation. *Journal of Financial Regulation and Compliance, 29*(1), 143-156. https://doi.org/10.1108/JFRC-06-2020-0082.

Owusu-Frimpong, N., & Arko, B. (2018). Cybersecurity and the growth of mobile banking in Ghana. *Journal of Internet Banking and Commerce, 23*(3), 1-14.

Spies, A. (2023). AI Regulatory Sandboxes. https://americangerman.institute/2023/01/ai-regulatory-sandboxes/

Tampuri Jnr Mark Yama., Kong Yusheng., Appiah Barbara., Asare Isaac., & Baidoo Precious. (2021). Enhancing Financial Capability for Quality Access and Usage of Financial Services.

United Nations Capital Development Fund (UNCDF). (2018). Sierra Leone becomes the second country in Africa to launch the Sandbox Framework to test FinTech innovations. https://www.uncdf.org/article/3486/sierra-leone-becomes-the-second-country-in-africa-to-launch-the-sandbox-framework-to-test-fintech-innovations

United Nations Secretary-General's Special Advocate for Inclusive Finance for Development. (2022). Briefing on Regulatory Sandboxes. https://www.unsgsa.org/sites/default/files/resourcesfiles/2020-09/Fintech_Briefing_Paper_Regulatory_Sandboxes.pdf

Yinusa, K. A., Acheampong, I., & Affum-Osei, E. (2021). E-KYC and financial inclusion: the role of mobile network operators in Ghana. *Journal of Financial Regulation and Compliance, 29*(1), 82-97. https://doi.org/10.1108/JFRC-10-2019-0119