Guide to the Valuation of Commercial Plantations

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BACKGROUND

1. Increasing requirement for Forest Valuations

2. Variety of approaches to valuations

3. People looking for clarity / guidance
Guide to Valuation of Commercial Plantations

Provide Guidance

1. Factors that influence value
2. Methods for valuation
3. Land
4. Revenues and costs
5. Forecasting timber volumes
6. Discount rate
7. Risk and
8. Preparing a forest valuation
Introduction

Valuation
- General Purpose
- Factors

Methods
- Transaction
- Cost Based
- Expectation

IAS 41 Agriculture

Land Value

Revenues + Costs
- Timber prices
- Other revenues

Forecasting Volumes
- Growth Models
- Adjustments

Discount Rates
- Basis
- Pre Post Tax

Risks
- Nature Based
- Market

Special Considerations
- Partnerships
- Broadleaves

Undertaking Valuation
- Phases
- Guidance

VALUATION
Market Value is the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction after proper marketing and where the parties had each acted knowledgably, prudently and without compulsion (RICS)
PURPOSE OF VALUATION

a) Sale or Purchase
b) Collateral
c) Insurance
d) Compulsory Sale or Compensation
e) Disclosure in Financial Statements
f) Financial Management
g) Prospectus
h) Probate
i) Taxation or
j) Other (Including litigation)
Factors Affecting Valuation

a) Physical factors – *Location, Size, Fragmentation, Access, Soils*

b) Forest crop details – *Productivity, Stocking, Species, Quality, Management History, Age*

c) Legal and regulatory factors – *Title, ROW, Designation (SAC, SPA, NHA etc)*

d) Forest policy and support measures – *Grants, Premiums*

e) Market considerations – *Demand, State of Economy, Finance*
Methods of Forest Valuation

1) Transaction
2) Cost Based
3) Lump Sum (Liquidation)
4) Expectation Value (Present Value / DCF)
Methods of Forest Valuation – Transaction

Value is related to recent comparable sales of plantations

a) Good method because it uses market sales BUT

1) Few transactions
2) Not always comparable and
3) Information not always disclosed
Methods of Forest Valuation – Cost Based

Value = Sum of costs incurred in developing the plantation

a) Historic cost
   a) Eligible development costs
   b) Inclusion/ exclusion of maintenance / interest / insurance
   c) High cost may not equal High value
   d) Young plantations + Insurance

b) Current replacement cost
   a) Standard unit costs
   b) Level of overhead
   c) Treatment of taxation
   d) Compound interest rate
   e) Young plantations + Insurance
Methods of Forest Valuation – Lump Sum / Liquidation

Value = Sum of all standing timber less costs

a) Assumes no impact on the market
b) Provides conservative estimate
c) Does not provide a value for the land and
d) Significant variation year on year
Methods of Forest Valuation – Expectation Value

Value = Sum of discounted future net cashflows

Uses price information from markets (timber) in which transactions are frequently occurring, in contrast to the market for forest plantations where transactions are relatively few and irregular in comparison.

Requires

a) Forecast of roundwood production
b) Assumptions about timber prices and revenues
c) Assumptions about costs and
d) The determination of the appropriate discount rate.
Forecasting Timber Volumes

Models estimate Gross Volume NOT Recoverable Volume

**Volume Adjustments**

a) **Unproductive Areas** – Traditionally 15% reduction **BUT**

b) **Harvest Loss** – Varies with thinning stage, tree size, quality, product specification and species

c) **Windblow and Disease (Attrition)** – Traditionally 7.5% **BUT**
a) Nature Based
b) Market Based
c) War / Man made disaster

Nature Based

a) Wind
   a) Reduce rotation length
   b) Adjust thinning practice

b) Fire
   a) Protection measures
   b) Insurance

c) Frost

d) Disease + Pests

Guide to the Valuation Commercial Plantations
a) Nature Based
b) Market Based
c) War / Man made disaster

**Market Based**

a) Timber prices / costs do not keep pace with inflation
   a) Opposite could also happen

b) Market Depressed at time of harvest
   a) Postpone harvest if possible

c) Industry capacity does not expand in line with increased supply
Preparation Phase

a) Purpose and scope of the valuation

b) Documentation – Forest Management Plan, species map, aerial photos

c) Any update of timber prices or local markets with relevance to the valuation

d) Confirmation of the levels and duration of any premium payments

f) Confirmation of any partnership, joint venture or lease arrangements;

g) Identification and confirmation of any burdens on the land e.g. rights of way

h) Data on any recent forest transactions and whether it is comparable and

a) Whether the plantation has access paths and if yes their approximate location (If none then arrange for same where necessary)
Undertaking A Valuation

Site Visit and Data Collection

a) **Validate information already collected**
   a) Boundaries, species, stocking, productivity, health status

b) **Collect forest crop information**
   a) Intensity of sampling and data collected related to stage of development

c) **Identify issues which could impact on the valuation and**
   a) Access, unsocial behaviour, damage, fertilizer

d) **Consideration of the future management regime**
   a) Rotation, thinning, roading, other operations
Volume Calculation and Modelling

a) Select appropriate growth model and input data
   a) Based on site visit and management regime

b) Adjust volumes to reflect site visit
   a) Stocking, unproductive areas, attrition, species

c) Select prices
   a) Related to degree of maturity of forest crop

d) Identify and Input Costs and Other Revenues

e) Select appropriate discount rate

f) Run cash flow model
   a) Sensitivity analysis – Factors influencing value
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Forecasting Timber Volumes

a) Forestry Commission Yield Tables

[Diagram of a computer interface showing selection of yield tables for Sitka spruce, with options for species, initial spacing, thinning treatment, yield class, and thinning delay periods.]
Forecasting Timber Volumes

a) GROWFOR – Irish Dynamic Yield Models

Guide to the Valuation Commercial Plantations
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**Per Acre**

- Total Revenues: 335,831
- Total Costs: 27,685
- Balance: 308,146
- NPV: 121,884
- Annual Equivalent: 8,049
- Cumulative: 163

**Client: Greenbelt**
**Reference: Ratgsallagh**
**Total Area: 20.00**
**Productive: 19.00**

Guide to the Valuation Commercial Plantations
Methods of Forest Valuation – Expectation Value

Value = Sum of discounted future net cashflows

Yield Models  Timber Prices  Risks and Assumptions

Timber Revenues  Other Revenues  Costs

Premiums

Cashflows

Discounted Revenues  Discounted Costs

Estimated Crop Value

Guide to the Valuation Commercial Plantations
Discount Rates

a) Bacon in Review of Forest Policy – 5.5% risk adjusted

b) Finland Study – Average of 4% but varied from 2% to 5%

c) New Zealand Survey – 7% to 11%

d) Australia Review – 5% to 10%

Pre Tax or Post Tax Rate

a) Pre tax rate ignores taxation effects – Normal practice in Ireland

b) Post Tax – Difficulties because of tax treatment and owner status