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**INFLUENCE OF TECHNOLOGICAL ORIENTATION ON PERFORMANCE OF
CONVENTIONAL AND ISLAMIC BANKING IN KENYA**

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INFLUENCE OF TECHNOLOGICAL ORIENTATION ON PERFORMANCE OF CONVENTIONAL AND ISLAMIC BANKING IN KENYA

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Abstract

Purpose: The research was done to establish the influence of technological orientation on performance of Conventional and Islamic banking in Kenya.

Methodology: The study adopted a mixed methods research design based on descriptive, non-experimental and causal approaches. This study considered a census that targeted a population of all the forty three (43) commercial banks that were operational in Kenya as at 31st December 2016. The commercial banks also consist of Islamic banks which offer Shari'ah compliant products and services. This study used a questionnaire as the main instrument for primary data collection. Data preparation started start by coding and cleaning, the primary data obtained from the questionnaires were checked for omissions, legibility and consistency before being coded for analysis. Processed data was analysed by using both descriptive and inferential statistics. Stata version 15 was be used for statistical analysis and presentation tables of the results processed in Microsoft excel. Descriptive analysis was done for the observed indicators and presented as frequency, percentages, mean and standard deviation to reveal the distribution trends. The data collected was in the form of observed indicators of larger constructs thus multivariate dimension reduction techniques (factor analysis) was be used to form composite latent constructs. The latent constructs generated after dimension reduction were used for statistical modelling.

Results: The findings indicated that Technical Orientation was considered as an independent variable and dimension of Strategic Orientation. It was considered to have 3 dimensions Services, Products and Research and Development. The latent construct technical orientation yielded from factor analysis dimension reduction of the indicators was then used as an independent variable in a regression model fitted against firm performance which showed that it was not a significant level-2 random covariate but had a significant coefficient estimate at the respondent level (level-1). The coefficient of technical orientation on performance at level one was found to be 0.828 which implied that increasing the levels of TO by a unit would increase the banks Performance by 0.828 regardless of the banking system.

Unique Contribution to Theory, Practice and Policy: The researcher recommended that the Kenyan banking sector should embrace Technology in order to tap in the untapped market through innovations for the customers to be able to conduct banking businesses at their own convenience.

Key Words: *Technological Orientation, Performance, Conventional, Islamic banking*

1.0 INTRODUCTION

Today, in many industries, information technology enables some business domains to distinguish themselves from their competitors (Hamidi, and Safabakhsh, 2011, p365). Information technology has contributed to increasing the probability of success of online marketing by increasing the possibility of advertising new and current services at any time and everywhere. It has contributed to connecting the ground to some and thus increasing the user segment. Technology Orientation according to (Ghadeer, Daghman, 2016) means: the optimal use of automated databases by teams trained in the use of technology, uses the data collected about the customer effectively, and seeks to achieve tangible value through the electronic marketing of banking services, Between the client parties and the bank (Ghadeer, Daghman, 2016).

Madu (2016) carried out a study on the Production Techniques and Technological Orientation on the Performance of Manufacturing Industries in Nigeria. The purpose of the study was to establish the influence of production techniques and technological orientation on performance of manufacturing industries in Nigeria. The study employed a descriptive survey design of ten manufacturing industries which cut across Kaduna, Kano and Jigawa State of Nigeria. Regression analysis was used in determining the relationship between production techniques and firm performance. The findings of the study exhibited a strong positive correlation between production techniques and technological orientation and performance. The findings made a key recommendation to the organizational owners and managers to go for deep environmental scanning and be creative and innovative to transit into technological trend in order to offer a competitive advantage over the other firms.

Ali, Leifu and Rehman (2016) carried out a study on impact of technology orientation and customer orientation on firm performance: evidence form Chinese firms. The study examined how Technology Orientation and Customer Orientation with organizational characteristics like firm size and culture collectively impact firm performance. A sample of 158 Chinese firms were clustered of the basis of their mix of Technology Orientation and Customer Orientation. The study established that technology orientation has a significant and positive influence on firm performance. Hence concluded that firms which combine numerous strategic orientations such as technology orientation and Customer orientation perform better and have a competitive advantage over other firms operating in the same environment.

Srivastava, Swaminathan and Frankwick (2016) carried out a study on Radical Innovation, Technological Orientation, and New Product Development Performance in United States of America. The main objective of the study was to identify the effect of radical innovation, market orientation and technological orientation on New Product Development program performance. Innovations and new product development are the lifeblood of any organization. For organizations to actively participate in the markets characterized by competition, new product development is essential because it contributes to firm survival as well as to competitiveness and growth. By employing a sample of 183 United States technology-based companies, the study used partial least square structural equation modelling (PLS-SEM) to test the relationships between constructs. Organizational age and Research & Development expenditure were the control variables for the study as they could present an alternative explanation for the relationships among the concepts. The results showed that technological orientation has a significant positive effect on New Product Development program performance.

The study therefore concluded that firms can enhance New Product Development program performance by fostering technological orientation. A firm that harmonizes its structures, systems and resources with market and technology and shows willingness to use the technology as a competitive element has a higher performance. By focusing on knowing more about their market as well as new and emerging technology, firms can generate better performance by seizing opportunities in emerging new product categories. A study by Gao, et al. (2007) showed that technology orientation positively affects firm performance and product profitability. In a similar study on the social capital, market, entrepreneurial and technology orientations, Hoq (2009) found out that technology orientation has a positive influence on firm performance.

A study by Mu & Di Benedetto (2011) found that technology orientation has significant effect on product commercialization performance. High level of technology orientation is required to maintain superior performance (Hakala & Kohtamaki, 2011). A firm's high performance depends on technological proficiency. Unless a firm predicts and follows technological developments and uses these developments for improvement of its own product and process, high firm performance may not occur (Freeman & Soete, 1997; Meeus & Oerlemans, 2000). These relationships have motivated the researcher to examine the relationship between Technological orientation and performance. Therefore, the following hypothesis was proposed to test this relationship: *H2: Technological Orientation has no significant influence on performance of Conventional and Islamic banking in Kenya.*

The Survival Based Theory

The study utilized the survival based theory in order to understand technological orientation influence on performance of conventional and Islamic banking sector in Kenya. Researchers such as Schumpeter (1934), Alchian (1950), Harrod (1939) and Marshall (1949) were among the first who introduced the idea of evolutionary thinking and natural selection into the concept of economics. The concept of survival based theory or "survival of the fittest" theory was originally developed by Herbert Spencer.

He synthesized Darwin's theory of evolution and natural selection with Adam Smith's invisible hands to come up with the idea of Social Darwinism. This theory, which was quite popular during the late 19th and early 20th century, emphasized on the notion that by following the principle of nature, only the best and the fittest of competitors will win, which in the end would lead to the improvement of the social community as a whole (Miesing & Preble, 1985; Abdullah, 2010).

Alchian (1950) noted that Social Darwinism assumed it is normal for the competition to behave in hedonistic ways to produce the fittest business, who survived and prospered by successfully adapting to its environment or become the most efficient and economic producer of all. Hence, ruthless business rivalry and unprincipled politics is acceptable under this assumption. However, in the later part of 20th century, opponents to the view of Social Darwinism, called Neo Darwinism slowly emerged.

This concept of Neo Darwinism, which is contrary to the Social Darwinism, emphasized strongly on social solidarity as fundamental fact of evolution. It is assumed under this view that competition and cooperation are interconnected, and competition will force business to be more cooperative. Virtues and values of doing good and ethical business, such as; through friendship, trust, loyalty and cooperation were encouraged in order to survive the competitive market (Klein,

2003). Social Darwinism and Neo Darwinism is actually recognized as one of the three mainstream theories of evolution (Depew & Weber, 1995). In organizational terms, which is explained by fundamental transformation of drastic, radical, sporadic, brief and all-encompassing change of organization's routine activities covering most of organization's facets is sometimes necessary for the survival of the organization itself (Tushman & Romanelli, 1985). The survival based view in strategic orientation emphasized on the assumptions that in order to survive, organizations has to deploy strategies that should be focused on running very efficient operations and can respond rapidly to the changing of competitive environment (Khairuddin, 2005).

The application of this theory in the banking industry is evident especially when banks engage in technological "wars". This theory centers on the concept that organizations need to continuously adapt to its competitive environment in order to survive. Objectives, policies and the organizational culture have to be in tandem with the environment for example, the products and services "wars" and unscrupulous promotional dealings. These are some of the strategic technological orientation tactics that organizations apply. Hence technological orientation tactics that are well seasoned are critical for a bank's survival in the market, inadequate research and development in the market place can harm the bank's performance. Technological orientation has to be done in consultation with the environment through research so as to meet the clients' needs otherwise they could cause customer flight, thus a firms technological orientation strategy can develop or deter a firm's competitive advantage. *The above survival based theory informed the choice of technological orientation.*

Statement of the Problem

Although there is a remarkable growth that has characterized the Islamic banking services industry as a result of the global financial crisis, customer satisfaction and employee retention remains an uphill task. The performance of Islamic banking business has declined steadily over a period of time in the developing markets (Ariff, 2014; IFSIR, 2016). Islamic banking has performed dismally due to dissatisfaction amongst the employees and customers who are not interested in having Islamic banking products and services because they believe that only "interest" name has been changed to reflect that it is Islamic based yet the interest, which is prohibited in Islam is still being practiced (Buchari, Rafiki & Al Qassab, 2014). In Kenya, the satisfaction level for availability of loans is at 49% which is below the average requirement of 60% level of customer satisfaction (KPMG, 2016). High prices of products and services contribute to 55% of dissatisfaction of customers, while 53% are disgruntled as a consequence of slow customer services at branches in Kenya (Kombo, 2015). Number of employees in the Kenyan banking sector decreased by 2% from 36,923 in December 2014 to 36,212 in December 2015 (CBK, 2015). In 2016, the staff number decreased by 6.95% from 36,212 in December 2015 to 33,695 in December 2016, these could be attributed to many factors among them being technology and innovation adoption, employee satisfaction among others (CBK, 2016). Two institutions were in violation of section 19(1) of the Banking Act which requires that institutions should have a minimum liquidity ratio of 20% (CBK, 2015). The increase in the number of banks in violation was mainly in respect to noncompliance with liquidity ratio after Chase Bank Limited was placed into receivership due to deposit movement as a result of excessive customer withdrawals who were dissatisfied with the reputation of the bank (CBK, 2016). The performance of Islamic banking models in Kenya recorded a drop in ROA which stood at 4.5% in 2013 to 3.78% in 2014, While ROE also dropped from 32.7% in 2013 to 26.2% in 2014

(CBK, 2013; CBK, 2014). The survival and success of Islamic banking sector's performance depends critically on the effective implementation of strategic orientation aspects of management, this is one of the most significant areas that needs to be carefully studied by the policy makers of Islamic banking business (Shabbir & Zaman, 2016; Haron & Azmi, 2008). Previous studies have no consensus as far as the relationship between strategic orientation constructs and firm performance is concerned. Nakola, Tarus, Buigut and Kipchirchir (2015) and Lutsenko and Tajeddini (2015) found out that strategic orientation positively affects firm performance whereas Hyung (2015) and Altuntas, Semercioz and Eregezc (2013) established a negative insignificant relationship between strategic orientation constructs and firm performance. Literature on the link between strategic orientation and firm performance of conventional and Islamic banking has been significantly understated in the empirical studies globally. In addition to this, there is no consensus as to whether regulatory framework has a moderating effect on firm performance. A lot of conflicts have been established in the scholarly works that the researcher came across in the empirical literature, Ibrahim, Keat and AbdRani (2017) and Groza and Groza (2018) found out that regulatory framework moderates the relationship between strategic orientation and performance. Aliyu, Ahmed and Utai (2015) differed in their findings and stated that regulatory framework does not moderate the relationship between strategic orientation constructs and firm performance. Ramayah, Samat and Lo (2011) and Al-Dhaafri, Al- Swidi and Yusoff (2016) found out that regulatory framework partially moderates the relationship between strategic orientation and firm performance. The conflicting researches done and their inconclusiveness on the moderation of regulatory framework on firm performance motivated the researcher to examine the effect of regulatory framework on the relationship between strategic orientation constructs and firm performance (Ibrahim, Keat & AbdRani, 2017; Groza & Groza, 2018; Aliyu, Ahmed & Utai, 2015; Ramayah, Samat & Lo, 2011; Al-Dhaafri, Al- Swidi & Yusoff, 2016). Kenya being a novice market, very little has been written on this topic, therefore to fill this glaring gap in this vital area of study, the researcher was motivated to carry out a study on linking strategic orientation to firm performance, a comparative analysis of conventional and Islamic banks in Kenya.

2.0 METHODOLOGY

This study adopted a mixed methods research design based on descriptive, non-experimental and causal approaches. This study considered a census that targeted a population of all the forty three (43) commercial banks that were operational in Kenya as at 31st December 2016. The commercial banks also consist of Islamic banks which offer Shari'ah compliant products and services. This study used a questionnaire as the main instrument for primary data collection. The questionnaires were distributed and administered through the help of Research Assistants who distributed them and gave instructions on how they were to be filled. Data preparation started start by coding and cleaning, the primary data obtained from the questionnaires were checked for omissions, legibility and consistency before being coded for analysis. Processed data was analysed by using both descriptive and inferential statistics. Stata version 15 was be used for statistical analysis and presentation tables of the results processed in Microsoft excel. Descriptive analysis was done for the observed indicators and presented as frequency, percentages, mean and standard deviation to reveal the distribution trends. The data collected was in the form of observed indicators of larger constructs thus multivariate dimension reduction techniques (factor

analysis) was be used to form composite latent constructs. The latent constructs generated after dimension reduction were used for statistical modelling.

3.0 RESULTS

3.1 Background Information

The study findings on the background information (Table 1) show the results on the respondents' levels of education, respondents' age and the banking system adopted by the bank. Majority (60.38) of the respondents were found to be first degree holders with at least a Bachelor's degree. 27.36% had postgraduate masters degrees while 12.26% had diploma as their highest level of education. Regarding the ages of the respondents, Majority (52.38%) were aged between 29 to 39 years. There were 32.38% who were between 18 to 28 years old, 12.38% who were 40 to 50 years old and 2.86% of the respondents who were between 51 to 61 years of age. The table also displays that, 19.27% of the respondents were from Islamic banking system, 14.68% from the banks in the window system and 66.06% were from conventional banking.

Table 1: Background Information

		Freq.	Percent	Cum.
Level of Education	Diploma	13	12.26	12.26
	Bachelors	64	60.38	72.64
	Masters	29	27.36	100
	Total	109	100	
Age	18 to 28 years	34	32.38	32.38
	29 to 39 years	55	52.38	84.76
	40 to 50 years	13	12.38	97.14
	51 to 61 years	3	2.86	100
	Total	105	100	
Banking system	Fully fledged Islamic banking	21	19.27	19.27
	Window system	16	14.68	33.94
	Conventional banking system	72	66.06	100
	Total	109	100	

Source: Field data (2018)

3.2 The Influence of Technological Orientation on Performance of Conventional and Islamic Banking in Kenya

The study findings (Table 2), shows the descriptive analysis results of the indicators of technological orientation. The study sought to establish the influence of technological orientation on performance of Conventional and Islamic banking in Kenya. The variable technical innovation was assessed though proxy indicators under the sub dimensions; Services, Products, Research and Development. The indicators used were also measured in a categorical ordinal Likert scale of 5. Considering the scale used to measure the indicators, the descriptive analysis of the results was based on frequency table analysis with mean and standard deviation as the measures of central tendency and dispersion respectively.

The respondents were asked whether they agreed that the bank has low service charges. Majority of the respondents (31%) were in strong agreement that their banks had lower service charges. Other responses varied with only (5%) of the respondents were found to strongly disagree. the bank has low service charges. The dimension also considered an indicator that the bank has a developed network of ATMs. Majority of the respondents (30%) were in strong agreement, whereas (6%) of the respondents were found to strongly disagree that the bank has a developed network of ATMs.

The bank offering more benefits than the competitors was also responded to. Majority of the respondents (34%) were in agreement that the bank offers more benefits than the competitors, while (2%) of the respondents were found to strongly disagree. The mean scores for the different banking system were found to be 3.29, 3.94 and 3.61 for Islamic, window and conventional banking systems with standard deviations 0.96, 0.93 and 1.04 respectively.

Also considered was whether the bank has a lengthy time of operations. 33% of the respondents were indifferent as to whether the bank has a lengthy time of operations or not, while (3%) of the respondents strongly disagreed that the bank has a lengthy time of operations. 31% of the respondents believed that their bank has a plan to open up more branches locally and internationally whereas (9%) of the respondents strongly disagreed that their bank has a plan to open up more branches locally and internationally.

For this dimension, the study also sought the perception of the respondents on their agreement that the bank provides varieties of services (Front-desk, e-banking, SMS banking). Here, majority of the respondents (39%) were neutral as to whether the bank provides varieties of services with only (10%) of the respondents found to strongly disagree. the bank provides varieties of services such as Front-desk, e-banking and SMS banking. Another indicator on this dimension of performance was on whether the Products and services offered are superior to their competitors. Majority of the respondents (31%) were in agreement that the Products and services are superior to their competitors while (6%) of the respondents strongly disagreed.

Table 2: Services Offered by the Banks

	Frequency					1 Mean	2 Std. dev.	3 Mean	4 Std. dev.	5 Mean	6 Std. dev.
	1	2	3	4	5						
Services1	5%	8%	29%	27%	31%	3.714	1.146	3.813	1.276	3.694	1.109
Services2	6%	17%	19%	27%	30%	3.238	1.338	4.063	1.340	3.556	1.209
Services3	2%	13%	30%	34%	21%	3.286	0.956	3.938	0.929	3.611	1.042
Services4	3%	18%	33%	27%	19%	3.476	0.928	3.563	1.263	3.361	1.092
Services5	9%	17%	31%	21%	22%	3.143	1.108	3.125	1.204	3.389	1.295
Services6	10%	16%	39%	17%	18%	4.048	1.161	3.813	1.601	4.347	1.050
Services7	6%	11%	28%	31%	23%	3.286	1.007	3.688	1.448	3.653	1.153

Source: Field data (2018)

Table 3, presents the descriptive analysis results of the technological orientation sub-dimension products. The first indicator on the dimension of services offered by the banks was on whether the bank advertises new products. Majority of the respondents (40%) strongly agreed that the

bank advertises new products whereas (6%) of the respondents were found to strongly disagree that the bank advertises new products.

The next was on whether the bank has a wide range of facilities offered whereby majority of the respondents (35%) were in agreement while (4%) of the respondents who strongly disagreed that the bank has a wide range of facilities offered. The mean scores for the different banking system were found to be 3.71, 3.56 and 3.94 for Islamic, window and conventional banking systems with standard deviations 1.23, 1.41 and 1.11 respectively.

The respondents were also asked whether they agreed that the bank offers the concept of providing loans only when they are backed with an asset. Majority of the respondents (35%) were in agreement that the bank offers the concept of providing loans only when they are backed with an asset with only (4%) of the respondents strongly disagreed. Whereas 36%, majority of the respondents believed that the information offered by the bank about products on the leaflet/ brochures/website is sufficient and easily understood with only (5%) of the respondents found to strongly disagree. The mean scores for the different banking system were found to be 3.48, 3.88 and 4.03 for Islamic, window and conventional banking systems with standard deviations 1.21, 1.15 and 1.02 respectively.

Under this sub-dimension, the study also sought the perception of the respondents on their agreement that the features and benefits of Islamic banking products offered by the banks are known by them. Majority of the respondents (36%) were neutral as to whether the features and benefits of Islamic banking products offered in Islamic banking are known to them, whereas (6%) of the respondents strongly disagreed that the features and benefits of Islamic banking products offered by Islamic banks are known to them.

Another indicator on the sub-dimension of technological innovation was on whether Islamic banks give many benefits than conventional banks. Here, majority of the respondents (39%) were neutral as to whether Islamic banks give many benefits than conventional banks. Only (10%) of the respondents were found to strongly disagree. The mean scores for the different banking system were found to be 3.48, 3.63 and 2.99 for Islamic, window and conventional banking systems with standard deviations of 1.29, 1.31 and 1.12 respectively.

Table 3: Products Offered by the Banks

	Frequency					1		2		3	
	1	2	3	4	5	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Products1	6%	6%	22%	26%	40%	2.905	1.179	3.313	1.537	3.903	1.090
Products2	4%	11%	28%	35%	22%	3.714	1.231	3.563	1.413	3.944	1.112
Products3	4%	11%	28%	35%	22%	3.619	1.117	3.500	1.211	3.347	1.406
Products4	5%	12%	16%	32%	36%	3.476	1.209	3.875	1.147	4.028	1.021
Products5	6%	13%	36%	23%	22%	3.810	0.981	3.750	1.528	3.222	1.201
Products6	10%	16%	39%	17%	18%	3.476	1.289	3.625	1.310	2.986	1.120

Source: Field data (2018)

In Table 3, the descriptive analysis results of the technological innovation sub-dimension Research and Development were presented. The sub-dimension considered an indicator that the bank is effectiveness in carrying out research. Majority of the respondents (31%) were in

agreement that the bank is effective in carrying out research While (6%) of the respondents strongly disagreed.

The respondents were also asked whether they agreed that they are aware about the differences between conventional banking system and Islamic banking system. For this, majority of the respondents (40%) were in strong agreement that they are aware about the differences between conventional banking system and Islamic banking system. Only (6%) of the respondents were found to strongly disagree. Also considered was whether the bank does Environmental analysis and responses to changes where majority of the respondents (35%) were in agreement that the bank does Environmental analysis and responses to changes. Only (4%) of the respondents were found to strongly disagree. The mean scores for the different banking system were found to be 3.43, 3.56 and 3.67 for Islamic, window and conventional banking systems with standard deviations of 1.03, 1.5 and 0.96 respectively. The dimension also considered an indicator that the bank has resources and capabilities to implement new technologies. 36% of majority respondents were in strong agreement that their bank has resources and capabilities to implement new technologies whereas (5%) of the respondent strongly disagreed that the bank has resources and capabilities to implement new technologies.

Majority of (36%) of the respondents believed that relative to the competitors, the Research and Development programs are more ambitious with only (6%) of the respondents found to strongly disagree. The mean scores for the different banking system were found to be 3.24, 3.56 and 3.43 for Islamic, window and conventional banking systems with standard deviations of 1.3, 1.46 and 1.05 respectively.

Table 4: Research and Development

	Frequency					1 Mean	Std. dev.	2 Mean	Std. dev.	3 Mean	Std. dev.
	1	2	3	4	5						
Research & Dev1	6%	11%	28%	31%	23%	3.286	1.189	3.625	1.455	3.583	1.071
Research & Dev2	6%	6%	22%	26%	40%	4.048	1.161	4.125	1.628	3.778	1.091
Research & Dev3	4%	11%	28%	35%	22%	3.429	1.028	3.563	1.504	3.667	0.964
Research & Dev4	5%	12%	16%	32%	36%	3.381	1.284	3.688	1.493	3.986	1.041
Research & Dev5	6%	13%	36%	23%	22%	3.238	1.300	3.563	1.459	3.431	1.046

Source: Field data (2018)

3.2.1 Inferential Analysis for the Influence of Technological Orientation on Performance of Conventional and Islamic Banking in Kenya.

The results (Table 5) shows an inclusion of the predictor (TO) to the null model. The model is seen to be generally significant as depicted by the Wald chi-square statistic 188.36 which has a p-value of 0.000 which is less than 0.05. The independent variable technological orientation was found to be significant based on it's fixed effect coefficient estimate ($\beta = 0.833$, $Z = 13.720$, p-value = 0.000). The factor scores from the indicators measured were used to generate the latent variable technological orientation (TO) from factor analysis. The latent variable was then used as a predictor in the model to assess the objective that sought to establish the influence of technological orientation on performance of Conventional and Islamic banking in Kenya.

Table 5: Mixed effect model on Technological Orientation and Performance

Mixed-effects REML regression		Number of obs		= 109		
Group variable: banking_System (g4)		Number	of	= 3		
		groups				
Obs per group:		min		= 16		
		avg		= 36.3		
		max		= 72		
		Wald chi2(1)		= 188.3		
				6		
Log restricted-likelihood = -94.901142		Prob > chi2		= 0.000		
Performance (fac1_1_y)	Coef.	Std. Err.	z	P>z	[95% Interval]	Conf.
Technological orientation (fac1_1_x2)	0.833	0.061	13.72	0.000	0.714	0.951
_cons	0.001	0.055	0.020	0.986	-0.107	0.109
Random-effects Parameters		Estimate	Std. Err.	[95% Conf. Interval]		
banking_System: Independent						
var(fac1_1_x2)	0.001	0.009		0.000	18835.890	
var(_cons)	2.38E-20	6.90E-19		5.42E-45	104674.700	
var(Residual)	0.333	0.046		0.255	0.436	
LR test vs. linear regression:		chi2(2) =	0.02	Prob > chi2 = 0.9919		
Level	ICC	Std. Err.	[95% Conf. Interval]			
banking_System (g4)	7.15E-20	0.000	7.15E-20	7.15E-20		

Source: Field data (2018)

The random effect component of the model with the predictor TO was also found to be insignificant. There is a very low intra-class correlation (ICC) of 7.15E-18% and the p-value of the likelihood ratio chi-square statistic for the random effect test is 0.9919 which is greater than 0.05 implying an insignificant random effect component of the model. Including TO as a banking system level random effect covariate showed no effect. The model was thus considered to have no random intercepts and no TO random covariance. This implies that Technological Orientation affects performance of banks similarly across the banking models of the windows banking model, conventional and Islamic banking models in Kenya. Hence the impact of TO on performance does not differ at different banking models.

When further testing for the assumptions as shown in the figure exploratory analyses of the model residuals in figure 4.3 are of the variable. The rootogram shows virtually very little deviations from normality and homogeneity of the residuals. The q-q plot of the residuals on the other hand shows no evident deviation from normality while scatter plot of the level-1 residuals

against the predicted values of performance show no distinct increasing or decreasing function patterns implying no evidence of heteroscedasticity of the residuals.

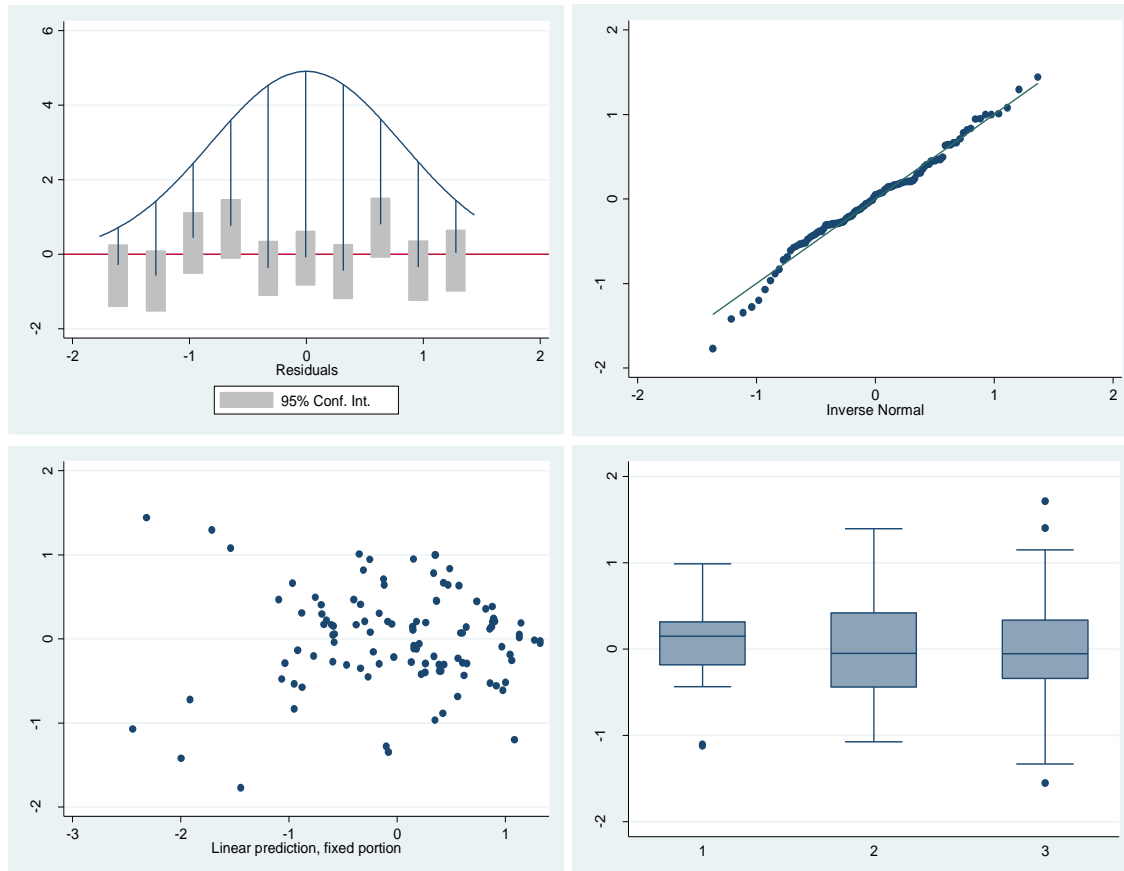


Figure 1: Exploratory residual analysis Mixed effect model on TO and performance

Source: Field data (2018)

Table 6 shows the Jacque-Bera test of the normality of the residuals. The p-value of both the skewness and kurtosis measures are greater than 0.05. The p-value of the joint normality test is 0.212 which is also greater than 0.05 implying no significant deviation from normality thus implying that the residuals are normally distributed. This implies that the assumptions were not violated.

Table 6: Normality test on the residuals of the mixed effect model of TO and performance

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
resid1	109	0.263	0.183	3.100	0.212

Source: Field data (2018)

Due to the insignificance of the constant term at both levels of the model, a model suppressing the constant term was fitted as shown in Table 4.1. The model also dropped the random intercepts and EO as a random covariate in the level-2 random effect component of the model. The model was found to have a significant fixed effect shown by the Wald chi-square statistic 208.3 with its p-value of 0.000 which is less than 0.05. TO also has a significant coefficient estimate (β)

=0.828, Z= 14.5, p-value = 0.000). The resulting model only has a significant fixed effect whose estimates are equal to a simple linear regression passing through the origin given by the equation below;

$$Y_{ij} = 0.828X_{ij}^2 + e \dots\dots\dots \text{equation 4. 1}$$

Table 7: Fixed effect model on Technological Orientation and Performance

Mixed-effects REML regression		Number of obs		= 109		
		Wald chi2(4)		= 210.2		
				2		
Log restricted-likelihood = -94.909		Prob > chi2		= 0.000		
				0		
Performance (fac1_1_y)	Coef.	Std. Err.	z	P>z	[95% Interval]	Conf.
Technological orientation (fac1_1_x2)	0.828	0.057	14.50	0.000	0.716	0.940
			0			
Random-effects Parameters	Estimat e	Std. Err.	[95% Conf. Interval]			
sd(Residual)	0.334	0.045	0.256		0.436	

Source: Field data (2018)

H₀₂: Technological Orientation has no significant influence on performance of Conventional and Islamic banking in Kenya.

The p-value of the coefficient of Technological Orientation was found to be 0.000 which is less than 0.05. The null hypothesis was rejected and a conclusion drawn that Technological Orientation has a significant influence on performance of both Conventional and Islamic banking in Kenya.

The significant coefficient estimate was 0.828 implying that increasing the levels of size of Technological Orientation as measured in the study by one unit would result into an increase in the performance levels of the any of the banks by 0.828.

From the findings, technological orientation has a positive significant influence on performance of both conventional and Islamic banking in Kenya. This is in line with studies conducted by Madu (2016) Ali, Leifu and Rehman (2016) Srivastava, Swaminathan and Frankwick (2016) Gao, et al. (2007) Hoq (2009) Aminu and Shariff (2015) Mu and Di Benedetto (2011). Services, products and research and development are key elements of technological orientation that enhance performance in an organization. Increasing a unit in each and every construct of technology will improve the performance of both conventional and Islamic banking in Kenya. Banks both Islamic or conventional need to invest in research and development so as to understand customer needs by innovating products and services that they want and need as well. This can be done by adopting latest technologies in the market. A bank that will leverage on technology will have a competitive advantage over the rest.

4.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

4.1 Summary

Technical Orientation was considered as an independent variable and dimension of Strategic Orientation. It was considered to have 3 dimensions Services, Products and Research and Development which were measured in various indicators on ordinal scales of 5 from strong disagreement to strong agreement. The latent construct technical orientation yielded from factor analysis dimension reduction of the indicators was then used as an independent variable in a regression model fitted against firm performance which showed that it was not a significant level-2 random covariate but had a significant coefficient estimate at the respondent level (level-1). The coefficient of technical orientation on performance at level one was found to be 0.828 which implied that increasing the levels of TO by a unit would increase the banks Performance by 0.828 regardless of the banking system.

4.2 Conclusions

The study determined that technological Orientation has a significant influence on performance of both Conventional and Islamic banking in Kenya. Technological orientation was not found to be a level-2 predictor hence it was noted to averagely influence both Conventional and Islamic banking in Kenya similarly. Technological orientation was not found to have different levels of influence performance across the banking systems.

4.3 Recommendations

Based on the study findings, the researcher recommends that The Kenyan banking sector should embrace Technology in order to tap in the untapped market through innovations for the customers to be able to conduct banking businesses at their own convenience.

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