Financial Innovations development and its Impact on Financial Performance of Listed Banks in Kenya

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Abstract

Purpose - This paper sought to investigate the relationship between the financial innovativeness and performance of the banks, given the existence of very little empirical work in this area.

Methodology - The study was modelled as a correlational survey. The primary data collection instrument used was a questionnaire that was administered to top management of the respective banks. The data collected was subjected to correlation and regression analysis.

Findings - The study suggests a positive relationship between financial innovation and financial performance of listed banks in Kenya. Improvement in financial performance is attributed to the benefits of increased financial transactions accruing from continuous financial innovations (introduction of new products, financial linkages and development of systems to implement the innovation activities) by the banks. Worth noting is the positive impact of intense innovation activities on financial performance.

Implications - The extent of innovation (innovation effort) of banks has an impact on their financial performance as measured by ROE and ROA. Similarly, attributes such as systems to implement innovation activities as well as credit and deposit products have an influence on financial innovation and performance.

Value - All banks (both listed and private) should embrace financial innovation in order to boost their financial performance. For the banks that have already embraced financial innovation, there is a need to re-evaluate the extent of innovativeness with the aim of increasing the level of innovation activities which have a significant intermediation effect on financial innovation and performance.

Key words: *Financial innovations, financial system deregulation*

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Background

Innovation can be defined as all the scientific, technological, organizational, financial, and commercial activities necessary to create, implement, and market new or improved products or processes (OECD, 1997). Theory identifies two traditional approaches to innovation: “Technology push” and “demand pull”. In the former approach, innovation is seen as exogenous and driven solely by scientific advances. The latter approach refers to innovation as a response to demands for new products and processes.

Financial Innovation‟ means finding new products and new features for existing financial products. Thus creating a new financial product or adding new features to existing financial product is the central theme of financial engineering. Hence, the innovative products should try to reduce financial risk and it should aim to reach „financial optimization‟. Innovation is mainly driven by modern Globalization and investors and government resulting in exposing to new and wider international risk, innovation becomes a new tool to solve, manage and transfer the entire extra burden. The deregulation of banking systems, in particular, promotes economic growth through improved allocation, efficiency and a reduction of financial service costs.

The global crisis of 2007 to 2009 has renewed the widespread debate on the ‘bright’ and ‘dark’ sides of financial innovation. The traditional innovation-growth view posits that financial innovations help reduce agency costs, facilitate risk sharing, complete the market, and ultimately improve allocative efficiency and economic growth, thus focusing on the bright side of financial innovation (Allen and Gale 1994). The innovation-fragility view, on the other hand, focuses on the ‘dark’ side and has identified financial innovations as the root cause of the recent Global Crisis, by leading to an unprecedented credit expansion that helped feed the boom and subsequent bust in housing prices (Brunnermeier 2009), by engineering securities perceived to be safe but exposed to neglected risks (Gennaioli et al. 2012), and by helping banks and investment banks design structured products to exploit investors’ misunderstandings of financial markets (Henderson and Pearson 2011).

The banking sector is one of the sectors where a lot of financial and technological innovations have been taking place. From a theoretical viewpoint, the innovations are expected to improve financial performance and consequently, the growth of the economy. Within the last decade the banking sector in Kenya has been one of the leading sectors in the country when it comes to innovations. The period 2003 – 2012 is considered to be very significant in the economic history of the country due to the radical transformations experienced during this time in the banking sector alongside other sectors of the economy.

The ability to innovate has a direct impact on the competitiveness of a firm and thus its performance. Geroski (1994) suggests that, there are two alternative views. The first view holds that the production of new products or processes strengthens a firm's competitive position in relation to its rivals. But the profits and growth will be transitory and only last as long as the innovating firm can defend its position against rivals.

The second view argues that, the process of innovation transforms a firm fundamentally by enhancing its internal capabilities, making it more flexible and adaptable to market pressures than non-innovating firms. Hence, innovation enhances business performance because the product of innovative activities makes a firm more competitive and the process of innovation transforms a firm's internal capabilities. However, innovation is necessary but not sufficient for business performance.

Banking systems in industrialized countries are subject to ongoing change and questions about the main drivers of such change would promptly receive the following answers: trends in financial service demand; technological innovation; deregulation and subsequent regulation, known as regulatory dialectic; mergers, acquisitions and strategic agreements; competition; globalization; supply diversification; and economic volatility. These eight drivers of change had been predicted just less than three decades ago, at the beginning of financial system deregulation (Freeman, 1981).

Research Problem

Financial innovations in financial institutions are numerous and varied, yet during financial crisis the performance of financial institutions is hit more than any other category of companies. This brings into question on whether the innovations carried out are able to cushion the institutions' financial performance or simply serve to expand the product portfolio. From the empirical literature, most studies have directly linked financial innovation with financial performance without capturing the underlying variables which influence the relationship between financial innovation and financial performance. According to theory, among the underlying variables which influence this relationship are process innovation and innovation activities. The lack of empirical studies on the impact of process innovation or innovation activities or both on the relationship between financial innovation and financial performance is a clear knowledge gap which should be addressed. It is this knowledge gap that, this study seeks to fill by examining the impact of process innovation and innovation activities on the relationship between financial innovation and financial performance.

Research Objectives

1. To establish the extent to which financial innovativeness of the listed banks in Kenya affect their financial performance.
2. To investigate the relationship between financial innovation and the performance of listed banks.
3. Examine the impact of process innovation and innovation activities on the relationship between financial innovation and financial performance

Research Questions

1. To what extent, does the financial innovativeness of the listed banks in Kenya influence their financial performance?
2. What has been the relationship between financial innovation and financial performance within the listed banks in Kenya?
3. Does process innovation and innovation activities within listed banks in Kenya have an influence on financial innovation and financial performance?

Methodology

The study was modeled as a correlational survey. Out of a population of ten listed banks, the researcher used a sample of seven. The primary data (product innovation, innovation activities, newness of products and services, innovation effort) collection instrument used was a questionnaire administered by the researcher to top management of the respective banks. The data collected was subjected to correlation and regression analysis.

The choice of listed banks was deliberate because they are public organizations with the obligation of disclosing all relevant material information in a more transparent manner to the investing public. Research carried out on such listed firms is therefore likely to capture more reliable information, whose finding would be equally useful to the investing public in making future investment decisions.

Results and Discussion

Regression Analysis

A Multiple Regression mode of the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + ..+ \beta_n X_n + \varepsilon$$

was used, where Y is the dependent variable,

$X_1, X_2, X_3, \ldots, X_n$ are the independent variables,
β_0 is the intercept term, and
$\beta_1, \beta_2, \beta_3 .....\beta_n$ values are the regression coefficients, and
ε is the error term.

The four financial innovation variables developed for the study were broken down into several attributes which were reduced to only two attributes by the regression model; the new products introduced over the period of the study and the kind of financial linkages. The moderating variable was broken down into four attributes; Credit and deposit products, systems developed to implement the innovation, level of expenditure on research and development and finally, the kind of financial linkages. We noted with concern the double role of the financial linkages –acting as a pure independent variable attribute as well as a mediation effect attribute. There was no further breakdown on ROE and ROA as the dependent variables.

Based on the above breakdown of the variables, the results of our regression and correlation analysis are summarized in tables 1 to 8 below;

Table 1: Explanatory power of new products and financial linkages on ROE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.748[a]	.559	.265	2.912	.559	1.901	2

According to the table above, 55.9% of the changes/variations in the financial performance as measured by ROE are explained by the introduction of new products and the kind of financial linkages that the listed banks forge. This indicates that, 44.1% of the changes in financial performance are explained by other factors not accounted for and therefore explained by the error term. The implication is that, we can, to some extent rely on the new products and financial linkages in predicting the future financial performance because the model developed from these two variables is only moderately strong.

Table 2: Relationship between New products, financial linkages and ROE

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.733	9.362		2.642	.078
	New products introduces during the past 10 years	-1.719	2.538	-.261	-.677	.547
	the kind of financial linkages	1.103	.582	.731	1.894	.155

The new products introduced over the period of the study are found to be statistically significant in predicting financial performance as measured by ROE (computed t value is greater than the critical t value). New products have a negative influence on the financial

performance. The kind of financial linkages that the banks have engaged over the study period are equally statistically significant with a positive influence on the financial performance. However, new products have a weak association with financial performance (correlation coefficient of -0.364) while the kind of financial linkages have a strong positive association (0.7) with financial performance. Taking the above results as a working model, its application would be of the form:

ROA= -1.719*NEW PROD +1.103*FIN LINK + 24.733

Table 3: Explanatory power of new products and financial linkages on ROA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.496[a]	.246	-.257	.377	.246	.489	2

According to the table above, 24.6% of the changes/variations in the financial performance as measured by ROA are explained by the introduction of new products and the kind of financial linkages that the listed banks engaged in over the period of the study. This means that, much of the changes (75.4%) in financial performance are explained by other factors not accounted for and therefore explained by the error term. The implication is that, we cannot rely on the new products and financial linkages in predicting the future financial performance because the model developed from these two variables is a very weak model.

Table 4: Relationship between new products, financial linkages and ROE

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.948	1.212		3.258	.047
	New products introduces during the past 10 years	-.204	.329	-.313	-.621	.579
	the kind of financial linkages	.063	.075	.422	.836	.465

The new products introduced over the period of the study are found to be statistically significant in predicting financial performance as measured by ROA (computed t value is greater than the critical t value) but have a negative influence on the financial performance. The kind of financial linkages that the banks have engaged over the study period are equally statistically significant and have a positive influence on the financial performance. However, new products have a weak negative association with financial performance (correlation coefficient of -0.337) while the kind of financial linkages have an equally weak but positive association (0.435) with financial performance. Taking the above results as a working model, its application would be of the form:

ROA= -0.204*NEW PROD +0.063*FIN LINK + 3.948

Table 5: The Explanatory Power of Innovation Activities on ROE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.748[a]	.559	.265	2.912	.559	1.901	2

According to the table above, 55.9% of the changes/variations in the financial performance as measured by ROE are explained by the credit and deposit products as well as the systems used in the implementation of innovation activities. This means that, 44.1% of the changes in financial performance are explained by other factors not accounted for in this study and therefore explained by the error term. The implication is that, we can, to some extent rely on the credit and deposit products developed as well as the systems used to implement the innovation activities in predicting the future financial performance because the model developed from these two variables is moderately strong.

Table 6: The Intermediation Effect of Innovation Activities on ROE

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.440	16.598		.388	.724
Credit and deposit products developed - last 10 years	3.925	2.912	.597	1.348	.270
Systems to implement financial innovation activities	-1.590	2.912	-.242	-.546	.623

The credit and deposit products developed over the period of the study are found to be statistically significant in predicting financial performance as measured by ROE (computed t value is greater than the critical t value) and have a positive influence on the financial performance. The kind of systems developed to implement the innovation activities of creating credit and deposit products are not statistically significant and have a negative influence on the financial performance. Credit and deposit products have a moderately strong positive association with financial performance (correlation coefficient of 0.614) while the kind of systems developed to implement these products have a weak negative association (-0.301) with financial performance. Taking the above results as a working model, its application would be of the form:

ROE= 3.925*CRED PROD -1.590*SYS + 6.440

Table 7: The Explanatory Power of Innovation Activities on ROA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.496[a]	.246	-.257	.377	.246	.489	2

According to the table above, 24.6% of the changes/variations in the financial performance as measured by ROA are explained by the credit and deposit products as well as the systems used in the implementation of innovation activities. This means that, 75.4.1% of the changes in financial performance are explained by other factors not accounted for in this study and therefore explained by the error term. The implication is that, we cannot rely on the credit and deposit products developed as well as the systems used to implement the innovation activities in predicting the future financial performance because the model developed from these two variables is very weak.

Table 8: The Intermediation Effect of Innovation Activities on ROA

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.945	.528		5.574	.011
	Level of expenditure on R&D	.085	.137	.345	.621	.579
	the kind of financial linkages	.080	.083	.536	.963	.407

The level of expenditure on research and development over the period of the study were found to be statistically significant in predicting financial performance as measured by ROA (computed t value is greater than the critical t value) and have a positive influence

on the financial performance. The kind of financial linkages engaged in by the banks are also statistically significant and have a positive influence on the financial performance. The level of expenditure on research and development was found to have a weak positive association with financial performance (correlation coefficient of 0.337) and so was the kind of financial linkages engaged in with a correlation coefficient of 0.486. Taking the above results as a working model, its application would be of the form:

ROA= 0.085*EXPND + 0.80*FINL + 2.945

Conclusions

In concluding this study, we reject the hypothesis that, there is no relationship between financial innovation and financial performance and conclude that, financial innovation has an impact on the financial performance of banks. We also reject the other two hypotheses; financial innovativeness does not influence financial Performance and that process innovation and innovation activities have no influence on financial innovation and performance. This leads to the conclusion that, indeed the extent of innovation (innovation effort) of banks has an impact on their financial performance as measured by ROE and ROA. Additionally, attributes such as systems to implement innovation activities as well as credit and deposit products have an influence on financial innovation and performance.

This study therefore recommends that, all banks (both listed and private) should embrace financial innovation in order to boost their financial performance. For the banks that have already embraced financial innovation, there is a need to re-evaluate the extent of innovativeness with the aim of increasing the level of innovation activities due to their significant intermediation effect on financial innovation and performance. More importantly, banks need to continue to roll out new products, mainly the credit and deposit products which, according to the findings of this study have a strong association with financial performance. The need to continue forging financial linkages and the choice of the systems developed in implementing the innovation activities cannot be over-emphasized.

References

Allen, F., & Gale, D. (1994). *Financial innovation and risk sharing*. MIT press.

Brunnermeier, M. K. (2008). *Deciphering the liquidity and credit crunch 2007-08* (No. w14612). National Bureau of Economic Research.

Gennaioli, N., Shleifer, A., & Vishny, R. (2012). Neglected risks, financial innovation, and financial fragility. *Journal of Financial Economics*, *104*(3), 452-468.

Geroski, P. A. (1994). Technology and national competitiveness: Jorge Niosi (editor),(Mc-Gill—Queens University Press, Montreal and Kingston, 1991) 281 pp., ISBN 0-7735-0827-9.

Henderson, B. J., & Pearson, N. D. (2011). The dark side of financial innovation: A case study of the pricing of a retail financial product. *Journal of Financial Economics*, *100*(2), 227-247.

Statistical Office of the European Communities. (1997). *Oslo manual: proposed guidelines for collecting and interpreting technological innovation data*. OECD Publishing.