

Risk Management and Project Appraisal in Nigerian Banking Industry – Theory versus Reality

Ayodele Thomas D.

Department of Accounting and Finance,
Ajayi Crowther University
P.M.B 1066, Oyo, Oyo State, Nigeria

Abstract

One of the major tasks being faced by the management of corporations is how to make optimum investments decisions. These decisions are surely not without their associated risks. The purpose of this paper is to investigate whether Nigerian banking firms practically take risk analysis into consideration when appraising their investments as compared to what exist in finance literature, and examine some risk analytical methods being used by management teams of firms and how the use has affected the firms' investment performance. Primary data were collected through the use of questionnaires served to workers of 5 banks representing the sample selected out of the Nigerian banks. The data were analyzed using the simple percentages and chi – square (χ^2) to test the two hypothesis formulated for the study. It was observed from the findings that Nigerian banks make use of risk analytical techniques in their investment appraisal. It was also discovered that some risk analytical techniques are more popular in use than others among the users and that effective evaluation of risk plays a major role in enhancing investment performance. It is therefore recommended among others that: workers at management level should be educated on the importance of risk evaluation techniques in order to maximize returns on their shareholders investment. Also to be more dynamic in the use of various risk analytical methods depending upon the conditions so as to guarantee high returns.

Keywords: risk, investment, certainty equivalent, expected value, utility value

INTRODUCTION

In finance theory, it is becoming increasingly acceptable that firms should take risk analysis into consideration in their investment appraisal. Despite the difficulties incurred in accurately accessing business risk, the broad principles, associated with risk analysis can be of great help to business in forming overall strategy and optimizing returns. Making optimum investment decision therefore is one major goal of financial management in modern times. This involves efficient allocation of capital and firm's decision to commit its funds in long term assets and other profitable activities. This decision is considered very significant since it tends to influence the firm's wealth, determine its size, set the pace and direction of its growth and affects its business risk. Risk in relation to project appraisal is an uncertainty or probability of realizing the future returns or values of a project (Richard A.B and Stewart C.M,1996). The riskiness of an investment project is indicated by the level of an investment decision a risk averse investor, who wants more returns and less risk will embark upon through a well diversified portfolio.

The evaluation of an investment project starts with the principle that its profitability is measured by the rate of return we expect to receive from it over some future period. For this reason, we cannot calculate the

rate of return realistically unless we take into account.

- a. when the sums involved in an investment are spent; and
- b. when the returns are received

Pandey (2004) asserts that comparing alternatives investment is thus complicated by the fact that they usually differ not only in size but also in the length of time over which expenditures will have to be made and benefits returned. These shortcomings therefore do stimulate decision-makers to explore more precise methods for determining whether one investment would leave a company better off in the long run than would another course of action, therefore the objectives of this paper are

- to access how the various risk analytical techniques are being applied in real life situation.
- to examine the effect of risk exposure on the investment performance of banking firms and
- to recommend possible ways of managing risks of investment decisions more efficiently in Nigerian firms.

THEORETICAL FRAME WORK

Investment Decisions

Investment appraisal involves the estimation of the consequences of the proposals on the particular project as such they are ranked according to their

profitability to enable the firm select the set of proposals which maximizes its objective criterion under project selection.

Bond (1974) links the investment appraising criteria to the basis financial objective in which companies seek to maximize profits from the use of funds so as to provide adequate rewards to stakeholders. The appraisal of capital project therefore involves two forms, namely: to evaluate two or more alternatives and then select the one which yields the highest returns after taking into account individual circumstances. The second is to evaluate a single project from the point of view of overall profitability and the possibility of achieving an acceptable rate of return.

Investment Decisions under Risk and Uncertainty

In a decision situation where the decision maker has complete information about the existing constraint variables and has control over the decision variable, there exists a situation of certainty (Lucey, 1988). This is in contrast to the real situation where the possible states of nature are not known except with Limited information which can only assist in assigning probabilities to the outcomes. As asserts by Van Horne (2002), the selection of the most desirable combination of investments will depend on management's utility preferences with respect to net present value variance or standard deviation. Also in the words of Watts (2004), profits are the financial incentives that lead to risking of resources by business owners in production of goods and services for consumers to buy. But there are no guarantees that consumers will pay prices high enough to cover a firm's costs of production, so there is an inherent risk that a firm will not make profits thereby losing money.

RISK MANAGEMENT TECHNIQUES

Dwivedi (2002) outlined seven different methods of evaluating risk of investment decisions.

i. Certainty Equivalent Method – This method requires that the uncertainty cash flows be adjusted in order to reduce them to certainty. To do this, we multiply the estimated cash flow by a factor which is known as certainty equivalent (c.e)coefficient. The certain equivalent approach is defined as:

$$NPV_{CE} = \sum_{t=1}^n \alpha_t C_t - C$$

where C_t = the forecast of cash flow without risk adjustment.

α_t = certainty equivalent coefficient which assumes a value between 0 and 1 and varies inversely with risk.
 i = risk free rate assumed to be constant for all periods.

ii. Risk Adjusted Discount Rate Method – Under this method the uncertain cash flows are discounted at a risk adjusted discount rate. This is done by

adding a certain percentage (called risk premium) to the rate of return on riskless assets (i.e. to the risk free rate). This addition will allow for time preference towards risk. It is defined thus:

Risk Adjusted Discount NP

$$NPV = \sum_{t=1}^n \frac{C_t}{(1+k)^t} - C$$

where k = risk free rate (i) plus risk premium (Θ)

iii. Simulation Method – Simulation is defined as the process of experimenting or using a model and noting the results which occur (Lucey 1988). The process of experimenting with simulation model usually consists of inserting different input values and observing the result output values. In capital investment analysis problem, simulation is the process of experimenting with the result of investment decisions based on a model coupled with probabilistic information.

iv. Sensitivity Analysis Method – This is a simple version of a full-fledge simulation method. Sensitivity analysis begins with the best estimate of the target variable (rate of return, profit or cash flow) associated with the highest probability of each variable. Then, changes in the decision variables are introduced to find their effect on the target variables. This analysis attempts to find the variables to which the target variable is highly sensitive or responsive. This technique helps the decision makers to eliminate unimportant variables and thereby concentrating on the most important ones.

v. Expected Value Method – This considers a whole range of possible risk–return combinations which represent adequately the full range of alternative outcomes of a risk undertaking. Here, the expected return of a project is given by the probability distribution of the earnings of the project. The probability distribution of a project is the set of all possible earnings of the project with their respective probabilities. It is given as:

$$E(x) = \sum_{i=1}^n x_i p_i$$

where x_i = i th possible earning, where p_i = probability of i earning

The probability distribution gives a measure of the average expected earnings of the project and at the same time provides a measure of risk.

vi. The Pay-Off Matrix Method – A pay-off matrix is a tabular array of strategic actions and their corresponding pay-offs under different states of nature. Dwivedi (2002) suggested some conditions required of decision-makers seeking to use this method. They are

- a. to state the objective of decision making,

- b. to decide on the possible strategic actions under different states of nature of the economy and
- c. to assign a pay-off to each strategy under each state of nature.

vii. Decision Tree Method – Decision tree is a pictorial method of showing a sequence of inter-related decisions and outcomes. Decision trees assist in the clarification of complex decision making under conditions of risk and uncertainty. They assist in the qualification of the situations so as to provide a better basis for rational decision making especially where probabilities and values of outcomes are known or are estimated.

METHODOLOGY

The data for this research work were obtained through questionnaire and interview administered in Lagos metropolis among the workers (of management level) of five 5 banks, namely: First Bank Plc, Skye Bank Plc, Intercontinental Bank Plc, Zenith Bank International Plc and Oceanic Bank Plc. These banks were chosen randomly and Lagos metropolis was the choice of the researchers because Bank branches are more concentrated in Lagos and nearly all the twenty-four (24) commercial banks in Nigeria have their headquarters in Lagos State. In addition to using simple percentages to describe the relationship that exist between the variables being investigated. A non-parametric statistic, the Chi-square (X^2) was used in analyzing the data so collected. The computed value was thus compared with the table value of the chi-square using the significant level of 5% with 1 and 5 degrees of freedom to test the two hypotheses respectively formulated for the study.

FINDINGS

The following tables present responses from the bank workers (at management level) on the issues bordering on Risk management analytical techniques as applicable in the banking industry.

DATA PRESENTATION AND ANALYSIS

A total of forty (40) questionnaires were distributed to respondents, out of which 36 were answered and returned.

TABLE 1. Does your bank formally take risk analysis into consideration for Investment Appraisal?

RESPONSES	NO. OF RESPONDENTS	PERCENTAGE (%)
YES	36	100
NO	0	0
TOTAL	36	100

Source: Field Survey, 2011

From the table above, it shows that all the 36 respondents representing 100% of those served the questionnaires agreed that their companies take into consideration risk analysis while appraising their investments.

Table 2. Which of the following methods of evaluating risks do you normally employ?

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Expected Value	14	38.89
Risk Adjusted Discount Rate	4	11.11
Certainty Equivalent	1	2.78
Pay Off Matrix	12	33.333
Simulation	3	8.33
Sensitivity Analysis	1	2.78
Decision Tree	1	2.78
TOTAL	36	100

Source: Field Survey, 2011

From above table, the most widely used method of evaluating risk analysis among the banks is the expected value method, closely followed by the pay off matrix method both having 14 and 12 respondents respectively representing 38.89% and 33.33% of the total respondents respectively. Other methods used are not widely used as their total percentages put together are not up to 30% of the total respondents.

Table 3. How would you rank the risk analytical methods in terms of their popularity from your knowledge of management practice in your industry?

METHODS	1 ST	2 ND	3 RD	4 TH	5 TH	6 TH	7 TH	INDIFFERENT	TOTAL
Expected Value	23	06	04	01	02	0	0	0	36
Risk Adjusted Discount Rate	01	02	21	07	01	02	02	0	36
Certainty Equivalent	0	02	04	10	03	03	10	04	36
Pay Off Matrix	08	20	01	02	02	01	0	02	36
Simulation	01	02	01	10	04	03	10	05	36
Sensitivity Analysis	0	0	04	02	02	20	04	04	36
Decision Tree	03	04	01	01	16	2	06	03	36
	36	36	36	33	30	31	32	18	

Source: Field Survey, 2011

Judging from the analysis in table 3, it shows that 23 respondents out of 36 forming 63% of the total ranked expected value method as the most popular method of analyzing risk in the bank surveyed. This

is followed by pay off matrix method which had 20 firms ranking it as 2nd most popular method for risk analysis. The risk adjusted discount rate was ranked 3rd by the respondents. This is followed by certainty equivalent and simulation both ranking 4th and are

followed by decision tree method and sensitivity method ranking 5th and 6th respectively.

The reason for the shortfall in the row total above is due to the non – response of some respondents totaling 18 that fail to rank the methods presented to them. Their non–response actually affects ranking of popularity of some of the various methods examined.

Table 4. Does effective evaluation of risk enhance investment performance?

REPOSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	28	77.78
No	0	0
Indifferent	08	22.22

Source: Field Survey, 2011

Exposition from table 4 above shows that a total of 28 respondents representing 77.78% of the total respondents agreed that effective evaluation of risk enhances investment performance of the banks. On the other hand, 8 respondents representing 22.22% disagree with the statement above.

Hypothesis Testing

As earlier mentioned in the write –up, chi - square (χ^2) was used for testing hypothesis and the formula is stated below:

$$\chi^2 = \sum (O-E)^2 / E$$

Where O = Observed frequency

E = Expected frequency

$\sum$ = Sign of summation

The computed value is thus compared with the table value of the chi – square using the degree of freedom and the selected levels of significance. The decision rule is that if the calculated value is less than the table value, the null hypothesis is accepted and if the calculated value is more than the table value the null hypothesis is rejected and alternative accepted.

Therefore, for the hypothesis testing, responses from tables 1 and 4 are analyzed below.

From table 1 H_0 : Nigerian banks do not formally take risk analysis into consideration for investment appraisal.

RESPONSE	O	E	O - E	(O-E) ²	(O-E) ² / E
Yes	36	18	+ 18	324	18.0
No	0	18	- 18	324	18.0
E					36.00

Source: calculations by the researcher

From the analysis the χ^2 calculated =36.00 while the χ^2 value from table =3.841. This connotes that the χ^2 cal > χ^2 tab. Therefore the H_0 is rejected while the alternative is accepted thereby signifying that Nigerian banks do formally take risk analysis into consideration for investment appraisal.

From Table 4:

H_0 : Effective evaluation of risk does not enhance investment performance of Nigerian banks.

RESPONSE	O	E	O - E	(O - E) ²	(O-E) ² / E
YES	28	12	16	256	21.33
NO	0	12	-12	144	12.00
Indifferent	08	12	-4	16	1.33
E					34.66

Degree of freedom = (R-1) (C-1); Where R=row total

C = column total

$$DF = (3-1) (2-1)$$

$$= (2) (1) = 2$$

$$\chi^2 = (0.05, 2) \text{ (I.e. at 5\% level of significance of 2)} = 5.991$$

From the result above, the χ^2 value from table =5.991. This signifies that the χ^2 cal > χ^2 tab. Therefore we reject H_0 and accept the alternative, that says effective evaluation of risk, enhances investment performance of Nigerian Banks.

CONCLUSION

Due to the fact that investment outcomes cannot be predicted with certainty, it is pertinent for every firm to consider the various challenges posing against every investment execution thereby analyzing risks inherent in any investment appraisal.

From the study so far, it has been seen that not all the various risk analytical methods are popular among our bankers as opposed to all being taught in theory. This however does not exonerate our bankers from not using more than one analytical method.

The study shows further that effective evaluation of risk is an important task for every financial manager to be carried out in order to enhance the performance of various investments, thereby maximizing the wealth of shareholders.

On this note, it is therefore recommended that:

- Managers should always analyze the risks inherent in their business routine before committing their scarce resources.
- More than one risk analytical methods can be employed by managers depending upon the available information and / or the condition facing their firms.
- Other stakeholders in an investment undertaking should get themselves acquainted with various conditions facing investment execution nowadays and hence the various ways of handling them.

REFERENCES

Bond G.D (1974). Corporate Finance for Management: management and financial consultant, Butterworth and co publishers Ltd.

Dwivedi D.N (2002). Managerial In Economics (6th Edition), New Delhi: Vikas Publishing House PVT Ltd

Lucey T.(1988). Quantitative Techniques: An instructional manual, London ELB Publications

Pandey I.M. (2004). Financial management (9th edition), New Delhi: Vikas Publishing House PVT Ltd

Richard A.B. and Stewart C.M. (1996). Principles of Corporate Finance, 5th Edition, USA: Mc Graw- Hill Book Coy.

Van Horne J.C (2002). Financial Management Policy (12th edition), New Delhi: Pearson Education Ltd.