Inherent Features of Timberland Investment – why timber?

Timber Invest Europe
26-27 October 2010, London, UK

Olli Haltia
Active management of the forest assets using first class forest managers to enhance productivity
- Utilisation of state of the art genetic improvement and planting technology
- Adopting sustainability principle throughout the production chain

Identifying “hidden values” and complementary revenue sources: certification potential, High and Better Uses (HBUs)...

Securing reliable markets mainly through industrial partnerships
Certified Forest Area Is Growing Globally

Certified Forest Area, %

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>&gt;50%</td>
</tr>
<tr>
<td>North America</td>
<td>10-50%</td>
</tr>
<tr>
<td>Oceania</td>
<td>5-10%</td>
</tr>
<tr>
<td>LA, CIS</td>
<td>1-5%</td>
</tr>
<tr>
<td>Africa, Asia</td>
<td>-1%</td>
</tr>
</tbody>
</table>

Includes FSC, PEFC, SFI, CSA and ATFS Standards;
Source: UNECE/FAO Forest Products Annual Market Reviews
Sustainable Timberland Investment.

Balanced Portfolio Brings Cash Flow and Capital Gain

Developing timberlands bring potential for capital appreciation, and have higher IRR’s

Mature timberlands bring early and steady cash flow

Simulated cash flow of combined mature and greenfield investments
Global Timberland Regions and Expected IRRs (Gross)

North America:
8% - 12%

Western Europe:
6% - 10%

Eastern Europe:
7% - 15%

South America:
10% - 15%

Africa:
15% - 25%

Asia:
15% - 22%

Australia/NZ:
8% - 12%

Source: Food and Agriculture Organization of the United Nations: State of the World’s Forest 2007, Pöyry Group, First Forest, Hancock Timber Group

*TIMO denotes for Timberland Investment Management Organization, i.e. a timberland fund or a similar organization
Historical Sources of Timberland Return

- Biological growth: 65-75%
- Timber price changes: 25-35%
- Land value changes: 2-5%
R_{t+1} = \frac{[CF_{t+1} + (V_{t+1} - V_t)]}{V_t}

= (Fellings + Value change due to prices + \textit{Biological Growth}) / Value

\text{Larger Biological Growth}

(\Rightarrow \text{advanced silviculture, tree breeding, species selection etc})
Biological Growth – the Case of Finland

Source: Dasos, data by Finnish Forest Research Institute
1a) Biological Volume Growth

- Biological *volume* growth contributes 3%-15% return on capital

- Finnish Pine
  - ~5 m³/ha/a

- Spanish Eucalyptus
  - 12-14 m³/ha/a

- Ecuadorean Teak Plantation
  - 14-18 m³/ha/a

- Brazilian Eucalyptus
  - 35-50 m³/ha/a
1 b) Biological Value Growth (In-Growth)

- When a tree grows, it turns into higher value products.
- Some European hardwoods and the best tropicals species reach as high prices as EUR 250 per m³.
- **Biological value growth contributes 2%-10% return on capital.**

**Types of Wood and Prices:**

- Energy wood: 10-15 €/m³
- Spruce pulpwood: 17 €/m³
- Spruce logs: 48 €/m³
- Teak, Oak logs: 75-250 €/m³
Biological Value vs. Volume

- High Biological Value Growth: Eucalyptus in Brazil, Eucalyptus in Uruguay, Acacia in Malaysia
- High Biological Volume Growth: Teak in Cambodia
- Low Biological Value Growth: Spruce in Romania, Beech in Romania, Spruce, Pine in Baltics, Spruce, Pine in Finland
- Low Biological Volume Growth: Teak in Brazil

Sustainable Timberland Investment.
2. Wood Prices - "Extra" Returns Through Opportunistic Timing

- Korean War
- Vietnam War begins
- First Oil Crisis
- Second Oil Crisis
- Soviet Union collapse, W.E. mkt recession
- Russian export tariffs, first "bioboom"

Softwood logs, real prices (2009 prices)

+0.45%/a
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Wood Prices – Recent Cycle

- Announcements and gradual implementation of Russian export tariffs for roundwood
- Bear Stearns collapse
- Lehman Brothers bankruptcy; Fannie Mae & Freddie Mac
- Copenhagen Climate Conference
- Ethanol industry to get additional boost from Bush
- Bush to commit to renewable energy for climate change

Softwood Log Prices  
OMX Helsinki  
Pine pulpwood

Bush bioenergy program ->
3. Land Prices – Robust Track as an Inflation Hedge

“Buy land, they’re not making it anymore.”
- Mark Twain

![Graph of NCREIF Farmland Index (real) with a trend line of +3.6% per annum.]
Key Investment Features of Timberland

1) Forest investments generate relatively stable, usually predictable cash flow.

2) Timberland has an excellent track as an inflation hedge and has the capacity to preserve value.

3) *Biological growth* is not dependent on business cycles: therefore, timberland performs low correlation with most other asset classes. => see next slides

**Dasos Study:**

- Austria, Brazil, Estonia, Finland, Indonesia, Uruguay
- Forestland Index (portfolio): above countries with equal weight
- Typical species in each country
- *Normal Forest* as model for forest asset applied separately for each species in each country – to neutralize the impact of age class distribution to wood supply (with steady state rotation age of $T^*_{xy}$ for species $X$ in country $Y$ there are $1/T^*_{xy}$ forest age classes in country $Y$ for species $X$)
- Prices and costs represented by real data
Correlation of Returns to Major Stock Market Indexes: USD Returns 1998-2009

- MSCI BRAZIL - TOT RETURN IND
- FTSE INDIA E - TOT RETURN IND
- FTSE CHINA E - TOT RETURN IND
- CAC 40 10.00 HRS. - PRICE INDEX
- DAX 3D PERFORMANCE - PRICE INDEX
- NIKKEI 225 STOCK AVERAGE - PRICE INDEX
- HANG SENG - TOT RETURN IND
- NASDAQ COMPOSITE - PRICE INDEX
- FTSE100
- S&P 500 COMPOSITE(16.00) - PRICE INDEX
- DJ US SELECT REIT - TOT RETURN IND
- DJ US TOTAL STOCK MARKET - TOT RETURN IND

Legend:
- Diversified forestland index
- Indonesia
- Uruguay
- Brazil
- Finland
- Estonia
- Austria
Correlation of Returns to Major Stock Market Indexes: Local Currency Returns 1998-2009
Forestland Investments: USD Returns

Index=100

- Finland
- Austria
- Estonia
- Brazil
- Uruguay
- Indonesia
- Forest investment portfolio
- Index Average 1998-2009
Timberland in Investment Portfolio: Risk/Return Impact

Efficient Frontiers 1998-2009

With timberland towards lower risk (standard deviation) whilst no compromise in portfolio returns

15% maximum asset weight limitation; Source: Dasos
Where does the demand for wood come from?
“All wood bits and pieces including cones will increase in value”

“Kaikki risut ja kävyt nousevat kyllä arvoonsa.”

Jorma Ollila
Chairman of Board, Royal Dutch Shell
Suomen Kuvalehti 18/2008
GDP and Paper Consumption Per Capita 1990-2006

China, India and many others still close to origo

Consumption, kg per capita

GDP per capita, USD 2007 prices

China
India
Finland
Japan
Sweden
Germany
Korea, Republic of
United States of America
United Kingdom
Long-term Paper Demand, GDP and World Population

Long-term Paper and Paperboard Demand Growth by Region through 2025

Source: Pöyry 2009

World GDP Growth Outlook (Deflated to 2000 Prices) and Estimated World Population in 2050 by Region

Source: IMF and UN World Population Prospects 2006
Sustainable Timberland Investment.

GDP and Wood-based Panel Consumption Per Capita 1990-2006

China, India and many others still close to origo

GDP per capita, USD 2007 prices

Consumption, kg per capita

USA

China
India
Finland
Sweden
Germany
South Korea
Japan
United Kingdom
USA
Global Consumption of Industrial Roundwood, 1965–2030

Source: FAO 2009, Unpublished Draft
Green Housing – Buildings as CO₂ Sink

- Buildings, their construction and raw materials used in construction are a significant source of carbon dioxide emissions in developed countries.

- EU is moving towards greener building
  - E.g. UK mandates all new homes to be zero-carbon by 2016
  - Germany, France to follow

- Green building focused real estate funds have been introduced
Examples of Wood Buildings

Concert Hall Sibelius in Lahti, Finland

University Library in Skellefteå, Sweden

Stadthaus in London, UK
The tallest timber residential building, opened in 2009
Replacing only one percent of the total primary energy consumption in EU27 (about 1,800 million tons of oil equivalent) would require over 90 million m³ of wood corresponding to about 1/8 of the Net Annual Increment (NAI) of Europe’s forests.

Source: UNECE/FAO
Sustainable Timberland Investment.

Two 200kt plants would be able to produce enough biodiesel to account for about 9% of road traffic fuel consumption in Finland, closely matching the EU biofuel target of 10% by 2020.

-> 7-8% of the average domestic wood use by the forest industries.
Global Process of Climate Change, Carbon and Forests

Current Carbon Market

- Other credits 99%
- Forestry credits 1%

Total: \textit{EUR 120.2bn}

Carbon Market in 2030

- Other credits 66%
- Reduced deforestation 21%
- Reforestation 13%

Total: about 2 X the current volume

Forestry Credits \textit{EUR 39bn} *

⇒ Potential for substantial additional forest revenue, especially in the emerging market
⇒ Forest project IRRs up by 2-3% with wide scale of projects, new investment opportunities

*Assumes carbon price of EUR 15 per ton. Source: UNFCCC 2008
Thank you!

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