THE IMPACT OF INVESTMENT DIVERSIFICATION ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN ETHIOPIA

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Abstract

Commercial banks play an important role in the development of a country. A sound, progressive and dynamic banking system is a fundamental requirement for economic development. Thus, the purpose of this study was investigating the impact of investment diversification on financial performance of 17 Ethiopian Commercial Banks covering the period of 2013-2017.Quantitative research approach was used and the data was analysed by using panel random effect regression model. The finding of the study shows that investment in financial assets, government security, insurance, loan portfolio and investment size have positive significant impact on financial performance of Banks in Ethiopia. Whereas, interest and exchange rate volatility have negative significant impact on financial performance of commercial Banks in Ethiopia. The study concludes that investment diversification positively affects the financial performance of commercial banks in Ethiopia. Therefore, banks should focus its work to promote the confidence in portfolio diversification, develop marketing policies that encourage its use and establish the best combination of assets that can yield an efficient portfolio.

Keywords: economic development; efficient portfolio; risk management

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1. Introduction

Commercial banks play an important role in the development of a country. A sound, progressive and dynamic banking system is a fundamental requirement for economic development (Vossen, 2010). A sound and profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system. Bank profits provide an important source of equity especially if re-invested into the business. This should lead to safe banks, and as such high profits could promote financial stability (Flamini et al, 2009).

According to Gupta (2011) putting all your eggs in one basket is a risky decision. Therefore, an important principle of investment is to diversify investment portfolio. Spreading investments over multiple, unrelated investments reduce the risk of a sudden, unexpected outcome. In a diversified portfolio, a loss (risk) in one investment is offset by gains from another investment.

With respect to previous research studies different researchers examined this issue in different countries and sectors their findings were mixed for instance Perez (2015), argues that the effect of asset diversification on financial performance remains theoretical and differing in conclusions and as a result, it triggers scholarly debate. Perez (2015) concludes that those commercial banks which do have higher trading assets percentage normally have with them higher risks. A similar argument is shared by Lins and Servaes (2002) who assert that firms which have more diversified assets tend to have less profit than firms which have non-diversified assets. Muñoz and Sanchez (2011), while examining diversification from geographical aspect, asserts that there is a negative link between profitability of a firm and its market expansion to cover large geographical area. Elefachew and Hrushikesava, (2016) on their study the effect of industrial diversification on financial performance of selected banks from Ethiopia, reveals that industrial diversification was found to have a negative and significant effect on both return on asset and equity. On the contrary, Ishak and Napier (2006) argue that diversification does not result to reduced firm value, but rather, value of a firm tends to increases through increased diversification. Booth and Fama (1992) acknowledge that the incremental revenues as a result of diversification are higher for less-capital stocks than for other assets. This is because small-cap stocks have volatile returns and their risk is easily diversified away, as they have low correlations with

other assets. Mutega (2016) asserts that asset diversification has a positive and significant impact on financial performances of commercial banks in Kenya. Kipleting and Bokongo (2016) also conclude that investment diversification has positive impact on the financial performance of commercial banks in Kenya. From the above reviewed results, we can easily conclude that the effect of investment diversification on financial performance remains contradictory so it needs further investigation by considering different investment portfolios currently applied by Ethiopian Commercial banks.

While we see in Ethiopian context to the best knowledge of the researchers only one study conducted by Elefachew and Hrushikesava (2016), the effect of industrial diversification on financial performance of selected banks from Ethiopia and the finding reveals that industrial diversification was found to have a negative and significant effect on both return on asset and equity. Under this study only one aspect of investment diversification i.e loan diversification is considered, so it needs further empirical evidence by considering other investment portfolios. As a result, it worthwhile to investigate the impact of investment diversification on financial performance of Ethiopian Commercial banks so as to determine whether investment diversification has an impact of either reducing or increasing the overall financial performance of the commercial banks operating in Ethiopia.

2. Literature review

2.1 Theoretical framework

Modern Portfolio Theory, Arbitrage Pricing Theory and Capital Market Theory were used for this study as a theoretical framework these theories acknowledge that diversification as important for risk mitigation and increasing returns. The theories advocate for evaluation of portfolio diversification for maximization of returns. According to these theories, spreading investments throughout stocks that are not related can maximize firm's potential revenues irrespective of whether there is economic growth or not.

2.2 Empirical review

This section presents previous empirical evidences which are related with the effect of investment diversification on financial performance in different countries and sector.

Kahloul and Hallara (2010) carried out an investigation on how diversification risk and performance were related. Sixty nine (69) large firms in France were target for this study and the study period was from 1995 to 2005. The methodology was centered on both univariate and multivariate analysis. Sample included all 69 non-financial firms' selected based on size, total period and industrial activity. The data collected was cross sectional and time series hence regression analysis technique was employed to analyses panel data. The resulting findings nullified the diversification-performance relationship. The finding further revealed that total risk was linearly unrelated with diversification. However, specifically, ownership structure has the potential of intervening on the association between performance and diversification as well as that of diversification and risk. There is a possibility that ownership nature can be relevant in having a detailed knowledge of diversification, risk and performance relationships.

Turkmen and Yigit (2012) explored diversification in banking and its effect on banks' performance using evidence from Turkey. The study analyzed 40 commercial banks' data. Financial performance was measured using Return on Assets and Return on Equity with location diversification being assessed using the Herfindahl Index (HI). Geographical diversification was measured using Herfindahl Index which involved squaring market share and summing market share of each bank in each market. The study found that diversifying credit portfolios influenced the risk level of banks with losses in one sector or one location being compensated from the gains obtained from the other sectors or locations.

Maina (2013) investigated the product diversification effect on financial performance of microfinance companies. Main aims of this study was to identify the types of diversification in the Kenyan microfinance market and how they relate to performance. The study adopted a descriptive survey design using secondary data obtained from financial records of Microfinance institutions and Central Bank of Kenya. Major research findings indicated that the diversification indicator, ROA indicator and ROE indicator were on a growth pace from 2008 to 2012. However the study failed to identify the nature of product diversification whether horizontal, vertical or corporate since each one of them has its own impact on the financial performance.

Kamwaro (2013) examined the relationship between investment portfolio choice and profitability of investment companies

listed in the Nairobi securities exchange. This study took a descriptive research design approach. The study entailed a census of all the investment companies listed in the Nairobi Securities Exchange. There are five investment companies listed in Nairobi Securities Exchange. The study covered a period of three years starting in the year 2012 to year 2014.The study used secondary data sources available at the companies" books of account and the NSE or Capital Market Authority offices. The study used the multiple linear regression equation and the method of estimation was Ordinary Least Squares (OLS) so as to establish the effect of portfolio composition on financial performance of investment companies listed in Nairobi Securities Exchange. The study revealed that portfolio composition affects the financial performance of investment companies listed in the Nairobi Securities Exchange.

Kipleting and Bokongo (2016) investigated the effect of investment diversification on the financial performance of commercial banks in Kenya. The study used an exploratory research design. The population of interest in this study consisted of 40 commercial banks. Secondary data was collected using data collection sheets as the main data collection tool and interview schedule as the primary data. Data collection sheets were used to collect data guided by the objectives of the study. The data collected was analyzed using explanatory and inferential statistics and multiple regression. The study concluded that a majority of the banks over the years had in practice employed the use of insurance investment on the financial performance of commercial banks in Kenya.

Mutega (2016) investigated the effect of asset diversification on financial performance of commercial Banks in Kenya the study used descriptive research design and the population of this study was 43 commercial banks in Kenya. Secondary data on financial performance and asset diversification was collected from commercial banks' annual reports. The study was limited to a time scope of 5 year starting 2011 to the year 2015. Quantitative data gathered was analyzed descriptively and used of inferential statistics. Financial asset, loan, cash and cash equivalent and other investments are used as independent variables and the finding of the study reveals that all independent variables has a positive and significant impact on financial performances of commercial banks in Kenya.

Elefachew and Hrushikesava (2016) examined the effect of industrial diversification on financial performance of selected banks

from Ethiopia. The data consists 6 years' period from 2008/09-2013/14 for ten private and two government commercial banks. Overall, the banks could be said to have diversified their loan portfolios among different industries in Ethiopia. The fixed effects model was used to estimate the regression and industrial diversification was found to have a negative and significant effect on both return on asset and equity. As per the review of the literature, there are a number of empirical studies conducted on the impact of corporate diversification on financial performance of banks and other sectors but their findings remain inconclusive, therefore, it needs further empirical evidence by considering the economic, financial, regulatory and operating context of Ethiopia.

2.3. Conceptual framework of the study

In this section a simplified conceptual framework that postulates the relationship between investment diversification and financial performance is presented. As shown in Figure 1 financial performance of banks affected by investment on Financial asset, Loan, Government security Insurance and size of investment. In addition, macroeconomic variables (interest rate volatility and exchange rate volatility) are also included.

Figure 1

Conceptual framework of the study

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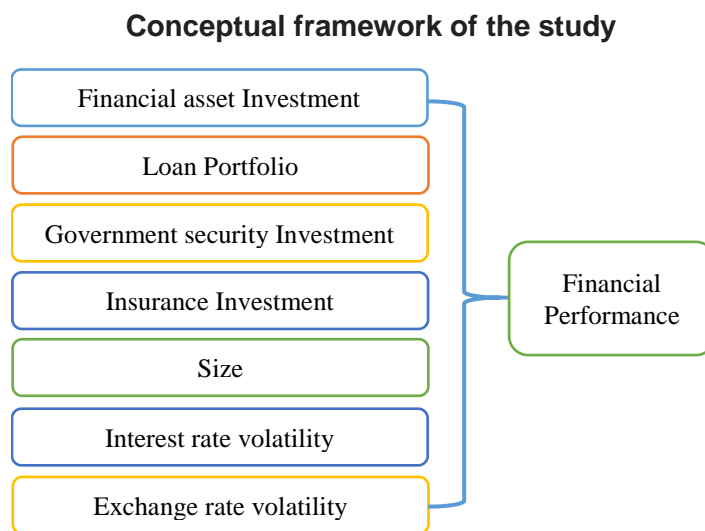
3. Materials and methods

Quantitative research design was used to generalize about the effect of investment diversification on financial performance of banks. The data required for analysis was driven from audited financial statement of banks over the study period 2013-2017 and the data required for macroeconomic variables were obtained from annual report of National Bank of Ethiopia (NBE). To examine effect of investment diversification on financial performance of banks the study employs panel data procedures since the sample contains data across banks and over time. Using panel data provide many advantages such as (i) controlling for individual heterogeneity, (ii) giving more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency, and (iii) eliminating biases resulting from aggregation over firms or individuals Baltagi (1995). As noted in Brook (2008) the general form of the panel data model can be specified as follows:

$$Y_{it} = \alpha + \beta x_{it} + \varepsilon_{it}$$

In this equation, y_{it} represents the dependent variable, and x_{it} contains the set of explanatory variables in the model. The subscripts i and t denote the cross-sectional and time-series dimension, respectively. Also α is taken to be constant over time t and specific to the individual cross-sectional unit i.

The following regression model will be used to establish the relationship among the study variables.

$$ROA_{it} = \beta0 + \beta1(FIN.ASSETS)_{it} + \beta2(Loan)_{it} + \beta3(Gov.Sec)_{it} + \beta4(INI)_{it} + \beta5(Size)_{it} + \beta6(IRV)t + \beta7(ERV)t \dots \varepsilon$$

where: ROA = return on asset; FIN.ASSETS = Financial Assets; Loan = Loans portfolio; Gov.Sec = Investment on government security; INI = Insurance Investment; Size = Investment Size; IRV = Interest rate volatility; ERV = Exchange rate volatility; β0 = regression constant; β1, β2, β3 and β7=coefficients associated with predictor variables ε=Residual (error) term.

4. Results and Discussion

4.1. Result of Regression Model

Prior to see the result of regression analysis diagnostic (misspecification) tests such as the assumption of homoscedasticity, tests for autocorrelation, test for normality and test for multicollinearity were conducted to ensure that the data fits the basic assumptions of classical linear regression model or not, and the result of all tests satisfy the basic assumptions of linear regression model. The result obtained by the random effect model is reported as follows:

Table 4

Regression Result

Dependent Variable ROA

Sample:2013 2017
Included Observations:85
Cross-sections included: 17

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.094570	0.091813	-1.030028	0.3062
FIN.ASSETS	0.122674	0.042040	2.918040	0.0046*
LOAN	0.080916	0.023385	3.460112	0.0009*
GOV.SEC	0.174200	0.046907	3.713720	0.0004*
INI	0.539411	0.066443	8.118429	0.0000*
SIZE	0.018633	0.008578	2.172093	0.0329**
IRV	-0.018528	0.008596	-2.155471	0.0342**
ERV	-0.009049	0.003471	-2.607282	0.0110**

R-squared	0.534296	F-statistic		12.62013
Adjusted R-squared	0.491959	Prob(F-statistic)		0.000000

*and**, denotes significant at 1% and 5% respectively
Source: Financial statements of banks, NBE reports and own computation

The estimation result of random effect panel regression model is presented in table 4.1 indicates that R-squared and the Adjusted-R squared statistics of the model was 53% and 49% respectively, the result indicates that the changes in the independent variables explain 49% of the changes in dependent variables. That is investment in financial asset, loan portfolio, investment on government security, investment on insurance, size of investment, interest rate volatility

and exchange rate volatility collectively explain 49% of the changes in return on asset. The remaining 51% of changes of return on asset was explained by other variables which are not included in the model. Thus, these variables collectively are good explanatory variables of the return on asset of commercial banks in Ethiopia. The regression F-statistic and the p-value of zero attached to the test statistic reveal that the null hypothesis that all of the coefficients are jointly zero should be rejected. Thus, it implies that the independent variables in the model were able to explain variations in the dependent variable.

The regression result in table 4.1 shows that, investment on financial assets, loan portfolio, investment on government security, investment on insurance and size of investment has positive and significant relationship with return on asset. Among the significant variables, investment on financial assets, loan portfolio, investment on government security, investment on insurance were significant at 1% significance level since the p-value was 0.0046, 0.0009, 0.0004 and 0.0000 respectively. Whereas size of investment was significant at 5% significance level since the p-value was 0.0329.

In contrary, there were inverse relationships between interest rate volatility and exchange rate volatility against return on asset as far as the coefficients for those variables are negative. Thus the increase of those variables will lead to a decrease in return on asset. In general, as per the regression results provided in Table 4 all explanatory variables have significant impact on return on asset.

4.2. Analysis

Under this section some of the main implications of the results are discussed based on the regression result which indicates the relationship of dependent and independent variables presented in Table 4. The result obtained under this study is analyzed as follows**.**

- **Investment on Financial Assets**

H_1 predicts significant positive relationship between financial asset investment and return on asset of banks, as expected the coefficient of financial assets which was measured by the ratio of financial asset investment to total investment portfolio was positive and statistically significant at 1% significance level (p-value = 0.0046). The coefficient of financial asset investment implies that if investment in financial asset increased by 1% return on asset increased by 12.3%. The positive coefficient indicates that financial assets are easily liquidized compared to other tangible assets including real

estate, commodities, and are tradable on financial markets so an increase in company's financial assets, results to increase in its net worth. The finding was also consistent with previous studies of Cernas (2011) and Mutega (2016).

- **Loan Portfolio**

H_2 predicts significant positive relationship between loan portfolio and return on asset of banks, as expected the coefficient of loan portfolio which was measured by the ratio of loan portfolio to total investment portfolio was positive and statistically significant at 1% significance level (p-value = 0.0009). The coefficient of loan portfolio implies that if investment in loan increased by 1% return on asset increased by 8%. The positive coefficient indicates that loan portfolio constitutes the major asset and the predominant basis of income, the result was consistent with Dang (2011), he argued that loan portfolio has a positive relationship with bank profitability when the loan portfolio is of high quality. In addition, Koch and MacDonald (2000) confirm managing loan portfolio effectively and the credit endeavors of a bank are key to its soundness and safety. in addition, the finding was consistent with Morsman (2003), Bismark and Chengyi (2015), Nduwayo (2015), Perez (2015) and Mutega (2016).

- **Investment on Government Security**

H_3 predicts significant positive relationship between investment on government security and return on asset of banks, as expected the coefficient of government security which was measured by the ratio of investment on government security to total investment portfolio was positive and statistically significant at 1% significance level (p-value = 0.0004). The coefficient of government security implies that if investment in government security increased by 1% return on asset increased by 17 %. The positive coefficient indicates that investment on government security such as Treasury bills and Bonds are considered to be significantly safer investments compared to the other asset classes given that the likelihood of a government running out of money and defaulting on its interest payments are very low since it can print more money or borrow more, the result was consistent with Kipleting and Bokongo (2016).

- **Insurance Investment**

H_4 predicts significant positive relationship between insurance investment and return on asset of banks, as expected the coefficient of insurance investment which was measured by the ratio of investment on insurance to total investment portfolio was positive and

statistically significant at 1% significance level (p-value = 0.0000). The coefficient of insurance investment implies that if insurance investment increased by 1% return on asset increased by 53%. The positive coefficient indicates that in Ethiopia most of banks have sister insurance company there are potential gains within the reduction of risk from bank enlargement into insurance business. The result was consistent with Kipleting and Bokongo (2016).

- **Investment Size**

H_5 predicts significant positive relationship between investment size and return on asset of banks, as expected the coefficient of investment size which was measured by the natural logarithm of total investment in birr was positive and statistically significant at 5% significance level (p-value = 0.0329). The coefficient investment size implies that if insurance investment increased by 1% return on asset increased by 1.86%. The positive coefficient indicates that economies of scale and synergies arise up to a certain level of size. The result was consistent with Kamwaro (2013) who acknowledges that size of the company investment positively impacted in the financial performance of investment companies in Kenya.

- **Interest Rate Volatility(IRV)**

H_6 predicts significant negative relationship between interest rate volatility and return on asset of banks, as expected the coefficient of interest rate volatility which was measured by standard deviation of annual money market interest rate was negative and statistically significant at 5% significance level (p-value = 0.0342). The coefficient interest rate volatility implies that if interest rate volatility increased by 1% return on asset decreased by 1.85%. The negative coefficient of interest rate volatility indicates that the volatility in money market interest rate creates reinvestment and refinancing risks arising from fluctuations in interest rates, due to the maturity mismatch between banks assets and liabilities. This finding is consistent with Gathigia (2016), and Bagh et.al, (2017).

- **Exchange Rate Volatility (ERV)**

H_7 predicts significant negative relationship between exchange rate volatility and return on asset of banks, as expected the coefficient of exchange rate volatility which was measured by standard deviation of annual money market interest rate was negative and statistically significant at 5% significance level (p-value = 0.0110). The coefficient interest rate volatility implies that if interest rate volatility increased by

1% return on asset decreased by 0.9%. The negative coefficient of exchange rate volatility indicates that increased macroeconomic instability heightens the risk faced by commercial banks and which affects the return on asset of banks negatively. The finding is consistent with Gathigia (2016).

5. Conclusions

This paper examines the effect of investment diversification on financial performance of commercial operating in Ethiopia. The data consists 5 years' period from 2013-2017 for 16 private and one government commercial banks. The random effects model was used to estimate the regression and the result shows that investment in financial asset, loan portfolio, investment in government security, insurance investment and size of investment have a positive and statistically significant relationship with financial performance of commercial banks which was measured by return on asset. This implies that spreading investments over multiple, unrelated investments reduce the risk of a sudden, unexpected outcome and in a diversified portfolio; a loss (risk) in one investment is offset by gains from another investment. Whereas the macroeconomic variables interest rate volatility and exchange rate volatility has a negative and statistically significant relationship with financial performance of commercial banks which was measured by return on asset. This implies that volatility in money market interest rate creates reinvestment and refinancing risks arising from fluctuations in interest rates, due to the maturity mismatch between banks assets and liabilities and the volatility in exchange rate heightens the risk faced by commercial banks and which affects the financial performance of banks negatively. The study recommended that banks should focus its work to promote the confidence in portfolio diversification, develop marketing policies that encourage its use and establish the best combination of assets that can yield an efficient portfolio.

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