

## Assessing the Moderation Effect of Financial Technology on the Development and Growth of MSMEs

Esther Asiedu<sup>1</sup>, Ndjoh Pasca<sup>2</sup>, Afia Nyarko Boakye<sup>3</sup> and Ebenezer Malcalm<sup>4</sup>

### Abstract

*Technology has advanced and played an important role in the financial sector and it is one of the reasons financial technologies (FinTech) were born. Many micro, small and medium enterprises (MSMEs) are compelled by the expansion of the digital economy to adopt technological advancements. The main aim of this study is to assess how FinTech boosts the growth of MMSMEs. The stratified sampling method was used to select a sample size of 316 from the population for the study. Three FinTech indicators were used namely mobile/online banking, digital lending and mobile money. A partial least square model was used to ascertain the study objectives. The study concluded that FinTech had a direct significant impact on the expansion of MSMEs in Ghana. However, marketing strategy did not have a direct impact on the growth of MSMEs. Examining each FinTech indicator, it was found that mobile/online banking significantly moderates access to finances, marketing strategy and customer services for the development and growth of MSMEs. Whereas digital lending is only significantly moderate with access to finances and mobile money is significantly moderate with access to finances and marketing strategies on the development and growth of MMSMEs. Finally, the study suggested increased use of FinTech (mobile money, online banking and banking lending) as its positive effect on the factors that lead to the expansion of micro, small and medium enterprises in Ghana. In addition, marketing strategies are more effective when FinTech is involved. This empirical study contributes to the novel understanding of how FinTech (mobile money, online banking and banking lending) impacts the development and the growth of MSMEs.*

**Keywords:** Financial Technology, Mobile Money, Online Banking, Banking Lending, Access To Finances, Marketing Strategy, Customer Service.

### INTRODUCTION

Technology has advanced and played an important part in the financial sector (Khiewngamdee, & Yan, 2019). Thanks to FinTech technology, financial institutions can now develop complex services and products for a variety of businesses, including mobile payments, e-banking, digital loans, robot-advisor sites, blockchain, and cloud data storage (Basu & Bhola, 2016). As a result, most MMSMEs who were reluctant to implement new technology in their businesses will now be more likely to do so. Many businesses (small and medium-sized) are compelled by the expansion of the digital economy to adopt technological advancements. New business models have developed with the success of modernized cashiering and receipting systems, customer relationship management, online invoicing, and billing (Elia, Stefanelli & Ferilli, 2023). All of them are aimed at boosting business prospects and activities, giving MMSMEs a competitive advantage, and boosting the country's economic development. However, to expand and thrive, most MMSMEs continue to have knowledge asymmetries regarding global markets. However, FinTech is a very important vehicle for the further growth and financial development of MMSMEs, so it has made a significant contribution to closing this gap, improving market liquidity and providing scarce resources to MSMEs. efficient allocation (Bottomley et al, 2020). FinTech services such as mobile payments, mobile banking and mobile finance are currently the hottest trends. Micro, Small and medium-sized enterprises (MMSMEs) are projected to employ mobile phone technology for banking and money transfers, boosting the volume of transactions done with phones worldwide from US\$37.4 billion in 2011 to over US\$1.13 trillion in 2014. FinTech can improve business growth and efficiency by 65%. The adoption of mobile payments as a way for Ghanaian MSMEs to conduct commerce is a positive trend. The availability of mobile phones and related facilities for online and mobile banking have made this possible (Wang,

<sup>1</sup> Ghana Communication Technology University, Accra, Ghana, Email: [esaiedu011@gctu.edu.gh](mailto:esaiedu011@gctu.edu.gh)

<sup>2</sup> School of Research and Graduate Studies, Email: [ndjoh.borh@gmail.com](mailto:ndjoh.borh@gmail.com)

<sup>3</sup> Ghana Communication Technology University, Accra, Ghana, Email: [aboakye@gctu.edu.gh](mailto:aboakye@gctu.edu.gh)

<sup>4</sup> Ghana Communication Technology University, Accra, Ghana, Email: [emalcalm@gctu.edu.gh](mailto:emalcalm@gctu.edu.gh)

2021). He went on to say that 73% of the MSMEs that have introduced financial innovations into their business have seen an increase in their overall business. The development of MSMEs is included as one of the approaches to achieving the goals of the Ghanaian Government's Vision 2030. Scopino (2020) reports that MSMEs account for 80% of employment but only 18% of Ghana's GDP, so additional support is needed to improve SME efficiencies. MSMEs are essential to sustaining industrial development and economic growth in most of Africa's emerging economies. MSMEs are recognized as one of the most important sectors for Ghana's industrial and economic development, but they are underperforming, and their impact is unproven (Scopino, 2020).

Since its introduction in Ghana in 2007, FinTech services have been created to help microfinance institutions and MSMEs streamline their operations (Guo, 2020). This performance is linked to the availability and affordability, including for people with limited income (Donggen & Dawei, 2020). The development of this technology is believed to be convenient, reliable, and capable of expanding financial services into preferential non-banking or low-cost financial services. It is a technological development suited for small and medium-sized enterprises, that still struggle to find basic, easily available, and reasonably priced financial services to support their operations. Although while MSMEs play a significant role, they nonetheless confront several difficulties. Just three out of five small firms survive five months to a year after being formed, and of those that do, only 80 continue into the fifth year. According to Ayoko et al (2021), the majority of MSMEs in Africa confront several obstacles that impede their effectiveness and development. Businesses can increase production and lower failure rates by implementing technology (Khiewngamdee, & Yan, 2019). Bu et al (2022) argued that innovation is essential to increase competitiveness, revenue, and productivity to realize the full potential of many MSMEs therefore, MSMEs must adopt innovative practices and new financial systems to ensure their viability and survival. The impact of traditional banking services, essay financial access, customer services, marketing strategies, and organizational structures on MSME performance in Ghana has been studied. However, little is known about FinTech and how it affects MSME development. The purpose of this study is to determine how FinTech has affected the expansion and development of small and medium-sized MSMEs, with a focus on MSMEs in Accra.

## **LITERATURE REVIEW**

This section presents the reviews of financial technology. It discusses the various theories/models of financial technologies as well as the empirical studies of the impacts of FinTech on the growth of MSMEs.

### **Concept of Financial Technology (FINTECH)**

Information technology advancement has made it possible to create new financial services, sometimes called financial technology or FinTech (Ryu, 2018). It stands for money and technology. The creation and delivery of new financial agreements is known as FinTech (Ruhland & Wiese, 2023; Arner et al., 2015). According to Lee and Kim (2015), FinTech is a special cycle resulting from the creation of new financial programs that can impact entire established systems. Ryu (2018) adds that FinTech is not only original but also motivating. Gozman et al. (2018) Combine advances in global financial technology with efforts to dismantle and reassess money management strategies.

FinTech emerged in response to the 2008 global financial crisis, prompting a rethink as well as financial sector reform (Gomber et al., 2018). Due to the consequences of the emergency, there was a lack of trust in professional organizations at the time, and people looked for alternatives (Ruhland & Wiese, 2023) As administrative needs eliminated operating costs, monetary institutions and international monetary focus also sought the freedom of innovative business development to transform their industry. Companies have begun implementing data-driven, online innovations like FinTech to enhance the delivery of their financial services (Artie & Kwok, 2017).

FinTech has led to improvements in financial services and products, such as improved wallets, which offer greater convenience, cheaper costs, and higher efficiency than the old system's offerings. A combination of many technological improvements, especially a robust yet affordable system, also worked during that period (Ruhland & Wiese, 2023) The architecture included scene and big data analysis, as well as the development of

mechanical applications such as the Internet, sensors, and wearable technology Others included the ideal rule of thumb, data innovation, and the sharing economy's commercial operations (Lee & Shin, 2018; Ruhland & Wiese, 2023).

Ryu (2018) emphasized the established relationship involving accounting and IT FinTech, however, is distinct in terms of the dangers, legal ramifications, and risk relationships of comprehensive electronic financial records, as well as the role of reform and improvement that IT plays in the FinTech industry. Emerging FinTech companies have disrupted the traditional financial landscape by offering customized and specialized services, creative cultures, informed trading and planned alliances. They further define (Lee & Shin, 2018; Barberis, 2014) as the combination of informal organizational accounting (SNS) and the decoupling of financial accounting with advances in cloud and wearable technology, big data and e-commerce Money, internet innovation, information as a result of human progress, web media, human communication services. This requires the rapid development of the premium accounting market and related adjustments, enabling the use of social networks and other online communication methods.

FinTech companies, which do not provide financial services, have overcome the limitations of conventional e-banking as well as other internet applications backed by traditional money foundations by making use of the fast development of internet services It has succeeded in delivering exceptional and unique financial services that are more useful and pertinent, like flexible payment plans, portable billing, and other flexible conditions (Shim and Shin, 2016; Lee & Shin, 2018). Along with peer-to-peer (P2P) loans, crowdfunding, external payments, verification, and risk management guidelines, FinTech-enhanced financial services also include non-standard payments, remittances, prepayments, asset management, betting, insurance, and money market disruptions (Ruhland & Wiese, 2023; Barberis, 2014). Others include developments from financial activities in foreign exchange markets to lending services, online activities, and online administration of private finances (Shim and Shin, 2016). As a result of these changes, firms in the conventional financial services sector have scrutinized new FinTech companies because their business is disrupting the established market.

Ruhland and Wiese (2023) have diagnosed how FinTech influences numerous parties, examples are clients, monetary firms, shops as well and information controllers. Gomber et al. (2018) declare that with the aid of merging and making use of mechanical competencies in FinTech, access limitations are reduced, and new entrants are given the possibility to set up themselves in fee chains with the aid of presenting modern-day offerings and goods. As a result, the population had been recommended to cooperate and compete as a way to foster respect.

One considerable improvement inside the monetary enterprise is FinTech (Laplanche, 2008) By reducing costs, boosting simplicity, improving quality, facilitating higher right of entry to to monetary information, casting off brokers, giving groups an aggressive advantage, and growing an extra strong and numerous monetary scene, the hastily advancing FinTech revolution has given human beings new possibilities to participate (Zavolokina et al., 2016; Lee & Shin, 2018).

### **Financial Technologies Theory/Model**

The study builds on his four theories that explain how FinTech can affect small business expansion.

#### **Technology Acceptance Model**

A conceptual model of user intent, known as the Technology Acceptance Model (TAM), was first created by Davis, Bagozzi and Warshaw in 1989 to learn how widely a new information system or technology would be used the model is presented in Rational Action Theory (TRA). This representation of the personal authentication data structure is considered the most accurate and widely used (Need & De Jong, 2001). Four criteria were considered when developing the idea: relevance, convenience, attitude towards use, and application of the framework in practice. The model has since been extended to include two more factors external influences and social expectations (Erasmus et al., 2015) This theory states that both tool usability and perceived tool usability are influenced by external factors (Vasnier et al, 2020).

This model suggests that acceptance of new technologies is strongly influenced by perceived benefits. Common benefits for small businesses include reduced organizational costs, increased internal capacity, and improved relationships with colleagues. Other benefits include increased competitiveness, improved data quality, access to financial credit, and subsidy flows such as billing rates (Vasnier et al., 2020). According to this paradigm, customer attitudes towards usability play an important role in whether a framework is adopted. Customers acknowledge that having an easy-to-use framework is beneficial to the execution of their activities. Perceptions of convenience affect framework attitudes as much as framework usefulness. According to TAM, value and convenience influence customer perceptions of portable cash management. Second, it makes our products convenient and easy to use and promotes positive perceptions of our services.

## **A Unified Theory of Technology Acceptance and Use**

Venkatesh developed the Theory of Technology Assimilation, Acceptance and Use (UTAUT) seeks to determine users' expectations of using information systems and the resulting usage patterns. Additional components of inspiration, values and temperament combine with his TAM elements such as demeanour, helpfulness and usefulness. Theoretically, individual differences such as age, sexual orientation, and interactions determine how beliefs influence the use of social ends and innovations (Chakraborty & Al Rashdi, 2018). According to Bagozzi (2007), his use of TAM and UTAT alone, occurring at the personal stage, must be augmented by other systems of information technology diversion, leaving a void in our research that needs to be addressed pointing out. Based on this, TAM and UTAUT can be said to demonstrate their true value by conducting surveys from the perspective of the customer rather than the company (SME). This theory has a lot to do with how small business owners are intended to use FinTech, and about its three main components: mobile or e-banking, mobile money and digital loans. It was important for our research because it helped explain how we used it. Nearly 90% of SME owners were found to be enthusiastic about using FinTech in their business operations.

## **Diffusion of Innovation Theory**

Diffusion of Innovation looks at the factors that influence individual and small business (SME) decisions about new data innovations, examining how quickly, how and why breakthroughs spread (Carreiro & Oliveira, 2019). This kind of research helps us understand how individuals and companies can adapt to innovation. This diffusion hypothesis can be used in research because it explains why small businesses develop new technologies. The most prominent of these is its advantage over its competitors. SMEs that are using FinTech and related innovations have relatively better market access than those that are not. Survey reveals more than 78% of small business owners admit their use of FinTech has improved business growth by increasing revenue, customer base, market share and revenue. The Diffusion of Innovation (DOI) theory, formulated by Everett Rogers in 1962, delves into the understanding of how an idea or innovation permeates and gets adopted within a specific population or social system over time. At its core, the theory offers insights into the pattern of adoption, the process by which a new idea or concept is accepted by the masses, and why some innovations see faster acceptance than others.

Central to the theory is the notion of "innovations". Innovations are ideas, practices, or objects perceived as novel by an individual or group. It's essential to note that it's the perception of novelty, and not the actual age or timeline of the innovation, that matters most. Rogers suggests that the decision-making process involved in adopting a new idea follows a sequence of knowledge, persuasion, decision, implementation, and confirmation.

Furthermore, Rogers categorizes adopters of innovation into five distinct groups based on their rate of adoption: innovators, early adopters, early majority, late majority, and laggards. Each group has unique characteristics. For instance, innovators are risk-takers and are willing to adopt an innovation simply because it's new, while laggards are sceptical of change and are the last to adopt an innovation.

Another vital component of the theory is the innovation-decision process, which is the process an individual or group undergoes from first knowledge of an innovation to forming an attitude toward that innovation, to the final decision to adopt or reject it, and to the actual implementation and confirmation of the decision.

Communication channels also play a crucial role in the diffusion process. These channels are the means through which information about an innovation is exchanged between different individuals. The nature of these communication channels can significantly impact the rate and spread of adoption.

Lastly, the social system in which the individual or group exists heavily influences innovation adoption. Cultural norms, societal structures, and the degree of interconnectedness can either facilitate or hinder the diffusion of an innovation.

In summary, the Diffusion of Innovation theory offers a holistic lens through which the intricacies of how novel ideas spread and are accepted (or rejected) by communities can be understood. Whether in the realms of technology, healthcare, or social practices, the DOI theory provides valuable insights into the dynamics of innovation adoption.

### **Technology, Organization and Environment (TOE) Theory**

However, the Technology, Organization, and Environment (TOE) Hypothesis identifies three basic themes of his that break down into even smaller models when examining how data innovation is implemented at the enterprise level increase. Technology can be both a tool and a method. The term "organizational context" is defined as the assets and characteristics associated with the firm, such as its size, level of formalization, management framework, workforce, and personal relationships. The environmental context consists of the size and structure of the market, the level of competition faced by firms, macroeconomic conditions, and the regulatory framework (Permadi & Fathussyaadah, 2020). The Technology, Organization, and Environment (TOE) framework, introduced offers a comprehensive perspective on the determinants influencing technological innovation within organizations (Awa, Ojiabo & Orokor, 2017). According to this theory, the decision to adopt and integrate new technologies is shaped by a confluence of factors residing within three distinct contexts.

The technological context encapsulates both the internal and external technologies that are relevant to the firm. This context doesn't just highlight the technologies that an organization currently employs but also emphasizes the broader spectrum of technologies that are accessible in the marketplace. Factors like the perceived benefits and advantages of potential new technology, its compatibility and alignment with existing organizational processes, and any anticipated challenges related to its implementation are crucial elements within this domain.

Delving into the organizational context, this revolves around the inherent characteristics and resources of the organization in question. Attributes such as the size of the entity, its structural layout, the availability and allocation of resources, and the organization's overall readiness for change play pivotal roles. An organization's internal culture, managerial structure, and the inherent skills and knowledge bases of its employees also significantly influence the rate and nature of technological adoption.

Lastly, the environmental context concerns the external pressures and conditions that might affect an organization's technology-related decisions. This could range from the state of the industry the firm operates in, to regulatory pressures, to the broader economic climate. The competitive landscape, the actions of rival firms, and any prevailing market trends are elements that an organization would weigh when considering technological innovations. Additionally, macroeconomic factors, like governmental policies or socio-cultural trends, can also steer an organization towards or away from particular technological pathways.

In essence, the TOE theory underscores the multi-faceted and interconnected nature of technological adoption decisions. It recognizes that these decisions are not made in a vacuum but are rather the product of a dynamic interplay of technological realities, internal organizational capacities, and the broader external environment. Through this lens, businesses and researchers alike can gain a nuanced understanding of the complexities of technological change within the organizational landscape.

## **EMPIRICAL REVIEW**

### **Mobile Money and Growth of MSMEs In Accra**

Increased financial inclusion and access to financial services in emerging economies are accelerating poverty reduction. One of the factors driving the growth of FinTech in developing countries is how convenient it is to send and receive funds through cell phones, the accessibility to mobile loans with minimal processing fees, the expansion of mobile savings and inclusivity (Must & Ludewig, 2010).

According to Forenbacher et al. (2019), mobile phone ownership improves market access and business success. However, the study also showed that the system was unable to handle other financial tasks beyond sending and receiving money. Similar conclusions cannot be generalized to countries like Ghana. The authors also note a decline in mobile money services in Ghana's urban and industrial areas. Mbiti and Weil (2015) performed a detailed analysis of Safaricom's M-Pesa service and found several patterns of useful habits M-Pesa is designed to send and receive money, not to hold money. Given the volatility of the market, Safaricom believes the cash deposit option is ideal. Small businesses can now utilize mobile money services to receive and withdraw and conduct more complex financial services, examples include investments, deposits, insurance and loans. Mutiso and Mwikya (2021) explore the success factors associated with mobile money payments by micro-enterprises in Kenya. The study looked at many variables, including accessibility, customer satisfaction, mobile payments, security, simplicity of pricing, ongoing support for mobile payment partners and how people are satisfied with mobile payment services, successful use of mobile payments, and business productivity are some of the study variables. Research shows a strong correlation between behavioural goals and actual use of mobile money. Mvogo, Ndzana and Bidiassé's (2023) study finds that mobile money transfer services are negatively impacting the growth of small and medium-sized enterprises. They use mobile money transfers for customer-to-business transactions when receiving payments and all of these contribute to better results across small businesses. According to research by Merritt (2011), mobile money transfers have inherent risks related to consumer privacy and protection, scams, data security, money laundering, liquidity and credit risk. According to the report, mobile money services reduce dangers found with cash payments, increase cash flow transparency, and facilitate risk management by requiring regulation of payment systems. Wamuyu (2014), found that the use of mobile money transfers in business-to-business and consumer-to-consumer dealings is less prevalent than in consumer-to-consumer and customer-to-business transactions. Outcomes for SME mobile currency exchange users also appear to be significantly impacted by electronic commerce and mobile Internet services. Published research shows that mobile payment penetration among small and medium enterprises in Ghana is inadequate compared to other industries (Coffie et al., 2021). Mobile money transfers for SMEs are relatively underutilized compared to other industries, for example, large businesses and individual levels. A mobile money service provider has created an infrastructure to provide adequate coverage for all her Ghana's SMEs are not recognized, but other players, including the banking industry, have worked to give them more leverage so that they can more easily enter the era of mobile money transfers.

### **Digital Lending and MSMEs Growth**

MSMEs can continue to use digital lending services to pay insurance premiums thanks to mobile financial services such as MShwari, KCB-MPesa and Tala (Kamau, 2021). This has been made possible by the efficient exchange of goods and services, a safe environment for investment, and other factors. Small and medium-sized businesses (SMBs) can use mobile finance to save money, earn business credit, and engage with their customers. Enhance customer relationships have made it easier for customers to deposit payments and have helped businesses reduce their collection costs for delinquent receivables. Small businesses focus more on sales than collections to boost sales. Beck, Demirgüç-Kunt, and Maksimovic (2011), using a database of 74 countries for SMEs and large companies, discovered that one of the primary challenges facing entrepreneurs in these companies is access to finance. They also believe that ineffective loan documentation and stricter regulations imposed by most international banks on banking with SMEs contribute to the lack of access. Furthermore, their findings suggest that access to finance for SMEs is entirely dependent on exposure levels between financial management and competencies, including marketing strategy, financial operations, and technical competence. Access to finance for SMEs was also a research theme. According to Motta and Sharma

(2020), technology can ensure availability and access to credit through government policies and structural financial transformation is the best way to the study concludes that technology is more effective in reducing the degree of interaction between financial institutions and SMEs and the difficulty of obtaining funding. Must and Ludewig (2010), in their study of how firms seek money and credit, found that savings complement credit. Entrepreneurs can save money and control spending during economic downturns. Entrepreneurs can also borrow money where the collateral is their savings. This will extend the duration needed to pay you back and make it less difficult to keep your promises. In conclusion, we found that savings accumulated over time are a driving force in expanding entrepreneurial skills and small business potential. According to one study, a company's ability to raise capital remains critical to its survival (Wanjohi, 2010). The growth of any business is fueled by loans and financing available at various stages of creating goods and services. Making available capital is requisite for SMEs to create a range of products and services to meet specific market demands and increase profitability. Digital solutions can be used by businesses to expand access to finance. As a result of information asymmetries, lack of proper financial and accounting records, absence of collateral, limited access to physical branches, getting an official credit system, and various factors, most SMEs still face funding difficulties (Yoshino & Taghizadeh-Hesary, 2019). The majority of small businesses today rely on informal loans from family and friends due to the above restrictions. Such strategies limit funding and impede business growth and expansion.

### **The Development of MSME and Mobile or Online Banking**

Mobile/online banking is the use of a mobile device to conduct financial transactions from a personal or business bank account (Kiljan et al., 2016). M-banking is the practice of providing banking, financial, and services using mobile devices (Aithal, 2016) Checking account balances, loan applications, bank account payments, and mobile money transfers are all possible mobile and internet banking services A mobile phone or personal digital assistant is used for all of these duties. According to Bosire and Ntale (2018) the use of mobile money has considerably aided SMEs, For their everyday transactions, the vast majority of retailers choose mobile/online banking over traditional banking. As a result of its effectiveness and usefulness in settling conflicts between clients and businesses. Second, SME practitioners continue to use mobile/online banking because of the digital economy's expanding business impacts and the momentum of not having to go to the bank in person to conduct business. According to research by Chen, Li, Wu and Luo (2017), many SMEs are moving to mobile banking instead of traditional banking. Second, small businesses now have access to information about personal and business bank accounts and small bank statements long lines are no longer a problem thanks to mobile banking, allowing SMB managers to focus more on their primary goal of increasing sales and driving growth SMBs can also pay suppliers and utilities conveniently from the office, saving travel costs and reducing financial risk When it comes to payment services, mobile banking should be safe and reliable (Wamuyu, 2014). This is achievable by accurately identifying consumers, conducting transactions, and protecting the confidentiality of customer information. Additionally, mobile banking users attach great importance to secure PINs and full security codes (Wamuyu, 2014). A study by Muchiri (2018) on how SMEs are affected by mobile banking found that prevalent adoption of m-banking requires significant network coverage and reliable network connectivity. All potential participants can benefit from the increased accessibility, speed, and convenience of mobile trading.

### **Other Factors That Affect the Growth Of Msmes**

Aside from Fintech, other factors affect the development and growth of MSMEs. According to Baporikar, Nambira and Gomxos (2016), adequate funding enables these businesses to invest in equipment, raw materials, and skilled manpower, giving them the necessary tools to operate efficiently and competitively. Additionally, access to finances allows MSEs to expand their operations, explore new markets, and diversify their product offerings, contributing to their overall growth and sustainability. Moreover, having access to financial resources allows MSEs to withstand economic downturns, manage cash flow, and cope with unforeseen emergencies, reducing the vulnerability to financial setbacks. In summary, access to finances is pivotal for the success of MSMEs as it empowers these enterprises to build a solid foundation, pursue growth opportunities, and navigate challenges, ultimately fostering their prosperity and contributing to economic development. An empirical study

by Kebede and Abera (2014) suggested that access to finance has a positive effect on the success of Micro, Small and Medium Enterprises.

According to Kalei (2020), penetrating a market is another obstacle MSMEs face. Generally, MSMEs do not have the knowledge or information about other markets, thus, this limits their ability to market their products to larger groups of customers and expand their business. A business needs to formulate a marketing strategy for the whole year which aligns with business plans. Therefore, good marketing strategies ensure that the business survives well in the economy and contributes to the development and growth of MSMEs.

Another factor that promotes business is good customer relations Ruhland and Wiese (2023). Good customer service led to the development of happy customers who would always be willing to patronize the business unit. In line with this, Baporikar, Nambira and Gomxos (2016) state that customer services are vital to the health of businesses, but many small businesses fail to realize this. It can be deduced from Baporikar et al., (2016) that good customer service can lead to the success of MSMEs because customers would always remember how they were treated, good treatment makes them assume that an organisation has a good product, and customer service makes the customers believe that they are cared for and it is an important marketing tool. This implies that customer services could make the business gain more patronage in the sense that a happy customer would all things being equal come back and also recommend the organization and its products to others which would lead to increased profit. Sutrisno (2023) also points out that delivering service to the customers is the most valuable thing to a business in the sense that it allows the business to increase sales by helping the business to be able to build trust which gives customers a reason to stay with the business (customer loyalty). Sutrisno (2023) also states that customer service matters more than the price because people are willing to pay more for the right experience. According to Ilias and Shamsudin (2020), customer service is important to a business due the fact that it makes the customers feel that they are significant to the business unit, differentiates a business from its competitor, it leads to repeat patronage, gives publicity to the business and helps in avoiding filing a complaint with the customer protection council or litigation. From the foregoing, it is obvious that customer services could lead to the survival of SMEs. This is because, it could make the SMEs increase sales and consequently, profit which tells the operators that there is a need for continuous operation and could lead to the enjoyment of economies of scale. It could also enhance the ability to withstand competition both among themselves and with large-scale enterprises.

## **METHODOLOGY**

The section shows how the researcher was employed in undertaking this research. The procedure includes research design, research approach, sampling techniques, the data source and collection procedure, the population of the study with sampling techniques, the data analysis method, and the ethical concerns.

### **Research Design**

Every project or endeavour must follow certain patterns. These patterns form the design of the endeavor thus the research design. There are various forms of research design. The main ones are the exploratory research design, case study research design, descriptive research design and experimental research design. This research adopted the descriptive research design. To determine the impact of FinTech on the expansion of SMEs in Accra, it will be ideal to opt for a descriptive research design since Kellstedt et al (2022) posit that descriptive design helps answer the research question by describing the respondent's characteristics and the findings.

### **Research Approach**

There are various forms (three) of research approaches. Firstly, is the quantitative research approach. This type of approach deals with statistical measures and numbers. Secondly the qualitative research approach. This type of research approach looks at qualifying what respondents say. That is to say, it deals with words. Lastly is the mixed methodology. This is a merger of both qualitative and quantitative approaches. That being acknowledged, the research will use a quantitative technique. Quantitative research methodologies are defined as systematic subjective methods for investigating or explaining life experiences and situations to give meaning (Norouzian, 2021).



**Sampling Technique and Sample Size**

The simple random sampling method was used to select a sample size from the population for the study. A simple random sampling strategy was appropriate as every member of the population was given an equal chance of presenting in the sample (Mugenda & Mugenda, 2011).

According to Babbie (2010), the described sample size is the portion of the research that depicts the actual population or the portions of the study that are to be evaluated, and the results will be applied to the whole population. The Greater Accra register business 2021 provided 4897 registered SMEs for the sampling frame.

The following is how the sample size of 4897 SMEs was determined using the method developed by Krejcie and Morgan (1970):

$$s = \frac{\chi^2 NP(1 - P)}{d^2(N - 1) + \chi^2 P(1 - P)}$$

*S* = required sample size

$\chi^2$  = Chi-Square value at 1 degree of freedom (3.841)

*N* = Population Size

*P* = Population proportion (assumed to be .50)

*d* = Degree of accuracy expressed as a proportion (.05)

$$s = \frac{3.841 \times 4897 \times 0.5(1 - 0.5)}{0.05^2(4897 - 1) + 3.841 \times 0.5(1 - 0.5)}$$

Sample size *S* ≈ 356

**Instruments of Data Collection**

To address the research questions, questionnaires were employed to gather data for the quantitative study. The questionnaire will be distributed online through Google Forms due to COVID-19 restrictions. This is another quick method of collecting data through a third party because respondents will receive links and can respond at their own pace.

**Data Sources**

Primary sources will be used to acquire research data. The main source of information to help achieve the objectives by using questionnaires. Understanding the impact of Financial Technology (FinTech) on the development and growth of Micro, Small, and Medium Enterprises (MSMEs) requires a rigorous approach to data collection. For this study, the primary instrument employed for gathering data was a questionnaire.

The questionnaire was meticulously designed to capture detailed insights from MSMEs concerning their interaction with and perception of FinTech. It aimed to understand the degree of FinTech adoption among MSMEs, the challenges they face in implementing these technologies, and the perceived benefits or advantages they derive from them. By focusing on a questionnaire, the study intended to capture quantifiable, consistent data from a wide range of participants.

To ensure the reliability and validity of the data, the questionnaire was pilot-tested among a select group of MSMEs. Feedback from this pilot test was incorporated to refine the questions, ensuring clarity and relevance. The finalized questionnaire was then distributed to a larger, more diverse group of MSMEs, encompassing different sectors, sizes, and regions. This stratified approach aimed to capture the heterogeneous nature of MSMEs and their varied experiences with FinTech.

In addition to the direct data from the questionnaires, secondary data was also considered to provide context and support to the primary findings. Relevant industry reports, academic journals, and publications from international bodies, like the World Bank or the International Monetary Fund, were consulted. While these did not form the crux of the data collection, they offered invaluable background information, setting the stage for the analysis of the questionnaire results.

## RESULTS

This section presents the results of the study on the moderation impact of FinTech on the development and growth of MSMEs.

### Background Information of Respondents

Table 1 displayed the background information of the respondents, which includes gender, position held, age of respondents and years of experience.

From Table 1, it can be that the number of male respondents outweighed the number of female respondents with the frequency of 236 and 80 representing 74.7% for males and 25.3% for females.

As depicted in Table 1 the distribution of the position held were business owner, employee and family member. It was found that of 255 constituting 80.7% were business owners. Following them are employees, who account for 15.2% of the respondents while family members are represented the least, making up only 4.1% of the respondents. This data suggests that the majority of small and medium-sized enterprises (SMEs) are primarily managed by their respective owners.

The age distribution of the respondents was examined. As indicated in Table 1, the majority of the respondents were in the age range of 31-40 years, representing 49.1% of the respondents. Of the respondents above 50 years, 70 (22.2%) respondents. The age group that had the least number of respondents were the age group of 41-50 years (n=39; 12.3%). This demographic information implies that most of the micro, small and medium-sized enterprises (MSMEs) in Ghana are operated by a comparatively younger set of entrepreneurs, primarily those falling within the age bracket of 31 to 40 years. This reflects a youthful entrepreneurial generation in Ghana.

Participants in the study were requested to specify the length of time their small and medium-sized enterprises (SMEs) have been operational since their inception. The information gathered, as demonstrated in Table 1, presents a detailed distribution of SMEs based on the respective durations they have been conducting their commercial activities. The majority of MSMEs (67.7%) had been in business between 5 - 10 years. Furthermore, it was noted that the study adequately addressed a variety of levels of business growth, indicating that respondents had extensive knowledge of SMEs and provided accurate data for the study.

**Table 1: Background Information of Respondents**

	Frequency (n=316)	Percentage %
<b>Gender</b>		
Male	236	74.7
Female	80	25.3
<b>Position Held</b>		
Business owner	255	80.7
Employee	48	15.2
Family member	13	4.1
<b>Age of Respondent</b>		
21 - 30 years	52	16.5
31 - 40 years	155	49.1

41 - 50 years	39	12.3
Over 50 years	70	22.2
<b>Years of experience</b>		
< 2 years	27	8.5
2 - 5 years	32	10.1
5 - 10 years	214	67.7
above 10 years	43	13.6

## Measurement Model

PLS-SEM was used for the measurement model analysis of the construct. Table 2 presents the Item Loading, Cronbach Alpha (CA), Composite Reliability (CR) and Average Variance Extracted (AVE) of the constructs.

Cronbach Alpha and composite reliability were used to account for the constructs' reliability. Values above 0.70 are suggested to be acceptable by Hair et al. (2017). From Table 2, MSME Business Growth, Access to Finance, Customer Service, Digital Lending, Mobile Money, Marketing strategy and Online/Mobile banking Cronbach alpha and composite reliability scores were all greater than the standard 0.70. As a result, it is determined that the required level of internal consistency has been reached and the scales are regarded as reliable.

The tools used to assess convergent validity are average variance extracted (AVE) and factor loading (Hair et al., 2017). According to the general rule, item loading and AVE are both acceptable for values over 0.70 and 0.50, respectively. From Table 2, the item loadings and AVE met the required standards, where all the AVE were above 0.7 and item loading was above 0.5.

**Table 2: Measurement Model**

Construct	Item	Loadings	CA	CR	AVE
Access to Finance	AF1	0.924	0.921	0.947	0.857
	AF2	0.947			
	AF3	0.906			
MSME Business Growth	BG1	0.942	0.952	0.969	0.912
	BG2	0.965			
	BG3	0.958			
Customer Service	CS1	0.985	0.986	0.989	0.947
	CS2	0.983			
	CS3	0.981			
	CS4	0.984			
	CS5	0.93			
Digital Lending	DL1	0.938	0.982	0.986	0.933
	DL2	0.963			
	DL3	0.96			
	DL4	0.877			
	DL5	0.907			
Mobile Money	MM1	0.912	0.982	0.985	0.902
	MM2	0.889			
	MM3	0.964			
	MM4	0.842			
	MM5	0.963			
	MM6	0.892			
	MM7	0.858			

Marketing strategy			0.891	0.924	0.753
	MS1	0.91			
	MS2	0.898			
	MS3	0.818			
	MS4	0.841			
Online Mobile Banking			0.857	0.903	0.7
	OMB1	0.892			
	OMB2	0.865			
	OMB3	0.896			
	OMB4	0.91			

Assessing a construct's degree of uniqueness is known as discriminant validity. According to Hair et al. (2014), Fornell-Larcker can be used to evaluate the uniqueness of each construct. Table 3 shows the results of Fornell-Larcker. From Table 3, it was seen that the inter-construct correlations were less significant than the AVEs' square roots. This implies that the discriminant validity attained is good.

**Table 3: Fornell-Larcker Criterion Assessment**

	AF	BG	CS	DL	MM	MS	OMB
AF	<b>0.926</b>						
BG	0.465	<b>0.955</b>					
CS	0.417	0.911	<b>0.973</b>				
DL	0.466	0.967	0.762	<b>0.992</b>			
MM	0.484	0.967	0.752	0.766	<b>0.95</b>		
MS	0.610	0.755	0.514	0.675	0.706	<b>0.868</b>	
OMB	0.502	0.852	0.738	0.749	0.76	0.703	<b>0.836</b>

BG=MSME Business Growth; AF= Access to Finance; CS= Customer Service; DL= Digital lending; MM= Mobile Money; MS= Marketing strategy; OMB= Online & Mobile Banking

### The Moderation Effect of FinTech on the Development and Growth of MSMEs

A structural equation model was used to assess the moderation effect of FinTech on the development and growth of MSMEs. The independent variables were Access to Finance, Marketing strategy and customer services while the moderator was FinTech (Online & Mobile, Digital lending and Mobile Money). The tests of significance of all of the paths in the research model were conducted using the PLS bootstrap resampling procedure. The path coefficients, standard error and R-square were used to test the structural model. The results of the structural equation model are presented in Table 4.

In Table 4, the first model represents the direct relationship between the independent variables and the dependent variable (MSME Business Growth). Model 2 shows the moderation effect of online & mobile banking with independent variables (Access to Finance, Marketing strategies and customer services). Model 3 and Model 4 represent the moderation effects of Digital lending and Mobile Money respectively.

Results from the direct relationship (model 1), it was seen that access to finance has a significant relationship with MSME Business Growth ( $\beta = 0.117; p < 0.01$ ). For customer service, it was seen that customer service had a significant with MSME Business Growth ( $\beta = 0.843; p < 0.01$ ). Results from the FinTech indicators online/mobile banking ( $\beta = 0.344; p < 0.01$ ) digital lending ( $\beta = 0.106; p < 0.01$ ), mobile money ( $\beta = 0.049; p < 0.01$ ) have a significantly positive influence on the Growth of MSME Business. However, marketing strategy has a significant positive relationship ( $\beta = 0.017; p = n.s$ ).

The result from model 2, shows that the relationship between access to finance and Growth of MSME Business is significantly moderated by online\mobile banking ( $\beta = 0.701; p < 0.01$ ). Also, online banking significantly moderates the relationship between marketing strategy and MSME growth ( $\beta = 0.216; p < 0.01$ ) and customer service and MSME growth ( $\beta = 0.277; p < 0.01$ ). The moderation coefficients were all positive, this implies that higher levels of online/mobile banking will lead to a stronger relationship between access to finance, marketing strategy, customer service and growth of MSME.

The third model shows the moderation effect of digital lending, the results show that digital lending only moderates the relationship between access to finance and MSME growth ( $\beta = 0.434; p < 0.01$ ). But does not moderate the relationship between marketing strategy and MSME growth ( $\beta = 0.099; p = n.s$ ) as well as customer service and MSME growth ( $\beta = 0.055; p = n.s$ ).

Results from the fourth model revealed that the relationship between access to finance and MSME growth is positively moderated by mobile money ( $\beta = 0.434; p < 0.01$ ) such as higher levels of mobile money tractions will lead to a stronger relationship between access to finance and growth of MSMEs ( $\beta = 0.248; p < 0.01$ ). Similar positive moderation results were seen in the relationship between marketing strategy and MSME growth ( $\beta = 0.126; p < 0.01$ ) such as higher levels of mobile money tractions strengthened the relationship between marketing strategy and MSME growth.

**Table 4: Moderation Effect of FinTech on the Development and Growth of MSMEs**

	Model1	Model 2	Model 3	Model 4
AF-> BG	0.117*** (0.027)	-0.049 (0.136)	0.086 (0.238)	0.184 (0.376)
MS-> BG	0.017 (0.049)	0.119 (0.086)	0.009 (0.072)	-0.152 (0.124)
CS-> BG	0.843*** (0.109)	0.037 (0.060)	0.099 (0.120)	0.013 (0.049)
OMB-> BG	0.344*** (0.110)	0.243*** (0.042)		
DL-> BG	0.106*** (0.022)		1.054*** (0.086)	
MM-> BG	0.049*** (0.021)			1.210*** (0.131)
OMB*AF-> BG		0.701*** (0.083)		
OMB*MS-> BG		0.216*** (0.047)		
OMB*CS-> BG		0.277*** (0.053)		
DL*AF-> BG			0.434*** (0.028)	
DL*MS-> BG			0.099 (0.120)	
DL*CS-> BG			0.055 (0.069)	
MM*AF-> BG				0.248*** (0.074)
MM*MS-> BG				0.126** (0.051)
MM*CS-> BG				0.035 (0.098)
R-square	0.903	0.944	0.932	0.938

## DISCUSSION OF RESULTS

The study was centred on the moderation effect of three FinTech indicators namely mobile/online banking, digital lending, and mobile money, and their influence on the growth of MSMEs. The partial least square regression from the structural equational model revealed a direct positive relationship between mobile money usage and SME growth. This result conforms with the findings of Mutiso and Mwikya (2021) suggesting a positive relationship between mobile money and business economic growth. However, it contradicts the results of Must and Ludewig (2010), who argued that the ease of receiving and sending money via mobile devices

catalyzes the acceptance of FinTech in developing countries. The study also found a positive relationship between digital lending and MSME growth. This is in line with the studies by Kamau (2021); and Motta and Sharma (2020) that credit availability at various stages of product and service development spurs MSME growth. Contrary to Must and Ludewig (2010), who proposed that SMEs' access to credit is boosted by savings, this study discovered that most MSMEs require significant loans for their operations, which may not be facilitated by the FinTech platform. Lastly, the study highlighted that mobile/online banking had a positive relationship with MSME growth. Furthermore, it was observed that mobile banking had a statistically significant impact on the growth of MSMEs in Ghana. This result concurs with Bosire and Ntale (2018), who noted that a considerable number of MSMEs prefer mobile banking to traditional banking as they can have information as well as transaction services on their mobile devices. This confirms the substantial influence of mobile banking over digital lending and mobile money on the growth of SMEs in Accra.

For the moderation effects, the results show that online/mobile banking moderates the relationship between access to finance and MSME growth. This result is in line with Baporikar et al. (2016), who explained that online/mobile banking improve easy accessibility of finance since people do not have to go to the banking hall and form long queue but can easily make transactions. Similar results were seen with mobile money, according to Mbiti and Weil (2015), the introduction of mobile money has brought a convenient way of accessing money and forms a major source of financial inclusion in developing countries.

For the marketing strategy, it was found that marketing strategy does not have a significant direct relationship with MSME growth. However, for moderation, it was found that online/mobile banking and mobile money positively moderate the relationship between market strategy and MSME growth. This result is in line with Ruhland and Wiese (2023), that Fintech creates more awareness about the company's innovative ideas and makes the product easy to buy.

## **PRACTICAL IMPLICATIONS**

This study revealed several implications. First, this study attempts to empirically examine a comprehensive set of Fintech, an area of MSMEs. A more detailed understanding of how the continuous use of Fintech can boost the business of MSMEs. Therefore, this study proposed the continuous use of Fintech especially Online & Mobile, Digital lending and Mobile Money since they drive factors such as Access to Finance, Marketing strategies and customer services for the development of MSMEs. Furthermore, the moderation effects of Fintech are also a significant research contribution of this study. Secondly, this study contemplates the specific Fintech that contributes much to the growth of MSMEs. This study reveals specifically that online/mobile banking contributes much to the MSMEs.

## **SUGGESTIONS FOR FURTHER RESEARCH**

This study covered three FinTech products (Online and mobile, Digital lending and Mobile Money) on the development and growth of MSMEs, a similar report should be conveyed to look at different aspects of FinTech that are not covered under this study.

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