

AxiomForum

Discounting valuation methods:

Residual income valuation method is as robust as traditional DCF method

Abstract

In this article Axiom compares and contrasts the two discounting valuation approaches – the residual income valuation (RIV) method and the traditional discounted cash flow (DCF) method. The article illustrates that when valuing a business, in certain circumstances the RIV method may be more robust and appropriate than the DCF method.

Ask yourself: is the valuation better suited to the residual income method?

Introduction

The underlying principle of all valuation methodologies is that the value of an entity is related to the future economic benefits the entity will generate for its owner(s).

Although many approaches have been adopted in practice or recommended by regulators (see for instance ASIC Practice Note 43), they are essentially based on the following three approaches:

1. Net asset backing, where the value of the entity is based on the book value of assets recorded on the balance sheet;
2. Capitalisation of future maintainable earnings, where the value of an entity is based on an earnings figure (such as net profit after tax, or earnings before interest and tax) multiplied by an appropriate multiplier; and
3. Discounting methods, where the future economic benefits of an entity are approximated by cash flows or 'residual income' brought back (discounted) to today's values.

The purpose of this paper is to compare the two discounting methods, being the DCF method and the RIV method.

DFC valuation method

The DCF method requires the prediction of future free cash flows (FCF) for a number of years, including a calculation of the value of the business at the end of the predicted cash flow period, which is known as the 'terminal value'. A discount rate, generally the weighted average cost of capital (WACC), is then applied to the predicted FCF to reflect the riskiness of the cash flows. The discounted figure represents the net present value (NPV) of those FCF.

Common valuation methods include:

1. *Net asset backing*
2. *Capitalisation of earnings*
3. *Discounting*

RIV valuation method

The RIV method is based on the concept of residual income. Residual income represents the excess of net operating profit after tax (NOPAT) over what is referred to as the capital charge (WACC multiplied by net operating assets (NOA)). Any excess in the NOPAT over the capital charge reflects the residual income generated by the business.

Comparing the DCF and RIV methods

The RIV method is a derivative of the DCF method and provided the same assumptions are made, a valuation under each method will produce the same result. Appendix A sets out a valuation of a company using the DCF and RIV methods. As illustrated, although the approach differs, the total NPV is equal under each method.

Whilst the valuations are equal, an important distinction between the RIV and DCF methods arises in relation to the composition of value.

It is commonly the case that a large component (often in the order of 50%) of the value calculated applying the DCF method relates to the terminal period. The terminal period commences at the conclusion of the specific forecast period, which is often 10 years. It is rare for there to be a high degree of certainty regarding forecast cash flows greater than 10 years from the valuation date. Thus, if the terminal value represents a large component of the total value, there may be some concern regarding the reliability and/or usefulness of the valuation.

On the other hand, given that the RIV method commences with the reported book value of NOA (to which the present value of residual income is added), the terminal period in the RIV method is typically less significant than in the DCF method. In fact, the terminal value in the RIV method may very well be zero. A zero value would arise if, after the forecast period, the entity only earned its cost of capital. In a competitive market and in the absence of the business holding a competitive advantage, it would not be unexpected for the business to cease earning residual income and 'only' earn its cost of capital. In such circumstances the terminal value will be zero.

A valuation under the RIV method is typically less dependent on the terminal period than a valuation performed under the DCF method.

The RIV method is thus less sensitive than the DCF method to assumptions relating to the distant future, being assumptions that are more likely to be less robust and therefore cast doubt on the reliability and/or usefulness of the valuation.

Conclusion

Axiom has experience in applying the RIV method and believes that the RIV method can be appropriate in the following situations:

1. In the case of insolvency, the RIV method can identify whether management could add value to the existing asset base;
2. If the business is not paying dividends or has an unstable dividend pattern;
3. For start-up companies, which have negative FCF in the early years but are expected to generate positive cash flows in the future; and
4. Where there is a great deal of uncertainty in forecasting terminal value, as the terminal value is a minor component of value under the RIV method.

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Appendix A: Valuation of ABC Company using RIV and DCF

Calculation of cost of capital	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Opening NOA		70	64	57	50	44
Change in net working capital		2	2	1	1	1
Investments in fixed assets		6	5	3	3	3
Depreciation and amortisation		(14)	(13)	(11)	(10)	(9)
Closing NOA	70	64	57	50	44	39
Cost of capital @ 10%		7	6	6	5	4
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Calculation of NOPAT		\$'m	\$'m	\$'m	\$'m	\$'m
Sales revenue		145	157	164	173	177
Expenses		(120)	(131)	(139)	(148)	(153)
EBITDA		25	26	25	25	24
<i>EBITDA margin</i>		<i>18%</i>	<i>17%</i>	<i>16%</i>	<i>15%</i>	<i>14%</i>
Depreciation and amortisation		(14)	(13)	(11)	(10)	(9)
EBIT		11	13	14	15	15
Tax on EBIT		(3)	(4)	(4)	(5)	(5)
NOPAT		8	9	10	11	11
RIV		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
		\$'m	\$'m	\$'m	\$'m	\$'m
NOPAT		8	9	10	11	11
Opening NOA		70	64	57	50	44
Required return		10%	10%	10%	10%	10%
Cost of capital		7	6	6	5	4
Forecast period Residual Income		1	3	4	6	6
Growth in terminal Residual Income						(4.90%)
Terminal year cash flow						6
Present value						
Forecast period		1	2	3	4	4
Terminal value						25
		\$'m	% of total			
Opening NOA		70	64%			
Total present value of forecast period		14	13%			
Terminal value		25	23%			
NPV		109	100%			
DCF valuation		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
		\$'m	\$'m	\$'m	\$'m	\$'m
EBIT		11	13	14	15	15
Tax on EBIT		(3)	(4)	(4)	(5)	(5)
Add back depreciation/amortisation		14	13	11	10	9
Less change in working capital		(2)	(2)	(1)	(1)	(1)
Capital expenditure		(6)	(5)	(3)	(3)	(3)
Forecast period FCF		14	15	17	17	15
Growth in terminal FCF						(1.80%)
Present value						
Forecast period		13	13	13	11	10
Terminal year cash flow						9
Terminal value						50
		\$'m	% of total			
Total present value of forecast period		60	55%			
Terminal value		50	45%			
NPV		109	100%			