PARADIGM SHIFT IN INNOVATIVE BUSINESS MANAGEMENT

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THE PERFORMANCE OF SOME SELECTED COMMERCIAL BANKS IN KENYA: USING DATA ENVELOPMENT ANALYSIS (DEA)

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ABSTRACT

The commercial banks deals with most liquid asset, of people and helps them for stability and growth of a country's economy. Kenya is one of the East African Countries. It has a population of 40 million people. The policy frame work of Kenya combines socialistic and capitalistic features with a heavy bias towards private sector investment. However, the last couple of decades in Kenya have witnessed continuous change in regulation, technology and competition in all sectors including financial services industry. The rising cost-income ratios and declining profitability reflect increased competitive pressure. To assess the stability of the banking system, it is therefore crucial to benchmark the performance of banks operating in Kenya. An efficient banking system contributes in an extensive way to higher economic growth in Kenya. This study investigates the performance analysis of some selected Kenyan Commercial Banks. It was found that private banks performed well relatively compared to public banks sector and foreign sector banks in Kenya.

KEY WORDS:

Performance, Commercial Banks of Kenya, Data Envelopment Analysis (DEA).

INTRODUCTION

We all belief that competition in the business world is a driving force behind many important policy changes. The competition puts more pressure on costs, reduces slacks, provides incentives for the efficient organization of production, and even drives innovation forward in the balancing operation across the country. Hence, the evidence in its favor is mix. The effects to promote productivity performance has been put forth to manage competition. The productivity performance of banks is measured through efficiency and scale economies, as these two are perceived as the two most important key issues in the banking sector.

The Central Bank of Kenya issued guidelines with respect for the establishment of new banks in the private sector. Apart from taking high measures and risks to enhance competition in the banking sector, Central Bank of Kenya as a sector regulator is also entrusted to ensure

stability in the financial sector so as to achieve greater objective of economic growth and stability. Central bank of Kenya guarantees the stability of banking operation by instructing banks to follow certain norms so as to avoid risks. In this respect, the Central Bank Kenya used Basel II norms in Kenya for making Kenyan banks as internationally active. Under the revised regime of Basel II, most of the Kenyan commercial banks had been maintaining a Capital Adequacy Return (CAR) of 6% even prior to 22-03-2011(Central Bank of Kenya 2009 journal).

REVIEW OF LITERATURE

An attempt has been made in this section to review the selected research work already undertaken in the area of this study, in order to understand the methodology employed etc.

Sanjeev (2006), studied efficiency of private, public and foreign banks operating in India using Data Envelopment Analysis. The study found that there is an increase in the efficiency in the post-reform period and that non-performing assets and efficiency are negatively related. Debasish(2006), in his study entitled, "Efficiency performance in Indian Banking. Use of Data Envelopment Analysis", measured the relative performance of Indian banks using DEA model. The study discovered foreign banks to be more efficient than their domestic counterparts. Kumar and Gulati (2007), in their study entitled, "Evaluation of Technical Efficiency and Ranking of Public Sector Banks in India", studied the technical efficiency of public sector banks in India using two data envelopment analysis models, viz. the CRR model and Anderson Petersen's Supper-Efficiency Model. The results show that the technical efficiency scores range from 0.632 to 1, with an average of 0.885. Thus, the overall level of technical efficiency in Indian Public Sector Banking Industry was found to be around 11.5 percent. Rangkakulnuwat (2007), in his paper, "Technical Efficiency of Thai Commercial Banks between 2002 and 2005", utilized Data Envelopment Analysis (DEA) to estimate the technical efficiency of nine Thai Commercial banks. The results indicate that commercial banks first tier had always produced at the production frontiers and higher technical efficiency than the second third tiers. The commercial banks in second and third tiers could sometimes produce at the preproduction frontiers. A study entitled, "Performance Evaluation of Indian Banks- A Study using Data Envelopment Analysis", by Swaroop et al (2007), found that foreign owned banks were on an average, most efficient and that new banks were more efficient than old ones which were often burdened with old debts. In terms of size, smaller banks were globally efficient, but large banks were locally efficient. Aggarwal, A. K., D. and Chaturvedi, N. (2007-08), in their paper entitled, "India's Banking Sector-Consolidation and Convergence: Balancing on the Brink?", analyzed the performance of banking sector and considered it as a proxy for the economy as a whole due to banks wide spectrum of exposures. The most important point is that mergers and acquisitions in the banking sector must be market led rather than prompted by Government or regulator.

The forgoing review reveals that with the exception of a few, no systematic and scientific effort has been made towards this critical analysis of Kenyan commercial banks efficiency level. Hence this study has been carried out.

STATEMENT OF THE PROBLEM

It is reposted that private banking sector in Kenya has commendable results in achieving the social-economic objectives entrusted to them. Against the achievement in a few areas of business, the overall business performance as well as financial performance of the banks was not encouraging. It has brought to light the alarmingly low capital base, high and growing non-performing assets relatively low profitability position of banks. Like profitability and productivity of the banks too shows none neither constant nor increasing results throughout. To obtain a clear picture, it is worthwhile to have a close look at the performance effectiveness of Kenyan banks which will further reflect the state of affairs in the rest of the entire sectors of banks in the country. In this situation Kenyans have not clearly made the difference between which bank does well. Hence, an attempt is made in this study to study the overall performance of banks in Kenya.

OBJECTIVE OF THE STUDY

The objective of the present study is to examine and compare the performance of Kenyan commercial banks after the global financial crisis era.

HYPOTHESIS OF THE STUDY

The following are the hypothesis of the study:

- NH1: There is no significant difference in the performance of the Kenyan commercial banking sector during the study period.

METHODOLOGY OF THE STUDY

a. Sample selection

There are 5 public sectors, 28 private sector and 12 foreign banks in Kenya as on 2009. For the purpose of this study, 6 banks (3 public and 3 private banks) based on their top profitability of banks. The names of the sample banks chosen for this study are given below in Table-1

b. Sources of Data

This Study was based on secondary data. The required data were collected from Central Bank of Kenya annual Report, Profile of Banks in Kenya, Published Research Reports and Journals.

c. Period of the Study

The comparative study of the Kenyan Commercial banks covers a period of four years from January 2007 to December 2011.

d. Tools used for analysis

Data Envelopment Analysis (DEA)

Data Envelopment Analysis (DEA) measures relative efficiency of Decision Making Unit, with the linear programming by using plentiful input ratio to output. It was first developed

by Charnes, Cooper and Rhodes (1978). This is the concept of technical efficiency which is the concept of relative efficiency that is determined through comparison with the most efficient frontier. The CCR model is used for the maximizing of the efficiency of each unit by adding up many input elements and outputs by the optimized weight. This study uses the following formula.

$$\text{Efficiency} = \frac{\textit{Weighted sum of Outputs}}{\textit{Weighted sum of Inputs}}$$

The weights for the ratio are determined by the restriction that similar ratios for every DMU have to be less than or equal to unity, thus reducing multiple inputs and outputs to a single virtual output without requiring pre-assigned weights. Therefore, the efficiency score is a function of the weights of the virtual input-output combination. The efficiency score of a given DMUo is obtained by solving the following linear programming model.

$$\max h_0(u,v) = \frac{\sum_{r=1}^{s} v_r y_{r0}}{\sum_{i=1}^{m} u_i x_{i0}} \qquad (1)$$

Subject to.

$$x_{i0}\theta_0^C - \sum_{j=1}^{n} x_{ij}\lambda_j - s_i^- = 0, \qquad i = 1, \ldots, m,$$

$$\sum_{j=1}^{n} y_{rj}\lambda_j - s_r^+ = y_{r0}, \qquad r = 1, \ldots, t,$$

$$\lambda_j,\ s_i^-,\ s_r^+ \geqslant 0, \qquad \forall j, r \text{ and } i.$$

Where:

θ_0^C = DMU_0 is the DMU being evaluated in the set of $j = 1 \ldots n$ DMUs

x_{ij} = the amount of output in r position of DMU_j

Y_{rj} = amount of input in i position of DMUj.

Y_r 0 = the amount of input in r position of MNUo, the subject to evaluation

x_i 0 : the amount of output in i position of DMUo, the subject to evaluation

The linear programming model shown above is run n times for identifying the relative efficiency score of all the DMUs. Each DMU selects input weights that maximize its efficiency score. Generally, a DMU is considered to be efficient if it obtains a score of 1.00, implying 100% efficiency whereas a score of less than 1.00 implies that it is inefficient.

For the purpose of calculating data for this study, Data Envelopment Analysis Online Software (D.E.A.O.S) was used.

LIMITATIONS OF THE STUDY

The following are some of the limitations corresponding to this study.

- This study covers only 9 sample banks out of 45 banks in the country, based high profitability.
- There are no references to this study basically from Kenya so the study from India and other countries were taken as references.
- This research study is based on secondary data only and all limitations applicable to secondary data are applicable to this study.
- The period of this study covers only 4 years.

ANALYSIS OF SAMPLE KENYAN COMMERCIAL BANKS

Analysis of Public Sample Kenyan Commercial Banks using CCR model.

Analysis of Private Sample Kenyan Commercial Banks using CCR model.

Analysis of Public Sample Kenyan Commercial Banks using CCR model.

TABLE-2 shows the analysis of Public sector banks in Kenya. It is important to refer that the Public sector banks are the ones in which the Government has a major holding. According to the result the efficiency value of sample banks during 2007 to 2010 varied from year to year.

The result efficiency of sample commercial banks using the data envelopment analysis under CCR model is presented in Table-2. According to the above Table, the average efficiency of the sample selected during the study period from 2007 to 2010, ranged from 0.4455 to 0.7231, which is considered to be less efficient. In the 2007, average efficiency score was 0.7083. It is to be noted that Equity bank of Kenya was considered to be efficient with the efficiency score of 1.00. Consolidated bank of Kenya and Development bank of Kenya, recorded 0.3701 and 0.4165 respectively, implying that if the consolidated bank of Kenya could increase its outputs by 6.3 percent and Development bank of Kenya with 5.84 percent with the same amount of input, they could have been considered as efficient.

In the Table above, the year 2008, shows the average efficiency score earned by the sample banks selected for the study, Equity bank of Kenya maintained to be efficient with the score of 1.00. Consolidated bank of Kenya reduced its score from the previous 0.3701 which shows an effect of the crisis. This requires increasing its outputs by 6.63 percent with the same amount of input to be efficient. Development bank of Kenya increased some scores but still inefficient. It requires 5.18 percent of the output with the same amount of input to be efficient.

In the year 2009, Equity bank maintained its efficiency of 1.00, consolidated bank of Kenya improved its efficiency score from 0.3373 in 2008 to 0.7889. Though moderately efficient it needs 2.11 percent of the output with the same amount of input to be efficient.

Development bank of Kenya decreased its points from 0.4825 in the year 2008 to 0.3803 showing its underperformance of the bank. It needs 6.20 percent of the outputs with the same amount of inputs to be efficient.

In the Table above, the year 2010, banks namely Equity bank of Kenya, Consolidated bank of Kenya and Development bank of Kenya had a range of scores 0.6933, 0.4845 and 0.1586 respectively. They all need 3.07, 5.16, and 8.41 percent of output with the same amount of input to be efficient.

Analysis of Private Sample Kenyan Commercial Banks using CCR model

The result efficiency of sample commercial banks using the data envelopment analysis under CCR model is presented in Table-3. According to the above Table, the average efficiency of the sample selected during the study period from 2007 to 2010, ranged from 0.3768 to 0.5591. According to Table-1 above, in the year 2007showed the underperformance scores of Family bank of Kenya, Jamii Bora bank of Kenya and Equatorial bank of Kenya 0.4067, 0.3120 and 0.3768 respectively. They all need 5.93, 6.88 and 6.23 percent of output with the same amount of input to be efficient.

In the year 2008, there was a slight improvement of the score through the banks, 0.4458, 0.4148 and 0.8168 respectively which was still inefficient. They needed 5.54, 5.85 and 1.85 percent of the output with the same amount of the input to be efficient. In the year 2009, the banks inefficient with 0.3820, 0.2487 and 0.5525 scores respectively. They as well need 6.18, 7.51 and 4.48 percent respectively of the output with the same amount of input to be efficient. In the year 2010, Family bank of Kenya improved from 0.3820 to 0.8641 from the previous year 2009. It needs 1.36 percent of the output with the same amount of input to be efficient. Jamii bank of Kenya recorded 0.1340 which was a fall from the previous year. It needs also 8.66 percent to be efficient. Equatorial bank of Kenya had 0.3102 which was a fall too from the previous year 2009; it showed an inefficiency which needs 6.90 percent of the output with the same amount of the input to be efficient.

CONCLUSION

The study attempts to explore the performance of banking sector of Kenyan public and private sector. The study finds that, there have been significant changes in the performance of the banking sector in Kenya. The relative importance of the public sector banks has been fair compared with the domestic private banks. The asset, deposit and the credit share shows the share of public sector has been increasing and the share of the private banks is decreasing, which implies declining concentration and increasing competition. However, the efficiency results of the study are quite contrary to the international evidence. The public sector banks are found to be moderately efficient unlike domestic private sector which had a poor performance. There could be several potential explanations to this unconventional finding, First, the natural monopoly argument - the public sector banks got the advantage of the first mover and also the economies of scale which they made use of and had a fair performance. Second, the time period of the study is the period of consolidation for the foreign banks and the new private banks. It is evident from the efficiency scores of

the domestic private banks. Since early 2000's, the domestic private banks are becoming relatively not performing well in their efficiency.

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Table 1: Sample banks Selected for the Study

Public Sector Banks	Private Sector Banks
Equity Bank of Kenya	Family Bank of Kenya
Consolidated bank of Kenya	Jamii Bora Bank of Kenya
Development Bank of Kenya	Equatorial Commercial Bank Limited
Source: Central Bank of Kenya.	

Table 2: Efficiency Score of Sample Kenya Public Sector Banks					
Banks	2007	2008	2009	2010	Average Score
Equity Bank of Kenya	1.0000	1.0000	1.0000	0.6933	0.9233
Consolidated bank of Kenya	0.3701	0.3373	0.7889	0.4845	0.4952
Development Bank of Kenya	0.4165	0.4825	0.3803	0.1586	0.3595
Average Score	0.7083	0.6066	0.7231	0.4455	

Sources: 1) Central Bank of Kenya publication 2007 to 2010.
2) Respective bank websites

Table 3: Efficiency Score of Sample Kenya Private Sector Banks					
Banks	2007	2008	2009	2010	Average
Family Bank of Kenya	0.4117	0.4458	0.3820	0.8641	0.5259
Jamii Bora Bank of Kenya	0.4067	0.4148	0.2487	0.1340	0.3011
Equatorial Bank of Kenya	0.3120	0.8168	0.5525	0.3102	0.4979
Average Score	0.3768	0.5591	0.3944	0.4361	

Sources: 1) Central Bank of Kenya publication 2007 to 2010.
2) Respective bank websites