THE DEMAND FOR ACCURACY IN VALUATIONS: THE CASE OF NIGERIA

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ABSTRACT

Interest in the accuracy of valuations has been spurred worldwide by increasing international requirements for accurate market value estimates required for use in investment decision-making. Developing countries such as Nigeria have not carried out much of such studies due to inhibitions, particularly the absence of property databases. The study demonstrates how accuracy studies can be undertaken in Nigeria notwithstanding this constraint.

200 firms were surveyed in Lagos, Nigeria. The problem of the absence of databases was overcome by asking valuers to value recently sold properties without knowing the sale price. Using several tests, (ranges, mean deviation, regression analysis, and analysis of variance), significant degrees of valuation unreliability were found, which suggest that valuation estimates cannot yet be acceptably used for property investment decision making in Nigeria. The causes were traced to non-uniformity in valuation input determination. These causes were in turn traced to some deficiencies in the educational and practice structure of Nigerian valuation.

The paper recommends that Nigerian valuation regulatory institutions should improve the accuracy of its valuation by facilitating a regularly updated property databank and a valuation practice standard handbook.

Keywords: valuation accuracy, valuation conduct, valuation practice structure

Introduction

This paper addresses issues of the accuracy of freehold valuations of investment properties in Nigeria. Accuracy is defined as the closeness or proximity of valuations to market price [Waldy; 1997; Parker, 1998, Crosby et.al., 2003]. Market price is defined as the recorded consideration paid for a property.

In recent years, the issue of valuation accuracy and the reliability of commercial property valuation as an effective proxy for property sales has received considerable international interest and debate in the UK, US, Canada and Australia. This has been exuberated by the increasing worldwide trend of investment on portfolio basis and the fact that “most property portfolio decisions are based on valuations and not prices” [Brown and Matysiak, 2000]. Even in countries where portfolio management is still in rudimentary
form, clients generally depend on valuation opinions to make decisions on mortgage, insurance, and other purposes. Such clients expect valuation opinions to provide an accurate basis for their investment decisions. Unfortunately, there is growing suspicion that the advice the valuers offer is driven by the need to increase or generate fees and that his assessment methods - particularly the investment method of valuation - are shrouded with mystery and are indefensible [Baum and Macgregor, 1992, p. 720-723]. Brewerton [1988] similarly observes that “outside the property industry there is widespread suspicion of the valuation process”. In developed countries such as the UK and US, accuracy studies have made an effort to probe such allegations. Though the results in such countries are not yet conclusive, there is at least an effort to investigate inaccuracy and thereby ascertain if there is a need for corrective action. The need for accuracy studies and corrective action is not restricted to developed countries: all countries require investigative studies which could suggest how its valuation profession can put its house in order (if inaccuracies are detected), so that its clients can confidently base their decisions on valuation estimates. Even where results prove the accuracy of valuations, clients (property developers/investors), would thereby be encouraged to base their decisions on valuer’s estimates. For these reasons, developing countries need to conduct accuracy studies notwithstanding the main constraint in that direction [identified by Ogunba, 1997, 2002] - the absence of property databases. The objectives of the paper are to undertake such a study in Nigeria and to investigate the causes inaccuracy (if inaccuracy is detected). This would in turn lead to suggestions on how the profession can put its house in order, if necessary.

Much work has been done in the UK, Canada and Australia on valuation methods in the past twenty years [Parker, 1993 p.370], and this is a result of continuing concern on the need for accuracy, reliability and credibility [Gallimore, 1995, p. 15]. “Equivalent US studies have added to the debate” [Newell and Kishore, 1997]. Valuation accuracy studies in developed countries are usually conducted drawing from databases such as the IPD of the UK or Australia’s CPM. Unfortunately, the databases that developed countries rely on to carry out such valuation accuracy studies are not yet present in developing countries such as Nigeria [Ogunba, 2002]. This is probably why in developing countries, the re-examination of valuation practice is either non-existent or just beginning. In Africa for example, (outside of preliminary studies in Nigeria), one is not aware of any published literature on valuation accuracy except one that is yet to be completed in Zambia [Musole, 2000]. Even in Nigeria, most studies have focused on a single place (Lagos State metropolis).

**Empirical tests of valuation accuracy in different countries.**

Millington [1985] claims that valuation accuracy is improbable, describing such expectations as “foolish” and akin to an aspiration to predict the winner of the Grand National which, if achieved would remove risk from property investment”. Notwithstanding, no one subscribes to valuation accuracy beyond a certain limit. The placement of the limit of acceptability is however a matter of some disagreement. Hager and Lord [1985] considers a range of “about 5%” acceptable, while Glover [1985] considers 10% as the outer limit of acceptability. Baum and Crosby [1988] state “it is even common to quote an acceptable margin of error of up to 15% in valuations”.
In Australia, Newell and Kishore [1998] undertook an empirical test of the accuracy of commercial property valuations as an effective proxy for sales using the commercial property monitor (CPM) database, MSW value-Generals records and the Independent Property Trust review transaction details. Two hundred and eighteen commercial property sales (comprising 101 office and 117 retail properties worth $15.5 Billion from Sydney over 1987-96 were examined. The regression based procedure of Matysiak and Wang [1995], was used in their statistical analysis after proper adjustment were made to accommodate time lags between timing of valuations and respective sales using the PCA property indices. After accommodating lags between valuations and sales, and different market conditions by introducing dummy variables, the resulting regression equation demonstrated that valuations on average are an effective proxy for sales particularly after adjustments are made for valuation timing and the state of property market. Parker [1998] also conducted an empirical test on valuation accuracy adopting a plus or minus ten percent (+/- 10%) test of inaccuracy. Each of the seven properties considered were independently valued by one major national firm of valuers as at the date of close of tenders and the prices nominated by the seven potential purchasers. Though none of the valuations matched the market price exactly, he concluded that valuations are a good proxy for price in the Australian investment property market.

In the United Kingdom, statistical investigations into valuation accuracy started with a paper in the UK by Hager and Lord [1985] who conducted a small sample survey where ten surveyors were invited to value two properties. In one case the range of valuation was ±10.6% and in the other ±18.5% suggesting a relatively low level of valuation accuracy relative to the accuracy standard of ±5% considered by these authors. Brown [1991] carried out a larger and more vigorous study using regression based analysis on a sample of 29 properties over the period 1975 to 1980. He found a very high correlation between valuation transaction and price with prices explaining about 99%. A similar procedure was adopted by IPD/Drivers Jonas [1988]. They ran a series of regressions on a sample of 1442 properties sold between January 1982 and March 1988, which were preceded by at least two open market valuations in the two years prior to sale. They analyzed these samples using a simple least square model to regress price on value (the inverse of Brown’s model). They concluded that valuations are a good proxy for price. IPD/Drivers Jonas [1990] updated their analysis to consider 2,400 properties for which there were transactions and valuations. A high correlation between valuations and transaction prices was again arrived at. Lizieri and Vienmore–Rowland [1991] questioned the statistical methodology adopted by Brown and IPD/Drivers Jonas. The examined data and size effects and concluded that the statistical methodology adopted by IPD/Drivers Jonas [1988, 1990] and Brown [1991] was flawed. Matysiak and Wang [1995] also analyzed 317 sets (obtained from the Jones Lang, Lasalle Property Performance Analysis System (PPAS) of valuation and transaction data covering the period 1978 to 1991. They found that the probability of achieving a selling price with ±10% of the valuation was only 30%, rising to a probability of 55% within 15% of the valuation and 70% within ±20% of the valuation.

Recently, Mokrane [2002] addressed issues of valuation accuracy and consistency in five countries of which UK is included. He covered a period of 1990 – 2000 and arrived at the conclusion that there exists only a short “distance” between transaction sales and adjusted valuations. Mokrane [2002] also addressed issues of valuation accuracy and consistency in four other counties - France, Germany, the Netherlands and Sweden. The accuracy
tests made provision for the adjustment of previous valuation for market movements and
capital expenditures and receipts that may have taken place between the valuation date
and transaction date. On France, Mokrane’s study covered the period of 1997-2000 and
about 2000 properties. He arrived at the conclusion that the level of accuracy results is
satisfactory. He pointed out that the skewness arrived at was positive indicating that
valuations slightly lag the market. In Sweden, Mokrane, covered a period of 1997 – 2000
and studied an average number of 1800 properties. Considering consistency he found that
the change-in-valuer effect was statistically significant. On accuracy, he found out that
there was positive skewness, which is indicative of the fact that valuations slightly lag
the market. With regard to the Netherlands, Mokrane covered the period 1999 to 2000.
On accuracy, he arrived at the conclusion that valuations slightly lag the market. His
analysis in this regard covered a period of 1999-2000 with four hundred and fifty-six
sales considered. The period 1997-2000 was the focus in the consistency study in
Germany. On accuracy, he considered one hundred and ninety-five sales and found out
that there was a slight lag between adjusted valuations and sale price.

Prior studies in Nigeria have been preliminary, focused on only one metropolis. Ogunba
[1997] and Ogunba & Ajayi [1998] took the first major step to empirically study of
accuracy and variation in investment valuations in Nigeria. They analyzed the capital
value estimates from thirty valuation firms in Lagos State metropolis who were asked to
value two properties; on the basis of a variety of tests (i.e. the range, interquatile range,
mean-deviation from market price, regression and correlation analysis). They concluded
from their findings that valuations are not a very good proxy for market prices, since all
the measures of dispersion adopted demonstrated a dispersion of values far in excess of
the norm of ±5%. Aluko [2000] carried out study of 59 firms’ prior valuations of
foreclosed mortgage interests in Lagos State metropolis. Using regression/ANOVA-based
tests, he concluded that valuations are a good proxy for price and that despite anecdotal
evidence to the contrary, mortgage valuers are doing a very good job of price estimation.
Ogunba [1997] extended the accuracy discussion to an examination of factors responsible
for inaccuracy. He drew from Bains’ [1968] work in industrial economics. Bain’s theory
is called the structure-conduct-performance theory. Bain’s main postulation was that if
industrial performance is faulty, then causes for this can be found first in the conduct of
the industry and ultimately in the structure of the industry. Ogunba [1997] applied this to
the valuation industry, and consequently envisaged that if freehold valuation performance
is faulty (i.e. if valuations are inaccurate), then factors responsible for this can be found
primarily in valuation conduct (that is, the differential or wrong use of three valuation
inputs: rental value, outgoings and yield). He suggested that somewhat more remotely,
causal factors can be found in valuation structure (the way education and practice is
organized) Specifically, valuation accuracy is affected by the type of training and
qualification of respondents e.g. HND versus B.Sc.; the length of professional experience
and the departmental structure of firms (general practice versus specialization in
valuation). These postulations require empirical consideration. This paper examines the
proposition by evaluating whether inaccuracy (if it is proved) can be traced to factors in
the conduct and structure of Nigerian valuation practice.

Research methodology
Data collection was in 2003. The sample frame for the survey was obtained from the Directory of Estate Surveyors and Valuers in Nigeria [NIESV, 2002] which gave the total population of valuation firms in the study area (the six states in southwestern Nigeria) as two hundred and sixty-six (266). The breakdown shows that Lagos State has a total number of 228 firms, Ogun state 2; Ondo state 3; Ekiti state 0 (and therefore this state is excluded from consideration); Oyo state 20; and Osun state 3. A sample size of seventy-five percent (75%) of the sample frame in each of the states was adopted as follows: Total sample size - 75% of 266 = 199.5: Lagos State State: (171); Ogun (1.5 rounded up to 2); Oyo: (15); Osun: (2.25 rounded up to 2); Ondo: (9.75 rounded up to 10). Stratified systematic sampling was adopted as most appropriate for the study. The data collection instrument was questionnaires administered through field assistants. Respondents were asked to estimate the most likely selling price of eleven residential properties located within their own state, very recently sold by private treaty. The sale prices were not made known to the respondents. The respondents all indicated that they had valuation experience of residential properties located within their state. Duly completed questionnaires represented just about 22.5% of the sample size. Osun State and Ogun State recorded 100% while Ondo State, Oyo State and Lagos State recorded 70%, 46.7% and 15.8% respectively. We believe nevertheless, that the data obtained adequately reflects the market in the study areas. The data was analyzed by means of several statistical measures including the range, interquartile range, mean deviation [the approach of Hager & Lord, 1985], regression analysis [the approach of Brown, 1985 and the IPD, 1990 etc] and ANOVA.

The Results

Preliminary questions focused on the background of respondents. In summary, most of the firms were established between 1985 and 1994 and most employ between 1 and 4 valuers in between 1 to 4 branches distributed across southwestern Nigeria. About 20% of those who answered the questionnaires are partners in their firms while about the rest are employed valuers. The average respondent had a B.Sc degree or Higher National Diploma in Estate Management and about 60% of these have associate level professional qualifications. Approximately half of respondents have 1-4 years of professional experience, while the remainder has between 5 – 19 years experience in valuation.

(a) Range/Interquartile range - The range is the difference between the highest valuation estimate and the lowest estimate. In using this technique, we define the standard of accuracy by a range not exceeding ₦500,000 (this seems to be the maximum range Nigerian clients can accept according to Akinremi, 2004). The interquartile range provides the range of the more accurate 50% of valuations (i.e. third quartile – first quartile of valuations). For accuracy, this should not exceed ₦250,000 according to Akinremi, [2004] The range/interquartile ranges of the valuations in the five states are represented below:

<table>
<thead>
<tr>
<th>Location</th>
<th>Range</th>
<th>Interquartile range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagos State</td>
<td>₦224,000,000</td>
<td>₦48,500,000</td>
</tr>
</tbody>
</table>
The above ranges are much higher than the ranges expected by clients as suggested by Akinremi, [2004], particularly those for Lagos State.

(b) Mean deviation from market price - Mean deviation from market price refers to the mean (in absolute values) of the distances of the valuations from the actual market price. Mathematically, this is represented by the expression:

\[
\text{Mean Deviation} = \frac{\sum |P - V|}{N}
\]

Accuracy is measured by whether the mean deviation of valuations from market prices exceeds 10% (which we adopt in this study as the limit of acceptable variation from selling prices). The mean deviation results for the five states are represented below.

<table>
<thead>
<tr>
<th>Location</th>
<th>Mean Deviation</th>
<th>Percentage deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagos State</td>
<td>₦40,017,857</td>
<td>(67.91%)</td>
</tr>
<tr>
<td>Oyo State</td>
<td>₦3,063,846</td>
<td>(39.43%)</td>
</tr>
<tr>
<td>Ondo State</td>
<td>₦6,989,286</td>
<td>(55.91%)</td>
</tr>
<tr>
<td>Ogun State</td>
<td>₦625,000</td>
<td>(22.73%)</td>
</tr>
<tr>
<td>Osun State</td>
<td>₦3,080,000</td>
<td>(30.80%)</td>
</tr>
</tbody>
</table>

Accuracy results for the five states are represented below:

<table>
<thead>
<tr>
<th>Location</th>
<th>Regression Equation</th>
<th>(R^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagos State</td>
<td>(P = 1.291V - 1.00 \times 10^7)</td>
<td>(R^2 = 0.402)</td>
</tr>
<tr>
<td>Oyo State</td>
<td>(P = 0.667V + 3.67 \times 10^5)</td>
<td>(R^2 = 0.673)</td>
</tr>
<tr>
<td>Ondo State</td>
<td>(P = 0.689V + 6.90 \times 10^5)</td>
<td>(R^2 = 0.484)</td>
</tr>
<tr>
<td>Ogun State</td>
<td>(P = 1.000V + 2.50 \times 10^5)</td>
<td>(R^2 = 0.167)</td>
</tr>
<tr>
<td>Osun State</td>
<td>(P = 1.22V - 5.47 \times 10^5)</td>
<td>(No (R^2) - only one property considered)</td>
</tr>
<tr>
<td>All locations combined</td>
<td>(P = 1.221V - 5.47 \times 10^6)</td>
<td>(R^2 = 0.586)</td>
</tr>
</tbody>
</table>

In the above equations, the slope of \(V\) in each of the equations is statistically distinguishable from one (with the exception of the regression equation for Ogun State)
Valuation Accuracy in Nigeria

and the respective intercepts are distinguishable from zero. The summary \( R^2 \) shows that of the sales prices can be explained by the valuations to a 58.6% level. We conclude that there is some disparity between valuation and market price in each of the locations.

(d) Analysis of variance (ANOVA) - The results obtained from the analysis of variance of valuations versus prices are presented in the table below. Accuracy is measured by testing the hypothesis that value (V) is statistically equal to price (P). This can be seen through the p value. A p value beyond 0.05% suggests that V is not equal to P.

Table 4: Accuracy Results using ANOVA (Ho: V = M)

<table>
<thead>
<tr>
<th>Location</th>
<th>F. Ratio</th>
<th>P value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagos State</td>
<td>26.890</td>
<td>0.000</td>
<td>Sig. at 1%</td>
</tr>
<tr>
<td>Oyo State</td>
<td>220651</td>
<td>0.001</td>
<td>Sig. at 1%</td>
</tr>
<tr>
<td>Ondo State</td>
<td>11.235</td>
<td>0.005</td>
<td>Sig. at 1%</td>
</tr>
<tr>
<td>Ogun State</td>
<td>0.400</td>
<td>0.592</td>
<td>Not Sig. at 5%</td>
</tr>
<tr>
<td>Southwest Nigeria</td>
<td>103.117</td>
<td>0.002</td>
<td>Sig. at 5%</td>
</tr>
</tbody>
</table>

Source: Field Survey May 2003

Generally, the p values suggest that for southwestern Nigeria, valuations and market prices are not uniformly equal. The very bad case is that of Ogun state.

Causes of inaccuracy – the conduct of valuations

Having concluded that valuations are not a very accurate proxy for market prices, the attempt here is to investigate the causes using Ogunba’s [1997] adaptation of Bain’s [1968] structure-conduct-performance theory. As stated in the literature review, Ogunba suggested that if valuations are inaccurate, then reasons for this can be found in conduct (the use of valuation inputs) and ultimately in valuation structure (the way education and practice is organized). The paper’s evaluation of valuation conduct (the use of valuation inputs) focuses on an examination of valuers’ usage of outgoings, rental values and yield in the sales valuation calculations in respondent questionnaires. Leasehold valuations are not common in Nigeria and are therefore excluded from the analysis.

(i) Outgoings - Respondents were asked if they make deductions for outgoings. 84.44% stated they do make deductions, while 8.88% do not. Even among those who do deduct for outgoings in calculations, the manner of deduction is not uniform. The majority (63.16%) said they provide for outgoings based on actual outgoing expenditure, while 21.05% use rule of thumb rates for property types. Others (7.89%) use a rule of thumb rate for all properties. The inconsistent determination of net rental value is a clear pointer to inconsistent valuations.

(ii) Rental Value - In evaluating the impact of the manner of estimation of rental value on valuation accuracy, the approach was to examine the mean deviation of rental value estimates of valuers in respect of the eleven properties valued. The ranges vary between 2.04% (Ondo State) to 42.7% (Lagos State). Only the Ondo State valuations fell within a ±10%. This validates Ogunba (1997’s proposition; faulty estimation of rental value is a cause of valuation inaccuracy.

(iii) Yield – Reponses to questions showed that the manner of determining the yield for use in investment valuation calculations varies from firm to firm. Some calculate the
yield from current market evidence while others rely on rules of thumb established from past general evidence for the property type or location. The differential use of inputs is therefore a probable cause of inaccuracy and inconsistency.

Causes of inaccuracy – the educational and practice structure of the valuation.

Following Ogunba’s adaptation of Bain’s theory, the causes of valuation inaccuracy can in turn be traced to industrial structure (the educational and practice structure of the valuation profession). In this section, the attempt is to determine if the educational and practice structure of the valuation industry contributes to the causes of valuation inaccuracy. Drawing from the literature review [specifically, Ogunba, 1997], a number of factors were considered. These include the type of training and qualification of respondents, the length of professional experience and the departmental structure of firms (general practice versus specialization in valuation). The procedure is to examine the relative accuracy of valuations of respondents of differing educational background and practice structure. First, market prices were regressed on the valuations of respondents of different educational attainments (HND holders, B.Sc. holders only and those who have professional qualifications - ANIVS/ FNIVS). The results are as follows:

HND holders: \( V = 0.856P + 7,743,635, \ R^2 = 0.504 \) ………………………………(2)

B.Sc. holders: \( V = 1.506P - 8,609,343, \ R^2 = 0.437 \) ………………………………(3)

B.Sc. holders and HND holders: \( V = 1.340P + 3116369, \ R^2 = 0.440 \) ……… (4)

ANIVS and FNIVS: \( V = 0.868P + 15,000,000; \ R^2 = 0.698 \) ……………..… (5)

The test of accuracy is the extent to which the slope factor is statistically distinguishable from one and. the intercept from zero. On this basis, the ANIVS/FNIVS valuations are obviously more accurate. This agrees with Ogunba’s [1997] suggestion that valuation accuracy is affected by type of training. For increased accuracy therefore, firms should not allow any degree/diploma holder without professional qualifications to handle valuations.

Second, market prices were regressed on the valuations of respondents with varying years of professional experience with the following results:

Respondents with below 10 years experience: \( V = 1.155P - 523,199, \ R^2 = 0.64 \) ………(6)

Respondents with above 10 years experience: \( V = 0.880P - 110,617, \ R^2 = 0.938 \) ….(7)

The intercept –slope test and the \( R^2 \) show that those with higher professional experience (i.e. above 10 years) are better predictors of price. Valuation inexperience can therefore be accepted as one of the structural factors of inaccuracy, which should be addressed.

Third, market prices were regressed on the valuations of respondents in valuation departments (i.e. those with a specialization in valuation) and this was compared with the corresponding regression equation of those in general estate management practice.

Respondents in general practice: \( V = 1.151P - 137,476, \ R^2 = 0.670 \) ……………..… (8)

Respondents with specialization in valuation: \( V = 0.855P + 8,648,793, \ R^2 = 0.881 \) …(9)
The intercept –slope test and the $R^2$ suggest that that specialization increases accuracy. An increased level of specialization in practice might yield more accurate results.

**Concluding remarks**

The study has shown that it is possible to conduct an in-depth accuracy study in a developing country in the absence of a property database such as the IPD in the UK. The procedure was to request valuers to value properties recently sold without being aware of sales prices. We suggest that other developing countries faced with an absence of databases can adopt the paper’s procedure so that their valuation professions can ascertain how accurate their valuation estimates are and thereby undertake corrective action, if found necessary.

There is a significant degree of valuation inaccuracy in the Nigerian situation. The paper has identified causes from an examination of the conduct of valuation practitioners as well as the educational and practice structure of the valuation industry using the structure conduct performance theory as adapted by Ogunba [1997]. The Nigerian inaccuracy problem is not insurmountable, and we offer a number of suggestions to assist in the search for greater accuracy: First, we believe that the regulatory institutions (The Nigerian Institution of Estate Surveyors and Valuers and Estate Surveyors and Valuers Registration Board of Nigeria) should facilitate a regularly updated property databank to which all surveyors would have access. Secondly, a valuation or practice standard handbook (similar to UK’S Red Book) should be made to aid standardization and uniformity in the conduct of valuations. We must also advise that estate surveying and valuation firms should adopt a departmentalized structure that will encourage specialization and make use of only experienced professionally qualified staff for valuations.

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