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Private Asset Management Ltd

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EVERYTHING IS A DCF MODEL – INCLUDING RESIDENTIAL PROPERTY

A couple of weeks back we looked at the paper, "Everything Is A DCF Model" by two analysts at Morgan Stanley. The main point of the story was that "whenever investors value a stake in a cash generating asset they should recognise that they are using a discounted cashflow model". This week we will continue with the DCF theme and consider the fact that, as well as applying to the valuation of financial assets like stocks and bonds, it can also be used to value property including residential property and thus perhaps understand differences in valuations against other investment assets.

Rob Arnott, former editor of the Financial Analysts Journal, academic and hedge fund manager, in a paper written a few years back explained that DCF theory is equally relevant when calculating the value of residential property: "Consider the purchase of real estate for the purpose of either living in the house or renting it to a third party. In the case where the house is being rented the income is the rent paid by the tenant and the yield of the investment is the total rental payments for the year divided by the purchase price of the house. If, instead of renting, the purchaser decides to live in the house the property still generates income however. Because the owner is both the lessor and the lessee there is no need for physical cash to change hands. Because the value of an investment is the sum of its discounted future cash flows the house has the same economic value and must therefore generate the same future cash flows regardless of how it is used." What Arnott is saying here is that generally an asset has value because of its future cash flows and, because prices are determined by both owner occupiers and property investors, houses which are owner occupied must generate the same cash flows in rental payments, albeit on a notional basis. Whilst Arnott is stating the obvious here unfortunately it is not obvious to everybody in NZ. In the past certain institutions that wish to promote equity investment over residential property prepared studies of their historical returns including dividends for shares but excluded rent for residential property on the basis that if you lived in the house yourself you didn't get any rent. One has to take a cynical view when looking at data particularly when the institution preparing the study has an obvious vested interest.

The bottom line is that houses have value because they can generate cashflow via rent so an easy, if imperfect, way of assessing the price of a property is to calculate its rental yield as defined above by Arnott. Whilst calculating the rental yield is easy it doesn't capture growth or falls in rental income – a property might look expensive with a 2% rental yield but if those rents are going to grow quickly it could be good value. With this in mind a potential problem for house prices in the future might be that high rents are becoming problematic for many NZers given relatively sluggish growth in wages so rental growth in the future could be much lower than in the past.

Let's explore the workings of the model using a simplified real life example. A client rang the other day asking if she should think about selling her residential investment property given her view that interest rates were going to rise. It's rented for \$2000 a week and valued at \$4.5 million. That's a pre-tax yield, before expenses, of 2.2%. Normally low yields are associated with higher income growth

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but as noted above that might not be the case with residential property so much in the future. We won't get into the nuances of calculating the weighted average cost of capital just assume the house is fairly valued today and use the formula to see what might be the impact of a 1% rise in the 10 year NZ government bond yield. To do this we need to make assumptions as to the terminal value of the house (what it will be sold for) and estimate the rental growth over the period. As regards the latter many long term studies of residential property overseas note that long term rental growth has approximated inflation. Because this is an expensive house we'll assume rents grow at 1% above inflation (estimated to average 2.5% pa for the next 30 years) and the terminal value has risen at the same rate as rents. If we do this the discount rate required to equal the valuation is 5.4%. A 1% rise in the risk free rate lowers the NPV to \$3.6m. However any rise in interest rates could be due to higher inflation in which case rental growth and the terminal value is also likely to increase. What would be a problem however is a sustained rise in real interest rates. If that happens then house prices, and the prices of just about everything else, will likely take a big hit. The size of the fall will depend on a number of factors including relative growth rates and the timing of the cash flows.

We will finish with a quote from Warren Buffett with which the Morgan Stanley analysts concluded their story: "The ideas behind a DCF model have been around for a very long time. Warren Buffett, chairman and chief executive officer of Berkshire Hathaway, suggests they were introduced more than 2,500 years ago¹: "..... the formula for valuing all assets that are purchased for financial gain has been unchanged since it was first laid out by a very smart man in about 600 B.C. (though he wasn't smart enough to know it was 600 B.C.). The oracle was Aesop and his enduring, though somewhat incomplete, investment insight was 'a bird in the hand is worth two in the bush.' To flesh out this principle, you must answer only three questions. How certain are you that there are indeed birds in the bush? When will they emerge and how many will there be? What is the risk-free interest rate (which we consider to be the yield on long-term U.S. bonds)? If you can answer these three questions, you will know the maximum value of the bush— and the maximum number of the birds you now possess that should be offered for it. And, of course, don't literally think birds. Think dollars."

Aesop knew that Everything is a DCF model."

Brent Sheather is a Financial Advice Provider. A disclosure statement is available upon request. Brent Sheather may have an interest in the companies discussed.

¹ Warren E. Buffett, "Chairman's Letter to the Shareholders," Berkshire Hathaway, 2000.