Sub-Sahara African Academic Research Publications
March, 2023, Editions

JBER
Journal of Biodiversity and Environmental Research
Vol.27, No.4, ISSN 2211-8735

ASSESSMENT OF VALUERS HEURISTICS APPLICATION IN VALUATION PRACTICE IN SELECTED STATES IN NORTHERN NIGERIA.

OKOH, SUNDAY OKUOMA[1], KEMIKI, OLUROTIMI ADEBOWALE[2], AJAYI, MICHAEL TOLU[2], ANKELI, IKPEME ANTHONY[3]
[1]Department of Estate Management and Valuation, Federal Polytechnic Bida. [2]Department of Estate Management and Valuation, Federal University of Technology, Minna. [3]Department of Estate Management and Valuation, Federal Polytechnic, Ede.

Abstract
Emphasis on heuristics in valuation have been on anchoring and adjustment with little attention accorded the other types of heuristic valuation. The crux of the study is therefore to assessed the degree of the application of the other types of heuristics in practice in Kaduna and Kano states, Nigeria with a view to determine heuristics influence in valuation practice in the study areas. To achieve the aim, the study adopted a cross-sectional questionnaire survey of 59 out of 75 and 43 out of 45 estate surveying and valuation firms in the metropolitan cities of Kaduna and Kano respectively. Each of the metropolis was stratified into zones for ease of administrative coverage from where the respondents were randomly selected. Both inferential and descriptive statistical tools were employed in the analysis of data. The study found the applications of other heuristics valuation by Valuers at varying degree in Kaduna and Kano beside anchoring and adjustment. Relative Occurrence Index revealed that there are significant influences of valuers' heuristic behaviour on valuation estimates. In addition, coefficient of determination showed that 68.5% and 83.5% of the variations in valuation estimates in Kaduna and Kano are attributable to valuers' heuristic behaviour. It therefore recommended the need for adequate and proper market survey strategy, comprehensive and up to date property data bank, contemporary valuation methods and techniques, regular refresher courses and pupilage training and the adherence to professional ethics and code of conduct among others.

Keywords: Valuer, Heuristics, Valuation Practice, Anchoring and Adjustment

Introduction

In Nigeria, the business of property value determination falls within the purview of estate surveyors and valuers, chartered surveyors, appraisers, valuers or as they may be called. Ankeli (2022) opined that investment in the real property subsector has recently taken a melodramatic trend especially with the ever-rising demand for urban housing for residential and other competing uses; hence, clients have become more sophisticated and increasingly more interested in the accuracy or precision of valuation output to make or take vital decisions. Hence, issues of valuation accuracy, error margin, variance, reliability and consistency, heuristic influence among others have become issues of topical global discourse. Valuation involves the systematic process of data assemblage, critical analysis and interpretation of the collected data to arrive at value determination and the valuation reporting or the outcome of the process (Tidwell, 2011 and Amidu, et al., 2019).

However, there is a growing concern on ways through which the cognitive and affective proficiencies of the valuers could be reasonably diverge from the actual outcome of the value estimate. Iroham (2012) averred that the consequences of unethical value estimate determination are usually enormous as manifested in the multiple property market crashes of 1970s and 1990s in the United Kingdom that resulted in the loss of confidence due to the unfavourable sale that was far below the predicted price in a-priori valuation reports. However, there have been divergent opinion and interest in valuation accuracy globally resulting in scholars attributing valuation accuracy or inaccuracy to a number of factors. The addition of behavioural research into the factors, according to Iroham (2012) have extended the traditional frontier to include cognitive psychology which has greatly assisted in the investigation of valuation accuracy issues using such indicators as comparable sale selection, departures from normative models, valuation biases and feedback. No human or professional judgment or decision making and taking process that can be said to be completely objective due to the inherent human behavioural traits. Iroham (op. cit.) further argued that, since human decision-making processes are usually based on information processing, it is thus, believed that, such processes could be below optimal or rational.

It is in the public domain that valuers especially in Nigeria and South Africa often adopted traditional methods in the estimation of values (Lowies *et al.,* 2016; Adegoke *et al.,* 2013; Adegoke 2006; Aluko 2007; Adegoke and Aluko 2007). The applications of conventional methods as the rule of thumb which according to Iroham (2012) is a component of heuristics is not an accurate or scientifically

proven principle or procedure but a process acquired through common sense and experience from practice. Heuristic or inadequate and improper modeling behaviour of property valuers have been adduced to be a major factor for the non-reliability of property value estimation; hence, the need for the acquisition of contemporary valuation techniques and constant updating of the acquired knowledge have been recommended by earlier scholars (Babatunde, 2017; Warren-Myers, 2016; Ayedun *et al.,* 2012 and Adegoke 2006).

This paper therefore evaluated the application of valuers' heuristic behaviour in valuation practice in Kaduna and Kano. The remaining parts of the paper is structured in five sections with literature review been the next section. Section three is the brief descriptions of the study areas and the methodological approaches adopted in achieving the aim of the study while section four present and discusses the results of findings. Section five presented the conclusions and recommendations.

Literature Review.

There has been growing interest resulting in serious quantitative and qualitative commentaries on the error margin, accuracy, heuristic behaviour of valuers on property value estimations across the globe with valuers' behavioural influence been identified as a primary cause of valuation variance. However, previous studies as Boyd and Irons (2002) and Bretten and Wyatt (2001) have shown that cognitive shortcuts had resulted in preconceptions or biasness that had led to unethical practices. Bello and Thomas (2015) examined variance in commercial properties valuation among Estate valuers in Lagos, Nigeria. Questionnaire were administered on 109 Principal Partners/Managers of estate surveying and valuation firms with 15 commercial properties inspected by each of the Estate Surveyor in order to give their opinion of value. The study employed frequency distribution and coefficient of variation for the description of the population characteristics and ANOVA test in valuation opinion given by the valuers. The significance of the difference of opinion of values given by the values were tested using Analysis of Variance (ANOVA). The study found the coefficient of variation of Valuers' opinion of value to lies within + 5% to 11% in the study area. The ANOVA test revealed a p-value of 0.129 which is less than 0.05. In order to improve valuation opinion results within Lagos metropolis, the study recommended the need for the establishment of property databank by the Nigerian Institution of Estate Surveyors and Valuers in Lagos state. Mohammad et al. (2018) observed that the disparities in the valuation variance have become

issue of great concern globally; hence the researchers made attempt at identifying behavioural uncertainties in valuation decision making process. The study found heuristic and bias, availability and accuracy of market data, ethical conduct, valuer's experience and knowledge, negligence and professionalism and client influence to be the fundamentals of valuer's behavioural uncertainties.

Cheloti and Mooya (2021) examined problems with Valuation from the perspective of the Developing nations. The study observed that, issues as client influence, accuracies or variance and heuristics are the common global valuation problems that have been generating debates under behavioural valuation rubric. In order to established the actual source of valuation problems in Kenya, practicing valuers were asked to state valuation problems, the adopted strategies and to recommend probable solutions to the problems. Findings of the study revealed that, valuation problems in the country emanate from both the valuers' misconduct and the valuation environment. But the proffered solutions focused more on improvement in the conduct of the valuers to the neglect of the market-related problems. Thus, the study concluded that valuation problems are better understood in the milieu of the identified problems and recommended holistic problem-solving approach. It is important to note that, none of the aforementioned studies on valuation problems addresses valuers' behavioural issues or have they removed barriers to meaningful economic transformation in the Nigeria real estate investment circle. It is worthy of note that, heuristics attributes encompass every aspect of valuation accuracies as it is a behavioural issue which its usage affect how every variable input factor in valuation are presented.

The focus of most previous work in Nigeria on the behavioural dimensions of valuation accuracies centered on the relationship between selling and open market prices of real estate, client influence, anchoring and adjustment to the neglect of the other forms of heuristics as representative, positivity, affect and availability (see Iroham et al., 2013; Adegoke et al., 2012; Adegoke, 2008; Ogunba and Ojo, 2007; Adegoke and Aluko, 2007). The current study extends the frontier of knowledge in heuristic valuation by exploring the application of the overlooked areas of heuristic valuation practice in the selected states; hence fill the existing literature gap in behavioural valuation and refining the practice of property valuation in Kaduna and Kano.

The Study Area and Methodological Approach

Kaduna and Kano are both state capital in the northern region of Nigeria with vibrant property market transactions. There are 75 real estate surveying and valuation firms in Kaduna and 45 in Kano. Apart from Abuja, Kaduna and Kano have the most active real property markets with national and regional outlook and high concentration of foreign participants in the real estate investment market of the region. The vibrant operations of real estate transactions and the increasing presence of real estate surveying and valuation firms inform the choice of the two cities.

As a cross- sectional research, the survey entails the sampling of the opinion of 59 out of the 75 estate surveying and valuation firms in Kaduna and 43 out of the 45 estate surveying and valuation firms in Kano who adequately filled and returned the administered questionnaires for analysis representing 85% of the total questionnaires administered. Simple random sampling survey was adopted in picking the respondents for the study to avoid sampling preconception that could possibly affect the neutrality and decisive findings of the study. However, the metropolis was stratified into three zones each for convenience, ease of questionnaire administration and data collection. Ordinal scale was used in measuring the data collected with a weight assigned to each of the scale. This technique helped in the later ranking of the variables. The study like Babawale and Omirin (2011) focused on valuation practice involving residential properties sub-sector as it is the most vibrant sub-market with enough data and represents the major stock of real estate assets in Kaduna and Kano metropolis. The study equally examined the extent of the adoption of valuers' heuristic behaviour in the property valuation exercise in study areas.

Findings and Discussion

The Summary of Questionnaire Administered in each of the Locations/ Study Areas.

The total number of questionnaires administered on the respondent were presented in Table 1. For Kaduna state a total of 75 questionnaire were administered on the responding Estate Surveying and Valuation firms. These questionnaires were directly handed to the principal partners/managers or the senior surveyors in the firm. Only 59 of the administered questionnaires were adequate filled and returned for analysis representing 79% response rate. For Kano, out of the 45 questionnaires administered only 43 were adequately filled and returned representing 96% response rate. In all, a total of 120 questionnaires

were administered on the respondents, 102 of questionnaires adequately filled and returned for analysis representing 85% response rate.

Table: 1 Questionnaire Administered in Kaduna and Kano

Locations	Administered Questionnaire	Retrieved	Not Retrieved	Response Rate (%)
Kaduna	75	59	7	79
Kano	45	43	2	96
Total	120 (100)	102 (85)	8 (7)	85

Source: Author's Field Survey, (2023)

Profile of the respondents' principal partners and managers/senior surveyors in the firms

The background information of the respondents was obtained in order to establish their appropriateness for the study. Information obtained from this sets of respondent includes their professional years of experience in property valuation, academic and professional qualifications and their present positions in their current firms. The details are presented in Table 2. The Table revealed that about 7% and 93% of the respondents in Kaduna and 5% and 95% in Kano are Fellows and Associates of the institution with about 95% and 93% of these respondents have well over 6 years' experience in property valuation in Kaduna and Kano respectively. It is thus pertinent to note that the respondents are professionally and academically qualified, better prepared and positioned to provide answers to the research questions and further proved the quality of the field data obtained and the data sources reliability.

Table 2: Questionnaires Administered in Kaduna and Kano

Kaduna				Kano			
Background Information	Group	Freq.	%	Background Information	Group	Freq.	%
Professional Qualification	FNIVS/RSV	04	07	Professional Qualification	FNIVS/RSV	2	5
	ANIVS/RSV	55	93		ANIVS/RSV	41	95
	Total	**59**	**100**		**Total**	**43**	**100**

Current Position in Firm	Principal Partner	15	25.4	Current Position in Firm	Principal Partner	10	23
	Manager	35	59.3		Manager	30	70
	Senior surveyor	09	15.3		Senior surveyor	3	07
	Total	**59**	**100**		Total	43	100
Professional Experience	Less than 5years	02	03.4	Professional Experience	Less than 5years	03	07
	6 to 10years	25	42.4		6 to 10years	15	35
	Above 11years	32	52.2		Above 11years	25	58
	Total	**59**	100		Total	**43**	100

Source: Author's Field Survey, (2023)

In order to determine the level of the application of heuristics in valuation practice in the study areas, questions relating to availability heuristics bothered on sources of outgoings to derive net income during investment valuation; rental evidences in carrying out valuation and the determination of yield (see Table 3). On the application of representative heuristics, the respondents were asked questions on if their estimates vary when valuing identical properties within the same neighbourhood, assign the same value to properties with similar design or when it is observed that, there exist little difference in the design, plot size, packing space, high quality wall and floor finishes (see Table 4).

For positivity heuristics, the respondents were asked if there are existences where the preconceived values are higher than the calculated values and market evidence, and if so, then, what are the nature of actions that were taken (see Table 5).

While to determine the level of the application of affective heuristics valuation in the study area, issues on investment valuation risk as capital market risk, market risk, financial risk, liquidity risk, environmental risk, legislative risk, management risk and other forms of insecurity risks were asked as these risk factors must be given adequate consideration in any valuation exercise. The study finally exposes the influences of these risk factors on property valuation exercises in the study areas and the level of valuers' dependence in the

application heuristic in valuation assignments in the study areas (see Tables 6 and 7).

Table 3 shows that about 83.1% and 88.4% of the respondents in Kaduna and Abuja sourced for outgoing to derive net income in investment valuation through the use of rule of thumb. Furthermore, 93.2% and 86% of the respondents obtained rental evidence through the use of available rental evidence in the study areas while 86.4% and 79.1% of the respondents sourced for yield through available yield evidence in Kaduna and Kano. One can therefore infer from Table 3 that, valuers heuristically apply different variables like rental evidence, outgoings, yield in investment valuation without adequate market research or enquiry to acquire the vital information. Hence, the applications of arbitrary outgoing figures without due diligence from 5% to 15%. This has led to cases of inaccurate valuation estimate. The application of availability heuristics in valuation is a common practice in the part of the world as valuers often make use of evidence either from past valuations or by asking collogues practicing in the location to make enquiries.

Table 3: Application of Availability Heuristic in Valuation

Related activities on Availability Heuristic		Kaduna	Kano
Sources of outgoings to derive net income during investment valuation	rule of thumb on outgoing	49(83.1)	38(88.4)
	through market survey	10(16.9)	5(11.6)
	Total	59(100)	43(100)
How valuers obtain rental evidence in carrying out valuation	Use of available rental evidence	55(93.2)	37(86)
	Use of market derived rental evidence	4(6.8)	6(14)
	Use of retrieved data	-	
	Adoption of data from professional colleagues	-	
	Total	59(100)	43(100)
Source of yield in valuation assignment	Use of available yield evidence	51(86.4)	34(79.1)
	Derived yield from market evidence through surveys	-	6(14.0)
	Enquiry through fellow surveyors	8(13.6)	3(7)
	Total	59(100)	43(100)

Source: Author's Field Survey, (2023)

Table 4 revealed the level of the application of representative heuristic in valuation in the study areas. The extent of the valuers' application of representative heuristic in valuation in the study areas was measured using three-point likert scale. The variation in the valuation of identical properties within the same neighbourhood was determined at 95% and 88%. For Kaduna and Kano while the extent to which valuers ascribed values to similar properties in the case of little difference in design was put at 95% and 84%, differences in plot size affect valuation is determined at 95% and 84%, the extent to which the parking space significantly affect value outcome is determined at 87% and 86% the extent to which the high quality wall or floor finishes influenced the value of similar design is determined at 73% and 76% in Kaduna and Kano respectively. The implication is that adequate and analysis must be done when determining the values of identical properties.

Table 4 Application of Representative Heuristic in Valuation

	Kaduna				Kano			
	N	Sum	Mean	REI	N	Sum	Mean	REI
Extent of variation when valuing identical properties within the same locations.	59	168	2.84	95	43	113	2.63	88
Extent to which valuers ascribe the same value to similar design properties whenever there is little difference in design.	59	168	2.84	95	43	108	2.51	84
Extent to which differences in plot size significantly affect valuation outcome.	59	162	2.74	91	43	118	2.74	91
Extent to which parking space significantly affect value outcome for similar properties.	59	154	2.61	87	43	110	2.56	85
Extent to which high quality wall or floor finishes influence the value of similar design .properties	59	129	2.18	73	43	98	2.28	76
Valid N (listwise)	59				43			

Source: Author's Field Survey, (2023)

The responses on related questions on positivity heuristic is presented in Table 5. The Table revealed that 89.8% and 86% of the respondents in Kaduna and Kano acknowledged that, their preconceived values are often higher than the calculated values and the actual market values. Also about 54.2% and 58.1% of the respondents adjusted calculated values to expected values in Kaduna and Kano. There are instances where valuers collects data to back up their beliefs rather collecting data that reflects the actual situation in the property market. Thus adopting strategies that confirm rather than refuting their beliefs are common in valuation practice and this has affected the accuracies of several valuation exercises.

Table 5 Application of Positivity Heuristic in Valuation

Valuers' activities on Positivity Heuristic		Kaduna	Kano
Instances where preconceived value is higher than calculated value and market evidence	Yes	53(89.8)	37(86)
	No	6(10.2)	6(14)
	Total	59(100)	43(100)
Action taken when preconceived value is higher than valuation estimate and market evidence	adopt calculated value	32(54.2)	25(58.1)
	adjust calculated to expected value	14(23.7)	12(27.9)
	take average of expected and calculated values	8(13.6)	3(7)
	change valuation method e.g investment to cost	5(8.5)	3(7)
	Total	59(100)	43(100)

Source: Field Survey (2019)

Issues that bothers on the cognitive and affective proficiencies of the valuers are serious issues that must be handle with care. The manifestation of the effects in the property market range from void resulting from mass exodus of people from areas prone to high incidences of insecurity, insurgency, kidnapping among

others to non-payment of rent due to loss of jobs, lack of proper maintenance among other several issues. It is therefore imperative that a valuer when undertaking valuation in high risk cites like Kaduna and Kano must properly analyse the impact of the various types of risks impacting factors, market and environmental factors before arriving at a defined opinion of value otherwise the valuation outcome may be inaccurate.

Table 6 revealed that, all the identified affective heuristic risks factors influences valuation figure at varying rates in the study areas ranging from 76% to 99% and 76% to 98% in Kaduna and Kano. Thus, there is the need for the payment of adequate attentions to these risk factors as they serves as a major sources of rental defaults, voids, management and maintenance problems and ultimately lowers property values.

Table 6: Analysis of influence of Risks in Valuation

	Kaduna				Kano			
	N	Sum	Mean	*RIR	N	Sum	Mean	*RIR
Market risk	59	289	4.89	98	43	206	4.79	96
Financial risk	59	287	4.86	97	43	206	4.79	96
Capital market risk	59	224	3.79	76	43	168	3.91	78
Inflation risk	59	287	4.86	97	43	180	4.19	84
Liquidity risk	59	289	4.89	98	43	199	4.62	92
Environmental risk	59	291	4.93	99	43	197	4.58	92
Legislative risk	59	225	3.81	76	43	147	3.42	68
Management risk	59	290	4.92	98	43	210	4.88	98
Kidnapping/armed robber/insecurity	59	244	4.14	83	43	163	3.79	76
Valid N (listwise)	59				43			

Source: Author's Field Survey, (2023) *RIR-Relative Influence of Risk

Table 7 analyses the extent of valuers' dependence on heuristic valuation in the study areas. The table shows that, anchoring and adjustment heuristic has the highest relative occurrence index of 91% in both Kaduna and Kano. This indicates that anchoring and adjustment heuristic is the most used heuristic adopted by valuers across the study areas. The study also discovered that affect heuristic is found to have high relative occurrence index of 87% and 89% in Kaduna and Kano respectively.

Table 7: Extent of Valuers' Dependence on Heuristics in Valuations

Heuristics		Kaduna				Kano			
		N	Sum	Mean	*ROI	N	Sum	Mean	*ROI
Anchoring & Adjustment	Recourse to past valuation estimates	59	261	4.42	91%	43	186	4.32	91%
	Frequency of the use of anchoring and adjustment	59	277	4.69		43	204	4.74	
Availability	*Application of the rule of thumb in depreciation estimates in carrying out valuation	59	243	4.12	79%	43	182	4.23	80%
	*Frequency of the use of rule of thumb in choosing a rate for outgoing to arrive at net value of property	59	206	3.49		43	153	3.55	
	*Extent of the use of rule of thumb in determining the appropriate yield for property investment valuation	59	252	4.27		43	184	4.27	

Representative	*Placement of different value on stereotype properties in the same location with different facilities	59	211	3.58	73%	43	170	3.95	79%
	*Replacement of the same value to identical properties with different structural attributes	59	222	3.76		43	170	3.95	
Positivity	*Adherence to the calculated value whenever there is difference from rule of thumb value	59	206	3.49	82%	43	167	3.88	86%
	*Frequency of adjustment from calculated value to expected value	59	263	4.46		43	194	4.51	
	*Frequency of replacement of investment method for cost method	59	255	4.32		43	195	4.53	

Affect	*Quantification of risks affecting a property during valuation survey to	59	245	4.15	87%	43	183	4.25	89%
	determine the potential income of a property during Valuation	59	266	4.51		43	198	4.60	
Respondents	*Valid N (listwise)	59				43			

Source: Field Survey (2019). ROI = Relative Occurrence Index

Conclusion

The study investigates valuers' heuristics application in valuation practice in selected states in northern Nigeria. This becomes necessary in order to determine heuristics influence in valuation practice in the study areas. Despite the fact that, the reliability of valuation reports depend to a large extent on valuers' opinions, the inevitability of variations in valuers' judgement in valuation exercise cannot be over-emphasised. The study therefore recommends the need for adequate and proper market survey strategy, comprehensive and up to date property data bank, contemporary valuation methods and techniques, regular refresher courses and pupilage training and the adherence to professional ethics and code of conduct among others.

References

Adegoke, O. (2008). Behaviour of Valuers When Valuing Properties in Localities that They Lack Substantial Prior Experience, *Real Estate and Development Economics Research Journal*, *1*(1), 30 – 45.

Adegoke, O. J., Aluko, B. T. and Ajila, C. O. (2012). Relationship Between the Pattern of Valuer Heuristic Behaviour and Valuation Variation, *Journal of African Real Estate Research, 2*(1), 110-130

Adegoke O.J and Aluko B.T. (2007). Heuristic Behaviour in Valuation Practice in Lagos Metropolis. *The Estate Surveyor and Valuer* 30(1), 5-12.

Adegoke O.J., (2006). A Study of Valuers' Heuristic Behaviour and Valuation Reliability in Lagos Metropolis. Unpublished M.Sc. Thesis submitted to the Department of Estate Management, Obafemi Awolowo University, Ile – Ife, Nigeria.

Adegoke, O.J., Olaleye A and Oloyede S.A. (2013). A Study of Clients' Perception on Mortgage Valuation Reliability. *African Journal of Environmental Science and Technology* 7(7) 585-590.

Aluko B.T., (2007). Reliability of Mortgage Valuation for Institutional Lending in Nigeria, *International Journal of Strategic Property Management* 8(4),193 – 203.

Ankeli, I.A (2022). Influencing Factors of Property Use Conversion and Residential Properties Rental Value Trend in Ikeja, Nigeria. *International Journal of Real Estate Studies 16(2), 118-128*

Babatunde I.O. (2017). Reliability of the Liquidation Valuation Models of Selected Real Estate Collaterals in Niger State. *Environmental Technology and Science Journal* 8 (1), 16-26

Babawale, G. K and Omirin, M. M. (2011). Valuers' and Valuation Firms' Characteristics as Causes of Inaccuracy in Valuation in Nigeria. *Mediterranean Journal of Social Sciences* 2 (3) 12 - 23

Bello, V.A and Thomas, O.J. (2015). Valuation Variance in the Commercial Property Market in Lagos, Nigeria. *International Journal of Investment Management and Financial Innovations*. 4, 105-110.

Boyd, T and Irons, J., (2002). Valuation Variance and Negligence: The Importance of Reasonable Care, *Pacific Rim Property Research Journal*, *8***(**2), 107-126.

Bretten, J. & Wyatt, P., (2001). *Variance in property valuations for commercial lending*, RICS Foundation Research Paper, May.

Cheloti, I.; Mooya, M (2021). Valuation Problems in Developing Countries: A New Perspective. *Land*. 10, 1352. https://doi.org/10.3390/ land10121352

Iroham, C.O., Ogunba, O.A., Oloyede, S.A and Omirin, M.M (2013). Factors Affecting the Usage of Major Heuristics in Nigeria Property Investment Valuation. *Journal of Sustainable Development Studies*. 4(2), 114-133

Iroham, C.O., (2012). Heuristics in Property Investment Valuation in Nigeria (Unpublished Ph.D. Thesis), Department of Estate Management, Covenant University, Ota, Nigeria.

Lowies G.A., Hall J.H and Cloete C.E. (2016). *Heuristic – Driven Bias in Property Investment Decision-Making in South Africa. Journal of Property Investment and Finance* 34(1), 51- 67.

Mohammad, N.E., Ali, H.M and Jasimin, T.H (2018). Valuer's Behavioural Uncertainties in Property Valuation Decision Making. *Journal of the Malaysia Institute of Planners* 16 (1), 239 – 250

Ogunba, O.A. and Ojo, O. (2007). Resolving Reliability, Consistency and Rationality Problems of Professionally Prepared Valuations in Nigerian Practice, *Journal of the Nigerian Institution of Estate Surveyors and Valuers 30*(1), 39-48.

Tidwell, O. A. & Gallimore, P., (2014). The influence of a decision tool on real estate valuations *Journal of Property Research*, 31(1), 45-63

Tidwell, O.A., (2011). An Investigation into Appraisal Bias: The Role of Decision Support Tools in Debiasing Valuation Judgments. PhD Thesis, Robinson College of Business Georgia State University USA.

Warren-Myers, G. (2016). Sustainability Evolution in the Australian Property Market: Examining Valuers' Comprehension, Knowledge and Value. *Journal of Property Investment and Finance* 34(6) pp. 578-601.