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## PRACTICE BRIEFING

# A note on valuation accuracy: an Australian case study

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Practice briefing:  
 A note on  
 valuation  
 accuracy

401

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**Abstract** Having considered the quantitatively analytical literature concerning valuation accuracy, a number of practical limitations are identified. Such limitations are then addressed in a small sample case study concerning the simultaneous valuation and sale of a portfolio of seven commercial, retail and industrial properties. The level of valuation accuracy observed is compared to that noted in the quantitatively analytical literature and found to be supportive at the portfolio level, suggesting that such practical limitations may have relatively little effect on the results given in such literature. However, having regard to the range and consistency of accuracy at the individual property level, it is contended that further research into the influences on accuracy at the individual property level could be worthwhile.

### Introduction

Much has been written about the issue of valuation accuracy including both qualitative and quantitative contributions.

Interestingly, qualitative commentaries exhibit an attitude of almost unquestioning acceptance that inaccuracy would exist, with the principal focus and debate being upon the extent of such inaccuracy and its acceptability from a professional negligence viewpoint rather than upon whether inaccuracy does, in fact, exist (see, for example, Millington, 1985).

The significant body of quantitatively analytical literature suggests a high level of valuation accuracy (see, for example, Brown, 1991; IPD/DJ, 1990), with a growing but minority body of literature questioning this view (see, for example, Matysiak and Wang, 1995; Hutchison *et al.*, 1995).

The findings of the quantitatively analytical literature is, however, contended to be constrained by being based upon a range of limitations which potentially obscure the results of the analysis, with such limitations including both practical and statistical.

A notable proportion of the quantitatively analytical literature has focussed more upon the statistical limitations than the practical (see, for example, Lizieri and Venmore-Rowland, 1991; Brown, 1992; Lizieri and Venmore-Rowland, 1993). It is unfortunate that such high quality analysis has become mired in the semantics of statistics and premised upon conditions which potentially distance the findings of the studies from typical property investment market situations.

This paper is developed from elements within a conference paper delivered to the 1998 Pacific Rim Real Estate Society Conference in Perth, Australia.

Having regard to this trend, the following paper seeks to consider some of the practical limitations of the quantitatively analytical literature. It is proposed to endeavour to identify some such limitations and then to attempt to address these through the use of a carefully constructed case study. The findings of the case study concerning the level of valuation accuracy exhibited will then be observed, compared to those of the quantitatively analytical literature and conclusions drawn therefrom.

#### Definition of valuation accuracy

For the purposes of this paper, Waldy's approach to valuation accuracy will be adopted, being:

... restricted to the question of valuation versus market price, i.e. how close a valuation is to the market price ... (Waldy, 1997, p. 239).

Baum and Crosby (1988) define "valuation" as the estimate or prediction of the most likely selling price, distinguishable from "worth" which is specific to an individual given its subjective estimates of factors relevant to that individual. Baum *et al.* (1996) define "market price" as the "recorded consideration paid for a property".

Accordingly, for the purposes of this paper, valuation accuracy will be considered as being the proximity of a valuation (or prediction of the most likely selling price, often being an expectational assessment) to market price (or the recorded consideration paid for a property, being a current time or actual assessment).

#### Identification of practical limitations

Whilst the list proposed below is not anticipated to be comprehensive and is not in any order of priority, the following are suggested to be amongst the key practical limitations of that quantitatively analytical literature reviewed:

- *Transactional relevance* – studies such as Hager and Lord (1985) and Hutchison *et al.* (1995) compare valuations to valuations rather than valuations to transactions and so have no market relativity. Accordingly, to address this limitation, values should be compared to transactions.
- *Same point in time* – studies such as IPD (IPD/DJ, 1988, 1990), Brown (1991) and Matysiak and Wang (1995) compare valuations to transactions but not necessarily at the same point in time. Accordingly, there could be changes between the date of the valuation and the date of the transaction which impact upon the comparability of the two but are lost in the results of the analysis. Given that such changes may be at the individual property level, the local sub-market level, the property market level or within the local or national economy, it would be challenging to adjust the data to recognise the effects of all possible sources of change and still maintain

a high level of confidence in the findings. Accordingly, to address these limitations, valuations and transactions should be at the same point in time.

- *Real properties* – studies such as Hutchison *et al.* (1995) adopt hypothetical properties for the purpose of analysis. This may have the effect of adding an additional set of assumed conditions for the valuer which may contribute to differences in the resulting valuations, so clouding the actual extent of valuation accuracy observed. Accordingly, to address this limitation, the sample considered should comprise actual buildings.

- *Quality of information* – Reid (1985) argues that the nature, quality and extent of information provided to their valuers by Hager and Lord (1985) may have contributed to the level of accuracy observed in the results of the study. Given the fundamental role of information processing in valuation, the nature, quality and extent of information provided to valuers may be expected to be a crucial influence upon the level of accuracy achieved. Accordingly, to address this limitation, the quality of information provided should be carefully controlled.

- *Nature of instructions* – Reid (1985) also argues that the nature of the instructions provided to their valuers by Hager and Lord (1985) may have contributed to the level of accuracy observed in the results of their study. Accordingly, to address this limitation, consistent instructions should be provided to each valuer.

- *Fee basis* – Reid (1985) further argues that the absence of a fee for their valuers in the Hager and Lord (1985) study may have contributed to the level of accuracy observed in the results of the study. Accordingly, to address this limitation, each valuer should be paid a market level fee for the valuation provided.

- *Sample size* – the quantitatively analytical studies include a wide range of sample sizes from two (Hager and Lord, 1985) to 2,400 (IPD/DJ, 1990) which each present limitations. A sample size of two may potentially distort the results by being too small and allowing too great an influence on the results by the characteristics of the particular properties and their market contexts. Conversely, a sample size of 2,400 may distort the results through differences at the individual property, sector or geographic levels being obscured by the overall nature of the results. Accordingly, to address this limitation, an analytical study should ideally comprise a sample large enough to provide statistically robust findings whilst being small enough to observe the effect of differences at the individual property, sector or geographic levels.

- *Comparability of bases* – Baum and Crosby (1988) cite the assumptions upon which a valuer's assessment of open market value is often based, such as exclusion of special purchaser, full exposure to the

market and so forth. It is not known whether the various quantitatively analytical studies each adopted the same basis of valuation or whether any of the transactions contravened the assumptions underlying such basis. Accordingly, to address this limitation, all valuations should be based upon the same stated assumptions and properties excluded where the corresponding transactions breach such assumptions.

- *Vendor/purchaser representation* – Herd and Lizieri (1994) note that in the UK:

... valuers are in a quasi-monopolistic position as advisers to both buyers and sellers, using methodologies enshrined in professional practice and court and tribunal decisions ... (p. 129) to ... set a price framework within which negotiations take place ... (p. 141);

a view echoed by Harvard (1995):

... price is quite often determined by the interaction of surveyors' opinions of value rather than by competing purchasers in the open market (p. 113).

The extent to which this may have occurred within the data sets used for the various quantitatively analytical studies and the influence that this may have had upon the results is unknown. Accordingly, to address this limitation, an analytical study sample should comprise transactions where neither the vendor nor the purchaser surrendered their negotiation roles to valuers and where the valuation is not used by the vendor to set a sale price quoted to the purchaser.

- *Confluence of valuation and agency* – Baum and Crosby (1988) note that UK properties may often be valued for sale by those practitioners who will be actively involved in their marketing as agents, which "results in the confluence of the valuation process and the market price mechanism" (p. 5). Fletcher and Diskin (1994) consider similar issues in the context of the US market.

The extent to which such confluence may have occurred within the data sets used for the various quantitatively analytical studies referred to above and the influence that this may have had upon the results is unknown. Accordingly, to address this limitation, an analytical study sample should comprise transactions where the valuer is totally distinct from the agent.

- *Firm bias* – Brown (1991) comments on the possible effects of "firm bias" in the valuation process. The extent to which "firm bias" may have occurred within the data sets used for the various quantitatively analytical studies referred to above and the influence that this may have had upon the results is unknown. Accordingly, to address this limitation, valuations used for analysis should be undertaken in a manner which seeks to overcome any possible effects of "firm bias" on the resulting levels of accuracy observed.

- *Independence of valuations* – the use of the same valuer to value a given property more than once in succession may result in subsequent valuations being smoothed to provide a relativity to the original valuation. The extent to which such smoothing may have occurred within the data sets used for the various quantitatively analytical studies referred to above and the influence that this may have had upon the results is unknown. Accordingly, to address such a limitation, those valuers appointed to undertake valuations for analysis should not have undertaken the previous valuations of the same properties, so avoiding any consideration of relativity.

In summary, the principal practical limitations of the quantitatively analytical literature comprise the absence of real life/real time data, the lack of transparency through consistency and independence and the achievement of results which do not have both a robust basis and an individual property relativity.

To observe the extent to which such identified practical limitations may obscure the results given in the quantitatively analytical literature, a case study concerning the valuation and sale of a small portfolio of investment properties was carefully constructed.

#### Case study methodology

The case study constructed for analysis comprised a rare opportunity arising from the offer, by an Australian institutional vendor, of a portfolio of seven commercial, retail and industrial properties, located along the eastern seaboard of Australia, for sale by tender closing in November, 1995.

Each of the properties was independently valued by one major, national firm of valuers as at the date of close of tenders. Offers to purchase were received for each of the seven properties at close of tenders and the prices nominated by the seven potential purchasers (who were all different) remained unchanged to become the market price at which each property was sold, totalling \$105.20 million.

Accordingly, the case study comprised a rare opportunity to address those practical limitations referred to above, notably:

- *Transactional relevance* – the case study compared valuations to transactions and so provided market relativity. Further, each property in the case study was sold on the open market with no inter-company transfers based on the opinions of two valuers.
- *Same point in time* – the case study compared valuations as at the date of close of tenders with offers to purchase received at the close of tenders, so providing a valuation and transaction at the same point in time. Further, the tender process ensured no vendor/valuer/purchaser interaction concerning the level of valuation nor the level of bids and no opportunity for changes in the market or other matters between the valuation date and the transaction date.

- *Real properties* – the case study comprised properties which physically existed, so removing any influence on valuation accuracy that may arise from the use of hypothetical buildings.
- *Quality of information* – each valuer was provided with full information (including vendor prepared due diligence reports highlighting defects and capital expenditure required for rectification) and the opportunity to inspect and seek such further information as may be required.
- *Nature of instructions* – the same letter of instruction was used for each property to ensure complete consistency.
- *Fee basis* – a market rate fee was paid for the portfolio valuation, with two national firms quoting for the work and the respective quotes differing by less than 1 per cent. That valuation firm appointed held professional indemnity insurance cover and was aware that this may be called upon.
- *Sample size* – whilst the limitations of a small sample of seven properties for the purposes of statistical analysis are acknowledged, its use does facilitate consideration of differences at the individual property level without the masking effect that occurs in larger sample analyses.
- *Comparability of bases* – the instructions provided for each property to be valued using the then relevant, following standard definition of open market value, so excluding forced sales, special purchasers and so forth:

The price at which the property might reasonably be expected to be sold as at the date of valuation assuming:

- a willing, but not anxious, buyer and seller; and
- a reasonable period within which to negotiate the sale, having regard to the nature and situation of the property and the state of the market for property of the same kind; and
- that the property will be reasonably exposed to the market; and
- that no account is taken of the value of or other advantages or benefit, additional to market value, to the buyer incidental to ownership of the property being valued; and
- that the trust has sufficient resources to allow a reasonable period for the exposure of the property for sale; and
- that the trust has sufficient resources to negotiate an agreement for the sale of the property.

Further, all properties were conventional investment grade buildings with no unusual investment features. Each was free-standing, freehold, effectively fully leased, in good condition without the need for major capital expenditure and without additional vacant land or other unusual characteristics. The sample comprised only office, retail and industrial properties with no hotels, residential, redevelopment or other unusual

properties and each sale was to an independent purchaser, consistent with the definition adopted.

- *Vendor/purchaser representation* – neither the vendor nor the purchaser were valuers nor were either closely advised or represented by a valuer. Further, the valuations were not used to set the selling prices for the respective properties during the tender campaign.

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- *Confluence of valuation and agency* – the portfolio was offered for sale through one agency firm which was a different firm to that undertaking the valuation, so overcoming any possibility of confluence. Further, the valuers undertaking the valuation were purely employed by the firm as valuers and undertook no agency activity. (Interestingly, from a small sample survey, Parker (1997) found that the UK phenomenon of valuer/agent confluence was also evident in New Zealand, Singapore and Hong Kong but conspicuous by its absence in Australia.)

- *Firm bias* – whilst using the same firm to undertake all valuations may create a risk of “firm bias”, the requirement for individual personal registration of valuers in certain Australian States was considered likely to overcome such a risk. The use of one firm also potentially increased the level of consistency achieved through the standardisation created by that firm’s Quality Assurance programme. Significantly, this could be enjoyed whilst still benefiting from the specialist sub-sector knowledge of the individual valuers operating in the respective sub-sectors of each State.

- *Independence of valuations* – the valuation firm appointed had not undertaken the most recent prior valuation of the respective properties and so the potential for smoothing was removed.

Thus, the case study sought to address the principal practical limitations of the quantitatively analytical literature by comprising real life/real time data and providing transparency through consistency and independence. It is, however, acknowledged that the case study sample size does not provide a robust basis for statistical analysis but does facilitate the analysis of individual property relativity.

#### Case study results and observations

In order to maintain confidentiality, the respective properties are not specifically identified but key characteristics are summarised in Table I together with the respective levels of valuation accuracy observed.

As noted, valuation accuracy is considered to be the difference between the market price and the valuation, on the date of close of tenders, with a positive result if market price exceeds valuation and a negative result if valuation exceeds market price.

An analysis of Table I indicates the following interesting findings:

- None of the valuations matched the market prices exactly.

Table I.  
Case study -  
investment property  
valuations and  
contemporaneous  
transactions

Prop No.	Type	Loc'n	No. of ten'ts	Val'n Acc'y
C1	Commercial	Vic - sub'n CBD	1	(6.06%)
C2	Commercial	NSW - sub'n CBD	24	14.29%
				Arithmetic avg 4.11%
				\$ wghtd avg (1.15%)
R1	Retail	NSW - country	27	(6.73%)
R2	Retail	NSW - W sub'n	45	(1.64%)
				Arithmetic avg (2.55%)
				\$ wghtd avg (0.49%)
I1	Industrial	NSW - W sub'n	2	(8.33%)
I2	Industrial	NSW - N sub'n	16	(8.20%)
I3	Industrial	NSW - N sub'n	1	(8.82%)
				Arithmetic avg (8.45%)
				\$ wghtd avg (8.32%)
				Arithmetic avg (3.17%)
				\$ wghtd avg (2.46%)
Total portfolio				

- For the portfolio overall, the average level of valuation accuracy appears very high with valuations exceeding market price by a dollar weighted average of only 2.5 per cent.
- At the sectoral level, there are distinct differences with apparently extremely high accuracy for retail property (valuations exceeding market price by a dollar weighted average of only 0.5 per cent) and commercial property (valuations exceeding market price by a dollar weighted average of only 1.1 per cent) but very substantially lower accuracy for industrial property (valuations exceeding market price by a dollar weighted average of 8.3 per cent).
- At the geographic level, analysis of differences by State is rendered impractical by only one property not being in New South Wales. However, of those properties in New South Wales, five of the six are in suburban locations. Whilst the two industrial properties in the northern suburbs show a similar level of accuracy, this may be more attributable to sector than location as the two western suburban properties show no similarity in the level of accuracy exhibited.
- At the tenancy level, a broad polarity is displayed with negative results evident for single tenant properties and a positive result evident for that property with the largest number of tenants. However, the absence of consistency in the level of accuracy for those properties in between would suggest that tenant number may not be a significant criterion for valuation accuracy in this instance.

- At the individual property level, a range of accuracy is exhibited from valuation exceeding market price by 8.8 per cent to market price exceeding valuation by 14.3 per cent, with the greatest level of consistency in accuracy being for the three industrial properties.

Accordingly, the suggestion of the qualitative commentaries, that valuation accuracy should not be expected, was supported by the findings of the case study.

The correlation between valuations and market prices for the case study sample was 99.55 per cent which is even marginally in excess of the high levels of explanation identified in the quantitatively analytical studies (see, for example, IPD/DJ, 1988; Brown, 1991). Furthermore, the case study suggests a significantly greater level of accuracy than that found by Matysiak and Wang (1995) with 85 per cent of valuations being within  $\pm 10$  per cent of market price.

Whilst, given the small sample size for the case study, these findings could not be considered definitive, it is contended to be significant that such a high level of accuracy was observed in a case study which comprised a rare opportunity to address many of the practical limitations found in previous quantitatively analytical studies.

The findings of the study would, therefore, suggest that the identified practical limitations may have relatively little effect on the results at the portfolio level given in the quantitatively analytical literature. The results at the individual property level and sectoral level are, however, much less supportive of the findings at the portfolio level.

It is particularly interesting that such significant differences in accuracy observed at the individual property level may be capable of logical explanation by sectoral influences rather than by geographic or tenant number influences.

To see such a consistent level of accuracy amongst the three industrial properties suggests that further research into reasons for such accuracy would be worthwhile. For example, was the industrial market in New South Wales losing some momentum amongst investors at that time such that valuers, reliant on evidence of sales from the past, were not accurately reflecting the market of the day?

The apparently high level of valuation accuracy at the portfolio level may not, however, be particularly comforting to the vendor of the suburban CBD commercial property in New South Wales that sold for 14.29 per cent in excess of valuation. Such a low level of accuracy relative to the other findings is particularly interesting and would be worthy of further research. For example, is this the opposite of the situation that prevailed for industrial property? Has such a situation been compounded by a particularly aggressive buyer? Did subsequent sales support the price paid for this property or are there other factors which explain the out of line result? A focus on the inter-relationship between valuation accuracy and expectations may be a worthy avenue for further research.

### Conclusions

The case study considered above suggests that, at the individual property level, the extent of valuation accuracy may be a far more serious issue than the composite portfolio statistics might indicate. This may suggest that research efforts might be fruitfully expended investigating the influences on accuracy at the individual property level in order to provide confidence in the true level of valuation accuracy.

For example, approaching valuation as an information processing activity, as suggested by Brown (1991), would appear likely to be a particularly worthwhile avenue for further research in itself as well as in association with other areas. The combination of an information processing approach with behavioural analysis may result in existing approaches to valuation becoming irrelevant. For example, certain behavioural issues identified by Gallimore (1994) may be addressed by neural network applications, as advocated by James (1994), to replace existing approaches.

Alternatively, the use of more explicit techniques and capital markets oriented methods (as advocated by Harvard, 1995; Baum and Crosby, 1988) may be effective contributors to an improvement in valuation accuracy.

Furthermore, it may be contended that 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 and retrospectivity and by seeking to mirror the market of the date of valuation, it is contended that valuers themselves could make a very significant contribution to the gradual improvement in valuation accuracy.

Whilst addressing the practical limitations of the quantitatively analytical literature, the case study still broadly supported the findings therein concerning valuation accuracy at the portfolio level suggesting that such practical limitations may have relatively little effect on the results given in such literature. However, the case study served to highlight the significantly low level of valuation accuracy beneath the portfolio level at the individual property level. The challenge for both property researchers and valuers would, therefore, appear to be to improve valuation accuracy at the individual property level whilst maintaining the accuracy evident at the portfolio level.

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