

THE USE OF DISCOUNTED CASH FLOWS IN PROPERTY VALUATION

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SUMMARY

Although there have been a number of articles published in recent years by advocates of the use of Discounted Cash Flow in valuation there have been none or very few articles covering the inherent problems in the use of the DCF method. This article is an attempt to redress the balance.

The author argues that DCF does not overcome the problems of the initial yield capitalization method because that method is an integral and most important part of the DCF. A number of other problems in the use of DCF including the forecasting problem are also covered. The conclusion is that the DCF method as promoted by its advocates is not as objective or as reliable as they maintain.

INTRODUCTION

The Institute has recently published a statement on the use of discounted cash flows (DCF) (ARBN 007 505 866). Although the statement does qualify their use somewhat (and that is a welcome change to the "gushing" endorsements from other quarters) I do not believe it puts their use into proper valuation context nor does it address adequately the inherent shortfalls of the method. I will consider these in turn.

THE LEGAL STATUS OF DCF

I disagree with the statement that the Albany case "...did not implicitly criticise the use of DCF" (clause 4.2). The problem is that the type of valuation which Albany rejected is typical of the type of valuation for which DCF is being promoted, that is, a largely speculative cash flow. Jacobs J's rider about not commenting on whether or not it can be used in other circumstances does not apply to the current use of long period DCFs because these DCFs are largely, speculative. What Jacobs is saying is "If you can show a method of valuation which is not largely speculative then I may accept that method in preference to the more direct traditional methods but until that time the traditional and direct methods are better evidence of value because they are direct, leaving less room for manipulation and speculation". The best case showing the courts' preference for direct evidence is the Seatainers case. While this is the case, DCF in this context cannot be a method of valuation and should not be promoted as such. However, DCF can be a useful tool for the valuer and as a backup or check method of value.

WHEN CAN DCF BE USED?

DCF is the best method of valuation when the following criteria apply:

1. The cash flow is complex for example, a CBD office block with a number tenants with rents falling due at different periods and with different obligations with regard recoveries.
2. The expected cash flow is reasonably certain. Example, as above, because the lease agreements are legally binding on the parties.
3. The cash flow period is short. This supports 2. and reduces speculation. Unless the rent schedule is subject to longer term leases the period should be 3/4 years.

From the above criteria DCF can be used successfully for CBD office blocks, large shopping centres and feasibility studies. DCF is the best method for determining the highest and best use of development land where there are a number of alternative uses available. This is because the development period is short and the costs of development are reasonably certain. In my opinion the court would accept DCF in these circumstances. In all other cases DCF is not an appropriate method of valuation and is inferior to the traditional methods which do not try to break the cash flow up into various components.

The Institute's statement does not address a number of fundamental problems which are obvious in the way DCF is being currently used in the profession. These problems have become evident to me in my position as "check valuer" for a large financial institution. The main problems I have encountered are covered below.

THE CASH FLOW PERIOD

Typically, DCFs are for arbitrary periods for example, 5 or 10 years. As indicated above there should not be an arbitrary period but rather, it should be a period as short as possible and of reasonable certainty. There is no point and great danger in including speculative cash flows down the line which are not reasonably certain that is, not part of a lease agreement.

THE PROBLEM OF INFLATION

A number of cash flows as used by the profession show an increase in rents according to the expected rate of inflation (typically 5%). Ignoring the speculative nature of forecasting inflation 5 or 10 years hence, the problem is that all of the cash flow is in TODAY's dollars. Therefore, there should be no adjustment for inflation. If the only adjustment to future net annual income is inflation then there is no real increase and the cash flow is effectively, a level cash flow.

THE FORECASTING PROBLEM

The Institute's statement and the profession try to overcome the speculative nature of the cash flows down the line by stating that they should be determined using "proper" forecasting methods. All of the forecasting methods that I am aware of are based on historical data and therefore, the model or trend used in the cash flow is derived from historical evidence. This runs counter to a claimed advantage of DCF, in that it does not use historical evidence. However, there are more fundamental problems with the use of the common forecasting methods.

If "naive" forecasting methods are used to predict the expected net rental income in the future for a CBD office block, the answer will be rents LESS than the current rent or initial rent. For example, if trend lines to are applied to forecast CBD rents in the future they will show decreasingly lower rents from year 1 onwards. If a more sophisticated prediction model using "multiple regression analysis" (MRA) is applied, future rents are still lower than the initial rent. One of the MRA models showed that over a 10 year period there would be negative rent! Yet, I still have to see a DCF put forward by the profession which shows lower rents in the future. My only conclusion is that the profession is NOT using "proper" forecasting methods.

Once the forecasting period goes beyond 3/4 years the valuer has to take into account the expected "macro factors" which affect the economy. That is, he/she will have to forecast "gross domestic product" (GDP) and "gross state product" (GSP). Does the Institute believe that valuers can construct better econometric models than Treasury, ANU and the University of Melbourne? If so would somebody please tell met how to construct a model which takes into account future immigration rates (largely a political decision), the effect of the Olympic Games on Sydney and the effect of the MFP on Adelaide? Treasury and the research schools of universities will not forecast such macro factors as a single amount but rather according to assumptions and scenarios. For example, an "expected", "pessimistic" or "optimistic" scenario. Which one will the valuer use? I have yet to see three DCF valuations according to each scenario.

Forecasting methods are basically a statistical tool and therefore, once adopted, the valuer has to abide by the rules of statistics. Therefore, if he/she makes an informed prediction using for example a carefully constructed MRA model then the "standard error of the estimate" must also be calculated. That is, at 95% probability the expected rent is a range, not a single figure. For example, one model for Sydney's CBD showed an range of \$155 - \$245/m² with an initial rent of \$210/m². At 95% probability no one figure within that range is superior to the other and therefore, the valuer can use the initial rent of \$210/m² and the initial yield method.

The last and important point on forecasting is that a number of statements have been made that the valuer should input his own expert forecasts or superior knowledge into the cash flow. This is a very dangerous concept as the valuation is for market value purposes and is not an individual assessment for, for example, internal company use. Market value must be the market's opinion of future cash flows and benefits not the valuer's opinion.

END MARKET VALUE (TERMINAL MARKET VALUE) THE ARCHILLES HEEL OF DCF

The DCF valuer might well ask himself or herself (as no doubt opposing counsel in court will) why is it that by using "proper" forecasting methods he/she quite confidently forecasts at year 5 or 10 but is not prepared to do the same at year 6 or year 11? What has happened in only 1 year for him/her to lose confidence in the forecasting method? This is because the valuer reverts to the much maligned initial yield method to value the end market value at the end of the cash flow period that is, the value for the period from the end of the cash flow (for example, year 5 or 10) to perpetuity.

Advocates of DCF who claim superiority over the initial yield capitalization method invariably ignore the fact that the most important single variable in their cash flow is the end market value which has been determined by the initial yield capitalization method. The more they decry the use of the initial yield capitalization method the more they undermine the most important and sensitive part of a DCF.

The Institute's paper on DCF argues that "...the impact of cash flows in the latter part of the assumed holding period have a reduced effect on the net present value of the property. The end result is therefore less sensitive to variations in assumptions in the latter part of the cash flow period, and to the terminal value in comparison to assumptions in the early part of the cash flow period" (paragraph 2.2). The problem with this statement is that end market value is always the most sensitive variable in the DCF because of its magnitude. The desensitizing argument put forward is largely mitigated because the end market value includes a large increase in value (expected capital gains) compared to the starting value.

When a sensitivity analysis is carried out on a typical cash flow for example, a CBD office block, the end market value whether adjusted or not is many times more sensitive than the other variables. This puts DCF into perspective. All that DCF does, is "fine tune" the valuation if there are substantial and reasonably forecasted complex cash flows within the cash flow period. When one considers the high error of forecasting and the fact that the initial rent generally, falls within the standard error of the estimate, even those advantages are illusory.

CONCLUSION

Discounted cash flow is not as objective as its advocates maintain. Except for those land uses described above it is a largely speculative cash flow and therefore, will be rejected by the courts and therefore, is not a method of valuation. DCF does not replace the initial yield capitalization method as it is alive and well in the DCF as the end market value. Further, the end market value is the most important and sensitive variable in the DCF.

Clients and users of valuations may want something different from the traditional valuation method but most of the advocates of DCF are not valuers or practising valuers. There is danger in the profession blindly following non valuer "experts" particularly when the base of the valuer's work, "market value" may be compromised. The role of the Institute should be to try and explain the basis of the valuer's work to non valuers rather than impliedly supporting their demands. If valuers are to stray outside valuation and into the area of econometrics then they should have suitable disclaimer clauses drawn up and to make sure that their professional indemnity policy is fully paid up!