

# Discount rates used for forest valuation

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Forest valuers were surveyed during August 2001 about the discount rates used for forest valuation. The survey is an update of similar surveys carried out in 1997 (NZ For 42(4): 47) and 1999 (NZ J For 44(3): 39-40).

A total of 19 forest valuers in a range of forestry companies and consulting firms were surveyed and asked the following:

- (i) What discount rate did they use to estimate the market value of a forest?; and,
- (ii) What was their estimate of the discount rate implicit in the transaction price of recent forest sales?

As assumptions about discount rate articulate closely with log price assumptions, the forest valuers were also asked about the basis of the log prices and log price growth assumptions they used in valuations.

For this survey an additional question was asked about the timing convention used for discounting. Forest valuers were asked whether they assumed that cashflows occurred at the start, middle or end of each year.

### Discount rates

Valuers apply a discount rate in the range 7.5 to 9.5% (average 8.6%) to post-tax cashflows or a discount rate in the range 9 to 13 % (average 10%) to pre-tax cashflows (Table 1). A number of valuers commented on how they varied the discount rate depending on the nature of the forest being valued:

- Valuer 15 uses a discount rate of 9% for forests with good yield and cost information, and current harvesting to give realisations on yield and revenues. A discount rate of 13% is used for forests without current harvesting for which poor information is available. Intermediate discount rates are used for other forests depending on the level and quality of information available and the certainty of markets (i.e. the discount rate is being used to allow for uncertainty in valuation inputs).
- Valuer 2 varied the discount rate between 8 and 8.5% depending on the perceived risk of the forest.
- Valuer 16 uses a rate of 10% in the valuation of forests that are strategic (i.e. in areas where the organisation is already operating) and 12% for other forests.

The survey included 13 of the 15 forest valuers who had responded to the 1999 survey. Their responses to the 2001 survey were compared with their responses to the 1999 survey. If a valuer responded with a range of discount rates, their midpoint discount rate was used for this comparison.

Five valuers use the same discount rate, four use a lower discount rate, while four use a higher discount rate. The average discount rate used by this sub-set of valuers was virtually unchanged.

**Table 1 - Discount rates and log prices**

Respondent	Discount rate		Log prices basis	Price growth (%)
	post-tax	pre-tax cashflows		
1	8		Current + analysis	0
2	8 - 8.5		Ave 12Q	0
3	9 - 9.5		Current	0
4	8.5		Ave 12Q	0
5	9		Current/Ave 12Q	0
6	8.5 - 9.5		Ave 12Q	0
7	8		Ave 12Q	0
8	9		Ave last 8Q + next 4Q	0
9	7.5		Ave 12Q	0
10	9		Ave last 8Q + next 4Q	0
11	9		Ave 12Q	0
12		9	Trendline	0
13		9.5 - 11.5	Current + return to trendline	0
14		9	Ave 6Q	0
15		9 - 13	Current + return to trendline	0
16		10 - 12	Current + return to trendline	0
17		9	Current/Ave 9Q	0
18		11	Current	0
19		9 - 10	Current + return to trendline	0

*Log prices*

Many valuers use either current log prices or the average price for the last 12 (or 6) quarters without any adjustment (apart from some valuers using the CPI to adjust prices for prior quarters). Some valuers start with current prices and then move to long term trendline prices over a period of time – often 5 years. A number of valuers commented that, at present, each approach gives a similar set of log prices.

The survey also showed that no valuers assume real increases (or decreases) in log prices over time. Some valuers use different approaches to log pricing depending on the age of the stand. For example Valuer 5 uses current prices to value stands within 3 years of harvest but the average price for the last 12 quarters to value younger stands. Two valuers use the average of the last 8 quarters plus a forecast for the next 4 quarters. In practice, the price for the last quarter is generally used for the next 4 quarters. This gives the price for the last quarter a weighting factor of 5/12 in calculating log prices. Some valuers mentioned how they adjust log prices to take into account regional factors such as the relative number of buyers for different log grades in a region. Some valuers also commented on the need to use higher marketing and administration costs (on a \$/m<sup>3</sup> or \$/t basis) for small blocks.

**Discount rate implied by recent transactions**

Information provided by valuers on their estimates of the implicit discount rates in recent transactions is summarised in Table 2. The estimates in Table 2 are based on a very limited response. There is considerable variation in the implicit discount rate of different transactions and also between the discount rates that different forest valuers have estimated for the same transaction.

The low number of transactions reported is a reflection of the limited number of willing buyer/willing seller transactions that are taking place in New Zealand. One valuer said that some prospective investors were now looking for rates of return approaching 13%. The fact that large numbers of transactions are not taking place indicates that vendors are using substantially lower discount rates than this in determining reserve prices.

In some ways the New Zealand market for forests is a case of 'chicken-and-egg'. There are

**Table 2 - Recent sales and implicit discount rates**

Forest	Discount Rate	
	Post-tax	Pre-tax
<b>New Zealand forests</b>		
Aoraki Forests	9	
Auckland (cutting rights)	9 - 12	
Waikato (3000 ha, age 10-12)		9 - 10
East Coast (3500 ha)	8 - 8.5	
Bay of Plenty (Eucalypt)		10 - 10.5
<b>Australian forests</b>		
Australian Paper Plantations (50 000 ha)		8 - 9

insufficient transactions to provide different parties with confidence about what the 'market' discount rate is. Because there is no definitive 'market' discount rate, the parties are unable to agree on a market value for forests and so there is no transaction.

A number of forest valuers commented that they were expecting the sale of the CNIFP forests (that are now in receivership) to provide a benchmark on the market discount rate for forest valuation.

**Timing convention**

Only 12 of the respondents provided information on the timing convention that they adopted for discounting cashflows. Five forest valuers assume cashflows occur at the start of the year while the remaining seven assume that cashflows occur at the middle of the year.

The additional question on the timing convention was asked at the request of a forest valuer who was concerned at the lack of consistency between valuers. The results of the survey indicate that forest valuers are divided on the convention that should be used. Standard B10.1 of the Forest Valuation Standards requires disclosure of the timing conventions adopted for discounting, however no standard timing convention is specified. The Guidance Notes on Forest Valuation Conventions (Chapter B12) state that, "the valuation document should include a note on the convention standard adopted." The example provided has cashflows discounted at the start of the year. This convention set was recommended but not made mandatory.

**Application for Registration**

**The following have applied to have their five-yearly consultant review:**

**Arthur Roy Douglas (Robin) Trewin, Rotorua.  
The Registrar, NZIF Registration Board, PO  
Box 1860, WHANGAREI.**