1.4 Private equity investments in forestry: overcoming barriers

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Forestry investment background
As the world’s population increases, the global demand for timber products rises steadily. Meeting this increasing demand will require an increase in reforestation activities and timber production. Without this increase, the pressure on natural forests will increase, leading to harvesting rates that greatly exceed forest growth rates.

Establishing new forests at the scale required — several million hectares per year — calls for substantial private capital. Forest investments are economically attractive: they offer a balance between risk and revenue, provide critical additional climate benefits, and foster socio-economic development in rural contexts. An average of 75 qualified forestry and timber-processing jobs are created for each 1,000 ha of forest established (Grulke, Tennigkeit and Vogt 2010).

Institutional investors increasingly recognize forest assets as a valuable long-term natural capital investment that complements their diverse portfolios (Box 1). Institutional investors have already devoted an estimated US$ 50 billion to this asset class globally, of which approximately US$ 40 billion is invested in U.S. forests (Brand 2012).

The main benefits and risks of forest investments are listed in Table 1.

Natural forest management cannot sustainably satisfy timber demand; there is also a need to establish new forests. This raises a number of questions about feasibility:

- Is enough non-forested land available?
- How can a project avoid conflicts related to food security?
- How can a project balance production with ecological and social impacts?
- How can a project ensure that the value derived from large-scale forest projects is shared equitably with local communities and indigenous people?
- How can private investors be attracted in order to raise the private capital required to finance the establishment of new forests at scale?
### Table 1. Pros and cons of forest investments

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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<tbody>
<tr>
<td><strong>Annual IRR</strong></td>
<td>Cash flow profile</td>
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<tr>
<td>Attractive return on investment (between 8 and 12%)</td>
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<tr>
<td>Conservation of value</td>
<td>Long running nature of the investment</td>
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<td>Long-term maintenance of value; low volatility; very low risk of complete loss of investment</td>
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<tr>
<td><strong>Diversification</strong></td>
<td>Track record</td>
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<tr>
<td>Highly recommended for portfolio diversification; not correlated to other products/asset classes of capital market</td>
<td></td>
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<tr>
<td><strong>Positive external effects</strong></td>
<td>Risk assessment</td>
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<td>Positive ecological and social impacts; “charismatic” asset</td>
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Source: Unique

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**Box 1. The Forestería Certificada en Paraguay project**

The *Forestería Certificada en Paraguay* project shows that natural forest management based on the most rigorous Forest Stewardship Council (FSC) standard can generate an attractive return for the investor while restoring biodiversity and providing rural employment. The project covers 5,650 ha: a 4,000-ha production zone and a 1,650-ha conservation zone. It has been managed in a joint venture between a local company and UNIQUE for more than ten years. The project could be scaled up and replicated in many tropical forest regions. It has an annual turnover of US$1 million, generates after-tax earnings of US$70/ha, provides 50 qualified jobs and has an established and formalized relationship with adjacent indigenous communities based on a spirit of mutual respect. This type of close-to-nature forest management contributes to restoring the biodiversity of the Mata Atlântica Forest corridor. Investing in capacity and empowering the local management team was key to the project’s success.
Barriers to investment

Early exit vs. production cycle
Forest investment could raise more capital through direct investment or funds if certain barriers were removed. This would allow an “early” exit for investors after six to ten years.

Long production cycles
In many cases the production period (from tree seedlings to mature trees of a targeted dimension) is longer than the preferred life of the investment or its vehicle. In general, new forests do not generate significant positive cash flows from timber sales before investors wish to exit. As a result, when investors exit, the investment, rather than timber product, is often only the production asset that can be sold.

Lack of liquid trading markets
In general, the forestry asset class is not liquid. In other words, there aren’t enough investors in the market to absorb assets being sold without having an impact on the price of the asset. There are only a few transactions per year outside North America and a limited number of experienced investors. Consequently, there is no transparent trading market for forest assets that could allow prices to be standardized.

Lack of standardized valuation methods
There is no common method to value forests (PWC 2009 and 2011). Most investors apply the discounted cash flow (DCF) method, but it is challenging to obtain reliable data on timber stocks, increments, production costs and markets in order to project these factors into the future. This makes the valuation and transaction of forest assets — and the due diligence of forest companies — a complex, lengthy and expensive process.

Addressing exit difficulties for forest fund investments

Long production cycles and lack of trading markets
A number of closed-end forest funds are investing substantial amounts of capital in new forests. As mentioned above, the first tree rotation usually cannot be harvested before the end of the investment term, commonly 10–15 years. As a result, the fund has to sell a number of premature forest assets at the end of its term. Depending on the fund’s term, cash flow generally remains negative before the end of the investment term. This means that asset valuation is particularly important to the investor’s yield and to the fund’s management.

In order to avoid sales at low prices, management looks for early agreed exit opportunities that reflect the real value of the asset. Figure 1 illustrates a typical cash flow profile of a greenfield reforestation project.
A secondary market for forest investments (selling and buying young plantations) is slowly emerging. As yet, however, these transactions do not make use of hedging instruments commonly applied in other asset classes, such as options to sell or buy assets at a fixed time, or the use of an agreed valuation standard. They also lack a price indication for long-term forward products or asset sales and investments. This makes it difficult for managers to hedge their positions.

As a response to this exit challenge, some forest fund managers have started a second fund or a fund family where they could reinvest the forest assets from other funds. However, the forest assessment prior to the reinvestment contains a significant potential for conflicts of interest. In addition, this approach misses the opportunity to determine the asset’s market value.

Widely accepted forest valuation standards and option contract terms, including risk assessment procedures, would help create a liquid secondary market for young/immature forests and help reduce transaction costs; this would in turn reduce valuation and due diligence costs. Standard terms would also allow forest funds to specialize along the production cycle and value chain. Some funds could specialize in early greenfield establishments, with their respective risk and return profiles; others might specialize in investing in young established forests or in mature forests, including timber processing and value adding.

**Valuation standards for forest assets**

**The International Accounting Standard (IAS)**

One problem facing forest investments is the lack of widely accepted best practices related to the implementation of accounting standards. Valuing a forest asset at the fair market price is an essential step for any institutional investor. With the new Basel III international regulatory framework for banks, financial institutions have to measure liquidity risk; any asset that is not liquid increases the amount of capital required. This
new compliance obligation may reduce the appetite for forest investments unless the industry improves its valuation standards and thereby its liquidity.

Methods for the valuation of biological assets, including forests, generally follow International Accounting Standard 41 (IAS 41). The IAS standards are widely used to establish the fair value of forest investments. Forest and other biological assets are measured at fair value less the cost to sell them, except in cases where the fair value cannot be reliably measured. IAS 41 sets out three methods to establish the fair forest asset value:

- **Market-based valuation:** If an active market exists for a forest asset in its present location and condition, the quoted price in that market is the basis for determining the fair value of the asset. If an active market does not exist, then a) the most recent market transaction price; b) market prices for similar assets with adjustment to reflect differences; or c) sector benchmarks can be applied. As explained above, this method is often limited by a lack of markets and the consequent missing price information. PWC (2011) emphasizes the lack of active markets for large plots of forests lands and implies that there is a lack of reliable quoted market prices for standing timber.

- **Net present value (DCF/NPV):** The net present value of expected discounted cash flows can also be used to determine the fair value of a forest asset in its present location and condition. Future cash flows have to be predicted and an appropriate discount rate must be defined. The DCF method is the most common method used to calculate the fair value of forest assets. The challenge is obtaining reliable data on the main assumptions driving the asset's value: production costs (including land development costs), forest growth and yield and timber prices.

- **Cost-based valuation:** This approach is used when the price or value of an asset cannot be determined in the market. In such cases, the biological asset is measured at its cost less any accumulated depreciation and any accumulated reductions in capital. Once the fair value of such a forest asset can be measured accurately, its fair value (less costs to sell the asset) can then be established according to the market-based approach, above. The limitations of this method are evident. Forest assets that are managed cost-efficiently have a lower value than companies with high production costs because their value depends directly on the accumulated costs of plantation establishment.

**Addressing problems of forest asset valuation**

Outside North America market-based valuation is hampered by the lack of liquidity in the forest asset market and the resulting lack of consistent prices. The DCF/NPV calculation by far the most common, and is the most appropriate approach to determine the fair value of forest assets. The main challenge for calculating discounted cash flows is obtaining reliable data. The model strongly depends on long-term predictions of underlying input assumptions (biological growth and yield, market prices and costs). Inputs are subject to increasing insecurity. Furthermore, defining the input parameter is highly subjective and can be manipulated by the company (e.g., an optimistic valuation to attract investors), and by financial considerations (e.g., conservative valuation to avoid taxes).
Both market-based and DCF/NPV valuations require high-quality forest inventories with precise data on forest stocks and growth in order to estimate the standing timber and the related timber value. Independently of the valuation approach, it is difficult to make a fair calculation based on reliable data related to natural factors (forest stocks), market forces (production costs, timber and land prices) and financial aspects (discount rates).

Since the growth and yield of forests can be predicted more precisely than either costs or prices, particularly when prediction schedules exceed five years, forest asset valuation should focus on natural production data and market access (infrastructure and distance to markets), rather than on uncertain changes in costs and prices. Further, fair value calculations should be based on current market prices rather than adjusted future prices.

Conclusions and recommendations

Forest investments have to balance investor expectations (stable, inflation-hedged returns, moderate to low risks) with ecological (climate, water, biodiversity) and social benefits (employment, local community participation in business activities). Development banks that focus on the private sector show a strong interest in forest investments7 in emerging markets. They may want to initiate a forest investor roundtable with the private forest sector and international accounting firms in order to standardize transaction terms. They may also wish to consider investments in buy and sell for forestry assets as a catalyst for more liquid forest asset markets and to mitigate the exit problem.

This creates an opportunity for substantial growth of the forest asset class. Capturing this potential requires a joint effort by forest investment funds and forest asset developers in order to agree on best practices for forest valuation standards, thus increasing market liquidity and attracting more investment. The following actions are recommended.

Establish a forest investor round table (including forest investors, IAS and valuation experts, forest management companies) to agree on best forest valuation practices.

Develop standard industry guidelines for determining and modeling biological performance, including these definitions:
   i. inventory standards (determination of stock, quality and assortments);
   ii. standards for forecasting growth;
   iii. standards for timber assortment;
   iv. default values for the ratio of standing timber volume to marketable timber volume (considering harvesting losses, roundwood damages, timber theft, etc.); and
   v. standards to integrate and establish the non-timber values of forest assets (carbon sequestration, biodiversity, etc.)

Develop standard industry guidelines for determining and modeling economic performance, including these factors:
   • using the DCF/NPV approach as the standard method when there is no active local/ regional market for large areas of forest land;
   • input data (current or adjusted prices and production costs, land price appreciation);
• common standards for price and cost projections (e.g., current market-based value plus inflation);
• specification of the weighted average cost of capital to derive discount rates (mix of capital costs, risk assessment and investors' expectations); and
• how to reflect sustainability (e.g., DCF with/without replanting after clear felling).

Classify forest investments according to related risk/return profiles. The following classes are recommended:
• establishment phase: planting, tending, thinning without generating revenues;
• development phase: tending and thinning, with revenues; and
• harvesting phase: harvesting of mature trees with/without replanting.

Defining common forest inventory standards — including the determination of future growth and yield — is feasible, but would require the industry to agree on the valuation procedure. A forest investor roundtable could facilitate such a consensus-building process. Major forest funds and the forest industry would have to commit on how to apply the different forest valuation approaches and how to deal with long-term predictions of production costs and market development.

Applying globally accepted best practices for forest asset valuation would reduce uncertainty and due diligence costs for investors, increase market liquidity and consequently contribute to the asset class's growth.

Endnotes
1. UNIQUE forestry and land use GmbH is a leading forestry and land-use advisory and forest investment company based in Freiburg, Germany, with regional offices in Uganda and Paraguay and representatives in China and Argentina.
2. Discounted cash flow (DCF) analysis uses projections of future cash flow and discounts them to determine a current value. That value is used to assess the potential for investment.
3. This is an undeveloped site, particularly one being considered for commercial development or exploitation.
4. See www.bis.org/bcbs/basel3.htm.
5. There are also country-specific forest valuation standards, e.g., in the U.S. (Uniform Standards of Professional Appraisal Practice) or Germany (Waldwertermittlungsrichtlinien 2000 - WaldR 2000). The different standards require the use of different parameters, including inflation rates and regional risk adjustments; therefore, the results are not comparable.
7. According to the authors' information, IFC, EIB, CDC, DEG, FMO, Finnfund and Proparco have invested in institutional forest funds.
References


