

Determinants of Financial Performance of Tanzanian Banks

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Abstract

This paper examines factors that affect bank performances in Tanzania for the period of 2006 to 2013. The empirical results suggest that high net interest margins (NIM) and return on bank assets (ROA) are significantly associated with larger banks that hold a relatively high amount of capital. However, such banks have lower liquidity levels and poor management quality measured by how efficiently they reduce operating expenses. This calls for banks owners to review the performance of banks management in relation to their incentive packages so as to match management remunerations with their contribution towards bank performance. No impact was found of macro-economic variables measured by GDP growth rate and inflation on bank interest margin and profitability. Also the findings show that micro-financial factors, measured by financial structure and market concentration, are worth less to banks interest margin and profitability in Tanzania. As a matter of policy implications at the bank level, the improvement of the profitability of Tanzanian banks need to be conducted by a reinforcement of the capitalization through national regulation programs, and by reducing the proportion of non-interest bearing assets to the benefit of bank loans.

Keywords: bank, internal and external factors, interest margin, profitability, Tanzania

1. Introduction

The banking sector is very crucial in catalysing the economic growth of any country because through development of this important sector business financing becomes easier (Tarawneh, 2006). It should be kept in mind that better performance of banks is paramount in the call for business growth. Therefore, as a result, analysis of the performance commercial banks has been of great interest to researchers and academicians since the great depression in the 1940s. Recent studies show that in Sub-Sahara Africa (SSA), commercial banks are more profitable relative to other areas, with an average return on asset (ROA) of 2% (Flamini & Schumacher, 2009). This is due to the fact that investments in SSA are of higher risks compared to investment in other regions of developed countries. Also, the demand of bank services in SSA is high compared to

number of banks offering this service, which has led banks to charge high interest rates and other charges due to less competition.

The financial performance of a commercial bank can be influenced by internal and external factors (Al-Tamimi, 2010; Aburime, 2005). The classification of these factors is based on banks' specific features that are based on internal decision-making by management and board, whereas external factors are based on economic variables. Factors influenced by macro-economic variables cannot be controlled by management despite of the effect they have on the profitability of commercial banks (Al-Tamimi, 2010).

Bank performance is influenced by internal determinants that are related to bank-specific characteristics and external determinants that are related to economic rules and regulations governing bank operations. Several studies have been undertaken to determine the influence of such variables on banks performance, and the

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results have been different and controversial. This can be explained particularly with the difference in the data used for different periods of time and countries. Some authors—such as Staikouras (2004), Dermirguc-Kunt and Huizinga (1999), Abreu and Mendes (2002), Molyneux and Thornton (1992), Goddard et al., (2004) and Guillen et al. (2014)—have studied the performance of banks from data of several countries. Other studies that focused on single country to analyse determinants of bank performance include those of Berger et al. (1987) (USA), Baray et al. (1999) (Colombia), Mamatzakis and Remoundos, (2003) (Greece), Anis et al. (2015) (Tunisia), Garcia-Herrero et al. (2009) (China), and Dietrich and Wanzenried (2011) (Swiss).

All of the above studies examine internal and external determinants of bank performance. However, studies that focus in Tanzania are rare, and this study tries to join the debate of the determinants of bank performance using Tanzanian data set. Therefore, the key objective of the paper is to examine determinants of financial performance of banks in Tanzania. Investigations that establish internal and external factors that contribute financial performance banks in Tanzania are vital, given liberalization and different reforms that have emerged in the banking sector. Thus, the paper contributes on the analysis of factors that determine financial performance of banks in Tanzania using secondary data spanning eight years, i.e., 2006–2013. Also, the paper contributes on literature related to banking industry in Tanzania as few studies have been conducted in this field.

2. Related Literature

In the literature related to financial and economic issues, two key measures of bank performance are advanced: profitability of assets (return on assets and return on equities), and the net interest margin (Makram et al., 2015). Nevertheless, the consensus of the impact of some variables on the question of bank performance is not yet fully agreed among researchers.

2.1 Bank Performance Specific Determinants

2.1.1 Bank Size

There is a hot debate among authors in banking research related to the effect of bank size (measured by bank active assets) on profitability. The size of a bank account contributes for economies and diseconomies of scale in the industry.

Akhavein et al. (1997), Short (1979), Smirlock (1985), Bikker and Hu (2002), Pasiouras et al. (2007) and Guillen et al. (2014) found a positive impact of the size of a bank on bank performance. This is due to the fact that a significant size of a bank reduces costs due to economies of scale advantages. Also, a bank with a significant size is capable to raise operation funds at lower costs. However, Rumble (2006), Kasman (2010), and Dietrich and Wanzenried (2011) have found a negative relationship between bank size and banks performance, arguing that as a bank becomes larger, it increases the complexities to manage.

2.1.2 Capital Adequacy

Capital is the amount of own fund available to finance operation of a bank and act as a buffer in the case of adverse situation (Althanasoglou et al., 2005). Many studies on the impact of capitalization on bank performance have found that capital adequacy has positive impact on banks performance (see, e.g., Berger, 1995; Dermirguc-Kunt & Huizinga, 1999; Areu & Mendes, 2002; Goddard et al., 2004; Waceur & Goaid, 2001; Pasiouras & Kosmidou, 2007; Garcia-Herrero et al., 2009; Liu et al., 2010; and DeJonghe, 2010).

According to these studies, capital adequacy reduces the risk of bankruptcy, and hence allows investing in riskier credits with higher returns. Also banks that maintain high level of stockholder's equity reduce costs of financing by paying lower interest rate on their debts because of higher credit rating. Furthermore, better capitalized banks tend to borrow less as they finance their operation using stockholders'

equity capital adequacy, which is generally measured by the ratio of equity to total asset.

2.1.3 Efficiency/Expenses Management

The efficiency of a bank relates to expense/ cost control. Costs control is the primary determinant of the profitability of any organization. Efficient management of expense offers a major and consistent opportunity for profitability improvement (Staikouras, 2004). Several studies on the impact of costs efficiency on bank performance—such as by Molyneux and Thornton (1992), Berger and Mester (2003), Athanasoglou et al. (2008), Liu et al. (2010), Carvallo (2013) and Guillen (2014)—have found that efficiency management of costs improves bank performance. Hence, they found efficiency management of costs to be positively related to bank performance.

This relationship is due to the fact that effective banks are more capable to reduce costs and utilize their resources efficiently, which in turn generate better performance. With large size and differences in remuneration, efficient use of labour is a key element that influences the profitability of a bank. As conventional wisdom proposes, staff expenses are expected to be inversely related to profitability because these could reduce income generated from bank operations (Staikouras, 2004). The level of staff expenses measured in terms of overhead is negatively related to banks performance (Bourke, 1989).

2.1.4 Asset Quality

Bank assets include, among others, current assets, non-current assets, credit portfolios and other investments. Efficient utilization of these assets is expected to improve profitability. Loan portfolios of a bank form a large part of assets of the banks. The quality of a loan portfolio has direct relationship on bank performance. The most probable and more severe risk that banks may face is that related to losses resulting from bad loans or non-performing loans. The non-performing loans are considered as the best proxy of bank asset quality.

Bank asset quality is an important factor in bank performance as a significant increase in non-performing loans is an indicator of bank liquidation (Dermirguc-Kunt, 1989 and Whalen, 1991). Unpaid loans sometimes are written off as bad debts, which increases operating expenses and thus reduce the profitability of a bank (Osayameh, 1986; Orji, 1989; Omolumo, 1993). This implies that quality loan portfolio is positively related with banks performance. A study by Abata (2010) found that bank asset quality and bank performance are positively related. This is due to the fact that poor management of bank asset quality increases losses resulting from bad debt and extra costs to supervise collection from defaulters. Other associated costs that reduce bank profitability as a result of poor bank asset quality includes cost of winning public trust, cost of preventing banks from being rated poor, extra cost to monitor loan quality, and cost to maintain clients' faith (Khalid, 2012).

2.2 Micro-financial Determinants

2.2.1 Market Concentration

Two theories explain the impact of market concentration on bank performance. Structural impact on bank performance relates to the application of the efficient-structure (ES) and market-power (MP) hypothesis. The MP hypothesis states that an increase in market power yields monopoly profit. The ES hypothesis is the relative-market-power (RMP) hypothesis which provides that companies with large market share with differentiated services/products exercises market power and earn monopoly profit (Berger, 1995). Also, the X-efficiency version of the ES hypothesis posits that an increase in managerial and scale efficiency leads to higher concentration, which in turn increases the profitability of a company.

Studies, such as by Smirlock (1985) and Berger (1995) have examined the relationship between profits and the structure of a bank by testing the two hypotheses. Findings seem to support RMP because there is evidence that

superior management and increase in market share improve the profitability of a bank. In contrast, there is weak evidence that support the X-efficient structure hypothesis. Studies by Bourke (1989) and Molyneux and Thornton (1992) found that market concentration is positively related to bank performance.

2.2.2 Financial market maturity

Financial market maturity is another determinant of banks performance. A study by Dermirguc-Kunt and Huizinga (1999) analysed the link between banks performance and bank system maturity measured by the level of development and bank size. Their findings show that the size of a bank is negatively related to a bank's performance. Also, a study by Naceur and Omran (2011) found that the level of stock market development is a determining variable of bank performance. The findings show that banks operating in well-developed stock markets had more profit relative to banks operating in less developed stock markets.

2.3 Bank Performance Macro-economic Determinants

2.3.1 Inflation

Variables such as economic growth, inflation rate and interest rate ought to affect banks performance. However, the management of banks cannot control these variables. In a study on the relationship between banks performance and inflation, Revell (1979) found that the effect of inflation on bank performance depends on whether operating costs increase at a fast rate than inflation. The impact of inflation on bank performance depends on how accurately management forecast inflation. This helps them to adjust interest rates to increase their revenues higher than the rate at which costs increase because of inflation. Most studies undertaken to examine the impact of inflation and interest rate on bank performance found a positive relationship (see, e.g., Bourke, 1989; and Molyneux & Thornton, 1992).

On the other hand, studies by Afanasieff et al. (2002) and Naceur and Kandil (2002) concluded that inflation has a negative impact on bank performance measured by interest margin. This finding is supported by the argument that inflation reduces demand for credit because of the increase in uncertainty about the future.

2.3.2 GDP Growth

Cyclical movement (economic growth or economic decline) affect positively or negatively banks performance. This is due to the fact that economic growth increases economic activities, which in turn increase demand of credit lending; whereas economic decline decreases economic activities, which in turn decreases the demand of credit lending. A study by Dermirguc-Kunt and Huizinga (2000) using GDP and GNP per capital found that there is a relationship between bank performance and cyclical movement. A majority of studies, such as by Arpa et al. (2001) and Schwaiger and Liebig (2008) found that economic growth measured by GDP has a positive impact on bank performance. However, Bernanke and Gertler (1989) found that there is an inverse relationship between GDP growth and bank performance. It was explained that default rate increases during recession, which in turn leads banks to increase interest rate to compensate for the risk of defaults.

3. Methodology

The data used in this empirical work were extracted from the respective banks' published quarterly financial reports for the period 2006-2013. The sample is from 49 banks, including large banks, medium banks and regional and smaller banks. As some of the banks in the sample are not observed in the entire period because some new banks emerged later in the period, this empirical work uses unbalanced panel data to look into the determinants of bank financial performance in Tanzanian banks. Both external and internal determinants/indicators of banks financial

performance are employed in this paper. Likewise, macro-economic measures and financial structure indicators are used as external factors. A linear regression model relating to the performance measures to a variety of factors is used as indicated below:

$$Per_{ij,t} = f(BC_{ij,t} + M_t + FS_t)$$

Where;

$Per_{ij,t}$ = Performance measure for the bank j during the period t

$BC_{ij,t}$ = Bank variables for bank j at time t

M_t = Macro-economic variables

FS_t = Measures of financial structure indicators

Although the primary focus of this paper is the relationship between bank financial performance and bank determinants, the inclusion of macro-economic variables and financial structure indicators aims to control for cyclical factors that might impact bank profitability in Tanzania. In this paper two measures of financial performance are used: net interest margin (NIM) and return on assets (ROA). Net interest margin (NIM) measures a bank's profit earned on interest activities, while ROA measures the profit earned on the use of its assets, and reflects how well bank management use the bank's real investments resources to generate profits.

Profitability measured by ROA is consistent with the studies of Staikouras and Wood (2004), Deger and Adem (2011), and Samina and Ayub (2013). For bank's characteristics indicators used as internal determinants of performance we use capital adequacy ratio, bank liquidity, bank size, asset quality and operating efficiency as proxies for internal indicators as used in previous similar studies (see, e.g., Naceur, 2003).

To isolate the effects of bank's characteristics on performance, it is necessary to control for other factors that have been used as determinants of bank profitability. Two sets of

control variables are expected to influence banks' performance: macro-economic, and financial structure indicators.

The two macro-economic variables used in this paper are inflation (INF) and GDP per capita growth. Previous studies have reported a positive association between inflation and bank profitability. High inflation rates are generally associated with high loan interest rates, and therefore, high incomes. However, if inflation is not anticipated and banks are sluggish in adjusting their interest rates, then there is a possibility that bank costs may increase faster than bank revenues, and hence adversely affect bank profitability. The GDP per capital growth is expected to have a positive impact on bank's performance according to well documented literature on the association between economic growth and financial sector performance.

We also examine how the performance of the banking sector is related to the relative development of banks and stock markets. We use stock market capitalization divided by GDP (MCAP) as a proxy of financial market development, and as a measure of the size of the equity market. The size of the banking sector (SBS) is measured by the ratio of total assets of deposit banks to GDP, and is intended to measure the importance of bank financing in the economy. MCAP and SBS may also indicate the complementarities or substitutability between bank and equity market financing. Both variables are expected to influence positively bank performance. Bank concentration (CONC) equals the fraction of bank assets held by the five largest commercial banks in the country. Table 1 summarises the definitions of the variables used in the study

4. Empirical Analysis and Results

We first performed regression diagnostics, and before running linear regression we conducted several tests to confirm whether it was viable to run OLS. These tests include heroscedasticity and multicollinearity.

Table 1: Variables Description

Variable	Definition
Return on Assets-ROA	Net Profit/ Total Assets *100%
Net Interest Margin -NIM	Interest Received –Interest Paid/Average Earnings Assets
Capital adequacy ratio-CAR	Equity Capital/total Assets
Bank liquidity-BLQ	Liquid Assets/ Total Deposits*100
Bank size-BSZ	LN (TOTAL ASSETS)
Size of the banking sector -SBS	The ratio of total assets of the banks to GDP
Asset quality-AQ	NPL/Total Loans*100
Management Quality-MQ	Total Loan/Total Deposits*100
Operating efficiency-OE	Total Assets /Total Revenue*100
Inflation -INF	Percentage rate of change of a price index over time
Gross Domestic Product-GDP	All private and public consumption, government outlays, investments and exports minus imports that occur within a defined territory
Market Capitalization -MCAP	Stock market capitalization divided by GDP
Bank Concentration -BANCONC	Fraction of bank assets held by the five largest commercial banks in the Tanzania.

When we ran heteroscedasticity using the Breusch-Pagan test, the results showed that heteroskedasticity is a problem because the variance of the error term is constant. Because the hypothesis of 'constant variance of error term' is accepted, it is, therefore, imperative to believe that the effect of heteroskedasticity exists in our case.

Based on the p-values of the Breusch-Pagan test which is less than alpha of 5%, we can conclude that there is substantial amount of heteroskedasticity in the model. To correct for the heteroskedasticity we employ the white heteroskedasticity-consistent standard errors & covariance method. This yields heteroskedasticity corrected robust standard errors as presented in Tables 2 and 3.

Table 2: Regression Results for NIM

Number of obs.	=	201
F (10, 128)	=	26.30
Prob>F	=	0.000
R. squared	=	0.5964
Adj R-squared	=	0.5737
Root MSE	=	.48341

	NIM (Dep. Var)	Coef.	Std err	t	P[t]
CAR		2.263331	.3225944	7.02	8.00
LNTA		.0385392	.0209238	1.84	0.067
AQ		.2036005	.358379	0.57	0.571
OE		3.622403	.3160013	11.46	0.000
MGQ		-.2108313	.0712537	-2.96	0.004
BLQ		-.5027505	.2802444	-1.79	0.075
GDP		-.03778272	.0610301	-0.62	0.536
INF		1.592087	1.431549	1.11	0.268
MCAP		.051637	.0588081	0.88	0.381
BANCONC		0080271	.0068708	1.17	0.244
cons		-.482887	.8200205	-1.81	0.072

Table 3: Regression Results for ROA

Number of obs	=	189
F (10, 128)	=	15.62
Prob>F	=	0.000
R. squared	=	0.4674
Adj R-squared	=	0.4374
Root MSE	=	.03173

	ROA (Dep. Var)	Coef.	Std err	t	p[t]
CAR		.0377883	.0211724	1.78	0.076
LNTA		.0053012	.0013733	3.86	0.000
AQ		.0154904	.023521	0.66	0.511
OE		-.177268	.0207397	-8.55	0.000
MGQ		-.001318	.0046765	-0.28	0.778
BLQ		.0126655	.0183929	0.69	0.492
GDP		-.0008948	.0040055	-0.22	0.823
INF		-.0992578	.093955	-1.06	0.292
MCAP		.0041761	.0038597	1.08	0.281
BANCONC		.0003789	.0004509	0.84	0.402
cons		-.0648656	.0538193	-1.21	0.230

We also check the possibility of multicollinearity which might have an influence on our regression results. To test whether there is a potential multicollinearity we use variance inflation factor (VIF). The $1/VIF$ (tolerance factor) gives us what proportion of variance of an explanatory variable is independent of all the other explanatory variables. A VIF above 10 indicates potential trouble.

When this test was run the average VIF value was only 1.59 indicating no threat of multicollinearity as this value is far more below the recommended threshold of 10 as previously suggested by Belsley et al. (1980). After correcting the emerging heteroskedasticity and the facts that multicollinearity is not a problem we can now use the OLS.

4.3 Findings and Discussion

The regression results are presented in Tables 2 and 3, which include the basic specifications including a set of bank characteristic variables. Subsequently, we add the macroeconomic variables and the financial structure variables in our regression models.

The results in Tables 2 and 3 show that the size variable (LNTA) has mostly positive and significant coefficients at 1% significant level for ROA regression model, and 10% significant level for NIM regression model. Many researchers find that little cost saving can be achieved by increasing the size of a banking firm (Berger et al., 1987) and others report significant scale economies for banks whose asset size extends well into the billion range (Shaffer, 1985). This suggests that larger banks tend to increase margins and is inconsistent with models that emphasize the negative role of size arising from scale inefficiencies. Also, since larger banks are found to be more cost efficient in general (Wong et al., 2006a), larger banks can offer their services at lower prices to compete with smaller banks, but still attain a similar or even higher level of profits. To the extent that price

competition squeezes interest margins and profits, smaller banks are more likely to incur losses. Therefore, smaller banks may be more vulnerable to intense price competition in the loan markets.

The results presented in Tables 2 and 3 also show that bank asset quality and bank performance are positively related but not statistically significant. Although his results are statistically significant as opposed to those of this study, this is consistent to Abata (2010) who claims that bank asset quality insufficiency increases bad debt losses and extra operating costs to supervise the collection process. This is in addition to other associated costs that reduce bank profitability as a result of insufficient bank's asset quality, which includes cost of winning public trust, cost of preventing banks from being rated poor, extra cost to monitor loan quality and cost to maintain client faith.

In this study we also find a positive and statistically significant relationship between both performance measures (NIM and ROA) and capital adequacy at 1% significant level and 5% significant levels, respectively. The findings are consistent to those of Berger (1995), Dermirguc-Kunt and Huizinga (1999), Areu and Mendes (2002), Goddard et al. (2004), Waceur and Goaid (2001), Pasiouras and Kosmidou (2007), Garcia-Herrero et al. (2009), Liu et al. (2010), and DeJonghe (2010). The explanation of this finding is that capital adequacy reduces risk of bankruptcy maintained by banks, and hence they are allowed to invest in riskier credits with higher returns.

The results in Tables 2 and 3 also show that management quality measured by efficiency of operating expenses is negatively related to bank performance with relationship statistically significant at 5% for bank performance measured by NIM, while the relationship remains negative but statistically insignificant for bank performance measured by ROA.

The findings of this paper are consistent with those of Staikouras (2004), and such results are supported by the fact that bank staff expenses reduce income generated from bank operation. It might be possible that bank managers are paid handsomely in terms of salaries and other monetary incentives, but they may either not properly execute their duties efficiently or they are not competent enough. A bank's management has to avoid the misuse of bank resources because this attracts additional costs/expenses to a bank, which ultimately hurts a bank's profitability severely.

Therefore, efficient cost management is a prerequisite to improving the profitability of banks in Tanzania. However, this finding is inconsistent with other studies that found a positive relationship, suggesting that effective banks are more capable to reduce costs and utilize their resources efficiently, which in turn generate better performance (Molyneux & Thornton, 1992; Berger & Mester, 2003; Athanasoglou et al., 2008; Liu et al., 2010; Carvallo, 2013; Guillen, 2014).

Furthermore the results show that bank liquidity is negatively related to NIM and statistically significant at 5%, but not statistically significant at any significant level when ROA model is considered.

The results on external factors show that inflation is negatively related to both ROA and NIM, and statistically insignificant. In addition, economic growth does not reflect any aspects of banking regulations and technology advance in the banking sector omitted from the regressions as the GDP is insignificant in both NIM and ROA equations. Additionally, GDP is also insignificant in both NIM and ROA equations.

The results on market capitalization show that capitalization is positively related to interest margin and ROA as a dependent variable in all specifications, although it is not statistically significant as Tables 2 and 3 show. This

finding is consistent with previous studies. For instance, Buser et al. (1981) argue that banks generally have an optimal capitalization ratio and need to remain well-capitalized when they have a high franchise value. On the other hand, Berger (1995) and Dermerguç-Kunt and Huizinga (1999) find a positive relationship between bank performance and capitalization.

Another reported insignificant relationship is that between bank concentration and profitability; both measured in terms of NIM and ROA as presented in Tables 2 and 3. This finding may be an indication that bank concentration is less important in explaining the profitability of the banks operating in Tanzania.

3. Conclusion

This paper assessed the impact of bank characteristics, financial structure and macroeconomic indicators on bank's net interest margins and profitability in the Tanzania banking industry for the 2006-2013 period. The findings show that most individual bank characteristics explain a substantial part of the variation in bank interest margins and profitability except asset quality. They further show that high net interest margins and return on bank assets tend to be significantly associated with larger banks that hold a relatively high amount of capital. These results may simply reflect scale efficiencies. However, such banks are unfortunately confirmed to have lower liquidity levels and poor management quality measured by how efficiently they reduce operating expenses. This calls for banks owners to review the performances of management in relation to their incentive packages so as to match management remunerations with their contribution towards bank performance.

The paper also finds that macro-economic indicators such as inflation and growth rate have no impact on a bank's interest margins and profitability. Finally, with reference to financial structure and its impact on bank's

interest margin and profitability, we find that concentration is less beneficial to Tanzanian banks than competition.

The policy implications of the study findings at the bank level is that the improvement of the profitability of Tanzanian banks need to be conducted by a reinforcement of capitalization of banks through national regulation programs, and by reducing the proportion of non-interest bearing assets to the benefit of bank loans. Also, bank managements need to be very conscious in issuing loans to clients whose previous performances are doubtful to avoid banks falling into non-performing loans traps and ultimately into bank failures. Finally, we recommend that further researches be conducted to compare the performance of different categories of banks in Tanzania in relations to their sizes as this study has shown that bank size matters significantly in explaining bank profitability.

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