

Capital Appraisal Techniques in Real Assets Investment Decisions by MSMEs: A Focus on South-East Zone. Nigeria

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Abstract

It is generally agreed that MSMEs play vital roles in every economy, and as a result, they remain the focus of policy interventions from both government and international institutions. However, both research and anecdotal evidence point to the fact that the key elements of the MSMEs ecosystem are not given commensurate attention, and this possibly explains the persisting negative narratives about their performance. While finance, infrastructure, and legal requirements are prominent, managerial competence assumes secondary importance. The study focused on the decision-making inclination of MSME operators, especially concerning the use of capital appraisal techniques in decision-making. The study addressed three key objectives which centered on the extent of usage of appraisal techniques, the relationship between adoption of appraisal techniques and organizational performance and the effect of socio-economic factors on the decision of MSMEs to invest in real physical assets. Based on a descriptive survey of 540 from four states in the South-East geo-political zone, viz, Abia, Anambra, Ebonyi, and Imo, the hypotheses were tested with multinomial and ordinal logistic regression. The study's findings showed that the MSME operators use some techniques in making investment decisions but on an infrequent basis. In addition, it was discovered that there is a significant but negative relationship between adopting the techniques and firm profitability. The study, therefore, concludes that despite the manifest benefits of appraisal techniques, their diffusion among MSMEs in the South-East zone is low. This indicates some underlying policy inadequacies and, therefore, calls for a policy review that will give commensurate attention to developing managerial competencies among MSMEs.

Keywords: *capital appraisal techniques, MSMEs, decision-making, investments, real physical assets, business environment*

1.0 INTRODUCTION

Micro, small and medium scale enterprises (MSMEs) form a large chunk of businesses in Africa, Nigeria inclusive as is evidenced in the private sector of any modern economy and they contribute significantly to economic growth through employment generation, growth in aggregate output, poverty reduction, income distribution and wealth creation. 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 businesses, 87.9% of employment and 45.7% of national GDP in the year 2020 (SMEDAN, 2021). In the area of employment

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

generation, studies by Ogah-Alo et al. (2019) and Kayanula and Quartey (2019) 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 employment 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. But despite their strategic importance, large numbers and the attendant heterogeneity, 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 controversial narratives always characterize them.

One such controversy is the lack of agreement among scholars, agencies, and countries regarding adopting the criteria for defining them. Historically, size of employees is the most widely used criterion for defining MSMEs; followed by sales turnover and assets. Other criteria that are frequently used include paid-up capital, technological base and location are frequently used (ILO, 1999, OECD, 2018, WorldBank, 2022). However, the current National Policy on MSMEs (2021 - 2025) adopted the twin criteria of employment and business turnover. The other controversy dwells on MSME environment and potential. Business environment represents one of the theoretical frameworks for explaining the performance of MSMEs (Dollar *et al* 2005, OECD, 2018, UNIDO 2017). The other theoretical frameworks are market structure (Lloyd-Williams et al, 1994) and resource-based view (Samad, 2008). Nevertheless, based on the OECD (2018) framework, the MSMEs environment comprises four key elements - institutional/regulatory framework, access to markets, access to resources and entrepreneurial culture (fig 1). Each of these elements has critical items that interact dynamically to engender a business enabling environment which varies from locality to locality.

Expectedly, for MSMEs to support the industrialization process of the nation effectively and propel other sectors to growth and maturity, they require a balanced, effective and sustainable ecosystem. Unfortunately, the realization of such an ecosystem has eluded many developing countries like Nigeria in that the bold policy reforms and interventions in nearly all the areas of the above environment have not translated to significant improvements in the growth of MSMEs (Ogbulu, 1999, Evbuomwan *et al.*, 2016, Emmanuel *et al*, 2019). However, a major area of interest in fig.1 on page 3 which has not received as much attention from government, and which is the focus of this study is the entrepreneurial culture and specifically the element of abilities which focuses on the entrepreneur or owner manager and his managerial competencies particularly concerning decision making. This direction is further reinforced by the fact that developing enduring managerial capabilities remains a lingering challenge of

MSMEs. There is no doubt about the importance of decision-making competencies to managerial cum organizational success (Rezaei-Zadeh, et al, 2014).

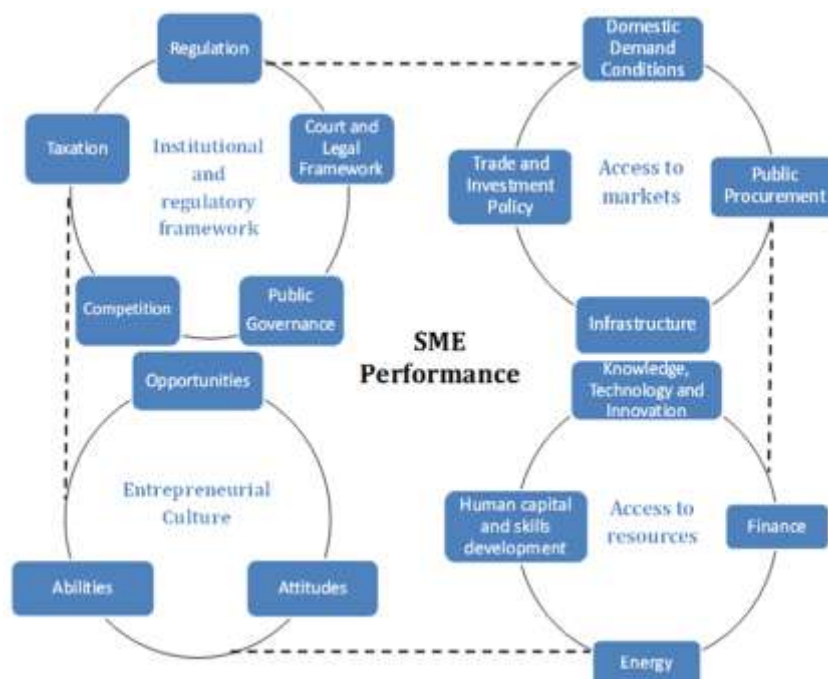


Fig 1: Environment of MSMEs

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

In view of the importance of decision making to individual and corporate success, a number of theories have been provided to guide managers. Some of the theories include normative, descriptive, rational, non-rational, expected utility and prospect (Ahmed et al, 2012, Oliveira, 2007, Anwar, 2014, Gigerenez, 2001). Similarly, a number of models derived from the theories such as analytical, heuristics, rational, non-rational, exist. While the features of the rational model according to Gigerenez (2001) are: optimization, normative, omniscience and internal consistency, that of the non-rational include non-optimization, descriptive, search, ecological rationality and cognitive building blocks like emotions, imitation, and social norms (Anwar, 2014). In other words, whereas the rational or analytical methods are factual, logical, objective and reliable, the heuristics or non-rational approach is non-factual, subjective, non-logical and unreliable. Examples of non-rational approaches are experience, gut-feeling, intuition and hunch. Generally, heuristic methods provide cognitive short-cuts. Though these approaches have their merits and demerits, it is generally recognized that the rational approach which includes appraisal techniques and other quantitative methods are 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 non-rational approaches which they consider as time saving and pragmatic.

In view of the foregoing, 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 the use of 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. (Ogbulu, 1999).

Capital budgeting techniques are obviously 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. Part of the gap is rooted in the doubt as to whether MSMEs satisfy the basic assumptions of capital budgeting theory. This is yet the source of another controversy which focuses on the lack of consensus among researchers on the adoption investment appraisal techniques by MSMEs investment decisions concerning real physical assets. 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. This therefore, raises some pertinent questions: Do MSMEs employ investment appraisal techniques in the management of their businesses and if yes, to what extent? Is there any significant relationship between the performance of MSMEs and investment appraisal technique adopted? To what extent do socio-economic factors influence MSMEs investment in real physical assets. This paper will attempt to provide answers to these questions which translate to three key objectives of the study.

Objectives of the study: Arising from the questions raised above, the objectives of this study are to:

1. Determine the extent to which operators of MSMEs adopt appraisal techniques in making investment decisions.
2. Identify the nature of the relationship between the use of appraisal techniques and the profitability of MSMEs
3. Examine the extent to which socio-economic factors influence the decision of MSMEs to invest in real physical assets.

In light of the above, a paper such as this becomes imperative with a view to closing the gap between theory and practice in capital budgeting, unravelling the factors that actually motivate MSMEs to invest in real physical assets in Nigeria, and ensuring the sustainability of businesses in Nigeria and Africa in general.

2.0 LITERATURE REVIEW

Appraisal techniques represent the major element of capital budgeting which is the process of objectively analysing and evaluating the cost-benefits of investing in a project to decide

whether resources should be allocated to a project or not. Capital budgeting theory assumes that the basic goal of shareholders of a firm is to maximize firm value and that managers of the firm have access to perfect financial markets, which enables them to finance all value-enhancing projects. Based on these assumptions, managers can separate investment and financing decisions and should invest in all options with positive net present values (Brealey and Myers, 2003). 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. Non-discounting techniques include 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 non-discounting techniques because 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 scenario within which they are best suited. 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

A very brief review of extant empirical literature on the adoption of appraisal techniques shows underlying the themes to include awareness/usage, popular techniques used, factors that influence choice of technique and effect of the usage of the techniques on firm performance. Expectedly, the findings of the studies in the different themes were conflicting. For instance, while Ayodele (2010), Barjaktarovi et al (2015), Jifar (2020), Ahmed, (2019), Sungun (2015) and Ndanyenbah and Zakaria (2019) confirmed adoption of the techniques by MSMEs, Olawale et al (2010) discovered non-compliance. In terms of awareness, Jifar (2020), Sungun (2015) and Ndanyenbah & Zakaria (2019) in their respective studies discovered that the respondents had significant knowledge. On the nature of the effect of adoption of appraisal techniques on the firm's financial performance, Kerubo et al (2016), Kengatharan and Diluxshan (2017), and Wambua and Koori (2018) discovered a positive effect on the financial performance of firms. More significantly, Kengatharan and Diluxshan (2017) noted that while NPV and IRR showed a positive effect, Discounted PayBack technique had a negative effect on investment decisions. Similarly, Mogwambo et al (2015) found that the use of appraisal techniques showed a positive influence on portfolio selection. On the other hand, Olawale (2010) identified a negative impact of appraisal techniques on the profitability of small manufacturing firms. Focusing on the popularity of the techniques, Kerubo et al (2010), Barjaktarović *et al* (2015) Wambua and Koori (2018) and Ayodele (2010) discovered that the non-discounting techniques were more popular. On the other hand, Ahmed (2019), Kengatharan and Diluxshan (2017) identified NPV and IRR, examples of discounting techniques, as the dominant techniques among MSME operators. Researchers equally differed concerning the factors that inform the choice and selection of a technique. Some of the factors are: the size of the company, revenues, profitability, leverage level, expenditure, familiarity with the project, availability of cash, the level of education of decision makers (Ahmed, 2019)

and risk, gender, educational level, investment size and industry type (Ndanyenbah and Zakaria (2019).

4.0. Methodology

4.1: **Research Design:** The study adopted descriptive and cross-sectional survey research designs that align with the nature of the phenomenon of interest. While the descriptive design enabled us to provide answers to the questions of who, what, when, where, and 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 Aba in Abia State. The test-retest technique was employed to test for the reliability of the test instrument while the entire process of preparing and constructing the questionnaire was subjected to expert evaluation to achieve both content and face validity. 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 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.

4.2. Collection of data: The study relied on both primary and secondary data. A self-reporting questionnaire was used to elicit primary data which were critical to the understanding of the experiences of the respondents. 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 owners and managers of the firms by hand through research assistants who got requisite training for the assignment and possessed good knowledge of the terrain of the study areas. The collection of the questionnaire took some weeks with repeat calls. The questionnaire administration was preceded by a pilot study involving a sample drawn from Aba in Abia State. This was needed to determine the reliability and validity of the research instrument and split-half technique was used to measure reliability. The values of both Spearman-Brown and Guttman coefficients as shown in table 2 are high and fall within the acceptable range of reliability measure.

The instrument's validity – content and face validity - was achieved through multiple levels of evaluation of the questionnaire which involved individual and collective peer review by the team members and expert evaluation by lecturers from the department of Measurement & Evaluation (Faculty of Education of the University). Equally, the construct validity of the instrument was determined based on past research works and extant theory which tallies with Moser and Kalton's (1997:356) observation that the essence of construct validity is its dependence on theory and the examination of the observed associations is as much a test of the theory as of the scale's validity. Perhaps it is necessary to point out that the validity of the instrument was further guaranteed by the fact that the variables under study have general applicability and had been measured and investigated in the past.

Table 1: 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 adoption	5	.894	.897	.862
3	Socio-economic factors	8	.903	.903	.902
4.3:	Adoption and profitability	2	.930	.930	.930

Population and Sampling Techniques: The study focused on MSMEs in four (Abia, Anambra, Imo and Ebonyi) of the five states of the South-East geo-political zone. However, the target population of the study and the sample size were first determined State by State and later aggregated. Taken into account the fact that the MSMEs is an aggregation of formal and informal components, the determination of the target population involved multi-stage procedure. While the directories/records of State Chambers of Commerce, NASSI, Ministries of Commerce and 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 to determine the sample size of small and medium size enterprises and Cochran's formula for infinite population was utilized in calculating the sample size of micro enterprises. Based on the Agency records which were purged to remove nominal firms, the target population of small and medium enterprises was seven hundred and thirty firms. Based on Krejcie and Morgan table, an aggregate sample size of 487 was derived. 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 1** 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 (<i>Proportion</i>)	Total number of questionnaire administered	Number and percentage of questionnaire returned
Abia	260	155	137	292	206 (38%)
Imo	140	103	74	177	84 (16%)
Ebonyi	130	97	69	166	80 (15%)
Anambra	200	132	105	237	170 (31%)
Total	730	487	385	872	540

Source: Field work, 2023.

The sampling technique was equally multi-stage involving stratified, random and judgmental. While stratified and random sampling were used for small and medium sized firms, the selection of micro firms was judgmental.

4.4: Statistical Analysis: 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. 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:

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

Where j goes from 1 to the number of categories minus 1.

β_1, \dots, β_9 are the regression coefficients, X_1, \dots, X_9 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: $\Pr(Y_i = k | x_i)$. The generalized linear model is represented thus:

$$\text{Link}(Y_j) = \frac{\theta_j - (\beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)}{\exp(\tau_1 Z_1 + \tau_2 Z_2 + \dots + \tau_m Z_m)}$$

Where, Y_j is the cumulative probability for the category, j^{th} , θ_j is the threshold for the j^{th} category, β_1, \dots, β_k are the regression coefficients, X_1, \dots, X_k are the predictor variables, and k is the number of predictors.

5.0 RESULTS

Table 2 shows that we achieved 62% questionnaire response rate and **Table 3** highlights the distribution of the firms based on several 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. Based on the type of business the firm was engaged in, the respondents were grouped into primary (extractive, mining, farming), secondary (manufacturing and fabricating) and tertiary (service). Out of 540 respondents, **Table 2** shows that majority of the firms (229 or 42.4%) were engaged in service delivery. This was followed by manufacturing (216 firms or 40.07%) and extractive/farming (95 firms or 17.6%).

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 (204 or 37.8%), B.Sc/HND (266 or 49.4%), Masters (54 or 10.00%) and Doctorate (15 or 2.8%). 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: <N10 million (201 or 37.3%), N11-N20 million (181 or 33.5%), N21 - N30 million (66 or 12.2%), N31 -N40million (47 or 8.7%) and >N40 million (45 or 8.3%). On the basis of value of total asset, those with an asset value of less than N10 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 <N1million (188 or 34.8%), N1 - N2.5 million (186 or 34.4%), N2.6 - N5million (79 or 14.6%) and >N5 million (87 or 16.2%). 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, 40.60% or 219 of the respondents do not conduct formal analysis of investment alternatives. On the other hand, while 38.9% or 210 respondents sometimes carry out formal risk analysis, 20.5% or 111 respondents always carry out formal risk analysis. Similarly, the firms differed in their propensity to conduct formal plans with cash flow projection. While 19.1% or 103 respondents always engage in formal planning with cash flow projections, 40.3% or 217 respondents did so sometimes. However, 40.6% or 219 respondents never engaged in planning with cash flow projections.

Table 3: Distribution of Responses to key Attributes

Type of business:	frequency	%	Expenditure on equipment	frequency	%
Primary	95		<N1m	188	34.8
Secondary	216	17.6	N1 – N2.5m	186	34.4
Tertiary	229	40.0	N2.6- N5m	79	14.6
Total	540	42.4	>N5m	87	16.1
		100	Total	540	100
Educational Qual:			Risk analysis:		
WASC	204	37.8	Never		40.6
BSc/HND	226	49.4	Sometimes		38.9
Masters	54	10.0	Always	219	20.5
Doctorate	15	2.8	Total	210	100
Total	539	100		540	
Total asset:			Formal plan with cash flow projections:		
<N10m			Never	219	40.60
N11-N20m		37.3	Sometimes	217	40.30
N21-N30m		33.5	Always	103	19.10
N31 -N40m	201	12.2	Total	539	100
>N40m	181	8.7			
Total	66	8.3			
	47	100			
	45				
	540				

Source: field work 2022

Ho1:. The extent of adoption of appraisal techniques by operators of MSMEs in making investment decisions is low.

Making investment decision is proxied by formal risk analysis and the simplified model is:

$$RISTAN = f(IAT: PAYBP, IRR, NETPV, ACCRR, PROFITI)$$

The hypothesis was tested with a multinomial logistic model and the outputs are shown below.

Table 4: Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept Only	796.218			
Final	580.664	215.554	40	.000

Table 4, the model fitting information, 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.

Table 5: Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	544.171	388	.120
Deviance	481.170	388	.321

Table 5 - Goodness of fit - based on the values shown in the table, both the Pearson and Deviance chi-square values show that the model fits the data well. Table 6 - Likelihood ratio test shows which independent variables are statistically significant. The table identified two techniques with $p < 0.05$ – the payback period ($p = .000$) and profit index ($p < .024$).

Table 6: Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept	580.664 ^a	.000	0	.
PAYBP	627.408	46.744	8	.000

INTERNAL RR	590.075	9.411	8	.309
NETPV	594.538	13.874	8	.085
ACCRR	595.655	14.991	8	.059
PROFITI	598.285	17.621	8	.024

The Parameter estimates table presents the coefficients of the model. The parameter estimates table shows that each dummy variable has coefficients for the different techniques. The coefficients that are significant are summarized in table 7.

Table 7: Parameter Estimates

Sometime s	Intercept	B	Std Error	Wald	df	Sig	Exp(B)	95% confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
	PAYBP-2	1.918	.650	8.713	1	.003	6.809	1.905	24.339
	PAYBP-3	2.488	.612	16.556	1	.000	12.043	3.632	39.930
	PAYBP-4	1.774	.639	7.700	1	.006	5.894	1.684	20.632
	NETPV-1	-2.253	1.124	4.017	1	.045	.105	.012	.952
	PROFITI-1	1.589	.666	5.694	1	.017	4.897	1.328	18.056
	PROFITI-3	1.377	.658	4.370	1	.037	3.961	1.090	14.400
	PROFITI-4	1.405	.683	4.228	1	.040	4.074	1.068	15.537
Always	PAYBP	2.433	.706	11.882	1	.001	11.389	2.856	45.417

NOTE; Though there are three categories of the dependent variables, formal risk analysis, the 'never' category was used as reference category and so only two logits (i.e logistic regression coefficients) are shown. The 'sometimes' row represents a comparison of the category with the 'never' category and the second row is a comparison of the 'always' category to the 'never' category.

PAYBP-2: The relative risk of managers who rarely use PBP compared to those who do not would be expected to increase by a factor of 6.809 given that the other variables in the model are held constant. In other words, managers who rarely use PBP compared to those who do not are more likely to carry out formal risk analysis of investments.

PAYBP-3: Given the other variables in the model are held constant, the relative risk of Managers who sometimes use PBP compared to those who do not would be expected to

increase by a factor of 2.488. In other words, managers who sometimes use PBP are more likely to carry out formal analysis of the risk of investments.

PAYBP-4: Given that the other variables in the model are held constant, the relative risk of managers who often use PBP compared to those who do not would be expected to increase by a factor of 5.894. In other words, managers who often use PBP are more likely to carry out formal risk analysis of investments.

NOTE: The relative risk ratio (relative log odds) of sometimes, instead of never carrying out formal risk analysis, will increase by 5.894 as one moves from the lowest level (never) to the highest (always).

NETPV-1: The relative risk of managers who never use NETPV compared to those who use would be expected to decrease by a factor of 0.105 given that the other variables in the model are held constant. In other words, managers who never use NETPV compared to those who do are less likely to carry out formal risk analysis of investments.

PROFI_TI-1: The relative risk of managers who rarely use PBP compared to those who don't would be expected to decrease by a factor of 4.897 given that the other variables in the model are held constant. In other words, managers who never use PROFIT INDEX are more likely not to carry out formal risk analysis of investments.

PROFI_TI-3: Given the other variables in the model are held constant, the relative risk of managers who sometimes use PROFIT INDEX compared to those who do not would be expected to increase by a factor of 3.961. In other words, managers who sometimes use PROFIT INDEX are more likely to carry out formal analysis of the risk of investments.

PROFI_TI-4: Given that the other variables in the model are held constant, the relative risk of managers who often use PROFIT INDEX compared to those who do not would be expected to increase by a factor of 4.07. In other words, managers who often use PROFIT INDEX are more likely to carry out formal risk analysis of investments.

NOTE: The relative risk ratio (relative log odds) of sometimes instead of never carrying out formal risk analysis will increase by a factor of 4.07 as one moves from the lowest level (never) to the highest (always).

The only coefficient in the second row is PAYBP-1, $\exp B = 11.389$, $p < .001$). This is the relative risk ratio comparing non-usage of PBP to always category based on the second logit of the dependent variable. The relative risk of managers who do not use PBP compared to those who do would be expected to decrease by a factor of 11.389 given that the other variables in the model are held constant. In other words, managers who do not use PBP are not likely to carry out formal risk analysis of investments.

The above values clearly show that MSMEs use some but not all appraisal techniques and that the usage is infrequent (sometimes) or low rather than always.

Ho2: There is no significant relationship between the adoption of appraisal techniques and the profitability of MSMEs.

The hypothesis was tested with a generalized linear model (GLM) and the output is shown thus: The Goodness of Fit table (table 8) shows that the value/df of the Deviance and Pearson chi-

square vary. While the Pearson chi-square falls outside the acceptable limit, the Deviance chi-square is within the acceptable limit, showing the appropriateness of the model.

Table 8: Goodness of Fit

	Value	df	Value/df
Deviance	756.623	832	.909
Scaled Deviance	756.623	832	
Pearson Chi-Square	903.466	832	1.086
Scaled Pearson Chi-Square	903.466	832	
Log Likelihood ^b	-461.492		
Akaike's Information Criterion (AIC)	970.984		
Finite Sample Corrected AIC (AICC)	973.473		
Bayesian Information Criterion (BIC)	1072.468		
Consistent AIC (CAIC)	1096.468		

Dependent Variable: Extent of the effect of the use of appraisal techniques on overall profit after tax
 Model: (Threshold), PAYBP, INTERNALRR, NETPV, ACCRR, PROFITI

Table 9 is the Omnibus test which shows a p-value of <0.05 which confirms that the intercept model is good.

Table 9: Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
174.652	20	.000

Dependent Variable: Extent of the effect of the use of appraisal techniques on overall profit after tax.
 Model: (Threshold), PAYBP, INTERNALRR, NETPV, ACCRR, PROFITI

Table 10, which is the test of model effects, shows that only one technique – PAYBP (p = .000). has a discernible effect on performance (profitability).

Table 10: Tests of Model Effects

Source	Type III		
	Wald Chi-Square	df	Sig.
PAYBP	36.103	4	.000
INTERNALRR	7.724	4	.102
NETPV	7.608	4	.107
ACCRR	5.446	4	.245
PROFITI	6.398	4	.171

Dependent Variable: Extent of the effect of the use of appraisal techniques on overall profit after tax

Model: (Threshold), PAYBP, INTERNALRR, NETPV, ACCRR, PROFITI

The parameter estimates table shows three significant coefficients as summarized in table 11.

Table 11: Parameter Estimates

Parameter	B	Std Error	95% Wald Confidence interval		Hypothesis testing			
			Lower	Upper	Wald square	chi-	df	Sig
PAYBP-1	-1.795	.4395	-2.656	-.933	16.680		1	.000
PAYBP-2	-1.143	.4651	-2.055	-.232	6.042		1	.014
INTERNALRR-1	-1.546	.7895	-3.094	.001	3.835		1	.050

PAY_BP-1 (never use), **PAY_BP-2** (rarely use), and **INTERNAL_RR-1** (never use). However, only the rare usage category of the payback technique is relevant. Unfortunately, it has a negative coefficient, which means that it is less likely to influence a firm's profitability than using the technique always—the reference category.

The outcome of the above test clearly shows a negative and significant relationship between the rare usage of appraisal techniques and firm performance.

Ho3: Socio-economic factors do not exert any significant influence on the decision of MSMEs to invest in real physical assets.

The simplified model is:

Decision to invest = $f(\text{Socio-economic factors: inflation, economic growth, high interest rate, high exchange rate, insecurity, infrastructural development, urban development, increase in tax})$.

The hypothesis was tested with ordinal logistic regression and the outputs are as follows:

Table 12: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	1212.582			
Final	1145.788	66.794	32	.000

Link function: Logit.

The Model fitting Information table (table 12) shows a $p = < 0.05$ which shows the appropriateness of the model. Equally the Goodness of fit table (table 13) shows that the two chi-square measures have p-values that are > 0.05 which further confirm the goodness of the model.

Table 13: Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	1333.822	1276	.127
Deviance	1104.774	1276	1.000

Link function: Logit.

The parameter estimates table shows that four factors, viz, inflation, economic growth, high interest rate and insecurity are significant. The estimated ordinal logistic regression coefficient that is significant are:

Table 14: Parameter Estimates

Intercept	B	Std Error	Wald	df	Sig	95% confidence Interval for Exp(B)	
						Lower Bound	Upper Bound
INFLATION -2	.839	.335	6.259	1	.012	.182	1.496
INFLATION	.616	.252	5.967	1	.015	.122	1.109

-4							
ECOGROW-3	.637	.298	4.576	1	.032	.220	1.053
HINTR-1	-1.603	.469	11.659	1	.001	-2.523	-.683
INSECURITY-3	.853	.275	9.605	1	.002	.314	1.393

*INFLATION-2, is the dummy variable for the ‘very low extent’ dimension of inflation. The positive estimate shows that it has the likelihood of increasing investment in real physical assets.

INFLATION-4 is the dummy variable for the high-extension dimension of inflation. The positive estimate shows that it is likely to increase investment in real physical assets.

ECOGROW-3, is the dummy variable for the low extent dimension of economic growth. The positive estimate shows that it has the likelihood of increasing investment in real physical asset.

HINTR-1, B is the dummy variable for the not applicable dimension of high interest rate. The negative estimate clearly shows that it has the likelihood of decreasing investment in real physical asset.

INSECURITY-3, is the dummy variable for the low extent dimension of insecurity. The positive estimate shows that it has the likelihood of increasing investment in real physical asset.

NOTE: The socio-economic factors that influence investment in real physical asset are inflation, economic growth and insecurity. However, they vary in terms of the extent of influence. For instance, while inflation exerted influence to a high extent, insecurity influenced investment in real asset only to a low extent.

6.0: DISCUSSION OF FINDINGS

The multinomial regression test focused on the first objective shows that MSMEs use 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 several factors. For instance, doubt and lack of appropriate knowledge are often responsible for half-hearted adoption of new ideas or techniques, increasing the chances of failure of the new idea or technique. There is no doubt that the use of appraisal techniques comes with many challenges that do not disappear at the first contact. Only through frequent and regular usage can managers effectively navigate the challenges and develop the capacity to harness the potentials of appraisal techniques.

The generalized linear model test focused on the second objective shows a negative but significant relationship between using appraisal techniques and firm performance proxied by profitability. This corroborates the works of Olawale et al. (2010) but is contrary to the findings of Kerubo et al. (2016) and Wambua and Koori (2018), who discovered that the use of appraisal techniques has a positive impact on a firm's profitability. The apparent lack of agreement among authors can be explained based on some factors such as extent of usage. A casual or irregular usage of appraisal techniques as earlier noted will not yield the desired level of effectiveness. Persistence in usage is necessary actually to confirm the effectiveness or otherwise of a technique.

The ordinal logistic regression test that addressed the third objective which centered on the influence of socio-economic factors identified three significant factors, viz inflation, economic growth and insecurity. However, these factors exerted varying degrees of influence. While inflation exerted influence on a high extent, economic growth and insecurity influenced investment decisions to a low extent. The positive, though low, degree of influence of insecurity raises some level of curiosity about how insecurity hinders the operations of businesses. It must, however, be pointed out that insecurity has brought about greater investment in protective assets with which firms secure both lives and properties. In other words, firms' initial response to insecurity conditions is to increase budgetary provisions for the security of lives and properties. It should also be pointed out that the prepotency of the factors varied and that is understandable in that the spate of insecurity, for instance, varies from one geo-political zone to another. As a result, certain factors may exert more influence than others at any given time.

7.0 POLICY IMPLICATIONS

It is clear from the foregoing that MSMEs adhere half-heartedly to adopting appraisal techniques. This points to a lack of conviction or necessary zeal to embrace the rational approach to decision-making. In this regard, the government should focus on developing the managerial capacities of MSMEs' managers and owners. In specific terms, the following policy measures would be useful in bringing about the needed reorientation of MSMEs' managers and owners.

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.

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