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Financial Technology and Financial Inclusion of Small and Medium Enterprises in Kenya: Do Government Regulations Really Matter?

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Abstract

The study sought to evaluate the significance of government regulations on the relationship between financial technology and financial inclusion of Small and Medium Enterprises in Kenya. This study emanates from the Doctoral dissertation of the first author where the co-authors served as supervisors. Technology, Organization and Environment Theory and Financial Intermediation Theory were utilized. The study adopted explanatory research design. The top 100 Small Medium Enterprises in Kenya constitute the target population and the sample size was 200 based on purposive sampling technique and simple random sampling where two respondents were picked from each Small Medium Enterprises of interest. A response rate of 81.5 percent was achieved. The study used multiple regression analysis and it was established that government regulations had significant moderation effect on the relationship between financial technology and financial inclusion of small and medium enterprises in Kenya. The study recommends that the existing transaction limits should be reviewed in line with economic conditions of the country. Government should ensure that favorable lending rates are put in place so as to further enhance the level of financial inclusion of small and medium enterprises in Kenya. Government guidelines on screening of customers should be favorable to business owners and stringent requirements should be discouraged.

Keywords: *Government Regulations, Financial Technology, Financial Inclusion, Small and Medium Enterprises*

1.0 Introduction

Financial technology stands as a framework for providing opportunities via costs reduction of offering financial services for purposes of promoting financial inclusion (Asian Development Bank, 2014). Mobile banking technology entails the utilization of mobile phones in carrying out banking transactions (Anyasi & Otubu, 2019). It further entails offering bank-associated financial services through the use of accessories of mobile telecommunication. Through mobile banking technology, mobile phones can be used by customers in sending and withdrawing money to and from their banks (Mwariri & Awuor, 2020).

In view of the desire to manage both operational and administrative costs alongside intensive competition, several financial institutions have explored mobile banking technology. Online banking relates to an electronic payment system which provides enablement to bank customers or financial institutions in carrying out various financial transactions via the website or portal of the financial institution (Musau, 2018). Agency banking entails the provision of limited scale services relating to banking and financial transactions across the underserved population by engaging agents based on an underlying agency agreement, unlike the conventional case of having tellers or cashiers (Melubo & Musau, 2020). Several banks have partnered with different mobile network operators with the aim of promoting the adoption of financial technology. However, in agreement with Kibicho and Mungai (2019), these efforts may not be successful in the case where the factors impeding the application of financial technology are not examined.

Small and Medium Enterprises (SMEs) are vital contributors towards economic activities which serve as important sources of growth, employment as well as innovation (OECD, 2018). Despite this essential role, the firms receive a disproportionately lower portion of credit facilities offered by the financial sector, a situation which has persisted over time (Nemoto & Koreen, 2019). There appears to be existing underlying structural barriers impeding lending to SMEs by banks which include high transaction costs, information asymmetries as well as low level of financial status of owners of SMEs.

In view of this, the Kenyan Government view SMEs development to be a vital avenue of attaining social-economic objectives with one of them revolving around poverty alleviation. However, in order for these enterprises to be more productive and attain full potential, financial accessibility for investment purposes remains very crucial. This is as SMEs experience failure as a result of lack of ability of accessing the necessary funds to increase their portfolio as well as adopt new technologies which in turn decreases their likelihood of survival in a highly dynamic and competitive business environment (Munguti, & Wamugo, 2020). Statistics have similarly indicated that a total of 2.2 million SMEs collapse within the period 2010 to 2016 (Kenya National Bureau of Statistics, 2019). Central Bank of Kenya (2020) documented that about 75% of SMEs in Kenya experience collapse in the case where they are unable to access funds from equity partners or banks or equity as at May 2020.

The Central Bank of Kenya alongside other financial institutions collaborated towards establishing a workable financial infrastructure with the aim of supporting and facilitating SMEs in obtaining external financing with focus on creditor rights and regimes, credit information

system (CIS), securing transactions registries and legislations, hence establishing stronger Accounting/Auditing team. Despite the tremendous increase in the development of financial technology, government initiatives, support of financial infrastructure by the apex bank, increased implementation of several restructurings by the Government of Kenya, several firms in the SME category remain faced with challenges of financial exclusion (Kenya National Bureau of Statistics, 2019). This is as accessibility to external finance for SMEs has become more challenging and their access has experienced a decline. The financial restrictions of SMEs limit their investment opportunities which lead to stagnant growth. It is in view of this background that this study sought to evaluate the moderation effect of government regulations on the relationship between financial technology and financial inclusion of SMEs in Kenya.

2.1 Theoretical Literature Review

The moderating effect of government regulations on financial technology and financial inclusion relationships was underpinned by Technology, Organization and Environment Theory and Financial Intermediation as discussed in the succeeding sub-sections.

2.1.1 Technology, Organization and Environment Theory

This theory holds three central view points on how innovation is received at various levels. These factors cut across technology settings of firms, organizational settings of firms and environmental settings of firms (Oliveira & Martins, 2011). In the concept of adoption, Technology, Organization and Environment is a popular framework which recognizes non-determinism of adopting technology as it rather than roles it focuses on people while recognizing that people are not replaceable. Notably, the Technology, Organization and Environment framework is made up of technological development; organizational structure, organizational and business reconfiguration as well as industry or operating environment.

Technological, organizational and environmental attributes influence financial technology adoption. This is as adoption is more driven by Technological, organizational and environmental as compared to individual factors (Awa, Ukoha & Igwe, 2017). Technology, Organization and Environment Theory underpins the association between government regulations and financial inclusion of SMEs. Several government regulations which are largely financial in context guide the operations or activities of financial technology across countries. The underlying financial technology and financial inclusion relationship is influenced by government regulations. This is as the tighter or more stringent the financial regulations instituted by government are, the less the intermediation process, hence limiting financial inclusion through technological innovations.

2.1.2 Financial Intermediation Theory

Financial Intermediation Theory was introduced by Diamond in 1984. According to the financial intermediation theory, the quality of services rendered by financial institutions determines the economy growth of a country (Diamond, 1984). The theory has been utilized by researchers in determining the nexus existing among financial technology and financial inclusion as financial institutions play their intermediation role. According to Shittu (2016), financial technology has improved the financial intermediation role financial institutions play which has thus enhanced economic growth though financial inclusion in a country. In order to efficiently and effectively carry out their roles, financial institutions have embraced financial technology which has thus revolutionized the finance industry over the years.

The finance sector has witnessed a rapid technological shift which has resulted into technology-enhanced financial services and products. Due to the advent of mobile banking services, agency banking services, online banking applications, financial institutions have been able to implement financial technology- enabled services to corporate firms, large businesses, SMEs, individuals in both rural and urban centers (Agelyne, 2022). Thus, according to financial intermediation theory, financial technology has huge role in financial inclusion in a country. According to Philippon (2015), over the years, financial technology has become the main financial intermediaries in the finance sector. The theory provides insights on financial intermediary function of financial institutions and how financial technology facilitates those functions.

2.2 Empirical Literature Review

Mugo, Muathe and Waithaka (2017) examined the moderating effects of government regulations on the connection amongst mobile technology operations and the efficiency of deposit taking SACCOs in Kenya. A representative group of eighty-six DT SACCOs served as the foundation for descriptive and explanatory methods of inquiry. The data was gathered via a structured survey that was given to two executives at each SACCO. According to the research, government laws is substantially-positive moderating impact on the connection involving mobile technology services and deposit-taking SACCO performance, which suggests that Deposit-Taking SACCO-friendly government regulations need to be developed.

Saghir and Aston (2017) examined into the effects of numerous economic factors, among them regulations from the government, on the availability of financing for businesses, taking into account the viewpoint of financial professionals working for UK firms that provide financial services. The investigation examined the connection across relevant post-recession characteristics. Utilizing convenience sampling, five of the most prominent fifty British financial services firms were chosen. Additionally, 38 individuals who participated were chosen by purposive sampling on the basis of their expertise, managerial position, and industry knowledge. The results demonstrated a significant association between regulations from the government and financial resource accessibility.

Kodongo (2018) studied the nexus between financial regulations and financial inclusion in Kenya. The study applied probit regression based on survey data of cross-sectional household level while employing fixed effect regression for banks panel data. It was reported that financial regulation relating to agency banking regulations brings about improvements in formal financial access. The study further documented that know-your-customers rules as well as liquidity and capital macro-prudential regulations have potential adverse effect on financial inclusion. In view of the study findings, it was suggested that Kenya strive towards relaxing requirements relating to customer identification in specific instances which are likely to jeopardize the financial inclusion process and work towards stabilizing the macroeconomic environment for purposes of mitigating unintended adverse macro-prudential regulations effects. Despite the function of financial regulations towards prevention of distortions to competition, maintenance of market integrity, mitigation of negative externalities and reduction of asymmetric information, they may have undesirable consequences by adversely affecting efficient intermediation process.

Momany (2018) examined how Kenya's financial regulations affect financial inclusion in the setting of the country's banking sector. The study adopted a questionnaire as the research instrument. Every institution licensed under the Banking Act made up the sample of the research. Survey method was used for the collection of data. Open-ended and closed-ended questions were

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used for organization of the survey. Quantitative information was gathered using closed-ended inquiries while qualitative information was gathered by open-ended inquiries. Using scaled queries, views, beliefs, as well as judgments were recorded. From the analysis of data, a positive association involving the elements of financial inclusion, such as value, use, along with accessibility, and the financial well-being of the banks subject to the Banking Act's regulation, was found. The investigation made the recommendation that in effort to improve financial inclusion, the government should also play a role in creating the regulatory structure that promotes financial inclusion.

Muriu (2020) aimed to comprehend the institutional elements of the nations linked with the holding of bank accounts by employing panel data covering 125 countries for the years 2004 to 2015. Utilizing fixed effects panel data methods, three indicators of institutional quality and a proxy for financial inclusion are combined to build a conventional regression model. The study offered the first empirical support for the theory that the institutional context is not insignificantly responsible for driving financial inclusion. In particular, the rule of law is essential for boosting financial inclusivity, especially in sub-Saharan Africa, which upholds a bigger favorable impact than in other parts of the world. In order to increase financial inclusivity, the legal system must be more transparent. This is done by using impartial legal procedures as well as effective government guidelines. This is because official financing may be utilized to spur economic development and fight inequality.

In the Asia-Pacific area, Loan, Nhan, Hung, and Duc (2022) assessed the asymmetrical impacts of institutional efficacy (measured by government ability) on financial inclusions. From 2004 to 2020, the study evaluated the financial inclusion indicator for nineteen nations located within the Asia-Pacific area. Asymmetrical impacts of institutional efficacy on financial inclusions are supported based upon wealth levels among sample nations according to the sophisticated panel seamless transition methodology. According to investigations, the implications of government ability on financial inclusions differ based on the earnings of households. Results showed that nations with middle incomes such as Vietnam and developing states in the Asia-Pacific zone gain from institutional reform's positive influence, which promotes sustainable economic growth.

Ofoeda (2022) examined how government-imposed anti-money laundering (AML) rules affect financial inclusions. Utilizing an extensive evaluation of AML laws established through the Basel Institute on Governance. From 2012 through 2019, panel data from two hundred and twelve economies (advanced, emerging, and African) was utilized in the research investigation. Generally, the findings indicate that AML policies support financial inclusion globally. Nevertheless, regulations regarding AML promote financial inclusion beneath the criteria, whilst AML requirements have adverse impacts on financial inclusion below the specified limits. AML restrictions were also detrimental to industrialized nations' ability to include people in the financial system. Conversely, every tier of AML legislation for African nations encouraged financial inclusivity. Results of the investigation suggest that governments must actively work to reduce instances of illicit financing by putting in place effective AML regulations as a means of fostering financial inclusion. Authorities must, however, make sure that AML requirements are implemented effectively and economically.

Yakubi, Basuki, Purwon and Usman (2022) investigated how business regulations affected socioeconomic progress as well as financial inclusion in nations with limited resources. The

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overall well-being of low-income countries, which make up the majority of the regions of the globe, is thought to be enhanced by commercial regulations since they are assumed to be strong drivers of financial inclusion across countries. Whilst using Smart PLS 3, secondary data for 77 low-income nations were gathered from a variety of databases, like the World Bank, UNDP, and IMF. According to the investigation's overall hypothesis, there is a considerable positive association amongst regulation of businesses and socioeconomic growth and financial inclusion. It also adds to the body of literature by presenting empirical confirmation of the strong positive effects of firm regulations on socioeconomic growth and financial inclusion. Therefore, interested parties, lawmakers, as well as advocates must steadfastly promote the implementation of a business-regulated framework in order to help economically disadvantaged/underprivileged persons be drawn into more desirable ways of life and improve standard of living.

3.0 Research Methodology

The study adopted explanatory research design. Explanatory research design becomes more appropriate for the study as it aims at evaluating the effect of financial technology on financial inclusion of Small and Medium Enterprises in Kenya. The study considered the top 100 SMEs in Kenya which constitute the target population of the study. The choice of top 100 SMEs in Kenya is attributed to their ease of accessibility and as such, the study was based on this ranking. The ranking was by www.tuko.co.ke on list of SMEs in Kenya: top companies to watch out for in 2021. The study applied purposive sampling technique where the top 100 SMEs formed the sample of the study. As such, purposive sampling technique was adopted since this was in view of the perception and judgement of the researcher. Simple random sampling was also applied in selecting two respondents from each SME of interest. Primary data was considered and this was collected with the use of a questionnaire. Data analysis was based on the procedure by Whisman and Mcclelland (2005) for moderation test. This procedure for moderation test is guided by a two-step approach. If β_2 is insignificant in step one and β_3 significant in step two, then significant moderation exists. However, if β_2 is significant in step one and β_3 insignificant in step two, then no significant moderation exists.

Step One: In the first step, financial technology and government regulations are presented as explanatory variables.

$FI = \beta_0 + \beta_1 FT + \beta_2 GR + \varepsilon$

Step Two: In the second step, financial technology and government regulations are presented as explanatory variables and additionally the interaction of financial technology and government regulations is included.

$FI = \beta_0 + \beta_1 FT + \beta_2 GR + \beta_3 FT*GR + \varepsilon$

Where:

FI = Finance Inclusion

FT = Financial Technology

GR = Government Regulations

* = Interaction Term

FT*GR = Interaction of Financial Technology and Government Regulations

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β_0= Constant

β_1 to β_3= Regression Coefficient

ε = Error Term

4.0 Data Analysis and Discussions

The study sought to establish the moderation effect of government regulations on the nexus between financial technology and financial inclusion for small and medium enterprises in Kenya. The analysis was conducted using the procedure by Whisman and Mcclelland (2005) for moderation test. This procedure for moderation test is guided by a two-step approach. If β_2 is insignificant in step one and β_3 significant in step two, then significant moderation effect exists. However, if β_2 is significant in step one and β_3 insignificant in step two, then no significant moderation exists.

4.1 Moderation Effect Analysis, Step One

The moderation effect analysis step one presents the model summary, analysis of variables and multiple regression model based on the first step as guided by the approach by Whisman and Mcclelland (2005).

Model Summary, Step One

The model summary depicts the predictive powers of the predictor variables, hence the strength of the statistical model as presented in Table 1.

Table 1: Model Summary, Step One Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.225[a]	.050	.039	.48540
a. Predictors: (Constant), Government Regulations, Financial Technology				

Source: Survey Data (2023)

With the introduction of the moderator in the model, it was recorded that an R-value of 0.225 was observed implying positive correlation between financial technology and government regulations with financial inclusion amongst SMEs in Kenya. The outcome further indicates R square value of 0.050, hence 5% of the variation in the model is explained by financial technology and government regulation in Kenya.

Analysis of Variance, Step One

The analysis of variance further indicates the importance of a model based on its significance level as well. The analysis of variance for the step one of the moderation test is documented in Table 2.

Table 2: Analysis of Variance Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	2.002	2	1.001	4.249	.016[b]
	Residual	37.697	160	.236		
	Total	39.699	162			

a. Dependent Variable: Financial Inclusion
b. Predictors: (Constant), Government Regulations, Financial Technology

Source: Survey Data (2023)

The significance of the model was recorded in Table 2. The outcome noted that with the inclusion of government regulations as the moderator, the model was significant in explaining the relationship between financial technology and financial inclusion amongst SMEs in Kenya. Therefore, financial technology and government regulation have significant effect on financial inclusion of SMEs in Kenya.

Moderation Effect Regression Analysis, Step One

Table 3: Moderation Effect Regression, Step One Results

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	2.970	.415		7.154	P<.001
	Financial Technology	.101	.037	.217	2.720	.007
	Government Regulations	.021	.064	.026	.325	.745

Source: Survey Data (2023)

The outcome in Table 3 indicates that with the introduction of government regulations as the moderating factor, financial inclusion of small and medium enterprises in Kenya was significantly affected by financial technology. This depicts that as financial technology is enhanced, financial inclusion will significantly increase as noted by the coefficient 0.217 and p-value of 0.007. Government regulations exerted positive and insignificant effect on financial inclusion. The insignificant effect of government regulations on financial inclusion in the first step notably satisfies one of the conditions for the existence of a moderating effect.

4.2 Moderation Effect Analysis, Step Two

The moderation effect analysis step two presents the model summary, analysis of variables and multiple regression model based on the second step in view of the approach by Whisman and Mcclelland (2005).

Model Summary, Step Two

Following the non-significant of the moderator in step one, the estimation of step two became necessary and the result is presented therein.

Table 4: Model Summary, Step Two Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.262[a]	.069	.051	.48219

a. Predictors: (Constant), Financial Technology*Government Regulation, Financial Technology, Government Regulation

Source: Survey Data (2023)

The model summary which follows the outcome of step two observed a correlation coefficient of 0.262 depicting a positive link of the interaction of financial technology with government regulations, government regulations and financial technology with financial inclusion of SMEs in Kenya. In addition, it was observed that only 6.9% variation in financial inclusion is as a result of the interaction of financial technology with government regulations, government regulations and financial technology with 93.1% left unexplained.

Analysis of Variance, Step Two

The analysis of variance indicates the importance of a model based on its significance level. The analysis of variance for the step two of the moderation test is documented in Table 5.

Table 5: Analysis of Variance, Step Two Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	2.731	3	.910	3.915	.010[b]
	Residual	36.968	159	.233		
	Total	39.699	162			

a. Dependent Variable: Financial Inclusion
b. Predictors: (Constant), Financial Technology, Government Regulations, Financial Technology*Government Regulation

Source: Survey Data (2023)

Drawing from the outcome of step two of the moderating effect, it was observed that the interaction of financial technology with government regulations, government regulations and financial technology jointly and significantly affect financial inclusion of SMEs in Kenya.

Moderation Effect Regression Analysis, Step Two

Table 6: Moderation Effect Regression Analysis, Step Two Results

	Unstandardized Coefficients		**Standardized Coefficients**		
Model	**B**	**Std. Error**	**Beta**	**T**	**Sig.**
(Constant)	7.269	2.463		2.952	.004
Financial Technology	-.278	.217	-.599	-1.282	.202
Government Regulations	-1.202	.694	-1.489	-1.733	.085
Financial Technology*Government Regulation	.107	.061	1.899	1.771	.079

Source: Survey Data (2023)

Table 6 displayed the outcomes of the step two regression analysis. The results indicated that financial technology had negative and insignificant effect on financial inclusion of SMEs in Kenya. This is depicted by a coefficient of -0.599 and p-value of 0.202, implying that an increase in financial technology would results in reduction in financial inclusion of SMEs. Government regulations as observed in Table 6 noted an inverse and significant effect on financial inclusion of SMEs in Kenya. The coefficient of -1.489 and p-value of 0.085 indicate that financial inclusion would decline as government regulations is increased. The interaction of financial technology with government regulations had a positive and significant effect on financial inclusion amonsgt SMEs in Kenya as shown by a coeefficient of 1.899 and p-value 0.079. Therefore, an increase in the interaction of financial technology with government regulations will improve financial inclusion of SMEs in Kenya.

At 0.1 sgtnificance level, government regulations have significant moderation effect on financial technology and financial inclusion nexus with respect to Small and Medium Enterprises in Kenya. This can be linked to the notion that government regulations provide the users of financial services with some form of protection from financial service providers. The results of the study on the moderation role of government regulations on financial technology and financial inclusion nexus is supported by empirical literature. Kodongo (2018) reported that financial regulations relating to agency banking regulations bring about improvements in formal financial access in Kenya. Additionally, Saghir and Aston (2017) found a significant association between regulations from the government and financial resource accessibility.

5.0 Conclusion

The moderation effect of government regulations on financial technology and financial inclusion relationship with respect to Small and Medium Enterprises in Kenya was established. It was concluded that the nexus between financial technology and financial inclusion of Small and Medium Enterprises in Kenya is significantly affected by government regulations. Transfer and withdrawal limits influence the volume of transactions in a day and in turn the volume of fund available for lending by financial institutions. Notably, government strives towards improvement financial inclusion for Small and Medium Enterprises, hence favorable regulations positively

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increase the strength of the relationship between financial technology and financial inclusion for small and medium enterprises in Kenya.

6.0 Policy Recommendations

The study established that the nexus between financial technology and financial inclusion of Small and Medium Enterprises in Kenya is significantly affected by government regulations. Hence, government regulations really matter with regards to the relationship between financial technology and financial inclusion of Small and Medium Enterprises in Kenya. Transaction limits in existence should be reviewed in line with economic conditions of the country. Government should ensure that favorable lending rates are put in place so as to further enhance the level of financial inclusion of small and medium enterprises in Kenya. Government guidelines on screening of customers should be favorable to business owners and stringent requirements should be discouraged. Collaterals required for loans should be in line with customer capabilities and size of credit.

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