

Forestry derivatives – one way to consolidate small scale, privately owned forests.

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1. Selling small forests

In New Zealand, tax law regards standing trees as inventory. When they are sold the seller must declare the proceeds as taxable income, but the buyer may not claim the cost as a tax deduction. He must carry it in an account until he either sells the trees or harvests them, when he may offset it against the realised income.

While the seller has an immediate tax *liability*, the value of the buyer's matching tax *deduction* is eroded by inflation and the time cost of money. The transaction is less valuable to him than to the seller. This mismatch of 'value' between buyer and seller may be as much as 40%, and can seriously impede forest sales².

The effect is most pronounced in forests with few age classes and no early income. Large forests with regular cash flows are bought and sold with the buyer absorbing the 'cost of timber'.

Inland Revenue has good reasons for retaining this feature. If we hope to encourage the consolidation of small forests, we must avoid the 'value mismatch' without changing tax law. One way to do this is to forward-sell the harvest revenue, rather than the trees themselves.

2. Creating a forestry derivative

Assuming the forest will be harvested in a particular year, we can establish the present value of the forward sale of the harvest revenue. The net present value (NPV) can be calculated as 'the expected harvest proceeds of the forest less the costs of growing it on to the point of felling'. It is a function of inventory, growth rate, time, costs and log prices. Obviously the NPV changes as the forest gets older and as log prices vary.

Suppose we call this NPV the "investment" in the forest. We see that its value is derived from the forest, and so it may be thought of as a *forestry derivative*. Being a derivative, once it has been separately documented it can of course be traded on derivative markets as a financial instrument.

3. Selling the derivative while keeping the trees

If a forest owner wanted to cash up early, but could not find a buyer for his trees because of the tax mismatch, he could of course borrow against future income. Unfortunately he would have to

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² Levack, NZ 2010

pay interest and if this were capitalised, he would carry the risk that he may not earn enough from the harvest to repay the loan.

This repayment risk would disappear if instead, he sold a redeemable forestry derivative based on a fixed percentage of his immature forest. The issue price would be the NPV of that share of the forest at the time of issue, and the redemption price that same share of harvest revenue on maturity. He could cash up and keep title to his trees, by effectively forward-selling part of his future income. Risk would be reduced because the value of the derivative would be fully hedged against the forest at all times.

In tax terms such a derivative behaves like a loan, falling comfortably within existing tax law. Its issue does not create assessable income to the grower. The increase in the value of the forest represents the 'interest' on the 'loan' over its term. Because the value growth is owned by the buyer of the derivative, not the forest grower, it becomes a deductible expense to the grower and an assessable income to the buyer, even if no cash changes hands.

The buyer would purchase the derivative in order to enjoy the benefits of a forest investment (forests behave differently from other asset classes^{3,4}). His profit, that is the change in value of the derivative over time as the forest matured, would be taxable income. Because he would pay tax annually, he would receive the redemption value of the derivative (the net pre-tax harvest income from the forest, equivalent to the 'loan' repayment) tax free.

4. Documenting the derivative

Any loan may be thought of as the forward sale of future income. We can safely apply that concept to forestry if we change the interest rate, moving away from bank rates (which forest owners cannot control) to forest growth rates (which they can). Notice that by doing so we can create a financial instrument that will attract new investors to forestry, because it will be both liquid and scalable.

As the derivative is effectively a loan it may be defined by a form of loan Agreement. The issue value is the pre-tax NPV of a defined percentage of the issuer's forest, the 'interest rate' is the rate of growth of that NPV, and the redemption value is the defined percentage of the pre-tax harvest value.

Security for the derivative may be given by way of a Registered conditional Forestry Right that when exercised, allows the investor to take control of the forest if the issuer defaults.

The investor may assign his rights under the Agreement and Forestry Right at any time, allowing him to trade the derivative. The issuer may assign his rights with conditions in the event that he sells the land, when the Agreement is transferred to the buyer of the land.

5. Controlling the derivative

Valuation

The value of the forest must be determined when the derivative is issued, when it is traded, and annually for tax purposes. To simplify the process one could agree the harvest yield in

³ J P Morgan, USA 2011

⁴ Zinkhan, Sizemore, Mason and Ebner, USA 1992

advance, establish a consistent standard of forest valuation through a single organisation using a published set of criteria, and accept into the scheme only forests that complied.

Harvest date

Forest valuations require known harvest dates. The redemption date of the derivative must be set at the beginning and forest planning must work towards that harvest date, unless both parties agree that harvesting should be rescheduled to suit market conditions.

Forest management

On issuing the derivative the grower must covenant to manage and protect the whole forest at his own expense and with all care, making the same decisions and committing to the same expenditure as if he had not issued it, and ensuring that it is harvested for full value. His incentive for doing this is that he still owns a big percentage of the harvest income.

Default

Security for the investor is by way of a Registered Forestry Right over the entire forest so that if necessary, the investor could harvest the forest and take his defined share of the total harvest proceeds before giving the balance to the issuer.

Trading

A derivative once bought could be traded on secondary markets. Its traded value should fall somewhere between that of an immature forest bought with the 'cost of standing timber' and an immature forest owned from the outset, with a discount in relation to the perceived integrity of the issuer who would continue to manage the forest for the investor.

6. Using the derivative to consolidate forests

Should several growers wish to consolidate their small forests for collective control and economies of scale, they could form a co-operative company that would then issue shares to the members in return for derivatives over their forests. The co-operative would take a management contract over the forests, and the issue price of each derivative would reflect the cost of management that would be borne by the co-op, rather than by the individual grower.

Each Agreement would impose obligations on the grower (access, maintenance of the land and its improvements, protection, pest control), which if neglected could lead to an event of default and the co-operative exercising full control of the forest under its security.

The derivative would allow consolidation with no tax mismatch.

7. References

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