Chapter B10 - STANDARD FOR DISCLOSURE OF DISCOUNT RATES

Standard for Disclosure of Discount Rates

Purpose

The purpose of this standard is to ensure that discount rates included in the valuation are disclosed, including the rationale for their selection and a description of the cashflows to which they apply.

Different discount rates may apply to the tree crop, land, carbon, roads and other durable assets.

STANDARD B10.1 Disclosure

With respect to disclosure, the valuation report shall declare:

- **all discount rates applied in the valuation;**
- **the cashflows to which the discount rates apply including, but not limited to, a disclosure of:**
  - **cashflow timing conventions**
  - **whether they apply to real or nominal cashflows**
  - **whether they apply to pre-tax or post-tax cashflows**
  - **capital structure assumptions**
  - **timespan of cashflows and terminal value assumptions**
  - **treatment of risk**
  - **whether cashflows include 'notional' costs such as those associated with the opportunity cost of land;**
- **where specific discount rates are applied to specific cashflow lines, the rates and the cashflow lines to which each rate; and**
- **the compound rate applied under a compounded cost approach.**

STANDARD B10.2 Rationale

The valuation report shall provide a rationale for the discount rates including:

- **methods of derivation;**
- **assumptions (consistent with methods);**
- **risk treatment;**
- **specific allowances (buyer/seller etc); and**
- **transaction evidence.**

Guidance Notes on Discount Rate

Real or nominal

By convention, discount rates are generally applied to real cashflows, and so the discount rates are also expressed in real terms.

In the wider financial arena, interest rates and discount rates are commonly expressed in nominal terms. The valuer should be alert to the capacity for misunderstanding. This may require not only indicating whether the cashflows and discount rates assumed are in nominal or real terms, but also a description of what the difference between these involves.

A post-tax cashflow analysis under New Zealand's current forestry taxation regime requires that the effects of inflation on the value of cost-of-bush deductions be addressed.

Period conventions

In conducting discounting, different results arise depending on whether the cashflows are assumed to arise at the beginning, middle or end of each period.

In principle, the derived value of the forest should not change if market value is the target outcome. Cashflows generated with a particular timing convention should have a correspondingly configured discount rate.

Cashflows

In conducting a Discounted Cash Flow (DCF) analysis, it is important that the cashflows to which the associated discount rates apply are clearly defined.

The valuation report should include, but is not limited to, a description of:

- whether cashflows are confined to the current rotation or if they include costs and revenues associated with subsequent rotations;
- what real price and cost projections have been incorporated;
- whether the cashflows incorporate notional costs such as those associated with the opportunity cost of land; and
- what risk elements are recognised in the cashflows.

The cashflows should be described using conventional financial terminology such as EBIT (Earnings Before Interest and Tax), EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation), NPAT (Net Profit After Tax), FCF_F (Free Cash Flow to the Firm), FCF_E (Free Cash Flow to Equity) or variations of these, e.g. EBIT, less cost of re-establishment and management of subsequent rotations, less notional cost of land use.

Specific discount rates may be applied to specific cashflow lines. For example:

- Cashflows associated with carbon may warrant a discount rate different to that applied to cashflows relating to commercial timber production. The valuer needs to be mindful of the interaction of the discount rate and value attributed to carbon cashflows, with higher discount rates sometimes leading to a higher Net Present Value (NPV) due to the devaluation of future liabilities;
- Cashflows associated with the re-establishment of future timber assets may attract a different discount rate to that applied to existing timber assets; and
- The valuer may determine that the use of both income and cost-based approaches is appropriate when valuing an asset. This may result in a specific discount rate being applied to a set of assets valued using an income approach, and a different compounding rate being applied to a set of assets valued using a cost approach.

The capital structure of forestry assets can often be complex. Any capital structure assumptions incorporated in the cashflows must be disclosed.

Sources of discount rates

Sources need to be consistent with the purpose of valuation and cashflows. Reliable and relevant transaction evidence may be used to provide an Implied Discount Rate (IDR).

In practice, the information with which to derive IDRs is scarce, and interpretations are correspondingly equivocal, which justifies consideration of additional sources.

There is a body of opinion that argues that the IDR is a manifestation of the *comparable sales analysis* rather than the *income approach*. Under such a construct, this then invites the question of what rate might be assumed within an income approach. A popular candidate (as it applies to investment expectation cashflow models) is the Weighted Average Cost of Capital (WACC), within which the cost of equity may derived using the Capital Asset Pricing Model (CAPM).

Potential sources of discount evidence include:

- cost of capital derivations;
- implied discount rates;
- capitalisation rates and multipliers;
- internal rates of return.

It is imperative that discount rates derived via any of the above approaches adequately address any inconsistencies between the cashflows they have been derived from and those they are intended to be applied to.

Discount rates derived under each of the above approaches may vary substantially. The valuer should be prepared to rationalise any variations, if not provide a full quantitative reconciliation between the discount rates evident in sources such as those outlined above and those adopted as part of the valuation

Pre-tax or post-tax cashflows

The widespread adoption of pre-tax cashflow constructs in estimating forest value is in part due to the unknown tax circumstances of transaction participants. This has led to implied discount rates being derived by some forest valuers from representations of pre-tax cashflows.

The various parties to a transaction may be the subject of differing tax circumstances. Whilst a 'vanilla' taxation regime could be assumed, expediency and simplicity has seen pre-tax cashflow constructs finding favour amongst valuers, but such favour does not place the choice of cashflow construct above scrutiny. Institutional investors routinely construct post-tax cashflow models when developing bid models.

Post-tax cashflow constructs incorporate the effects of taxation. The discount rate used needs to be consistent with the cashflows being discounted. If post-tax cashflows are being discounted, the discount rate should be that applicable to post-tax cashflows.

When justifying the selected discount rate(s) used in valuing assets, the valuer needs to recognise that there is no constant relationship between the discount rates applied to pre-tax and post-tax cashflows (see Manley, B. R. 2002. Relationship between discount rates to be applied to before-tax and after-tax cashflows. *New Zealand Journal of Forestry,* 47(1): 28-32). When assessing discount rate evidence, the valuer should consider and justify the basis of any assumed relationships between discount rates applied to pre-tax and post-tax cashflows.

Consistency

When using IDRs as the unit of comparison for extending transaction evidence, the valuer will consider whether the rates they cite have used the same cashflow format as that developed for the subject forest. If there are evident or suspected differences, the valuer will document these. They should discuss the implications if the IDRs were to be brought onto a like-for-like basis.

Systematic and non-systematic risks

Discount rates estimated directly or indirectly from market information can be expected to contain elements relating to systematic and non-systematic risks.

Systematic (non-diversifiable) risks relate to those risks which affect the entire market or an entire market segment. Non-systematic (diversifiable) risks relate to those risks which affect a specific company.

The valuer needs to ensure that the systematic and non-systematic risks incorporated in market information is clearly understood when deriving and applying discount rate(s) in a forest valuation.

Allowance needs to be made when valuing forests with greater (or lesser) levels of non-systematic risk. The preferred approach in this situation is to adjust future cashflows rather than the discount rate. The valuer should ensure that their assumptions relating to the treatment of systematic and non-systematic risks, and any associated adjustments to both discount rates and cashflows, are clearly disclosed.

Revision History

Original Standard	Released in May 1999
Revision in August 2020	Main changes are: • Standard B10.1 has been expanded to require more explicit disclosure of cashflows including capital structure assumptions, timespan of cashflows and terminal value assumptions, and treatment of risk. • Standard B10.1 now includes the case where different discount rates are applied to different cashflow lines, • Standard B10.1 now requires disclosure of the compound rate under a compounded cost approach. • The original Standard B10.2 Source has been removed. This required that "the forest description shall declare where the rate was sourced". This was considered to be a duplication of orginal Standard 10.3 Rationale which required the method derivation to be described. This latter standard has been retained as new Standard 10.2 Rationale. • Guidance notes on cashflows and sources of discount rate have been extended. • Guidance notes on pre-tax or post-tax cashflows in the original Standards suggested that "Generally, post-tax cashflows should be used to ensure the effects of taxation are correctly incorporated." This preference has been removed from the revised guidance notes where "The widespread adoption of pre-tax cashflow constructs" is noted.