Capital Research

Common Errors In Valuations

Neville Hathaway

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For all correspondence regarding the analyses and examples in this paper please contact

Neville Hathaway
Capital Research
Melbourne, Vic.
Ph (613) 9654 6277
Email: njh@capitalresearch.com.au

INTRODUCTION

The following are some common errors we have observed in valuations. We concentrate on WACC-based valuations but some are more widely practised than that circumstance. Some errors arise from sloppy execution of theoretically sound valuation logic and some from struggling to implement an impractical theory.

All reflect inconsistencies between cash flows and discount rates. We are focussing on the consistent assembly of inputs into valuations. Of course, one can make significant errors in valuation from using widely optimistic or pessimistic cash flow forecasts. That is outside the realm of the exercise here.

Each of the examples below consists of:

> a. Short description of the error
> b. An associated paper showing:
>> i. logic and formulae describing the correct process
>> ii. numerical example describing the correct and erroneous values

COMMON ERRORS

The following are links to a short description of the error.

1. Book versus Market Gearing
2. Real versus Nominal cash flows
3. Pre-tax cost of capital and shields
4. Non-existent tax shields
5. Debt interest tax shield should generally be valued at the cost of equity
6. Inconsistent dividend growth assumptions in DDMs
7. Tax-shifting business, such as leverages leases, do not create (much) value

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INVITATION

We welcome suggestions for additions to this list. No names will be associated with any particular error. However, acknowledgement will be made of any contributor (if they so wish) but it would then be made clear that they did not make the error. It was, of course, their competitors.

Following each description are links to both the logic and formulae and to an example.

1.   **BOOK versus MARKET GEARING**   **… jump to paper**

Book gearing is only correct for the one special case of an NPV = 0 project. For all other projects, we must use market gearing instead of book gearing. This is not usually a problem as many valuers use the "all equity" version for valuing an asset. It does, however, become a major source of error when the valuation model includes debt financing. In that case, we have to be very careful to not erroneously "create" value by having a different gearing in the WACC versus the amount of debt in the project.

2.   **REAL versus NOMINAL CASH FLOWS**   **… jump to paper**

Inflation must be taken out of the nominal WACC *after* forming the nominal costs of capital and then applying the Fisher equation. Errors are made when forming a "real" WACC from real costs of capital. These errors seem more common in the perpetuity valuation of residual or "tail" cash flows that are often implicitly real. Cap rates in property valuations are also implicitly real.

3.   **PRE-TAX COST OF CAPITAL & SHIELDS**   **… jump to paper**

4.   **NON-EXISTENT TAX SHIELDS**   **… jump to paper**

Tax shields on interest payments must exist before they can have any value. Usually the tax shield on debt interest is readily available which is consistent with the classical WACC method which values the shield as if it were *immediately* available. But, if the tax shield on debt is not available for some years due to little or no tax being paid, then the standard WACC approach is in error. For example, if the capital expense is so large that no tax is paid for many years, then there should be no tax term in the WACC formula. Large infrastructure projects suffer from this problem. The capital expense can be so large as to eliminate accounting profits and hence dividends for many years. No tax is paid so the tax shield on debt over those years is of no value within the company.

In equal manner, it is wrong to include franking credits in one of the imputation WACC formula if the credits are not immediately available to shareholders.

5.   **DEBT INTEREST TAX SHIELDS INCORRECTLY VALUED**

Debt interest tax shields (ITS) should be valued using the cost of equity, not the cost of debt. The tax shield on debt is a cash flow to *shareholders*, not debt holders so the assumption might be to value the ITS at the cost of equity capital. When costs of equity are taken from the market place, as is usually the case, the cash flow (dividends) and prices being used to calculate capital gains and losses includes a component for the tax shield on debt. If one valued the equity only in of a business, the tax shield on debt would be a component of the cash flow to the shareholders. This is always the case. But, the appropriate cost of capital is as ever an attribute of the asset (in this case a debt-derived cash flow) and not of who owns the asset (ie shareholders).

The note on this issue demonstrates that the value of the ITS is the *difference* of two values, both calculated using the cost of equity and in the special case of a perpetuity the difference reduces to a debt value capitalised at the cost of debt. One benefit of this analysis is that it gives the appropriate generic ITS valuation logic. Other benefits are that we can estimate the present value of future company tax collections by the Government on ASX companies (estimated pv of $216 billion at 8-Dec-2004) and derive the appropriate beta degearing formulae, independent of the WACC formulae in which they are used.

Neville Hathaway
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