Valuation under Conditions of Rapidly Changing Price

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Indonesia

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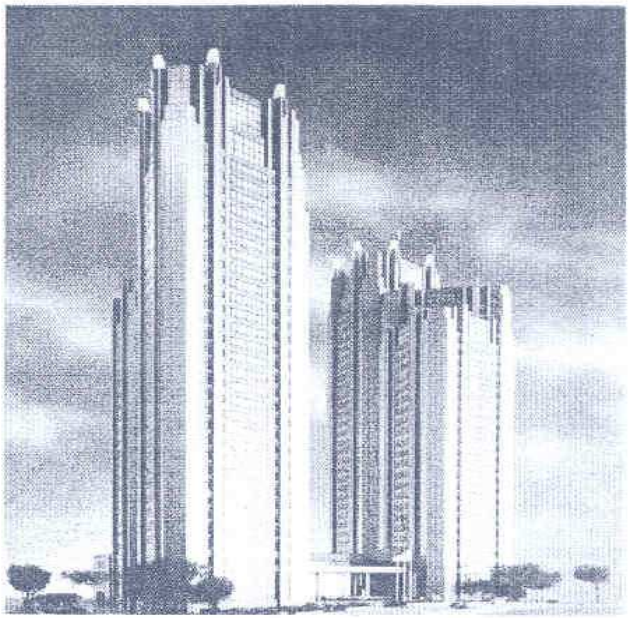
For
AVA CONGRESS - BANGKOK 1996



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- Civil Engineering Graduate, University of Indonesia Jakarta, 1978.
- Master Degree, Universiti Teknologi Malaysia, Skudai-Johor - 1995, with the Thesis : The Pattern of Land Values for Residential Uses within Jakarta.

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Valuation Course by Badan Pendidikan dan Latihan Keuangan (BPLK), Financial Department of Republic of Indonesia, 1980/1981.

PROFESSIONAL MEMBERSHIP

- A member of Masyarakat Profesi Penilai Indonesia/MAPPI (The Indonesian Society of Appraisers).
- A member of Ikatan Konsultan Indonesia / INKINDO (National Association of Indonesian Consultants)
- A member of International Real Estate Institute (IREI)
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AWARDS

- Indonesian Business Men & Woman of the Year 1995
- Asean Personality Awards 1995

SEMINAR

1981 : Seminar on Valuation Services by Department of Trade of Republic of Indonesia.

1989 :
- Seminar on Land Information System.
- Seminar on Financial Management for Non Finance Manager by IPPM, Jakarta.

1994 : Seminar on Domestic and Foreign Investment in Relation to Government Regulation No. 20, 1994 by Investment Coordinating Board.

1995 :
- Seminar on Developing Tall Buildings in Indonesia
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- Seminar on Multi Storey Rental Housing by State Ministry of Housing and Japan International Cooperation Agency.

1996 :
- Seminar on The Valuation Profession in Relation to Finance Ministry Decree 57/KMK/017/1996 by Indonesia Society of Appraisers (MAPPI) and Finance Department.
- Seminar on The Rule of Finance Institution Local Authority and Valuers in Development by University of Gajahmada.

CONGRESS

1987 : Asean Valuer Congress in Bangkok, Thailand.

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SPEAKER

1987 : As a speaker on Seminar of Improvement on Land and Building Tax by Directorate General of Land and Building Tax.

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- As a speaker on Seminar of Valuation Services by Bank Niaga.

1995 : As a speaker on Seminar of Valuation and Property Consultant Services by University of Gajahmada, Yogyakarta.

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1992 - to present : President Director of PT. Multicorpora Taratama Internasional.

1993 - to present : President Director of PT. Satyatama Graha Tara in Association with Brooke Hillier Parker.

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1987 : As a Deputy of Committee 32 (Valuation) INKINDO (National Association of Indonesian Consultants) DPD DKI.

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1989 : As a Deputy of Yayasan Penilai Indonesia / YAPPI (The Indonesian Valuers Training Foundation).

1989-1990: - A member of Government Delegation of Indonesia within The Asean Valuer (AVA)

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Valuation Under Conditions of Rapidly Changing Price

by

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Abstract

There are presently four valuation methodology which may be employed to determine the value of a property. The ability of the **traditional market comparison method** and **cost method** in dealing with conditions of rapidly changing prices is rather questionable. **The residual method**, depending on circumstances, may be refined to account for rapidly changing prices. However, **the investment method** holds a better promise since it is income related. If changes in income levels needs to be considered annually, the discounted cashflow method, which is in fact an extension of the investment . method should be given serious considerations as an alternative valuation methodology.

1.0 The Valuation Methodology

According to RICS (Royal Institute of Chartered Surveyors), the valuation methodology may be categorised into 4 main methods. These are -

i) the market comparison method
ii) the cost method
iii) the income / investment method[1]
iv) the residual method[2]

The market comparison method is based on the rationale that **the value of a property may be determined by comparing with other similar properties which have been transacted**. Any differences between the subject property and the comparable properties will be reflected by adjusting the transacted prices of the comparable properties. The adjustments are often subjective and are expressed as ± $ adjustment, ± % adjustment, ± fractional adjustment or are ascertained objectively using regression analysis.

[1] Although the profit method is sometimes recognised as another valuation method, its used in practice is rather limited. Furthermore, it is basically a variant of the income method.

[2] In Indonesia, the residual method is referred to as the development method

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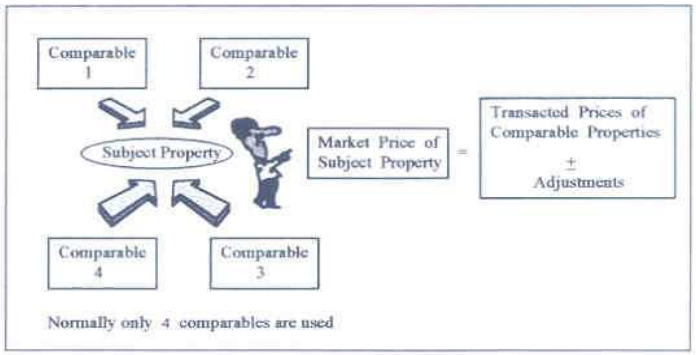
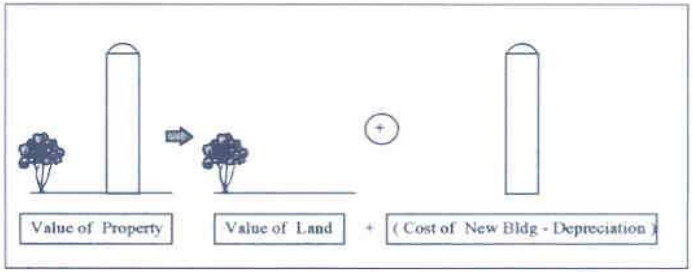
Fig 1: The Market Comparison Approach



The cost method is based on the premise that **a property comprises of 2 prime components - the land and the building.** As such the value of the property may be determined by adding the value of vacant land to the cost of a new building. If the building is old, adjustment has to be made for building depreciation. The value of the land is determined using the comparison method.

Fig 2: The Cost Approach



The income method stipulates that **the value of the property is dependent on the income flow that may be generated from the property**[3]. The higher the income flow, the greater is the value of the property and vice versa.

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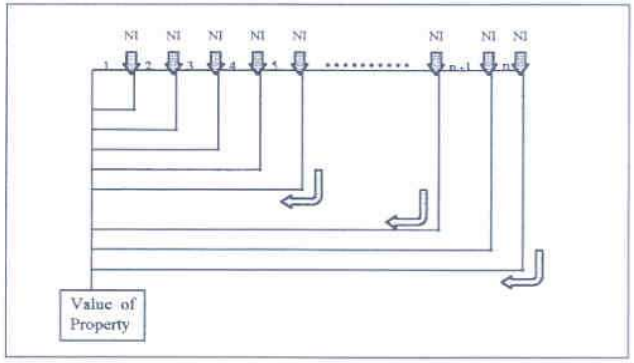
3 ⌟ signifies the income discounting process, where the discount factor for each NI is $\left(\frac{1}{(1+i)^n}\right)$

Fig 3: The Investment Approach



For freehold property or property with long leasehold period, the value of the property is expressed as,

Value = Net Income x Years Purchase

$$= NI \times \frac{1}{i}$$

where,

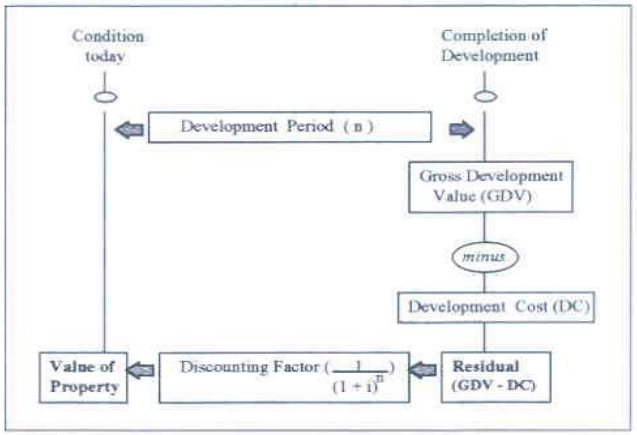
NI is the net income from the property at the time of valuation
i is the yield from the property

The residual method (or the development method as it is called in Indonesia) rationalises that **the value of the property is related to the development potential of the property**. The development potential is represented by the residual, that is the difference between Gross Development Value (GDV) and Development Cost (DC). The GDV is the value of the property after completion of development. If it is a residential development, the GDV is the total income from the sales of residential units. If it an office development, the GDV is the value of the office complex which may be ascertained using the investment method.

Since the residual is only obtainable after the completion of the development, it therefore needs to be discounted to the present. The discounted residual is thus the value of the property today.

The residual method is summarised in the figure below.

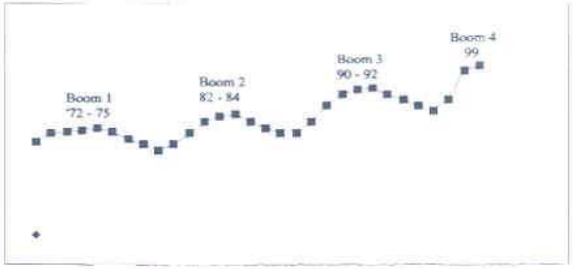
Fig 4: The Residual Method



2.0 Conditions of Rapidly Changing Prices

The property market is not a stagnant market for it has its ups and downs or what is technically referred to as the property cycle. For example, the property cycle for the Jakarta market is illustrated below.

Fig 5: Property Cycle



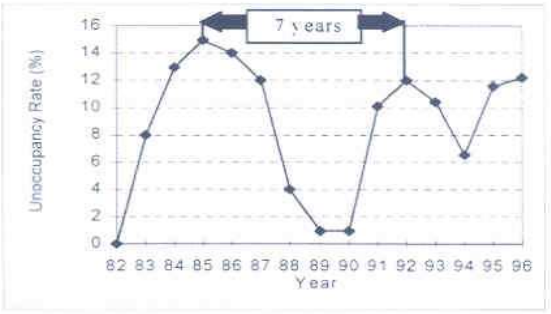
Source: SGT-BHP Research

Note that the above is only a general estimation of the overall property market. As we very well know, the property market comprises of smaller submarkets. The performance of the smaller submarkets (such as office, condominium, residential, retail, etc) may differ slightly than the general estimation of the overall market.

Fig 5 shows the property cycle in Jakarta from 1970 to the year 2000. In, general the property cycle is about 7 to 9 years. The first property boom started in 1972 to 1975. The boom years attracted a large number of property developers. However, by 1976 there was decreasing demand and excess supply. Things got worst in 1977. The second boom occurred from 1982 to 1984. By the end of 1984, demand started decreasing. The property market only recovered in 1988 and 1989. The third boom period lasted almost 3 years from 1990 to 1992. **Based on a property cycle of 7 to 9 years, the property market is expected to pick up by 1997 and the next boom is predicted sometime in 1999.**

Note that Fig 5 denotes the overall property market. Each property segment has its own cycle. Fig 6, for instance shows the office market cycle which is

Fig 6: Office Market Cycle



Source: SGT-BHP Research

represented by the unoccupancy rate and time. The figure shows that the office market cycle in Jakarta is approximately 7 years.

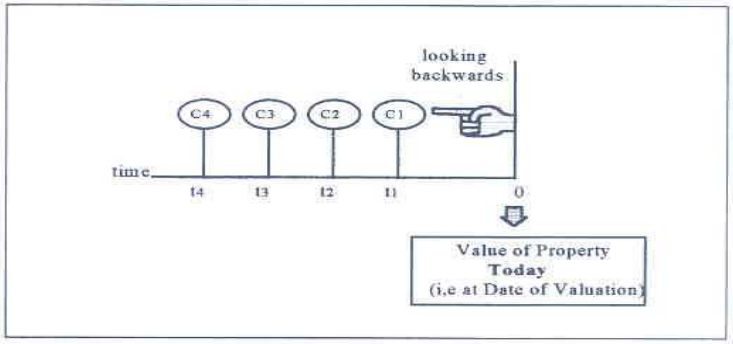
Periods of rapidly changing prices usually occurs when the property cycle is overheating towards the peak or rapidly cooling down reaching the bottom of the cycle or trough. Under these conditions, rapidly changing prices are reflected in the drastic changes (either increasing or decreasing) of transacted value of properties (for instance, vacant lands and residential / condominium prices), rentals (for example, office and retail) and room rates (hotels and resort accommodations).

3.0 Rapidly Changing Prices and its Consequences on the Valuation Methodology

3.1 The Market Comparison Method

As indicated earlier, one of the valuation methodology to determine the value of a property is the popular market comparison method. This method rationalises that the value of the property today may be gauged by analysing the prices of similar properties which have been ***transacted previously***.

Fig 7: The Market Comparison Method & Historical Comparable Data

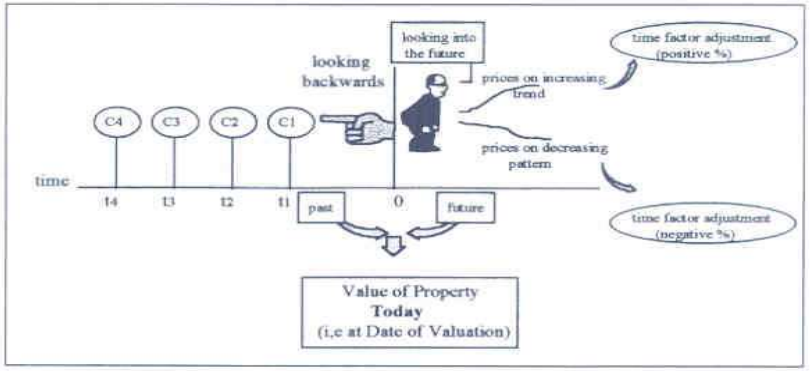


As the diagram illustrates, the market comparison method employs a "backward looking" approach. We look at the transacted prices in the past and subsequently make adjustments to estimate the value of property today (i.e. the date of valuation). Under conditions of rapidly changing price, this may pose a problem. Past market conditions or past transacted prices are not representative of the market conditions today particularly when comparables are transacted 6 months or 1 year ago. **Conditions of rapidly changing prices implies that the pattern of changing prices is unclear and under these circumstances, it is very difficult to make adjustments**. The ability of the market comparison under conditions of rapidly changing prices is therefore questionable[4].

[4] The inadequacy of the market comparison method may be overcome if can incorporate a "forward looking" approach. It needs to consider what is expected to occur in the future and built this future expectation into the prediction of value today. This can be done by conducting simulation exercise of future events through forecasting techniques such as regression analysis. The results of the regression analysis, such as adjustment for *time factor* can then be incorporated into the market comparison method.

Valuers may argue that **the comparison method does not entirely rely on a "backward looking" approach**. Future events such as anticipated increase or decrease in prices are also taken into consideration. These increases are usually reflected in what is usually termed as *time factor* adjustment which is commonly expressed as positive percentages if prices are on an increasing trend or negative percentages when prices are on a decreasing pattern. This is diagrammatically shown below.

Fig 8: Combination of "Looking Backward" and "Looking Forward Approaches"



The above illustration indicates that **the value of the property is in fact a combination of past as well as future events**. Again, the problem here is making adjustments for the future, that is determining the magnitude or percentages of the time factor. In practice, the time factor adjustment is usually based on the subjective judgement of the valuer but under conditions of rapidly changing prices, the accuracy of the subjective judgement is questionable. Most valuers are in fact guessing. This waekness may be overcome if forecasting techniques are included in the market comparison methodology. It has often been said that valuers deal a lot with the future but sadly quantifying the future through forecasting technique is seldom been considered.

Lately, there has been some suggestions that the comparison method is sort of split into a combination of 2 approaches. The first approach is to conduct a "pooled regression" analysis of past data or comparables. The "pooled regression" will yield the pattern of past transactions. The second approach is

to carry out a "time series" analysis (forecasting analysis) that enables projection of future events. The results of these 2 analysis is then combined to indicate the present value of the land. This concept is really a technical consideration of the "looking back" and "looking forward" approaches. However, to what extend this approach is realistic under conditions of data limitations and low valuation fees remains to be seen.

3.2 The Cost Method

The cost method theorizes that the value of the property may be segregated into value of land plus cost of building. Since the value of land is based on the market comparison method, it also suffers the same weakness under conditions of rapidly changing price. This weakness is aggravated further by the cost of building. Even under normal market conditions, building cost does not take into consideration the demand and supply factors of the market. Under situation of rapidly changing prices, when market conditions are going haywire, building cost remains pretty much the same. Because of the fixed nature of building cost, there is a tendency for the market value of the property to be under-estimated during a boom and over-estimated during a down-cycle or recession. **The cost method is a rather inflexible method at the best of times, and a totally inadequate method in times of rapidly changing price.**

3.3 The Residual (Development) Method

The residual method is usually employed to value land with development potential. The value of the land is related to the residual, that is, the difference between Gross Development Value (GDV) and Development Cost (DC). Market conditions will be reflected in GDV while DC is rather fixed in nature. As indicated earlier, GDV may be sales price (residential schemes or condominium project) or the value of the property (office, hotels and retail centres). If the GDV is sales prices, the appropriate level of sale prices is determined based on an analysis of sale prices of comparable developments. As such it shares the same weaknesses of the market comparison method. If GDV is the value of the property, the property value is determined using the investment method. The investment method, as will be subsequently discussed, may be modified to take into account rapidly changing prices. Therefore, **the ability of the residual method to deal with conditions of rapidly changing prices will be determined by the cases involved.** If the GDV is based on market comparison method, it shares the same fate as the market comparison method. If the GDV is

based on the investment method, it may be refined to account for conditions of rapidly changing prices.

3.4 The Investment Method

As indicated earlier, the investment method may be summarised by the following formula :

$$\textbf{Value} = \textbf{Net Income} \times \textbf{Years Purchase}$$

$$= NI \times \frac{1}{i}$$

where,

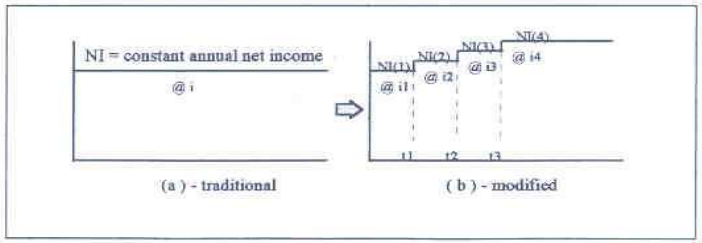
NI is the annual net income from the property at the time of valuation
i is the yield from the property

A major component of the annual net income is rental and this is derived based on a market comparison of rentals of comparable properties. As such the weaknesses of the market comparison method applies to rental determination. However, proponents of the investment method rationalised that changes in market conditions may be reflected by *i*, the yield of the property. If rentals are expected to rise in future, *i* will be reduced. Meanwhile if rentals are predicted to decrease, *i* will be increased. The adjustment to *i* is usually in the range of $\pm$ 1% of the current property yield.

Conditions of changing market prices is deemed to have been accounted for by maintaining rentals at current levels and deflating or inflating the yield (*i*). This rationale is somewhat difficult to swallow although it is often used.

Nevertheless, the traditional investment method is in a better position compared to the other methods in dealing with conditions of rapidly changing prices. The prime reason is because the investment method relates to income and changes in prices or income may be easily refined into the investment method. For instance, under conditions of rapidly increasing prices, the income projections may be reflected an increasing rental trend. This is shown below.

Fig 9: Modifications of the Traditional Investment Method



Using (b) to reflect conditions of rapidly changing prices, the value of the property is :

$$\text{Value} = NI(1) \times \left[\frac{1 - \frac{1}{(1+i1)^{t1}}}{i1} \right] + NI(2) \times \left[\frac{1 - \frac{1}{(1+i2)^{(t2-t1)}}}{i2} \right] \times \frac{1}{(1+i1)^{t1}}$$

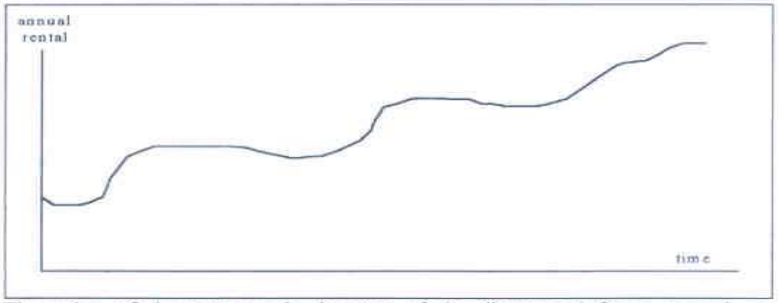
$$+ NI(3) \left[\frac{1 - \frac{1}{(1+i3)^{(t3-t2)}}}{i3} \right] \times \frac{1}{(1+i2)^{t2}} + NI(4) \left[\frac{1}{i4} \right] \times \frac{1}{(1+i3)^{t3}}$$

The time (t) for each income increase, may be annual, but in practice the usual period is 3 years primarily because buildings are leased on a 3 year basis and income for the 3 year period is constant even though market prices may be increasing or decreasing. Only after the leased period, can a new rental be negotiated. Note that the increase in rental has been projected for 9 years (since the lease is renewable after every 3 years). After 9 years, the annual income is assumed to be constant. Note that for every 3 year term, the yield is different. The yield is estimated to increase for each 3 year term to indicate the risk and uncertainties of receiving the projected increase in income level.

4.0 A Case for a Discounted Cashflow Analysis

Nevertheless, the condition of rapidly changing prices or rentals may also be estimated on an annual basis. Obviously the changes in income level need not be constantly increasing. It can be shown to have a cycle, sometimes increasing, sometimes decreasing. This is illustrated below.

Fig 10: Income Cycle

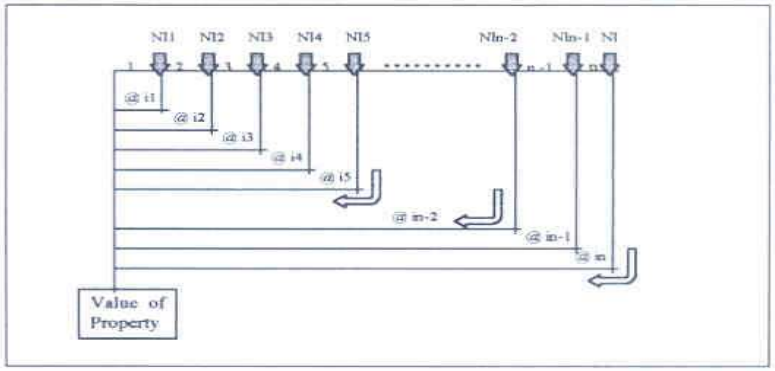


The value of the property is the sum of the discounted future annual net income, that is :

Value = ∑ (annual net income)

This is dramatically shown in Fig 10.

Fig 11: Future Annual Net Income



$$\text{Value of Property} = \frac{NI1}{(1+i1)} + \frac{NI2}{(1+i2)^2} + \frac{NI3}{(1+i3)^3} + \ldots\ldots\ldots + \frac{NIn-2}{(1+in-2)^{n-2}} + \frac{NIn-1}{(1+in-1)^{n-1}} + \frac{NIn}{(1+in)^n}$$

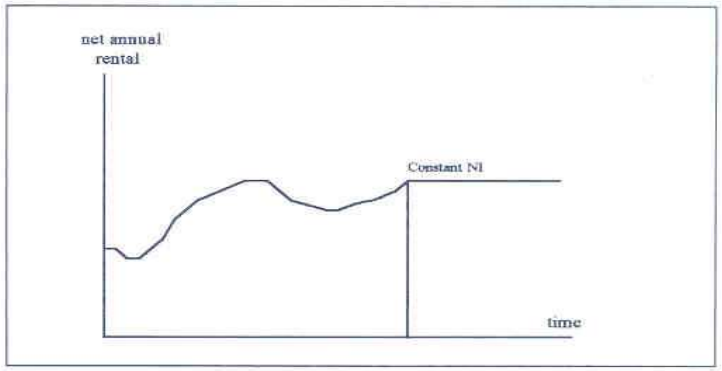
The yield (i), as the discounting rate may be based on the yield of the property. The i for each year changes marginally (approximately 0.5%) to indicate the risks and uncertainties of receiving the net annual income.

The main problem with adopting the discounted cashflow method is the ability to predict future net annual income. This may be overcome by using forecasting techniques such as regression analysis or time series analysis. A simpler method would be to look at historical trends of net annual income (preferably over a period of 10 years). This trend is then subjectively adjusted (based on the valuer's experience) to account for future events. Nevertheless, there is a limit to how far in future we can predict. A common practice is to forecast 10 years into the future, after which the net annual income is assumed to remain constant. Apart from the difficulty in predicting too far into the future, the impact of rising or declining income will not be substantial since the discounting factor will subsequently get larger, thus reducing the impact of net income on the value of the property. This modification is shown in Fig 11.

Based on this modification, the value of the property is,

$$\text{Value of Property} = \frac{NI1}{(1+i1)} + \frac{NI2}{(1+i2)^2} + \ldots\ldots + \frac{NI10}{(1+i10)^{10}} + \text{Constant NI} \left[\frac{1 - \frac{1}{(1+i)^n}}{i} \right] \times \frac{1}{(1+i)^{10}}$$

Fig 12: Changing and Constant Net Income



5.0 Conclusion

The above elaborations has shown that **the most suitable valuation method under conditions of rapidly changing prices or income is the investment method**. The flexibility of the investment method is mainly due to its rationale that the value of the property is determined by its income potential. The above discussions has also attempted to forward the idea that the discounted cashflow method, which is really a variant of the investment method, should be given serious consideration as another method to value property under conditions of rapidly changing prices.

6.0 Recommended References

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