THE AFRICAN JOURNAL OF FINANCE AND MANAGEMENT - VOLUME 25 NO. 2, 2016: 16-33

Commercial Banks Portfolio Holdings Behaviour: Does Size and Ownership Matter? Evidence from Tanzania

Tobias A. Swai[*]*, Daudi R. V. B. Lwiza*[**] *& Michael O. Ndanshau*[***]

Abstract

This study examines the portfolio behaviour of commercial banks in Tanzania by using panel financial data of 14 banks from 1998 to 2010 on a quarterly basis, making 52 quarters and 728 observations. The sampled banks had more than 85% of the total commercial banks assets on average in the time of the study. The study objectives were to analyze the portfolio behaviours of commercial banks in Tanzania with respect to the size of a bank and ownership. Financial statements data was collected from quarterly mandatory publication of the bank data for the individual banks, and were analysed based on an ordinary least squares model. Findings revealed that banks do hold their portfolios with very little differentiation amongst themselves, which indicates that there is little or same innovation patterns. Assets allocation is more with loan products and investments in government securities. Large banks and foreign banks enjoy returns from the interbank lending due to their relatively large capital and assets base. The study calls for innovation, organizational learning and specialization of banks, and more oversights on a foreign bank entry as well as for large banks.

Keywords: *commercial banks, portfolio behaviour, foreign banks, bank size, bank ownership*

Introduction

As business entities, commercial banks (CBs) are important component of the financial sector, and are crucial financial intermediaries to economic agents, and therefore, they form an important vehicle for economic development (Fakiyesi, 1999; Lwiza & Nwankwo, 2002). According to Rose (1991), CBs plays five major roles in an economy: intermediation, payment, guarantor, agency and policy roles. The intermediation role is a cardinal one for banks in the economy. It entails mobilization of funds from economic units that have surplus funds and allocating them to those units whose expenditure outstrip their current income and thus need funds for financial and investment purposes. Thus, CBs perform the role of resources transformation and business financing. For a developing country like Tanzania, where the development of alternative sources of financing such as stock markets is very limited, the role of CBs in financing business sector activities and provision of liquidity to the economy is incredibly high. Banking firms have fundamental influence on capital allocation, risk sharing and economic growth (Freixas & Rochet, 1997).

The commercial banking sector in Tanzania is one of the oldest business ventures in the country. It has its roots back in 1905. During 1919 to 1966, a number of foreign commercial banks were in operation in various towns of Tanzania, including Zanzibar, Tanga and Dar es Salaam. With the operations of foreign-

[*] University of Dar es Salaam, Department of Finance: tobias@udsm.ac.tz
[**] University of Dar es Salaam, Department of Finance: lwiza@udbs.udsm.ac.tz
[***] University of Dar es Salaam, Department of Economics: ndanshau@udsm.ac.tz

based banks, the economy was static with little mobilization of financial resources in the economy, as well as access to credit from the banking firms (Chijoriga, 2004; Lwiza & Nwankwo, 2002). However, in 1967 all foreign banks were nationalized. A report by Bank of Tanzania (BoT) in 1990 indicated the need for the liberalization of the financial sector as a result of the static economy which resulted from the government control on banking operations. Related to this was the fact that banks in operation by then, e.g., the National Bank of Commerce (NBC), had most of their loan portfolio as bad debt mostly advanced to parastatals (Wangwe & Lwakatare, 2004). The operations of commercial banks were highly interfered by the government, whereby banks were heavily investing in government securities and giving little focus on the private sector. Also, there was poor mobilization of the deposits as only one bank was allowed to mobilize deposits, i.e., the NBC. The liberalization of commercial banks in the 1990s paved a way to new regulations that allowed the formation of private banks—both locally and foreign.

Several studies after the liberalization of the financial sector have indicated that the commercial banks in Tanzania held substantial investments in government securities as opposed to the traditional banking portfolio holdings such as loans (Aikaeli, 2006; IMF, 2003). A study by the IMF (2003) on the sustainability of the Tanzania financial sector indicated that apart from the investment in government securities, banks were heavily capitalized in 2002. Another study by the IMF (2010) indicates that the capitalization of banks were not uniform, with weaknesses in the capitalization of small banks. During the time of the study in December 2010, there were a total of 28 commercial banks with total assets of TZS12 trillion. Three banks had nearly 50% of the total assets, with 54% of total branches, of which two (2) were foreign banks.

Statement of the Problem

The contribution of the banking sector to economic activities depends much on how banks allocate their assets and liabilities, that is, on their portfolio behaviour. Earlier research articulated that bank portfolio behaviour is a key determinant of cost and flow of credit to specific sectors of the economy, and hence banks must be very careful in their allocation of resources (Andersen & Burger, 1969). Commercial bank assets structure affects penetration of financial services to wide economic sectors. According to the BOT (2012) the contribution of the banking sector to the Tanzanian economy accounted for only 2.36 percent in 2012, up from 2.2 percent in 2011. Commercial bank assets structure in Tanzania is highly diversified, with more liquid assets than long investment assets (Aikaeli, 2006). Aikaeli also indicates that the percentage that is going to the economy as loans and advances is nearly equal to balances held by banks as cash and other clearing items. Banks are also heavenly invested in government securities. Investments in government securities is argued to have led to interest risk increase, and lack of funding to other economic activities. However, at the same time, it lowers the exposure of the private sector to credit risk to by commercial banks (IMF, 2010).

The banking sector in Tanzania enjoys high profit margins (Aikaeli, 2006), and has been stable as well as insolvent even with 32 percent of its outstanding assets being non-performing (IMF, 2003). The increased profitability of banks is not always a good sign, for it might cause a huge downturn of the banking sector in case of economic hardships (Paula, 2004), and poor access to financial services. High profitability of banks has been explained to be a normal feature of banking firms in developing countries (Flamini et al., 2009) given inherent risks within these economies. Evidence shows that foreign banks are more profitable than domestic banks (Claessens et

al, 1998). Other studies (Ahmad et al., 2008; Calomiris, 1992) reveal that high earnings may indicate that banks take more risks, and higher risks lead to credit crunch.

A bank level study in Tanzania by Satta (2004) indicated that foreign banking entry has not improved access to finance for small and medium enterprises (SMEs) despite market domination of banks. The same results were revealed in a study conducted in Latin American countries by Clarke et al. (2002) and Sengupta (2007). There are other studies that support the fact that foreign entry has increased lending to businesses. Some advocates for this view indicate that foreign banks are more efficient and more active in lending than domestic banks (Čihák & Podpiera, 2005), and more robust to shocks (Crystal et al., 2001). Foreign banks are also believed to highly focus on corporate multinational corporations from their home countries (Sabi, 1988).

Studies in portfolio behaviour reflect different perspectives on whether there are differences in portfolio the holdings of commercial banks between developing and developed world, and between local and foreign firms (Arjoon, 1994; Fakiyesi, 1999). Available studies were carried out before the implementation of the Basle Accord II and the liberalization of financial sector in their respective countries of analysis. In this regard, based on the diversified nature of the banking sector—with foreign and local banks and the domination of large, medium and small banks—it is important to examine the portfolio behaviour of banks. Thus, an analysis of the portfolio behaviour based on bank size and ownership structure (foreign or local) is important for academic and policy settings.

Objectives of the Study

Given the stated research problem, the objectives of this study are threefolds, which are mainly to:

(a) Analyse the influence banks portfolio holding (i.e., investment in loans, government securities, interbank loans and deposits) by commercial banks in Tanzania;
(b) Determine the extent to which portfolio holding of commercial banks differ with regard to bank size; and
(c) Determine the extent to which portfolio holding of commercial banks differ with regard to bank ownership.

Literature on Portfolio Behaviour of Commercial Banks

Theory of Banking

Banks are considered as special institutions and they exist because of two generic reasons: (i) they possess certain monopoly powers to do what other firms cannot do, such as accepting deposits; and (ii) they have the comparative advantages in providing services that can also be provided by others (Llewellyn, 1999). This section outlines important considerations on the theory of banking, as well as key features of CBs that affects capital structure decisions and portfolio holding.

An Overview of the Theory of Banking

One of the features that distinguish a banking institution from other institutions is the ability of the former to accept deposits and transform them into loan products (Heffernan, 2006). The banking sector is probably the most regulated sector, and as a result of regulation there is a link between capital ratios and portfolio risk of banks (Baer & McElravey, 1993; Saunders, 1994). Contemporary banking theory classifies the functions of banks into four main categories: liquidity and payment services; transforming assets; managing risks; and processing information and monitoring borrowers (Freixas & Rochet, 1997). This is due to their ability to channel monetary policies and to protect the safety and soundness of the economic system (Gardner & Mills, 1988).

Objective Functions of a Bank

The objective function of a bank has been discussed extensively by various scholars (Fakiyesi, 1999; Parkin, 1970; Pierce, 1967). CBs have a common objective function that reflects the interests of the owners and management of the banking firms. Due to this objective, bank size, rate of growth of assets and income, stability of reported net income and loan losses have impact on the growth and welfare of banking firms. The principle objective function of a banking firm is conditioned by the fact that promoters are required by the central bank to meet capital adequacy conditions by depositing an initial capital (K_0) before they commence business at time $t = 0$. When the initial capital is satisfied, the bank is ready to open doors to the public, and then a bank can collect deposits (*D*).

The initial capital (K_0) and the deposits (*D*) can be used to acquire investment assets that give a portfolio of assets ($\sum_{i=1}^{n} A_{t,i}$) of different risks and returns. In this case, for the initial period $t = 0$, the following relationship exists for the value of the assets and its financing sources:

$$\sum_{i=1}^{n} A_{t=0,i} = K_{t=0,i} + D_{t=0,i} \quad (1)$$

Total assets can be defined as the total funds of the bank such that,

$$\sum_{i=1}^{n} A_{t=0,i} = F_{t=0,i} \quad (2)$$

Where *F* is the total funds available.

This implies that total funds of a bank are such that:

$$F_{t=0,i} = K_{t=0,i} + D_{t=0,i} \quad (3)$$

Commonly however, D consists of diverse of deposits of different costs such that:

$$D_t = \sum_{i=1}^{n} d_{t,i} \quad (4)$$

Where $i = 1, 2, 3 \ldots n$ denotes various types of deposits available for the banking firm.

For this case, equation 5 becomes:

$$F = K_0 = \sum_{i=1}^{n} d_i \quad (5)$$

Deposits, however, have a cost element that has to be paid by a bank. Thus, in investing funds there should be a return to cover costs and operations. Deposits are also subjected to regulations by the central bank such that CBs put part of their deposits as a special reserve and also subscribe to the deposit insurance fund. This adds to costs of securing deposits. It also implies that capital adequacy is an important element to be considered by banks in their investment activities.

Equation 5 implies that available funds for investment depend much on initial capital and variety of deposits available to the banking firm. Funds obtained are assumed to be invested in classes of assets ($\sum_{i=1}^{n} A_{t,i}$) in the beginning of the period, with expected return (E_i) for each of the assets (A_i), where *t* i=1, 2, 3, …, *n*. Thus, the expected return on the funds at time *t*, will be given by an equation, which reads as:

(1)

$$E(R)_{t,i} = \sum_{i=1}^{n} A_{t,i} E(\tilde{R}) - \sum_{i=1}^{n} \alpha_i R_{t,i} \quad (6)$$

(2)

Theories on Commercial Banking Portfolio Choice

Banking firms are constrained in their portfolio choices. As business firms, CBs need to aim at maximizing shareholders' wealth while balancing risks and returns from their various investment avenues. This sub-section discusses the theories affecting the portfolio behaviour of CBs.

Portfolio Theory

Modern financial theory postulates that assets and liabilities can be viewed as comprising some components of portfolio that can be optimized (Markowitz, 1970). In an earlier

study on portfolio maximization model, Markowitz (1959) found that returns of one period can be measured by their variance and standard deviation. Further improvement of the portfolio theory by Klein (1971) introduced the issue of multiple periods in the modelling as well as other variables.

The general analysis of portfolio choice behaviour considers the problem of allocation of assets of banking institution given a certain portfolio size (Parkin, 1970). Bank portfolio behaviour has been defined as a process of allocating a given amount of wealth, defined as capital plus total deposits, between non-earning assets that include required and excess reserves, and earning assets that include loans and other investments (Andersen & Burger, 1969). In due regard, studies in portfolio behaviour of commercial banks take into consideration various factors that are important in the determination of a firm behaviour. They include such factors as random deposit, loan fluctuations, legal constraints and banking firm objectives. Robinson (1962) argues that bank funds are generated to be spent on priorities in descending order, namely, (a) legally required reserves; (b) secondary reserves; (c) customer credit needs; and (d) open investments for income.

On the basis of equation 1, the total commercial bank assets (A_t) constitute of cash (C_t), required reserves (RR_t), loans (L_t), investment in government securities (GS_t), and other assets (OA_t) which in this case include interbank loans, among others, such that:

$$TA_t = C_t + RR_t + GS_t + L_t + OA_t \quad (7)$$

Banks, however, actively manage in a dynamic way two sides of their balance sheets. This means bank liabilities are endogenously determined since there is no limit for banks to accept deposits. This explains why banks struggle to raise deposits by influencing customers' preferences through liability management and financial innovations. Thus, a more generalized banking firm portfolio equation can be explained as:

$$C_t + RR_t + GS_t + L_t + OA_t = D_t + K_t \quad (8)$$

The initial assumption on bank portfolio behaviour modelling is to assume that the banks operate to maximize profits:

$$\pi = r_l L + r_g GS - \eta \quad (9)$$

Subject to:

$$L, GS \geq 0$$
$$L + GS + C = D + K \quad (10)$$

Whereby cash is greater or equal to the reserve requirements that is a percentage of total deposits (D).

$$C \geq \rho D$$

Where

π = Bank profits in the period
L = Loans of bank made at interest r_l
GS = Government Securities bearing interest rate r_g
C = Cash
D = Deposits
K = Bank capital
η = Fixed costs of servicing bank deposits and capital; and,
ρ = Fractional of deposit reserve requirement ratio.

From equation 9, bank profits are given by:

$$\pi = r_l((l - \rho)D + K) - \eta \quad (11)$$

The percentage of a bank's deposits invested in different assets is invariant with respect to time path of deposits within a period. Within a period, portfolio adjustments in the portfolio holdings can take into consideration the impact of deposits. As long as the relation holds, the optimal portfolio is not affected by changes in deposits or interest rates. It is argued that a diversified bank portfolio can be optimal in the absence of uncertainty if not all assets have secondary markets. In a developing country

case like Tanzania, this is likely to happen due to the absence of secondary markets for all bank assets, and also due to the lack of derivatives and swaps markets (Fakiyesi, 1999; Mwizarubi, 2010). In this case, there is no incentive for maintaining excess liquidity for CBs (Aikaeli, 2006).

In theory, banks are assumed to choose simultaneously a volume and mix of their assets including liabilities during a planning horizon. Klein (1971) developed a model that has three assets and three categories of liabilities. The assets are cash (C), government securities (GS) and loans (L); while liabilities are demand deposits (DD), time deposits (TD), and equity capital (K). Klein (1971) assumed that equity capital is exogenous, and is thus not determined by firm operation, but depends on a bank's activities. Given regulations in the banking sector, this assumption cannot hold due to the fact that banks have no choice of raising the required equity capital contribution. A bank is assumed to maximize in a single period its returns measured by expected profits.

Considering Klein's (1971) model on expected returns and banks' objective function, a simplified form measuring expected returns is to maximize the profits based on various levels of returns. The simplified model for the profit maximization function of a banking firm can be presented as:

$$Max[E(\pi)] = gGS + l_s L - [r_{dd} DD + r_{td} TD + \varphi \quad (12)$$

Where

rdd and *rtd* are returns in demand deposits and time deposits; and,

φ is the cost associated with adjustments in deficiencies in liquidity.

The Klein model was criticized on various grounds, one being the lack of identification of outputs of a banking firm; and also for excluding liquidity and solvent aspects of a bank (Sealey & Lindley, 1977). Mullings (2003) maintains that bank capital can be viewed as a constraint to its profit. Also, profit (π) is considered to be a stochastic variable due to the fact that it depends on the yields on assets and cost outflows of borrowings that are uncertain (Parkin, 1970).

The problem of profit maximization does not imply that it is an ultimate goal of a commercial bank. For the purpose of this study, profit maximization is the sole comparable indicator and a goal that across banking firms. However, it is true that commercial banks have other objectives to pursue apart from profit maximization, and can sacrifice profits to undertake such other objectives that are hard to trace and model.

Portfolio Behaviour of Commercial Banks

Commercial bank portfolio behaviour has been researched widely. Several studies have been carried out in the developed world, especially the USA and European countries, on the behaviour of CBs portfolio on various aspects, especially in relation to money supply using time series data (Gupta, 1985; Pierce, 1967; Walker, 1997). The interest in the behaviour of banks concentrated on the structure of assets or investments of commercial banks and the impacts in money supply, regulations, capital and economic development.

Markowitz (1970) indicated that investors maximize utility as well as returns, and thus with the same returns different risk-averse investors will choose lower risks. The same can be applied to banking firms in their attempt to manage assets and liabilities by investing more in non-risk assets with same returns as risky ones. Examining the Canadian deposit-taking financial institutions, Gupta (1985) finds that CBs substitute their portfolio to long-term and short-term government bonds and other assets. Walker (1997) argued that for a bank to be profitable, it should increase its

proposition of portfolio held in government securities and reduce investments in loans and other assets. This implies that investment in government securities creates much more return than investment in other bank assets.

In Africa, a few studies have examined the portfolio behaviour of banks. Some of these were conducted in South Africa by Dennis (1979), in Nigeria by Fakiyesi (1999), and in Kenya by Nafula (2003). Dennis studied the portfolio behaviour of South African banks as related to economic performance in relation to loans in the private and government sectors. The study by Dennis utilized data from 1965 to 1975. He indicated that there is a strong relationship between economic growth and private lending. The study showed that banks regard lending to the government (investment in treasury bills) as a constraint on their preferred lending to the private sector. This is inconsistent with a later study by Walker (1997).

A study by Fakiyesi (1999) utilized what was named to be a model for portfolio behaviour for CBs in less developed countries. The study indicated that endogenous and exogenous factors were important in the determination of portfolio behaviour of CBs. Using time series annual data of banks in Kenya between 1996 and 2000, Nafula (2003) utilized a linear equation with earning as dependant variable on bank portfolio choice. It was found that increase in earnings of CBs is a result of increase in investment in loans, government securities and placement in other financial institutions.

In the African context, studies are much diversified in terms of data coverage. The study by Dennis (1979) is too old since by that time development of the financial systems in most African countries, and even in South Africa itself, were very low. A study by Fakiyesi (1999) considered an observation of general economic variables as important determinants of portfolio behaviour, and considered a rigid measure that all banks are the same in terms of ownership and size. A study by Nafula (2003), which is of recent in an African context, utilized annual data for five years only, and the context of the study was not well drawn by the researcher.

Elsewhere, Arjoon (1994) examined portfolio behaviour of the Caribbean countries and concluded that rates on loans and treasury bills were significant in commercial bank portfolio selection. Empirical studies in Brazil (Paula, 2004) indicate that short-term behaviour and high liquidity preference have resulted in low credit supply and a high banking spread. Berger et al. (1995) provided evidence that capital to assets ratio have been declining for 55 percent in the 1850s to 1990s in the US banking system. Flamini et al. (2009) found a negative correlation between public ownership and profitability, and that foreign ownership does not significantly affect earnings. Bourne (1977) observed that for US banking firms in the period of 1962-1971 there was no change in the banking portfolios in response to changes in interest rates.

By examining eight years' panel data from Malaysia, Ahmad et al. (2008) found that there is a correlation between bank capital and bank management risk-taking behaviour. In a further analysis, they argued that capital decisions of banking firms are not derived by profitability (ibid.). Calomiris and Wilson (2004) studied the capital of New York banks in the 1920s. They found that lending and low cost sources of capital prompted banks to increase their assets portfolio and maintain low default risk on deposits. Jacques and Nigro (1997) examined the effects of risk-based capital, portfolio risk, and bank capital. They noted that there were increasing capital ratios with the decreasing portfolio risk in CBs in the US during the first year of implementation of risk-based capital standards.

In a dynamic simulation model, Hancock and Wilcox (1994) found that banks adjust their

capital ratios much faster than the adjustment in loan portfolios. Guven and Persentili (1997) developed a multi-period model for analysing balance sheet structure of Turkish commercial banks. They argued that the inclusion of exogenous variables in the determination of banks' portfolio is important to analyse tradeoffs between profitability, risk and liquidity.

Methodology

This study focuses on examining the portfolio behaviour of commercial banks in Tanzania. Its main assumption is that commercial banks exist as institutions that pursue specific objectives reflected by managers and owners, which is shareholders' wealth maximization (Brealey et al., 2006; Fakiyesi, 1999; Parkin, 1970). Hence, the philosophical stance of this study was on objectivism epistemology, also referred to as functional epistemology (Suddaby & Greenwood, 2009). Suddaby and Greenwood indicated that in functional epistemology, institutions are viewed as discrete and structural objects. This study assumes that banks are objective institutions, thus its focus is on positivism paradigm. Positivism holds that a phenomena can be studied by using scientific methods to uncover the truth of an object in a logical approach that can be verifiable (Blumberg, 2011; Bryman & Bell, 2011; Crotty, 1998; Quinlan, 2011).

Data Type, Source and Statistical Measurements

This study tries to answer the broad question: What has been the investment choices and behaviour of CBs? Does investment choices matter in relation to the size of a bank? Does the ownership of a bank has effect on investment choices of commercial banks? These questions calls for an exploratory study in the context of the Tanzanian banking sector. It treats banks as independent and objective institutions, and it applies a longitudinal study to examine the behaviour over time.

The data collection was based on purposive sampling method. Purposive (judgemental) sampling is based on a researcher's judgement about the appropriate characteristics of a sample (Zikmund, 2003). The data selected was based on a balance panel data of the banks studied in the sample whereby all the variables of the unit of analysis of the study are consistent. For this case, to obtain the balance panel data, quarterly financial statements from the commercial banks published in public newspapers as per the BoT's regulations were used to form a panel data for the studied 14 banks from 1998 first quarter to 2010 fourth quarter. The data forms 52 observation periods for 14 banks, giving a total of 728 observation variables on a balanced panel. The banks studied had an average of 83% of the total assets, 85% of the total deposits, 79% of the total loans and advances and 81% of the net interest income. Data collection and analysis was done in 2013. Quarterly average on interest rates for various investment avenues of the commercial banks were obtained from BoT publications for the entire period of study.

The choice of the period of study was based on the fact that Tanzania was still implementing the Basel II provisions. It is to the knowledge of the researcher that Basel III was drawn for implementation in July 2011. The study assumes no price differentiation among CBs investment avenues. What differentiates the banks however is their portfolio strategy given their available resources and assets allocation choices.

An ordinary least squares (OLS) model formulated for this study that depicts maximization of net interest margin, presented in an estimation model, reads as:

$$\pi_{i,t} = \beta_0 + \beta_{i,t}\bar{\hat{v}}'_{w,(i,t)}\hat{W}_{i,t} + \varepsilon_{i,t} \quad (13)$$

Where

$\pi_{i,t}$ stands for profit of bank i,

$\bar{\hat{v}}'_{w,(i,t)}$ is a vector of average actual rates of returns (in percentage) to a bank for the individual assets and deposits,

$\widehat{W}_{i,t}$ is a matrix of choice and non-choice variable under consideration such that:

$$\widehat{W}_{i,t} = \frac{W_{i,t}}{\sum_{i=t}^{n} TA_{i,t}}$$

$\varepsilon_{i,t}$ is the stochastic error term, i = 1, 2, ..., *M* representing number of banks, and t = 1, 2, ..., *T* is the time period in quarters.

Data collected was subject to various tests, including normality tests. Since the researchers collected the financial data, it is known that data of such nature are affected by many factors of which normality test will not hold (Lee, 1985). Lee conducted a Monte Carlo simulation by comparing various ratios, building from an earlier work by Deakin (1972) and concluded that there is no normality in financial data and associated ratios. In the banking sector, several studies and tests on financial data have revealed the same observations of non-normality of bank financial data (Bedingfield et al., 1985; Kolari et al., 1989; So, 1994). It is evidenced further that normality distributions are not a vital condition for econometric analysis of ratios; and that transformation of ratios for normality is unnecessary (Fischer, Horn, and Klein, 2007). Thus, normality tests for the data was not performed for our study.

Another measure that was applied is unit root test. Time series data are known to be non-stationary in nature, i.e., having means and standard deviations that change over time. To test for heteroscedasticity, the Augmented Dickey Fuller (ADF) unit-root test in stata was applied for lags (p) of 1, 4, 8 and 12 applicable to panel data was used. The ADF was complemented by the Fisher test for panel data unit root test, also in stata. The lag length (p) in Fisher as ADF was set at zero (0). The test for unit root was rejected, and suggests for the use of ordinary least square (OLS) in running the models proposed in this study, both on fixed and random effects (Barnes, 1982). Pesaran's test for cross-sectional independence was applied whereby Ho: 'No cross-sectional independence.' The results indicated that there was cross-dependence among the banks. This was expected due to the interdependent nature of the banks and financial institutions.

The variables used to test the portfolio behaviour were fairy correlated. The return on deposit was negatively correlated due to the fact that the variable indicated expenses and thus, it was reported in negative numbers in the analysis. The results for the correlation analysis of the variables are as presented in Table 1.

Table 1: Correlation of the Variables Used to Test Portfolio Behaviour of Commercial Banks

	rll	**ggs**	**ribnk**	**rdepos's**
rll	1.0000			
ggs	0.5833	1.0000		
	0.0000			
ribnk	0.3901	0.4629	1.0000	
	0.0000	0.0000		
rdeposits	-0.9078	-0.6400	-0.5269	1.0000
	0.0000	0.0000	0.0000	

Key: **rll** = is total returns on loans, **ggs** = returns in the investment on government securities, **ribnk** = total returns in investment on interbank loans and **rdeposits** = total deposit interest liability paid by the banks.

Source: Analyzed from CBs Financial Statements

Findings, Results and Discussions

Banking Sector in Tanzania

The 14 sampled banks for the study recorded an increase in total deposits and liabilities held. The analysis indicates that banks have maintained a paid-up capital that is just enough to cover the amount needed by bank regulators, especially for foreign banks. The increase in the number of banks was an important factor for the increase in bank liabilities, especially deposits mobilization. The composition of bank assets classes are as shown in Fig. 1. As can be seen from the Figure, the banks have been increasing their investment in government securities and decreasing exposure to loan products.

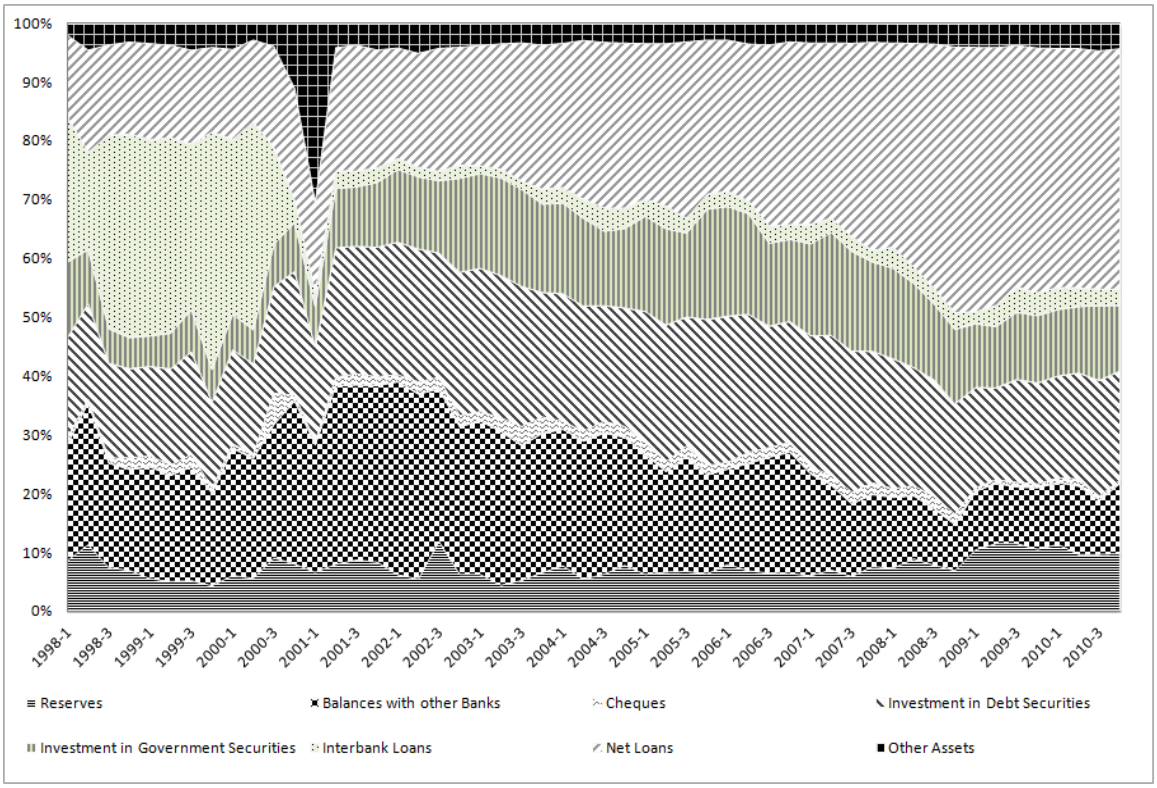


Figure 1: ***Composition of the Sampled Commercial Banks Assets from 1998-1 to 2010-4***

Source: Sampled CBs Quarterly Financial Statements

Profitability Measures

Commercial banks have been recording good performance, as measured by profitability indicators. The return on total assets of the banks ranged between 1% in 2010–1 and 5% in 2010–4. The low return on total assets is expected due to the fact that most of the bank assets also constitute large part of its liabilities, especially deposits, which account for more than 80% of the bank liabilities. The banks seem to have maintained a decrease in net income ratio over time, changing from 65% in 1998–1 to 56% in 2010–4. However, there was substantial increase in total loans if compared to the total assets that rose from 16% in 1998–1 to 44% in 2010–4. Net worth to the total loans were 25% in 2010–4, which includes both paid-up capital and accumulated retained earnings. Banks also recorded a substantial increase in the ratio of net income before taxes to net worth from 25% in 1998–1 to 55% in 2010–4. It is however noted that interest expenses to interest income ratio have been decreasing by almost half from 48% in 1998–1, 46% in 2000–3 to 20% in 2010–4.

Interest Rates

Interest rates spread has been decreasing over time, but still banks maintained about 14% on the interest rate spread on average for the period between 1998–1 to 2010–4. This situation does not anchor well with the principle of efficient bank intermediation. The interest rates on treasury bills (government securities) increased sharply after 2002, reaching a peak of 17% in 2007–2, which was above the average interest rate on lending. In a situation where risk free interest rate is higher than the average lending

Table 2: Sampled Commercial Banks Performance Indicators of the Sampled Banks for Selected Periods of the Study

Figures in Percentage (%)	1998-1	2000-3	2002-4	2005-2	2007-3	2009-1	2010-1	2010-2	2010-3	2010-4
Return on Average Total Assets	2.4	3.7	2.8	2.4	4.2	2.3	1.2	2.4	3.6	5.3
Return on Ordinary Shareholder's Funds	24.5	38.2	34.1	29.1	40.7	19.4	10.7	20.5	30.9	48.0
Net Income before Taxes/ Net Worth	24.6	42.3	41.3	36.4	51.6	23.6	12.9	24.7	37.4	55.0
Net Income before Taxes/ Total Assets	2.4	4.1	3.4	3.0	5.3	2.8	1.4	2.9	4.3	6.1
Net interest Income/Total Assets	1.2	3.6	3.3	2.9	5.0	2.8	1.4	2.7	4.0	5.3
Interest income/Total Income	65.2	64.9	56.2	55.0	57.0	55.1	56.5	56.0	56.0	55.7
Interest expense/Interest Income	47.5	45.8	22.2	18.0	24.7	18.7	23.0	21.5	21.3	20.4
Total Loans/Total Assets	15.6	22.3	23.2	32.1	38.6	48.6	44.3	44.1	44.5	44.1
Net worth/Total assets	10.0	9.6	8.1	8.3	10.3	11.8	11.1	11.8	11.6	11.1
Net worth/Total loans	63.9	43.1	35.0	25.8	26.7	24.2	25.0	26.7	26.0	25.2

Source: Computed from the Sampled CBs Quarterly Financial Statements

rate, to maximize returns to shareholders and decrease operations costs, banks are much comfortable investing in government securities than extending loans to the public. The increased investment in government securities affects economic sectors and money supply to the private sector, as well as creating a negative impact to the economy. Fig. 2 suggests that the trend of the interest rate on treasury bills followed the trend on the interbank loan rates.

Statistical Results

Hypotheses Tested

Based on the discussions in analyzing the portfolio behaviour of the CBs for the period under study, the following statements was hypothesized.

Hypothesis 1: Portfolio holding of commercial banks in Tanzania is positively influenced by returns on investment in loans, government securities and interbank lending and negatively by amount paid to depositors.

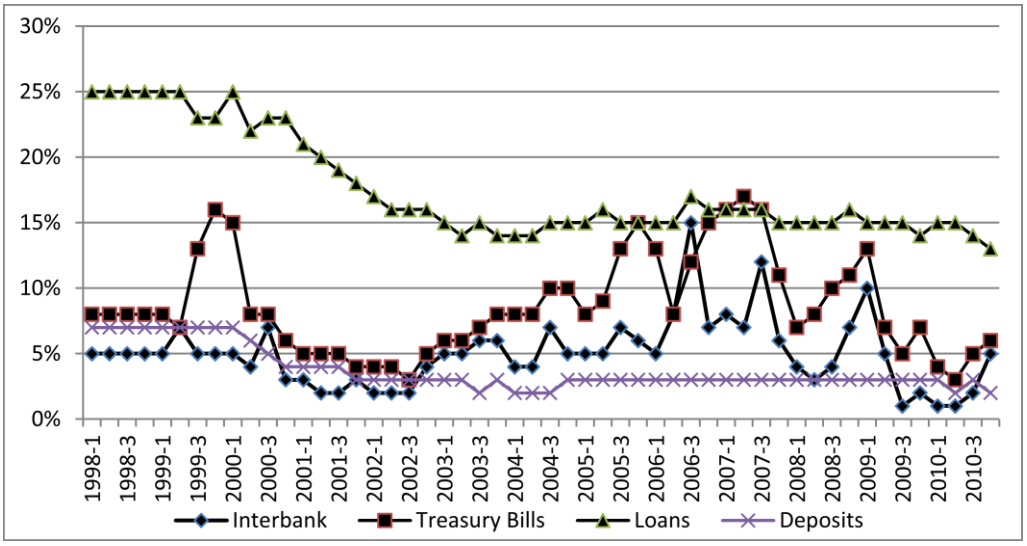


Figure 2. ***Trends in the Development of Interest Rates from 1998-1 to 2010-4***

Source: Bank of Tanzania Quarterly Reports for Respective Quarters

Hypothesis 2: Portfolio holding of commercial banks in Tanzania is positively influenced by returns on investment in loans, government securities and interbank lending and negatively by amount paid to depositors and influenced by bank size.

Hypothesis 3: Portfolio holding of commercial banks in Tanzania is positively influenced by returns on investment in loans, government securities and interbank lending and negatively by amount paid to depositors and influenced by bank ownership.

The hypothesis can be operationalized as in the following equation:

$$\pi_{i,t} = r_{l,i}L_{i,t} + g_t GS_{i,t} + rINBK_{i,t} + r_{d,t}DEPOSL \quad (14)$$

Where:

$\pi_{i,t}$ = the profit of individual bank *i* at time *t*, measured by net interest income (*NII*)

$r_{l,i}L_{i,t}$ = average interest on loans (*rl*) times at time *t*, investment in loans of individual bank *i* at time *t*

$g_t GS_{i,t}$ = average interest in the government securities *g* at time *t* times investment in government securities of bank *i* at time *t*.

$rINBK_{i,t}$ = average interest earned in interbank loans (*r*) times investment on interbank loans of bank *i* at time *t*.

$r_{d,t}DEPOSL$ = average interest rate paid to depositors (*rd*) times deposits taken by bank *i* at time *t*.

φ = is the dummy variable for the bank size (1 = small, 2 = medium and 3 = large) measured by bank assets for the year 2010.

λ = is the dummy variable for the ownership (1 = Local, 2 = Foreign) measured by shareholding structure.

The results based on the hypotheses were subject to three models in respect to the hypotheses as follows.

Models Results for the Hypotheses

Model 1: General Model Based on Random Effect

To test for the presence of individual bank effects, the Hausman test was conducted. The null hypothesis was that *sd*(*ui*) = 0, where *sd*(*ui*) is the standard deviation of the *ui* terms (Ullman & Bentler, 2004). If this is true, then there is no within-unit correlation. Results for the model (Table 3) indicated 2(1) = 1.30, p = 0.25.

The estimations of the portfolio behaviour measured by net interest margin (*NII*) across banks indicates that there is a significant effect for income obtained from net loans (*rlL*), *z*(727) = 7.87, $p < 0.01$. Returns from investment in government securities (*gGS*), *z*(727) = 4.56, $p < 0.01$. Interbank loans (*rIBNK*), *z*(727) = 1.40, $p = 0.16$, and interest on deposits (*rDEPOSITS*), *z*(727) = 0.62, $p = 0.54$, were not statistically significant, indicating that they have no impact on income generation of the CBs. The deposits returns (payments) are expected to behave negatively due to the fact that it is a liability item to the CBs.

Model 2: Effects on Bank Size

Three dummy variables were used to test the portfolio holding of commercial banks over the period of study based on bank size. The 14 banks studied were assigned dummy variables based on their volume of assets at the end of the 2010 as follows: one (1) indicating small banks, two (2) indicating medium-sized banks, and three (3) representing large banks. The stratification of the 14 banks revealed that seven (7) were small banks, three (3) were medium-sized banks, and four (4) were large banks.

The model indicated a strong correlation, *r*2 = 0.79, with significant levels within the bank size groups $F(6,721) = 455.95$ $p < 0.01$. The estimations of the portfolio behaviour measured by net interest margin (*NII*), based on the bank size, indicated that return on the net loan products was (*rlL*), *t*(721) = 15.54, $p < 0.01$, and returns on investment in government securities (*gGS*), *t*(721) = 12.33, $p < 0.01$.

Banks investment returns on interbank loans (*rIBNK*), based on the bank size model indicated that it is a statistically significant variable, $t(721) = 2.71$, $p = 0.01$, and payments of interest on deposits (*rDEPOSITS*) based on the size of the bank is also significant, $t(712) = 2.31$, $p = 0.02$. Small banks were used as the control variable; and large banks proved to be significant players in the market based on the net interest rate returns, $t(721) = 2.78$, $p = 0.01$, while medium sized banks were not significant, $t(721) = 0.40$, $p = 0.69$.

Model 3: Effects on Bank Ownership

The also study compared foreign versus local banks. A foreign bank was defined as a bank whose operations of banking business is headquartered outside Tanzania, or a bank that has established its presence in Tanzania through establishing its own subsidiary branches or acquiring shares of existing commercial banks, whose headquarters are outside Tanzania; or where majority of shares of a bank are owned by (a) foreign firm(s) or institution(s), but the bank's headquarters are in Tanzania. Out of the 14 studied banks over the period of 52 quarters, foreign banks were 10, while local banks were four (4).

The bank ownership effect model indicated a strong correlation, $r2 = 0.79$; with statistical significant on the two groups, that is, foreign and local banks $F(5,722) = 539.14$ $p < 0.01$. The estimations of the portfolio behaviour measured by net interest margin (*NII*) based on the ownership effects indicated a return on net loan products (*rlL*), t(727) = 16.16, $p < 0.01$; and returns on investment in government securities (*gGS*), $t(727) = 13.02$, $p < 0.01$ are significant. Interbank lending returns (*rINBK*) indicated significant effect based on foreign banks, $t(727) = 2.62$, $p = 0.01$. Payments of interest on deposits (*rDEPOSITS*) is not a significant variable, $t(727) = 0.69$, $p = 0.45$. Foreign banks do not seem to be statistically significant in earning higher returns as compared to local banks measured by net interest rate returns, $t(727) = -0.56$, $p = 0.57$.

Summary of the Results

Table 3 presents a summary of the results based on the three hypothesis and the respective models.

Table 3: Summary of the Results for Portfolio Behaviour of Commercial Banks

Variable	Model 1 General Model	Model 2 Bank Size	Model 3 Bank Ownership
rlL	0.71 (7.87)***	0.76 (15.54)***	0.69 (16.16)***
rGS	0.71 (4.56)***	0.69 (12.33)***	0.72 (13.02)***
rIBNK	0.28 (1.40)	0.28 (2.74)**	0.26 (2.62)***
rDEPOSITS	0.15 (0.62)	0.41 (2.31)**	0.09 (0.69)
_Isize_2	--	396.30 (0.40)	--
_Isize_3	--	3380.86 (2.78)**	--
_Iowner_1	--	--	-390.95 (-0.56)
Constant	499.1 (1.49)	298.93 (0.68)	634.32 (1.02)
R-squared (N)	0.7886 (728)	0.7914 (728)	0.7887 (728)

Note. Number in the parenthesis are t values except for the Random effect model, represent by Z values. *** Significant at 1% test level, ** Significant at 5% test level and * Significant at 10% significant level.

Discussion of the Results

The results of this study indicate that portfolio behaviour of the CBs is almost the same to all banks studied, and banks earn share of positive profits in investing almost in the same ways, indicating that there is inadequate differentiation, innovation or avenues to invest by CBs in Tanzania. All conducted tests -- that is, across time effects, size effects and ownership effects -- indicated that investment in loans (*rlL*) and government securities (*gGS*) are significant variables at 1 percent test level. Interbank loans (*rIBNK*) and payment on the deposits (*rDEPOSITS*) were considered to behave differently. The study results are consistent with the study by Arjoon (1994) and Fakiyesi (1999). The results can be associated with lack of specialization of the banks. For instance, banks operate almost in the same market niche, offering the same products to customers and pricing competitively.

Very few banks have specialized bank products such as mortgage finance and leasing.

Development of mortgage finance is under the process, and the government through the BoT has recently set up a mortgage refinancing company. Investment in other forms of lending such as leasing and consumer credits (issue of credit cards) are not yet in place. The results also suggest that in general banks use the same strategies in management of the portfolios. CBs find it easy invest in loans and government securities. In terms of deposit mobilization, a major percentage of the bank deposits are derived from current deposits. Time deposits and saving deposits have almost been in a tie for the 13 years of the study. This implies that banks do not a have stable and secure sources of financing and mobilization of savings deposits at an optimal level to propel rapid economic growth. Also, it can be noted that most of the deposits garnered by CBs are from the central government, government related institutions and few from the private sector. The business sector is not very much developed to generate substantial surplus funds to be mobilized as bank deposits for long-term maturity.

The study reported high interest margin between *rlL* and *rDEPOSITS*, which showed that banking sector is not competitive and efficient in banking intermediation. These results are consistent with those of Aikaeli (2006). Return of government securities is also reported to be the same as the rate of deposits. In this situation where risk-free rate (government security rate) is equal to the risk asset rate, banks are expected to, and were actually investing more in the government securities than in loans, which could support more economic activities. Although investment in government securities is appreciated to regulate macroeconomic variables in the economy, such efforts should not be anchored to increased interest rates on government securities. The increased rates of government treasury bills have also increased the risk premium charged to bank borrowers.

Bank size was found to be significant for large banks in portfolio holding, and size has an impact on the the total returns in investment in interbank loans (*rIBNK*) at 5 percent test level. As indicated in these results, large banks pay just little amount to depositors. This is not surprising because most of the deposits, which are held by the three large banks (CRDB, NMB and NBC) mostly originated from ministries, parastatals and government agents. In this case, most of the deposits are current deposits. In recent years, the government issued an intention to transfer some of its deposits from commercial banks to the BoT. The decision was not welcomed by CBs with large government deposits since they used these to purchase treasury bills whose rates are more attractive than investment in loans.

Furthermore, the results of this study indicated that bank ownership had no significant impact on portfolio holdings, but they report a significant impact on interbank loans (*rIBNK*) at 5 percent test level, based on foreign banks' portfolio holdings. These results indicate that foreign banks earn substantially in interbank loans. It is also surprising that local banks do not have advantage over the foreign banks in portfolio holdings. The results are consistent with Micco et al. (2007) and Sengupta (2007); but inconsistent with De Haas and Naaborg (2006), Micco and Panizza (2006), Simpassa (2011), Taboada (2011) and Unite et al. (2002).

The study results also indicated that local banks maintain high deposit rates and offer more loans than foreign banks. This advantage, however, is not significant to invest in more strategic areas, possibly due to the limited products available in the banking sector. The results are not surprising given the concentration of the banks in Dar es Salaam, the major commercial city, where the headquarters of all banks under study are concentrated. Ownership could have impact given that local banks have more exposures to local areas and thus may offer more customized services than foreign banks given the fact that only few Tanzanians have access to financial services. A statistical significance test in

interbank lending by the foreign banks indicates that these banks posses experts in dealing with other institutions, as well as undertaking large transactions. Most of the lending is done to small banks, and especially to local banks. In this case, local banks seem to lack adequate expertise in managing their assets and liabilities.

Conclusion and Policy Direction

The results indicate that CBs in Tanzania behave differently in portfolio holdings, and there is no difference among banks in portfolio holdings across time. All banks earn a share of positive profits regardless of their size and ownership, and invest almost in the same ways, indicating that there is a lack of innovation and product differentiation in the banking sector. This also indicates that there is no much differences in bank investment products offered by CBs. All tests conducted – i.e., across time effects, impacts on the size and ownership effects -- indicated that returns on investment in loans (*rlL*) and government securities (*gGS*) are the important variables in CBs' portfolio holdings. The results suggest that banks are very risk-averse, and do not want to take much risk in their investment undertakings. Interbank loans (*rIBNK*) and payment on the deposits (*rDEPOSITS*) are considered to behave differently, based on the size and ownership of a bank.

Bank size was found to be significant for the large banks in portfolio holding, and it has an impact on the returns on interbank lending (*rIBNK*) and payment of depositors (*rDEPOSITS*), suggesting differences in the remuneration of depositors and deposit mobilization strategies among banks. Ownership has no significant impact on the CBs portfolio holdings, but it is statistically significant on returns based on interbank lending (*rIBNK*) for foreign firms portfolio holdings. The results indicate that on average local banks earn more than the foreign banks. Foreign banks incur various costs that make their reported net interest income to be lower than those of local banks. These costs relate to the use of information systems, expatriates and the other costs that are incurred at the headquarters of foreign banks. The recent increase in the number of banks and stringent regulations by the BOT may have influence on interbank returns effects; benefiting large, foreign and more experienced market players.

We recommend that there is need for continuous monitoring of banks and strict regulations on banking business, especially on further foreign entry to the Tanzanian market. This is important to promote more financial inclusion as well as to capture the unserved market using existing players. Also, there is need to regulate large banks, as well as the government-owned funds that are treated as deposits in these banking institutions. This is important for a smooth playing ground by CBs. Also, since large banks comprise of a large percentage of banking sector assets, proper regulations are important to mitigate risks of bank failures, and enhance a more competitive environment in the banking sector in Tanzania.

This study posed several limitations to derive operationalization of the model. One of the limitation is the fact that the study assumed uniform returns on the assets and payment to depositors. The study also ignored the mix of assets such as several classes of loans and deposits. Further, it ignored bank operational costs by considering only net interest income, which results from traditional banking. However, income in modern banking is also derived from the non-interest income. Finally, the study ignored the use of net profit margin and market data, which may have added more light from investors' perspectives.

References

Ahmad, R., M. Ariff & M. Skully,, (2008), "The Determinants of Bank Capital Ratios in a Developing Economy," *Asia-Pacific Financial Markets*, 15(3): 255-272. doi: 10.1007/s10690-009-9081-9. Accessed on 17th May 2011

Aikaeli, J., (2006), "Efficiency and the Problem of Excess Liquidity in Commercial Banks in Tanzania," PhD thesis, University of Dar es Salaam, Dar es Salaam.

Andersen, L. C. & A. E. Burger, (1969), "Asset Management and Commercial Bank Portfolio Behaviour: Theory and Practice," *The Journal of Finance*, 24(2): 206–221.

Arjoon, S., (1994), "Portfolio Behaviour of Commercial Banks in the Commonwealth Caribbean," *Applied Financial Economics*, 4(6): 413–422.

Baer, H. L. & J. N. McElravey,, (1993), "Capital Shocks and Bank Growth - 1973 to 1991," *Economic Perspectives*, 17(4), Retrieved from Bank of Chicago website: http:// www. chicagofed.org/digital_assets/publications/economic_perspectives/1993/ep_jul_aug1993_part1_baer.pdf. Accessed on 20th June 2011.

Bank of Tanzania (BoT), (2012), *Banking Supervision Report 2012,* Dar es Salaam: Bank of Tanzania.

Barnes, P., (1982), "Methodological Implications of Non-Normally Distributed Financial Ratios," *Journal of Business Finance and Accounting*, 9(1), 51–62.

Bedingfield, J. P., P. M. J. Reckers & A. J. Stagliano,, (1985), "Distributions of Financial Ratios in the Commercial Banking Industry," *Journal of Financial Research*, 8(1): 77–81.

Berger, A. N., R. J. Herring & G. P. Szegö,, (1995), "The Role of Capital in Financial Institutions," *Journal of Banking and Finance*, 19(3–4): 393–430.

Blumberg, B., (2011), *Business Research Methods*, 3rd Edn., London: McGraw-Hill Education (UK).

Bourne, C., (1977), *Commercial Bank Portfolio Behaviour in Jamaica*, Kingston, Jamaica: Institute of Social and Economic Research, University of the West Indies.

Brealey, R. A., S. C. Myers & F. Allen,, (2006), *Corporate Finance*, New York: McGraw-Hill Irwin.

Bryman, A. & E. Bell,, (2011), *Business Research Methods* (Third edn.). New York: Oxford University Press.

Calomiris, C. W., (1992), "Regulation, Industrial Structure, and Instability in US Banking: An Historical Perspective," In M. K. L. J. White (ed.), *Structural Change in Banking*. Irwin: Irwin Professional Pub.

Calomiris, C. W. & B. Wilson,, (2004), "Bank Capital and Portfolio Management: The 1930s 'Capital Crunch' and the Scramble to Shed Risk," *The Journal of Business* 77(3): 421–455. doi: 10.1086/386525

Chijoriga, M. M., (2004), "The Interrelationship Between Bank Failure and Political Interventions in Tanzania in the Pre-Liberalization Period," *African Journal of Finance and Management*.

Čihák, M. & R. Podpiera,, (2005), "Bank Behaviour in Developing Countries: Evidence from East Africa," IMF Working Papers, 5129, 1–24.

Claessens, S., A. Demirguc-Kunt & H. Huizinga,, (1998), *How Does Foreign Entry Affect the Domestic Banking Market?* Washington, DC: World Bank, East Asia and Pacific Region and Development Research Group.

Clarke, G. R. G., R. Cull,, P, M. S. Martinez & S. M. Sánchez,, (2002), *Bank Lending to Small Businesses in Latin America: Does Bank Origin Matter*? Washington, DC: World Bank, Development Research Group, Finance.

Crotty, M., (1998), *The Foundations of Social Research: Meaning and Perspective in the Research Process*, London: Sage Publications.

Crystal, J., B. G. Dages & L. S. Goldberg,, (2001), *Does Foreign Ownership Contribute to Sounder Banks in Emerging Markets? The Latin American Experience*, SSRN eLibrary. Accessd 27th July 2011.

De Haas, R. & I. Naaborg,, (2006), "Foreign Banks in Transition Countries: To Whom Do They Lend and How Are They Financed?" *Financial*

Markets, Institutions and Instruments, 15(4): 159–199. doi: 10.1111/j.1468-0416.2006.00116.x. Accessed 25th July 2011

Deakin, E. B., (1972), "A Discriminant Analysis of Predictors of Business Failure," *Journal of Accounting Research*, 10(1): 167–179.

Dennis, R. J., (1979), "Portfolio Behaviour of South African Commercial Banks 1965–1975," *South African Journal of Economics*, 47(1).

Fakiyesi, T., (1999), *Money, Finance and Portfolio Behaviour of Commercial Banks: Analysis of Nigeria's Experience*, Lagos: Panaf Publishing, Inc.

Fischer, M., A. Horn & I. Klein,, (2007), "Tukey-Type Distributions in the Context of Financial Data," *Communications in Statistics Theory and Methods*, 36(1): 23–35.

Flamini, V., C. A. McDonald & L. bSchumacher,, (2009), *The Determinants of Commercial Bank Profitability in Sub-Saharan Africa,* SSRN eLibrary. Accessed 20th July 2011

Freixas, X. & J.-C. Rochet,, (1997), *Microeconomics of Banking*, Cambridge: MIT Press.

Gardner, M. J. & D. L. Mills,, (1988), *Managing Financial Institutions : An Asset/Liability Approach*, Chicago: Dryden Press.

Gupta, K., (1985), "Portfolio Behaviour of Selected Financial Institutions in Canada," *Applied Economics*, 17(2), 341–358.

Guven, S. & E. Persentili,, (1997), "A Linear Programming Model for Bank Balance Sheet Management," *Omega*, 25(4): 449.

Hancock, D. & J. A. Wilcox,, (1994), "Bank Capital and the Credit Crunch: The Roles of Risk-Weighted and Unweighted Capital Regulations," *American Real Estate and Urban Economics Association Journal*, 22(1): 59.

Heffernan, S., (2006), *Modern Banking*, Chichester: J. Wiley.

International Monetary Fund, (2003), *Tanzania: Financial System Stability Assessment: Including Reports on the Observance of Standards and Codes on Banking Supervision*, Washington: International Monetary Fund.

IFM, (2010), *United Republic of Tanzania Financial System Stability Assessment Update*, Washington, DC: International Monetary Fund (IMF).

Jacques, K. & P. Nigro,, (1997), "Risk-Based Capital, Portfolio Risk, and Bank Capital: A Simultaneous Equations Approach," *Journal of Economics and Business*, 49(6): 533.

Klein, M. A., (1971), "A Theory of the Banking Firm," *Journal of Money, Credit and Banking*, 3(2): 205–218.

Kolari, J., T. McInish,, and E. Saniga,, (1989), "A Note on the Distribution Types of Financial Ratios in the Commercial Banking Industry," *Journal of Banking and Finance,* 13(3): 463–471.

Lee, C.-W. J., (1985), "Stochastic Properties of Cross-Sectional Financial Data," *Journal of Accounting Research*, 23(1): 213–227.

Llewellyn, D. T., (1999), *The New Economics of Banking*, Amsterdam: Société Universitaire Européenne de Recherches Financières.

Lwiza, D. R. B. & S. Nwankwo,, (2002), "Market-Driven Transformation of the Banking Sector in Tanzania," *International Journal of Bank Marketing*, 20(1): 38.

Markowitz, H. M., (1959), *Portfolio Selection: Efficient Diversification of Investments,* New York.

Markowitz, H. M., (1970), *Portfolio Selection: Efficient Diversification of Investments*, New Haven: Yale University Press.

Micco, A. & U. Panizza,, (2006), *Bank Ownership and Lending Behaviour*, Santiago.

Micco, A., U. Panizza,, and M. Yañez,, (2007), "Bank Ownership and Performance. Does Politics Matter?" *Journal of Banking and Finance*, 31(1), 219-241. doi: DOI: 10.1016/ j.jbankfin. 2006.02.007. Accessed on 4th July 2011.

Mullings, R., (2003), "Capital Requirements and Commercial Bank Behaviour: The Jamaican Experience," from http://www.boj.org.jm/uploads/pdf/papers_pamphlets/papers_pamphlets_capital_requirements_and_commercial_bank_behaviour_–_the_jamaican_experience.pdf Accessed on 19th June 2011.

Mwizarubi, M., (2010), "The Applicability of Financial Derivatives in Tanzanian Financial Institutions: A Cross-Sectional Study of Commercial Banks," MBA Dissertation, University of Dodoma, Tanzania.

Nafula, N. N., (2003), *Bank Portfolios and Bank Earnings in Kenya: An Econometric Analysis*, Nairobi: Kenya Institute for Public Policy Research and Analysis.

Parkin, M., (1970), "Discount House Portfolio and Debt Selection," *The Review of Economic Studies*, 37(4): 469–497.

Paula, L. F. D., A J., Alves, (2004), *Banking Behaviour and the Brazilian Economy After the End of the Real Plan: A Post-Keynesian Approach*, (4.20 edn., Vol. 227, Banca Nazionale del Lavoro Quarterly Review - Roma.

Pierce, J., (1967), "An Empirical Model of Commercial Bank Portfolio Management," In D. T. Hester (ed.), *Studies of Portfolio Behaviour*, New York: John Willey and Sons.

Quinlan, C., (2011), *Business Research Methods*, Hampshire (UK): Cengage Learning EMEA.

Robinson, R. I., (1962), *The Management of Bank Funds*, New York: McGraw-Hill.

Rose, P. S., (1991), *Commercial Bank Management: Producing and Selling Financial Services*, Homewood, IL: IRWIN.

Sabi, M., (1988), "An Application of the Theory of Foreign Direct Investment to Multinational Banking in LDCS," *Journal of International Business Studies*, 19(3): 433–447.

Satta, T. A., (2004), "The Influence of Foreign Bank Entry on Lending to Small Firms in Tanzania," *The Journal of Policy Reform*: 7(3), 165–173.

Saunders, A., (1994), *Financial Institutions Management: A Modern Perspective*. Burr Ridge, Ill.: Irwin.

Sealey, C. W. & J. T., Lindley, (1977), "Inputs, Outputs, and a Theory of Production and Cost at Depository Financial Institutions," *Journal of Finance*, 32(4).

Sengupta, R., (2007), "Foreign Entry and Bank Competition," *Journal of Financial Economics*, 84(2): 502.

Simpasa, A. M., (2011), "Competitive Conditions in the Tanzanian Commercial Banking Industry," *African Development Review*, 23(1): 88–98.

So, J. C., (1994), "The Distribution of Financial Ratios-A Note," *Journal of Accounting Auditing and Finance*, 9(2): 215.

Suddaby, R., & R. Greenwood, (2009), "Methodological Issues in Researching Institutional Change," In D. A. Buchanan and A. Bryman (eds.), *The SAGE Handbook of Organizational Research Methods*, London: SAGE Publications Ltd.

Taboada, A. G., (2011), "The Impact of Changes in Bank Ownership Structure on the Allocation of Capital: International Evidence," *Journal of Banking and Finance*, In Press, Corrected Proof February 2011. doi: 10.1016/j.jbankfin. 2011.02.017. Accessed on 12th February 2012.

Ullman, J. B. & P. M., Bentler, (2004), "Structural Equation Modelling," In M. Hardy and A. Bryman (eds.), *The Handbook of Data Analysis,* London: Sage Publications.

Unite, A. A., G. Q. Tabios,, and M. J. Sullivan,, (2002), "The Impact of Liberalization of Foreign Bank Entry on the Philippine Domestic Banking Market," PASCN Discussion Paper Series. Retrieved from http://pascn.pids. gov.ph/DiscList/d01/s01-08.pdf

Walker, D. A., (1997), "A Behavioural Model of Bank Asset Management," *Journal of Economic Behaviourand Organization*, 32(3): 413–431. doi: 10.1016/s0167-2681(96)00029-7

Wangwe, S. & M. Lwakatare, (2004), "Innovation in Rural Finance in Tanzania," *The Third Annual Conference on Microfinance,* Arusha, Tanzania.

Zikmund, W. G., (2003), *Business Research Methods* (7th ed.). South Western: Cengage Learning: EMEAs.