ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

REAL ASSET INVESTMENT APPRAISAL AND MSME PERFORMANCE: EVIDENCE FROM NIGERIA

Ogunleye Adebola Kehinde

Lecturer, Department of Management, Abia State University, Uturu, Nigeria

DOI:10.5281/zenodo.19682808

Abstract

There is no doubt about the strategic importance of entrepreneurship as represented by micro, small and medium enterprises (MSMEs), in both developing and developed economies. As a result, both governments and transnational institutions have been unrelenting in the pursuit of policies and programmes that ensure MSMEs' effectiveness and sustainability. But despite the efforts of both governments and transnational institutions, the actualization of the strategic roles of MSMEs remains a source of controversial narratives. Unfortunately, however, while so much attention is given to such factors as finance and infrastructure, the issue of managerial competence seems to receive disproportionate attention. This study focused on the decisionmaking orientations of MSMEs with particular reference to their adoption of capital appraisal techniques which belong to the analytical approach to decision making. Specifically, the study investigated the degree of awareness and extent of usage of investment appraisal techniques by MSMEs. In addition, the study identified the nature of the relationship between the adoption of investment appraisal techniques and the quality of decision making. Based on descriptive survey of 690 MSMEs from five states in the South-south geo-political zone, viz, Akwa Ibom, Delta, Edo, Rivers and Bayelsa, the hypotheses were tested with multinomial and ordinal logistic regression. The findings of the study include the fact that the extent of usage of investment appraisal techniques by MSMEs is low which derives from the low level of awareness of the techniques. In addition, it was established that there is a significant and positive relationship between the adoption of the techniques and the quality of decision making. The study, therefore, concluded that in spite of the manifest benefits of appraisal techniques, its diffusion among small scale businesses is low. This obviously points to some underlying policy defects and therefore calls for a policy review that will give commensurate attention to the development of managerial competence among MSMEs.

Keyword: Investment appraisal technique, rational, adoption, awareness, MSMEs

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

INTRODUCTION

1.0 Micro, small and medium scale enterprises (MSMEs) form a large chunk of entrepreneurial ventures in both developed and developing economies. According to the World Bank (2022) 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. In a survey carried out by PriceWaterhouse in June, 2020, MSMEs accounted for 96% of the total number of businesses in Nigeria and together they contributed about 50% to the national GDP. In terms of ownership structure, 73% of these MSMEs are sole proprietorship while 14% are private limited liability companies (PwC's MSME Survey, 2020). Equally, MSMEs accounted for 96.7% of We fondly remember our late member, Prof. Ndubisi Paul who passed on midway. Businesses, 87.9% of employment and 45.7% of national GDP in the year 2020 (SMEDAN, 2021). In the area of employment generation, studies by Ogah-Alo et al. (2019), Owualah and Ohazebere (2019) as well as Kayanula and Quartey (2020) confirmed a significant and positive relationship between small and medium scale enterprises and employment generation. Both in numbers and economic role, MSMEs are recognized as the predominant form of businesses and key actors for promoting more inclusive and sustainable growth, increasing economic resilience and improving social cohesion (OECD, 2021). Even the extant National Policy on MSMEs (2021-2025) clearly acknowledges that the significance of MSMEs as drivers of economic growth in the improvement of national productivity and competitiveness is universally recognized. As a matter of fact, Gibb (1988) has noted that entrepreneurship can be encouraged or facilitated by allowing people more opportunities to work in small-tomedium-sized firms or by taking greater responsibility for the operations of smaller sub-units of larger firms. The Organization for Economic Cooperation & Development (OECD, 2018) describes SMEs as a dynamic and evolving population and very diverse in terms of age, size, business model, and performance. It is equally recognized that with their large population and heterogeneity comes a major challenge of harnessing them for economic development. No wonder the OECD (2019) notes 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. But even with this realization and the numerous policy interventions by governments at all levels, stakeholder dissatisfaction with the performance of MSMEs remains palpable. MSMEs are weak and have very little influence on other economic actors. Even more worrisome is the fact that they are always characterized by controversial narratives. One of such controversies is the lack of agreement among scholars, agencies and countries in the adoption of the criteria for defining them. Overtime, such parameters as asset base, sales turnover, paid-up capital, employment, technological base and location have been frequently used in categorizing MSMEs.

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

In this direction, the International Labour Organization (ILO, 1999) defines micro enterprises as those enterprises with an asset base of not more than N1.5 million excluding the cost of land but including working capital and a staff strength of not more than ten (10). On the other hand, small scale enterprises refer to those businesses with asset base greater than ₦1.5 million but not in excess of ₦50 million excluding cost of land, but including working capital and/or a staff strength of between 11 to 100. Medium-scale businesses are enterprises with asset base of greater than ₦50 million, but not more than ₦200 million excluding cost of land but including working capital and/or a staff strength of between 101 to 300. It equally described large-scale firms as enterprises with asset base of over ₦200 million excluding cost of land but including working capital and/or a staff strength of more than 300. However, the current National Policy on MSMEs (2021 - 2025) adopted the twin criteria of employment and business turnover. The other controversy dwells on the degree of support for the MSME ecosystem. Figure 1 shows the OECD (2018) model of SME environment. Based on the framework, the MSMEs environment is made up of four key elements of SME performance - institutional/regulatory framework, access to markets, access to resources and entrepreneurial culture. Each of these elements has critical items that interact in a dynamic fashion to engender a business enabling environment that varies from locality to locality. But while it is recognized that governments all over the world have taken very bold steps and initiatives in all the key elements of the MSME environment, it is regrettable however to observe that in the case of Nigeria, these policy reforms have not translated to significant improvements in the growth of MSMEs (Ogbulu, 1999). Expectedly, for MSMEs to effectively support the industrialization process of the nation and propel other sectors to growth and maturity, they require a balanced, effective and sustainable ecosystem. Unfortunately, the realization of such an ecosystem remains a mirage in developing countries.

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

Fig 1: Environment of MSMEs

Source: OECD (2018). Strengthening SMEs and entrepreneurship for productivity and inclusive growth: 2018 SME Ministerial Conference. However, a major area of interest in the SME environment is the entrepreneurial culture and specifically the element of abilities, which focuses on the entrepreneur or owner-manager and his managerial competencies, particularly with regard to decision-making. There is no doubt about the importance of decision-making competencies to managerial cum organizational success. As a result, the search for ways to achieve effective decision-making cuts across some disciplines. Similarly, the theoretical framework of decision science spans a wide area and includes such theories as prospect, subjective utility, rational choice, cognitive continuum, dual process, unified process, etc, (Kahan, 2015, Cummins, 2012, Gigerenzer, 2002). These theories differ in terms of the role of rationality and heuristics in decision-making. While some theories assume that a typical decision-maker exhibits full rationality, others believe in bounded rationality. However, recent theories of decision science such as cognitive continuum argue that rationality is better seen as a continuum with full rationality on one end and intuition on the other and quasi-rational decision processes at the center (Dhami & Thomson, 2012, Cader et al., 2005). In line with the two bipolar assumptions there are two major models of decision making – analytical and heuristic. While the analytical or rational model is factual, logical, and objective

ISSN: 3065-0623
Columbia Journal of Entrepreneurship and Management
Research Article

and seeks to maximize returns, the heuristic or intuitive approach focusing on cognitive short-cuts is non-factual, subjective, and non-logical and focuses on satisficing. Though these approaches have their merits and demerits (Gigerenzer & Goldstein, 1996; Tversky & Kahneman, 1981), it is generally recognized that the rational approach, which includes appraisal techniques and other quantitative methods, is more effective, particularly in the face of the increasing complexity of the business environment. Ironically, the more complex the environment, the greater the tendency of owners and managers of MSMEs to resort to nonrational approaches which they consider as time saving, pragmatic and devoid of excess cognitive load. In view of this, the Cognitive continuum theory is quite pertinent in explaining the decision-making orientations of MSMEs. The need for objective appraisal of investments in real physical assets in the face of economic uncertainties cannot be over-emphasized. It is imperative for MSMEs, to not only be familiar with sound investment appraisal techniques but to also make conscious efforts to religiously apply them whenever the need to decide on investment in real assets in their organizations arises. This is because effective investment decision making is fundamental to corporate survival and long-term success of every enterprise. 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 if they are to grow, remain competitive and optimize the value of the firm. In addition, financial management theory advocates that using a sophisticated capital budgeting system enhances firms' performance. On the other hand, wrong investment decisions have dire consequences for the survival of any business and studies have shown that one of the critical factors accounting for high rate of business mortality in Nigeria and Africa in general is the non- adherence to sound investment decisions. (Agyei-Mensah, 2011, Ogbulu, 1999). Capital budgeting techniques are crucial in arriving at sound investment decisions in any business organization no matter the economy. Surprisingly, this is as far as theory goes. In practice, a wide gap exists between theory and practice. This is yet the source of another controversy as the outcomes of researches into the adoption of capital appraisal techniques by MSMEs are conflicting. For instance, while Ayodele (2010) and Kerubo et al (2016) found in their studies that small scale firms employ investment appraisal techniques, Olawale et al (2010) hold that small manufacturing firms do not use sophisticated investment appraisal techniques when evaluating projects. These conflicting findings are quite puzzling in that given the numerous challenges faced by MSMEs some of which border on decision making, they should ordinarily embrace techniques that have higher assurance of improved and better decisions. This therefore, raises some pertinent questions: to what extent are operators of MSMEs aware of investment appraisal techniques? Do MSMEs employ investment appraisal techniques in the management of their businesses and if

ISSN: 3065-0623
Columbia Journal of Entrepreneurship and Management
Research Article

yes, to what extent? Is there any significant relationship between the adoption of investment appraisal techniques and quality of decisions of MSMEs?

1.1 **Research Objectives**: Arising from the questions raised above, the objectives of the study are to:

i. Identify if MSMEs adopt appraisal techniques and to what extent they use them in making investment decisions.

ii. Identify the extent to which MSMEs are aware of appraisal techniques.

iii. Determine if there is a significant relationship between the use of appraisal techniques and the quality of investment decisions by MSMEs in Nigeria.

2.0 LITERATURE REVIEW

Appraisal techniques, otherwise called capital budgeting, is the process of objectively analyzing and evaluating the cost-benefits of investing in a project in order to decide whether resources should be allocated to a project or not. Capital budgeting is crucial to a firm's survival because it requires long term commitment of large outlay of funds which the firm must ascertain the best way to raise and repay. Theoretically, investment appraisal techniques can be divided into discounting and non-discounting techniques. Discounting techniques take into consideration the time value of money while non-discounting techniques do not. Examples of non-discounting techniques are the Payback Period also known as the Capital Recovery Method and the Average Rate of Return. On the other hand, discounting techniques include the Net Present Value Method, the Internal Rate of Return and the Profitability Index. The Discounted Payback Period is usually seen as a hybrid between the discounting and the nondiscounting techniques by virtue of the fact that the method combines the attributes of both discounting and non-discounting in its formulation (Okafor, 1983). Each of these appraisal techniques has its merits and demerits and the investment conditions within which they are best suited. Perhaps, this explains the tendency of managers to prefer one technique to the other. For instance, in line with Burns and Walker's (1997) argument that NPV is superior to IRR, Ryan and Ryan (2002) found in their studies that greater percentage of managers prefer NPV to IRR in resolving conflicts in investment decisions. Burn and Walker (1997) further noted that the popularity of payback technique stems from its ease of computation and usefulness in conjunction with discounted cash flow techniques as a measure of both liquidity and risk. Other appraisal techniques that employ modern theory of investment analysis of option pricing and continuous cash flow streams as against discrete cash flows equally exist.

3.0 Empirical Literature Review

The adoption or otherwise of appraisal techniques by MSMEs has generated and continues to generate attention among researchers and research interests cover such areas as rate of usage, level of awareness, factors that

influence the choice of techniques, impact, types and primacy of techniques. For instance, Ayodele (2010) examined the extent 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 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 and discovered that owners of small manufacturing firms' do not use sophisticated investment appraisal techniques when evaluating their proposed projects. Findings using multiple regression analysis confirmed the significant impact of investment appraisal techniques on the profitability of the small manufacturing firms; investment appraisal techniques have a negative impact on the profitability of small firms. Jifar (2020) studied the investment appraisal techniques of small and medium enterprises in Ethiopia and found that SMEs operators had significant knowledge of investment appraisal techniques and that the SMEs operators also applied the investment appraisal techniques to appraise their investments. Mogwambo et al (2015) examined the contribution of investment appraisal techniques on efficient portfolio selection in the soft drinks industry in Kenya and the findings of the study indicate 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 exists between investment appraisal techniques and portfolio efficiency. Hence the authors concluded that the application of investment appraisal techniques influences efficient portfolio selection in the soft drink industry in Kenya. 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 and the findings of the study revealed that small manufacturing firms largely rely 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 the use of capital investment appraisal practices and effectiveness of investment decision of listed manufacturing companies in Sri Lanka. Results of the study revealed that use of NPV and IRR have significant and positive relationship with effectiveness of investment decision while DPB has significant but negative relationship with effectiveness of investment decision of listed manufacturing companies in Sri Lanka. However, risk analysis techniques were not significantly related to effectiveness of investment decisions. In another study, Wambua and Koori (2018) examined the effects of investment appraisal techniques and financial performance among small and medium enterprises in Nairobi County, Kenya. The empirical results

ISSN: 3065-0623
Columbia Journal of Entrepreneurship and Management
Research Article

of the study showed that investment appraisal techniques significantly affect financial performance among SMEs in Nairobi County, Kenya. In addition, the results indicate that payback period is the most important predictor for financial performance. Ndanyenbah and Zakaria (2019) investigated the application of basic investment appraisal techniques by SME operators in the Tamale Metropolis in Ghana. The study's empirical findings revealed that SME operators in the Tamale Metropolis had significant knowledge in basic investment appraisal techniques and that there was a significant level of application of the various investment appraisal techniques. It was also discovered that SME operators' knowledge of an investment appraisal technique had insignificant influence on its application by the operator. The authors also found that the choice of investment appraisal technique by the SME operators was significantly influenced by the SME operator's gender, educational level, risk behaviour, investment size and the business or industry type while regulation or legal requirement was found to have insignificant influence on the choice of investment appraisal technique.

4.0. Methodology

The study adopted descriptive and cross-sectional survey research designs which are in line with the nature of the phenomenon of interest. While the descriptive design made it possible for us to provide answers to the questions of who, what, when, where, and the how associated with the research problem, the cross-sectional survey design provided a snapshot of the outcome and the characteristics associated with it for a large number of respondents (Bethlehem, 1999, and Kombo & Tromp, 2006). The reliability and validity of the survey instrument were determined based on a pilot study involving respondents drawn from PortHarcourt in Rivers State. The split-half technique was employed to test for the reliability and the test confirmed high and acceptable values of both Spearman-Brown and Guttman coefficients as shown in table 1.

Table 1: Reliability coefficients based on Split-half method

S/No.	VARIABLES	No. of items	SpearmanBrown coefficient		Guttman Split-half coefficient
			Equal length	Unequal length	
1	Extent of usage	5	.894	.897	.862
2	Quality of investment Decision	2	.930	.930	.930
3	Extent of awareness	5	.749	.755	.715

Source: Field work 2023

In addition, construct validity was determined based on past research works and extant theory. This is in line with Moser and Kalton's (1997:356) observation that the essence of construct validity is its dependence on theory

ISSN: 3065-0623
Columbia Journal of Entrepreneurship and Management
Research Article

and that examining the observed associations is as much a test of the theory as of the scale's validity. Another factor that strengthened the validity of the instrument is the fact that the topic variables have general applicability and some of the variables of interest had been investigated in the past. The study relied on both primary and secondary data, and a self-reporting questionnaire was used to elicit primary data, which were critical to the understanding of the respondents' experiences. The questionnaire has both structured and open-ended questions that elicited individual opinions. The structured questions ranged from 3 point to 5-point Likert scales. The questionnaire was administered to the operators (owners and managers) of the firms. The study focused on 690 MSMEs in five states (Akwa Ibom, Bayelsa, Delta, Edo and Rivers) of the South-South geo-political zone. However, the study's target population and the sample size were first determined State by State and later aggregated. Taken into account the fact that the MSMEs represent an aggregation of formal and informal components, the determination of the target population involved multi-stage procedures. While the directories/records of State Chambers of Commerce, National Association of Small-Scale Industrialists (NASSI), and Ministries of Commerce & Industry were used in generating the population of small and medium-scale enterprises, due to their informal nature, it was difficult finding a reliable and authentic register of micro enterprises. As a result, the population of micro enterprises was treated as infinite. Consequently, in calculating the sample sizes, we utilized Krejcie & Morgan sample size table for small and medium size enterprises and Cochran's formula for infinite population for micro enterprises. Based on the Agency records which were purged to remove moribund firms, the target population of small and medium enterprises was seven hundred and thirty firms which yielded an aggregate sample size of 487 in the Krejcie and Morgan table. On the other hand, based on Cochran's formula for infinite population, the sample size of micro enterprises for the four states was 385. Table 2 shows the target population and sample size for the groups of firms arranged according to States.

Table 2: Questionnaire distribution

State	Target population for small and medium firms	Sample size for small and medium firms	Sample size for micro firms (Proportion)	Total number of questionnaire administered	Number and percentage of questionnaire returned
Akwa Ibom	140	85	60	145	102 (14.8%)
Bayelsa	80	54	48	102	40 (5.8%)
Delta	234	122	125	247	233 (33.8%)
Edo	180	101	69	170	135 (19.6%)

ISSN: 3065-0623
Columbia Journal of Entrepreneurship and Management
Research Article

Rivers	250	125	83	208	180 (26%)
TOTAL	884	487	385	872	690

Source: Field work, 2023.

The sampling technique was equally multi-stage involving stratified and convenience. While stratified and random sampling were used for small and medium sized firms, the selection of micro firms was judgmental. However, small and medium firms that could not be accessed were replaced through another round of random numbers. The data analysis techniques employed 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.

5.0 RESULTS

Table 3 highlights the distribution of the firms based on a number of criteria, viz, type of business, educational qualification, value of total asset, expenditure on equipment, involvement in formal risk analysis and formal planning with cash flow projection. On the basis of the type of business the firm was engaged in, the respondents were grouped into primary (extractive, mining, and farming), secondary (manufacturing and fabricating) and tertiary (service). Out of 690 respondents, table 3 shows that majority of the firms (354 or 51.3%) were engaged in service delivery. This was followed by manufacturing (190 firms or 27.5%) and extractive/farming (146 firms or 21.2%). Given the role of education in an individual's world outlook and usage of sophisticated techniques, we ascertained the level of education of the respondents and the results show the following: WASC (176 or 25.6%), B.Sc/HND (329 or 48%), Masters (142 or 20.7%) and Doctorate (39 or 5.7%). Clearly, majority of the respondents possessed either university degree or Higher National Diploma. But even more revealing is the fact that all levels of educational attainment are represented in the sample. As part of the MSMEs boundary delineation, the question on the value of total asset reveals thus: <₦10 million (320 or 46.8%), ₦11-₦20 million (157 or 23%), ₦21 - ₦30 million (56 or 8.2%), ₦31- ₦40million (78 or 11.40%) and >₦40 million (73 or 10.6%). On the basis of value of total asset, those with an asset value of less than ₦10 million were in the majority. Related to the value of total asset is the annual expenditure on equipment which grouped the firms into four categories, viz <₦1million (276 or 40.6%), ₦1 - ₦2.5 million (203 or 29.9%), ₦2.6 - ₦5million (88 or 12.9%) and >₦5 million (113 or 16.6%). In line with value of total asset, those who spent less than one million naira on equipment were in the majority. Based on formal risk analysis, the table shows that greater percentage, 40.9% or 178 of the respondents do not conduct formal analysis of investment alternatives. On the other hand, while 38.8% or 274 respondents sometimes carried out formal risk analysis, 20.3% or 225 respondents always did it. Similarly, the firms differed in their propensity to conduct formal plans with cash flow projection. While 19% or 187

ISSN: 3065-0623
Columbia Journal of Entrepreneurship and Management
Research Article

respondents always engage in formal planning with cash flow projections, 40% or 244 respondents did so sometimes. However, 41% or 213 respondents never engaged in planning with cash flow projections.

Table 3: Distribution of Responses to key attributes

Type of business:	Frequenc y	%	**Expenditure on equipment**	frequenc y	%
Primary	146		<₦1m	276	40.6
Secondary	190	**21.2**	₦1 – ₦2.5m	203	29.9
Tertiary	354	**27.5**	₦2.6- ₦5m	88	12.9
Total	**690**	**51.3**	>₦5m	113	16.6
		100	Total	**680**	**100**
Educational Qual:			**Risk analysis**:		
WASC		25.6	Never		40.9
BSc/HND	176	48.0	Sometimes		38.8
Masters	329	20.7	Always	178	20.3
Doctorate	142	5.7	Total	274	**100**
Total	39	100		225	
	686			**677**	
Total asset:			**Formal plan with cash flow projections**:		
<₦10m					
₦11- ₦20m		46.8	Never	187	40.60
₦21- ₦30m		23.0	Sometimes	244	40.04
₦31 - ₦40m	320	8.2	Always	248	19.36
>₦40m	157	11.40	Total	**679**	**100**
Total	56	10.6			
	78	**100**			
	73				
	684				

Source: field work 2022.

Outcome of hypothesis test

Ho1: Operators of MSMEs use appraisal techniques to a large extent in making investment decisions.

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

The hypothesis was tested with ordinal logistic regression model and the outputs are shown thus. The model fitting information as contained in Table 4 shows that the coefficients are statistically significant (p-value <.050) which confirms that the full model statistically and significantly predicts the dependent variable better than the intercept-only model alone. Similarly, the Goodness-of-Fit shows that both the Pearson and Deviance chi-square statistics are insignificant (p-value >.05) which confirms that the model fits the data well.

Table 4: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	1004.958	307.16 5	2	.000
Final	697.792		0	

Table 5: Goodness- of-Fit

Pearson Deviance	745.441	462	.076
	617.681	462	.142

Link function: Logit.

The Parameter estimates table presents the coefficients of the model. The abridged parameter estimates table (contains only the significant coefficients) shows that each dummy variable has coefficients for the different techniques. The coefficients that are significant are summarized in table 6.

Table 6: Abridged Parameter estimates

Sometimes	Intercept	B	Std Error	Wald	df	Sig	95% confidence Interval for Exp(B)	
							Lower Bound	Upper Bound
	PAYBP=3	.928	.404	5.267	1	.022	.136	1.721
	INTERN	-	.509	3.886	1	.049	-2.000	-.006

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

	ALRR=3	1.003						
	NETPV=2	1.569	.633	6.146	1	.013	.329	2.809
	NETPV=3	1.198	.606	3.912	1	.048	.011	2.385
	NETPV=4	1.578	.615	6.581	1	.010	.372	2.783
	PROFITI=2	1.200	.572	4.401	1	.036	.079	2.322
	PROFITI=3	1.113	.565	3.874	1	.049	.005	2.221

NOTE: The usage of the techniques was expressed in 5-likert scales from never to always. The Significant degrees or extents are rarely (2), sometimes (3) and often (4). The interpretation of the coefficients are as follows: PAYBP-3: is the dummy variable representing the comparison between 'always' and 'sometimes' of the usage of payback period technique. It has a positive sign which means that the manager is likely to 'sometimes' carry out formal risk analysis of investments through the use of appraisal techniques. In other words, managers who sometimes use PBP compared to those who don't are more likely to carry out formal analysis of the risk of investments given that other variables are held constant. INTERNALRR-3: this is the dummy variable representing the comparison between 'always' and 'sometimes' of the usage of internal rate of return technique. It has a negative sign which means that the manager is not likely to sometimes carry out formal risk analysis of investments based on this technique given that other variables are held constant. NETPV-2: This is the dummy variable representing the comparison between 'always' and 'rare' usage of net present value technique. It has a positive sign which is indicative of the manager's likelihood to engage in formal risk analysis. In other words, managers who rarely use NETPV compared to those who do not are more likely to carry out formal risk analysis of investments given that other variables are held constant. NETPV-3: this is the dummy variable representing the comparison between 'always' and 'sometimes' usage of net present value technique. The positive coefficient shows that managers who sometimes uses net present value technique are more likely to carry out formal risk analysis of investments given that other variables are held constant. NETPV-4: This is the dummy variable representing the comparison between 'always' and 'often' usage of net present value technique. The positive sign is indicative of the fact that managers who use net present value technique often compared to those who don't are more likely to carry out formal analysis of the risk of investments given that other variables are held constant.

ISSN: 3065-0623
Columbia Journal of Entrepreneurship and Management
Research Article

PROFITI-2: This is the dummy variable representing the comparison between 'always' and 'rare' usage of profitability index technique. The positive sign shows that managers who often use profit index compared to those who don't are more likely to carry out formal risk analysis of investments given that other variables are held constant. PROFITI-4: This is the dummy variable representing the comparison between 'always' and 'Often' usage of profitability index technique. Its positive sign is indicative of the fact that managers who often use profit index compared to those who don't are more likely to carry out formal risk analysis of investments given that other variables are held constant.

It is clear from the above values that MSMEs use some and not all appraisal techniques and that the usage is infrequent or irregular (sometimes) rather than always.

Table 7: Test of Parallel Lines

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Null Hypothesis	697.792			
General	509.234[b]	188.559[c]	20	.062

Table 7 shows the Parallel lines assumption with an insignificant p-value (.062), which shows that the assumption was met and further confirms the model's suitability.

Ho2: The level of awareness of appraisal techniques among operators of MSMEs is high. The hypothesis was tested with multinomial logistic regression and the outputs are shown below.

Table 8: Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	84.944			
Final	38.793	46.161	6	.000

Given a significant p-value of .000, the final model is good.

Table 9: Goodness-of-Fit

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

	Chi-Square	df	Sig.
Pearson	1397.859	1143	.042
Deviance	1112.455	1143	.551

Link function: Logit.

In terms of goodness of fit as shown in table 9 while the Pearson chi-square value is significant which is not acceptable, the Deviance value which is insignificant (.551) confirms the appropriateness of the model. The Likelihood ratio test shown as table 10 shows which awareness is statistically significant.

Table 10: Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	38.783	.000	0	.
AWARE_NESS	84.944	46.161	6	.000

Parameter estimates: presents the coefficients of the model. The abridged parameter estimates table (Table 11) shows that each dummy variable has coefficients for the different techniques. Though there are three categories of the dependent variables, the 'experience/intuition' category 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 'professional advice' category with the 'experience/intuition' category and the second row is a comparison of the 'use of appraisal technique' category to the 'experience/intuition' category. The table shows that use of professional advice and use of appraisal techniques are significant. The coefficient that is significant in the first row (professional advice) is:

Table 11: Abridged Parameter estimates

	Intercept	B		Wal	df	Sig	Exp(B	95% confidence

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

Profession al advice			Std Erro r	d			)	Interval for Exp(B)	
								Lower Boun d	Upper Bound
Capital investment technique	[AWARE_NE SS=2.	.59 5	.285	4.34 6	1	.03 7	.552	.315	.965
	[AWARE_NE SS=2.	.50 4	.357	17.7 08	1	.00 0	1.842	.976	2.848
	[AWARE_NE SS=3.	.73 0	.293	6.20 3	1	.01 3	.482	.271	.856

AWARE_NESS-2, B = -.595, p = .037, Exp(B) = .552 which is the dummy variable representing the comparison between intuition/experience and low awareness of professional advice. It has a positive sign which means that the manager has a low level of awareness of the existence of professional advice compared to experience/intuition all other variables held constant. The coefficients that are significant in the second row (use of appraisal techniques) are: AWARE_NESS=2, B = .504, p = 0.000, Exp(B) = 1.842 which is the dummy variable representing the comparison between 'experience/intuition' and 'low awareness' of appraisal techniques. It has a positive sign which means that the manager has low level of knowledge of appraisal techniques when compared to experience/intuition, all other variables held constant. AWARE_NESS-3, B= -.730, p = .013, Exp(B) = .482 which is the dummy variable representing the comparison between experience/intuition and possession of medium level of awareness of appraisal techniques. It has a negative sign which is indicative of lack of medium level of awareness of capital appraisal techniques when compared to experience/intuition all other variables held constant. Arising from the low level of awareness, we sought to find out if differences exist among MSMEs in their level of awareness and this was tested with kruskalWallis statistical tool. The output is shown below in Table 12. Table 12: Test Statistics

	Level of awareness of the use of Pay Back Period	Level of awareness of the use of Internal Rate of Return	Level of awareness of the use of Net Present Value	Level of awareness of the use of Accounting Rate of return	Level of awareness of the use of Profitability

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

ChiSquare df	6.438 2	17.359 2	14.840 2	10.111 2	31.819 2
Asymp. Sig.	.040	.000	.001	.006	.000

Table 12 shows a significant p-value which indicates that differences exist in the level of awareness among the firms. In other words the level of awareness of appraisal techniques varies among the components MSMEs.

Ho3: There is no significant relationship between the use of appraisal techniques and the quality of investment decisions MSMEs. The relevant outputs of the ordinal logistic regression test are shown below.

Table 13: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	1291.233			
Final	1198.810	92.424	20	.000

Table 14: Goodness-of-fit

Pearson Deviance	1325.890	956	.030
	1042.772	956	.226

Link function: Logit.

Model fitting information: the model fitting information (table 13) shows a p-value <.05 (.000), on the basis of which we assert that the full model statistically significantly predicts the dependent variable better than the intercept-only model alone. The Goodness-of-fit table (Table 14) shows two chi-square statistics – Pearson and Deviance with different p-values. On the basis of the Deviance chi-square with an insignificant p-value (.226) there is a good fit between the model and the data.

Parameter estimates table: The abridged parameter estimates table (Table 15) identified the significant categories of the techniques as follows:

Table 15: Abridged Parameter estimates

	Intercept	B	Std Error	Wald	df	Sig	Exp(B)	95% confidence Interval for Exp(B)

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

								Lower Bound	Upper Bound
	[INTERNAL RR=2	-1.036	.446	5.390	1	.020		-1.910	-.161
	[INTERNAL RR=3.	-1.083	.429	6.380	1	.012		-1.923	-.243
	[ACCRR=1.00]	1.502	.531	7.984	1	.005		.460	2.543
	[ACCRR=2.00]	1.938	.537	13.019	1	.000		.885	2.991
	[ACCRR=3.00]	1.508	.506	8.889	1	.003		.517	2.500
	[ACCRR=4.00]	1.168	.493	5.607	1	.018		.201	2.134
	[PROFITI=2.00]	.980	.462	4.489	1	.034		.073	1.886

The table shows that the infrequent usage (rare and sometimes) of internal rate of return have negative estimates which are indicative of the fact that they do not have the likelihood to influence the quality of investment decisions. ACCRR-2, B = 1.938, p = .000 is the dummy variable for 'rare' usage of the accounting rate of return technique. The positive estimate shows that the rare usage of the technique has the likelihood to influence the firm's quality of decisions when compared to non-users given that other variables are held constant. ACCRR-3, B = .1.508, p = .003 is the dummy variable for 'sometimes' usage of the accounting rate of return technique. The positive estimate shows that the usage of the technique sometimes has the likelihood to influence the firm's quality of decisions when compared to non-usage given that other variables are held constant. ACCRR-4, B =.1.168, p = .018 is the dummy variable for often usage category of accounting rate of return technique. The positive estimate is indicative of the fact that using the technique often has the likelihood to influence the quality of decision when compared to non-usage given that other variables are held constant. PROFITI-2, B = .980, p = .034 is the dummy variable for rare usage category of profitability index technique. The positive estimate is indicative of the fact that using the rare usage of the technique has the likelihood to influence the quality of

ISSN: 3065-0623
Columbia Journal of Entrepreneurship and Management
Research Article

decision when compared to non-usage given that other variables are held constant. The foregoing shows that accounting rate of return and profitability index are the only techniques identified by managers of MSMEs as having significant influence on the quality of their decision making.

6.0: DISCUSSION OF FINDINGS

The ordinal logistic regression test that focused on whether MSMEs use appraisal techniques and the extent of usage shows that MSMEs adopt some appraisal techniques but at an infrequent or irregular rate. This is in line with the findings of Ayodele (2010), Olawale et al (2010) and Jifar (2020). Understandably, there are many appraisal techniques from which a manager can, given the underlying objectives of the investment, choose from. However, the key issue is the frequency of usage which is determined by a number of factors. For instance, doubt and lack of appropriate knowledge are often responsible for half-hearted adoption of new ideas or techniques which in turn increases the chances of failure of the new idea or technique. There is no doubt that the use of appraisal techniques comes with a number of challenges which do not disappear at the first contact. It is only through frequent and regular usage that managers are able to effectively navigate through the challenges and develop the capacity to harness the potentials of appraisal techniques. The second objective examined the extent to which MSMEs are aware of investment appraisal techniques in Nigeria. It is generally recognized that awareness is a precursor of action. On this basis the study identified the level of awareness of investment appraisal techniques among managers of MSMEs to be low. This does not align with the findings of Ndanyenbah and Zakaria (2019) and Jifar (2020) who discovered that SME operators had significant knowledge of basic appraisal techniques. This is understandable given the different categories of firms that make up MSMEs. As a result, we carried out a Kruskal-Wallis test which identified that there are differences among managers of MSMEs in their level of awareness of appraisal techniques. In other words, managers of medium-scale firms perhaps have higher level of awareness than managers of micro businesses. The third objective sought to find out if there is significant relationship between the use of appraisal techniques and quality of investment decisions by MSMEs. The statistical test confirmed that there is a significant and positive relationship between the use of investment appraisal techniques such as accounting rate of return and profitability index and the quality of investment decisions made by MSMEs. This finding corroborates the findings of Mogwambo, Mukras and Oima (2015) and Kengatharan and Diluxshan (2017). Mogwambo et al's (2015) study focused on the effect of the use of appraisal techniques on efficient portfolio selection which is decision making. On the other hand, Kengatharan and Diluxshan (2015) research was on capital investment appraisal practices and effectiveness of investment decisions. There is no doubt that the central function of investment appraisal techniques like other rational methods is to guide the manager to make sound investment decision which is one of the signposts of managerial

ISSN: 3065-0623
Columbia Journal of Entrepreneurship and Management
Research Article

effectiveness and corporate success and survival. Appraisal techniques and other rational techniques engender effective decisions due to the fact that they are factual, logical and data driven. As a result, the decision maker is in a position to assess not only the key ingredients of the decision but also to track the process.

7.0 POLICY IMPLICATIONS

It is clear from the foregoing that MSMEs exhibit half-hearted adherence to the adoption of appraisal techniques. Infrequent use of analytical techniques means that in some other scenarios, heuristic methods are used. This, no doubt, must be due to some reasons. Whatever the reason, the infrequent use of the techniques confirms the argument of the cognitive continuum theory, which recognizes that decision makers utilize the array of options along the continuum. In this wise, the government should focus on how to develop and regularly update the managerial capacities of managers 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 focus on developing the managerial competencies and knowledge of owners and managers of MSMEs through the instrumentality of Business Development service providers. The UNCTAD (2002) recognizes business services as all types of MSME support services such as training, consulting, technical and managerial assistance, marketing, physical infrastructure and policy advocacy. Government should be able to stimulate the demand for such services by MSMEs through matching supply with demand, providing incentives and defining the framework and guidelines for such relationships.
2. The government should provide an enabling environment for business linkages between big businesses such as MNCs and smaller enterprises. Such linkages, which may be based on R&D and resource acquisition, provide numerous benefits, such as exposure to national and global business trends and a repertoire of experiences and practices.
3. Cultivating university-industry collaboration will provide opportunities for MSMEs to acquire and strengthen their managerial knowledge base. TETFUND should provide financial and other support for universities to set up business linkage units that will provide support services to contiguous MSMEs.

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

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.

Bethlehem, J. (1999). Cross-sectional research. In H. J. Adèr and G. J. Mellenbergh

(Eds). Research Methodology in the Social, Behavioural and Life Sciences, London: Sage, pp. 110-43.

Burns, R. M. & Walker, J. (1997). Capital budgeting techniques among the Fortune 500:

A rationale approach. Managerial Finance, 23(9), 3-15.

Cader, R., Campbell, S., & Watson, D. (2005). Cognitive continuum theory in nursing decision making. Journal of Advanced Nursing, 49 (4), 397-405. doi:10.1111/j.1365- 2648.2004.03303.x

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

Cummins, D. (2012). Good thinking: Seven powerful ideas that influence the way we think. Cambridge University press

Dhami, M. K., & Thomson, M. E. (2012). On the relevance of Cognitive Continuum Theory and quasi-rationality for understanding management judgment and decision making.

European Management Journal, 30(4), 316-326. doi:10.1016/j.emj.2012.02.002 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.

Gibb, A. (1988). The enterprise culture: Threat or opportunity? Management Decision, 26(4), 5–12.

Gigerenzer, G. (2002). Adaptive thinking: Rationality in the real world (evolution and cognition series).Oxford University press.

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

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.

Kahan, D. (2015). Laws of cognition and the cognition of law. Cognition, 135, 56-60. doi: 10.1016/j.cognition.2014.11.025

Kayanula, D., and Quartey, P., (2000). The policy environment for promoting small, medium enterprises in Ghana and Malawi. Finance and Economic Research Programme Working Paper Series 15. Institute of Development Policy Management (IDPM), University of Manchester.

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.

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.

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. 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. Ogah-Alo, L. O, Ikpor, I. M. and Eneje, B. C. (2019). Financing small and medium enterprises through micro-credit lending in Nigeria: Environmental consequences.

International Journal of Applied Environmental Sciences, 14(2), 177-196.

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.

Owualah, S. I. & Ohazebere, E. (2019), The Impact of Financial Crisis on Small and Medium Scale Enterprises Access to Credit in Nigeria. Research Journal of Finance and Accounting. 10(22), 35-45.

Ryan, P. A. and Ryan, G. P. (2002). Capital budgeting practices of Fortune 1000: How have things changed? Journal of Business and Management, 8(4), 355-364.

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).

Tversky, A., & Kahneman, D. (1986). Rational choice and the framing of decisions. Journal of Business, 59 (4) 251-278. Retrieved from: http://www.jstor.org/stable/2352759

ISSN: 3065-0623

Columbia Journal of Entrepreneurship and Management

Research Article

UNCTAD (2002): World Investment Report 2002: Transnational corporations and export competitiveness. United Nations publication, sales no. E.02.II.D.4, New York.

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, Vol. IV, Issue II, pp. 89-101.

World Bank (2022).Small and Medium Enterprise (SME's) finance.