

RISK MANAGEMENT STRATEGIES AND CAPITAL INVESTMENT DECISION IN NIGERIA'S BANKING SECTOR

AKANI, Elfreda Nwakaego

Department of Banking and Finance, Rivers State University, Port Harcourt

enmaduba@yahoo.com

and

KUROTAMUNOBARAOMI, Tamunosiki

Port Harcourt Polytechnic, Port Harcourt

sikilization@gmail.com

ABSTRACT

This study empirically investigated the relationship between risk management strategies and capital investment decisions of deposit money banks in Nigeria by utilising risk diversification, Basel compliance, risk transfer, credit securitisation, risk retention and risk evaluation as proxies for risk management strategies, while long term investment served as a measure of capital investment decisions. Secondary panel data for 13 quoted banks that span 2009 to 2018 were sourced from the annual reports of the respective financial institutions and analysed by econometric analytical techniques that include panel regression models, cointegration and causality test. From the results it was found that all 6 endogenous variables but risk retention have insignificant relationship with capital investment decisions. It was also observed that while credit securitisation has inverse relationship with capital investment decisions, the other predictor variables are directly related with the exogenous variables. The Pedroni panel cointegration showed existence of long term relationship between the variables, while the causality test found uni-directional causal relations from: capital investment decision to risk diversification, credit securitisation to capital investment decisions, and capital investment decisions to risk retention. Consequently, it is recommended (among others) that to mitigate the riskiness of banking operations, more avenues for risk diversification should be explored, although Basel compliance enhances portfolio investment decisions, its implementation should be done cautiously and in consideration of the intricacies and peculiarities of the Nigerian banking space, beyond the statutory and regulatory enactments that propel risk transfer by way of insurance, commercial banks should voluntarily seek insurance.

Keywords: Credit securitisation, investment decisions, risk retention, risk strategies

INTRODUCTION

In recent times, the analysis and estimation of corporate risks have become one of the most topical challenges at the core of portfolio formation. This is to strengthen economic performance, withstand market volatility and large-scale fluctuations of economic fundamentals. Therefore, it is inevitable and imperative to solidify the mechanisms of identifying, profiling, assessing and measuring of risks that may arise due to the dynamism of the business environment. Indeed, theoretical and empirical evidence suggest that Capital Asset Pricing Model (CAPM), Efficient Market Hypothesis (EMH) and other rational financial theories are quite apt in the prediction of certain economic occurrences nevertheless, through the years, anomalies and empirically incoherent and inexplicable behaviours emerged to question the utmost suitability of the conventional analytical paradigm.

Risk by its very nature is not a phenomenon that is exclusively on the realms of empiricism as its appraisal and management dwells equally on the organisational or management's behavioural peculiarities that are defined and shaped by their attitude, perception, culture and experience. Therefore, in deregulated financial markets, there are compelling reasons for commercial banks to act within the confines of regulations and laws as they seek to attain their nominated business objective – shareholders' wealth maximization. This is hinged on the fact that given the pivotal role banks play in the modern economic setting, a deviation from the regulatory and legal thresholds could heighten the riskiness of the banks, which could culminate in banks failure, and be enormous for the economy as a whole. Conversely, excessive risk limits a bank's ability to invest hence inimical to organisational (or bank's) profitability and value. By implication, risk is an inherent feature in all types of investment decisions (Abdelrahim, 2013; Corzo, Prat and Vaquero, 2014).

The main thought in finance is that there is a connection between risk and return as noted by portfolio theory. Higher risk is assumed to lead to higher return on stocks with rationale pricing of stocks. Highly profitable firms are riskier than the average (Fama and French, 2015). Finance theories suggest that there is a positive relationship between risk and returns. However, it is also possible that high risk leads to financial distress, which can result in lower future profitability.

Risk management has attracted quite a number of local and global studies from

scholars over the years. These studies have however been of varied perspectives, climates, approaches, dispensations and findings, thus the existence of incongruity on the discourse. For instance, conceptual and theoretical exploration of the phenomena was resorted to by some (Virlics 2013), while others applied the empirical perspective in defining the interplay of both concepts (Farabiyi, 2015; Georges & Tarek, 2003; Hamza & Saadaoul, 2013; Alhammouri & Alkhaldi, 2017). These studies are both domestic (Farabiyi, 2015; Alhammouri & Alkhaldi, 2017) and international (Virlics, 2013; Hamza & Saadaoul, 2013). As regards analysis, some scholars applied the behavioural approach to explore the study (Farabiyi, 2015; Virlics, 2013; Alhammouri and Alkhaldi, 2017), while others considered the application of conventional econometric models in analysing the relationship between the variables (Georges and Tarek, 2003; Hamza and Saadaoul, 2013). Irrespective of the adopted methodology, studies have provided positive (Virlics, 2013; Georges and Tarek, 2003) and negative (Hamza and Saadaoul, 2013; Alhammouri and Alkhaldi, 2017), significant (Hamza and Saadaoul, 2013; Farabiyi, 2015) and insignificant (Kara, Ozkan and Altunbas, 2014), relations between both variables. Although these studies are widespread and elaborate, none of them has a robust collection of strategic risk management elements. Besides, there is no evidence of a single study that has considered all deposit money banks for similar studies. Consequently, this study intends to examine the effect of risk management on investment decision making of quoted commercial banks in Nigeria.

LITERATURE REVIEW

Theoretical Review

Risk management is hinged on solid theoretical standpoints. These include the prospect theory, agency theory, behavioural theory among others. The proponents of prospects theory argue that individuals treat gains and losses differently, positing that investors are more motivated by the utility of their actions than the maximization of financial returns (Kahenman & Tversky, 1986). The application of utility theory to prospect theory is based on expectation of expected utility of its outcomes (Paul, Mark, Nigel & Emma, 2001). The portfolio theory as espoused by Markowitz (1952) elaborated the riskiness of investing in a single asset. Thus the theory opted for pool of varied assets which maximises return based on a given level of market risk. Agency theory is also concerned about risk management as conflict in risk appetite between management and shareholders could hamper or affect investment decisions and cause management to seek avenues to pursue their interest Elliot

(2002). For instance, for reason of job security, managers may ignore risky investment opportunities with positive NPVs, which may be at abeyance with the position of shareholders who would prefer such opportunities so as to increase their wealth.

Conceptual Review

Risk Management in Context

Risk management is a systematic process of understanding, evaluating and addressing risks to maximize the chances of objectives being achieved and ensuring organizational sustainability. Thus, risk management requires an informed understanding of relevant and plausible risks, an assessment of their relative priority and a rigorous approach to monitoring and controlling them. Furthermore, Schmidt and Roth (2017) opined that risk management refers to the integration of activities aimed at minimizing the negative effects attributed to uncertainty pertaining to potential losses. It generally integrates several steps including the identification, measurement and consequent management of the identified risk (Hassan, 2012). In assessing the scope of risk management, Bessis (2010) noted that risk management integrates a set of tools and models utilized in the measurement and control of the identified and potential risk levels. According to Fatemi and Glaum (2000) risk management incorporates several objectives.

Risk Management Strategies

There are several risk management strategies adopted by banks. These include:

Risk Diversification:

Diversification is a portfolio strategy designed to cut back risk by combining various investments. Diversification gain from shifting into non-interest income in bank's revenue and reduced volatility of bank profit (Stiroh, 2004). In investment planning and finance, diversification improved cost influence through lower risk from diversification if it occurred; it lowered the needed risk premiums on un-insured debt (Moon, 1996). Banks have shifted their sales mix by diversifying in financial gain sources. There are two main sources of financial gain; interest financial gain and non-interest income. Non-interest income elements embrace fees and commissions on loans and advances, other fees and commissions, buying shares trading financial gain, dividend financial gain and different non-interest income. Non-interest financial gain increase bank franchise price and banks with higher non-interest income have higher market betas (Baele et al, 2007). The Nigeria industry is steady shifting off from ancient

sources of revenue like Loan-making and toward untraditional activities that generate fee financial gain, service charges, commercialism revenue, and different kinds of noninterest financial gain whereas noninterest financial gain has perpetually constituted a very important role in banking revenue. To this end, Uzhegova (2010) noted that decline in interest margins, had forced banks to go looking for various sources of financial gain, resulting in diversification into commercialism activities, different services and non-traditional cash operations. This is in tandem with the portfolio theory that states that risk can be shed through having a well diversified portfolio of assets.

Basel Compliance:

Adoption of the Basel accord is crucial to risk management in the banking industry. The Basel Accord is international principle and regulation guiding the operations of banks to ensure soundness and stability. The Accord was introduced in 1988 in Switzerland to provide a template for identifying, tracking and reporting risk-related data in an integrated, auditable, and transparent manner which improves risk management processes of banks. The Basel Committee has established an internationally accepted set of principles to cope with the various risks, officially known as the Basel Accords (Basel I, Basel II and Basel III). Initially, the Basel Accords were mainly designed for the G10 Countries. However, these guidelines have been planned in such a way that they might be applicable in both developed and developing countries (Al-Tamimi, 2008). According to these principles, banks are required to maintain a prescribed level of capital against the operational and other financial risks.

Credit Securitization:

It is the transfer of credit risk to a factor or insurance firm and this relieves the bank from monitoring the borrower and fear of the hazardous effect of classified assets. This approach insures the lending activity of banks. The growing popularity of credit risk securitization can be put down to the fact that banks typically use the instrument of securitization to diversify concentrated credit risk exposures and to explore an alternative source of funding by realizing regulatory arbitrage and liquidity improvements when selling securitization transactions (Michalak & Uhde, 2009). A cash collateralized loan obligation is a form of securitization in which assets (bank loans) are removed from a bank's financial statement and packaged (trenched) into marketable securities that are sold on to investors via a special purpose vehicle (SPV) (Marsh, 2008).

Risk Assessment:

Once risks have been identified, they must then be assessed as to their potential severity of impact and to the probability of occurrence. These quantities can be

either simple to measure, in the case of the value of a lost building, or impossible to know for sure in the case of an unlikely event, the probability of occurrence of which is unknown. Therefore, in the assessment process it is critical to make the best educated decisions in order to properly prioritize the implementation of the risk management plan (Alalade, Binuyo & Oguntodu, 2014). Even a short-term positive improvement can have long-term negative impacts. The fundamental difficulty in risk assessment is determining the rate of occurrence since statistical information is not available on all kinds of past incidents and is particularly scanty in the case of catastrophic events, simply because of their infrequency. Furthermore, evaluating the severity of the consequences (impact) is often quite difficult for intangible assets.

Risk Sharing:

Briefly defined as sharing with another party the burden of loss or the benefit of gain, from a risk, and the measures to reduce a risk, the term of 'risk transfer' is often used in place of risk sharing in the mistaken belief that you can transfer a risk to a third party through insurance or outsourcing. In practice if the insurance company or contractor go bankrupt or end up in court, the original risk is likely to still revert to the first party. As such in the terminology of practitioners and scholars alike, the purchase of an insurance contract is often described as a transfer of risk. However, technically speaking, the buyer of the contract generally retains legal responsibility for the losses transferred, meaning that insurance may be described more accurately as a post-event compensatory mechanism.

Risk Retention:

Involves accepting the loss or benefit of gain, from a risk when it occurs. True self-insurance falls in this category. Risk retention is a viable strategy for small risks where the cost of insuring against the risk would be greater over time than the total losses sustained. All risks that are not avoided or transferred are retained by default. This includes risks that are so large or catastrophic that they either cannot be insured against or the premiums would be infeasible. War is an example since most property and risks are not insured against war, so the loss attributed by war is retained by the insured. Also any amounts of potential loss (risk) over the amount insured are retained risk. This may also be acceptable if the chance of a very large loss is small or if the cost to insure for greater coverage amounts is so great it would hinder the goals of the organization too much. Risk retention or acceptance is common type of risk response on treats and opportunities.

Investment Decision

Investment decisions are very much important to investors as investment is their commitment of resources and funds in order to get future benefits (Bodie et al., 2008). Investors face difficulties in making decisions for many reasons like, lack of financial information, short-sightedness, and insufficient self regulation (Winchester, Huston & Fink, 2011). As matter of fact that information changes from time to time and it loses its value as more and more time passes, so the decision making in markets becomes more complicated (Formlet, 2001).

Making an investment decision is a continuous process, as first developed by Cyert and March (1963). However, studies on capital investment decisions generally place emphasis on the financial evaluation of investments, such as capital budgeting tools and practices (Bennouna et al. 2010; Graham and Harvey, 2001; Lefley, 1996; Sandahl & Sjögren 2003; Qiu et al. 2015). Although financial evaluation plays an important role in investment decision making (Van-Cauwenbergh et al. 1996), it is only one step of the process (King 1975) and corporate investment behaviour is considerably more complex than can be described by the bare-bones NPV model of investment (DeCanio & Watkins, 1998). This complexity may stem from the characteristics of the investment; capital investments can vary in nature and may yield both tangible and intangible benefits.

Empirical Review

Several scholars have empirically investigated the linkages between risk and investment decisions both locally and internationally. For instance, Alhammouri and Alkhaldi (2017) applied behavioural perspective to investigating the risk determinants and investment decisions among Jordanian investors by focusing on demographics of the investors. Consequently, a sample of 106 active market participants was randomly selected as respondent from whom relevant data were obtained for analysis. The obtained data were analysed through the application of the path analysis technique using Partial Least Square method to provide results which show that gender and social status have no significant effect on investment decisions, while age, education and monthly income do.

Yimka, Taofeek, Abimbola and Olusegun (2019) examined credit management and financial performance of some commercial banks in Nigeria by obtaining secondary panel data from the selected 10 commercial banks from 2012 to 2017. The data was analysed through the use of panel regression model to show that credit risk management has significant negative effect on financial performance of banks.

In the same vein, Okonkwo and Nwokeji (2018) empirically investigated credit risk management strategies and the financial performance of deposit money banks in Nigeria by using non-performing loan, Hirschman index, non-performing loan to total loan, etc as variables. Secondary time series data that spanned 2003 to 2016 were extracted from the Central Bank of Nigeria (CBN) and Nigeria Deposit Insurance Scheme (NDIC) and analysed using the Ordinary Least Square model to show that credit default risk has significant effect on return on performance of deposit money banks in Nigeria.

Zia, Noor, Bilal and Muhammad (2019) strove to establish how different risk management strategies affect credit risk of banks in an explanatory study. Diversification, hedging, capital adequacy ratio and corporate governance were used as independent variables and in order to effectively conduct the study, data were collected from 250 employees of the selected commercial banks. Results obtained from the regression models used show that risk management strategies such as risk diversification, hedging, capital adequacy ratio and corporate governance significantly affect the credit risk portfolio of banks positively.

METHODOLOGY

The study pertains to the banking sector, thus a representation of the 22 banks in Nigeria, however for ease in data collection, only thirteen quoted banks in Nigeria are utilised for this study. These include Access Bank Pl., Eco Bank Plc., First City Monument Bank Plc., Fidelity Bank Plc., First Bank Plc., Guarantee Trust Bank Plc., Sterling Bank Plc., Stanbic IBTC Plc., United Bank for Africa Plc., Union Bank Plc., Unity Bank Plc., Wema Bank Plc., and Zenith Bank Plc. Secondary panel data were collected from the annual reports and various databases of the banks for financial statement for the period 2009 to 2018 and analysed by different econometric techniques which include panel data multiple linear regressions using Ordinary Least Square (OLS) method, cointegration and causality test.

Model Specification

The study adopts the panel data method of data analyses, which involve the pooled effect, fixed effect, the random effect, likelihood test and the Hausman Test. The pooled effect is presented thus:

$$CBD_{it} = f(\beta_1RD + \beta_2BC + \beta_3TR + \beta_4CS + \beta_5RR + \beta_6RE + \varepsilon_{it}) \tag{3.1}$$

The fixed effects strives to establish if differences will be observed by the application of a fixed or constant intercept value for the different variables that constitute cross-sectional structure. If we assume that the dummy variable for a conglomerate company is 1 or 0, then D_i , which is the dummy variable for firm i , can be expressed as:

$$D_i = \begin{cases} 1, & i-1 \\ 0, & \text{otherwise} \end{cases} \quad D_2 = \begin{cases} 1, & i-2 \\ 0, & \text{otherwise} \end{cases} \quad \dots \quad D_N = \begin{cases} 1, & i-1 \\ 0, & \text{otherwise} \end{cases} \dots \tag{3.2}$$

The regression of total samples can be expressed as:¹

$$Y_{it} = \sum_{i=1}^N \beta_{oi} D_i + \beta_1 D_x + \beta_2 D_{mar} + \beta_3 s_1 + \beta_{oi} D_4 s_2 + \varepsilon_{it} \dots \tag{3.3}$$

The dummy variables are expressed as follows: if $j = i$, then $D_i = 1$; otherwise $D_i = 0$.²

Thus, we have:

$$CID_{it} = f(\beta_1RD + \beta_2BC + \beta_3TR + \beta_4CS + \beta_5RR + \beta_6RE + \varepsilon_{it}) \tag{3.4}$$

Random effects focus on the relationship with the study sample as a whole; thus, the samples are randomly selected, as opposed to using the entire population. The total sample regression (a function of the random effect) can be expressed as:

$$CID_{it} = \overset{N}{\underset{j=1}{\mathbf{a}}} b_0 + f(b_1RD + b_2BC + b_3TR + b_4CS + b_5RR + b_6RE + \varepsilon_{it}) \dots \tag{3.5}$$

If this is represented with random variables, then $b_{oj} = \bar{b}_0 + m_j$, which indicates that the difference occurs randomly, and the expectation value of b_{oi} is \bar{b}_0 .⁵

Where:

CID = Capital investment decision proxy by long term investment

BRD = Risk diversification proxy by value of sectoral credits

BC = Basel Compliance proxy by risk weight assets to total capital

TR = Risk transfer proxy by insurance in deposit insurance corporate

CS = Credit securitization proxy value of insured non-performing loans

RR = Risk retention proxy by value of nonperforming loans
 RE = Risk Evaluation proxy dummy variable

RESULTS AND DISCUSSION OF FINDINGS

The following tables give details on the effect of risk and investment decision of quoted commercial banks in Nigeria.

Table 1: Regression Results and Hausman Test

Variable	Pooled OLS Result	Fixed OLS Result	Random OLS Result
BRD	0.033482, 0.313332* 0.7546** -0.001652, -0.051267*	0.009234, 0.075173*, 0.9402**	0.023022, 0.204945*, 0.8380** 0.006950, 0.200367,
BC	0.9592** 0.199167, 0.114851*	0.030522, 0.778684*, 0.4378**	0.8415** 0.151454, 2.233942*
CS	0.9088** 0.0129753, 3.65522*	0.000377, 0.003852*, 0.9969**	0.0273** 0.009635, 0.090167*,
RE	0.0010** 0.2880754, 1.98483*	-0.004452, -0.041528*, 0.9669**	0.9283 0.310424, 3.544716*,
RR	0.0001** 0.452872, 0.107866*	0.312566, 3.339200* 0.011**	0.0006** 0.442897, 3.885494*,
TR	0.0001**	0.274949, 1.706556*, 0.0907**	0.0002** 1.593956, 3.660057*,
C	1.409369, 0.344683* 0.0001	3.146024, 3.506758*, 0.0007**	0.0004
R ²	0.768790	0.813815	0.594260
ADJ R ²	0.757511	0.783623	0.574468
F-Statistics	68.16390, 0.000000**	26.95459, 0.000000***	30.02503, 0.000000**
D.W	1.818324	1.965448	1.905227
Hausman test	31.151618, 0.0000**		
Cross-section random effects test comparisons:			
Variable	Fixed	Random	Var(Diff.) Prob.
BRD	0.009234	0.023022	0.002471 0.7815
BC	0.030522	0.006950	0.000333 0.1967
CS	0.000377	0.151454	0.005007 0.0828
RE	-0.004452	0.009635	0.000075 0.1047
RR	0.312566	0.310424	0.001093 0.9483
TR	0.274949	0.442897	0.012964 0.1402

*-T-Statistics **- Probability Value

Source: Extracted by Researcher from E-View 9.0 (2020)

The analysis of the capital investment under pooled OLS reveals a series of coefficients that are significant at one per cent (1%) level and five per cent (5%)

level. The results of the fixed effects for the capital investment decision suggest that the explanatory power of the regressions is higher. The adjusted R^2 is satisfactory in all the cases. The adjusted R^2 is 0.757511 under pooled OLS, it is 0.783623 under fixed effect model and the random effect is 0.574468. The F-values are also significant in all the models. Both fixed and random effects specifications of the model were estimated and subsequently, the Hausman specification test was conducted to determine the appropriate specification. The report of the Hausman test as presented is significant at 5%, suggesting that the fixed effects model is preferred over the random effects. Thus, the null hypothesis was rejected and the alternative hypothesis is accepted. The cross-section random effects test comparisons proved that there is significant difference between the fixed and the random effect as the probability coefficients were all greater than 0.05. This implies that the null hypothesis is not rejected. The computed Durbin Watson is 1.965448 from the fixed effect results shows that at 5% level of significance with four explanatory variables, there is no evidence of serial correlation. The F-probability is less than 0.05, being 0.000000 therefore there is a significant relationship between risk management and capital investment decision.

Cointegration Results

On the basis of the panel unit root test results, which imply that the data series are stationary at first difference, the cointegration test was considered to test for long run relationship.

Table 2: Presentation of Panel Cointegration Test

	<u>Statistic</u>	<u>Prob</u>	<u>Weighted Statistics</u>	<u>Prob.</u>	
	-				
Panel v-Statistic	2.856674	0.9979	-2.586490	0.9952	
Panel rho-Statistic	5.372062	0.0000	5.094897	0.0000	
Panel PP-Statistic	1.208776	0.8866	-2.604308	0.0046	
Group rho-Statistic	6.592479	0.0000			
	-				
Group PP-Statistic	4.328978	0.0000			
Phillips-Peron results (non-parametric					
Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
ACCESS	-0.614	0.008288	0.007404	2.00	9
ECOBANK	-0.161	0.014245	0.002642	8.00	9
FCMB	-0.385	0.004181	0.000861	8.00	9

FIDELITY	-0.124	0.016503	0.002625	6.00	9
GTB	-0.360	0.003846	0.001960	7.00	9
FIRSTBANK	0.369	0.266904	0.174158	6.00	9
STANBIC	-0.139	0.015407	0.004329	8.00	9
STERLING	-0.154	0.699785	0.337668	5.00	9
UBA	-0.356	0.001075	0.000227	8.00	9
UNIONBANK	-0.259	0.001883	0.000705	6.00	9
UNITYBANK	-0.114	0.016278	0.017630	2.00	9
WEMABANK	0.007	0.009865	0.002055	8.00	9
ZENITHBANK	-0.539	0.003556	0.003606	1.00	9

Source: Extracted by Researcher from E-View 9.0 (2020)

The Pedroni panel cointegration tests reveals the existence of cointegration relationship between risk management and capital investment decision of the 13 commercial banks within the periods covered in this study. The results of Kao panel cointegration test also support the existence of cointegration between the series.

Causality Test Results

The finding of cointegration implies existence of a causal relationship between the series, without indicating the direction of such causality (Engle and Granger, 1987). Therefore, the causality test is resorted to.

Table 3: Presentation Panel Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
BRD does not Granger Cause CID	104	0.77144	0.4651
CID does not Granger Cause BRD		5.57925	0.0051
BC does not Granger Cause CID	104	0.02771	0.9727
CID does not Granger Cause BC		0.34125	0.7117
CS does not Granger Cause CID	104	7.61173	0.0008
CID does not Granger Cause CS		0.60289	0.5492
RE does not Granger Cause CID	104	NA	NA
CID does not Granger Cause RE		NA	NA
RR does not Granger Cause CID	104	0.84242	0.4337
CID does not Granger Cause RR		5.03267	0.0083
TR does not Granger Cause CID	104	0.15848	0.8537
CID does not Granger Cause TR		11.0344	5.E-05

Source: Extracted by Researcher from E-View 9.0 (2020)

From the results, there is uni-directional causality stemming from capital investment decisions to bank risk diversification. There is uni-directional causality from credit securitization and capital investment decisions of the commercial banks, uni-directional causality from capital investment decisions to risk retention and uni-directional causality from capital investment decisions to risk transfer of the quoted commercial banks. This implies that the null hypothesis of no causality was rejected in favour of the alternate.

The panel regression results are further summarised in table 4:

Table 4: Risk Management Cost and Capital Investment Decision

Agency cost	Dir.	Prob.	Observation	Decision
Risk diversification and CID	+	0.9402	Not significant	Do not reject H0
Basel compliance and CID	+	0.4378	Not Significant	Do not Reject H0
Risk transfer and CID	+	0.9969	Not significant	Do not Reject H0
Credit securitization and CID	-	0.9669	Not significant	Do not reject H0
Risk retention and CID	+	0.0011	Significant	Reject H0
Risk evaluation and CID	+	0.0907	Not significant	Do not Reject H0
F- PROBABILITY		0.0000	SIGNIFICANT	Reject H0

Source: Table 1

The study provides evidence that risk diversification, Basel compliance, risk transfer, credit securitization and risk evaluation do not have significant relationship with capital investment decision of quoted commercial banks in Nigeria. On the other hand, risk retention is seen to have significant relationship with capital investment decision of the selected commercial banks. It is further indicated by the F - probability which is 0.0000 that there is a significant relationship between risk management and capital investment decision of quoted commercial banks in Nigeria, therefore the null hypothesis is rejected.

The results presented in table 4.2 risk diversification of the commercial banks within the study periods indicates that bank risk diversification has positive but no significant relationship with capital investment decision of the 13 quoted commercial banks within the periods covered in this study. The findings is in line with the modern portfolio theory formulated by Harry Markowitz in 1952 which was based on the idea of portfolio optimization to maximize return based on a given level of market risk. The Modern Portfolio Theory, an improvement upon traditional investment models, is an important advancement in the mathematical modelling of finance. The theory encourages asset diversification to hedge against market risk as well as risk that is unique to a specific company.

The positive relationship confirms the findings of Poudel (2012) that success of bank depends on risk management and the findings of Al-Khoury (2011) that the credit risk, capital risk and the liquidity risk are the main influencing factors on the performance of selected banks when it is symbolized by returns on assets. On the other hand, he reveals that only the liquidity risk has significant relationship with the second indicator of performance (return on equity).

CONCLUSION AND RECOMMENDATIONS

From the results, test of hypotheses and discussion of findings certain deductions and conclusions can be reached. For instance, it can be seen that risk diversification is positively and significantly related to the exogenous variable. This implies that commercial banks have well diversified pool of assets, financial instruments and stocks which may include cyclical, growth and defensive instruments. Particularly, risk diversification is rife in the banking sector and enhances capital investment decisions of commercial banks in the short and long run.

Sequel to the findings, the following recommendations are proffered:

1. To mitigate the riskiness of banking operations, more avenues for risk diversification should be explored.
2. Although Basel compliance enhances portfolio investment decisions, its implementation should be done cautiously and in consideration of the intricacies and peculiarities of the Nigerian banking space.
3. Beyond the statutory and regulatory enactments that propel risk transfer by way of insurance, commercial banks should voluntarily seek insurance.
4. Given that most commercial banks have subsidiary insurance firms, it is advised that risk should be transferred to firms where commercial banks do not have significant interest.

REFERENCES

- Abdelrahim, K. E. (2013). Effectiveness of credit risk management of Saudi banks in the light of global financial crisis: A qualitative study. *Asian Transactions on Basic and Applied Sciences*, 3(2), 73-91.
- Alalade, S., Binuyo, O. & Oguntodu, A. (2014). Managing credit risk to optimize banks' profitability: A survey of selected banks in Lagos State, Nigeria. *Research Journal of Finance and Accounting*, 5(18), 76-84.
- Alhammouri, B. & Alkhalidi, F. (2017). Risk determinants and investment decisions: An explorative study. *Research Journal of Finance and Accounting*, 8(20), 104 – 111.

- Baele, L. Jonghe, O. D. & Vennet, R. V. (2007). Does the stock market value bank diversification? *Journal of Banking and Finance*, 31(7), 1999-2023.
- Bennouna, K., Meredith, G. G. & Marchant, T. (2010). Improved capital budgeting decision making: Evidence from Canada. *Management Decisions*, 28(2), 225-247.
- Bessis, J. (2002). *Risk Management in Banking*. 2nd Ed. West Sussex, United Kingdom: John Wiley and Sons, Inc.
- Cai, Z. & Wheale, P. (2007). The new capital accord and the Chinese banking industry. *Journal of Banking Regulation*, 8, 262-289.
- Corzo, T., Prat, M., & Vaquero, E. (2014). Behavioral finance in Joseph de la Vega's confusion de confusiones'. *Journal of Behavioural Finance*, 15(4), 341-350.
- Cyert, R. M. & March, J. G. (1963). *A Behavioural Theory of the Firm*. New Jersey: Prentice-Hall Inc, Englewood Cliffs.
- DeCanio, S. J. & Watkins, W. E. (1998). Investments in energy efficiency: Do the characteristics of firms matters? *Review of Economics and Statistics*, 80(1),: 95-107.
- Fama, E. & French, K., (2015). Size and book-to-market factors in earnings and returns, *Journal of Finance* 50, 131-155.
- Fan, L. & Yijun, Z. (2014). The impact of credit risk management on profitability of commercial banks: A study of Europe. Umea School of Business and Economics: *The World Bank Economic Review*, 13(2), 379-40.
- Farabiyi, A. O. (2015). The impact of risk on investment decision in Nigeria. *Research Journal of Finance and Accounting*, 6(23), 52-59.
- Fatemi, A. & Glaum, H. (2000). Corporate risk management costs and benefits. *Global Finance Journal*, 13(1), 29-38.
- Georges, D. & Tarek, M. H. (2003). Banks' capital, securitization and credit risk: An empirical evidence for Canada. Les Cahiers du CREF.
- Graham, J. R. & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics* 60, 187-243.
- Hamza, H. & Saadaoul (2013). Investment deposits, risk-taking and capital decisions in Islamic banks. *Studies ain Economics and Finance*, 30(3), 244-265.
- Hassan, W. M. (2012). Risk management practices: a comparative analysis between Islamic banks and conventional banks in the Middle East. *International Journal of Academic Research*, 3(3), 288-295.

- Kao, M., Lin, C., Hsu, P. & Chen, Y. (2011). Impact of the financial crisis and risk management on performance of financial holding companies in Taiwan. *World Academy of Science, Engineering and Technology*, 50, 413-417.
- Kara, A., Ozkan, A. & Altunbas, Y. (2014). Securitisation and banking risk: What do we know so far? *Review of Behavioural Finance*, 8(1), 2-16.
- King, H. S. (1975). Credit Risk and the Performance of Nigerian Banks, Ahmadu Bello University, Zaria.
- Lefley, F. (1996). Strategic methodologies of investment appraisal of AMT projects: A review and synthesis. *The Engineering Economist*, 41(4), 345-363.
- Marsh, I. W. (2008). The effect of lenders' credit risk transfer activities on borrowing firms' equity returns. Cass Business School, London and Bank of Finland.
- Michalak, T. & Uhde, A. (2009). Credit risk securitization and banking stability: Evidence from the Micro-Level for Europe, Draft, University of Bochum, Bochum.
- Okonkwo, I. V. & Nwokeji, M. I. (2018). Credit management and financial performance of deposit money banks in Nigeria: 2003 – 2016. *International Journal of Social Sciences and Management Review*, 1(2), 8-23.
- Poudel, R. P. (2012). The impact of credit risk management on financial performance of commercial banks in Nepal. *International Journal of Arts and Commerce*, 1(5), 9-15.
- Psillaki, M., Tsolas, I. E., & Margaritis, D. (2010). Evaluation of credit risk based on firm performance. *European Journal of Operational Research*, 201(3), 873-888.
- Sandahl, G. & Sjogren, S. (2003). Capital budgeting methods among Sweden's largest groups of companies. The state of the art and a comparison with earlier studies. *International Journal of Production Economics*, 84(1), 51-69.
- Schmit, J. T. & Roth, K. (1990). Cost effectiveness of risk management practices. *Journal of Risk and Insurance*, 57(3), 455-470.
- Uzhegova O. (2010). The relative importance of bank-specific factors for bank profitability in developing economies/P 2010/02. <http://ssrn.com/abstract=1595751>.
- Van Rixtel, A., Alexopoulou, I. & Harada, K. (2004). The new Basel capital accord and its impact on Japanese banking: A qualitative analysis. In Gup, B. E. (Ed.). *The New Basel Capital Accord*. South-Western.

- Virlics, A. (2013). Investment decision making and risk. *International Economics and Finance*, 6, 167-177.
- Yimka, A. S., Taofeek, A., Abimbola, C. & Olusegun, A. (2019). Credit risk management and financial performance of selected commercial banks in Nigeria. *Journal of Economic & Financial Studies*, 3(1), 1-9.
- Zia, U. R., Noor, M., Bilal, S. & Muhammad, A. R. (2019). Impact of risk management strategies on the credit risk faced by commercial banks of Balochistan. *Financial Innovation*, 5(44), 1-13.