REAL TIME GROSS SETTLEMENT AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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ABSTRACT

The banking industry has been undergoing a significant process of transformation. Novelty in information technology has been the force behind this transformation. Real Time Gross Settlement (RTGS) is an automated means of transferring funds from one bank to another on real time. The challenge is that even with innovation on real time gross settlement commonly known as pesalink, it's still not clear whether it has significant effect on financial performance of commercial banks in Kenya. It's from this contextual that the study sought to investigate the effects of RTGS on the financial performance of banks in Kenya. The research specifically sought to investigate if there is a correlation between the dependent variable of financial performance as measured by return on assets (ROA), with the independent variable real time gross settlement which was measured by percentage of adoption of service and percentage of transactions. The following hypothesis was developed, real time gross settlement lack significant result on monetary performance of commercial bank in Kenya. A census research was done on all Banks in Kenya as regulated by CBK. The study used secondary data from 43 profitable banks operational in Kenya. The research used both inferential and descriptive statistics. Diagnostic tests were carried out to test for Normality and Heteroscedasticity tests. Data was coded and sorted using SPSS to produce descriptive statistics which was presented in form of tables. The study found out that, RTGS affects ROA at 0.022 significance, 1% increase in RTGS volumes increase ROA by 0.7985%. The more the volume of transactions, the more the revenue or income from the RTGS platform. Based on the conclusion, the research recommends that Commercial banks use RTGS to achieve on profitability and at the same time revamp mobile and internet banking platforms for customer service and loyalty.

Key Words: *financial performance, real time gross settlement, volume of transactions, customer service*

INTRODUCTION

In the modern world of commercial activities, with speedy growth of economic events there is no qualm on the predictability of presence of a performance assessment scheme in all societies. This requisite is palpable in that; lack of an assessment system would be considered as a sign of a society's unhealthiness. Financial valuations ensure that corporations attain a sophisticated level of performance by showing present financial situation of a business in relation to other businesses and creating a modest environment. Such assessments are also worthwhile in improving and refining weaknesses through appreciation of the strong point of past activities. Financial performance is considered as a suitable step in achieving a self-evaluation technique and therefore improves accountability. Financial performance directories are in fact an exploit guide from what it is concerning to what it is supposed to be. Assessing the performance of companies and industrial units can act as a parameter that surfaces the way for impending resolutions, concerning venture, growth, and most prominently, control, and observation (Tehrani & Brahmana, 2010). Financial assessments

are one of the oldest and the most significant approaches used for assessing the performance of firms which are mostly based on monetary statements.

Real Time Gross Settlement (RTGS) is a service obtainable by the standby banks of countries to process great value cash businesses securely between two accounts. Kenya banker top-notch wordpress.com site (2013) defines Real time gross settlement systems (RTGS) as a funds transmission structures where money or sanctuaries are conveyed between banks on a real time and on gross basis. Settlement on real time means there is no waiting period and the imbursement is reflected as final and irreversible. Gross settlement business is settled on a face to face basis without batching or netting with another business. Once processed, expenses are final and irreversible. An RTGS scheme can therefore considered as a funds transference scheme which enables provision of continuous intraday conclusiveness for separable transfers. A Real Time Gross Settlement system where interbank transfers are developed on a gross base as they arrive at the Central Bank.

In RTGS systems expenditures are, as designated above, settled separately and directly after the payment teaching, delivered that the remitter has cover for the payment in question. Payments in RTGS systems are characteristically credit businesses that is, payments started by the remitter (debtor). Members obtain wateriness through monetary-policy finances from the central bank, that loan with development of least possible one day, or by appropriating from other members in the coinage market. RTGS is a developing invention in the banking zone. Bank modernism includes; internet banking, mobile banking, Point of Sale Terminal, credit and debit cards, electronic funds transfer, and real time gross payment. The organization that fails to influence these inventions loses its modest advantage and market share to the participants (Mabrouk & Mamoghli, 2010).

Hayashi and Klee (2003) noted that in United States of America, innovation has been used by financial institutions as a strategy to give direction which realizes benefit in a fluctuating setting through its formation of competences, and resources with the aim of satisfying investors' anticipations Innovation is the outcome of man's erudite and assimilated knowledge or his practical skills concerning how to handle things in a better way. Quinn (2010) argued that it is incumbent on any organization to monitor changes, train and motivate employees to innovate, because innovation covers every aspect of all organizations. A company's performance is the assessment of agreed pointers or principles of efficiency, efficiency, and ecological responsibility such as production, sequence time, controlling acquiescence and surplus lessening. Performance also talks about the metrics on how a certain appeal is handled, or the action of doing something efficiently.

Every bank in Kenya reports its financial results at the end its financial year. Methods of after-tax rates of return, for example, the return on regular overall assets (ROA), and the return on total equity (ROE), are extensively used to measure the performance of companies, including profitable banks. Bank managers and forecasters have used ROA and ROE to evaluate business performance and estimate tendencies in market configuration as contributions in numerical models to forecast bank catastrophes, and fusions, and for a diversity of other drives where a quantity of productivity is anticipated. Return on assets is

the percentage of yearly net revenue to middling total chattels of a corporate during a business year. It measures competence of the corporate in using its possessions to make net revenue. ROA is calculated by dividing annual net income by Average total assets. Average total possessions are premeditated by allotting the sum of total possessions during the start, and the end of the business year.

STATEMENT OF THE PROBLEM

In Kenya the banking business has continued to operate in a competitive environment. Most banks have introduced new innovative products, processes, technology and organization innovation leading to greater efficiency and product differentiation. On technology, banks have had to offer a wide range of deposit, investment and credit products through distinct channels of distribution which include improved ATMs, branches, telephone and Internet. The challenge is that even with innovation on real time gross settlement commonly known as pesalink, it's still not clear whether it has significant effect on financial performance of commercial banks in Kenya. A research study carried out by Kingoo (2011) explore the association between e-banking and monetary performance of profitable banks in Kenya. The study recognized that those banks with great revenue development are more probable to be using better statistics of progressive ICTs. It settled that e-banking leads to greater revenues although in long-run because of high ICT venture cost and also to decrease delinquencies; security check should be done which will be cooperative in improving client service, upsurge methodical competence and thus improved productivity. There has also been mixed conclusions on the result of RTGS on the monetary performance of Commercial banks in Kenya. A research done by Makokha, Mbuguah and Fwamba (2015) found that the use of RTGS in the public university does not have a significant savings on the monetary performance of the university. The introduction of real time gross settlement by banks was aimed at increasing returns which has not been scholarly proven. Most of recent studies are on mobile banking and electronic banking. A research gap is therefore left on RTGS system. It's from such diverse and confusing conclusions that the study sought to determine the value of RTGS in the Kenyan banking sector.

RESEARCH OBJECTIVE

The universal objective of the research was to establish the outcome of RTGS on financial performance of Commercial banks in Kenya

RESEARCH HYPOTHESIS

$H0_1$: Real time gross settlement has no significant outcome on financial performance of Commercial Banks in Kenya.

THEORETICAL REVIEW

Several theories are offered to investigate and illustrate the attitude that consumers have on the acceptance and usage of paperless facilities such as RTGS. Some of the philosophies that have been developed to clarify how e- banking expertise is adopted include: the concept of reasoned action (Fishbein & Ajzen, 1975), concept of planned behaviour (Ajzen, 1985),

Diffusions of innovation theory (Robinson, 2009) and technology acceptance model (Davis et al., 1986).

Technology Acceptance Model

The proponent of technology acceptance model (TAM) is Davis, Bagozzi and Warshaw (1986) TAM emphasizes on clarifying the boldness behind the meaning to use a definite technology or facility. TAM model conjectures that structure use is unswervingly single-minded by social purpose to use, which is in turn prejudiced by consumers' approaches toward using the system and the professed expediency of the structure. Approaches and superficial practicality are also affected by apparent comfort of use.

Perceived usefulness (PU) is explained as the degree to which a being considers that using a scheme will upsurge his or her work performance. Thus, for users of online banking, will assume the scheme if they consider the system will bring profits such as decreasing time used on going to bank and refining competence.

Theory of Reasoned Action

The Theory of Reasoned Action (TRA) conveyed in by Fishbein and Ajzen (1975) has been used expansively in marketing study. TRA has been functional to explain the conduct beyond the receipt of technology and comprises four universal ideas: behavioural attitudes, personal norms, objective to use and real use. It debates that individuals evaluate the consequences of a particular behaviour and create intentions to act that are consistent with their evaluations. More specifically, TRA states that individuals' behaviour can be predicted from their intentions, which can be predicted from their attitudes and subjective norms. Following the chain of forecast further back, approaches can be foretold from a personality's principles about the results of the behaviour. Personal norms can be foretold by acknowledging how important other persons think the conduct should or should not be done.

Theory of Planned Behaviour

The proponent of this theory is Ajzen who developed it in 1985. This theory of planned behaviour (TPB) started as the concept of rational action to forecast a person's intent to involve in a performance at a particular time and domicile. This theory proposes that a principal factor in social behaviour is developmental intention, which is pretentious by approach toward conduct, individual norm, and alleged behavioural control (Ajzen, 1985). Personal norm articulates the apparent structural or collective pressure of a person who anticipates performing the comportment in question. Additionally, the personal norm is comparative to normative beliefs about the prospects of other people. Apparent behavioural control replicates an individual's insight of the easiness or difficulty of applying the behaviour in question. It concerns principles about the existence of control factors that may enable or impede their performing the conduct.

Diffusions of Innovation Theory

According to Robinson (2009), dissemination of inventions seek to clarify how inventions are taken up in a populace. Diffusion of invention suggests five qualities that influence the adoption of any given technology namely: relative benefit, compatibility with current values and practices, trial ability, and observable results, easiness and comfort of use. Relative benefit is the point to which an invention is professed better than the impression it succeeds by a specific group of consumers dignified in terms that matter to those consumers, such as social prestige, economic advantage, convenience, or satisfaction. The better the professed relative benefit of an invention, the more prompt its rate of acceptance is probable to be. There are no complete rules for what institutes "relative advantage". It hangs on the specific insights and wants of the user group (Robinson, 2009).

EMPIRICAL REVIEW

Financial performance

Monetary ratios are used by interior and exterior monetary data users for making their financial decisions; including capitalizing, and performance assessment decisions. Numerous financial and secretarial models were advanced during earlier decades. Nevertheless, the monetary ratios still keep its standard and important power either as part of these monetary and secretarial models or as added significant helpful examination with it. Due to the established power of the ratio scrutiny in the concrete monetary and planning study, this research will discover the result and power for more or less key ratios ROA, ROE together and distinctly in explanation the financial performance of 43 commercial banks in Kenya between 2012 and 2016.

Real Time Gross Settlement and Financial Performance

RTGS is the quickest imaginable money transmission system via the banking networks that is offered by the standby banks of countries to develop great value cash transactions securely from one account to another. In RTGS systems disbursements are settled independently, and instantaneously after the payment instruction, given that the remitter has cover for the imbursement in query. Payments in RTGS systems are characteristically credit businesses, payments introduced by the debtor. Members obtain liquidity through finance-policy loans from the central bank, loans with development of at least one day, or by borrowing from other members in the money market. RTGS is a developing invention in the banking sector.

Innovation comprises of firms increasing new products or new production procedures to better perform their processes, in which case the new produces could be based on the new procedures (Lawrence, 2010). In the monetary services industry, invention is seen as the act of creating and propagating new monetary instruments, institutions, technologies, and markets, which ease access to data, trading and means of imbursement (Solans, 2003). According to Nofie (2011), inventions in the finance sector is the influx of a new or improved product and/or a process that depresses the cost of producing current financial services. Bank invention includes; internet banking, mobile banking, Point of Sale Terminal, electronic funds transfer, credit and debit cards, and real time gross settlement. The organization that

fails to influence these inventions loses its competitive benefit and market share to the participants (Ngumi, Gakure, Waititu & Njuguna, 2013). Mungai, Maingi, Muathe, & Ndungu (2015) found out that technology and loan repayment had an inverse relationship in Muranga County however, the study further argue that in other countries namely Malawi, South Africa, Mozambique and India, groups who have embraced technology have improved their micro credit loans repayment.

CONCEPTUAL FRAME WORK

The study uses real time gross settlement as the independent variable and financial performance as the dependent variable.

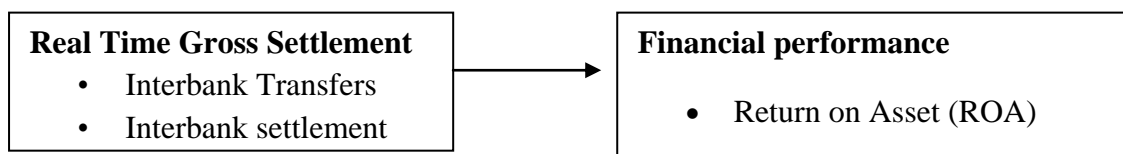*Independent Variable*   *Dependent Variable*

Real Time Gross Settlement • Interbank Transfers • Interbank settlement	→	**Financial performance** • Return on Asset (ROA)

Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

Research Design

The research design talks about the overall plan that integrates the different mechanisms of the study in a logical way, ensuring that the research successfully address the research problem (De Vaus, 2011). This study adopted a descriptive design in order to describe the data and characteristics about the population. This method attempts to discover the source of a specific event or situations. It also presents evidences concerning the nature and status of a situation as it happens at that time of the study. Such a method tries to define present circumstances founded on the impersonations or reactions of the participants of the research. It seeks to answer questions such as who, what, where, when and how. Evocative approach is quicker and more real-world in terms of funding and therefore allows space for flexibility when more important new issues, possibilities and queries come up during the time of the research.

Target Population

The target population for the study was census of 43 profitable banks in Kenya. The banking sector comprise of a total of 43 commercial banks in Kenya. Kothari (2004) states that; target populace denotes to the whole group of personalities or objects to which scholars are interested in simplifying the assumptions.

Data Collection Instruments

The study used security data extracted from Central bank of Kenya bank's supervision reports and printed audited yearly reports of the 43 commercial banks. With the secondary

data composed, returns on assets and Equity for the pertinent years was calculated. The data collected covered the period 2012-2016.

Data Collection Procedure

The study used ancillary data found in the central bank performance results for the period covered in the study. The researcher used secondary data and adopted the hypothesis driven approach, a priori the researcher used the hypothesis and looked for dataset to address the hypothesis.

Data Analysis and Presentation

The study used both descriptive and inferential figures in evaluating the data. Examination was carried out with the assistance of Statistical Package for Social Scientists (SPSS).The study used secondary data. The data was fed into the computer, and study was done. Descriptive statistics such as mean score, rate of recurrence or frequencies and percentages for each variable were computed and formulated using frequency distribution tables. In order to test the relationship between the variables the inferential tests including the Pearson Product- Moment Correspondence Coefficient and regression study was used. The regression equation used is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where: Y = Financial performance; X_1 = Real time gross settlement; β = Coefficient of X_1 variables, where β_0 is the y intercept; ε = Beta

All the above arithmetical tests will be examined by the use of the Statistical Package for Social Sciences (SPSS), version 20. All tests will be two-tailed. Important levels will be measured at 95% assurance level with substantial transformations recorded at $p < 0.05$.

RESEARCH RESULTS

This section addresses the data study and research results on RTGS paperless banking and financial performance of commercial banks in Kenya and includes study variables, descriptive statistics and regression analysis. The data was collected from secondary sources which were the commercial banks of Kenya financial statements and CBK annual supervision reports for the years 2001 to 2005 and 2012 to 2016. The data was tabulated by use of Microsoft Excel 2013 and SPSS version 20. Data that was analyzed was secondary data collected from central bank annual bank supervision results for all banks in Kenya. For ROA 9 banks did not have the data and the achieved rate was 79.1 %. All the banks had data on RTGS in term of volume of transactions, total value of the transactions and the bank charges (Muhoro, 2017).

Descriptive Statistics

The descriptive figures presented herein are in form of percentages of ROA and RTGS . Table 1 provides statistics on mean on the minimum, maximum, mean standard deviation, variance, kurtosis and skewness of each variable.

Table 1: Descriptive Statistics

	ROA	RTGS
Min	-13.6000	0.0400
Max	10.4000	14.0000
Mean	2.3900	2.3141
Std. Dev	2.9712	3.0504
Variance	8.8278	9.3050
Skewness	-1.3478	1.8995
Kurtosis	7.3502	5.9762
Observations	215	215

From the descriptive statistics, the mean values of ROA for all the 43 commercial banks under the period of review are 2.039 percent. This positive average indicates all the banks were on average profitable although there are some banks who recorded losses as indicated by the negative minimum value.

The mean percentage of RTGS transactions in relation to total transaction is 2.31 percent. On the distribution, ROA is skewed to the left given the negative skewness statistics, meaning that the data is not uniformly distributed around the data average in a normal distribution curve. It is an indication that both the mean and the median are less than the mode of the data set. RTGS performance is skewed to the right and it portlays a non-normality in that distribution of the kurtosis statistics are greater than or equal to 3.0. For normal distribution it is expected that the kurtosis values is less than or equal to 3.0

Normality test

Checking on the distribution of the variables, all the variables are non – normally distributed as evidenced by the K density graphs for all the variables. It is evidenced that in the financial statistics, financial data portrays elements of non – normality in distribution as it assumes random walk distribution. Financial data is therefore expected to be leptokurtic as it is characterized by large tails. A leptokurtic distribution has excess positive kurtosis, where the kurtosis is greater than 3.

Heteroskedasticity for ROA

Regression of coefficient results is presented in table 2 for ROA before testing for heteroskedasticity. The decision based on the results is we discard the null theory at 5% importance level. Based on the p-values of Breusch-Pagan / Cook-Weisberg test for heteroskedasticity (0.0003) which are less than 5%, we conclude that there is substantial amount of heteroskedasticity in the model. We therefore need to correct for heteroskedasticity in order to have valid estimates.

Table 2: Regression model for ROA before Testing for Heteroskedasticity

Regression Results						
	Coefficients	Std. err	t	P>|t|	[95% Conf. Interval]	
RTGS	0.7985	0.5265	1.52	0.031	-0.2393363	1.836308
Constant	1.3079	0.2275	5.75	0.000	0.859477	1.756325
Model Summary						
	SS	df	MS			
Model	458.3832	3	152.7944			
Residuals	1430.7604	211	6.7809			
Total	1889.1436	214	8.8278			
F statistic = R2 = 0.6426 22.53						
Prob > F = Adj R2 = 0.0000 0.6319						
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity						
Chi2(1)			13.12			
Prob > chi2			0.0003			

After correcting for heteroskedasticity Table 2, the results indicate that RTGS positively affects ROA, RTGS affects ROA at a level of significance of 2.2 percent, This mean that RTGS income and performance positively impacts on the performance of commercial banks. From the results a 1% change in RGTS volumes increase, ROA by 0.7985%.

Table 3: Regression Model for ROA after correcting for heteroskedasticity

Regression Results						
	Coefficients	Robust Std. err	t	P>|t|	[95% Conf. Interval]	
RTGS	0.7985	0.3469	2.30	0.022	0.114612	1.48236
Constant	1.3079	0.2453	5.33	0.000	0.8243753	1.791427
F statistic = Prob > F = R2 = 51.07 0.0000 0.6426						

Banks Financial Performance

The aim of the research was to examine the relationship between RTGS paperless banking and banks financial performance of the 43 banks within the country. From the results, in table 4 RTGS positively affects ROA, RGTS come strong on affecting ROA with the significance being at 5 percent level i.e. 2.2%. From the results a 1% increase, in RGTS volumes increase ROA by 0.7985 percent.

Table 4: Banks Financial Performance

Regression Results						
	Coefficients	Robust Std. err	t	P>|t|	[95% Conf. Interval]	
RTGS	0.7985	0.3469	2.30	0.022	0.114612	1.48236
Constant	1.3079	0.2453	5.33	0.000	0.8243753	
					1.791427	
F statistic = 51.07	Prob > F = 0.0000	R2 = 0.6426				

The regression function achieved using the unstandardized betas is as follows ($Y = \beta_0 + \beta_1 X_1 + \varepsilon$): $Y = 1.3079 + 0.7985 X_1 + \varepsilon$

This implies that financial performance is directly proportional to volumes of RTGS.

Hypotheses Testing

Given the p values as shown in table 4, Hypotheses testing can be concluded as hereunder:

$H_0 31$: Real time gross settlement has no significant outcome on financial performance of Commercial Banks in Kenya.

The regression model in table 4 indicates that real time gross settlement is important at 5% level. The coefficient of real time gross settlement is 0.7895 and substantial with a p value of 0.022. This result indicates that there is a positive and significant impact on economic performance of commercial banks in Kenya, and hence we adopt the alternative hypothesis. The study was inconsistent with Makokha et al. (2015) who established that the use of RTGS has no effect on the fiscal performance of the public institutions of higher education. Good to note that the study was not related to the banking sector.

CONCLUSIONS

From the research, it can be established that all commercial banks offer RTGS facility and there is a significant change in their financial performance attributable to real time gross settlement. The performance is however directly proportional to the volume of transactions. It can be concluded therefore that levies and charges effected on RTGS are a source of income to commercial banks. The competition existing in the banking industry would imply that the banks that will adopt to the fast changing environment in the business world might have a competitive advantage above their rivals and this might contribute positively on their financial performance.

RECOMMENDATIONS

It is endorsed that commercial banks in Kenya ought to encourage most of their customers to make full use of the RTGS services. This will automatically translate to more returns. Banks should also come up with other innovative products that would greatly reduce their physical intervention with the customer. The limits set on maximum daily transactions should also be

reviewed frequently depending on the risk appetite. The strong relationship shown between RTGS and ROA should be an opportunity for the banks to explore further. Banks should also deploy internet banking and mobile banking in their customer life cycle management and service.

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