How To Measure Value
Beyond All The Hype

By Lewis O'Brien, Solicitor

Welcome to your July Hot Topic. Steve has invited me to contribute this month on the critical issue of investment analysis.

By the posts I've made on Wealth Tips Online you've probably discovered that in my day job I'm a qualified solicitor running a small legal practice. What you may not know is that when I'm not protecting the interests of my clients, I'm actively investing to secure my long term financial future.

In this month's Hot Topic I hope to enable you to leverage off my knowledge as a successful investor, business owner and also MBA graduate as I show you how to measure value in an investment.

This is a very important skill to acquire, as the marketplace is currently littered with would-be wealth creators using slick sales letters to sell investments that are often overpriced.

The Truth Behind The Hype

Steve has a saying, "the bigger the hype, the bigger the hoax". I agree with this and go further by suggesting that numbers don't lie.

Below is a relatively simple tool that I've found protects professional investors from major disaster and what can protect you too. It's called discounted cash flow (DCF) and while the name might sound a little confusing, the theory is quite straightforward.

How To Value Investments

Let's assume you are offered an opportunity to buy into a cookie franchise for $100,000. You have two options that appear almost identical, except that the cash flows differ as shown in the table below. You have a minimum required return of *at least* 10% per annum.

Project	Year 0	Year 1	Year 2	Year 3	Year 4	Total
A	(100)	30	10	10	80	130
B	(100)	25	60	30	5	120

Question: Circle Which One Of These Investments You Feel Generates The Most Wealth?	
Project A	**Project B**

There are a number of different ways of measuring how much an investment is worth. Here are a two that you might already be familiar with.

Option One - Cash On Cash Return

Calculating a cash on cash (CoC) return is a simple, yet effective rule of thumb which can be applied in the early deal evaluation.

It is calculated by taking the cost of entering into the deal (cash in) and dividing it by the annual cash return. Accordingly, the CoC return for each project would be:

Project	Year 0	Year 1	Year 2	Year 3	Year 4	Average
A	0	30%	10%	10%	80%	30%
B	0	25%	60%	30%	5%	20%

You may like to average the returns out over the time of the investment, which would suggest that while Project A is superior, both projects meet our requited 10% rate of return.

Option Two - Total Return Or Profit

A second way you could use to determine which project is best is to calculate the total return or profit.

This is again simple to do.

Project A offers a total return of $130, which is a profit of ($130-$100) or $30 (30%). Project B offers a $120 return, being a profit of ($120-$100) or $20 (20%).

Again, it appears as though Project A is the better choice although both projects meet our required 10% return.

Option Three - Discounted Cash Flow

The weakness in the two methods identified above is that they ignore the timing of the cash flows throughout the life of the investment.

For example, the CoC return is better for Project A in years 1 and 4 and for project B in years 2 and 3.

DCF values an investment based upon the cash flows it generates. These cash flows are then *discounted* or reduced due to factor in the time cost of money.

The time cost of money suggests that if you offer me $1 today or $1 in 1 year, I will always take the dollar now.

Why? Because I can take that dollar and invest it, so that if I could earn a 10% return, then at the end of the year I would have $1.10

Another way of looking at DCF is that if you offered me $0.91 today or $1.00 in a year's time and both alternatives would arrive at the same outcome. I'd either have $0.91 cents invested at 10% per annum which equals $1.00 after the end of the first year, or you could just give me a dollar in a year's time

The same discounting logic can be applied to payments received in 2 or 3 or 25 years time.

For example, $0.826 cents now or $1 in two year's time is the same figure. How did I work that out?

Well, if I take $0.826 and multiply by 1.10 twice (once for each year) I come back to $1.00. In reverse, I divide $1.00 by 1.1 to work out what a dollar in two years time will be worth in one year – the answer is $.091. I divide by 1.1 again to work out what $0.91 in one year will be worth now. The answer is $0.826.

If you're thinking that this is sounding pretty difficult, sick with me… that's why computers were invented. Just remember that a dollar today is worth more than a dollar in the future because you can invest that dollar and earn a return.

Let me show how DCF works using our earlier example:

Project A	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Cash Flow	(100)	30	10	10	80
DCF Factor	1	0.91	0.83	0.75	0.68
Discounted Cash Flow	(100)	27.30	8.30	7.50	54.40
Sum of the Discounted Cashflow = (2.50)					

If you're wondering how the DCF factors are calculated, they are simply numbers we developed above. One dollar in 1 year is worth $.091, a dollar in two years is worth $.83 and so on. We then take the cash flow we expect in each year and multiply by the DCF factor.

For example, we expect to receive $30 in 1 year's time. Applying the DCF factor of 0.91, this is worth $27.30 in today's money. At the other end, the $80 we expect in 4 year's time is worth $54.40 in today's money.

Now that we have converted all of the future cash flows into today's money, we can add up all the discounted cash flows and make a judgement about the value of the investment factoring in the time value of money.

In our DCF model we have set 10% as the minimum return we require to go ahead with the investment. Using this benchmark, we wouldn't go ahead with the deal because the sum of the discounted cash flows for Project A is less than 0.

Despite Having An Average CoC Return Of 32.5%
Project A Has A Real Return Of Less Than 10% Allowing For The Time Cost Of Money.

Let's look at Project B:

Project A	Year 0	Year 1	Year 2	Year 3	Year 4
Cash Flow	(100)	25	60	30	5
DCF Factor	1	0.91	0.83	0.75	0.68
Discounted Cash Flow	(100)	22.75	49.80	22.50	3.40
Sum of the Discounted Cashflow = (1.55)					

This project also results in a loss of value – that is, it does not generate enough profits to meet our minimum investment return 10% per annum.

A summary of the DCF results are:

Project A	(2.50)
Project B	(1.55)

On this basis, if you had to select a project you would accept Project B because it had the lesser of two negative returns.

However, the true answer to my question above is:

Neither Project Meets My Minimum Required Return Of 10% Per Annum
After Allowing For The Time Value Of Money!

Most unsophisticated investors forget or chose to ignore the time value of money.

Here's a real estate example of DCF to illustrate this point.

You find a deal for $100,000 that you feel will double in value after ten years. You expect the cashflow per annum to break-even. Can you guess what your true rate of return is?

While you might have doubled your money, your true return is just 7.177% per annum.

This is perhaps another reason why investing in property for capital gains isn't the attractive strategy that some investment promoters would lead you to believe. Steve is right when he says that measuring an investment by its underlying cash flow is important. It's also critical that you factor in a time value of money too.

I encourage you to play around with the spreadsheet that is attached to this Hot Topic to make sure you understand how changing the discount rate and the annual cash flows impacts the true return of your investment.

The Discount Rate

I selected 10% as my minimum return. Where did this number come from and is it right?

This is not an easy question to answer. Most property investments return a total yield (nett cashflow income plus capital growth) of approximately 10 to 12% over time. Yes, it is possible to do better than this in some cases, but it's also possible to do worse.

Another concept that you should be aware of is the 'risk free' rate. This is the rate you can earn by accepting no risk and having your investment sit in a long-term government secured investment. Your minimum return should always be in excessive of this risk free rate which can be ascertained by looking at bond rates advertised in the Financial Review.

I believe a ten per cent return is a reasonable rate for investors using a buy and hold strategy. I'd also like to point out that, over a longer time frame, international shares usually outperform property returns that you can expect in a normal buy and hold strategy.

More aggressive strategies can achieve a higher return but they do carry more risk too.

Cash Flows

Your discounted cash flow analysis is only as accurate as the figures that you base it on, which means you should try to be as accurate as possible with your estimates of the annual cash flows.

You may like to expand your analysis to include a line by line analysis for every income and expenditure item. Let's do this exercise for a rental property, which you can find attached as an Excel spreadsheet and available for download.

Assumptions

As you can see, I have needed to make some assumptions in my model. I have assumed that the increase in rent and capital appreciation will be 6% per annum. I have assumed my interest rate on my borrowings is 7.5% (interest only) and my required rate of return is 10%.

Be very careful about what assumptions you base your model on. Do not, as those who want to sell you overpriced packaged investments do, assume out of hand that you can get annual rental increases of 7% and capital appreciation of 12% per annum forever. Total returns of 19% look great in a spreadsheet but are not likely to be realistic.

My model is based on a property I can purchase for $100,000, put down a deposit of $20,000 and use bank finance at 80% Loan-To-Valuation ratio.

You can see the expected cash flows for the five years in the attached spreadsheet.

Year 0 is the time when the investment is set up. I buy the property (cash outflow of $100,000), borrow the money (cash inflow of $80,000) and pay the various expenses (cash outflow of $3,536). The total up front cash outflow is therefore $23,536.

In Year 1, I receive $6,000 in rent (6% yield) and pay $6,000 in interest (7.5% x $80,000) so there is no net cash flow. Years 2 to 4 are similar. At the end of year 5, I sell the property and so receive the net proceeds after I pay out the loan as well as the net rent.

When I sell the property, I receive $129,808 (being 97% of the value of the property – allowing for some marketing and agent's fees) but have a cash outflow of $80,000 when I pay out the loan. Including the surplus of the rent over the interest expense generates a total cash flow of $51,383 in Year 5. Discounting the Year 5 cash flow into current dollars means that I have a discounted cash flow in Year 5 of $31,905.

Adding up the discounted cash flows for each year, I have a Discounted Cash Flow of $10,006. This means that the investment adds to my wealth and provides in excess of my minimum required return of 10% per annum.

You may wish to play with the assumptions and see how this impacts the return on the investment. Those assumptions shaded in blue can be amended and the sheet will recalculate.

For those that would like to increase the realism of the model, you might like to add rates, income tax, an allowance for vacancies and even estate agents management fees to the model.

Some Concluding Thoughts

DCF models will take some time and effort to understand.

But if you can understand that it is an excellent analysis tool that factors in the time value of money, then you will acquire a new level of sophistication that only the truly professional investors implement.

You'll also be protecting yourself against the hype-merchants who are big on promise, but surprisingly small on substance or fact. If you are presented with financial information, design a quick DCF spreadsheet and insert your required rate of return.

Be sure to question all assumptions. Your model is only as strong as the assumptions you build in. Seek independent statistics rather than relying on gut feel or worse, what is presented in some glossy magazine.

Remember that the essence of DCF is the time value of money - a dollar now is worth more than a dollar in the future. If you take nothing else away from this article, if you can learn this then you'll become a much better investor.

Models are only estimates based on assumptions. They can illuminate the real world and aid understanding. However, there is no point developing the perfect model if you use it as an excuse for not getting out there and doing something. Whilst I recommend that you look before you leap – don't look forever.

Good luck and remember – you can and should outsource the $10 per hour jobs, but never outsource your thinking.

Sincerely,

Lewis O'Brien
FreeLawyer.com.au

P.s. For those of you that are interested in wraps, I have prepared a DCF model of a wrap which Steve will make available shortly.