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ABSTRACT

Even though SMEs play a significant role in Kenya's economic growth, poverty reduction, innovation, and job creation, research indicates that a funding shortfall of USD 19 billion (KES2.3 trillion) significantly hinders their existence and expansion. The insufficiency of business finance and credit is the cause of the financing gap. Now that alternative funding sources are joining the credit market, SMEs are using them. Thus, in Kisumu City, Kenya, the study looked at how financing technologies affected the financing gap of small and medium-sized businesses. A correlational research design was used for the investigation. The SME finance gap idea served as the study's foundation. Kisumu City, Kenya is home to 424 registered SMEs that make up the target population. A questionnaire was utilized to gather primary data, and an analysis was conducted on a sample of 81 SMEs selected from Kisumu City's Central Business District. To evaluate and enhance the validity and reliability of the research tools, a pilot study was conducted on 10 (12%) of the sample size. Both descriptive and inferential statistics were used to analyze the data. The research was examined using a basic regression model. The ANOVA statistic was utilized to ascertain the strength of the link, and the p-value was employed to test the independent variables' statistical significance. Fintech funding had a weakly significant impact on alternative financing for SMEs in Kisumu City, according to the study's simple linear regression results (ß = 0.220, p = 0.019). There was a high linear correlation between financing technology and financial gap, and the whole regression was judged to be statistically significant. As a result, HO1 was denied. The study found that the financial gap for SMEs in Kisumu City, Kenya, was significantly impacted by financing technologies. The study suggested that while making alternative financing selections, SMEs' owners and managers should take terms of payment and financing costs into account since these factors will impact their profitability.

Key Words: *Financing Technology, Financing Gap, Small and Medium Enterprises*

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INTRODUCTION

Even though small and medium-sized businesses (SMEs) are important for both national and global economies because they spur economic growth and sustainable productivity (Abdulsaleh & Worthington, 2013), reduce poverty (Green et al., 2006), foster innovation (Fatoki & Asah, 2011), and create jobs (Agwu & Emeti, 2014), studies have shown that one of the biggest obstacles to the growth and survival of SMEs is a financing gap (Megersa, 2020). Put differently, inadequate credit and business finance hinder the survival rate of SMEs (Ayyagari et al., 2007).

A mismatch in the supply and demand of external financing across important instruments for the particular firm, such as bank overdraft, debt securities, trade credit, equity, and bank loans, is known as the financing gap (Pytkowska & Korynski, 2016:4). Put differently, Pytkowska and Korynski (2016) characterize the funding gap as the difference between the availability and needs of particular financial products in the past (p. 4).

Globally, several studies rank access to finance as the number one constraint hampering the growth of SMEs (e.g. Abdulsaleh & Worthington, 2013; Fedder, 2023; Sabato et al., 2021). A report by the International Finance Corporation indicates that 65 million formal micro, small and medium enterprises (MSMEs) are faced with financing gap of US$5.2 trillion annually. In the emerging markets the financing gap for SMEs is estimated to be $5.2 trillion (IFC, 2017). In Bangladesh, the financing gap is US$ 2.8 billion for MSME sector, with 60% being SMEs owned by women (Megersa, 2020).

It is estimated that the total financing gap for Africa's 50 million SMEs, is USD 330 billion: Ksh. 44,880 billion (Fedder, 2023). In Africa, the African Development Bank (AfDB) reported that the MSME financing gap was at US $421 billion. In Ghana, the IFC-World Bank estimated at US$6.1 billion in 2017 but expected to increase by 2022. In the case of Egypt, while SMEs form almost 99% of the enterprises, the World Bank Enterprise Survey reports that SMEs only take 5% of bank loans compared to 18% taken by large firms (Abril & Elena, 2019). In Kenya, the SOLV Kenya (2023) market research report indicated that in USD 19 billion (KES2.3 trillion) funding gap existed among SMEs. This finance gap was as a result of heavy documentation imposed by traditional lenders.

SMEs get over 78% of their funding from unofficial sources and self-financing, according to Stevenson and Botzung (2012). The remaining 22 percent of funding shortages and needs are filled by non-bank finance institutions (NBFIs) and banks. The inability of official lenders to provide loans to SMEs is the reason for their reliance on alternative sources of funding (Fedder, 2023).

Accessing finance has been a major challenge for SMEs especially in developing countries. This is because in order for SME to access finance from financial institutions, they are required to demonstrate that they fulfill certain requirements regarding age and legal status of the firm, collateral, memberships with business association, owning physical assets, financial records etc., (Jayasooriya, 2020:2). Prevailing regulations by formal lenders are also very rigid to serve the financial needs of SMEs (Lucey *et al.,* 2016). Despite these constraints, Zucchella and Palamara (2006) posit that SMEs possess more operational flexibility, are faster in decision making, as well as niche business strategy compared to large corporations. The vulnerability of SMEs arise from challenging financing constraints, as a consequence of their sidelining within the traditional financial institutions (Gu, *et al.,* 2023). As a result, investment decisions by SMEs may be constrained by lack of external finance (Vermoesen *et al.,* 2013), which is not the case with big corporations.

In addition to having high interest rates and account fees, lending in Kenya is biased in favor of major commercial and state firms (Nyasha & Odhiambo, 2012). While the securities market is a desirable alternative loan source for large businesses, institutional investors like funds and insurance firms have made private debt an

indispensable source of finance for small and medium-sized businesses (Altman et al., 2018).

A report by Jagtiani and Lemieux (2016) indicated that businesses, such as SMEs, that are not funded by traditional channels have turned to alternative lenders. The report specifically indicates that small scale, younger, not-so profitable and minority-owned businesses, are among the businesses not financed by traditional lending channels. Similarly, a study by Schweitzer and Barkley (2017), supports the argument that businesses that are rejected by banks turn to alternative lending, some of which are informal. Unfortunately, the informal sources for financing may be costly, and above that, they do not meet all the financing needs of the SMEs (Hossain et al., 2023). Given the growing prominence of alternative lending, it is important to understand how the various alternative lending sources fill the SMEs capital gap. The study will consider how SMEs in Kisumu County are using Financial Technology (FinTech) to fill the financing gap.

FinTech refers to a broad category of services that use financial technologies (Gabor & Brooks, 2017) in conjunction with information technology (IT) applications to promote high-quality financial goods and services (Marrara et al., 2019). FinTech encompasses a range of services, including virtual currencies, peer-to-peer lending, crowdsourcing, payment processing, and consulting (Marrara et al., 2019:6).

A study by Fedder (2023) found that financing gap can be closed if banks can embrace financial technology in the banking processes, other than by stand-alone financial technology lenders which are mostly too expensive when serving SMEs. Financial technology companies specialize in providing financing online. Peer-to-peer lending is another type of FinTech. According to Sabato et al. (2021), P2P business lending accounted for 13% of all alternative financing volumes in 2018 and was the third most popular alternative lending channel in Europe.

Businesses classified as small to medium sized (SMEs) are those with less than 250 employees. However, in order to distinguish between small and medium-sized businesses, small businesses are those that employ fewer than 50 people. According to the OECD, small and medium-sized firms (SMEs) are defined as independent, non-subsidiary businesses with fewer than 250 employees, though this figure can reach 500 (OECD, 2015).

Compared to large corporate enterprises, SMEs require less financial assistance and are more flexible, allowing them to easily adjust to changing business environments. This is largely responsible for their contribution to the global economy (Ğalić et al., 2017). According to Proparco (2019), SMEs account for about 60% of employment and 40% of GDP in African nations. Juma (2017) reports that within the second year, the SME mortality rate in Kenya is 90%.

The primary causes of this are a lack of internal funding and a lack of experience to demonstrate their competence to investors (OECD, 2013). As a result, the SMEs look to alternate financing sources to help them overcome the challenges of asymmetric information and collateral scarcity (OECD, 2017). Kenyan SMEs, according to the IFC, have a financing need of more than $158 billion (IFC, 2020). Therefore, it is essential to conduct an empirical inquiry into the connection between Fintech financing and the financing gap that SMEs face.

Statement of the Problem

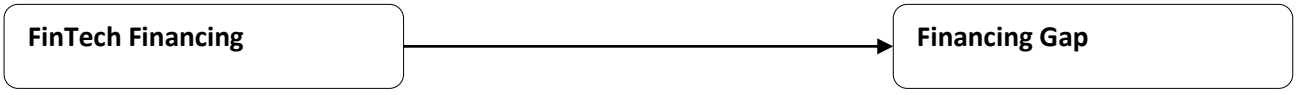
In Kenya, SMEs contribute to sustainable productivity, economic growth, poverty alleviation, innovation, as well as employment creation, however, their existence and development are challenged by USD 19 billion (KES2.3 trillion) financing gap. The financing gap is as a result of inadequacy of credit and business finance. Because of this, SMEs are now turning to alternative lending sources that are now entering the credit market. Kisumu city majorly depend on SMEs for economic development since big companies, such as Kisumu Cotton Mills (KICOMI) and Kisumu Molasses

Company SMEs went under. Furthermore, no studies have been conducted, to establish how alternative financing contributes in filling the financing gap for SMEs in Kisumu City. According to the Centre for Research on Financial Markets & Policy studies done on SME financing gap are mostly one sided, either addressing demand side or supply side. The study sought to address both the supply (alternative financing models) and demand (SME financing gap) sides of the market at the same time. Moreover, none of the studies conducted on financing technology and financing gap of SMEs focused on Kisumu city. Hence, previous studies exhibited conceptual, contextual, and methodological gaps which the study sought to fill by investigating the effect of financing technology on financing gap for SMEs in Kisumu City, Kenya.

Research Hypothesis

H_{01}: There is no statistically significant relationship between financial technology financing and financing gap for SMEs in Kisumu, Kenya

Conceptual Framework



Independent Variable **Dependent Variable**

Figure 1: ***Adapted from SME financing gap theory (OECD, 2006)***

Empirical Review

Theoretical Review

Various studies and reports have shown that one of the major challenges affecting SMEs is financing gap (Afande, 2015; Albuquerque *et al.,* 2017; OECD, 2006). It is for this reason that the study is anchored on SME financing gap theory. The other theories are Pecking Order Theory, Trade-Off Theory (TOT), and Technology Acceptance Theory.

SME Financing Gap Theory

According to the SME financing gap theory, businesses can be divided into three categories: large corporations, SMEs, and micro-enterprises. Established banks are able to comfortably meet the financial needs of large corporates, while micro finance institutions are primarily responsible for meeting the needs of micro enterprises.

The lack of a financial institution to cater to the specific needs of SMEs results in the formation of the SME financing gap. Compared to industrialized economies, the financing gap for SMEs is more noticeable in developing economies (OECD, 2006). The legal, institutional, and regulatory frameworks that have a big impact on SMEs' access to credit further exacerbate the SME financing gap. The knowledge and abilities required to obtain outside financing also pose a barrier for SMEs (CRF M & P, 2016).

Empirical Literature review

FinTech and financing gaps

Aney (2021) looked studied what motivates SMEs to employ P2P lending to get capital. It also looks into how funding for SMEs is affected by transaction costs, interest rates, management experience, collateral concerns, and information asymmetry. Semi-structured interviews were used to collect data for the study, which employed a qualitative methodology. The study used a thematic method to analyze the data. The study's conclusions showed that the main obstacles to SMEs' funding were their financial difficulties and information asymmetry problems.

According to the report, P2P lending has a significant potential to help SMEs with their current financial difficulties, even though P2P is currently having issues with excessive interest rates, loans without collateral, and inadequate credit evaluation tools. The study also showed that P2P lending can

lessen the current funding barriers for SMEs by implementing technology.

In order to better understand the creative and alternative funding options available to SMEs in Vietnam, Jayasooriya (2020) carried out a study. The study took into account a variety of alternative lending channels, such as loans from banks and credit unions, loans from other sources with interest attached, and loans from other sources without interest. Peer-to-peer (P2P) lending, interest-free loans from friends and family, and issued stocks were some of the others.

Data collection from 2647 firms was carried out in Vietnam as part of UNU WIDER 2015. To examine how several alternative funding tools are used by the firms to get capital, the Probit model technique was employed. The findings demonstrated that access to financing is positively and significantly impacted by alternate sources of funding for startup capital.

Olaniyi (2023) conducted research on the influence on Small and Medium-Sized Enterprises' financial accessibility in Nigeria. The study primarily looked at how FinTech helps SMEs in Nigeria earn foreign exchange and engage in international trade. It also identified the obstacles that these businesses face when implementing FinTech solutions. Institutional Theory and the TAM model served as study guides. Both primary and secondary data were employed in the investigation. The results showed that FinTech has a favorable effect on SMEs' growth.

Nigerian SMEs have been able to grow their revenue and sales thanks to fintech solutions. The report concluded by recommending that the Nigerian government create a strategy to control SMEs' use of fintech and give SMEs access to training on how to use fintech solutions.

Muathe (2023) examined how Kenya's FinTech boom helped MSMEs close the finance gap. The study used desktop review methods, assessing financial data and peer-reviewed literature. Startups in financial technology were the target audience. The Diffusion of Innovations Theory, the Traditional Theory of Financial Innovation, and the Constraint-Induced Financial Innovation Theory served as the foundation for the study. The study employed content analysis of the body of knowledge regarding financial technology studies.

The study found that because MSMEs are viewed as being too risky, current banking institutions do not provide them with financial help. The study also found that financial technology helps MSMEs close the finance gap. Since a large number of MSMEs now use financial technology loans, the number of MSMEs that are denied credit has decreased. Startups in financial technology have also helped lower the cost of loans in the local economy.

According to Nandwa and Olanrewaju (2021), digital financial services have an impact on the expansion of SMEs in Kenya. Examining the effects of digital financial services, digital content, digital values and skills, and online advertising on the expansion of small and medium-sized enterprises was the explicit goal. A random sample of 300 SMEs was chosen from a population of 1000 SMEs. A questionnaire was used to gather primary data, and 180 of them were returned, or a 60% response rate. Regression analysis was used in both descriptive and inferential data analysis. The SPSS version 24 was the instrument utilized for data analysis. According to the survey, digital financial services have a big role in Kenya's SMEs' expansion. The study found that consumers' preferred methods of completing financial transactions include mobile payments.

METHOLOGY

The correlational research design was adopted for the study since it enables the researcher to measure the statistical relationship (i.e. correlation) between alternative lending models (the independent variable) and financing gap (the dependent variable) without controlling the extraneous variables (Fraenkel & Wallen, 2000). According to Stangor (2011) correlational research design involves measuring the relationship between two or more variables. It is suitable for the study

because it will test hypotheses without manipulating the independent variable (Stangor, 2011).

The study was conducted in Kisumu, Kenya which is the third largest city in Kenya and capital of Kisumu County. The SMEs participating in the study are categorized based on the 8 key sectors of the Kenyan economy to examine whether the SME financing gap varies through the SMEs from different sectors. The reason for choosing Kisumu City is because the SMEs in Kisumu City clearly represents the alternative financing and funding gaps of SMEs in Kenya and other emerging markets. The researcher also hails from Kisumu City, therefore conducting the research in Kisumu is easier and exhaustive.

The target population consist of 424 registered SMEs operating within Kisumu City, Kenya. The 424 SMES will consist of 297 formal small enterprises (employing between 10 and 49 workers) and having annual turnover of between KES 500,000 and KES 5,000,000; and 127 medium enterprises (employing between 50 and 250), and having annual turnovers of between KES 5 million and KES 100 million. Only SMEs that have been in operation for the last three years were considered for the study. The period of three years has been chosen because it is deemed that it is enough time for the SMEs to have been in existence for adequate time and enough for a business to pick up or not, based on the financing sustainability and also technology is prone to change as a result of constant drive for innovation. Owner/managers of the SMEs were the unit of observation. The choice of the owner/manager as the unit of observation is because they have the kind of information regarding alternative lending and financing gaps for their respective SMEs, being the ones who make financing decisions.

The sample size has been determined based on a Yamane's (1967:258) statistical formula depicted as:

$$n = \frac{N}{1+Ne^2}$$

Where:

n= sample size required

N= Target population

e^2 = error limitAt the 95% confidence level and an error limit of 10% results it results into:

$$n = \frac{424}{1+424(0.10)^2} = 81$$

The sample size derived is 81, which is proportionately presented as shown in Table 3.1. The sample size is appropriate for correlational research design since the minimum sample of 30 is considered appropriate according to Stutely (2013). Stutely (2013) as reported in Saunders et al. (2012) recommends "a sample size of at least 30 respondents to ensure that the sampling distribution for the mean is as close as possible to a normal distribution". Besides, the sample size is based on a number of factors that would make the sample size credible. These factors include, categorising the SMEs based on sector is to ensure that all the sectors are represented and are selected based on the operationalized definition of the SMEs. Only SMEs within Kisumu City-CBD were considered and balanced between the Small and Medium sized enterprises (County Government of Kisumu, 2013), and they should have been operating for more than 3 years. Small enterprises are those with less than 50 employees, while those with 50-250 are medium-size SMEs.

Regression Model

Regression analysis was adopted as a statistical method to determine the relationship between the alternative lending models and financing gap of SMEs. The following equation was adopted as presented below;

$Y = \beta_0 + \beta_1 X_1 + \varepsilon$…… Equation 1

Where:

Y_0 = Financing gap (Dependent variable)

β_0 = Constant term

β_1 = Beta coefficients

X_1 = Independent variable

X_1= FinTech lending

ε =Error term

RESULTS AND DISCUSSION

The model summary depicts the strength of the relationship between FinTech financing and financial gap, as indicated in table 1.

Table 1: Model Summary for Fintech financing

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	df1	df2	Sig. Change
1	.260[a]	.068	.056	.495	1	79	.019

a. Predictors: (Constant), FinTech financing

Source: Survey data 2024

The R value of 0.260 indicates a weak linear relationship between FinTech financing and financial gap. The value of R^2 = 0.068 signifies that Fintech financing explains 6.8% of the changes in SMEs financial gap, while the remaining 93.2% is explained by other factors not considered in the study.

The ANOVA was used to determine the model fitness for the effect of FinTech financing on financing gap for SMEs in Kisumu City, Kenya.

Table 2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.410	1	1.410	5.742	.019[b]
	Residual	19.396	79	.246		
	Total	20.806	80			

a. Dependent Variable: Financing Gaps

b. Predictors: (Constant), FinTech Financing

Source: Survey data 2024

The regression equation was in the form of $Y = \beta_0 + \beta_1 X_{1i} + \varepsilon_{i,}$ therefore by adding regression coefficients as shown below it later culminates into:

$Y = 1.410 + .220X_{1i}$……Equation 2

R^2= 0.068 (6.8%)

Table 3: Estimated Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.845	.343		8.283	.000
	Fintech financing	.220	.092	.260	2.396	.019

Source: Survey data 2024

The coefficients results indicated that FinTech financing predicted financing gap for SMEs (β_1=0.220), implying that a unit increase in FinTech financing yields a 0.220 change in financial gap for SMEs in Kisumu City. The t value of 2.396; p value = 0.019 at a significance level of < 0.05, implies that FinTech financing is statistically significant in affecting the financial gap of SMEs in Kisumu City. The findings concur with Aney (2021) found that P2P lending adopts technology so that they can mitigate the current obstacles in SMEs financing. Olaniyi (2023) findings revealed that FinTech impacted the growth of SMEs positively by enabling them to increase their sales and revenue had statistically strong significant negative effect of financial gap for SMEs. Implying that when FinTech financing improves, financing gap decreases. It supports the findings by Ololade (2024), which

revealed that FinTech has radically transformed SME financing through innovative alternative lending platforms, which are more efficient compared with traditional banks. Also the findings of Olaniyi (2023) that revealed that FinTech impacted the growth of SMEs positively by enabling them to increase their sales and revenue. However, it does not conform to the findings of the studies by Jayasooriya (2020), which revealed that alternative sources of lending for start-up capital have a positive and significant effect on access to finance.

CONCLUSIONS AND RECOMMENDATION

The objective of the study was evaluated the effect of FinTech financing on financing gap of SMEs in Kisumu, Kenya. The study confirmed that all the 81 SMEs that participated in the study had taken funds from FinTech financing. The reasons why they borrowed money from FinTech financing included business expansion, refinancing, digital and technology investments, working capital, to enter a new market, Research and Development, and asset financing. Results of regression analysis indicated a moderate linear relationship between FinTech financing and financial gap. The ANOVA results indicated that FinTech financing significantly predicts the outcome of financing gap for SMEs in Kisumu City. The findings support that of Jayasooriya (2020), which revealed that alternative sources of lending for start-up capital have a positive and significant effect on access to finance. Also the findings by Aney (2021) and Olaniyi (2023). The findings also concur with Aney (2021) found that P2P lending adopts technology so that they can mitigate the current obstacles in SMEs financing.

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