Good value?

When faced with a choice in property investment, whether between particular pieces of property in the same location, between different locations in the same city, or even between different cities, many attempt to compare the "value" of the various choices. Valuation is a central issue in property investment. What is fair value, however?

From a pragmatic point of view, the concept of value is appealing because it implies that one can tell whether something is over or under priced. In this sense, a key task in valuation is to separate those elements that give a piece of property its "fundamental value" from those other elements that also affect its price.

In this direction, let us start with a simple idea that property is valuable ultimately because it serves the human need for shelter and comfort. The "value" of a particular property, however, depends not just on its aesthetics and facilities but also on those of the larger community in which the property is located. If we assume that "better" communities tend to pull people in and that the opportunities and "quality of living" tend to be closely related to the average income level, then population size and family income of the community should be closely related to the "fundamental value" of property of that community.

If price (property price and rent) reflects value, then some stable relationships between residential property price and these two factors should be expected.
Of course, we all know that price would not always reflect value. Price may deviate from value due to, among other things, fluctuations in speculative demands. If this is true, then we should expect the deviation of price from "value" to be related to fluctuations in speculative demands.

Intuitively, it is not difficult to argue that other factors may have the same, if not more, impact on price than the ones that we have discussed. For instance, factors that affect the affordability of property holding other than the price itself may also have important impact on the general level of property prices. It seems reasonable to assume that mortgage interest rate is an, if not the most, important factor of this kind as it has significant impact on the cost of holding property no matter whether it is hold for personal use, investment, or speculation. One can also argue that supply should be as important as demand. A simple argument would be that increase in supply should reduce price. These arguments suggest that when interest rates and supply are high, property prices are low.

With second thought, however, the relationships between interest rates and supply with property price may not be that simple. It is also not unreasonable to suggest that supply also response to prices, albeit with a lag. Similarly, both property prices and interest rate are likely to be high when the economy is strong. Thus, it is also possible to make the reverse argument that when interest rates and supply are high, property prices are also high.

Instead of speculating over these arguments, let us look at some real data. To simplify matters, we focused only on the relationships between population size, income, speculative demand, interest rates and property price.

To proceed, measures of population size, income, speculative demand, interest rates and property price need to be determined. A handy indicator of the combined effects of both population and income levels is the GDP. GDP is measure of the total value of production

of all residents producing units of a country or territory in a specified period, before deducting allowance for consumption of fixed capital."[1] GDP captures both population size and how much they earn (produce).

Speculative demand is difficult to define and measure. However, it seems plausible to suggest that the level of speculative demand (or supply) is related to the general level of confidence in the short to medium term performance of the economy. The average price-earning (P/E) ratio of blue chip stocks can be regarded as an indicator of this. Unfortunately, the measure is not readily available. Assuming that the GDP is closely related to the average earnings of blue chip stock, then the ratio of Hand Seng Index to the GDP should be a reasonable substitute as a measure of the general level of confidence in the short to medium term performance of the economy, and therefore of speculative demand. We can call this measure "market sentiment".

The best lending rate of HSBC can be used as a measure of interest rates as changes in mortgage rates should track closely the changes in best lending rate. Finally, the property price index compiled by the government is used as the proxy for the general level of property prices. All the data required are available from the Annual Digest of Statistics.

We have suggested that GDP may be closely related to "fundamental value" of property. To proceed with our analysis, we would like to make some additional assumptions:

1. The "fundamental value" of property is related to GDP by the simple formula:
   Value = a + b x GDP
   where a and b are constants.
2. a and b are calculated in such a way that minimizes the deviations of property prices from the calculated value.

The second assumption is consistent with the idea that there are forces (some would describe it as "gravitational pull") which pull prices towards the "fundamental value", counteracting forces (e.g. undue optimism or pessimism) that pull them apart. With these assumptions, the commonly used statistical technique of simple regression can be used to estimate a and b, and therefore value".

Annual data was collected for the period 1980 to 1997. Chart 1 shows the overall property price index (Ovrl), the GDP index (GDP), and "value" (aY')[2] over time. Even visually, it can be seen that they track quite closely with each other. Chart 2 shows the percentage deviation of the price index from the estimate of value (Ovrl-aY').

What the charts suggest is if we consider population size and income (as represented by GDP) as a proxy of value, property prices tend to fluctuate around "value" within a range of –27% to 60%[3]. According to the chart, the degree of over pricing was actually more serious in the boom of the early 1980s than the boom of 1996-97.

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[1] *Hong Kong Annual Digest of Statistics, 1998 edition*.

[2] For the more mathematically oriented readers, the regression was done on natural logarithm transformed versions of property price index and GDP. The regression function therefore provides estimate of alue" that is also natural logarithm transformed. The aY' figures shown in the chart are the predicted figures raised to the power of *e*.

[3] For the mathematically oriented, the R-squared was 0.89 which means that 89% of the variance of the price index are xplained" by variations of GDP.

Did the deviation from value follow the movement of market sentiments as was suggested earlier? Chart 2 shows that the patterns of fluctuations of "market sentiment" as represented by the ratio of Hang Seng Index to GDP and, to a lesser extent, interest rates are somewhat similar to the deviation of price from value, especially for the earlier part of the period. Statistical analysis[4] suggests that both are closely related with the deviation. Interestingly, the relationship between interest rate and the deviation was found to be positive, i.e. the higher the interest rate, the higher the price. In other words, the strength of the economy probably has more effect on price than cost of financing.

If we believe that the relationship between "value" (as derived from GDP) and property price is to persist in future, then …

The deviation of xx% from the predicted suggests that the general level of property prices in 1998 is valued relatively to the economic fundamentals and market sentiment similarly to the way they were in 19xx. The relative valuation is the xth highest in the xx years. ….

While the findings can be interpreted as showing support to the ideas presented earlier and may provide useful information for investment decision, we must caution against reading too much into the reported findings as a guide for investment. The key reason is that the data is based on history. There is no guarantee that the relationships hold in future. In other words, what we have found is very sensitive to the period of study. For instance, we have also analyzed the data using the same method for the period 1984-1997 only. This resulted in a formula for "value" that is quite different from the original one.[5] The deviation from the estimated value is much smaller on average (between –11% to 16%).

Many things, for example changes in interests in home ownership among residents, and changes in land policy, etc., may change the nature of the relationships. Thus, unless we have strong reasons to believe that many "fundamental issues" will remain unchanged in the future, we should not uncritically use result of this type of analyze as the sole basis of valuation.

The strong relationships found in our analysis do suggest that similar analysis should be done on other cities. It would be interesting to know whether similar relationships, in terms of both nature and strength can be found. You will be informed when interesting findings have been found.

[4] Statistically, R-squared for market sentiment and Orvl-aY' is 0.387. When both market sentiment and interest rates were used as predictors, R-squared was 0.760.

[5] a and b were respectively 0.065 and 1.029, and –1.653 and 1.375 for 1980-1997 and 1984-1997. R-squared was 0.986 for the 1984-97 period.

Chart 1