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Empirical Evidence on the Impact of Bank-Specific Factors on the Commercial Banks Performance: The Camel Model and Case of Ethiopian Banks

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I. Introduction

The Money and banking Proclamation No. 83/1994 identifies banking business as:….an operation that involves such activities like receiving funds, discounting and negotiating of promissory notes, drafts, bills of exchange and other evidence of debt; receiving deposits of money and commercial paper, lending money, and buying and selling of gold and silver bullion and foreign exchange. Even if the list in the proclamation is exhaustive, from the balance sheet and income statements of banks it can be inferred that the main stay of banks largely relied on the intermediation activities (NBE report, 2015/16). A bank is usually defined as an institution whose current operations consist in granting loans and receiving deposits from the public (Mishkin, 2001). Therefore, as core to their functions, banks need to mobilize deposits (in local and foreign currency) from the public so that they can lend the deposit to borrowers and foreign currency users and earn income in the process. The need for more liquidity is associated with the high leverage position following the very limited capital base of banks as compared to their asset holdings. For instance, the capital to asset ratio for banks in Ethiopia in year 2015 is 17% reflecting that a great part of banks' activity is financed through deposit collection (NBE, 2015/6).

From the income structure of banks, it appears that the current trend in banking activities seem altered towards pursuing a mix of fee-generating activities along with the intermediation business. That is, instead of just accepting deposits and making loans; they receive good sum of earning from fee-based activities like foreign operations and off balance sheet activities. Literature also supports that non-interest income is among the most rapidly growing sources of revenue for deposit accepting institutions (Rose and Hudgins, 2008). A similar trend has been noted in the Ethiopian banking situation where income from non-interest sources is revealing growing trend overtime. For instance, the share of fee income from international banking activities in some banks exceeds the income from interest sources. Industry wide scenario also reflects fee income has constituted almost half of the total earning of Ethiopian banks (NBE report, 2015/16). Nachane and Ghosh (2007) remarked that the dynamism in the banking sector has urged banks to be innovative in their operations. This innovation process has contributed for wider expansion in the off-balance sheet activities which are contributing for the expansion in fee income. This may, however, have effect on increasing overall risk of banks by exposing them to high income volatility. In addition, literature suggested that banks with relatively high non-interest earning assets are less profitable (Demirgiic-Kunt and Huizinga, 1999). Despite such argument on the risk associated with holding high share of non-interest income, the significant share of fee income justifies the need to incorporate them in the analysis of bank performance. More specifically, if performance is rated based on profitability measure, excluding fee-based variables will lead to bias. For instance, Rogers (1998) explained that the exclusion of nontraditional activities in the estimation of bank performance and efficiency actually understates it. The other scenario which differentiates banks from other businesses is that of the existence of risk factors.

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This is because the capital base of a bank is smaller relative to the asset base and liability it holds. In terms of the risk types, Allen and Cartelli (2008) identified two major risk types which are associated with the core activities of banks: default and liquidity risks. Thus, existence of both liquidity and default risk for a bank differentiates it from an ordinary firm and the impact of such risk factors on performance should deserve consideration. Beyond the abovementioned factors driving bank performances, there remains several factors to have implications on banks profitability. These factors are mostly classified in to two parts: internal and external. For instance, Al-Tamimi (2010) and Aburime (2005) have classified the determinant factors as internal and macroeconomic variables. The internal factors are defined as the characteristics exhibited by individual bans and which fall under the management's control. On the other front, the external factors include sector or country wide factors and appear outside the control of the management but have a bearing on performances. There are also studies which attempted to separate the external factors into sector and macroeconomic variable (Ongore, 2011). The former considers industry related factors that commonly affects the individual banks while the later takes into account the general economy wide variables. This study provides focus on bank specific variables that have a bearing on the performance of banks. We follow on the approach that is most commonly used by bank regulators to monitor performance: CAMEL approach with the core aim of exploring factors under the control of the management on banking operational excellence. The core theme of the research is to investigate the impact of bank specific factors, which are highly related to internal management of resources, on performance of banks. In such endeavor the banks own undertaking to excel in performance through managing some of the key selected determinant factors will be examined through testing a hypothesis: Ho: Bank Specific Variables has no impact on the Performance of Banks. The study employs a panel data of all commercial banks operating in the country from 19990-2015.

II. Literature Review

The approach that is most commonly used by bank regulators to monitor performance is the CAMEL approach. This is a composite of various bank performance components that management is expected to act upon so as to improve performances. The CAMELS approach evaluates financial institutions like banks on the basis of SIX critical dimensions which are: Capital adequacy, Asset quality, Management, Earnings Liquidity, and Sensitivity to Market risk. Nevertheless, the sensitivity to market risk which requires a well developed financial market is not commonly used in the developing countries studies. Each of the components and the variables to be used in this study is explained below:

III. Capital Adequacy

The Capital Adequacy ratio is the ratio of banks primary capital to risk weighted assets (Directive No. SBB/9/95). Regulators like the NBE issue directives on the manner of computation of the capital adequacy ratio which is a specification on the risk conversion rates for on and off balance sheet assets as well as classification of different components of capital. The directive demands banks to strictly maintain a capital level exceeding or equivalent to 8% of the risk weighted assets. This is with the intent that holding a reasonable level of capital is expected to serve as cushion in times of crisis (Dang, 2011). Nevertheless, such view is also supported by others as adequate capital level being a source of liquidity enhances performance via reducing the banks' financing costs (Diamond, 2000). Holding a high capital level is also challenged by the counter view in that it reduces the return on equity. This is because excessive capital encourages a low risk taking attitude that potentially impacts the earning potential. Furthermore, a higher capital reduces the debt position of firms resulting in lower earnings from the tax exemption from debt leverage Bourke (1989) and Berger (1995). Therefore, the impact of the capital adequacy ratio has uncertain a priori as it could potentially reduce or improve performance depending on its utilization and level of exposures. The study uses the capital to asset ratio which is not risk adjusted to proxy the actual capital adequacy ratio as the data is not publicly available.

a) Asset Quality

As discussed above, one of the critical success factors for better bank performance is its ability to manage the risk emanating from defaults. A bank balance sheet is mostly a composite of various asset elements such as cash, foreign deposits, reserves at the NBE, loans, investments, fixed assets etc. However, the loan portfolio remains to have the dominant share of the asset especially for banks that highly rely on the intermediation business for their earnings. Therefore, keeping the quality of such asset is witnessed in many studies to affect performances. For instance, Dang (2011) claims that delinquent loans are the highest risk components whose poor handling can lead to substantial losses. Similarly, Liu and Wilson (2010) finds that problem in credit quality reduces the profitability measures, the ROA and ROE. Correspondingly, the impact on the price measure Net Interest Margin (NIM) appears positive as banks look for an increase in their margins to reimburse their default risk as well as monitoring credits. Usually, the share of nonperforming loan in the total loan portfolio is employed to measure the asset quality of banks. Even regulators sometime set a threshold for banks to monitor their asset quality level. For instance, in Ethiopia, the NBE has set banks to maintain their nonperforming loan ratio to a maximum of 5% of their credit exposure in terms of loans and

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advances. Nevertheless, banks usually keep their record on delinquent loans confidential, hence, studies are obliged to use another proxy measure, the provision to total loan ratio as a measure of the asset quality (Kumbirai and Webb, 2010). This study also uses the provision to total loan ratio as a measure of the risk arising from credit defaults. As pointed in the start of this section, banks ability to diversify income through integrating both interest and non interest income sources as another variable revealing quality of assets. Therefore, the study also similarly follows the same trend as noninterest income appears a growing business in the Ethiopian banking industry.

b) Management

Banks as financial firms managing large resources, their management quality obviously affects their performances. Nevertheless, empirical studies usually confirm the difficulty in measuring management performances with financial ratios (Ongore, 2013). The regulator like NBE also apply various quantifiable and non-quantifiable factors to rate the management performances. Empirically, however, there is an attempt to apply proxy financial measures to measure management and mostly from the efficiency side. The ratios applied to measure management include: operating profit to income ratio (Rahman et al., 2009) and costs to total assets (Nassreddine, 2013), cost to income ratio Altunbas et. el (2001)). In terms of relationship with performances, the applied management quality measures are found to relate positively with performances. For instance, Altunbas et. el., (2001) investigated the relationship between management efficiency and profitability and finds a positive results. This study also employs the cost to income ratio as well as the efficiency measures that directly relates to management performance, the x-efficiency.

c) Earning

The ability of banks to generate adequate return from their operations is one of the key components of CAMEL. It considers not only the ability to remain profitable but to ensure sustainable return from core earning sources. As discussed in the introduction, Earning from fee generating activities nowadays is becoming a dominant banking income sources while the perception of the regulators still relied on income from the intermediation activities. Earning performance is usually measured therefore using the common profitability indicators like return on assets, return on equity and net interest margin. Nevertheless, income mix analysis usually separates the non-interest income sources from interest earning sources. Sustainability and innovation in banking therefore is emerging to be reflected on the dominance of fee based income in the income composition of banks. This study also considers the share of non-interest income sources from the total income in order to examine the reliability of the banks' income as well as to explore its impact on the performance of banks.

d) Liquidity

The liquidity status of a bank indicates the bank's position to meet its obligations in a timely and effective manner. Even its considered as one of the factors determine a bank to stand as a financial institution (Samad, 2004). The measurement used, nevertheless, has wide variations among the various empirical studies. Some authors like Ilhomovich (2009) used cash to deposit ratio to measure the liquidity level of banks in Malaysia. Others use the loan to deposit ratio, liquid asset to asset etc. Regulators in most countries, however, set the minimum required level of liquidity holding of banks. A similar trend is witness in Ethiopia where the NBE set the liquid asset to deposit ratio which is expected not to fall below 15% of the Bank's net current liability of which around 5% is expected to be held in the form of primary reserve assets, cash and assets easily convertible to cash (see directive no SBB 55/2013). Studies reveal a mixed outcome with regard to the relationship between bank liquidity position and performance. Studies witnessing a negative relationship between liquidity and performance claim that the liquidity reserves mainly of those that are compulsory remain a burden for banks (Berger and Bouwman, 2009). Others find a positive relationship state that a reliable liquidity position improves performance (Dang, 2011; Bourke, 1989). There are also other studies that are done in China and Malaysia that explored absence of a significant relationship between liquidity and performances of banks (Said and Tumin, 2011). This study, therefore, employees the liquid asset to deposit ratio, which is a measure used by the NBE to evaluate its link with performances.

IV. Methodology

The unit of analysis for the study is all commercial banks operating in the country from 1990-2015. A quantitative approach is adopted to form a causal link among different variables with bank performance measures. A panel data set from 1999 to 2015 for all (eighteen) commercial banks is used for the quantitative study. The quantitative study employs a panel data regression model to investigate the relationship between bank specific factors with profit and price performances. Conceptually, the study uses the CAMEL framework which is a widely used performance monitoring tool by regulators to set variables and establish relationship with performances. In order to test the effect of bank specific factors on performances several models have been derived. The basic model is primarily follows the commonly used regulatory approach to measure performance of banks across various parameters. The CAMEL rating system

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which was introduced by the Basel and commonly accepted regulators across countries including the National Bank of Ethiopia considers rating for its individual components: Capital Adequacy Asset Quality, Management, Earning and Liquidity. The aggregate rating will be a derivative of the result on each individual composite rating. Therefore, the a priori assumption on each rating is expected to have a positive relationship with bank performance. In other words a bank scoring well in each component is believed to performing well on composite basis. Therefore based on such framework the model is constructed as follows:

$$Per\%i,t = \beta 0 + \beta 1 BSF\%i,t + \varepsilon i,t \quad (1)$$

Where Per %i,t is the proxy of bank performance measure for bank i in period t (for detailed definition of the variable refers the conceptual framework and variable setting section of Chapter Five); BSF%i,t is estimated bank specific variables for bank i in period t; and εi,t is the error term.

Based on the CAMEL framework the above model is then extended to incorporate proxies for each component:

$$Per\%i,t = \beta 0 + \beta 1 CAR\%i,t + \beta 2\ PRTL\%i,t + \beta 3\ NIITI\%i,t + \beta 4\ XEFF\%i,t + \beta 5\ COIN\%i,t + \beta 5\ LATDi,t\ \varepsilon i,t \quad (2)$$

Where CAR is capital adequacy ratio, PRTL- provision to total loans, NIITI- Non-Interest Income to Total Income, XEFF- managerial efficiency, COIN-Total cost to Total income, LATD- Liquid assets to Deposits. The summary definition of each variable is as shown below.

a) Variable Definition and a priori assumption

The independent and dependent variables are chosen from six proxies of bank specific factors and three performance indicators that have been collected from interview and the regulatory organ formats of bank rating with an added variable from the literature and the study result from efficiency assessment. The definition and the expected relationship are framed based on the literature work. These are displayed on the below table:

Table 1: Variable Definition and CAMEL Category

Variables	Definition	Representation in CAMEL Category	Expected Relationship
Dependent			
ROA	Ability of a bank's management to generate profits from the bank's assets.		
ROE	The return to shareholders on their equity.		
NIM	Residual of interest income resulted from efficient decision making of management.		
Independent			
CAR	Capital adequacy ratio-computed as percentage of capital to asset.	Capital Adequacy	+/-
PRTL	Provision to Loans-ratio of provision expenses to total loans.	Asset Quality	-
XEFF	Managerial efficiency measure using DEA scores.	Management	+
NIITI	Non-Interest Income to Total Income measures the share of earning from non-intermediation sources.	Earning	+
COIN	Cost to income-share of aggregate income from the total income.	Management	-
LATD	Liquid Asset to Total Deposit- the share of liquid asset from total deposit.	Liquidity	+/-

Source: Author's Computation

b) Data and Data Sources

The data used in the study mostly relies on secondary data sources. This is gathered mainly from the financial records of each bank as well as various publications and databases of the NBE. A time series data from 1999 to 2015 for 18 commercial banks is used in the study.

c) Descriptive Statistics

In terms of maintaining asset quality records through controlling of non-performing assets, the ratio of PRTL shows that banks on average are holding a provision level of around 4% of their outstanding loans. This is a bit higher than the provision required for outstanding loans had all loans been in pass status and is closer to the provision required for loans under special mention status (3%) as per the directives of the NBE (SBB 43/2008). Therefore, based on such comparability, the level of industry wide problem asset stock does not seem significant. The worrying issue is the variation across banks is significant with a standard deviation closer to 5 and a maximum PRTL record of 28%. The distribution measure through skweness also

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shows an asymmetrical distribution with a long tail to the right with higher positive value. Therefore, despite the good record of managing assets at sector level, there appears a notable difference across banks in terms of managing their credit exposures which is costing some banks up to 28% of their lending in the form of provision expenses. This remains to be a worrying a concern of a regulator which has set a directives/circulator for banks to maintain their non-performing loans to 5% of their outstanding loans which later revised even to a reduced level ,3% as per a circular issued in relation to meeting the Growth and Transformation Plan of the country (BSD09/2015). The other parameter, NIITI, which is indicative of the banks attempt to ensure a diversified business mix through operating in non-interest income sources also witnessed an encouraging trend. The mean score shows that banks were generating around 43% of their average income from non-interest income sources which are basically related to foreign exchange transactions, commissions from off-balance sheet exposures, service related fees etc. This seems following the global trend which is now shifting towards fee based sources that are serving as an additional income outlet to banks through providing wide spectrum of services to their customers. The reason behind such trend is due to the decline in interest income from intermediation business which is highly dependent on banks capacity to mobilize deposits from customer bases. The less growth rate in deposit market and the high competition level coupled with various regulatory measures (e.g. bill purchase) affecting the lending productivity seems shifting the Ethiopian banks to work more towards searching for other income bases. The variation however is still strong in such parameters where some banks seem by large reliant of the non-intermediation business for their income sources while others are still dependent on the traditional intermediation business as their earning sources.

Table 2: Descriptive Statistics of Bank Specific Variables

Stats	ROE	ROA	NIM	CAR	PRTL	NIITI	XEFF	COIN	LATD
Mean	18.996	2.233	4.547	14.389	3.901	43.357	84.332	65.817	50.143
Max	90.820	5.250	10.160	54.464	28.972	76.687	100.000	89.231	137.705
Sd	12.880	1.107	1.806	7.505	4.702	13.158	12.467	26.079	18.951
P50	18.318	2.420	4.400	12.385	2.451	42.457	84.975	61.285	47.397
Kurtosis	9.264	2.724	2.916	9.644	10.855	2.812	4.954	17.553	4.920
Skewness	1.684	-0.309	0.263	2.069	2.554	0.042	-0.916	3.315	0.997
P75	24.806	2.999	5.633	17.364	4.637	52.151	94.656	71.771	60.796
OBS	193	193	193	193	193	193	193	193	193

Source: Author's Computation (STATA 12)

With regard to cost control, the aggregate cost to income ratio for the industry on average is 65%. This witnesses the fact that banks are expending 65 cents in their various engagements to generate a 1 Birr income per their transactions. The large variation is also an indicative for the existence a wider room for improvement for some banks with regard to controlling their expenditures. On the liquidity front, the liquid asset to deposit ratio, a commonly used measure of liquidity level by the NBE, shows that during the periods considered, banks are operating at a reliable level of liquidity. Despite occasional adjustment in the regulatory requirement, the level of LATD appears to exceed the standards of the NBE (15%) and witnesses a high liquid asset stock holding (SBB/57/2014). This is in line with the argument for the growth in the share of non interest income sources which is enforcing banks to operate under a high liquidity position through maintaining significant balance of liquid asset bases such as foreign deposits. This is in fact usually offset by the counter side off balance sheet commitments already allocated for letter of credit and other mode of trade payments. However, the ratio is still strong if one considers the easily convertible and liquid nature of the accounts.

d) Pearson Correlations

Investigation of the relationship between variables with a Pearson correlation coefficient and result from the significance value shows that in most of the variables the probability of getting a correlation coefficient this big in an observation of 193, if the null hypothesis were true, is very low. Hence, we can gain confidence that there is a genuine relationship between the variables in the model. For instance, the relationship between CAR and the dependent variables (ROE, RoA, NIM) is much strong and negative with regard to the return on equity than others due to the impact of change in capital on the level of returns from equity holdings. The negative and strong relationship will not be a surprise considering the usage of capital as a denominator in computing the return on equity; therefore, an increase in capital has a reverse impact on the earning to equity ratio and vice versa. In addition, the variable has significant relationship with other explanatory variables of which it is strongly and positively related to liquidity and cost to income measures. The positive relationship with liquidity supports the argument for the use of capital as a buffer stock in case of liquidity problems and its association with cost to income is related to the lack of its

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productive usage in a situation of excess liquidity standing. The CAR is also strongly but negatively related to PRTL, XEFF and NIITI. But the coefficient is modest with regard to NIITI. The association basically emanates from the pressure of high nonperforming assets (high risk scenario) on capital cushion, challenge to manage and plan capital usage in excess liquidity and under regulatory involvements scenario as well as the limited effect of capital to create non-interest income despite its notable contribution to boost the currency holding position of banks.

Similarly, the asset quality measure (PRTL), is negatively associated with most of dependent and explanatory variables. The association could not be a surprise considering the impact of a problem asset stock on most of profitability, price and liquidity measures. The rationale behind such relationship lies on the impact of credit risk on the cost of credit through affecting provision expenses, narrowing intermediation margin through affecting the interest recognition from loans and tiding the flow of funds from loan collections as a result of default and/or late payments.

Table 3: Correlation Matrix of Bank Specific Variables

Correlations										
		ROE	ROA	NIM	CAR	PRTL	NIITI	XEFF	COIN	LATD
ROE	Pearson Correlation	1								
	Sig. (2-tailed)									
ROA	Pearson Correlation	.652**	1							
	Sig. (2-tailed)	.000								
NIM	Pearson Correlation	-.143*	.023	1						
	Sig. (2-tailed)	.047	.752							
CAR	Pearson Correlation	-.520**	-.165*	.344**	1					
	Sig. (2-tailed)	.000	.022	.000						
PRTL	Pearson Correlation	.122	-.168*	-.244**	-.435**	1				
	Sig. (2-tailed)	.090	.020	.001	.000					
NIITI	Pearson Correlation	.129	.309**	.019	.018	-.030	1			
	Sig. (2-tailed)	.074	.000	.793	.799	.679				
XEFF	Pearson Correlation	.194**	.147*	-.036	-.238**	.269**	-.120	1		
	Sig. (2-tailed)	.007	.042	.624	.001	.000	.096			
COIN	Pearson Correlation	-.621**	-.736**	.138	.510**	-.031	-.159*	-.331**	1	
	Sig. (2-tailed)	.000	.000	.055	.000	.669	.027	.000		
LATD	Pearson Correlation	-.283**	-.239**	.118	.501**	.095	.280**	-.309**	.384**	1
	Sig. (2-tailed)	.000	.001	.101	.000	.188	.000	.000	.000	

*** Correlation is significant at the 0.01 level (2-tailed). N=193, * Correlation is significant at the 0.05 level (2-tailed)*

Source: Author's Computation (SPSS 20)

Another important relationship derived from the correlation table is that the negative and significant relationship between LATD with both profitability and efficiency measures. This is in line with the argument that liquidity establishes a trade off with profitability through resulting in a relationship where an increase in liquidity impacts profitability to the negative through limiting the share of productive assets in the portfolio of the Bank. Therefore, balancing such trade-off through maintaining an adequate liquidity level without compromising the profitability opportunity through efficient use of funds remain a challenge to be tackled by Banks management. An ineffective use of fund therefore not only affects the profit level but affects the efficiency level of banks through affecting the cost of idle fund.

Overall speaking, the correlations among the independent variables are not high (less that 0.50), indicating that there might be no serious Multicollinearity problems existing. Gujarati and Porter (2009) suggest that if the pair-wise correlation coefficient between two independent variables is in excess of 0.8, then multicollinearity is a serious problem. Therefore, considering the correlations among variables and the tests in the following sections, the models to test the hypothesis are built.

e) Outliers and Missing Values

Before applying the econometrics models to the data, it is necessary to address the potential problem of outliers and missing values as they may have an undesirable influence on the estimates produced by the regressions. A univariate statistics showing summary for missing and extreme values is computed. The result shows that there are no missing values that are likely to lower the quality of panel date but the data for some variables holds extreme values. For instance, the univariate statistics of variables presented in the table

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below shows that there are six extreme values in the dependent variable, mainly related to the higher extreme. Therefore, in order to reduce the potential bias caused by the outliers, the variables in the Models are winsorized[1] at the 5% and 95% levels. In other words, the top and bottom 5% values of CR% are replaced by the value at the 5th and 95th percentiles, respectively. Therefore, the winsorized output is used as the dependent and explanatory variables for the Models. This is justifiable in consideration of uneven financial records of banks during the early year of entrance to the industry. Newly formed banks usually show a lower profitability record resulting from high capital expenditure for establishment costs, branch expansions, IT investments, low level of asset portfolio and income.

Table 4: Univariate Statistics of Bank Specific Variables

	N	Mean	Std. Deviation	Missing		No. of Extremes[a]	
				Count	Percent	Low	High
RoE	193	18.9962	12.87965	0	.0	0	6
RoA	193	2.2333	1.10661	0	.0	0	1
NIM	193	4.5473	1.80649	0	.0	0	1
CAR	193	14.3889	7.50490	0	.0	0	11
PRTL	193	3.9012	4.70174	0	.0	0	18
NITI	193	43.3567	13.15770	0	.0	1	0
XEFF	193	84.2089	12.55139	0	.0	2	0
COIN	193	65.8174	26.07931	0	.0	0	8
LATD	193	50.1431	18.95113	0	.0	0	4

*a. Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR)*

Source: Author's Computation (SPSS 20)

f) Tests of Stationerity

Graphical Observation of the variables shows that the variables selected don't exhibited non-stationerity. Further test based on a mathematical approach is done applying the Fisher Type unit root test which is based on the Augmented Dicky-Fuller tests. The Fisher Type appears more pertinent considering the unbalanced data stock on panel. Therefore, the basis hypothesis Ho: All panels contain unit roots is tested and the result witnessed that all variables are stationery at zero ADF. Therefore, the variables can be used in the model without being differenced or further action.

V. Results and Discussions

Before running the model both normality and panel unit root tests were conducted. The normality test through kurtosis and skewness witnesses the normality of the data as shown in the below table, both the F-test and the LM test with large chi-square result rejects the null hypothesis. Hence, the fixed and random effect models appear better than pooled OLS. The Hausman test taking the coefficients of the fixed and random models tests the null hypotheses that Ho: difference in coefficients not systematic. The chi-square result is with probability lower than 0.05 rejects our initial hypothesis that the individual-level effects are adequately modeled by a fixed-effects model in case of RoA but not in others. Therefore, the estimation result has been done through the fixed effect model in the RoA model but random effect model is applied in RoE and NIM models.

As shown in the table below among the identified six bank specific determinant factors and applied to model 1 (RoA) four of them were significant and considered to be drivers of the banks' profitability. More, specifically, with regard to the coefficients on the independent variables, CAR remains significant in all the models where it acts as a regressor, suggesting that the ratio of capital to asset has a statistically significant impact on bank profitability and price performances. The unexpected result is that the direction of impact provides a mixed result where the CAR has been found to positively relate to RoA and NIM but remained negative in case of RoE. The negative relationship with RoE however is expected in consideration of the relative impact of capital building on the earning measure through diluting the earning to equity position of banks. Therefore, the growth rate in capital should follow the proportional growth in the earning base of banks. Otherwise, obstruction on capital planning from internal and external forces potentially result in a counter impact on the RoE of banks.

[1] There are different ways of dealing with outliers, such as winsorisation, exclusion, or retention. In this study, since the number of observations is not large, and the extreme values are likely to seriously bias the estimates, either exclusion or retention seems to be inappropriate. In this study, all winsorizing are done based on full sample rather than on balanced sample i.e. on the 193 cases.

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Table 5: Regression Results

	Model 1	Model 2	Model 3
	RoA	RoE	NIM
CAR	.0522522 (0.0000)*	-.5180715 (0.0010)*	.0814718 (0.0050)*
PRTL		-.445118 (0.0019)*	-.0199116 (0.5820)
NIITI	.0295337 (0.0000)*	.1060527 (0.0125)*	.0006569 (0.9600)
XEFF	.0108347 (0.0538)	-.0570724 (0.3770)	.663684 (0.5520)
COIN	-.034499 (0.0000)*	-.2449508 (0.0000)*	-.0000826 (0.8980)
LATD	-.5186258 (0.0570)	.0181338 (0.0721)	-.0054677 (0.5710)
CONS	-4.167119 (0.0000)*	42.79821 (0.0000)*	3.277389 (0.0150)*
Adjusted R2	62.8%	45.05%	42.5%
Walid Chi2		152.72 (0.0000)*	54.8 (0.000)*
F(6,168)	57.1 (0.0000)*		
F-test	2.88 (0.0003)*	5.5 (0.0000)*	2.66 (0.0000)*
LM test	4.62 (0.0315)*	54.33 (0.0000)*	9.6 (0.0019)*
Hausman Chi2	216.3 (0.0000)*	8.24 (0.2143)	1.32 (0.4532)
Rho	(Fraction of variance due to u_i)	.14795143	.14163641

Source: Author's Computation (STATA12)

Considering the sporadic involvement from the regulator in setting the requirement of entry as well as capital threshold for banks already in the business, the impact of capital on earning position remained negatively affecting RoE. This obviously will be severe for banks which already are operating at a capital level in excess of their asset holdings and/or are managing to operate under limited growth of earning as compared to their growth in their capital level. On the other front, the positive relation of CAR with RoA and NIM is much related with the notable impact of a high level of capital on business expansion through increasing the capacity of banks to achieve large credit extension for a single borrower and boosting their capacity to hold an increased foreign currency holdings. This will be very relevant to the Ethiopian banking industry where the lending decision to single borrower, 25% of capital (Directives SBB/53/12) and foreign currency positions, 15% of capital (Directives SBB27/01) are directly attached with the capital level by regulations. This has been an important driver for banks to operate under a relatively excess capital level with a motive to register a rapid balance sheet expansion. This has assisted to boost the earning position of banks through directing their activity to a high growth- high earning scenario and without worrying much about liquidity shortfall. This however, has not adequately covered the negative impact of capital on their RoE (or earning per share) which doesn't seem a worry to the banks until recent period considering the high earning per share and dividend offering of the Ethiopian banks. This benign regime however might not sustain in the forthcoming as banks are stipulated to operate under a capital level beyond their expectation and the gradual slowdown in their earnings growth due to a growing competition and regulatory tightening. Therefore, to some extent capital planning remains to be one of critical bank specific determinants warranting management intent in the process to discharge their obligations to various stakeholders, most importantly of the shareholders. This has been one of several reasons enforcing banks management to capitalize on a business mix through focusing noninterest income sources.

On the other hand, the commonly used proxy metrics to measure asset quality, PRTL, has been positive but insignificant in the RoA model and witnessed significant and negative relationship with RoE model. The model related to price (NIM) similarly shows negative and insignificant relationship with PRTL. As shown in the trend and descriptive statistics, the aggregate PRTL level is towards a positive track record revealing the banks remarkable achievement in

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maintaining a healthy asset portfolio through in placing control on the level of their nonperforming asset. This has been not only an internally driven strategy but supported by enforcement from the regulator which insisted banks not to hold nonperforming assets beyond 5% of their loan portfolio, a high risk asset component. Therefore, the low level of PRTL record observed in most banks in the industry succeeded to establish a positive relationship with the earning position of banks through controlling the cost of asset mismanagement as shown in low rate of provision expenses as compared the loan portfolio. In other words, the effect of provision for problem assets has limited impact on profitability performances justifying for the insignificant relationship with the RoA and RoE. Nevertheless, the mixed outcome with regard to the direction of impact mostly relates to the differences in the sensitivity of the base at which the two ratios are computed i.e. asset and capital. Banking is a highly leveraged business with most of its sources of businesses relies highly on liability from customers than shareholders investments leading to hold asset level far exceeding the capital invested by its shareholders. Such scenario potentially has put banks capital more sensitive to earning disorder from asset quality related problems as compared to the level of banks. This can be easily justified if one considers the coefficient values of PRTL in the two models. In contrast, the pricing measure establishes a negative and significant relationship with PRTL due to the double effect of non-performing assets on net yield from intermediation activity. On one front, nonperforming assets potentially reduces the level of interest income from lending business through restricting the earning from problem assets. This is because income recognition from problem assets is not allowed unless the asset is backed by cash and cash substitute collateral (Directives SBB/43/08). On the other front, problem assets will bring additional costs in the form opportunity cost of unproductive use of interest bearing deposits besides the demand to set aside provision based on the classification level of the problem asset. Therefore, the double side impact results in a narrow interest income that provides a narrow interest margin justifying a negative relationship of PRTL with NIM.

The other measure applied to assess banks' capacity to ensure a diversified income sources through establishing appropriate level of business mix, NIITI remained a significant driver of profitability measure. Nevertheless, it has insignificant effect on the price related performances. The direction of relationship, however, is positive in all models considered. The established relationship goes well with the a priori assumption due to the obvious effect of a diversified and hence increased income bases on the gross income and profit level of banks. In addition, the macroeconomic framework of the country remained suitable for banks to generate a substantial income in their foreign trade offerings granting a liberty to set charges of their discretion for their international banking services and during currency selling. The liberty of charging basically emanates from the shortage in the availability of foreign currency due to high unmet demand from the business community that are engaged in import related businesses. Therefore, a bank holding a reliable level of foreign currency obviously manages to easily convert its foreign assets to fee based income and associated gain from currency conversions. Additionally, a high demand in off balance sheet related services such as issuing guarantees and offering domestic banking services ensured another source of fee based services increasing the income base of banks. The aforesaid services have contribution not only on the income base of banks but on the overall risk portfolios through directing their activities on almost risk free services bearing a lower impact to affect their income positions. The insignificant relationship with price measure is basically is a result of a loose association between NIM, which is basically a measure of the yield from intermediation business and NIITI which covers businesses exterior to the traditional banking engagements. Therefore, NIITI is not much affected by a change in the price for earning assets and the cost of fund for deposits as a result of its distinct pricing mechanism and limited use of locally mobilized deposits.

An important finding from the empirical result is that management's ability to control costs has a negative impact in all the models. This suggests that in addition to banks' endeavor for boosting revenue through engaging themselves in diversified businesses, their specific experience in managing expenses appears to be an important factor in determining performance. More specifically, the COIN ratio established a statistically negative significant relationship to the profit based models witnessing the fact that the cost of undertaking banking business is one of the prominent variables requiring the managements' focus. Lack of proper cost control could potentially drain profit of banks and its effect as revealed in the coefficient is much strong on RoE. This will be an important finding of the study because it instigates management to have careful considerations on their cost of doing business during critical cost driven decisions like expansions through branch network, IT investments, e-banking channels, employment etc. On the other front, the study contributes a variable which can serve to assess management performance during rating by the Board or the regulator which mostly prefers to do it applying simple ratios as witnessed during the interview sessions. Such approach has an obvious drawback of aggregating costs potentially hiding the effect of individual cost components through offsetting their under and over usage. Nevertheless, the aggregate position serves as an initial start to look for the affixed

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cost management capacity in banks. The COIN relationship with price measure, NIM, is insignificant which could be associated with the current interest rating setting regime reigning in the system. The interest rate in both asset and liability side naturally seems variable but in practice has a fixed nature due to limited variation in interest rate applied both lending and deposit side. This has provided an opportunity for banks to run under a stable yield curve, hence, the burden to manage expenses through price controls appear irrelevant or deserved a reduced merit justifying for the insignificant relationship with the price related variable. Nevertheless, the negative relationship provides indication an existing concern to manage costs through controlling factors that have implication on both cost and income. Such factors as discussed above include maintaining healthy asset portfolio, managing deposit mixes, etc. among others. Supporting this argument, the managerial efficiency measure, the XEFF, shows that performance of some banks could be improved through increasing the efficiency of management. The established relationship in some models, however, is not statistically significant that indicates a homogenous management approach. However, as shown in previous section and suggested in the interview, managerial efficiency is one of the area deserving improvement and to be considered for building competitive advantage in the Ethiopian banking system.

On the liquidity front, a mixed result has been witnessed in the three models with a negative relationship record in the RoA and NIM models and a positive relationship with RoE. This is in line with the literature where the impact of liquidity is reflected depending upon the usage of liquidity to optimize the liquidity-profitability trade off. Surplus liquidity holding ensures a comfortable status to meet commitments at ease but drains profitability by increasing vulnerability to growing expenses on excess fund holding. As indicated in the descriptive statistics, the Ethiopian banks are mostly characterized by surplus liquidity holdings maintaining a liquid asset level far above required by the regulatory standard. Therefore, the impact of such norm has negatively affected profitability measures as well as placed a pressure on the productivity of their intermediation businesses. This is a signal for the lack of in-placed strong liquidity management that can ensure an optimum usage of funds. As shown in the models, the impact of the above constraint has been significant on both profitability and price performance sides with notable exceptions on the RoE model. The explanation for the exception is in relation to the reduced pressure arising from surplus liquidity on the capital planning of banks. Planning for capital growth, therefore, appears much slower in circumstances of excess liquidity unless it is driven by exceptional business motive and fulfilling regulatory requirements. This remains an important finding of the study indicating that banks in the Ethiopia still have a way to boost their earnings not only aiming at further expansions but also ensuring their capacity to establish a liquidity-profitability trade off. In addition, their liquidity position among several factors could be considered as an important variable in their capital growth decisions.

Robustness Test (Specification Tests after the Result)

The residual statistics shows the error term has a normal distribution with a mean of 0. Hence, the normality assumption holds. The results from the VIF table suggest that VIF is not greater than 10 for any of the explanatory variables. The Breusch-Pagan / Cook-Weisberg test for heteroskedasticity test shows that at 5% level of significance, the p-value is higher showing that heteroskedasticy is not significant in the model. The small value of chi-square also supports the constant variance of the error term. The result has shown that the D-statistic (1.273) appears closer but lesser than 2 depicting positive correlation. As suggested by Field (2009), values less than 1 or greater than 3 are a cause of concern. Hence from Field's rule of thumb it can be inferred that autocorrelation is not serious.

VI. Conclusions

Concerning the third research question: 'How do bank specific factors relate to bank performance' the study explored that most of the proxies to measure bank specific factors are significantly related to performances. Therefore, the result rejects the null hypothesis that bank specific factors have no impact on bank performances. The constructed model has used the CAMEL framework which is a widely used supervisory tool to measure bank performances. The result shows that the capital adequacy ratio (CAR) remains significant in all the models suggesting statistically significant relationship with bank profitability and price performances. Nevertheless, the direction of impact is mixed where the CAR has been found to positively related to RoA and NIM, but remained negative in the case of RoE. The mixed result appears justified in consideration of the multifaceted impact of capital to asset ratio on performances. In one front, a higher capital to asset ratio improves profitability by enhancing the banks' risk assimilation capacity and creating a reliable liquidity position. On the other hand, it affects performances of banks as measured by the return on their equity as it places burden on banks via setting an expectation for management to match the growth in profit in line with the capital holdings. On the other front, the quantitative study finds a positive and insignificant relationship of the asset quality (PRTL) with RoA, but witnessed significant and negative relationship with RoE. The model related to price (NIM), similarly shows negative and insignificant relationship with PRTL. The qualitative study, however, identified that asset quality remains an important determinant of bank profit and price performances as

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problem assets directly affect the profit performance demanding for equivalent provision expense holdings. In addition, they affect prices by drawing down the earnings from granted loans. From the mixed result of the two studies, the research concludes that the low asset quality problem in most banks has concealed the potential impact of asset problem on performances. In addition, the study suggests the use of the actual rate of nonperforming loan ratio instead of the proxy provision to total loans in future researches attempting to investigate the impact from asset quality problems. This study has used the proxy measure as non-performing assets related data are not publicly available due to confidentiality. Nevertheless, the mixed outcome with regard to the direction of impact mostly relates to the differences in the sensitivity of the base at which the two ratios are computed i.e. asset and capital.

Another important finding of this study is that banks' capacity to ensure a diversified business mix (NIITI) remained a significant driver of profitability measure. Nevertheless, it has insignificant effect on the price related performances. The direction of relationship, however, is positive in all models considered. As shown above, the proxy variable not only appears as a significant driver of performance but is also a major source of efficiency. This arises from the double edge impact of a diversified business to ensure an enhanced income base and its positive contribution to maintain quality asset portfolio.

The empirical result also shows that management's ability to control costs (COIN) has a positive impact in all the models showing that in addition to banks endeavor for boosting revenue through engaging themselves in diversified businesses, their specific experience in managing expenses appears to be an important factor in determining performance. Nevertheless, the qualitative study shows that cost control should be supported by an optimum expense management strategy that ensures a balance to meet both short-term and long-term goals. Unlike the above finding, the managerial efficiency variable (XEFF), established a statistically positive relationship with performances showing that performance of some banks could be improved through increasing the efficiency of management. The established relationship in the models however is not statistically significant. The result appears unexpected, but explained in the qualitative study on the ground that the tight regulatory framework which discourages risk taking in banking business apart from traditional and common banking endeavors has limited to use top management experience in innovative practices. Furthermore, regulation has also taken the critical role of management in some cases such as strategy setting that establish areas and modes of bank growth. However, there is a suggestion from bank managers for improvement in managerial efficiency allowing the freedom to be used as a competitive tool.

Banks' ability to maintain a reliable liquidity position (LADP) witnessed a mixed result in the models: a negative and statistically significant relationship with the RoA and NIM models and a positive statistically insignificant relationship with RoE. Nevertheless, the finding is justified as excess liquidity standing could reduce the profitability of banks by exposing them to non-earning placements. Nevertheless, it can ensure better customer services to comfortably meet the credit demand of borrowers. The important finding of this study replicating the findings in literature is that banks' decision with regard to liquidity should consider the trade-off between profitability and liquidity. This accepts the commonly accepted liquidity-profitability trade-off theory.

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