

A STUDY ON PERFORMANCE OF FINANCIAL INSTITUTIONS IN TANZANIA

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ABSTRACT

The purpose of this study is to investigate the performance of Tanzanian financial institutions. The variables of this research are based on four proxies; financial access, financial depth, financial efficiency and financial stability. This study is composed of four research objectives; evaluating Tanzanian financial services in regard of access, measuring the depth of Tanzanian financial institutions, examining the efficiency and measuring the stability of Tanzanian financial institutions. Proxies of access, depth, efficiency and stability were measured to find out the degree of positivity of financial services of the Tanzanian financial sector. A modal of Weighted Least Squares (WLS) of regression analysis was constructed. This study is using secondary data. The data was analyzed by using Excel software and statistical package for social sciences (SPSS) in descriptive statistics. The result of this study became 208.31 of mean averages with standard deviation average 367.795. Overall mean average for a total of 35 variables became 5.95 and overall Std. dev. 10.5. According to the calculations of this study, researchers found fluctuation on two proxies: efficiency and stability. Bank accounts per 100, 000 adults of financial access have been growing to 0.99 percent during 10 years period. The growth of other variables of financial access has been less than 0.01percent. Access, efficiency and stability were not met. Depth of Tanzanian financial institutions were met but growth was only 0.02 percent during last 10 years.

KEYWORDS: Financial access; financial depth; financial efficiency; financial stability; financial services; mobile money; Tanzania.

1. INTRODUCTION

Mobile money banking is an easy way to reach large parts of population than traditional branch banking which requires investment for both infrastructure and personnel, Jack & Suri (2011). High cost of financial infrastructure exclude the poor people of developing countries from access to formal banking services. It appears, mobile money service has an excellent convenience and possibly can create an effective potential expansion of financial inclusion for the poor to have and improve access for the unbanked or underserved areas, Di Castri (2013). The mobile money operators paid the price of the clock. They provided cost effective models. They expanded their operations and physically reached the poorer districts and the remote rural areas and they patiently handled larger volumes of low transaction costs in which traditional banks excluded the service of their system because little transactions are too cost to the financial institutions as they always say, Maurer (2008). Mobile money is increasing access to financial services. It is an easy way to support the flow of financial services in an environmental business. It also reduces risk of inherent loss and increases savings opportunities in developing countries, Radcliffe (2010). Mobile banking contributed large access of financial services to those who have already been excluded and gave a second chance to poorer people to represent themselves and to be a part of the community being served by financial institutions.

The research of microfinance outreach performance is one of the most critical fields in which much literature has not been done until now. Two African authors recently investigated 71 microfinance institutions across 10 SSA (Sub-Saharan African Countries). They made 619 observations to uncover if there is a trade-off relation between the depth and breadth of

outreach performance and to identify the institutional factors that influence MFIs outreach. The result of their research shows the existence of trade-off between access to credit disbursement (depth of outreach) and a number of clients served (breadth). In their research, the authors found that *portfolio at risk* and *loan gross portfolio*, *interest rate* and *operating expenses to assets ratio*, and *borrower per staff members* are the most important institutional determinants that affect the outreach performance of MFIs in SSA countries, Abdulai & Tewari (2017).

A much similar study conducted by the same authors with the application of correlation analysis and fixed effects regression showed mixed evidence. The study revealed that there is a trade-off between operational self-sustainability and depth of outreach. They also found that the *interest rate* is the most influential determinant of MFI sustainability favoring the view of the financial institutions. The research also demonstrated other determinants which have influence on the sustainability of MFIs in SSA countries as follows: (i) *the interest rate on loans granted to clients*, (ii) *the average loan size as a percentage of gross national income*, (iii) *gross loan portfolio*, (iv) *governance effectiveness*, (v) *operating expenses to assets ratio*, and (vi) *portfolio at risk*. The study advises close surveillance of *cost-side variables* and to develop effective information communication techniques which will make possible outreach at low cost, Abdulai & Tewari (2017). According to Cull et al. (2014), the year of 2005 was the era of emerging new types of MFIs called green fields throughout African continent especially Sub-Saharan African countries. There were no any pre-existing organizations in which they belong to, instead they have company holdings that play a major role in governance and management and investments.

The countries these MFIs operate do not control the institutions for they belong to foreign entities and most of the MFIs represent retail banking and the establishment of massive branch networks in the business of retail banking inside the host countries. Another similar study conducted by two authors in 2017, addresses that the banking system of Sub-Saharan African countries has been growing over the past decades. The paper has identified the determinants of bank credit risk in five SSA countries: Kenya, Namibia, Uganda, Zambia, and South Africa. The study found that *non-performing loans* have decreased in all five countries due to increased money supply conditions; in contrast, the paper noted that there is a high level of downside risk due to structural issues. The paper also highlighted the presence of *reversal of capital flows*, *spillover effects from external shocks and price fluctuations*. The main points explained in the paper that are limiting the financial developments of SSA countries are: (i) deepening of the financial system, although it has been growing for decades, still it remains at low level, (ii) the financial intermediation of SSA countries is lower than other developing regions of the world, and (iii) access to financial services is limited, Nikolaidou & Vogiazas (2017). According to Aluko & Ajayi (2017), the banking sector of the Sub-Saharan African countries is promoted by the population density, capital and trade openness while financial liberalization undermines the development of the banking sector in SSA region. The paper addressed that trade openness, institutional quality, and population density has improved the development of the SSA banking sector. Trade supported by law and simultaneous openness and capital enhanced the stability of the banking sector in some 25 SSA countries in which the authors based the data of their research.

It has been noted that competitive environment in banking system has always been one of the key drivers of financial efficiency in the history of banking industry. Also efficiency increases the level of financial access and financial stability in overall performance of financial institutions. The theory that underlies financial efficiency of financial institutions has great importance especially when banks try to solve two basic problems: (a) to proper managing the volume of loans and (b) when deposits are required to correspond financial intermediation (financial services) and especially when the absolute expectancy margin of bank intermediation must be equaled to its technology. However, high level of deposit rates in competitive environment always induces savings and the real interest rate for loan follows suit. What is the reason why this happens? It is because that banks need to sell more. Whatever happens, competitive environment is absolutely necessary to driving efficient pricing for banking systems. However, this is different when the market is dealing with monopoly banking system specifically when low priced deposits with high priced loans require downward sloping demand and upward sloping supply respectively. In this respect, researchers argue SSA banking industry need to mobilize savings and investment capabilities but they are asking a question of how SSA commercial banks are competitive. This is a basic measurement to understanding the present level of SSA financial institutions, AKANDE & KWENDA (2017).

1.1 Objective of the study

The objective of this study is to evaluate and measure, examine, and assess and track the access of financial services, financial depth, financial efficiency, and stability of financial institutions in Tanzanian finance sector.

1.2 Research questions

1. How effective is the access of financial services in Tanzanian financial institutions?
2. How big are financial institutions in Tanzanian finance sector?
3. Are Tanzanian financial institutions efficient?
4. What is the degree of stability of Tanzanian financial institutions?

2. LITERATURE REVIEW

Both Kenya and Tanzania, Microfinance Finance Institutions (MFIs) set a minimum level of initial loan requirements that poor people cannot afford to repay. This is a possible reason why the access of poor people to financial institutions in East African Countries (EAC) region is low. In 2015, less than 22 percent of Kenyan population had access to micro-credit compared to Tanzania in which only six (6) percent of its population had financial access to micro-credit financial institutions. In Tanzania, loan security, repayment, savings and deposits, loan eligibility, interest rate and hidden charges and minimum initial loan size; all are matters relevant to accessing financial institutions. In both countries, Kenya and Tanzania, the poor people do not have the capacity of required loan collaterals. In Tanzania, the poor have two options to collateralize their loans: land or social collaterals; the latter is a group lending method and the members of the group should promise house hold belongings such as a piece of furniture for securitizing loans. In loan repayment period starts in the next week after when applicants received the amount of loan.

The amount of loan allowed to a loan applicant is conditioned the amount of deposits that the loan applicant has in account in MFIs. Only loan applicants who have existing businesses are eligible of accessing microcredit financial institutions. The loan applicants pay many fees namely: application fee, legal fee and loan insurance premium and other hidden costs. The microcredit financial institutions such as MFIs demand an interest rate which is extremely higher than the market price. The default risk of loan applicants increases tremendously. The loan itself causes financial burden to the borrowers for it is creating survival conditions rather than poverty reduction strategy. For minimum initial loan size, microcredit financial institutions set a level in which the poor people cannot afford to meet the requirement of loan repayment when time of loan is due. All above mentioned matters disqualify the access of poor people to semi-formal and formal financial institutions, Minani & Ishengoma (2017).

The financial depth or size of financial institutions depends on a number of factors such as amount of resources in their possession, level of growth, amount of savings and deposits and the geographical area they operate and the size of their assets. The experience of financial institutions and the product varieties they offer customers is also considerable as a depth or size of financial institutions. According to FinScope survey of 2006 and 2009, research indicates that the percentage of people excluded financially reached 53.7% and 56% respectively. This proves that the depth of Tanzanian financial institutions especially in the microfinance sector such microfinance institutions have no effect on the performance of financial institutions meaning their capacity of financial possession (depth) or size is relatively small. There are also other factors which are relevant to the size of financial institutions such as age of financial institutions and number of employees, the economies of scale, technology and innovations. In regard of the size of financial institutions, the constraints responsible the hindrance of institutions to reaching large unbanked populations is not yet documented. Research conducted recently showed very low mean average on AROA (adjusted return on assets) which is a measure of the financial possession of the institution which has shown low level of financial depth of the Tanzanian financial institutions especially MFIs, Kipsha (2013).

In debt financing programs especially SMEs; Tanzanian commercial banks have one of the lowest records for debt instruments in the whole continent of Africa. Research figures are indicating that 91 percent of Tanzanian small and medium enterprise owners finance their business by using their own capital in startup levels. Research also reveals that only 10 percent of Tanzanian MFIs have access to commercial banks to get loan from financial institutions especially commercial banks for financing their business operations. Both small and medium enterprise owners and Microfinance Institutions in Tanzania face high interest rates to get loan from commercial banks. Customers are also supposed to meet short-term repayment periods. There are also other problems in credit such as low availability of loan information which will have negative impact on both borrowers and lenders, Mashenene (2015). Customers of microfinance institutions in Tanzania are benefiting from long-term of uncollateralized loans but they are paying high interest rates. The microfinance institutions are obliged to serve their debt schemes and loan portfolios with high interest rates because of inflation. In one way, this gives a hard time to small firms which do not have enough sources of finance and other alternatives to look for investment. On the other hand, these matters of inflation and high interest rates discourage commercial banks to give loan to SMEs. In this regard, small and medium enterprises seem unattractive from the perspective of commercial banks, Abbas & Honghui (2016).

In 2008, the national commercial bank of Tanzania, national microfinance bank and trust fund reduced loan provisions by 27 percent, 26 percent and 29 percent respectively due to low repayment of loans. Failures of loan repayment distressed the financial institutions of Tanzania to providing loans to new loan applicants. This negative behavior of loan repayment also affected the financial institutions to be unable of disbursing loans at required levels. In Tanzania, there are many formal financial institutions mainly commercial banks and semi-formal financial institutions such as SACCOs and MFIs, yet large parts of the Tanzanian population did not get access to credit from financial institutions and only 2 percent of the Tanzanian rural population had access to get credit from financial institutions for business investment operations, Makorere (2014).

No one, whether government or independent sources such research institutions or academic communities had ever addressed the real reason or the root of the problem, why this is happening. Let's consider these matters of business management from government perspective; in 2014, the Tanzanian government projected a regulation policy considering the percentages to ratio of *loan to deposits*, *the ratio of moveable assets to total capital* and *loan collateralizing requirement in respect of the loan value* to be 80 percent, 20 percent and 125 percent respectively, also the *loan value requirement* was set to be 25 percent of the core capital if the loan was fully secured. Partial loan securitization in regard of core capital, unsecured loans and loan provisions requirement were 10 percent and 5 percent respectively. The lending and policy regulation paper of 2014 necessitates the following commitments: 1) capabilities of borrowers to serving the debt, 2) borrowers should present statements of their assets and liabilities, expenses and expenditures to the financial institutions during the loan application, 3) a loan applicant should submit all audited accounts and balance sheet including profit and loss accounts and cash flow statements during the last three years of the their business. Loan applicants should also provide an official copy of income tax during loan application, and 4) for evaluation of credit applications, Tanzanian financial institutions are demanding a project feasibility study during the applications of loans, Makorere (2014).

Tanzania had a long history of insolvency problems in its banking industry during before and after liberalization campaign. Research indicated the amount of non-performing loans were troubling the efficiency of the banking system but Tanzanian government took more extreme measures along the lines of institutional and economic innovation and liberalization of the market forces. Government of Tanzania created a shift of bank ownership from government to the private sector. The degree of liberalization reforms in financial institutions and the transfer of property ownership from government to privately owned business increased the efficiency of the banking industry in Tanzania and enhanced the liquidity of commercial banks; also the shift helped the competition in the financial system, Qin & Pastory (2012).

Since 1991, during the beginning of financial reforms, Tanzanian banking industry experienced high level of competition followed by rising costs caused by three unprecedented factors: (i) the requirements of the regulatory reforms, (ii) innovations of financial and technological perspectives, and (iii) large foreign banks entry in retail banking sector and some other external factors such as financial crises. Tanzanian banking industry has tried to alleviate the performance of their banks with a highly competitive market where financial products and services can be extremely difficult to be transformed from expensive inputs to final products and services available to the customers. During 2008 – 2009, the financial crises interrupted the smoothly operating environment of the Tanzanian commercial banks causing general economic slowdown, dramatically reduced bank income and increased bank operating costs. In this downward trend, in Tanzania, large banks showed better performance in profitability than medium and small banks. This recessionary period which lasted until 2009 troubled the debt servicing in corporate level and private clients by rising in the level of provision loan losses and increasing bad debts, Ally (2013).

In Tanzania, stock and corporate bond market has extremely limited performance in the market. Commercial banks taking this opportunity played a major role in the Tanzanian economy and had spread out their business both in urban and rural areas. During 2010 to 2011, bank branches increased by 8 percent from 464 to 498. In 2003, according to the banking financial institutions act (BAFIA), the authorities of Tanzanian government through the Central Bank of Tanzania allowed to lower the capital requirements of commercial banks to establish regional and community banks. This new regulatory act favored the increase of Tanzanian commercial banks from 42 in 2010 to 45 in 2011. Also the efficiency of Tanzanian banks took an evolutionary time, for example all Tanzanian commercial banks were inefficient during 2006. In 2007, Tanzania had one efficient bank (Dar es salaam bank). In 2012, in Tanzania, there were four fully efficient banks, Ally (2013). According to Ally & Patel (2014), the Tanzanian banking industry falls into three categories: Large banks which account for 74 percent and medium and small banks which represent 21 percent each in which researchers tried to explain some specific factors such as management efficiency, profitability and liquidity, capital strength and asset quality by employing two stage data envelopment analysis (DEA) and they concluded their research that the efficiency of Tanzanian commercial banks is promising to the financial sector.

The history of some nonbank financial institutions such as savings and credit cooperatives (SACCOs) is dating back during 1980s and they played an important role in financial services of Tanzanian rural and urban dwellers. The nature of Tanzanian SACCOs is more like semiformal financial institutions but they are unique in preferring not only profits but also considering the welfare of their members. The members of SACCOs have rights to set the rate of the interest for the loans where they will later collect the maximized profits as a dividend. These semiformal financial institutions, SACCOs also contribute to the overall performance of economy, 40 percent to the Tanzanian GDP and they employ large number of people including college graduates and financing small and medium enterprises in rural areas. In this respect, the Tanzanian government is trying to help the development of SACCOs. In 2013 alone, more than one million members joined 5,559 SACCOs to contributing 463.5 billion TZS (Tanzanian shilling) composed of shares, deposits and savings but there is an unlimited research which is showing irrefutable proof that the development of semiformal financial institutions in Tanzania is limited because of prevailing problems such as poor corporate governance. Recently, researchers are suggesting enormous risk-taking measures in both individual and loan portfolio to mitigate a strategy policy to reducing the level of nonperforming loans (NPLs) and increasing the profitability and efficiency of SACCOs, banks and MFIs, Magali (2014).

In financial stability of Tanzania, this paper is looking at four factors that happen in the safeguarding financial stability: 1) Risks and Vulnerabilities in the Tanzanian Banking Systems; this area of risk always worries about liquidity, capitalization, and resilience to shocks. It was in 2003 when FSAP (Financial Sector Assessment Program) measured the capital ratio of the Tanzanian banking system in 20 percent excess rate with a limited credit risk because of low lending activity signifying extreme low access to financial institutions where only one person out of six has access to Tanzanian financial institutions. In the meantime, exchange rate risk was well-controlled compared to vulnerability of interest rate risk in respect of bank holdings relative to shares of assets in government bonds. Some of the essentials considered under risk and vulnerabilities were data quality and timelines in which deficiencies were reported and FSAP urged the Tanzanian government to launch a full scheme of data update in the Tanzanian banking system. Research conducted recent years indicated when banks' loan portfolio increases triggers credit risk meaning high credit growth uncovers the weaknesses of Tanzanian underwriting practices, which is why researchers are showing concern about the quality of future loan portfolio in Tanzanian banking system.

This phenomenon was first seen the years between 2003 and 2008 when shares of banks' loan portfolio increased from 32 percent to 54 percent. 2) Crises Management Framework; Tanzania looks good to go in banking crises management but still there are gaps in regulatory framework for banking resolution, deposit insurance schemes and emergency liquidity provisions. 3) Banking Sector Regulation and Supervision; the good news is the Central Bank of Tanzania also known as Bank of Tanzania (BOT) has independence meaning there are no political interferences. Tanzania developed Banking Information Supervision Systems (BSIS) that made possible automation and reporting of all banks to the BOT but there are complications in risk-based supervision approaches and challenges in skill levels, skill absorption and to successively introducing of CAMELS (Capital adequacy, Asset quality, Management, Earnings, and Liquidity rating systems). 4) Systemic Liquidity Management; the most important baseline that was prioritized was the sterilization liquidity injections relative to government spending supported by direct financing budget from donors. Also the payment system of Tanzanian banks has been improved since 2003 such as interbank settlement and electronic fund transfer (EFT), Viñals & Sayeh (2010).

3. MATERIALS AND METHODS

This study adopted a descriptive research design to achieve the objectives of the study. The study uses quantitative approach which involves the generation of data in quantitative form that can be subjected quantitative analysis in a formal fashion. Also this approach will determine the relationship between the dependent and independent variables, Kothari (2004). In this study, descriptive survey research design is employed to present oriented methodology to investigate and picture current conditions of secondary data, Tayie (2005). In this research, the finance sector of Tanzania is selected as a sample and the study analyses the performance of the Tanzanian financial institutions.

This study made use of secondary data effective to the financial sector of Tanzania. The study investigates the performance of Tanzanian financial institutions. This research study is contained 3 variables of access, 14 variables of depth, 10 variables of efficiency, and 8 variables of stability. The variables in this research are united under 4 common proxies called: (i) *financial access*, (ii) *financial depth*, (iii) *financial efficiency*, and *financial stability*. These 4 proxies are representing the independent variables of this study. Performance of financial institutions in Tanzania is the dependent variable. Duration of the secondary data is 10 years, from 2006 to 2015.

4. RESULTS

Over the years, from 2006 to 2015, the financial access of Tanzanian people to the financial institutions dominated by the banking industry has been dramatically increasing. Access has been drifting upward, from 51 percent in 2006 to 98 percent in 2015. The overall mean average of financial access during the last 10 years is $230.12 = (630.36/3)$ with standard deviation average of $375.605 = (1126.817/3)$ (**Table 1**). The Tanzanian financial depth is different from access. From 2007 to 2010, a period of 4 years, the growth of size (depth) of Tanzanian financial sector has been stacked in 12 percent. From 2011 to 2015, another period of 5 years, the growth has been 13 percent. This can only be interpreted in one way; the size of Tanzanian banking industry is small. During the last 10 years, the overall growth of Tanzanian financial institutions resulted mean average of $9.26 = (129.74/14)$ with standard deviation of $16.022 = (224.321/14)$ (**Table 2**). For the last decade, the efficiency of Tanzanian financial institutions has been fluctuating. The average mean became $17.531 = (175.31/10)$ with standard deviation of $20.1763 = (201.763/10)$ (**Table 3**). See **fig. 3** for further explanation about variables of efficiency. Like efficiency, the stability of Tanzanian financial institutions has been fluctuating for over the last 10 years. From 15 percent in 2006 to 24 percent in 2015, the mean average is $25.786 = (206.29/8)$ with standard deviation of $28.601 = (228.814/8)$ (**Table 4**). See **fig. 4** for further explanation about stability of Tanzanian financial institutions.

Table 01: Financial access

Years	N	Mean	Std. Dev.
2006	3	51.19	87.108
2007	3	55.60	93.548
2008	3	60.52	101.210
2009	3	53.59	88.369
2010	3	65.40	108.110
2011	3	72.37	119.547
2012	3	75.31	124.133
2013	3	75.91	124.553
2014	3	82.18	135.317
2015	3	98.29	144.922
Total		690.36	1126.817
		690.30	1126.424

Table 02: Financial depth

Years	N	Mean	Std. Dev.
2006	14	11.46	21.341
2007	14	12.37	22.077
2008	14	12.79	22.843
2009	14	12.88	22.483
2010	14	12.99	22.378
2011	14	13.22	22.795
2012	14	13.36	22.701
2013	14	13.27	22.562
2014	14	13.54	22.628
2015	14	13.86	22.513
Total		129.74	224.321
		129.75	224.211

Table 03: Financial efficiency

Years	N	Mean	Std. Dev.
2006	10	20.32	19.084
2007	10	21.24	19.831
2008	10	18.76	18.348
2009	10	17.30	18.396
2010	10	16.50	20.346
2011	10	17.21	19.940
2012	10	16.89	19.227
2013	10	16.20	18.866
2014	10	16.05	24.459
2015	10	14.84	23.271
Total		175.31	201.763
		175.30	190.183

Table 04: Financial stability

Years	N	Mean	Std. Dev.
2006	8	15.74	26.758
2007	8	16.14	26.731
2008	8	14.48	23.256
2009	8	15.49	23.014
2010	8	23.42	21.192
2011	8	24.48	22.278
2012	8	23.97	20.830
2013	8	23.99	22.519
2014	8	23.61	21.322
2015	8	24.97	20.914
Total		206.29	228.814
		206.30	202.883

Table 05: Performance of Tanzanian financial institutions

No.	Proxies of variables	Mean averages	Std. dev. averages
1	Financial access	230.12	375.6056667
2	Financial depth	9.267142857	16.02292857
3	Financial efficiency	17.531	20.1763
4	Financial stability	25.78625	28.60175
	Total	282.7043929	440.4066453
		208.31	367.795

Table 06: Mean and Std. deviation error

Frequencies		
	Valid	35
	Missing	0
Mean		2.0831E2
Std. error of mean		6.21687E1
Std. deviation		3.67795E2
Mean and Std. deviation error		
	Descriptive	
	Valid	35
	Missing	0
Mean		Std. deviation
Statistic	Std. Error	Statistic
2.0831E2	62.16868	367.79488

Table 07: Weighted Least Squares Analysis (WLS)

	Non-standardized coefficients		Standardized coefficients		t-value	Sig.
	B	Std. Error	β	Std. Error		
Access	12.015	.132	1.000	.011	90.775	.007
Depth	9.136	.129	.999	.014	70.919	.000
Efficiency	8.569	.782	.968	.088	10.951	.000
Stability	3.740	2.340	.547	.342	1.599	.161
			.989			
			.985			
			.88			
			.205			

The standardized coefficients are deducted Std. Error to reduce the error between overall figure mean result and the result of regression of WLS

Table 08: Modal summary

	Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate	Log-likely-hood Function Value
Access	1.000	1.000	1.000	26.335	-8.361
Depth	.999	.998	.997	1.718	-30.355
Efficiency	.968	.937	.930	1.557	-42.056
Stability	.547	.299	.182	4.958	-44.977
The Std. Error of the estimate is totaled to prove the error of this study.			Total	34.568	

$$PERFI = (Fa_3 + Fd_{14} + Fe_{10} + Fs_8) \sum_{V=35}^{Pr=4} (X_1\beta_1 + X_2\beta_2 + X_3\beta_3 + X_4\beta_4 + \epsilon)$$

$$PERFI = Fa\beta_1 + Fd\beta_2 + Fe\beta_3 + Fs\beta_4 + \epsilon \dots\dots\dots (1)$$

$$PERFI = Fa_3 + Fd_{14} + Fe_{10} + Fs_8 \dots\dots\dots (2)$$

$$Wf = 1/(\omega v) \text{ ** Power}$$

$$\text{Power range} = -2 \text{ through } 2 \text{ by } 0.5$$

$$\omega v = 1/\beta_1^{-2^2} \dots\dots\dots + 1/\beta_4^{-2^2}$$

$$\omega v_1 = 1/\beta_1 = 1/(0.989)^{-2^2} = 0.956$$

$$\omega v_2 = 1/\beta_2 = 1/(0.985)^{-2^2} = 0.941$$

$$\omega v_3 = 1/\beta_3 = 1/(0.88)^{-2^2} = 0.599$$

$$\omega v_4 = 1/\beta_4 = 1/(0.205)^{-2^2} = 1.766$$

Where PERFI = Performance of financial institutions; $\beta_1 \dots\dots\dots \beta_4$ are the standardized measurements of coefficients which are representing the weight variables of the Weighted Least Squares Analysis (WLS); Wf is the weight function; ωv is the weight variable after β ; Fa, Fd, Fe, and Fs are variable proxies of this study (Financial access, Financial depth, Financial efficiency and Financial stability). The numerals 3, 14, 10, and 8 are representing number of variables in each proxy of this study; Pr = 4 and V = 35 in upper and lower boundaries of the formulae are representing number of proxies of the study and the number of variables studied respectively. ϵ is the error term.

$$PERFI = Fa_3(\omega v_1) + Fd_{14}(\omega v_2) + Fe_{10}(\omega v_3) + Fs_8(\omega v_4) + \epsilon \dots\dots\dots (3)$$

$$PERFI = (230.12*0.956) + (9.26*0.941) + (17.53*0.599) + (25.78*1.766)^{-2^2*0.5} + \epsilon = 239.20$$

To remove the error term $vPERFI = 239.20 - (\epsilon) = 239.20 - 30.89 = 208.31$ see fig.9 30.89 is the error term of this study, refer (table 8, Modal summary, Std. Error of the Estimate). $v30.89 \approx 34.56$ The error can be reduced to 15 if the WEIGHT variables are reduced into one digit after decimals. E.g. 0.9, 0.9, 0.5, and 1.7 but the calculation of the error must be matched with the Std. Error of the estimate on Table 8. According to the Weighted Least Squares Analysis (WLS) employed in this study, ATMs per 100,000 adults of financial access, Deposit money banks' assets to GDP (%) of financial depth, Bank net interest margin (%) of financial efficiency, and Bank Z-score of financial stability were chosen as the independent variables of the study. The result of the modal from Weighted Least Squares Regression Analysis (WLS) matched with the result of figure 9 of overall performance of Tanzanian financial institutions. Test of error in table 6 and statistical calculations of fig.9 proved the same result of mean 208.31 so this study is valid with the result of fig.9.

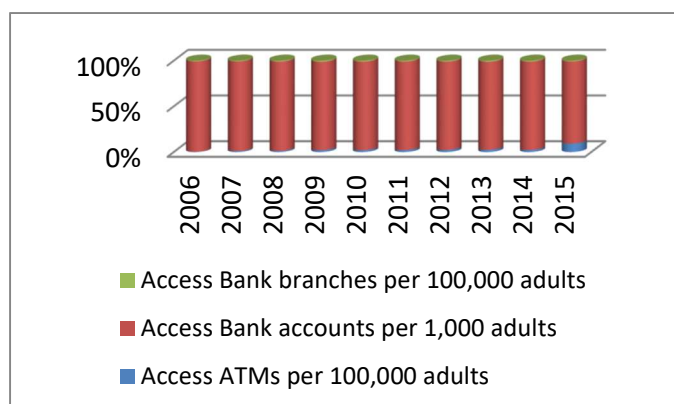


Figure 01: Financial access

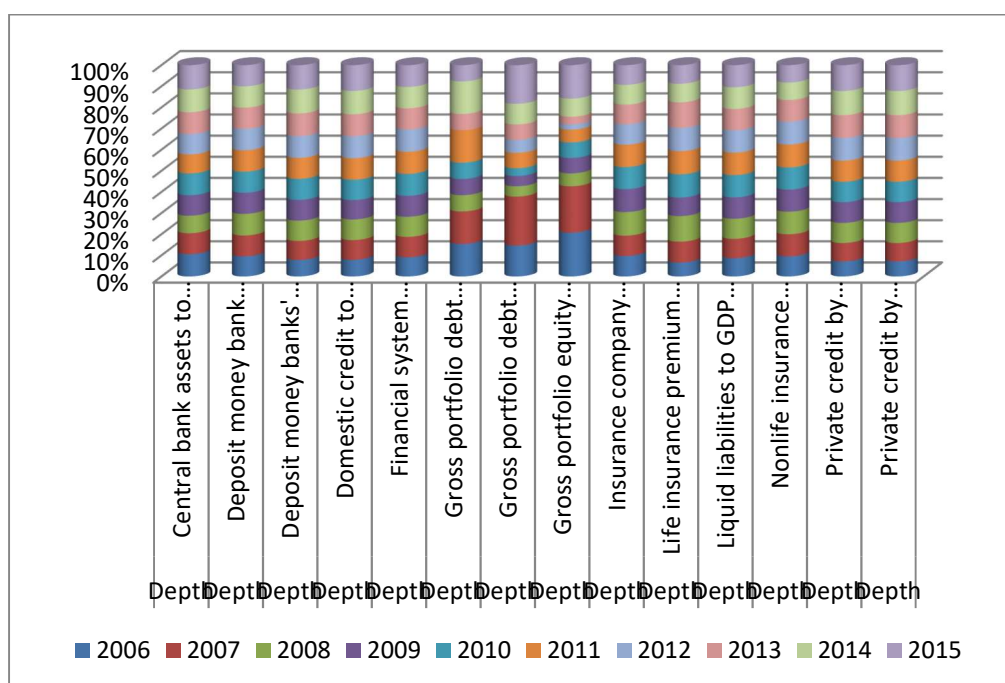


Figure 02: Financial depth

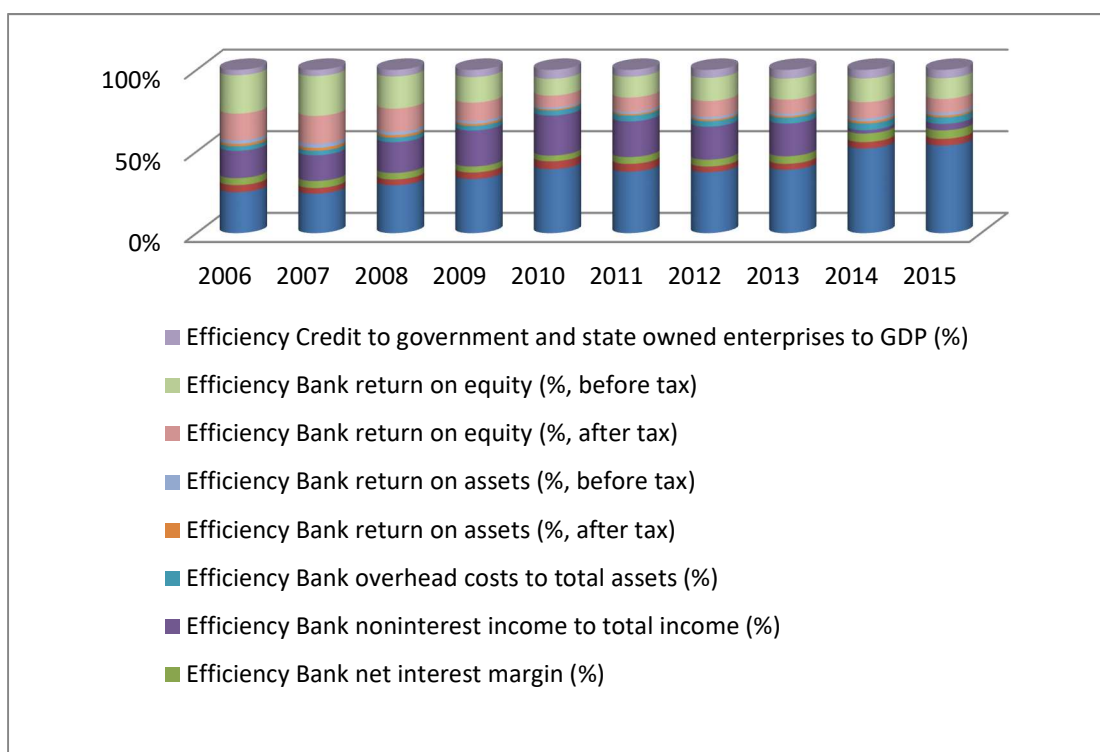


Figure 03: Financial efficiency

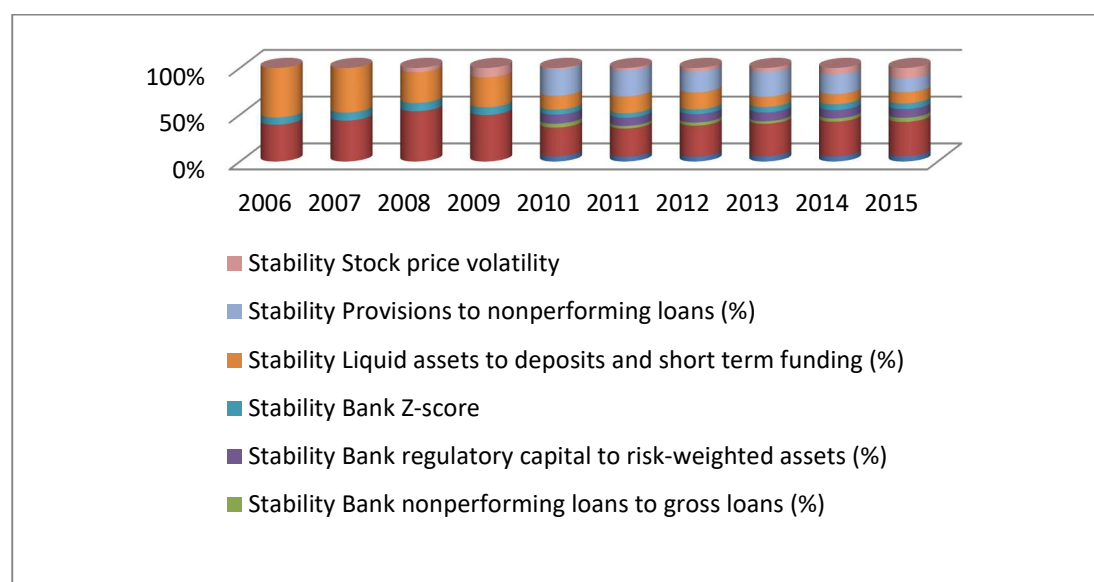


Figure 04: Financial stability

Tanzania started access to ATMs in 2007 in a very small scale which was less than **0.01** percent. This financial service didn't move upward to the ladder in 8 years. In 2015, accessing ATMs reached **0.01** percent. The Tanzanian financial institutions are dominated by the banking industry. During the last 10 years, from 2006 to 2015, bank accounts per 1,000 adults were **0.99** percent. Tanzania lacks bank branching. It has been stagnant for over 10 years in less than **0.01** percent, (**fig. 1**). The financial depth of Tanzanian financial institutions is extremely shallow. The Central Bank Assets to GDP (%) reached **0.10** percent in 2011 and it was the highest scale for over 10 years. From 2012 to 2015, the Central Bank Assets to GDP (%)

has been dramatically decreasing until it stood **0.05** percent. Deposit Money Banks' Assets to GDP (%) which is the independent variable of Tanzanian financial depth stood **0.10** percent in 2013 for its highest growth. Private Credit by Deposit Money Banks to GDP (%) reached **0.18** percent in 2013 but it couldn't keep drifting upward. From 2006 to 2008, a period of 3 years, Gross Portfolio Equity Liabilities to GDP (%) has been **0.10** percent. The next 3 years from 2009 to 2011, Equity Liabilities has been slowing down in an accelerating rate until it finally reached **0.02** percent in 2011.

Unfortunately, equity liabilities continued to drift upward to **0.10** percent during the last 4 years from 2012 to 2015. The Equity Liabilities should be less than **0.05** percent. Each one of the above mentioned variables has been calculated in relativity with the other 13 variables in this proxy of financial depth in Tanzanian financial sector, (**fig. 2**). In efficiency, the Tanzanian financial institutions have been in bad shape for the last 10 years in respect of Bank Cost to Income Ratio (%). From 2006 to 2015, Tanzanian Banks' Cost to Income Ratio has been accelerating to increasing upward, from **0.10** percent in 2006 to **0.47** percent in 2015, **0.37** percent increase within 10 years period. This increase of bank cost downgraded the banks' income ratio. The Bank Noninterest Income has also been badly affected; the variable has been fluctuating between **0.13** percent in 2006 and **0.23** percent in 2010, then it began to slowing down in an accelerating rate until it reached less than **0.01** percent in 2014. Finally, the Bank Noninterest Income stood **0.02** percent in 2015. Bank Return on Equity before and after tax (%), both variables have been slowing down between 2006 to 2010, from **0.20** percent to **0.10** percent, and then started fluctuation within next 5 years, 2011 to 2015 from **0.13** percent to **0.11** percent, (**fig. 3**). look for further explanation in (**Table 3**). In Tanzania, the depositors are expecting high interest from bank credits. From 2006 to 2008, within 3 years period the Bank Credit to Bank Deposits % showed **0.16** percent increase from **0.26** percent to **0.42** percent. Fortunately, credit to bank deposits dropped for the next 2 years, 2009 to 2010. After 2011 bank credit to bank deposits has been moving upward slowly to **0.26** percent in 2015. In 2006 and 2007, Liquid Assets to Deposits and Short-term Deposit (%) has been doing **0.29** and **0.28** percent respectively. Then started decreasing slowly to **0.15** percent in 2008 and 2009, and then started fluctuation between **0.06**, **0.07** and **0.08** percent within the next 3 years, 2010 to 2012 respectively. From 2013 to 2015, the variable has been doing **0.05** percent. The Bank Z-score of financial stability has been extremely low; **0.04** percent for the first 4 years and **0.03** percent for the last 6 years until 2015. The stock price volatility has also been fluctuating all the years through 2006 to 2015, (**fig. 4**). See (**Table 4**) for further explanation.

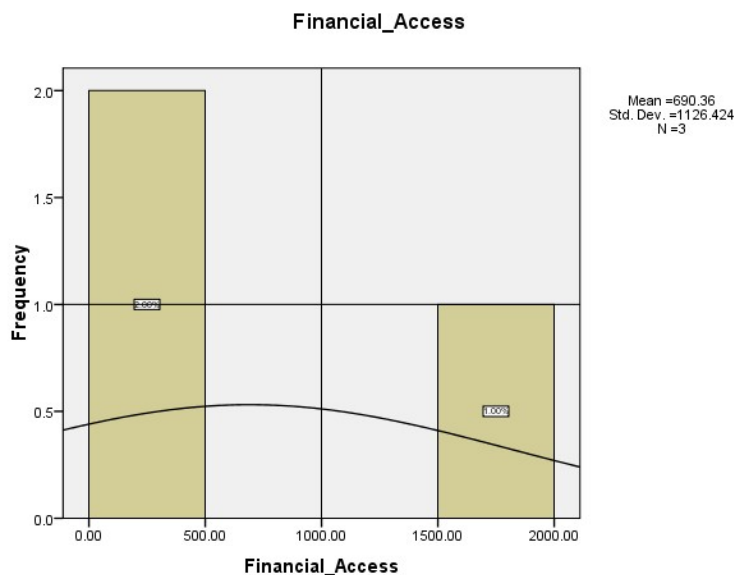


Figure 05: Financial access

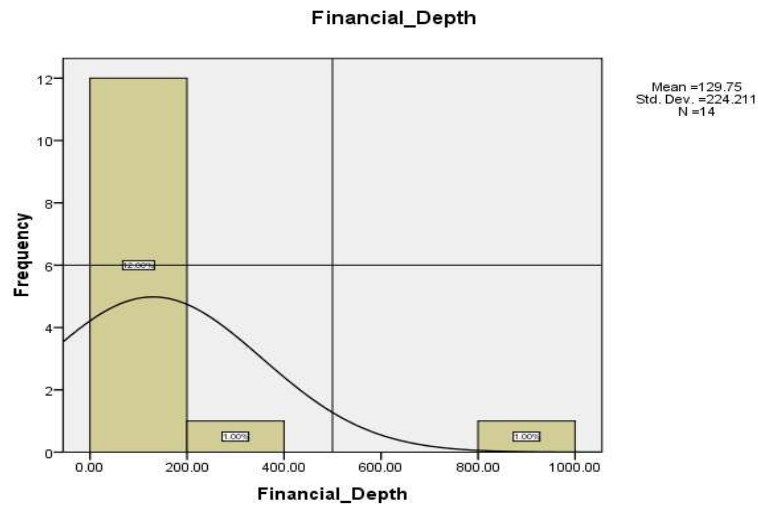


Figure 06: Financial depth

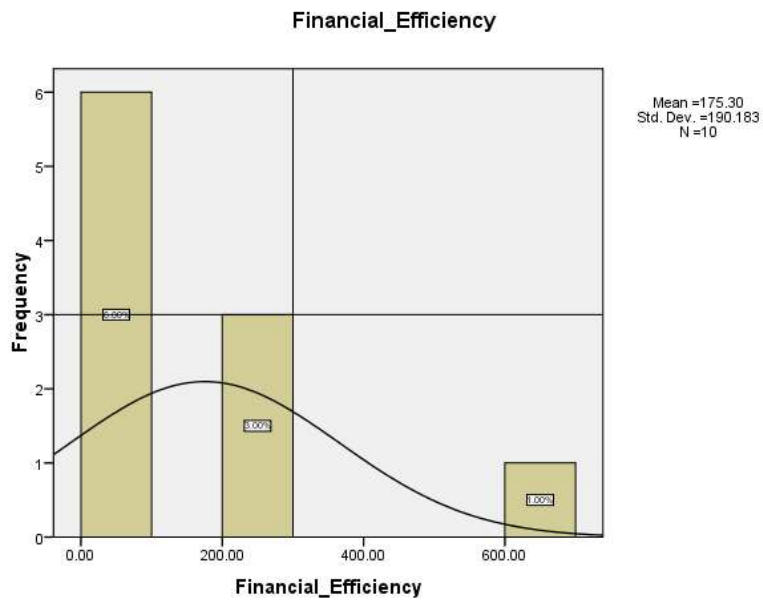


Figure 07: Financial efficiency

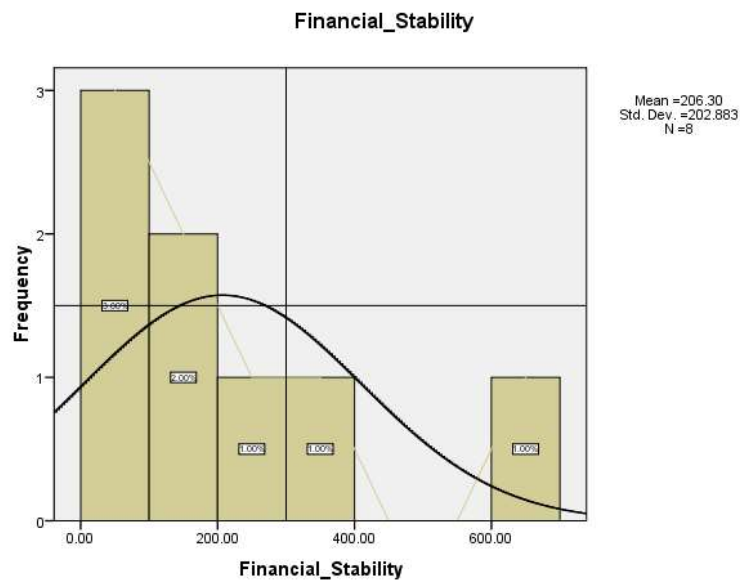


Figure 08: Financial stability

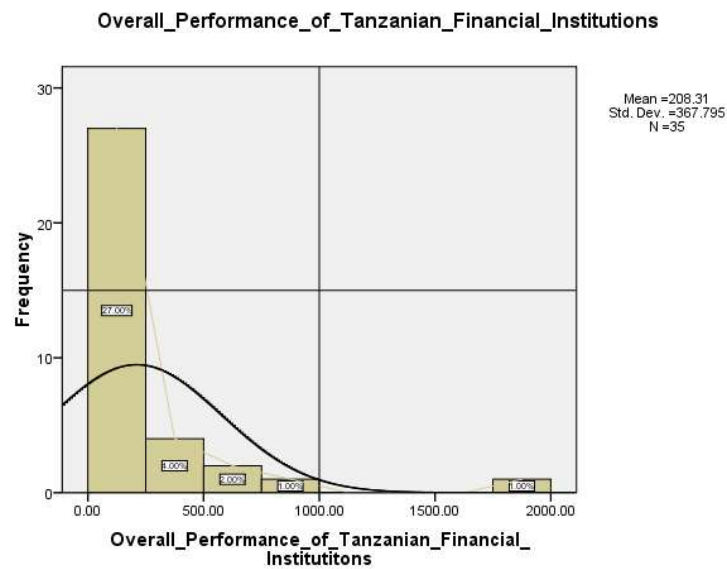


Figure 09: Overall performance of Tanzanian financial institutions

Table 09: Correlation

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Pearson Correlation	1									
Sig. (2-tailed)										
N	35									
Pearson Correlation	.998**	1								
Sig. (2-tailed)	.000									
N	35	35								
Pearson Correlation	.978**	.986**	1							
Sig. (2-tailed)	.000	.000								
N	35	35	35							
Pearson Correlation	.973**	.978**	.995**	1						
Sig. (2-tailed)	.000	.000	.000							
N	35	35	35	35						
Pearson Correlation	.906**	.914**	.950**	.947**	1					
Sig. (2-tailed)	.000	.000	.000	.000						
N	35	35	35	35	35					
Pearson Correlation	.917**	.925**	.956**	.950**	.998**	1				
Sig. (2-tailed)	.000	.000	.000	.000	.000					
N	35	35	35	35	35	35				
Pearson Correlation	.927**	.937**	.968**	.960**	.994**	.998**	1			
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000				
N	35	35	35	35	35	35	35			
Pearson Correlation	.901**	.914**	.955**	.946**	.995**	.996**	.997**	1		
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000			
N	35	35	35	35	35	35	35	35		
Pearson Correlation	.895**	.909**	.950**	.940**	.975**	.980**	.986**	.988**	1	
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000		
N	35	35	35	35	35	35	35	35	35	
Pearson Correlation	.886**	.901**	.946**	.935**	.963**	.971**	.981**	.981**	.993**	1
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	
N	35	35	35	35	35	35	35	35	35	35

** Correlation is significant at the 0.01 level (2-tailed).

7. DISCUSSION OF RESULTS

Statistical histogram figures of 5, 6, 7, 8, and 9 are employed to show measurement of dispersion variability; degree of scatter of the data of Tanzanian financial institutions. In figure 5 of financial access, the data is scattered largely and unevenly along to the two tails of the central tendency line. It is abnormal distribution and there is no positive or negative data skewness. Figure 6 of financial depth has shown abnormality in data distribution but there is positive skewness. The equilibrium point is where the two reference lines of the axis X and Y intersected; it is where the main data distribution is supposed to be with the central tendency line. The formation of the data on this graph is showing stagnation over a time series. The degree of dispersion is **0.01** percent; see table 2 and fig.2 for further explanation. Like financial depth, figure 7 of financial efficiency has shown abnormal distribution with positive skewness but the data is enormously scattered which can only be interpreted in one way; fluctuation. The data on this graph is **0.06** percent; according to the intersection point of the two reference lines, only **0.03** percent of data is normally distributed and the dispersion is very large. Like other proxies of Tanzanian financial institutions, stability has shown abnormality in data distribution and large dispersion variability meaning fluctuation but positive skewness. The overall performance of Tanzanian financial institutions in fig.9 has shown abnormal data distribution with positive skewness and dispersion variability. The data should have been in the area between the interpolation line on the graph and **0.01** data scatter from the far left of the histogram. It is the area where the two reference lines of axis X and Y intersect.

This study has employed **5 tables** and **5 histograms** of mean calculation in descriptive statistics. The reason why the researchers used histograms is that this kind of statistical graphs has a unique feature of controlling and removing errors during the calculations of the data. The results of mean calculations in the tables from **1 to 4** and statistical computation of

figures from 5 to 8 are matched but **table 5** (performance of Tanzanian financial institutions) and **figure 9** (overall performance of Tanzanian financial institutions) didn't match, why? The answer is clear; the overall mean calculations from **tables 1 to 4** have been done manually to produce **table 5** so the statistical error is still there because manual calculations are not capable of removing errors.

There is a clear reason why researchers are doing this manual calculation; it is because mean averages by variables based on **4 proxies** (financial access, financial depth, financial efficiency and financial stability) of this research are needed, **see result**. But figures from 5 to 8 have been statistically calculated to produce **figure 9** and apparently there is no error because histograms removed the error from residuals of mean, median and mode. To prove the existence of this error in the way it is explained, the researchers have already prepared **table 6** which is proving the existence of the error; this table has a double entry of statistical error of both frequencies and descriptive statistics which has proved the same error of mean and standard deviation. Since this study employed Weighted Least Squares Analysis (WLS), the standardized coefficients (β) are deducted standard deviation errors to reduce the error between overall mean results in **figure 9** and the result of regression of WLS, **see table 7**. The Std. Error of the estimate is totaled to prove the error contained in the analysis of this study, **see table 8, the modal summary**. Since test of error in **table 6** matched with the statistical calculations of **fig.9** and the calculations of the modal formulae followed suit, then this study is valid with the result of mean, **208.31** in **fig.9**. According to the result of the study objectives of financial access, financial efficiency and financial stability were not met. The objective of financial depth has been met. There has not been much growth in absolute and systemic size of Tanzanian financial institutions but it is stable. The growth percentage for over 10 years from 2006 to 2015 was **0.02** percent.

In this study, the dependent variables are correlated with independent variables at the level of **0.01** percent meaning there is no strong relationship between independent and dependent variables of this study but there is significance (**Table 9**).

8. CONCLUSION

To find permanent solution for accessing financial institutions in Tanzania to finance business operations using debt requires to implementing sound loan collateral methods and to find measureable ways for loan collateralization values. Tanzanian commercial banks need to enhance their credit information (loan information) and make it available to the public through skilled credit bureaus which are capable to fully record the credit information of customers and producing proper bureaucratic loan procedures to eliminate low risk-taking propensity and have the abilities to lowering high and rising interest rates which may hopefully result easing access to financing business using debt financing programs from financial institutions. Tanzania must set high priorities of business innovation, fight against corruption, improve transparency and regulate business structures. On the other hand, Tanzanian SACCOs should improve adequacy of working capital, find ways to reducing the high amounts of overdue loans. Finding a permanent solution for poor leadership and corporate governance is an inevitable matter of relevance. If the Tanzanian government stabilizes its monetary policy and settle fluctuation of prices, inflation is going to be controllable and interest rates will be reduced to affordable level and financial institutions especially commercial banks and MFIs will find a sound ways to secure all loans. Also collateralized loans must bear low interest rate which will be easy to repay for borrowers. The financial institutions of Tanzania should create or adopt a proper way to screening loan applications from different businesses for it is helping the financial institutions to avoid not being able to disburse loans at its required maximum level.

The researchers are implying that Tanzania lacks prudential regulation. The regulation policy has never stated anything about inflation, high interest rates, rising and fluctuation of commodity prices. Research has shown that 32 percent of borrowers failed to repay their debts on time due to high interest rates. Tanzanian financial institutions should implement competitive interest rates to favor the business existence for a long time period.

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