Archives of Business Research – Vol. 13, No. 06
Publication Date: June 10, 2025
DOI:10.14738/abr.1306.18876.
Ogbulu, O. M., Udensi, C. E., Okanta, S. U., Uruakpa, P. C., John, O., & Ndubuisi, P. (2025). Assessment of the Use of Capital Appraisal Techniques in Real Assets Investment Decisions by MSMEs in Northwest Geo-Political Zone, Nigeria. *Archives of Business Research, 13*(06). 23-43.

Assessment of the Use of Capital Appraisal Techniques in Real Assets Investment Decisions by MSMEs in Northwest Geo-Political Zone, Nigeria

Ogbulu, O. M.
Department of Banking and Finance,
Abia State University, Uturu, Nigeria

Udensi, C. E.
Department of Management,
Abia State University, Uturu, Nigeria

Okanta, S. U.
Department of Banking and Finance,
Abia State University, Uturu, Nigeria

Uruakpa, P. C.
Department of Banking and Finance,
Abia State University, Uturu, Nigeria

Onoh John
Department of Banking and Finance,
Abia State University, Uturu, Nigeria

[*] **Paul Ndubuisi**
Department of Banking and Finance,
Abia State University, Uturu, Nigeria

ABSTRACT

While it is generally agreed that MSMEs are critical to the economic development of every nation, the actualization of this strategic goal has remained very elusive to developing countries in particular. Like other developing economies, Nigeria has continued to grapple with the challenges of effectively harnessing the potentials of MSMEs. Beyond the problems attendant to the controversies surrounding MSMEs, the lingering stakeholder dissatisfaction with the performance of MSMEs calls to question the effectiveness of the numerous policy reforms focused on the MSME ecosystem. Unfortunately, the policy reforms have been criticized for giving more emphasis to funding and ease of doing business and less to managerial competencies of MSME operators. The study focused on the level of awareness and adoption of appraisal techniques in making real asset investment decisions by MSME operators and the degree to which socio-economic factors influence MSMEs investment in real physical assets in Nigeria. Based on explanatory and cross-

[*] *We fondly remember our team member, Prof. Ndubisi Paul who passed on midway*.

sectional survey, data were sourced from 750 MSMEs located in the capital cities of five Northwest states of the country. While descriptive statistics were used in analysing the data, the hypotheses were tested with multinomial logistics and generalized linear models. Findings of the study revealed that operators of MSMEs showed low level of awareness and adoption of investment appraisal techniques with payback period and accounting rate of return being the dominant techniques. In addition, increase in tax and insecurity showed positively significant but low effect on MSMEs' investment in real physical assets. These findings clearly point to the lack of managerial competencies necessary for the embrace and effective adoption of rational methods of decision making by operators of MSMEs. This, therefore calls for a special policy focus on the development of the managerial capacities of operators of MSMEs. In addition, TETFUND should, in collaboration with NUC, sponsor universities to develop a dynamic business directory of MSMEs in their locality in addition to providing free business development services to a given number of them on annual basis.

Keywords: Investment appraisal techniques, real assets investment, MSME ecosystem.

INTRODUCTION

It is axiomatic to state that the Micro, Small and Medium scale enterprise-based development model occupies a premium space in the economic development blueprint of both advanced and developing nations. Micro, Small and Medium Enterprises (MSMEs) represent about 90% of businesses and more than 50% of employment worldwide and formal SMEs contribute up to 40% of national income (GDP) in emerging economies (World Bank, 2022). Both in numbers and economic role, MSMEs are recognized as the predominant form of businesses and employment and key actors for promoting more inclusive and sustainable growth, increasing economic resilience and improving social cohesion (OECD, 2021). In fact, MSMEs do not only make up a greater percentage of businesses in the private sector of any modern economy but represent the arrow head of endogenous economic development. As a matter of fact, the country's National Policy on MSMEs (2021-2025) clearly acknowledges the significant roles of MSMEs in driving economic growth and improving national productivity and competitiveness. For instance, a survey carried out by Price Waterhouse in June, 2020, showed that MSMEs represented 96% of the total number of businesses in Nigeria and together they accounted for 50% of the national GDP (PwC's MSME Survey, 2020). Similarly, MSMEs accounted for 96.7% of businesses, 87.9% of employment and 45.7% of national GDP in the year 2020 (SMEDAN, 2021).

Ironically, following on the heels of their striking features such as obvious strategic importance, large numbers, diversity and the attendant heterogeneity, are enduring controversies. One of the controversies is the lack of generally accepted parameters - among researchers, government agencies and countries - for defining MSMEs. The other controversy centers on their environment and potentials. While on the one hand it is recognized that the government has taken very bold steps and initiatives in all the key elements of the MSME environment, on the other hand, operators of MSMEs, even without recognizing their own limitations, regularly accuse government of not doing enough to guarantee the actualization of their full potential. The third controversy centers on stakeholders' dissatisfaction with the performance trajectory of MSMEs. Whereas some recognize that MSMEs are exerting positive impact on the economy

of the nation, others argue that government measures and policy reforms have not translated to significant improvements in the growth of MSMEs (Ogbulu, 1999).

In any case, for MSMEs to effectively fill their roles in the economic development equation of a nation they require a balanced, effective and sustainable environment. However, there are slight differences in the identification of the factors and conditions of success of MSMEs by such international organizations as ILO, World Bank and OECD. But beyond the slight differences in the models of MSME ecosystem, the critical point is that the realization of a sustainable MSME ecosystem has remained elusive in developing countries. Even more worrisome is the fact that the role of MSME operators in the development of a conducive and sustainable ecosystem rarely receives attention. This forms the point of departure of this study as it focuses on the use of appraisal techniques in decision making which relates to managerial competencies (entrepreneurial culture) - an aspect of MSME environment that is generally given less attention than the other elements.

There is no doubt about the importance of decision-making competencies to managerial cum organizational success and this is aptly captured in Drucker's (2010) observation to the effect that whatever a manager does, he does through making decision. Ordinarily, there are several models of decision-making (Das &Tend, 1999, Turpin & Marais, 2004) which are however classified into two major methods - rational and non-rational. While the rational approaches as embodied in decision theory, are factual, logical, objective and reliable, the non-rational approach is non-factual, subjective, non-logical and unreliable. The rational model assumes that an investor needs to be rational in order to be able to maximize expected utility. Examples of non-rational approaches are political model, organizational process model, experience, gut-feeling, intuition and hunch. Though these approaches have their merits and demerits, it is generally recognized that the rational approach which includes capital budgeting and other quantitative methods are more effective particularly in the face of the increasing complexity of the business environment. This makes the adoption of rational methods of decision-making imperative in that in the face of the difficulties inherent in accessing funds, an MSME operator can ill-afford to take a bad investment decision. Ironically, the more complex the environment, the greater the tendency of owners and managers of MSMEs to resort to non-rational approaches which they consider as time saving and pragmatic. Beyond the constraints of time and cognitive ability, environmental challenges impose other limitations that hinder the exercise of full rationality as a result of which decision makers exhibit bounded rationality (Simon, 1987) which is in line with Lo's adaptive market hypothesis (Lovric et al, 2008).

Investment appraisal techniques are decisive in boosting corporate performance as they involve evaluating and selecting long term investments consistent with the firm's goal of wealth maximization (Kengatharan and Diluxshan, 2017). In fact, Farragher et al (1999) note that more accurate and reliable capital budgeting is needed by smaller firms to assure their growth, competitiveness and optimization of the value of the firm. In addition, financial management theory advocates that effective investment decisions engendered by the use of sophisticated capital budgeting system enhances a firm's performance. But ineffective or wrong investment decisions have serious negative consequences for the survival of firms and researches indicate that one of the critical factors underlying the high rate of business mortality in Nigeria and

URL: http://doi.org/10.14738/abr.1306.18876

Africa in general is the non-adherence to sound investment decisions (Agyei-Mensah,2011, Ogbulu, 1999).

Effective managerial competencies and knowledge are needed not just for the adoption of appraisal techniques but also to effectively relate them to varying environmental trends and developments. For instance, a manager is expected to track the influence of such socio-economic factors as inflation, taxation, exchange rate, interest rate, infrastructural development, insecurity and urban development on daily decisions to invest in real capital assets. This is necessary given that these factors have serious implications for the success of a firm. Capital budgeting techniques are, without doubt, crucial in arriving at sound investment decisions in any economy. Surprisingly, this is as far as theory goes. In practice, a wide gap exists between theory and practice. There is thus the controversy as to whether MSMEs do apply investment appraisal techniques before investing in real physical assets. For instance, while such researchers as Ayodele (2010), Idehen (2021), and Kerubo et al (2016) confirmed the adoption of appraisal techniques by small-scale firms, others like Olawale et al (2010) and Klammer (1973) hold that small manufacturing firms do not use sophisticated investment appraisal techniques in making investment decisions. This clearly points to the fact that the embrace of capital appraisal techniques by MSMEs in Nigeria, is still a subject of much controversy among researchers and practitioners.

In addition, it should be noted that various policy reforms have been implemented in Nigeria over the past decades to boost the growth of the MSME subsector. Unfortunately, it is regrettable that these policy reforms have not been translated to significant improvements in the growth of MSMEs (Ogbulu, 1999). It is in the light of the above scenario that a study such as this becomes very imperative with a view to closing the gap between the theory and practice of capital budgeting as well as unravelling the factors that actually motivate MSMEs to invest in real physical assets thereby helping to shape policy in the direction of boosting the growth of MSMEs.

Objectives of the Study

The major objective of the study was to examine whether MSMEs use investment appraisal techniques in evaluating their real asset investment in Nigeria. The specific objectives were to:

1. Identify the extent to which MSMEs employ appraisal techniques in making real asset investment decisions.
2. Determine the extent to which socio-economic factors influence MSMEs investment in real physical assets in Nigeria.
3. Examine the extent to which MSMEs are aware of investment appraisal techniques in Nigeria.

REVIEW OF RELATED LITERATURE

Ordinarily, investment in real physical assets refers to the commitment of long-term funds to the acquisition of real physical assets like land, buildings, plant and machinery, furniture and fittings, vehicles and vehicular equipment that are combined with other factors of production to produce a given level of output. Like all investments, the commitment of funds is done by an investor in anticipation of future benefits which may or may not materialize as expected by the investor. In other words, every investment decision has an inherent risk.

Equally, investment in financial assets refers to the commitment of funds to the acquisition of financial assets or instruments like stocks and shares, debentures, bonds, convertibles, etc, which come in different shapes and sizes. They are the different IOUs that are created and exchanged in the financial markets between surplus and deficit units in the economy. However, a striking feature of investment in financial assets is that the funds raised by the economic units issuing the financial instruments are ultimately channeled to the acquisition of real physical assets to aid production of goods and services. Nevertheless, Jifar (2020) has observed that the investment field is gradually expanding beyond trading of physical investment assets into electronic and human networking which risks are very difficult to predict hence the need to explore more sophisticated risk management models. In any case, given the element of risk inherent in all investments, it becomes imperative for any investor to undertake proper and objective appraisal of the costs and benefits of any investment opportunity before committing funds to such an investment.

Appraisal techniques, therefore, refer to those techniques, procedures, processes, skills as well as approaches and theories that have been developed over time to aid in the scientific and objective evaluation and identification of the feasibility and viability of investment opportunities in the economy. Peterson & Fabozzi (2002), described capital budgeting as the process of analyzing investment opportunities in long-term assets which are expected to produce benefits for more than one year. On their part, Brigham and Ehrdardt (2011) defined capital budgeting as the whole process of analyzing projects and deciding whether they should be included in the capital budget. The basic assumptions of capital budgeting theory are that:

- The primary goal of the shareholders of a firm is the maximization of the value of the firm.
- The firm is assumed to have access to perfect financial markets, allowing it to finance all value-enhancing projects.

Brealey and Myers (2003) have argued that when these assumptions are met, firms can separate investment and financing decisions, and should invest in all positive net present value projects. Unfortunately, however, it has been observed that some of these assumptions rarely apply to small and micro businesses (Keasey & Watson, 1993).

As a systematic process, capital budgeting involves a number of techniques and approaches which are grouped into discounting, non-discounting, traditional, sophisticated and unsophisticated. The most popular distinction is between discounting and non-discounting techniques which focuses on the time value of money in the analysis. Omolumo (2003) differentiates between traditional techniques which are earnings-based and the discounted cash flow (DCF) techniques which are cash flow based. Examples of traditional techniques are the Payback Period (PBP) also known as the Capital Recovery Method, Accounting Rate of Return or Average Rate of Return (ARR). On the other hand, discounting techniques include the Net Present Value Method (NPV|), the Internal Rate of Return (IRR) and the Profitability Index (PI). Overtime, some of these techniques have undergone some mutations to yield improved versions and hybrid such as the Modified Internal Rate of Return (MIRR) and the Discounted Payback Period. The Discounted Payback Period is usually seen as a hybrid between the discounting and the non-discounting techniques by virtue of the fact that the method combines the attributes of both discounting and non-discounting in its formulation (Okafor, 1983). Table

URL: http://doi.org/10.14738/abr.1306.18876

1 on the next page summarizes the key features of these techniques. It should be pointed out that the adoption of appraisal techniques can be very challenging and that it is not due just to the mental pressures on the manager but also due to the fact that they do not represent foolproof solutions. In fact, Klammer (2007) has observed that the mere adoption of various analytical tools is not sufficient to bring about superior performance in that such other factors as marketing, product development, executive recruitment and training, labor relations, etc., may have a greater impact on profitability.

MSME in Focus

The OECD (2018) notes that SMEs are a dynamic and evolving population, that is very diverse in terms of age, size, business model, performance, and the profile and aspirations of entrepreneurs. It is equally noted that better understanding of the heterogeneity of SME population is critical for countries, regions and cities to support the right business conditions and capitalize on their many diverse small businesses (OECD 2019). It should be pointed out that, the classification of business organizations as micro, small, medium or large organizations can be a very herculean task given that there is yet no consensus or uniformity in the parameters and/or benchmarks that could be adopted in performing such an exercise. This notwithstanding, some attempts have been made by different international and national bodies to streamline the definitional challenge. However, the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) has in line with the dual criteria of employment and assets provided in the National Policy on MSMEs defined Micro, Small and Medium Enterprises (MSMEs) as follows:

- Micro Enterprise refers to any enterprise employing between one to nine people and having a capital base from one naira to ₦5 million excluding cost of land.
- Small Enterprises are firms that employ between 10 and 49 employees and having a capital base from ₦5 million to ₦50 million.
- Medium Enterprise is any enterprise that employs from 50 to 199 employees and having a capital base from ₦50 million to ₦500 million.

Table 1: Features of some popular appraisal techniques

S/NO	Appraisal technique	Features of the technique	Major limitations
1	Payback period	Identifies the period it takes to recover the principal investment from the net cash flows of the asset	Disregards time value of money and the cashflows that accrue after the post-payback duration.
2	Net present Value	Refers to the project's expected future cash flows discounted at the appropriate cost of capital That is the total discounted cashflows of an investment asset over the period of appraisal.	Relies on mere estimate of the cost of capital which is hardly realistic. Contrary to investor's preference, it expresses returns in absolute naira value instead of percentages
3	Internal rate of return	Represents the rate at which the present values of cash outflows and inflows converge. It is also known as cut-off or handle rate.	Does not use the opportunity cost of capital in discounting cashflows.

4	Accounting Rate of Return	This is based on accounting information and involves dividing the average income after taxes by the average investment	Disregards time value of money and uses only accounting profit instead of cashflow. Does not consider the objective of wealth maximization.
5	Profitability Index	is the ratio of the present value of change in operating cash inflows to the present value of investment cash outflows.	Does not consider the size and time period of a project. Does not present results in Naira measure or value.

Perhaps, it is necessary to point out that the Policy recognizes that where there is a conflict in the classification criteria, employment should take precedence. This is in recognition of the instability of the asset criterion which is often affected by inflationary pressures. For the purpose of this study, the researchers have decided to adopt the classification given by SMEDAN.

Environment of MSMEs

Business environment refers to the set of forces and conditions that surround and affect a firm in its day-to-day operations. The UNIDO (2017) defines business environment as the set of conditions outside a firm's control that have a significant influence on how businesses behave throughout their life cycle. Every business, size notwithstanding, operates in an environment that embodies both macroeconomic and microeconomics variables which determine the firm's chances of survival. In this direction, the concern of policy makers and scholars is not just any environment but an enabling and conducive environment. That is, an environment that is conducive for the sustainable development of the firm. The significance of the word 'enabling' is seen in the development of benchmarks and tools for measuring how enabling is a given business environment. Such tools include the World Bank's Business Enabling Environment (BEE) and ILO's Enabling Environment for Sustainable Enterprises (EESE). However, this study adopted the OECD's framework which is made up of four key components, viz - institutional and regulatory framework, access to markets, entrepreneurial culture and access to resources. The *institutional/regulatory framework* is made up of taxation, regulation, competition, court and legal issues and public governance. The second component, *access to markets* focuses on - domestic demand conditions, trade and investment policies, public procurement and infrastructure. The third component, *entrepreneurial culture*, has the following elements - opportunities, abilities and attitudes. Lastly the fourth component, *access to resources*, focuses on finance, energy, knowledge, technology & innovation, human capital and skills development. These elements interact in a dynamic fashion to engender a business enabling environment that, however, varies from locality to locality.

Another important consideration in the discussion of MSME environment is the set of socio-economic factors which relates to the totality of economic and social conditions or factors that influence or shape the decision of an individual or group to behave in a particular manner when confronted with a choice situation. Thus, for MSMEs, the decision to actualize an investment opportunity is usually influenced not only by financial factors but also by some identifiable socio-economic factors like inflation trends, taxation, state of infrastructural development, state of urban development, foreign exchange dynamics, political stability, population trends, insecurity, etc. Though non-financial in nature, the impact of these socio-economic factors on

URL: http://doi.org/10.14738/abr.1306.18876

the decision to invest may, in fact, be so significant as to lead to the rejection of an otherwise viable investment opportunity.

Empirical Review

A number of researchers have investigated the adoption of investment appraisal techniques by MSMEs and the streams of research focus on such themes as adoption (Relativo et al 2017, Ayodele 2010; Gupta & Jain 2016; Jifar 2020; Ndanyembah & Zakaria 2019; Sungun 2015; Barjaktarovic et al, 2015); effect/impact (Olawale et al 2010; Mogwambo et al 2015, Kerubo et al 2016, Kengatharan & Diluxshan 2017, Wambua & Koori 2018, Onuorah 2019, Imegi & Nwokoye 2015); popular/dominant techniques (Ayodele 2010, Barjaktarovic et al, 2015, Karubo et al, 2016, Sungun, 2015); level of awareness (Kengatharan &Diluxshan 2017, Jifar 2020, Ndanyembah & Zakaria 2019, Sungun 2015), factors that influence the adoption of appraisal techniques (Ahmed 2019, Brien 1997, Hartwig 2011) and non-adoption (Huang & Pearce 2015, Khatri & Ng 2000, Gigerenzer & Gaissmaier 2011). The researchers differed in the methods adopted and findings. For instance, Ayodele (2010) examined how far SMEs in Nigeria use analytical techniques in project appraisal and the effect of such practice on the investment performance of firms. Findings of the study indicated that firms in Nigeria adopt the use of analytical appraisal techniques and that the use of Payback Period is more popular than others. Olawale et al (2010) investigated the impact of investment appraisal techniques on the profitability of small manufacturing firms in the Nelson Mandela Bay area of the Eastern Cape Province, South Africa. The study used survey data generated from 124 small manufacturing firms in the Despatch, Uitenhage and Port Elizabeth areas of the Nelson Mandela Bay to analyse their capital budgeting practices. The researchers ascertained that small manufacturing firms' owners do not use sophisticated investment appraisal techniques in evaluating proposed projects. Based on multiple regression analysis the study confirmed a significant impact of investment appraisal techniques on the profitability of the small manufacturing firms. Hence the researchers concluded that the use of non-sophisticated investment appraisal techniques have a negative impact on the profitability of small firms. Gupta and Jain's (2016) study focused on capital budgeting practices of selected SMEs in Haryana. The study sought to find out whether SMEs used capital budgeting techniques for their long-term capital investment decisions. The researchers collected data from 400 SMEs through questionnaire and interview and used simple percentage in testing the research proposition. The major finding of the study was that only a small percentage (12.5%) of firms use capital budgets for long term decisions.

Barjaktarović *et al* (2015) investigated the capital budgeting techniques used by small and medium-sized enterprises in Serbia. The study had two hypotheses, viz: micro, small and medium-sized companies in Serbia use payback criterion as the most dominant investment evaluation technique; and MSMEs in Serbia are mostly inclined to determine the cost of capital following the historical returns on investments. The study collected data through a questionnaire from 30 MSMEs and tested the hypotheses with simple percentages. The findings were that the payback period was the dominant technique used by the firms and that the firms utilized the historical returns on investment in determining the cost of capital. Mogwambo *et al* (2015) examined the contribution of investment appraisal techniques to efficient portfolio selection in the soft drinks industry in Kenya. The research adopted survey design with a sample of 250 respondents selected by census technique. Findings of the study indicated a strong correlation between investment appraisal techniques and investment alternatives with

investment appraisal accounting for 85.7% of investments alternatives. Furthermore, ranking of the investment alternatives was influenced by the type of investment appraisal tools applied while a significant relationship existed between investment appraisal techniques and portfolio efficiency. Hence the researchers concluded that the application of investments appraisal techniques influenced efficient portfolio selection in the soft drink industry in Kenya. In addition, part analyses of the investment appraisal techniques on portfolio efficiency showed that PBP had a higher significant relationship with portfolio efficiency.

In another study, Kerubo *et al* (2016) investigated the influence of investment appraisal techniques on financial performance of small manufacturing firms in Kisii town, Kisii County, Kenya. The researchers employed the survey research method with a sample size of 136 respondents selected using stratified random sampling technique. Based on descriptive statistics, the study revealed that small manufacturing firms largely relied on non-discounting investment appraisal methods to assess their investments in the industry which in turn affected their performance. In addition, investment appraisal techniques had a positive relationship with financial performance of small manufacturing firms. The study by Kengatharan and Diluxshan (2017) examined the relationship between use of capital investment appraisal practices and effectiveness of investment decision of listed manufacturing companies in Sri Lanka. The study employed a field survey from January to March 2017 and primary data were collected through self-administered questionnaire from randomly selected 20 listed manufacturing companies. Results of the study revealed that the use of NPV and IRR had significant and positive relationship with effectiveness of investment decisions while DPB had significant but negative relationship with effectiveness of investment decision. However, the risk analysis techniques were not significantly related to effectiveness of investment decision. Sungun (2015) investigated capital investment decisions in small and medium sized enterprises in Turkey. The study which focused on how capital investment decisions were made in SMEs in Turkey was based on descriptive survey of 65 medium and small-scale enterprises. Data were obtained through interview and questionnaire. On the basis of simple percentages, the researcher discovered that majority of the MSMEs were aware of investment appraisal techniques but only a small fraction used the techniques. In addition, while payback period was the dominant technique Excel was the dominant software used by the firms. Relativo *et al* (2017) focused on capital investment decisions of MSMEs in Digos City. The study investigated the practices of capital investment decisions of 125 micro, small and medium enterprises in Digos City. Based on Pearson Correlation, the findings of the study revealed that the use of capital appraisal techniques depended on personal/institutional attributes rather than industry type. The use of appraisal techniques increased with years of experience of MSME operators.

METHODOLOGY

The study adopted explanatory and cross-sectional survey research design and this was in line with the nature of the phenomenon of interest. The explanatory and cross-sectional survey utilized self-reporting questionnaire to elicit primary data from the respondents. Primary data as provided by the respondents were critical to the understanding of the experiences of the respondents. The questionnaire had both structured and open-ended questions that elicited individual opinions. The structured questions ranged from 3 point to 5-point Likert scales. The instrument was administered by hand through research assistants who offered assistance to

URL: http://doi.org/10.14738/abr.1306.18876

the respondents in the course of filling the survey instrument. In choosing research assistants consideration was given to those who had familiarity with basic research and the terrain. The determination of the sample size was done through both probability and non-probability methods and this was due largely to the differences that exist among the components of the MSMEs. For instance, while medium and to some extent small businesses, operate in the formal sector, micro businesses operate in the informal sector. Micro businesses, on the other hand, are rarely registered. Even in instances where a fledgling association (registered with the State Ministry of Commerce) existed, efforts to get the list of members did not yield the desired result. Another significant point to note is that the register of members obtained from Chambers of Commerce and the National Association of Small-scale industrialists (NASSI) in some of the States were not current - there were so many names of firms that had gone into extinction. Copies of the questionnaire were administered to a sample of MSMEs drawn from the following capital cities of five states in the North-West zone of the country – Kaduna (Kaduna), Kano (Kano), Birnin-Kebbi (Kebbi), Dutse (Zamfara) and Katsina (Katsina).

Arising from the above, the determination of the sample size was first stratified and thereafter probability method (Yamene formular for finite population) was used to determine the sample size for medium and small-scale businesses based on the membership registers from Chambers of Commerce and Industry and National Association of Small-Scale Industrialists (NASSI) as the population frame. On the other hand, because the population of micro firms was unknown the sample size was determined based on non-probability method (Cochran's formular for infinite population). An aggregated sample size of 750 (507 for small/medium and 243 for micro businesses) was obtained for the five states from an accessible population of 9450 firms. However, the actual identification and selection of the firms was conveniently done.

The outcome of a pilot study was used in determining the reliability and validity of the survey instrument. The split-half technique was used in testing for the reliability and the output is shown in table 2. below. The values of both Spearman-Brown and Guttman coefficients shown are high and within the acceptable range of reliability measure. In terms of validity, the entire process of preparing and constructing the questionnaire involved several stages of evaluation beginning from the team members' individual and collective assessment to expert evaluation by lecturers in the department of Measurement & Evaluation (Faculty of Education) to achieve both content and face validity. Equally, construct validity was tested based on past research works and extant theory which tallies with Moser and Kalton's (1997) observation that the essence of construct validity is its dependence on theory and that the examination of observed associations is as much a test of the theory as it is of the scale's validity. The validity of the instrument was further strengthened by the fact that the variables of the topic have general applicability and had been tested by past researchers.

Table 2: Reliability coefficients based on split-half method

S/No.	Variables	No. of items	Spearman-Brown coefficient		Guttman Split-half coefficient
			Equal length	Unequal length	
1	Extent of usage	5	0.894	0.897	0.862
2	Socio-economic factors	8	0.903	0.903	0.902
3	Extent of awareness	5	0.749	0.755	0.715

4.4: Statistical analysis: The data analysis techniques utilized in this research included descriptive statistics, frequency distribution, weighted average index and charts. In addition, ordinal and multinomial logistic regressions were used in testing the hypotheses on SPSS software package. Ordinal logistic regression (OLR) is a type of logistic regression analysis where the response variable has more than two categories. We adopted the proportional odds model, which is the most widely used logistic regression method. The model is represented thus:

$$\ln(\theta_j) = \alpha_j - \beta_1 X_1 + \beta_2 X_2 + \cdots \ldots \ldots . + \beta_9 X_9$$

Where j goes from 1 to the number of categories minus 1.
β1, … , β9 are the regression coefficients, X1, …, X9 are the predictor variables.
Ordinal logistic regression model is estimated using maximum likelihood.

On the other hand, the multinomial logistic regression (Mlogit regression) is a generalized linear model used in estimating the probabilities for the m categories of a qualitative dependent variable Y based on a set of explanatory variables X: PrYik=PrYi=K|xi. The generalized linear model is represented thus:

$$Link\ (\gamma_j) = \frac{\theta_j - \beta_1 X_1 + \beta_2 X_2 + \cdots \ldots \ldots . + \beta_k X_k}{\exp(\tau_1 Z_1 + \tau_2 z_2 + \cdots \ldots + \tau_m z_m)}$$

Where, $\mathbf{Y_j}$ is the cumulative probability for the category, $\mathbf{j^{th}}$, $^{\boldsymbol{\theta}}$j is the threshold for the $\mathbf{j^{th}}$ category, β1, …, βk are the regression coefficients, X1, …, Xk are the predictor variables, and k is the number of predictors.

RESULTS

As earlier indicated, a total of seven hundred and fifty copies of the questionnaire were distributed across the five states out of which 522 were retrieved and that represents approximately 70% response rate. Table 3 summarizes the frequency distribution of the firms based on some key attributes. Based on three classifications of primary (extractive, mining, farming), secondary (manufacturing and fabricating) and tertiary (service), the table shows that majority of the firms (252 or 48.3%) were engaged in service delivery. This was followed by extractive/farming (143 firms or 27.4%) and manufacturing (127 firms or 24.3%). In recognition of the instrumentality of education to shaping an individual's world outlook and embrace of sophisticated techniques, we

Table 3: Frequency distribution of key attributes of MSMEs

Type of business:	**Frequency**	**%**	**Expenditure on equipment**	**Frequency**	**%**
Primary	143	27.39	<₦1m	157	30.13
Secondary	127	24.33	₦1m – ₦2.5m	203	38.96
Tertiary	252	48.28	N2.6m - N5m	141	27.06
Total	**522**	**100.0**	>₦5m	20	3.85
			Total	**521**	**100.0**
Educational Qual:			**Formal risk analysis:**		
WASC	213	40.80	Never		
BSc/HND	281	53.83	Sometimes	284	54.41

URL: http://doi.org/10.14738/abr.1306.18876

Masters	28	5.37	Always	138	26.43
Doctorate	0	0.0	Total	100	19.16
Total	**522**	**100.0**		**522**	**100.0**
Total asset:			**Formal plan with**		
<₦10m	301	57.77	**cash flow projections**:		
₦11-₦20m	123	23.61	Never	234	44.83
₦21-N30m	64	12.28	Sometimes	177	33.91
₦31 -₦40m	14	2.69	Always	111	21.26
>₦40m	19	3.65	Total	**522**	**100.0**
Total	**521**	**100.0**			

Source: Field work 2025

ascertained the highest level of educational attainment of the respondents and the results showed that 213 (41%) had WASC, 281 (54%) had BSc/HND and 28 (5%) had Master's degree. In line with the parameter for categorizing MSMEs, responses on the value of total assets showed that majority of the firms (301 or 58%) belong to the <₦10 million group. This is followed by 123 (24%) with asset value of ₦11- ₦20 million and the ₦21 - ₦30 million group (64 or 12.3%), >₦40million (19 or 4%) and lastly, N31 - ₦40 million (14 or 3%). The categorization of the firms based on annual expenditure on equipment revealed the following distributions: <₦1million (157 or 30.1%), ₦1million - ₦2.5 million (203 or 39%), ₦2.6 - ₦5million (141 or 27%) and >₦5 million (20 or 3.9%). On the basis of involvement in formal risk analysis, the responses showed that 284 firms (or 54.4%) never engaged in formal risk analysis. On the other hand, while 100 (19.2%) always engaged in it, 138 (or 26.4%) sometimes did it. Equally, the distribution of the firms based on their propensity to make formal plans with cash flow projection showed that majority of them (234 or 45%) never did. However, 177 or 34% did so sometimes and 111 (21%) made formal plans with cash flow projections always.

Hypothesis Testing

Hypo 1: MSME operators adopt capital appraisal techniques to a large extent in making real asset investment decisions.

The hypothesis focused on five appraisal techniques and was therefore tested with generalized linear model (glm) and the outputs are shown below:

Table 4: Goodness of Fit

	Value	df	Value/df
Deviance	243.463	500	0.487
Scaled Deviance	511	500	
Pearson Chi-Square	243.463	500	0.487
Scaled Pearson Chi-Square	511	500	
Log Likelihoodb	-535.649		
Akaike's Information Criterion (AIC)	1095.298		
Finite Sample Corrected AIC (AICC)	1095.924		
Bayesian Information Criterion (BIC)	1146.134		
Consistent AIC (CAIC)	1158.134		
dependent variable: does your firm carry out formal risk analysis of every investment. Model: (Intercept), PAYB_P, INTERNAL_RR, NET_PV, ACC_RR, PROFITI			

The values/df of the Deviance and Pearson chi-square as shown in the Goodness-of-Fit table fall within the acceptable range (<1.0) which confirm the appropriateness of the model.

Table 5: Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
128.673	10	0
Model: (Intercept), PAYB_P, INTERNAL_RR, NET_PV, ACC_RR, PROFI_TI		

The Omnibus test shows the goodness of the full model and given the p-value of <0.05 as shown in table 5, the full model is good.

Table 6: Tests of Model Effects

Source	Type III		
	Wald Chi-Square	df	Sig.
(Intercept)	2099.816	1	0
PAYB_P	7.791	2	0.02
INTERNAL_RR	6.283	2	0.043
NET_PV	14.682	2	0.001
ACC_RR	4.192	2	0.123
PROFI_TI	4.399	2	0.111
dependent variable: does your firm carry out formal risk analysis of every investment Model: (Intercept), PAYB_P, INTERNAL_RR, NET_PV, ACC_RR, PROFI_TI			

The tests of model effects (Table 6) shows that three of the techniques – PAY_BP (p = .000), INTERNA_RR (p = .020) and NET_PV (p = .043) with p-values less than .05 are significant which indicates their use in formal risk analysis.

Table 7: Parameter Estimates

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	1.386	0.1227	1.146	1.627	127.54	1	0
[PAYB_P=1.00]	0.446	0.1655	0.122	0.771	7.273	1	0.007
[PAYB_P=2.00]	0.261	0.1316	0.003	0.518	3.922	1	0.048
[PAYB_P=3.00]	0a	.	.	.	.	.	.
[INTERNAL_RR=1.00]	-0.137	0.2443	-0.616	0.342	0.314	1	0.575
[INTERNAL_RR=2.00]	0.277	0.1806	-0.077	0.631	2.355	1	0.125
[INTERNAL_RR=3.00]	0a	.	.	.	.	.	.
[NET_PV=1.00]	0.567	0.2731	0.032	1.103	4.315	1	0.038
[NET_PV=2.00]	-0.209	0.2271	-0.654	0.236	0.85	1	0.357
[NET_PV=3.00]	0a	.	.	.	.	.	.
[ACC_RR=1.00]	0.177	0.1975	-0.21	0.564	0.8	1	0.371
[ACC_RR=2.00]	0.344	0.1752	0.001	0.688	3.862	1	0.049
[ACC_RR=3.00]	0a	.	.	.	.	.	.
[PROFI_TI=1.00]	0.278	0.144	-0.005	0.56	3.719	1	0.054
[PROFI_TI=2.00]	0.144	0.1431	-0.136	0.424	1.012	1	0.314
[PROFI_TI=3.00]	0a	.	.	.	.	.	.

URL: http://doi.org/10.14738/abr.1306.18876

(Scale)	.476b	0.0298	0.421	0.539			
Dependent Variable: Does Your Firm Carry Out Formal Risk Analysis of Every Investment Model: (Intercept), PAYB_P, INTERNAL_RR, NET_PV, ACC_RR, PROFI_TI							

Table 7 shows statistically significant results for payback period and accounting rate of return techniques as follows:

PAY_BP-2, B = .261, p-value = 0.048 is the dummy variable representing the sometimes-used category of Payback period technique. The positive estimate shows that the manager is likely to 'sometimes' instead of always carry out formal risk analysis of investments through the use of appraisal techniques.

ACC_RR -3, B = .344, p-value = .049 is the dummy variable for sometimes-used category of accounting rate of return technique. The positive estimate shows that the manager is likely to 'sometimes' instead of always carry out formal risk analysis of investments through the use of appraisal techniques.

The foregoing analysis identified two appraisal techniques, viz, payback period and accounting rate of return that are sometimes used by MSMEs. In other words, contrary to the null hypothesis that focused on 'a large extent', we accept the alternate hypothesis that operators of MSMEs use appraisal techniques to a low extent.

Hypo 2: Socio-economic factors do not, to a large extent, influence MSMEs investment in real physical asset in Nigeria.

The hypothesis was tested with ordinal logistic regression and the outputs are shown below:
The p-value of the final model as shown in the Model Fitting Information (Table 8) is less than .05 which shows the appropriateness of the model.

Table 8: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	1006.617			
Final	913.323	93.294	32	0
Link function: Logit.				

The p-values of the Pearson (0.000) and Deviance (0.103) chi-square parameters differ. While the p-value of the Pearson chi-square is significant (<.05) which is unacceptable, that of Deviance is insignificant (>.05) and acceptable. On the basis of the Deviance p-value we accept the goodness of the model.

Table 9: Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	1193.831	787	0
Deviance	837.66	787	0.103
Link function: Logit.			

Table 10: Parameter Estimates showing significant coefficients

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[EQUIPEXP = 1.00]	-0.776	0.313	6.16	1	0.013	-1.388	-0.163
	[EQUIPEXP = 2.00]	1.083	0.315	11.827	1	0.001	0.466	1.7
	[EQUIPEXP = 3.00]	3.74	0.384	94.665	1	0	2.987	4.493
	[INCRETAX=3.00]	1.459	0.59	6.122	1	0.013	0.303	2.615
	[INCRETAX=4.00]	2.237	0.568	15.516	1	0	1.124	3.349
	[INCRETAX=5.00]	0a	.	.	0	.	.	.
	[INFLATION=4.00]	-1.095	0.542	4.088	1	0.043	-2.157	-0.034
	[INFLATION=5.00]	0a	.	.	0	.	.	.
	[HINTR=3.00]	0.964	0.472	4.169	1	0.041	1.89	2.039
	[HINTR=4.00]	-1.093	0.449	5.919	1	0.015	-1.974	-0.212
	[HINTR=5.00]	0a	.	.	0	.	.	.
	[URBDEV=4.00]	-0.988	0.446	4.908	1	0.027	-1.862	-0.114
	[URBDEV=5.00]	0a	.	.	0	.	.	.
	[INSECURITY=4.00]	0.743	0.358	4.301	1	0.038	1.445	2.041
	[INSECURITY=5.00]	0a	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Table 10 above shows the coefficients that are significant but the positively significant ones are: INCRETAX 3, B = 1.459, p = .013 is the dummy variable for low extent category of the factor, increase in tax. It is positively significant which is indicative of a low likelihood of influencing a firm's investment in real physical asset when compared to the high extent reference category. INCRETAX-4, B = 2.237, p = .000 is the dummy variable representing the high extent category of the factor, increase in tax. It is positively significant which shows that it has high likelihood of influencing a firm's investment in real physical asset.

INSECURITY-4, B = .743, p = .038 is the dummy variable representing the high extent category of the factor, insecurity. It is positive and significant which shows that it has high likelihood of influencing a firm's investment in real physical asset.

Based on the foregoing, we reject the null hypothesis that socio-economic factors have no significant relationship with a firm's investment in real physical asset. Instead, we accept the alternate hypothesis to the effect that socio-economic factors have positive and significant relationship with a firm's investment in real physical asset. However, it has to be pointed out that not all the identified socio-economic factors exert positive and significant relationship on a firm's investment in real physical assets. The test confirmed that increase in tax and insecurity have positive and significant relationship with a firm's investment in real physical asset. On the other hand, high interest rate, urban development and inflation showed a negative but significant relationship, but economic growth, infrastructural development and high foreign exchange rate showed no relationship at all.

URL: http://doi.org/10.14738/abr.1306.18876

Arising from the positive influences of increase in tax and insecurity on investment in real physical assets, we tested for differences among MSMEs in the way the factors influenced their decisions. Unfortunately, the Kruskal-Wallis test (see table 11) shows that differences exist among the MSMEs in the effect of the factors.

Table 11: Test Statistics

	Extent to which increase in tax influences decision to invest	Extent to which inflation influences decision to invest	Extent to which high exchange rate influences decision to invest	Extent to which economic growth influences decision to invest	Extent to which high interest rate influences decision to invest	Extent to which urban development influences decision to invest	Extent to which infrastructural development influences decision to invest	Extent to which insecurity influences decision to invest
Chi-Square	9.492	14.769	7.746	25.243	21.883	18.037	20.552	28.059
df	2	2	2	2	2	2	2	2
Asymp. Sig.	0.009	0.001	0.021	0	0	0	0	0
a. Kruskal Wallis Test								
b. Grouping Variable: Classification of the firms based on value of asset								

Hypo3: Operators of MSMEs demonstrate high level of awareness of capital appraisal techniques as a method of making investment decisions.

This hypothesis was tested with a multinomial regression which identified the level of awareness of investment appraisal techniques vis-a viz other methods of investment decision making. The outcome of the test is as follows.

Table 12: Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	121.083			
Final	35.784	85.299	6	0

The significant p-value <.05 of the final model shows its goodness and appropriateness.

Table 13: Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	35.784	0	0	.
AWARE_NESS	121.083	85.299	6	0

The likelihood Ratio Tests as depicted in Table 13 show that awareness is significant with a p-value = .000 which is <.05.

Table 14: Parameter Estimates

Method of Capital Decision Making		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Professional Advice	Intercept	-0.665	0.29	5.256	1	0.022			
	[AWARE_NESS=1.00]	-1.748	0.515	11.498	1	0.001	0.174	0.063	0.478
	[AWARE_NESS=2.00]	-0.884	0.367	5.809	1	0.016	0.413	0.201	0.848
	[AWARE_NESS=3.00]	0.643	0.326	3.896	1	0.048	1.902	1.005	3.602
	[AWARE_NESS=4.00]	0b	.	.	0	.	.	.	.
Use of Capital Appraisal Technique	Intercept	-0.722	0.296	5.967	1	0.015			
	[AWARE_NESS=1.00]	-1.691	0.519	10.628	1	0.001	0.184	0.067	0.51
	[AWARE_NESS=2.00]	1.808	0.455	15.765	1	0	0.164	0.067	0.4
	[AWARE_NESS=3.00]	0.007	0.347	0	1	0.984	1.007	0.51	1.988
	[AWARE_NESS=4.00]	0b	.	.	0	.	.	.	.
a. The reference category is: EXPERIENCE.									
b. This parameter is set to zero because it is redundant.									

Parameter estimates: Table 14 shows the parameter estimates. Though there are three methods of decision making, the 'experience/intuition' method was used as reference category and so only two logits (i.e. logistic regression coefficients) are shown. The first row represents a comparison of the 'experience/intuition' method with the 'professional advice' method and the second row is a comparison of the 'capital appraisal technique' method to the 'experience/intuition' method. The variables that are significant are as follows:

*AWARE_NESS-3, (B = .643, p-value = .048) is the dummy variable of the medium level of awareness category of professional advice relative to experience/intuition with other variables held constant. It is significant (p-value = .048) with a multinomial logit log-odd of 1.902.

*AWARE_NESS-2, (B = 1.108, p-value = .000) is the dummy variable of the low level of awareness category of capital appraisal techniques relative to experience/intuition with other variables held constant. It is significant (p-value = .036) with a multinomial logit log-odd of .164. The test of the hypothesis on the level of extent of awareness of capital investment appraisal techniques by MSMEs revealed that the extent of awareness of the techniques is low. It should however, be pointed out that the identification of the extent of awareness of the appraisal techniques was done in comparison to two other methods – experience/intuition and professional advice. The test clearly shows that operators of MSMEs have low to medium extent level of awareness of professional advice but low level of awareness of capital investment techniques.

Discussion of Findings

The outcome of the test of hypothesis one showed that operators of MSMEs in North-West states use payback period and accounting rate of return to some extent. This corroborates the findings of Olawale et al (2010), Ayodele (2010) and Jifar (2020). This is quite understandable given that the adoption of appraisal techniques is a function of many factors such as level of education, exposure, competence or technical capacity and willingness to accommodate professionals. So, depending on the interplay of these factors, a firm may adopt either on a

URL: http://doi.org/10.14738/abr.1306.18876

consistent or infrequent basis such techniques. Also, some operators may resist the appeal to use the techniques. The variation in the extent of the level of usage could equally be a reflection of the different categories of firms that make up the MSME group.

The result of the test of hypothesis two revealed that of the eight factors, only increase in tax and insecurity were positively significant though the level of influence on MSMEs' investment in real physical asset was low. The positive though low level of influence of insecurity, undoubtedly, raises some level of curiosity in that, ordinarily, insecurity has a negative effect on business operations and growth. However, it should be pointed out that though insecurity hinders business operations, it has brought about greater investment in protective assets with which firms secure both lives and properties. Based on the Kruskal-Wallis test which sort to identify if the MSMEs differed in terms of the influence of the factors, the test revealed that differences exist among the firms. This is perhaps due to differences in location and the burden imposed by the factor on the firm. For instance, whereas small and micro enterprises are found in every settlement – urban, semi-urban and rural, medium enterprises are found mainly in urban areas or industrial zones.

The outcome of the test of hypothesis three showed that the level of awareness of investment appraisal techniques on the part of MSMEs is low. This differed from the findings of Ndanyenbah and Zakaria (2019) and Jifar (2020) who discovered that operators of MSMEs had significant knowledge of basic appraisal techniques. The level of awareness was assessed based on a comparison of their level of awareness of three methods of investment decision making, viz, experience/intuition, professional advice and appraisal techniques. Ordinarily, experience/intuition is the default method of decision making by MSMEs and so the other two methods were assessed relative to experience/intuition and the outcome showed that the level of awareness of appraisal techniques is low. But the level of awareness of professional advice ranged from low to medium. Obviously, operators of MSMEs have better acquaintance with professional advice than the personal adoption of capital appraisal techniques.

POLICY IMPLICATIONS

There is no doubt that the findings of this study have confirmed that the operators of MSMEs generally have low level of awareness of investment appraisal techniques and this accounts for the half-hearted and infrequent adoption of the techniques. This clearly points to the fact that operators of MSMEs must be facing very serious challenges in their desire to fully embrace rational methods of decision making. It is also evident from the findings that of all the socio-economic factors that influence the decision of MSMEs to invest in real physical asset, tax and insecurity exerted greater influence. Given the low level of awareness and half-hearted adoption of appraisal techniques by operators of MSMEs, the focus of government should be on how to develop the managerial capacities of operators and owners of MSMEs. In specific terms, the following policy measures would be useful in bringing about the needed re-orientation of managers and owners of MSMEs.

1. Policy measures should give more attention to the development of the managerial competencies and knowledge of operators of MSMEs through the instrumentality of Business Development service providers. There is the need for government to stimulate the demand for business development services by MSMEs through matching supply with

demand, providing incentives and defining the framework and guidelines for such relationships.

2. Both the Federal and State Governments should encourage through the provision of incentives the cultivation of business linkages between big businesses such as MNCs and small and micro enterprises. Such linkages which can be based on research & development and resource acquisition will generate strategic benefits such as exposure to national and global business trends and repertoire of experiences and practices to small and micro enterprises.
3. TETFUND should sponsor universities to develop a dynamic business directory of MSMEs in their locality in addition to providing free business development services to a given number of them on annual basis. Such an intervention will provide opportunities for improved interaction and possible collaboration between universities and micro enterprises. The sustainability of the intervention can be achieved through linking it to NUC accreditation criteria.

References

Agyei-Mensah, B.K (2011). Financial management practice of small firms in Ghana: An empirical study. *African Journal of Business Management, 5*(10), 3781-3793. Doi: 10.2139/SSRN. 1597243.

Ahmed, I. E. (2019). Factors Determining the Selection of Capital Budgeting Techniques. *Journal of Finance and Investment Analysis,* 2(2), 77-88.

Ayodele, T. D. (2010), An assessment of risk analysis techniques and investment performance among Nigerian firms, *Journal of Business and Organizational Development,* 2(Dec), 74-81.

Barjaktarović, L., Pindzo, R. & Vjetrov, A. (2015). The Analysis of capital budgeting techniques implemented by small and medium-sized enterprises in Serbia, Conference: Singidunum University International Scientific Conference FINIZ 2015 - Contemporary Financial Management At: Belgrade, Serbia.

Brealey, R.A. and Myers, S.C. (2003), *Principles of Corporate Finance*, *International Edition*, 7th ed, McGraw-Hill, New York.

Brien, M. O. (1997); Payback: A gulf between managerial accounting and financial theory in practice-A view from accountants and finance officers in Ireland; *The International Journal of Accounting*, 32(2), 173-186.

Brigham, E. F., & Ehrhart, M. C. (2011). *Financial Management: Theory and Practice (13th ed.*). Mason, OH: South-Western Cengage Learning.

Cochran, W. G. (1977). *Sampling techniques.*3rd ed. New York: John Wiley.

Das, T.K & Teng, B.S, (1999)., Cognitive biases and strategic decision processes: An integrative perspective, *Journal of Management Studies*, 36(6), 757–778.

Drucker, P. F (2010). The Practice of Management (Re-issued edition). Harper.

Farragher, E., Kleiman, R. & Sahu, A. (2007), The association between the use of sophisticated capital budgeting practices and corporate performance. *The Engineering Economist* 46 (4): 300-311.

Gigerenzer, G., & Goldstein, D. (1996). Reasoning the fast and frugal way: Models of bounded rationality. *Psychological review, 103* (4), 650- 669. Doi: 10.1037/0033-295X.103.4.650.

Gupta, P. K. And Jain, V. 92016). Capital budgeting practices in SMEs: A study of selected enterprises of Haryana. *International Journal of Commerce and Management Research*, 2(2), 75-79.

Hartwig, F. (2011), The use of investment appraisal methods and cost of capital estimation techniques in Swedish listed companies. *Paper presented at the 34th EAA Congress, Rome 20–22 April 2011.*

Huang, L. and Pearce, J. L. (2015). Managing the unknowable: The effectiveness of early stage investor gut feels in entrepreneurial investment decisions. *Administrative Science Quarterly*, 60 (4); 634–670.

URL: http://doi.org/10.14738/abr.1306.18876

Idehen, V. A. (2021). Capital investment decisions of small and medium enterprises in Benin-City, Nigeria. *International Journal of Research in Business & Social Science 10(3), 101-108. doi.org/10.20525/ijrbs. v10i3.1099*

Imegi, J.C. & Nwokoye, G.A. (2015), The effectiveness of capital budgeting techniques in evaluating projects' profitability, *African Research Review,* 9(2), 166-188. http://dx.doi.org/10.4314/afrrev.v9i2.13

Jifar, T. (2020). Investment appraisal techniques of small and medium scale enterprises in Ethiopia (A case Study in Selected Wored as of Wolaita Zone). *International Journal of Research in Business Studies and Management,* 7(4), 14-24.

Keasey, K. and Watson, R. (1993). *Small firm management: Ownership, finance and performance.* Blackwell. 983355

Kengatharan, L. & Diluxshan, C. P. (2017), Use of capital investment appraisal practices and effectiveness of investment decisions: A study on listed manufacturing companies in Sri Lanka, *Asian Journal of Finance & Accounting,* 9(2), 72-89.

Kerubo, N. H., Muturi, W. and Mogwambo, V. A. (2016). Influence of investment appraisal techniques on financial performance of small manufacturing firms in Kenya: A survey of the Jua-Kali sector in Kisii Town. *International Journal of Social Sciences*, 11 (viii), 791-800.

Khatri, N., and Ng. H. A. (2000). The role of intuition in strategic decision making. *Human Relations*, 53: 57–86.

Klammer, T. (1993). Improving investment decisions*. Management Accounting*, 75 (1), 35-39.

Klammer, T. (1972), Empirical evidence of the adoption of sophisticated capital budgeting techniques, *The Journal of Business*, University of Chicago Press, 45(3), 387-397. DOI: 10.1086/295467.

Kombo, D. K and Tromp, D. L. A (2006). *Proposal and Thesis Writing: An introduction.* Nairobi: Paulines Publications.

Krejcie, R.V., and Morgan, D.W. (1970) Determining Sample Size for Research Activities. *Educational and Psychological Measurement*.30, 607 –610.

Lovric, M., Kaymak, U. & Spronk, J. (2008). A conceptual model of investor behavior. Erasmus institute of management, Rotterdam. http://hdl.handle.net/1765/12468.

Mogwambo, V. A., Mukras, M. S. and Oima, D. O. (2015). Influence of investment appraisal on efficient portfolio selection in the soft drink industry in Kenya. *European Journal of Business and Management, 7(8), 81-99.*

Moser, C. and Kalton, G. (1997). *Survey Methods in Social Investigation*. London: Routeldge.

Ndanyenbah, T.Y. and Zakaria, A. (2019), Application of investment appraisal techniques by small and medium enterprises (SMES) operators in the Tamale Metropolis, Ghana, *Journal of Economics and Sustainable Development,* DOI:10.7176/jesd/10-14-02, Corpus ID: 201477218.

OECD (2018). Strengthening SMEs and entrepreneurship for productivity and inclusive growth: 2018 SME Ministerial Conference. Available at www.oe.cd/smes

OECD (2019). *OECD SME and Entrepreneurship Outlook 2019*. OECD Publishing, Paris, https://doi.org/10.1787/34907e9c-en.

OECD (2021), SME and entrepreneurship policy frameworks across OECD countries: An OECD Strategy for SMEs and Entrepreneurship. *OECD SME and Entrepreneurship Papers, No. 29.* OECD Publishing, Paris, https://doi.org/10.1787/9f6c41ce-en.

Ogbulu, O. M. (1999), Industrialization in Abia State: Problems and prospects. *Journal of Industrial Business & Economic Research,* 3(2), 700-707.

Okafor, F. O. (1983), *Investment decisions: Evaluation of projects and securities,* London, Cassell.

Olawale, F., Olumuyiwa, O. and George, H. (2010), An investigation into the impact of investment appraisal techniques on the profitability of small manufacturing firms in the Nelson Mandela Bay Metropolitan Area, South Africa, *African Journal of Business Management*, 4(7), 1274-1280.

Omolumo, I. G. (2003). *Financial management in Nigeria*; Lagos; Omolumo

Onuorah, A. C. (2019), Appraisal of capital budgeting techniques and performance of manufacturing firms in Nigeria, *Journal of Management and Decision Sciences,* 22(4), 462-470.

Peterson, P. P. and Fabozzi, F. J. (2002). *Capital Budgeting: Theory and Practice*. Wiley.

PwC (2020). MSME Survey 2020. Available at https://www.pwc.com/ng/en/services/sme-helpdesk.html

SMEDAN (2021). 2021 MSME Survey report. Available on www.smedan.gov

SMEDAN (2021). National policy on micro, small and medium enterprises (2021 – 2025). Available at https://smedan.gov.ng/images/PDF/NATIONAL-POLICY-ON-MSMEsNew.pdf.

Sungun, G (2015). Capital investment decision in small and medium sized enterprise in Turkey. *European Journal of accounting, Auditing and Finance Research, 3*(1), 46-55.

Turpin, S. M & Marais, M. A (2004). Decision-making: Theory and practice*. ORiON, 20(2), 143-160.*

UNIDO (2017). Improving the business environment. Accessed from https://www.unido.org/sites/default/files/2017-11/.

Wambua, P.M. and Koori, J. (2018), Investment appraisal techniques and financial performance of small and medium enterprises in Nairobi City, Kenya, *International Journal of Current Aspects in Finance,* IV(II), 89-101.

World Bank (2022). Small and Medium Enterprise (SME's) finance. Available on (IBRD-IDA, 2022, www.https://www.worldbank.org/en/topic/smefinance

ACKNOWLEDGEMENT

The funding for the research that generated this paper was provided by TETFUND under National Research Fund intervention