PROPERTY VALUATION INACCURACY IN COMMERCIAL OFFICE BUILDINGS: ESTABLISHING THE KEY CAUSATIVE FACTORS

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Abstract

The paper aims to contribute to the empirical scarce literature on the causes of inaccuracy of property valuation in commercial office buildings by providing meaningful insights on the different causes likely to affect valuation accuracy in a developing country like Nigeria. Using Mean ranking, regression and factor analysis the causes have been ranked from a questionnaire distributed to a sample of 90 practitioners with a total of 61 completing the survey. The key findings of the statistical analysis indicated that professionals ranked the existing valuation methodology as the most established cause while only four of the causes make statistically unique contribution to the valuation methodology namely skill, experience and judgment of the valuer, types of property, the integrity of the individual Surveyor and lack of valuation standard manual. In a forward looking approach, the paper provides some recommendations that should minimise valuation inaccuracies in reports. The key limitation to the study is that it does not cover all classes of buildings as the scope of valuation is very enormous and the resources of this research were limited. Also, the use of closed ended questionnaires may limit the validity of the results. This research will be of interest to industry practitioners and academic researchers with an interest in property finance and valuation.

Keywords: *Estate valuers, inaccuracy, property, reports, valuation*

1.0 INTRODUCTION

The subject of valuation inaccuracy should give the valuation profession serious concern because of the danger it portends for the profession in particular, and the property industry in general. The quickening pace in the globalisation of investment market further underscores the need for valuations that are consistent, transparent and that are readily understood, applicable and accepted internationally.

Being an opinion, property valuation is to a large extent subjective as it depends on individual valuers expectations about the future, comprehension of the underlying assumptions as well as the valuer's dexterity in interpreting relevant facts and underlying assumptions to arrive at a defined value for the property.

The unique characteristic of property interests together with individual valuer characteristics and training further create room for possibilities of methods and variations in approaches to valuation reporting. Valuers must be assisted to reach their valuation opinions in an impartial and objective manner, without bias and giving no room to favour their own interests or accommodate the interest of their clients.

Interestingly, a valuation of a commercial investment property is invariably complex, requiring the valuer to assemble a large amount of data and is very much a matter of opinion. Previous research into the valuation process increasingly leads to the conclusion that valuation is a very imprecise activity, much less precise than valuers would have the users of valuations believe.

Consequently, the ability of the valuers to make effective estimations of value has been subjected to intense scrutiny by academia, the media and the courts and the apparent lack of a coherent and consistent result from the valuation process has damaged the reputation of the valuation profession as highlighted in

Joslin (2005), French (2013) and Dunse *et al*. (2010).

In Nigeria, there have been similar studies like Ogunba and Ajayi (2007), Amidu and Aluko (2007) and Babawale (2013). All these studies were on valuation of plant and machinery, land and residential buildings. However, there is no existing study on valuation inaccuracy with respect to commercial office buildings in Nigeria. The relevance of commercial office buildings cannot be overemphasised as Nigeria has the most expensive market for the office space segment in Africa (Otegbulu and Babawale, 2011). Property valuation of this type of building as a discipline is fast becoming an international issue. In recent past, this discipline has attracted a lot of attention especially in the areas of accuracy.

However, within both the professional and academic communities there is considerable scepticism about their aptitude to execute this job in a reliable way. Hence, there is the need to establish this gap in knowledge by identify and ranking the causes of inaccuracies before offering practicable solutions.

2.0 RESEARCH METHODOLOGY

A sample of 90 organisations (Chartered Estate firms from the NIESV directory) were electronically emailed questionnaires in Nigeria with 61 responses thus signifying a response rate of 67.78% which is satisfactory and is in line with the view of Dulami *et al*. (2003).

The adoption of stratified random sampling allowed the researchers more control over the eventual sample to ensure it reflected the makeup of the overall population whilst also minimising the possibility by bias by ensuring every item of the population had an equal probability of being selected (Sapsford, 2007).

As with previous valuation studies examining industry practice (Ogunba and Ajayi, 2007; Amidu and Aluko, 2007; Babawale, 2013) the need to ascertain the level of valuation accuracy called for a quantitative research design that made use of a measuring instrument that allowed data to be collected from a large number of practitioners in the field.

Cresswell (2003) indicated that the most appropriate data collection tool to use for this element of the study was a questionnaire survey. The design and use of such an instrument enabled the study to rank the twelve causes of inaccuracy of valuation reports derived from previous literature. These are valuation methodology, clients' pressure, the integrity of the individual surveyor, effectiveness of regulatory framework, errors, valuation assumptions, problem of relevant data, lack of valuation standard manual, university curriculum, state of property market, types of property and the skill, experience and judgement of the valuer.

To ensure the validity and reliability of the research findings, the Cronbach's alpha coefficient and the skewness and kurtosis test were used. The Cronbach's alpha values of all the variables showed that the values were all statistically significant at 0.084. The result suggested that the instrument (questionnaire) is highly reliable and that there is an internal consistency of the items included in it.

This is judging from the fact that the reliability figure obtained is substantially higher than 0.7 (84.0% > 70%) required in statistical analysis. The questionnaire responses were assigned numerical codes and the data was analysed using descriptive and inferential statistics (regression and factor analysis) in SPSS 22.

3.0 RESULTS OF FINDINGS

Table 1 shows that 49.18% of the survey participants have completed at least undergraduate programmes and 50.82% have additional postgraduate qualifications. This means that the outcomes obtained from the survey represents the opinion of a group of professionals with good educational background and sufficient knowledge of property valuation to provide a significant contribution.

Similarly, the result shows that all respondents were members of professional bodies. The relevance of professional institutions cannot be over-emphasised as they promote the development of constructive initiatives in the property market. Thus, all respondents being members of relevant professional bodies further lend credence to the credibility of the research.

With regards to the frequency of carrying out valuations, the results indicate that most respondents (62.3%) have over 11 years' experience working in the real estate industry, 27.9% have industry experience ranging between 6 and 10 years, while 9.8% have at least 5 years or less (Table 2).

As the experience of the respondents is quite respectable, opinions and views obtained through the survey can be regarded as important and reliable. Majority of respondents had reasonable experience in carrying out valuations which further shows that respondents are sufficiently experienced enough to provide data which are credible.

Table 1: Educational and professional qualifications of respondents

Educational Qualification	Frequency	Percentage	Professional Qualification	Frequency	Percentage
HND	11	18.03	Probationer member of NIESV	6	9.8
BSC	19	31.15	Associate member of the NIESV	20	32.8
MSC	23	37.7	Fellow of the NIESV	8	13.1
PhD	6	9.84	Trainee surveyor of the RICS	4	6.6
PROFESSOR	2	3.3	Member of the RICS	19	31.1
Total	**61**	**100**	Fellow of the RICS	4	6.6
			Total	**61**	**100**

Table 2: Frequency of valuation experience

Frequency of Valuations	Frequency	Percentage
1-5Years	6	9.8
6-10Years	17	27.9
11-15Years	29	47.5
16 and Above	9	14.8
Total	**61**	**100**

3.1 Mean Ranking

The first output from the analysis is a table of descriptive statistics for all the investigated variables. Typically, the mean, standard deviation and number of respondents (n) who participated in the survey were given (Table 3).

Looking at the mean, valuation methodology is the most important variable that causes inaccuracy of the valuation reports with a mean of 4.95. It is sufficed to say that recent studies have espoused the need for more credible valuation methodologies (Babawale, 2013; Ayedun, 2009). It however appears the response of property professionals (valuers) in Nigeria to this process of change to contemporary methods of valuation has been slow-moving. This has led to questions as to whether valuers in such parts of the developing world are thinking men or creatures of habit (Ogunba *et al*., 2005).

Table 3: Mean ranking of respondents' views

Causes	Mean	S.D	Rank	Remark
Valuation Methodology	4.95	0.218	1	Strongly Agree
Problem of Relevant Data	4.74	0.480	2	Strongly Agree
Clients Pressure	4.66	0.513	3	Strongly Agree
Effectiveness of Regulatory Framework	4.54	0.535	4	Strongly Agree
Lack of Valuation Standard Manual	4.43	0.718	5	Agree
University Curriculum	4.38	0.610	6	Agree
Errors	4.20	0.771	7	Agree
The Integrity of the Individual Surveyor	3.93	0.772	8	Agree
State of the Property Market	3.87	0.670	9	Agree
Types of Property	3.28	1.171	10	Undecided
Skill, Experience and Judgment of Valuer	2.72	1.142	11	Undecided
Valuation Assumptions	2.10	1.106	12	Disagree
Total Number of Respondent (N)	**= 61**			

The study by Bello (2007) using hypothesis testing concerning proportion in a Bernoulli experiment revealed that majority of the Nigerian practitioners are not aware of, do not understand, and had not been using any of the contemporary methodology. The study recommended that adequate attention should be focused on resolving the myriads of institutional and economic problems inhibiting the evolution of adequate property market infrastructure and valuation practice by the Nigerian Institution of Estate Surveyors and Valuers; and Estate Surveyors and Valuers Registration Board of Nigeria

Problem of relevant data was rated second with a mean of 4.74. Estate valuers find reliable transactional and other relevant market data inadequate because, among other things, the publication of such data is not yet an established norm which does not enable the surveyor to assess relevant data needed for transactions. Inaccuracy due to clients' pressure was rated third with mean 4.66.

Prior research by (Amidu and Aluko, 2007) suggested that valuations may be distorted by the influence of clients as well as by the procedures which form the valuation process. This study confirms to some degree that this does happen. It reveals a widespread practice in which valuations undergo a process of negotiation with clients. Next is the effectiveness of regulatory framework (mean of 4.54). This is because the Nigerian regulatory institutions do not have adequate regulatory framework in place to counter valuation inaccuracy as opined in Babawale and Ajayi (2011).

According to the respondents, the lack of valuation standard manual is rated fifth with a mean value of 4.43. This is not surprising because the country does not have any rule and regulation which exposes valuers to potential intimidation from service. The absence of an effective professional regulatory framework which controls members is disturbing. This portrays the Nigerian practice as evolving within a weak regulatory framework and rather too sluggish to catch with emerging global trends, international standards and best practices.

This is followed by the university curriculum with mean 4.38. This is to be anticipated because valuers are not indepthly taught contemporary methods of valuations while in the university and so are not educationally equipped to face the outer world. Then we have inaccuracy caused by errors (mean of 4.20). These could be clerical errors, mathematical errors and measurement errors as supported by Ayedun *et al.* (2011).

The integrity of the individual surveyors was rated eight with mean 3.93. Levy and Schuck (1999) observed that ethical decisions have been found to rest squarely in the hands of the individual valuers and to a lesser degree the ethical culture of the firm worked with. Such valuers may behave unethically due to the competitive nature of the valuation market. In the ninth position is the state of the property market with mean 3.87.

Coming tenth is the types of property with a mean of 3.28. This calls for specialization in the profession as only valuers thoroughly skilled in an aspect should delve into such areas. The skill, experience and judgment of valuer were rated eleventh with mean 2.72. It is however not shocking that most respondents rated this cause very low. It is based on the premise that they are comfortable with their colloquial state.

An improvement in valuation accuracy could be considerably assisted through an attitudinal change by valuers towards valuation accuracy by refusing to accept the mediocrity of inaccuracy. This way, it is contended that valuers themselves could make a very significant contribution to the gradual improvement in valuation accuracy. Coming twelfth is valuation assumptions with a mean of 2.10.

3.2 Analysis of the Causes of Valuation Inaccuracy

The table below presents the summary for the causes of inaccuracy of valuation reports. Only four of the attributes make statistically unique contribution to the valuation methodology (which ranked highest in the mean distribution and so was used as the dependent variable) at 95% confidence level namely: skill, experience and judgment of the valuer, types of property and the integrity of the individual Surveyor and lack of valuation standard manual (Table 4).

The standardized beta coefficients are what the regression coefficient would be if the model were fitted to standardized data. It provides the order of importance or relative contribution of the valuation methodology and show that types of property make the largest contribution, followed by the lack of valuation standard manual and then others follow. The multiple regressions equation that relates the valuation methodology (VM) to the valuation reports attributes is given by the constant and the coefficients of the unstandardized beta as:

$$VM = 5.612 - 0.100SJ + 0.017CP + 0.06TP - 0.086IS - 0.062ERF + 0.003SPM + 0.037E + 0.081LVM - 0.003SC - 0.127PRD + 0.018VA$$

The equation shows that clients pressure, types of property, state of the property market, errors, lack of valuation standard manual and valuation assumptions are positively correlated to the valuation reports. The overall significant value (0.042) is less than the standardized significant value which reveals that the causes are generally acceptable. The results of the standardized beta coefficients and the equations are different because unstandardized beta coefficient is the regression coefficient and it gives the constant value according to the regression equation;

$$\hat{Y} = a_o + a_1 x_1 + a_2 x_2 + \ldots \ldots (i)$$

The box labelled 'model summary' (Table 5) gives the measure of how well the overall model fits, and how well the predictor (valuation assumptions, skill, experience and judgment of valuer, lack of valuation standard manual, clients pressure, the integrity of the individual surveyor, errors, problem of relevant data, types of property, state of the property market, school curriculum, effectiveness of regulatory framework) is able to predict valuation methodology. The first measure in the table is called R.

This is a measure of how well the predictors predict the outcome, but the square of R provides a more accurate measure. In this case, it is 0.316, so 31.6% of the variance in valuation methodology can be explained by valuation assumptions, skill, experience and judgment of valuer, lack of valuation standard manual, clients pressure, the integrity of the individual surveyor, errors, problem of relevant data, types of property, state of the property market, school curriculum, effectiveness of regulatory framework. The final column gives the standard error of the estimate. This is a measure of how much R is predicted to vary from one sample to the next.

Table 4: Regression result on causes of valuation inaccuracy

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.612	0.608		9.227	0.000
Skill, experience and judgment of Valuer	-0.100	0.032	-0.522	-3.095	0.003
Clients pressure	0.019	0.067	0.045	0.287	0.775
Types of property	0.060	0.027	0.322	2.196	0.033
The integrity of the individual surveyor	-0.086	0.042	-0.305	-2.056	0.045
Effectiveness of regulatory framework	-0.062	0.066	-0.151	-0.937	0.353
State of the property market	0.003	0.052	0.008	0.051	0.960
Errors	0.037	0.041	0.131	0.911	0.367
Lack of valuation standard manual	0.081	0.040	0.266	2.010	0.050
School curriculum	-0.003	0.057	-0.009	-0.058	0.954
Problem of relevant data	-0.127	0.064	-0.280	-1.990	0.052
Valuation assumptions	0.018	0.030	0.090	0.585	0.561

Table 5: Model summary from regression results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.562[a]	0.316	0.163	0.200	1.953

a. Predictors: (Constant), Valuation assumptions, Skill, experience and judgment of valuer, Lack of valuation standard manual, Clients pressure, The integrity of the individual surveyor, Errors, Problem of relevant data, Types of property, State of the property market, School curriculum, Effectiveness of regulatory framework

b. Dependent Variable: Valuation methodology

Table 6: Analysis of variance (ANOVA) from regression

Model		Sum Of Squares	Df	Mean Square	F	Sig.
1	Regression	0.902	11	0.082	2.060	0.042[a]
	Residual	1.950	49	0.040		
	Total	2.852	60			

A. Predictors: (Constant), Valuation Assumptions, Skill, Experience and Judgment of Valuer, Lack of Valuation Standard Manual, Clients Pressure, the Integrity of the Individual Surveyor, Errors, Problem of Relevant Data, Types of Property, State of the Property Market, School Curriculum, Effectiveness of Regulatory Framework

B. Dependent Variable: Valuation Methodology

The Table 6 below shows the ANOVA results. The F-value is the Mean Square Regression (0.082) divided by the Mean Square Residual (0.040), yielding *F*=2.060. The *p*-value associated with this *F* value is very small (0.0000). These values are used to answer the question "Do the independent variables reliably predict the dependent variable"?

The *p*-value is compared to the alpha level (typically 0.05) and, if smaller, one can conclude "Yes, the independent variables reliably predict the dependent variable". It is glaring that the group of (independent) variables can be used to reliably predict

Valuation methodology (the dependent variable). The overall significant value (0.042) is less than the standardized significant value which reveals that the causes are generally acceptable.

3.3 Factor Analysis

Factor analysis is a multivariate statistical technique for examining the underlying structure or the structure of interrelationships (or correlations) among a large number of variables (Hair *et al*., 1998). This analysis yields a set of factors or underlying dimensions which, when interpreted and understood, describe the data in a parsimonious but more meaningful number of concepts than the original individual variables.

This statistical method is used to describe variability among observed, correlated variable in terms of a potentially lower number of unobserved variable called factors. The result from the factor analysis reveals the order at which the causes of inaccuracy of valuation reports are exhibited where it was deduced that skill, experience and judgement of valuer, types of property and the integrity of individual surveyors make a significant contributions to the valuation methodology.

It also indicates the correlation coefficients between a single variable and every other variable in the investigation. The correlation coefficient between a variable and itself is always 1; hence the principal diagonal of the correlation matrix contains 1s. The factor analysis table helps the calculation of a likelihood ratio test of hypothesis that the correlation matrix is equal to the identity matrix.

Table 7: correlation matrix on determinants of valuation inaccuracy

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Correlation	Valuation methodology	1.000	-0.257	-0.005	0.250	-0.019	0.089	-0.045	-0.041	0.243	-0.109	-0.125	0.159
	Skill, experience and judgment of Valuer	-0.257	1.000	0.203	0.109	-0.040	-0.541	0.256	0.347	-0.015	0.297	-0.318	-0.031
	Clients pressure	-0.005	0.203	1.000	0.024	-0.142	-0.343	0.060	0.006	0.043	0.475	0.169	-0.086
	Types of property	0.250	0.109	0.024	1.000	0.426	0.128	0.111	0.197	0.114	-0.033	-0.164	0.339
	The integrity of the individual surveyor	-0.019	-0.040	-0.142	0.426	1.000	0.128	0.144	0.078	0.172	0.160	-0.272	0.242
	Effectiveness of regulatory framework	0.089	-0.541	-0.343	0.128	0.128	1.000	0.108	-0.020	-0.090	-0.278	0.108	0.275
	State of the property market	-0.045	0.256	0.060	0.111	0.144	0.108	1.000	0.341	-0.263	0.041	-0.316	0.445
	Errors	-0.041	0.347	0.006	0.197	0.078	-0.020	0.341	1.000	-0.275	0.230	-0.129	0.036
	Lack of valuation standard manual	0.243	-0.015	0.043	0.114	0.172	-0.090	-0.263	-0.275	1.000	0.046	-0.009	0.051
	School curriculum	-0.109	0.297	0.475	-0.033	0.160	-0.278	0.041	0.230	0.046	1.000	-0.112	-0.253
	Problem of relevant data	-0.125	-0.318	0.169	-0.164	-0.272	0.108	-0.316	-0.129	-0.009	-0.112	1.000	-0.139
	Valuation assumptions	0.159	-0.031	-0.086	0.339	0.242	0.275	0.445	0.036	0.051	-0.253	-0.139	1.000
Sig. (1-tailed)	Valuation methodology		0.023	0.485	0.026	0.441	0.247	0.366	0.378	0.030	0.202	0.168	0.111
	Skill, experience and judgment of valuer	0.023		0.058	0.202	0.380	0.000	0.023	0.003	0.453	0.010	0.006	0.407
	Clients pressure	0.485	0.058		0.428	0.137	0.003	0.322	0.483	0.371	0.000	0.097	0.254
	Types of property	0.026	0.202	0.428		0.000	0.163	0.197	0.064	0.191	0.401	0.103	0.004

	1	2	3	4	5	6	7	8	9	10	11	12
The integrity of the individual surveyor	0.441	0.380	0.137	0.000		0.163	0.134	0.275	0.093	0.110	0.017	0.030
Effectiveness of regulatory framework	0.247	0.000	0.003	0.163	0.163		0.203	0.440	0.246	0.015	0.205	0.016
State of the property market	0.366	0.023	0.322	0.197	0.134	0.203		0.004	0.020	0.376	0.007	0.000
Errors	0.378	0.003	0.483	0.064	0.275	0.440	0.004		0.016	0.038	0.162	0.393
Lack of valuation standard manual	0.030	0.453	0.371	0.191	0.093	0.246	0.020	0.016		0.364	0.473	0.347
School curriculum	0.202	0.010	0.000	0.401	0.110	0.015	0.376	0.038	0.364		0.195	0.024
Problem of relevant data	0.168	0.006	0.097	0.103	0.017	0.205	0.007	0.162	0.473	0.195		0.143
Valuation assumptions	0.111	0.407	0.254	0.004	0.030	0.016	0.000	0.393	0.347	0.024	0.143	

a. Determinant =0 .041

The Kaiser-Meyer-Olkin (KMO) and Bartlett's Test measures strength of the relationship among variables The KMO measures the sampling adequacy which should be greater than 0.5 for a satisfactory factor analysis to proceed. From the same table eight, the Bartlett's test of sphericity is significant That is, its associated probability is less than 0.05. In fact, it is actually 0.000, i.e. the significance level is small enough to reject the null hypothesis and it ranges from $0 \leq x \leq 1$,

Table 8: Kmo and Bartlet's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.483
Bartlett's Test of Sphericity5	Approx. Chi-Square	175.972
	Df	66
	Sig.	0.000

Table 9 shows the proportion of each variable's variance that can be explained by the principal component. It shows how much of the variance in the variables has been accounted for by the extracted factors. The integrity of the individual surveyor, clients' pressure and the skill, experience and judgement of valuer all account for the communalities.

It shows how much of the variance in the variables have been accounted for by the extracted factors. For instance over 69% of the problem of relevant data is accounted for while 62.1% of the variance in Valuation methodology is accounted for. The table also shows all the factors extractable from the analysis along with their eigenvalues, the percent of variance attributable to each factor, and the cumulative variance of the factor and the previous factors. Notice that the first factor accounts for 19.5267% of the variance, the second 19.019%, comes 13.163%, followed by 9.337% and lastly 8.747%. All the remaining factors are not significant.

The scree plot is a graph of the eigenvalues against all the factors. The graph is useful for determining how many factors to retain (see figure one). The point of interest is where the curve starts to flatten. It can be seen that the curve begins to flatten between factors 4 and 5. Note also that factor 5 has an eigenvalue greater than 1, so only five factors have been retained.

Table 9: Total Variance of Observed Determinants

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.343	19.526	19.526	2.343	19.526	19.526
2	2.282	19.019	38.546	2.282	19.019	38.546
3	1.580	13.165	51.711	1.580	13.165	51.711
4	1.120	9.337	61.048	1.120	9.337	61.048
5	1.050	8.747	69.795	1.050	8.747	69.795
6	0.914	7.613	77.408			
7	0.817	6.808	84.217			
8	0.610	5.085	89.301			
9	0.443	3.693	92.994			
10	0.350	2.920	95.914			
11	0.284	2.366	98.280			
12	0.206	1.720	100.000			

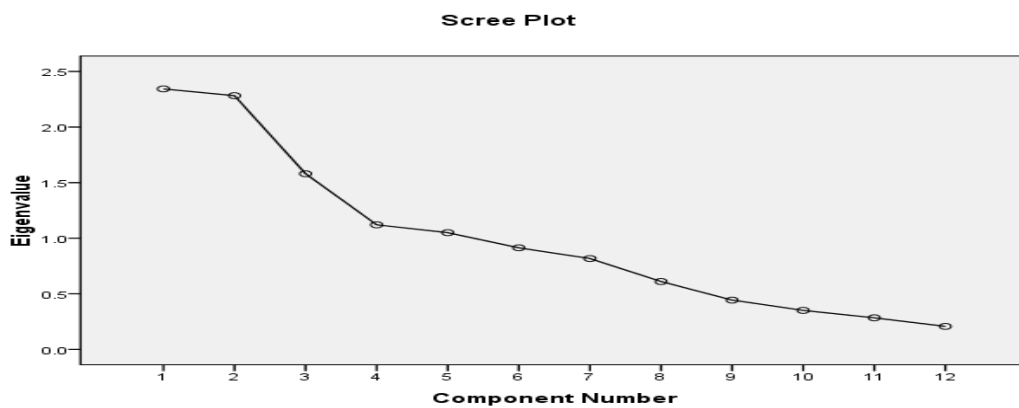Extraction Method: Principal Component Analysis.

Figure 1: Scree Plot of Observed Determinats

4.0 RECOMMENDATIONS AND CONCLUSION

The study sought to establish this gap in knowledge by identify and ranking the causes of inaccuracies before offering practicable solutions. A major fallout of the study is that there is an urgent need for the Nigerian Institution of Estate Surveyors and Valuers to enforce more rigorous standards and the introduce valuation standard manuals which is enforceable in order to protect estate surveyors and valuers against the possible threats from clients.

There should also be sanctions for clients caught exerting pressure on valuers to change their valuation figures to their advantage. Similarly, there should be more seminars and refresher courses organized for valuers to update their knowledge and skills while there is a need for research oriented programs to further enlighten practitioners on the benefits of contemporary methods of valuation.

The Nigerian higher institutions should also introduce contemporary methods of valuation in their curriculum and textbooks should be modified to suit these new concepts. In the world of today where emphasis is on dynamism in computational expertise, there is a need to align with the existing trends and develop interest in the application of these probabilistic methods, otherwise, it would be very difficult to compete in the global stage.

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