



Private Financial Markets and Climate Change - forestry perspectives

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Thesis

"All wood bits and pieces including
cones will increase in value"

"Kaikki risut ja kävyt nousevat kyllä arvoonsa."

Jorma Ollila

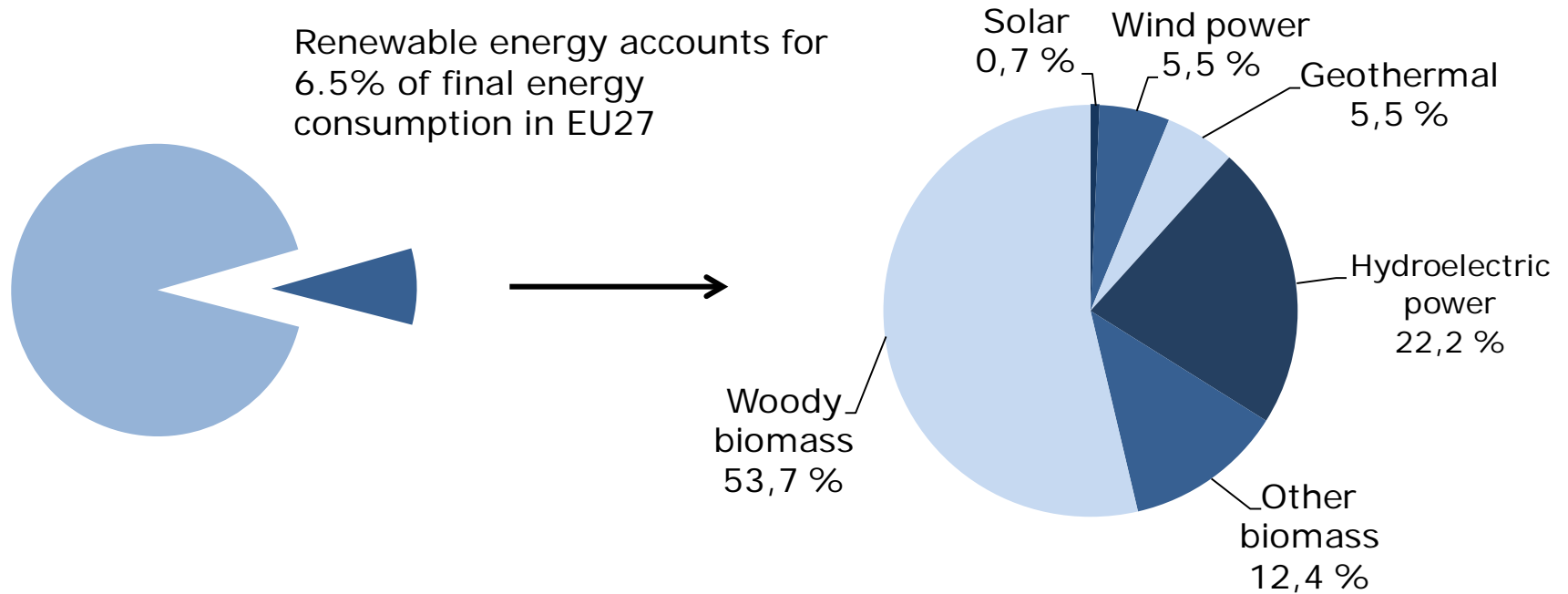
Chairman of Board, Royal Dutch Shell

Suomen Kuvalehti 18/2008

TWO ISSUES

- 1) Bioenergy – the role of *direct* forestry carbon credits remains limited (status quo)
- 2) Forestry carbon credits (REDD, Kioto follow-up etc)

EU 20-20-20

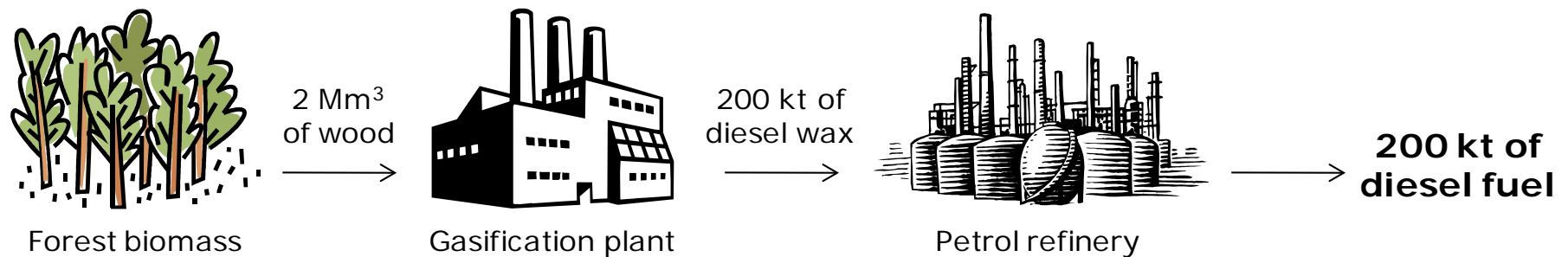


- Replacing only one percent of the total primary energy consumption in EU27 (about 1,800 million tons of oil equivalent) would require over 90 million m³ of wood corresponding to about 1/8 of the Net Annual Increment (NAI) of Europe's forests

Source: UNECE/FAO

Biofuels – Two Plants/Refineries for Finland by 2020?

Fischer-Tropsch Biodiesel Plant Concept

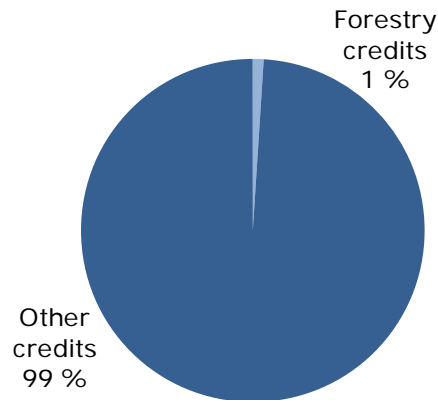


Two 200kt plants would be able to produce enough biodiesel to account for about 9% of road traffic fuel consumption in Finland, closely matching the *EU biofuel target of 10% by 2020*

-> 7-8% of the average domestic wood use by the forest industries

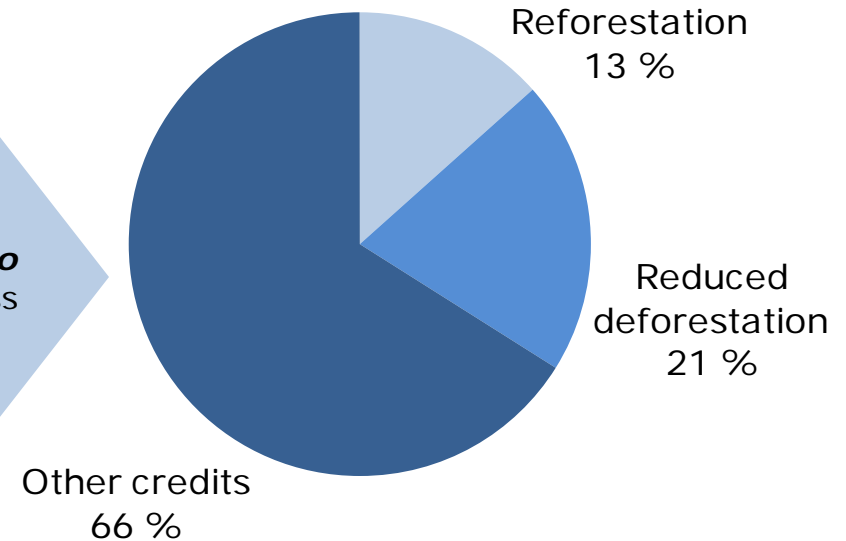
Global Process of Climate Change, Carbon and Forests

Current Carbon Market



Total: **EUR 120.2bn**

Carbon Market in 2030



Total: **about 2 X the current volume**

Forestry Credits **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**

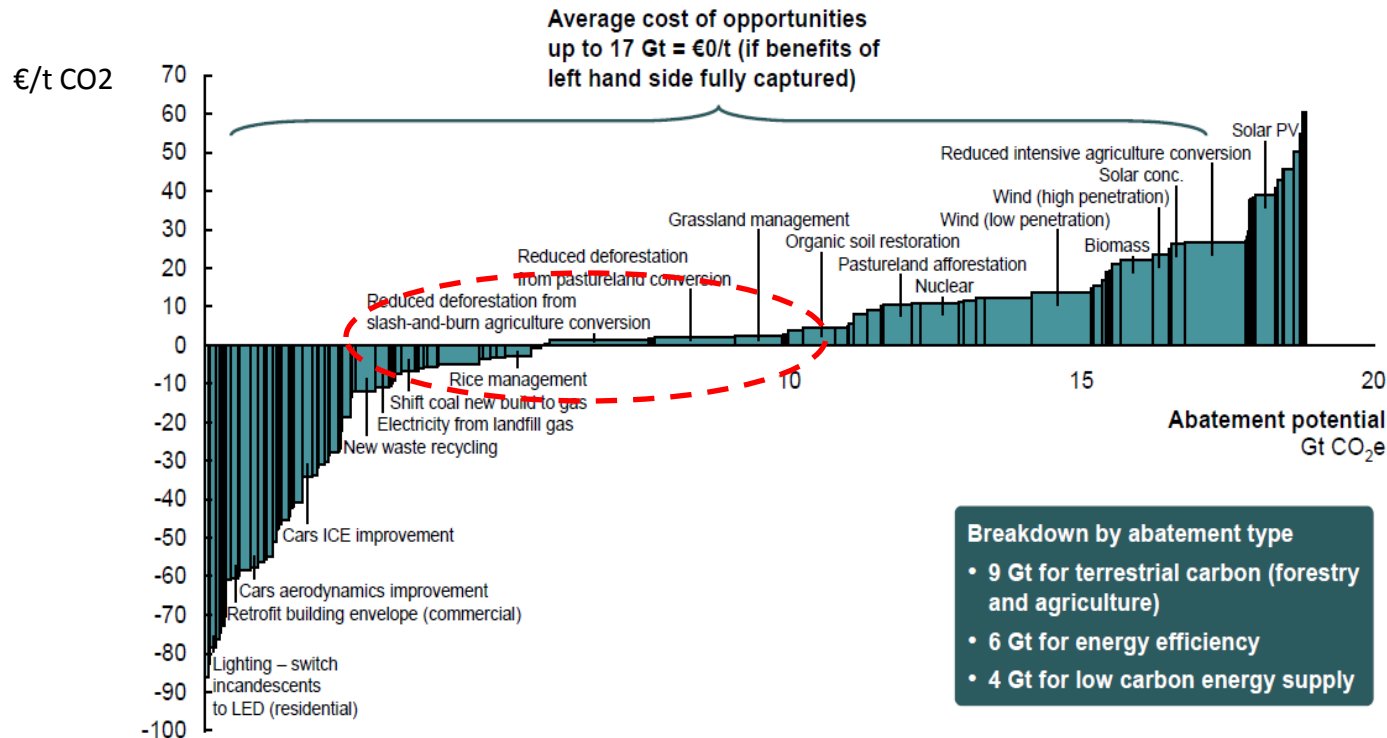
Investable REDD – private equity prerequisites

- 1) REDD Company – *scarcely existing as a concept*
 - Credible history
 - Forest (carbon) property rights/land title
 - Owners (entrepreneurs) and mission
 - Financial, social, environmental auditing – *no governance rules existing*

- 2) Market
 - Carbon markets for REDD – *to be established*
 - Secondary market for REDD assets – *not existing as yet*
 - Third-party independent evaluation - *no arrangement*
 - Attractive prospects

Investable REDD – private equity prerequisites (con'd)

3) Technology – *apparently good prospect*



○ entry barriers

Source: McKinsey Global GHG Abatement Cost Curve v2.0

Investable REDD – private equity prerequisites (con'd)

3) Competition

- Competitive advantages
- Scale of competition (No of similar projects etc)

4) Business Strategy

- Carbon vs other products
- Stakeholders

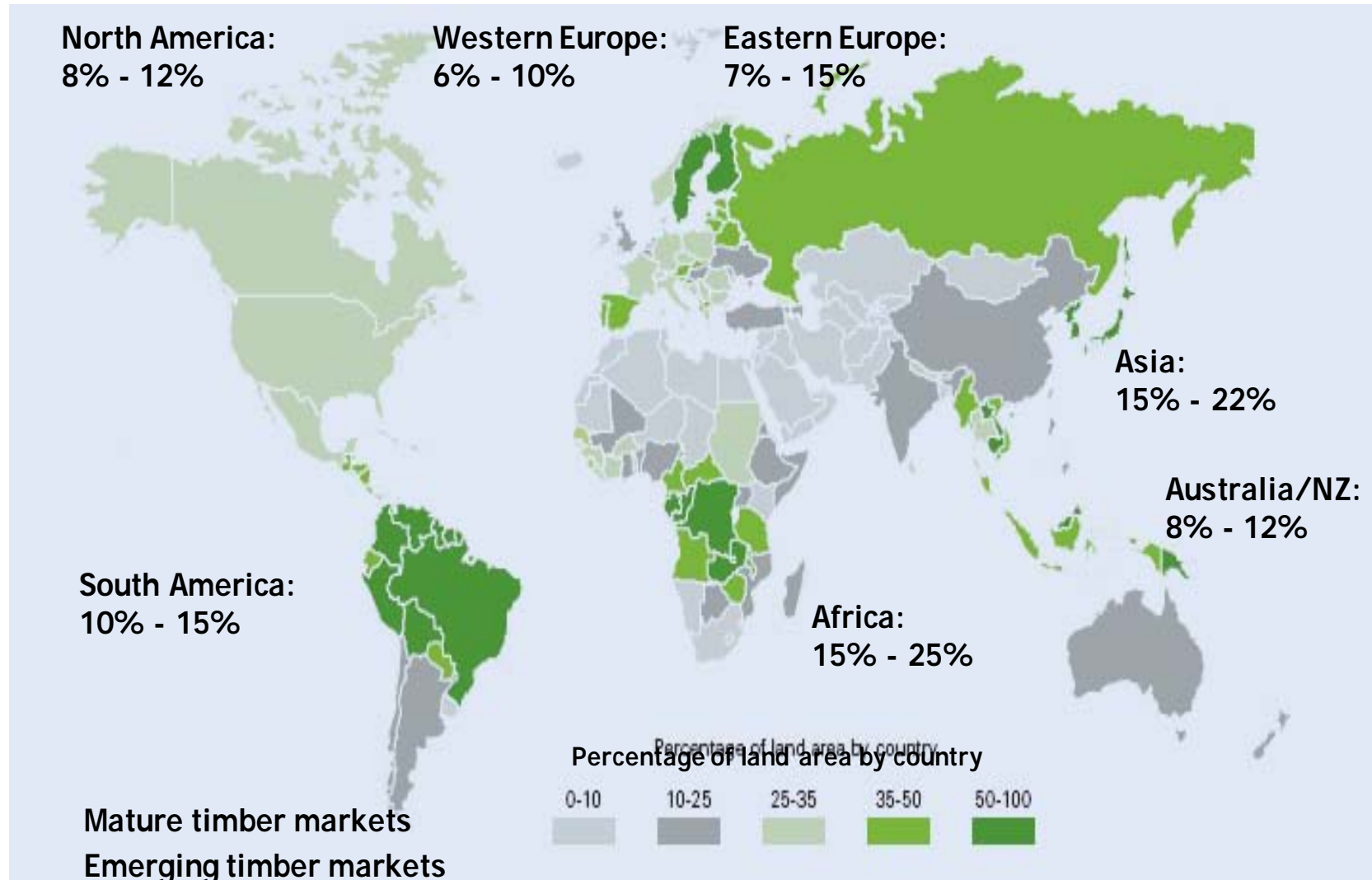
5) Operations Plan

- Team – who is doing and what

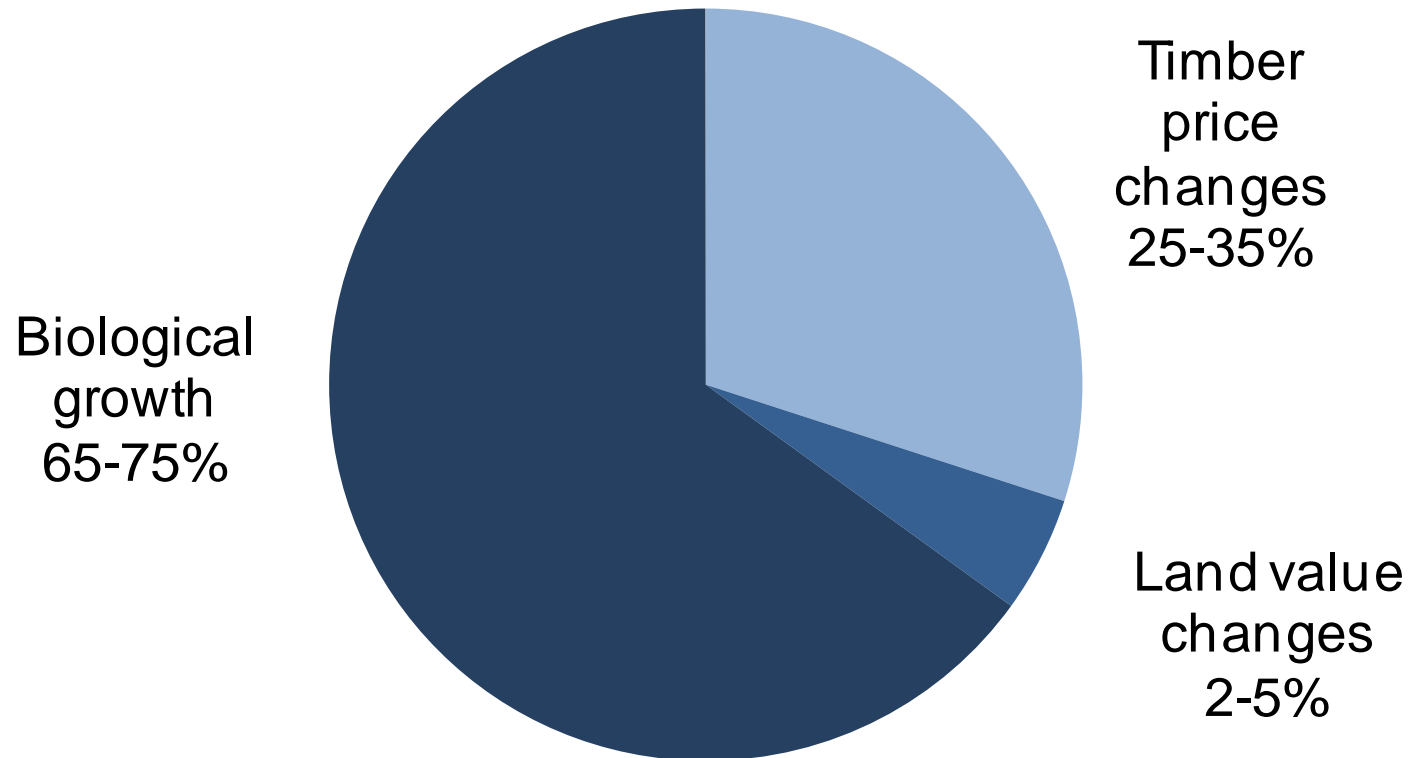
6) Business Potential

- Market size, Company share, Financials
- Exit strategy

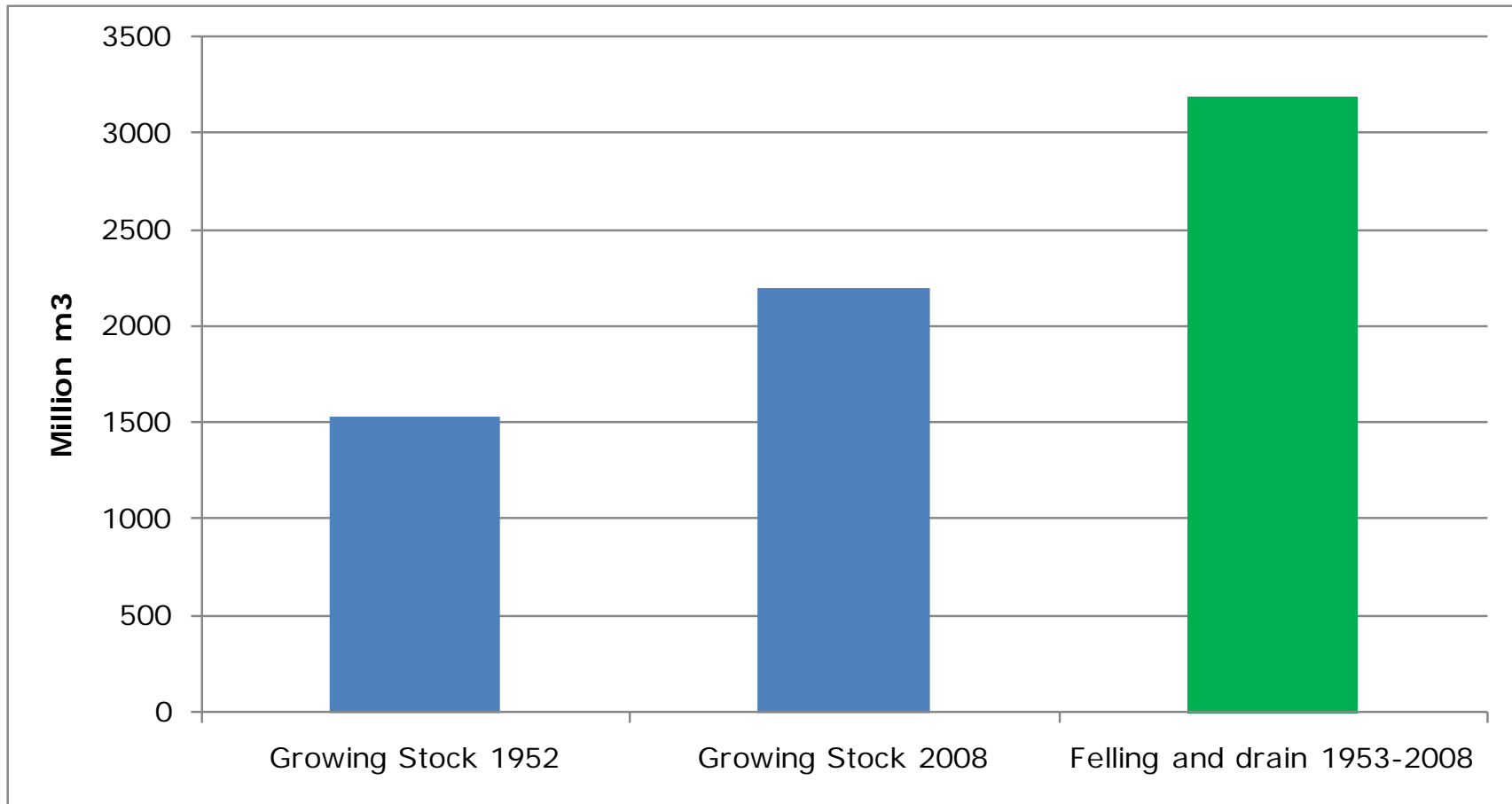
Overview of Global Timberland Regions and Expected IRRs (Gross)



Historical Sources of Timberland Return



Biological Growth – the case of Finland



Source: Finnish Forest Research Institute

1 a) 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



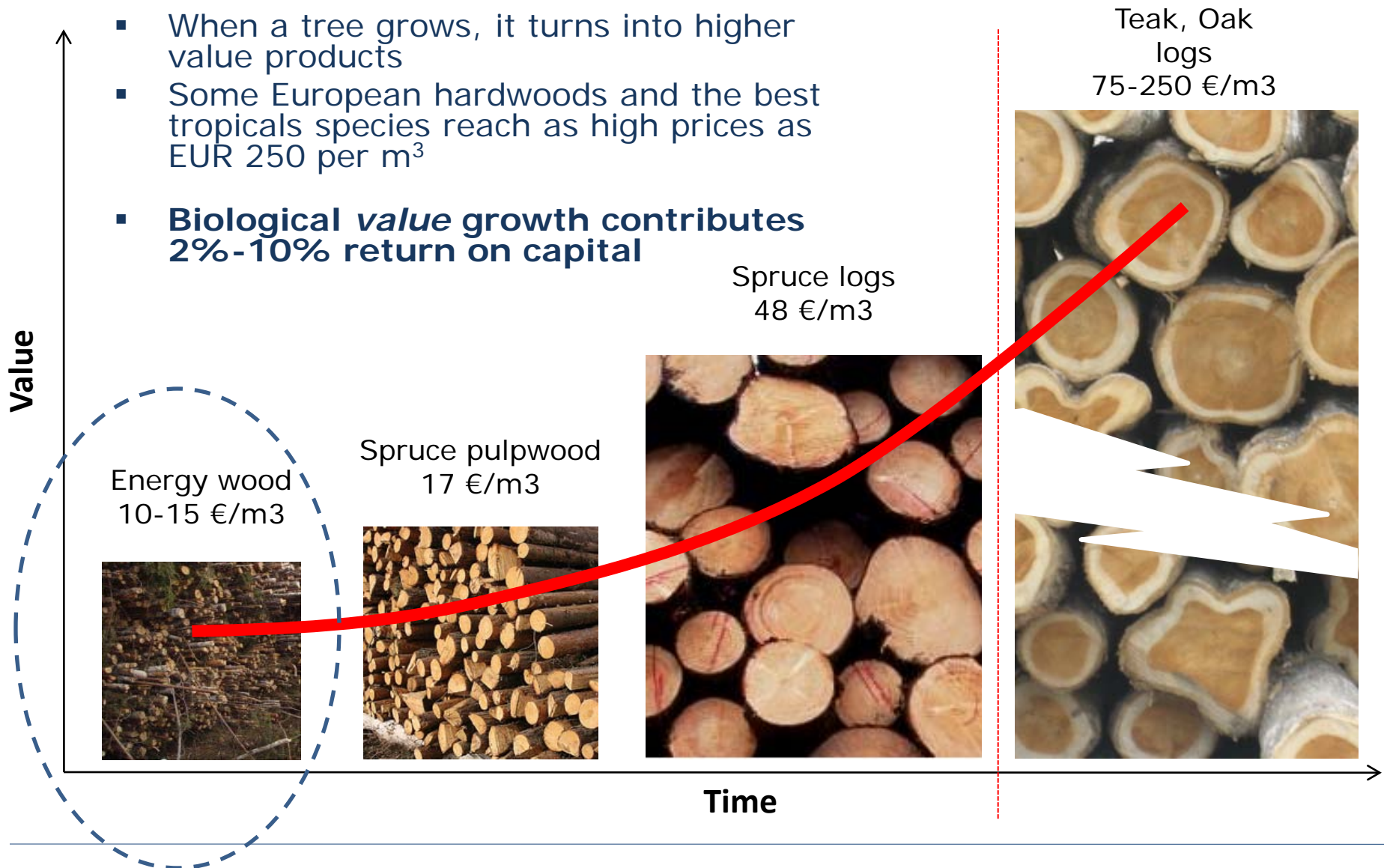
Ecuadorean
Teak Plantation
14-18 m³/ha/a



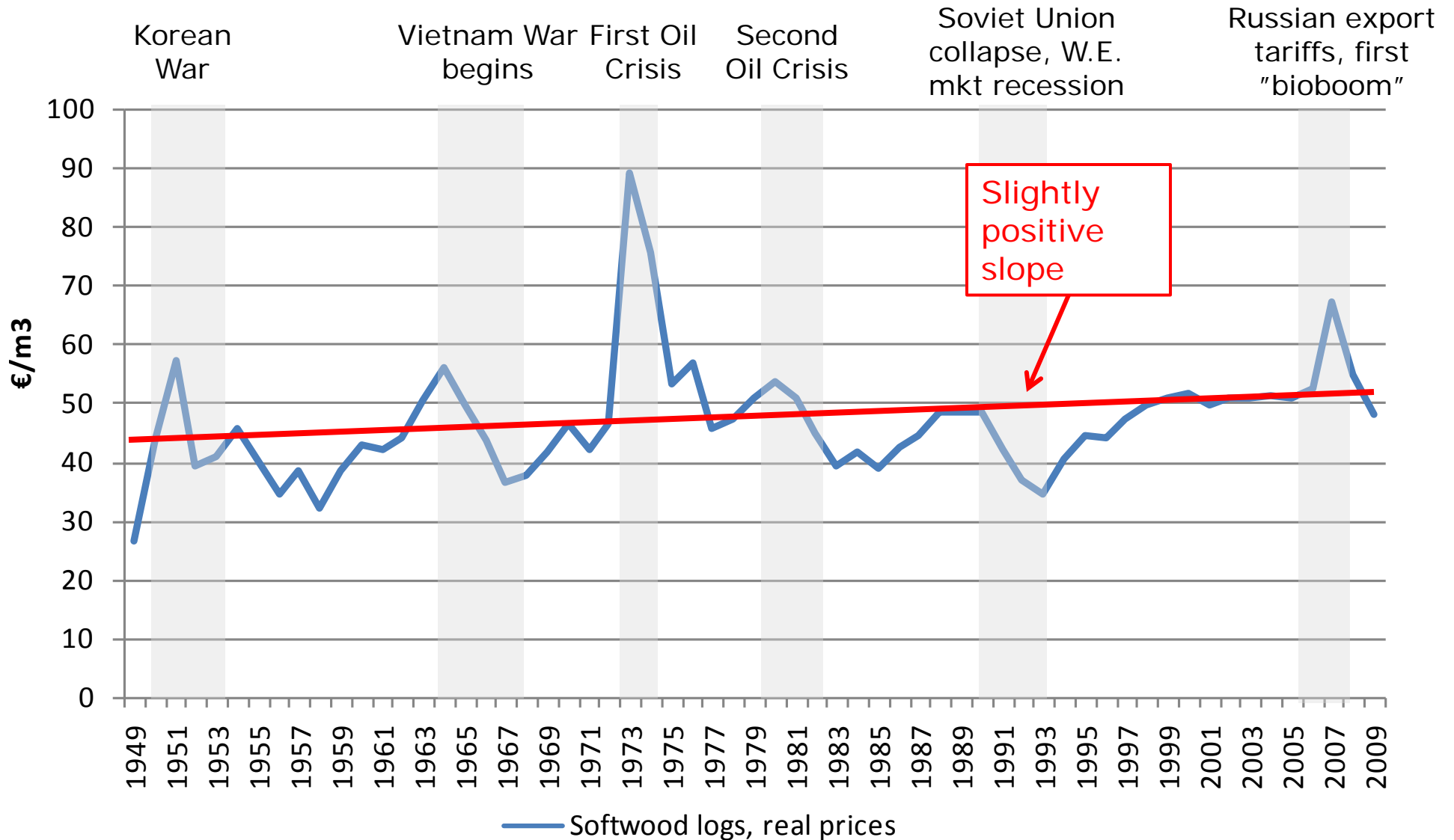
Brazilian
Eucalyptus
35-50 m³/ha/a

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**



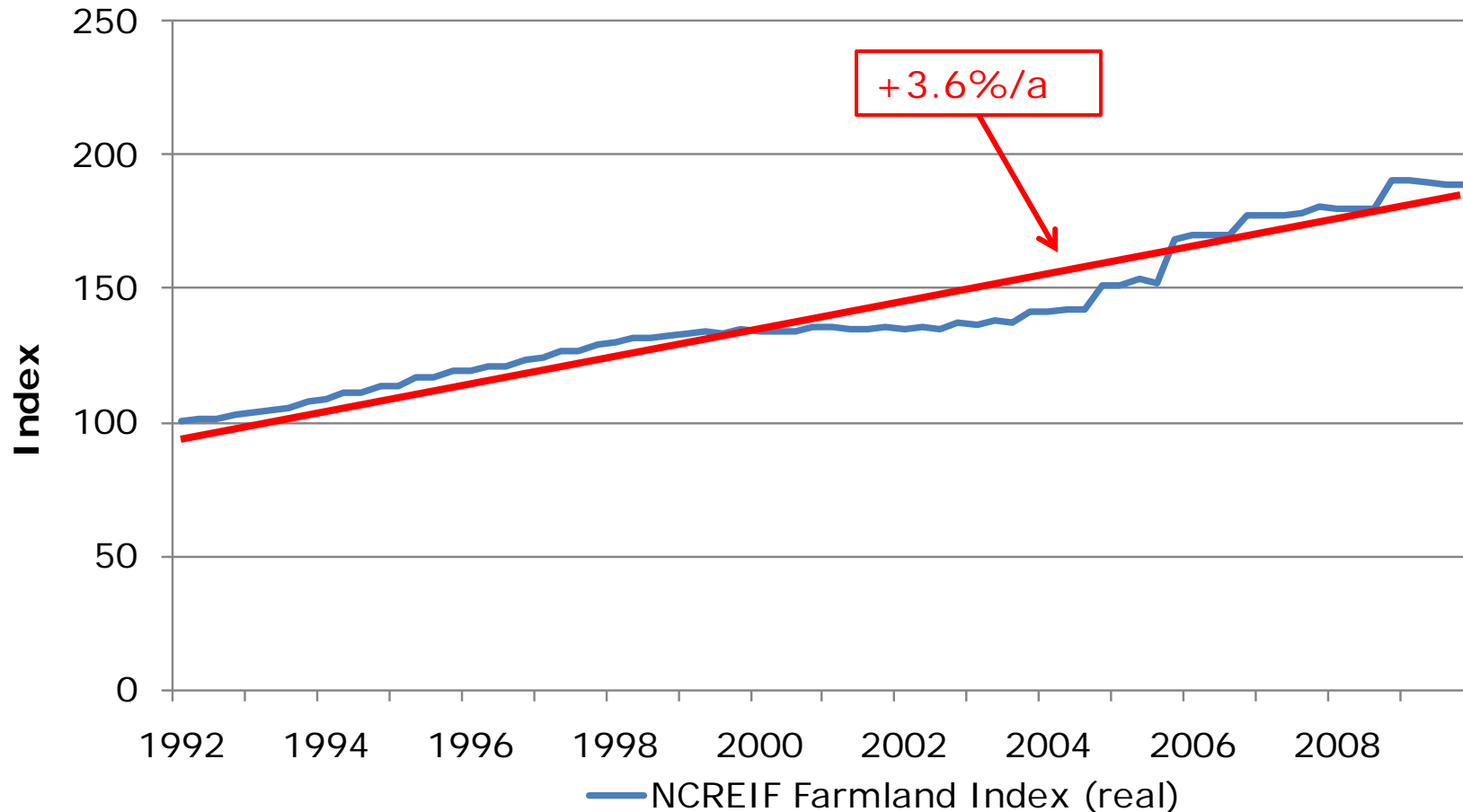
Wood Prices => Timing



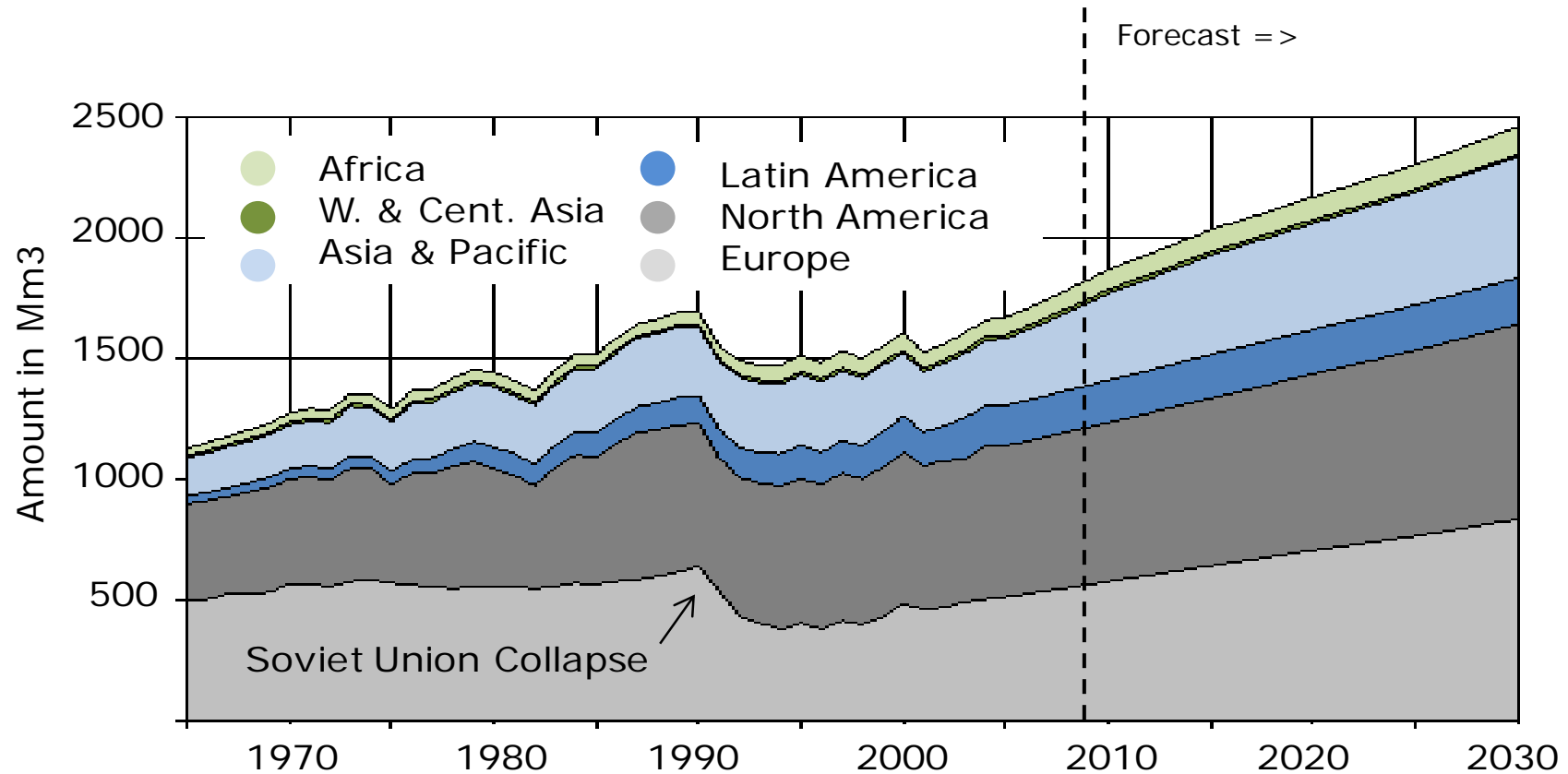
Land Prices – robust track as an inflation hedge

"Buy land, they're not making it anymore."

 - Mark Twain

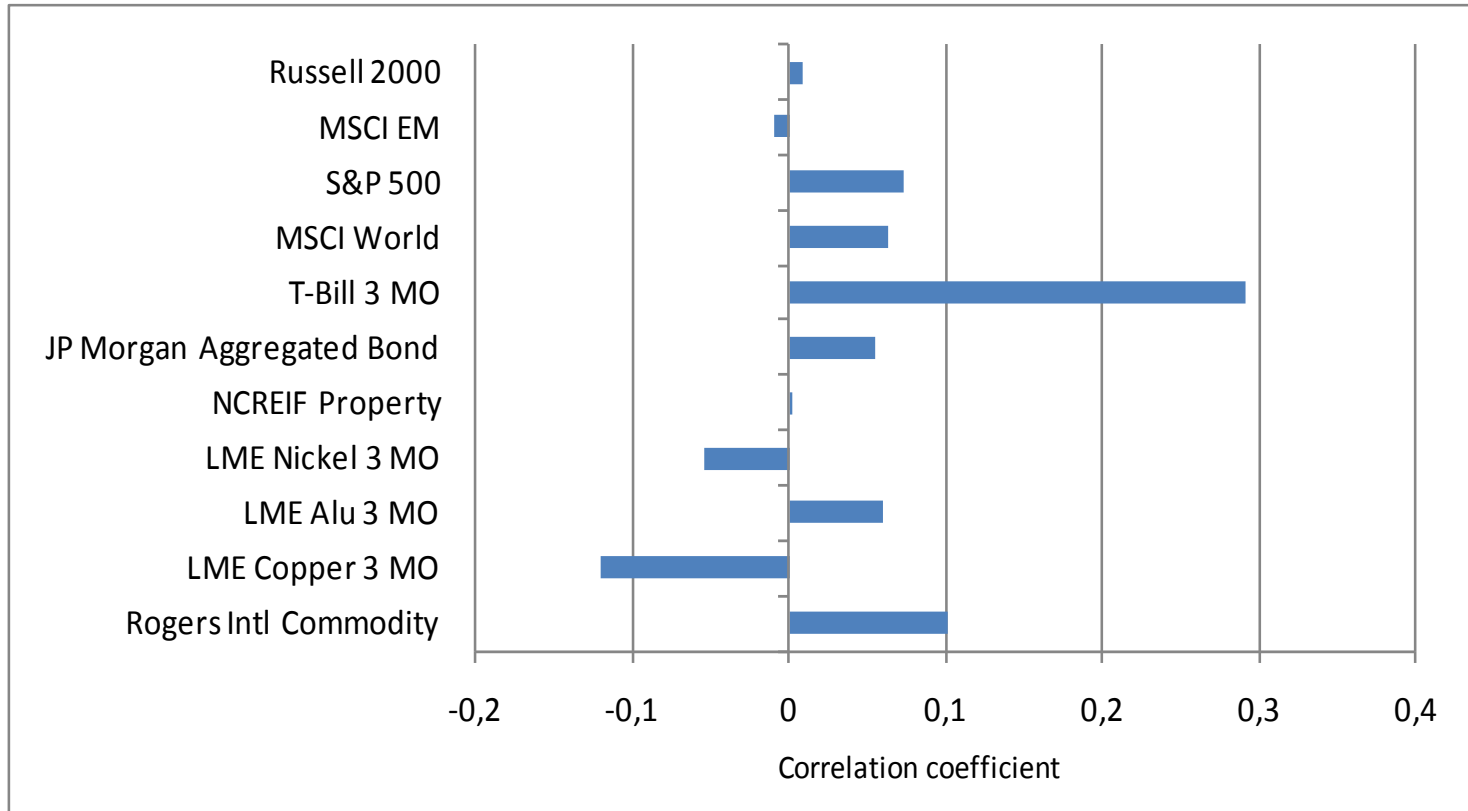


Global Consumption of Industrial Roundwood, 1965–2030



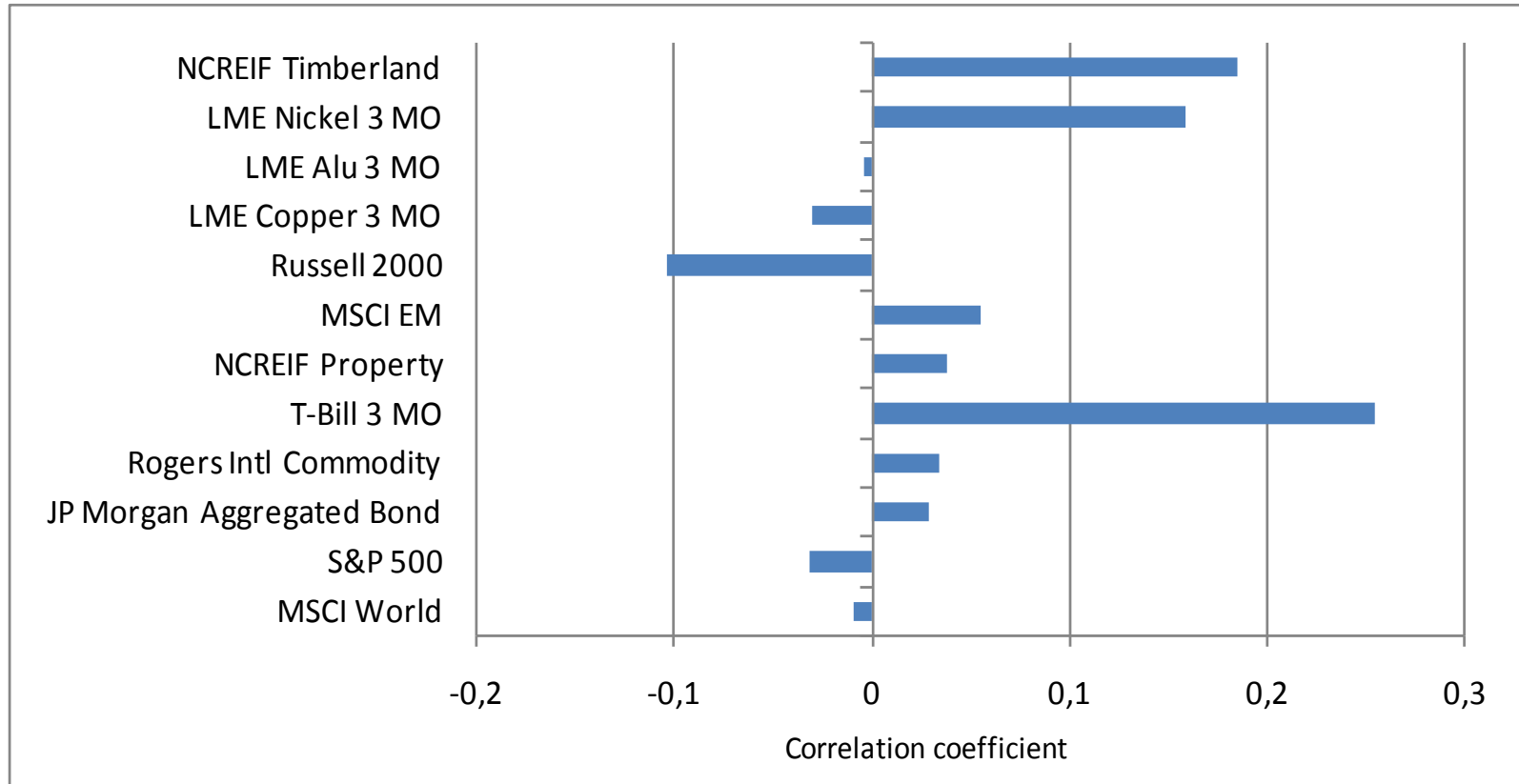
Source: FAO 2009, Unpublished Draft

Correlations of selected asset class indices to the NCREIF Timberland Index



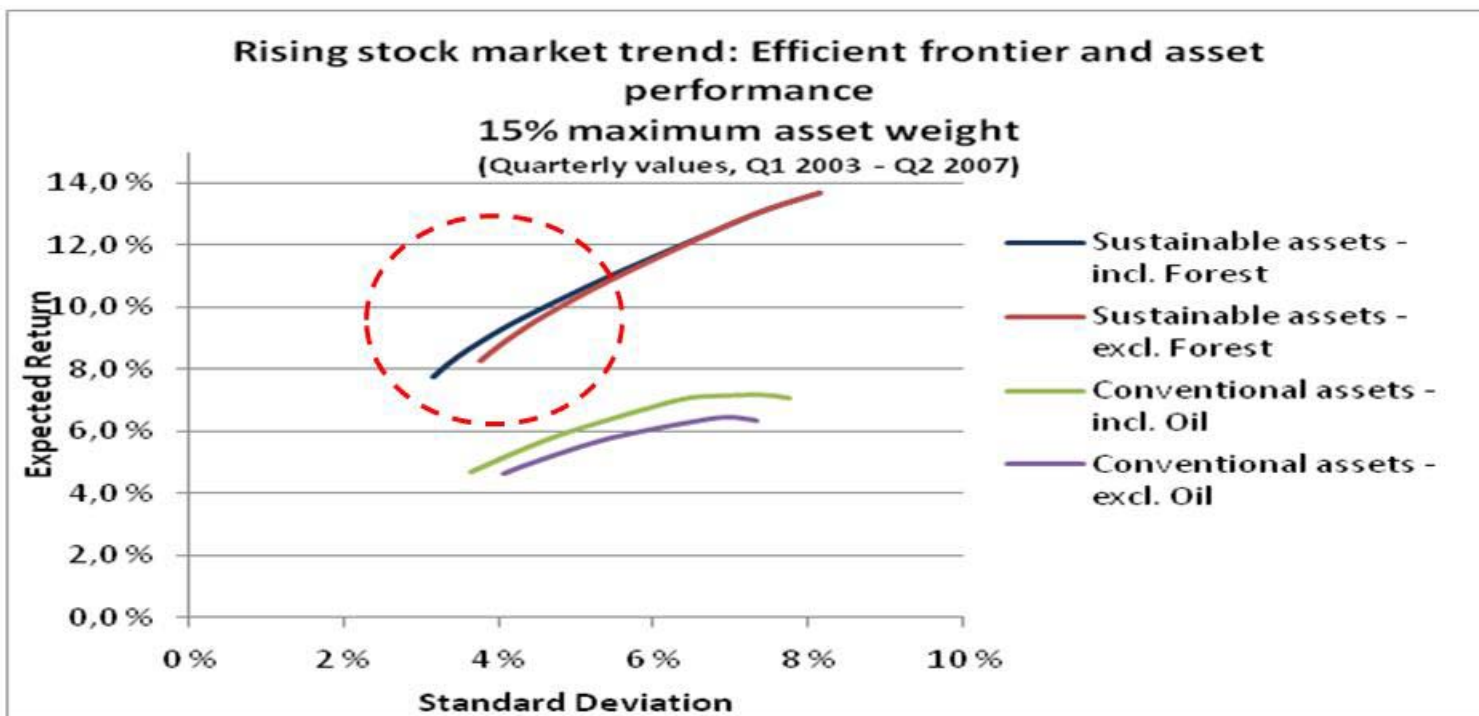
Source: SAM & Indufor 2010, data from Bloomberg

Correlations of selected asset class indices to inflation (US CPI)



Source: SAM & Indufor 2010, data from Bloomberg

Efficient frontier of investment portfolio with and without forest assets



Definitions

- Sustainable assets: sub-set of CTIUS-index, consisting of selected cleantech and clean energy companies, as well as the sustainable provision of vital commodities such as water.
- Forest assets: assets in Uruguay, US (NCREIF), US South, Finland.
- Conventional assets: 14 stock market indices in Europe, US and Asia.

Source: Dasos Capital 2009

Kiitos!

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