



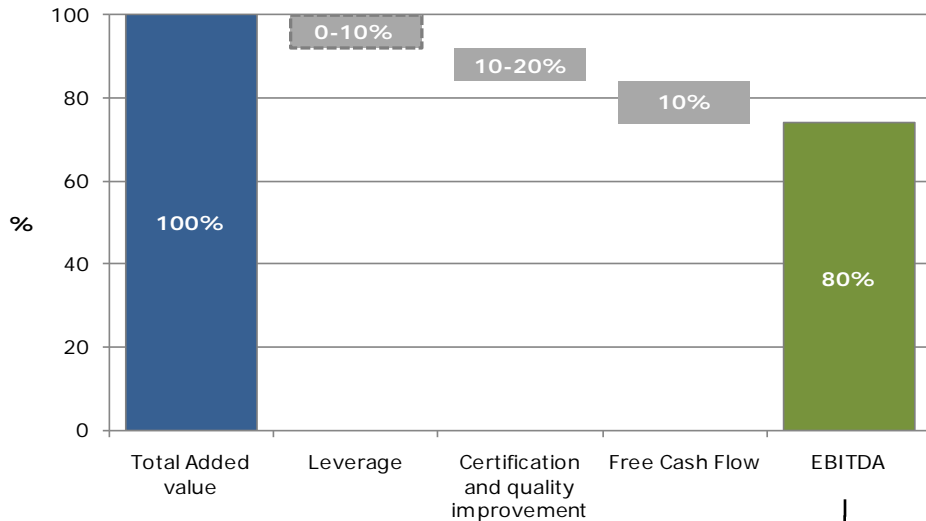
# **Inherent Features of Timberland Investment – why timber?**

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

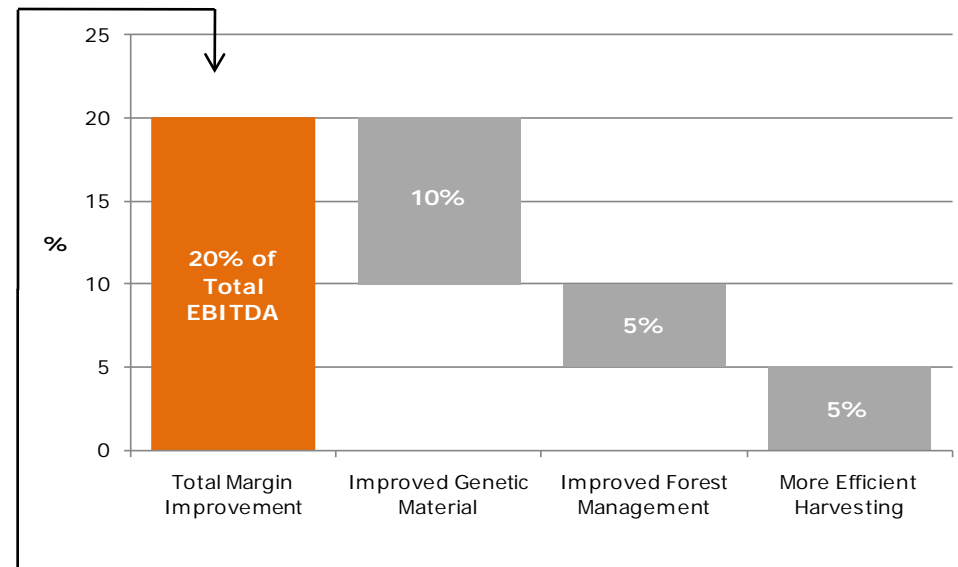
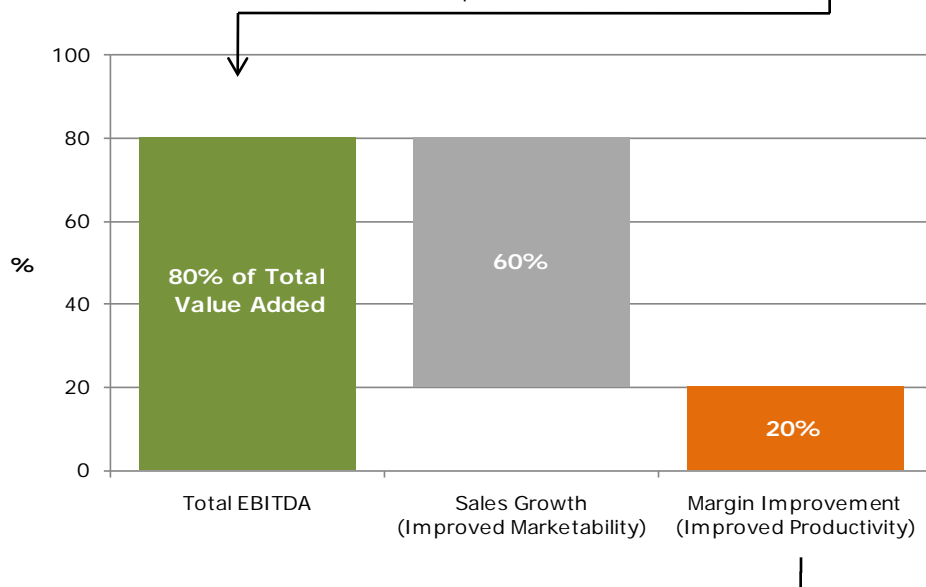
Olli Haltia



# Timberland: Value Creation by Doing

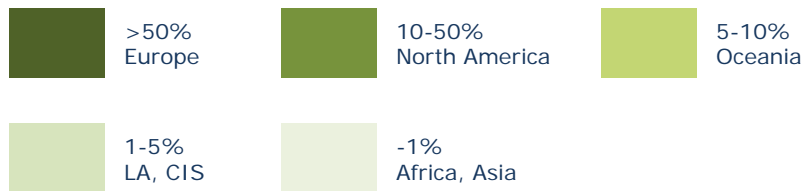
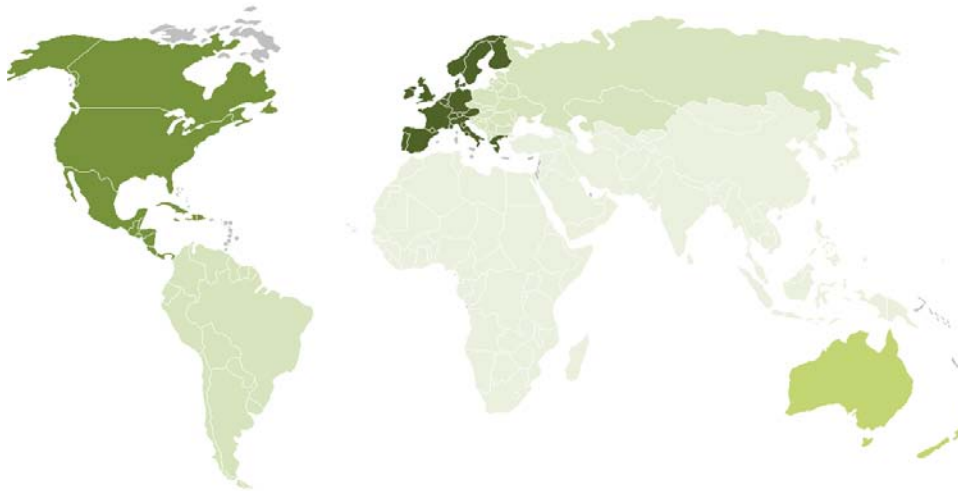


- Active management of the forest assets using first class forest managers to enhance productivity
  - ✓ Utilisation of state of the art genetic improvement and planting technology
  - ✓ Adopting sustainability principle throughout the production chain
- Identifying “hidden values” and complementary revenue sources: certification potential, High and Better Uses (HBUs)...
- Securing reliable markets mainly through industrial partnerships

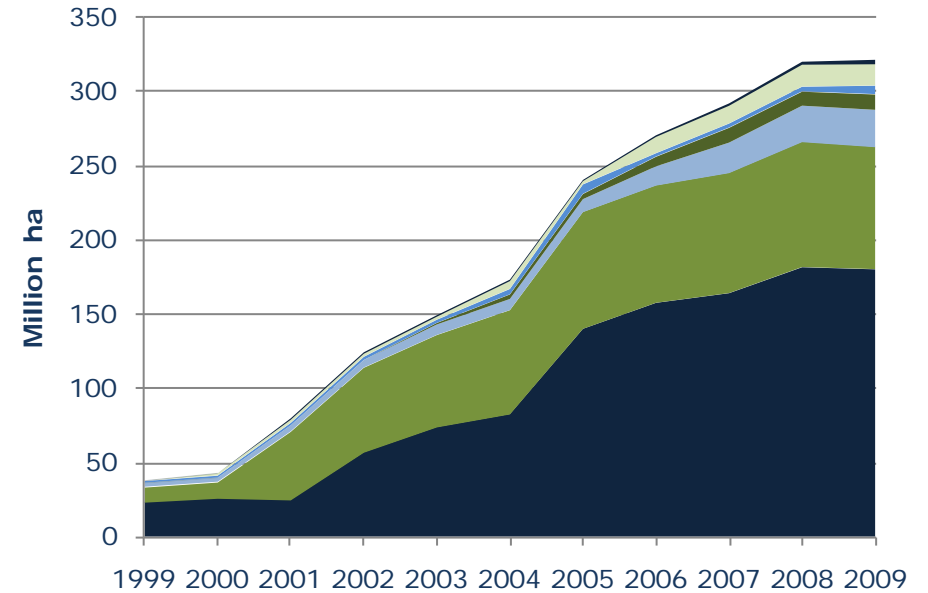


# Certified Forest Area Is Growing Globally

Certified Forest Area, %



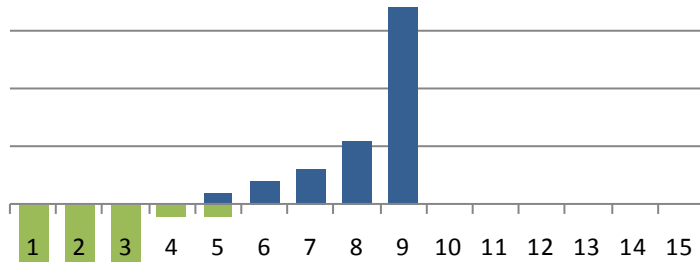
Development of Certified Forest Area  
2000-09



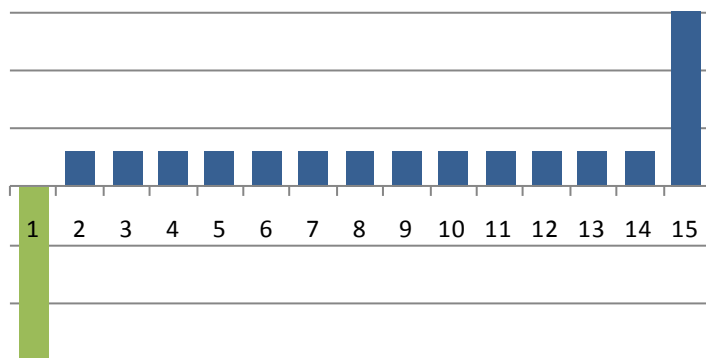
Includes FSC, PEFC, SFI, CSA and ATFS Standards;  
Source: UNECE/FAO Forest Products Annual Market Reviews

# Balanced Portfolio Brings Cash Flow and Capital Gain

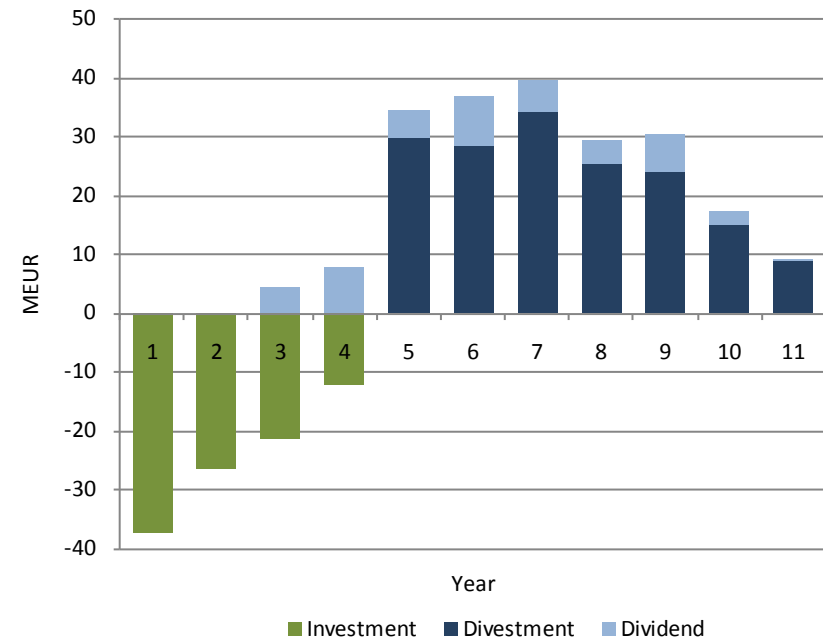
Developing timberlands bring potential for capital appreciation, and have higher IRR's



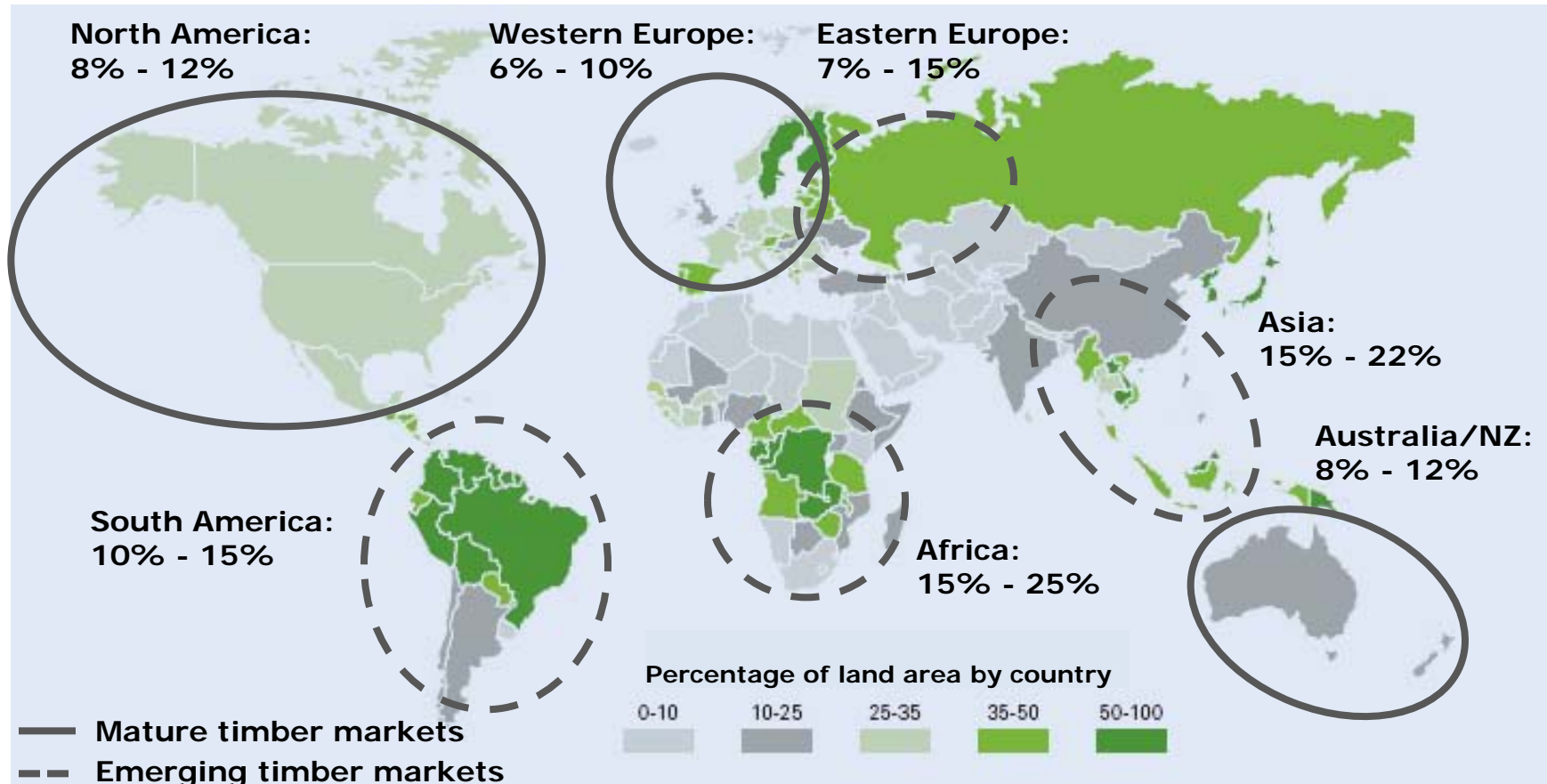
Mature timberlands bring early and steady cash flow



Simulated cash flow of **combined** mature and greenfield investments



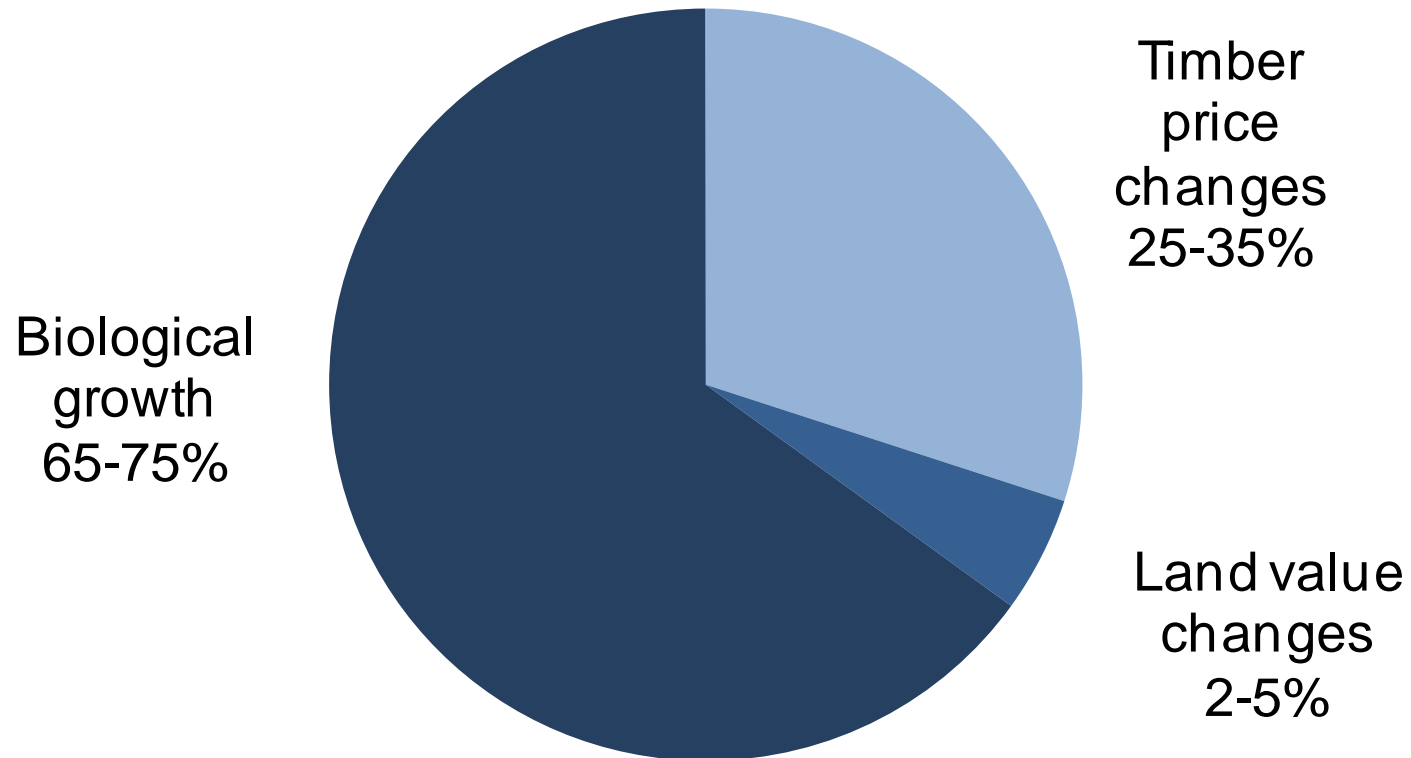
# Global Timberland Regions and Expected IRRs (Gross)



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

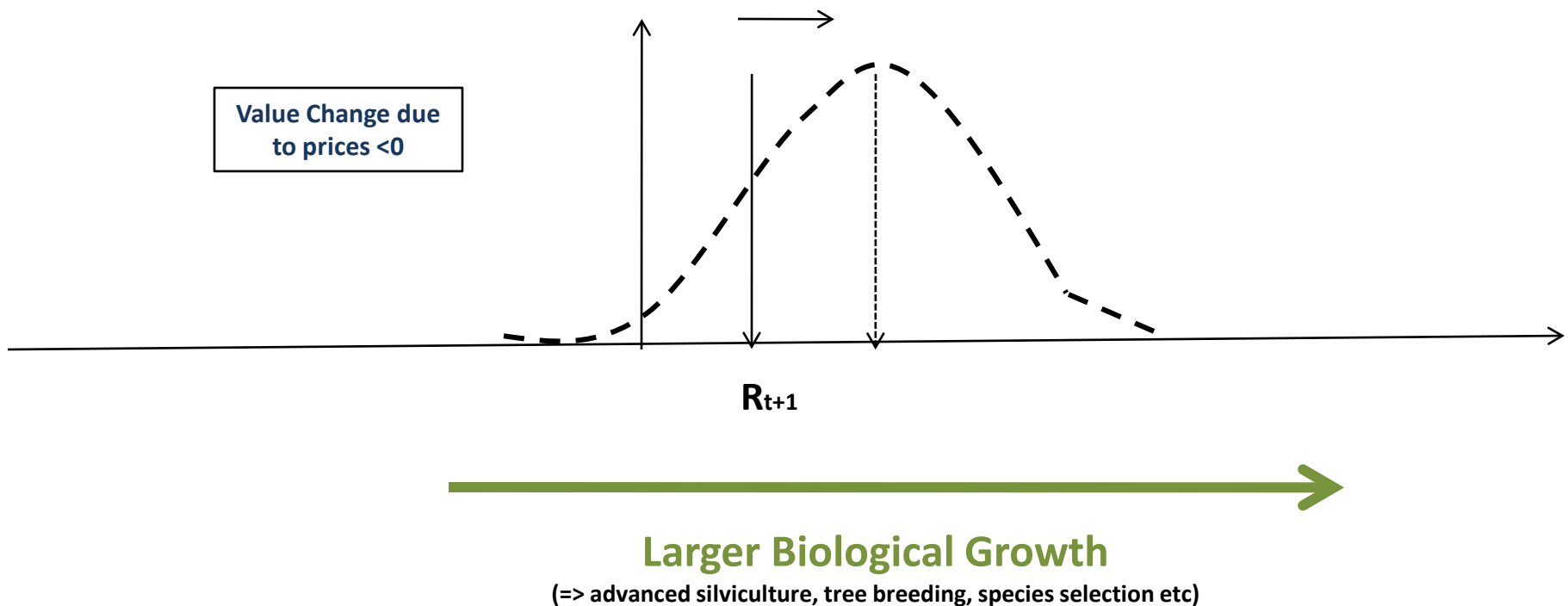
## Historical Sources of Timberland Return



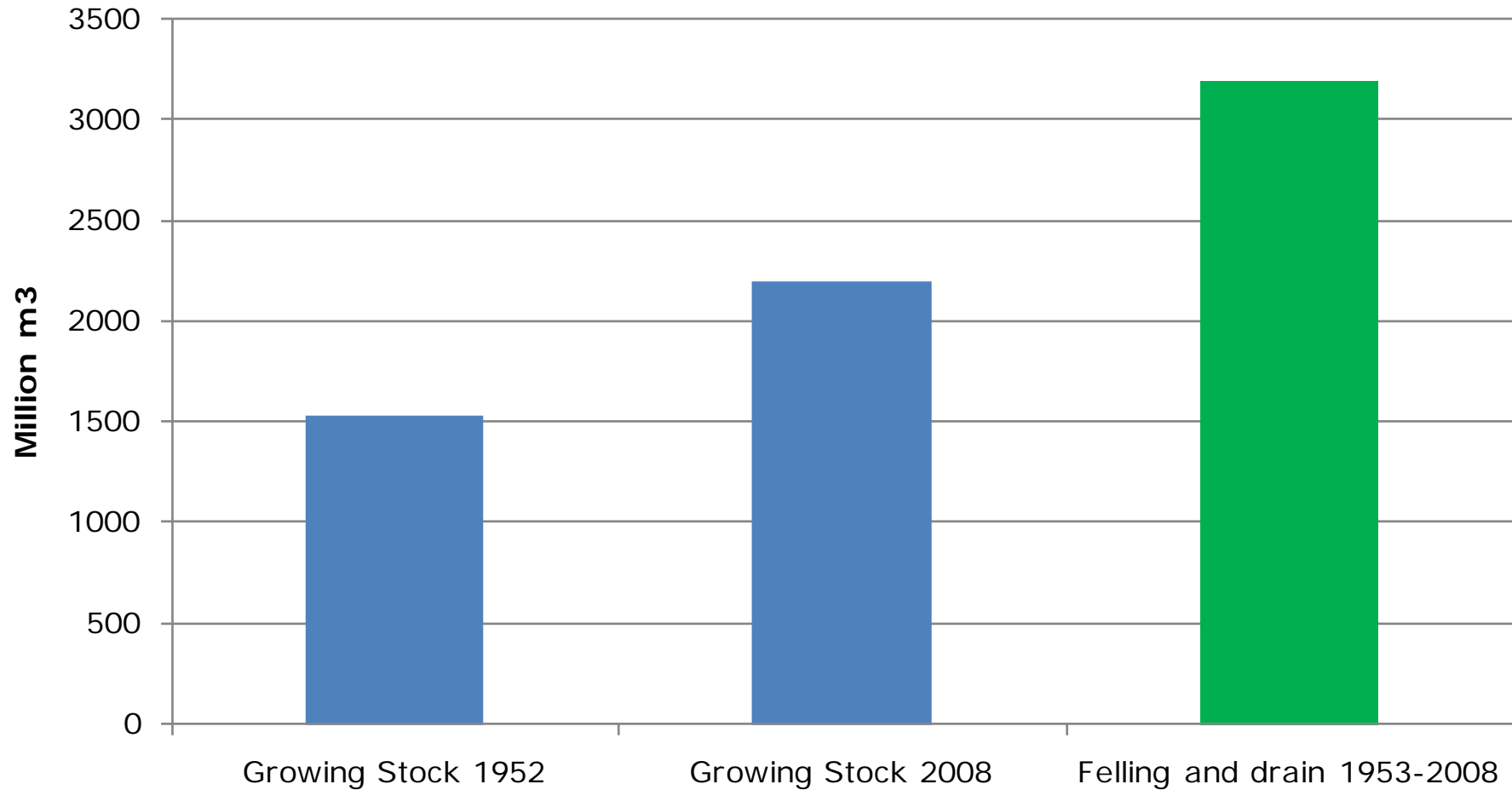
## Timberland Return – Density Function

$$R_{t+1} = [CF_{t+1} + (V_{t+1} - V_t)] / V_t$$

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



## Biological Growth – the Case of Finland



Source: Dasos, data by Finnish Forest Research Institute



## 1 a) Biological *Volume* Growth

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



Finnish Pine  
 ~5 m<sup>3</sup>/ha/a



Spanish Eucalyptus  
 12-14 m<sup>3</sup>/ha/a



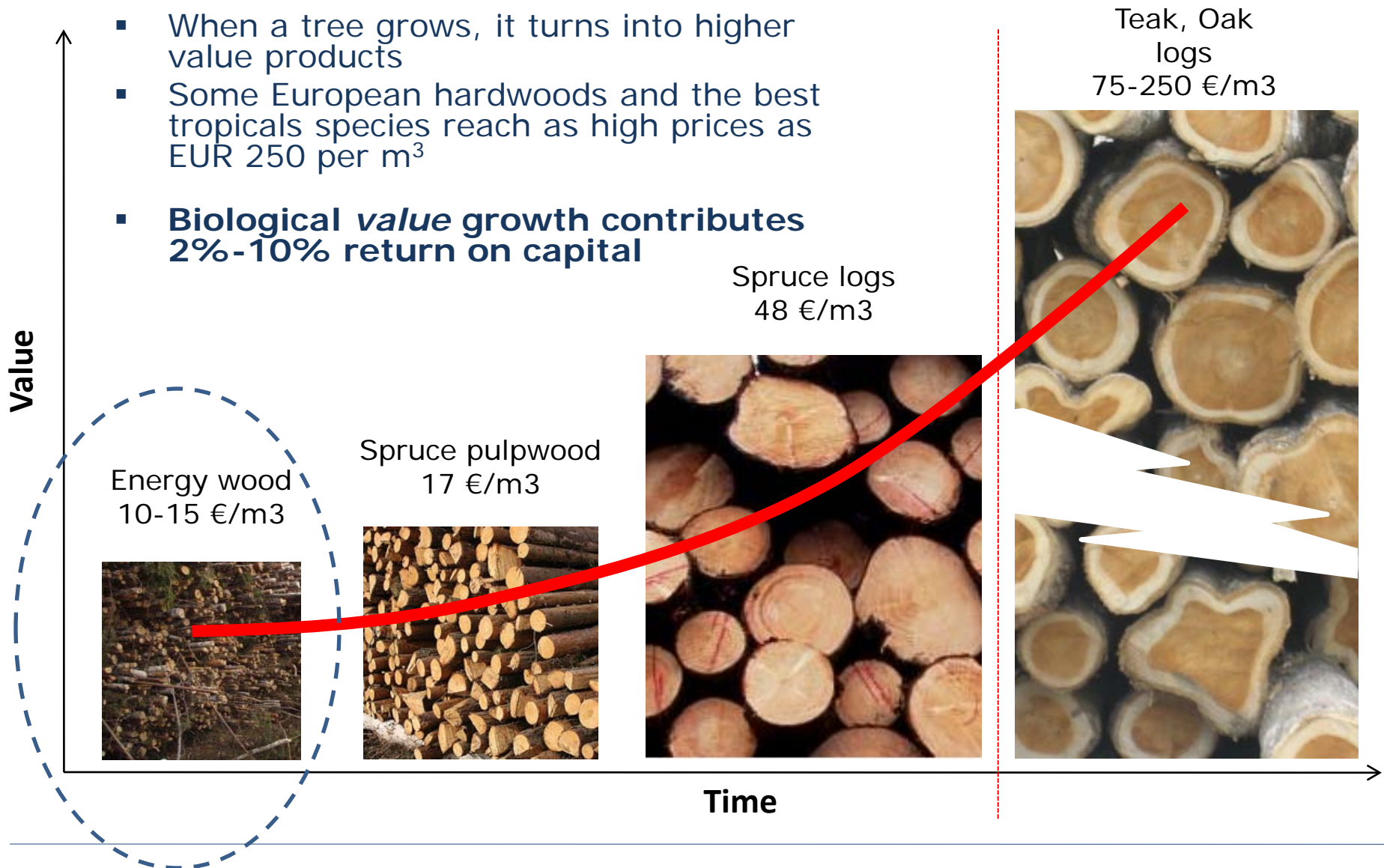
Ecuadorean  
 Teak Plantation  
 14-18 m<sup>3</sup>/ha/a



Brazilian  
 Eucalyptus  
 35-50 m<sup>3</sup>/ha/a

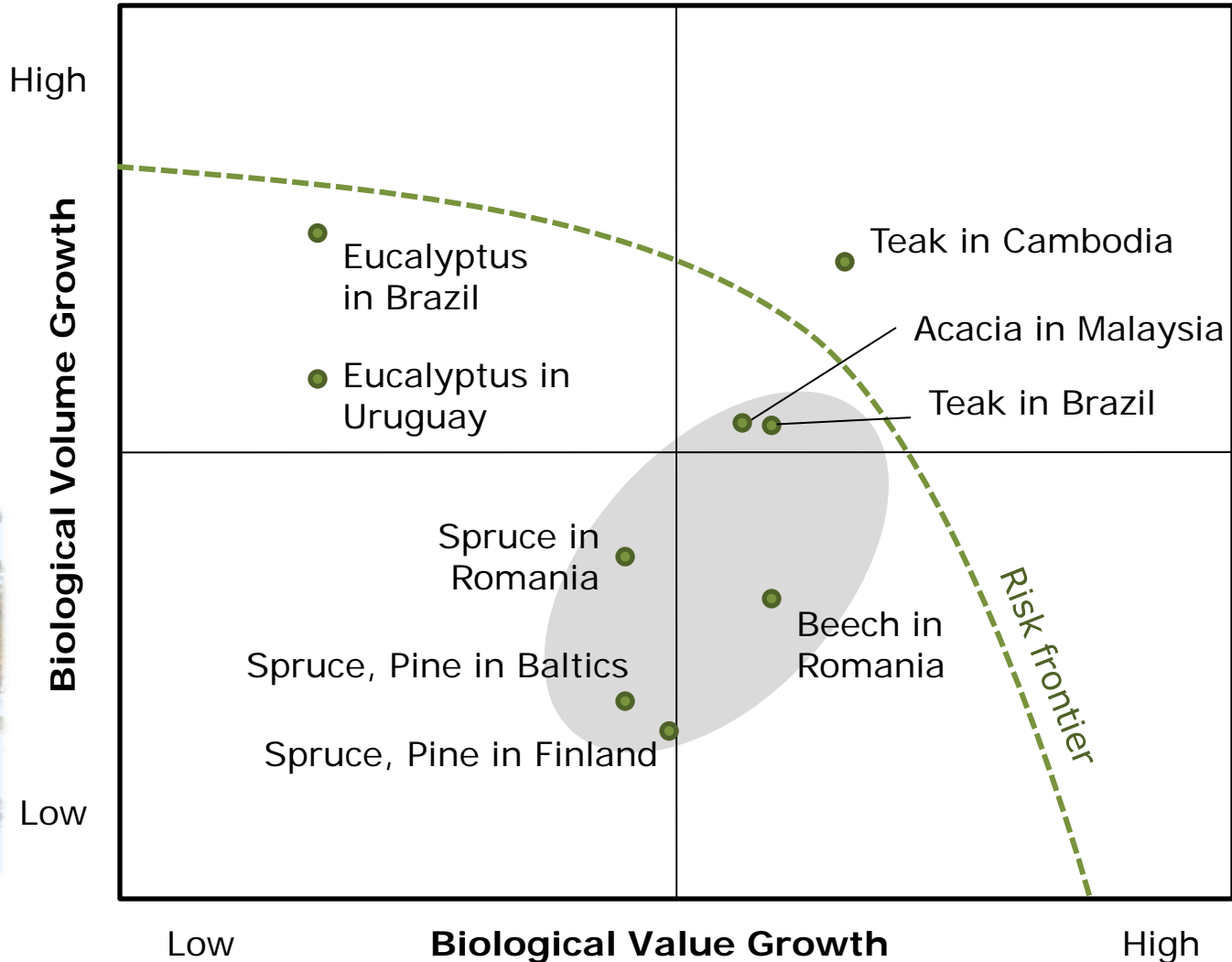
## 1 b) Biological Value Growth (In-Growth)

- 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 m<sup>3</sup>
- **Biological value growth contributes 2%-10% return on capital**

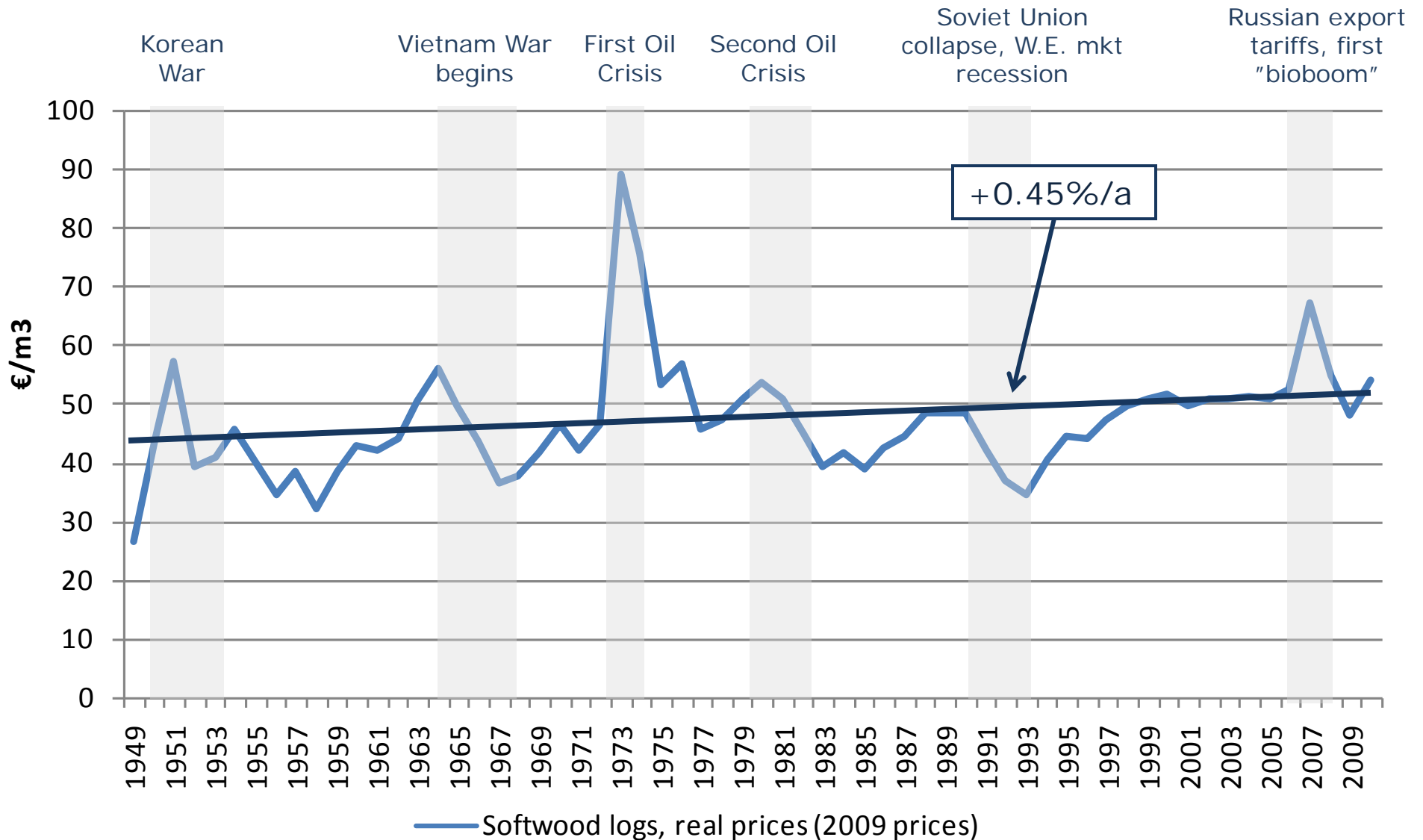




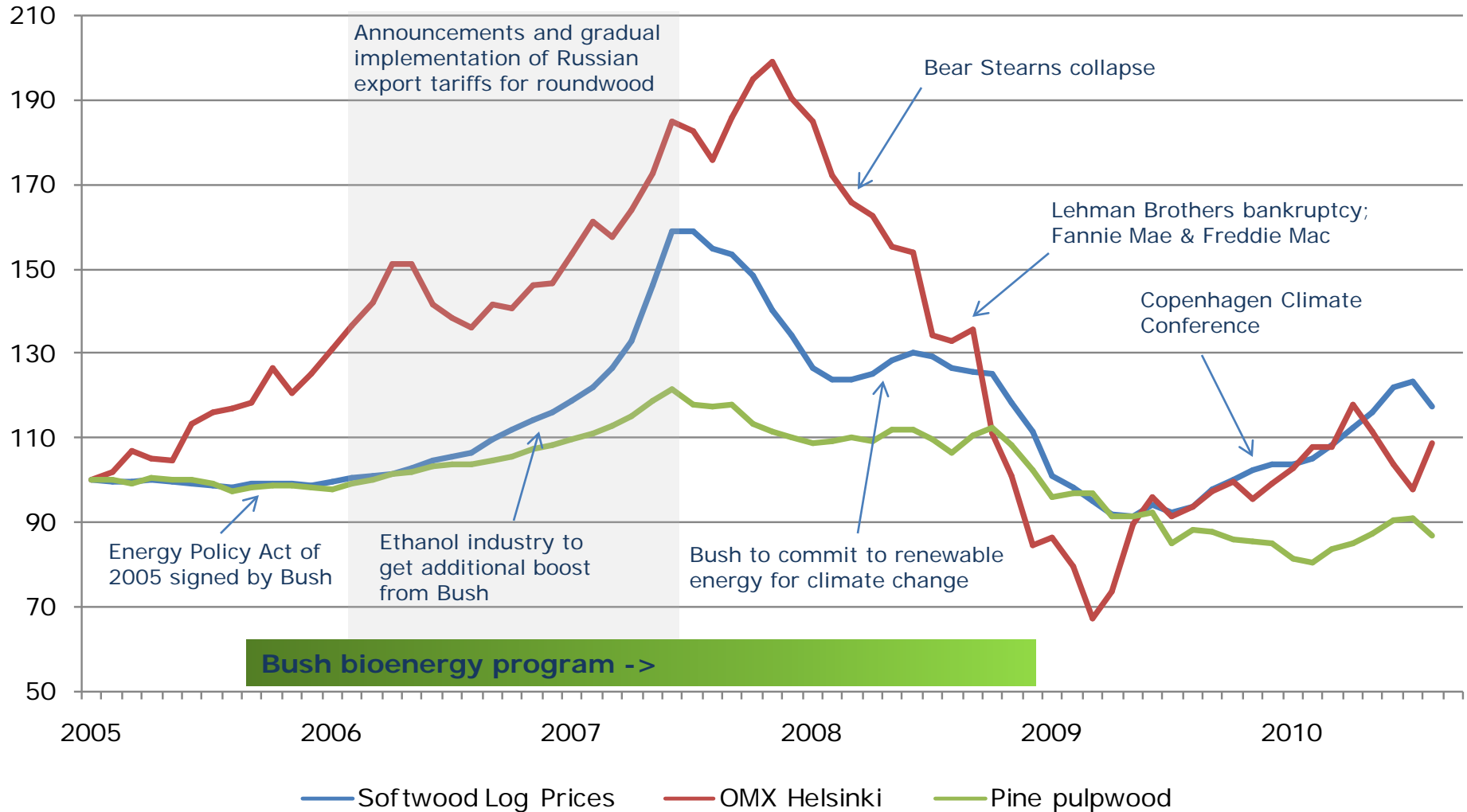
# Biological Value vs. Volume



## 2. Wood Prices - "Extra" Returns Through Opportunistic Timing

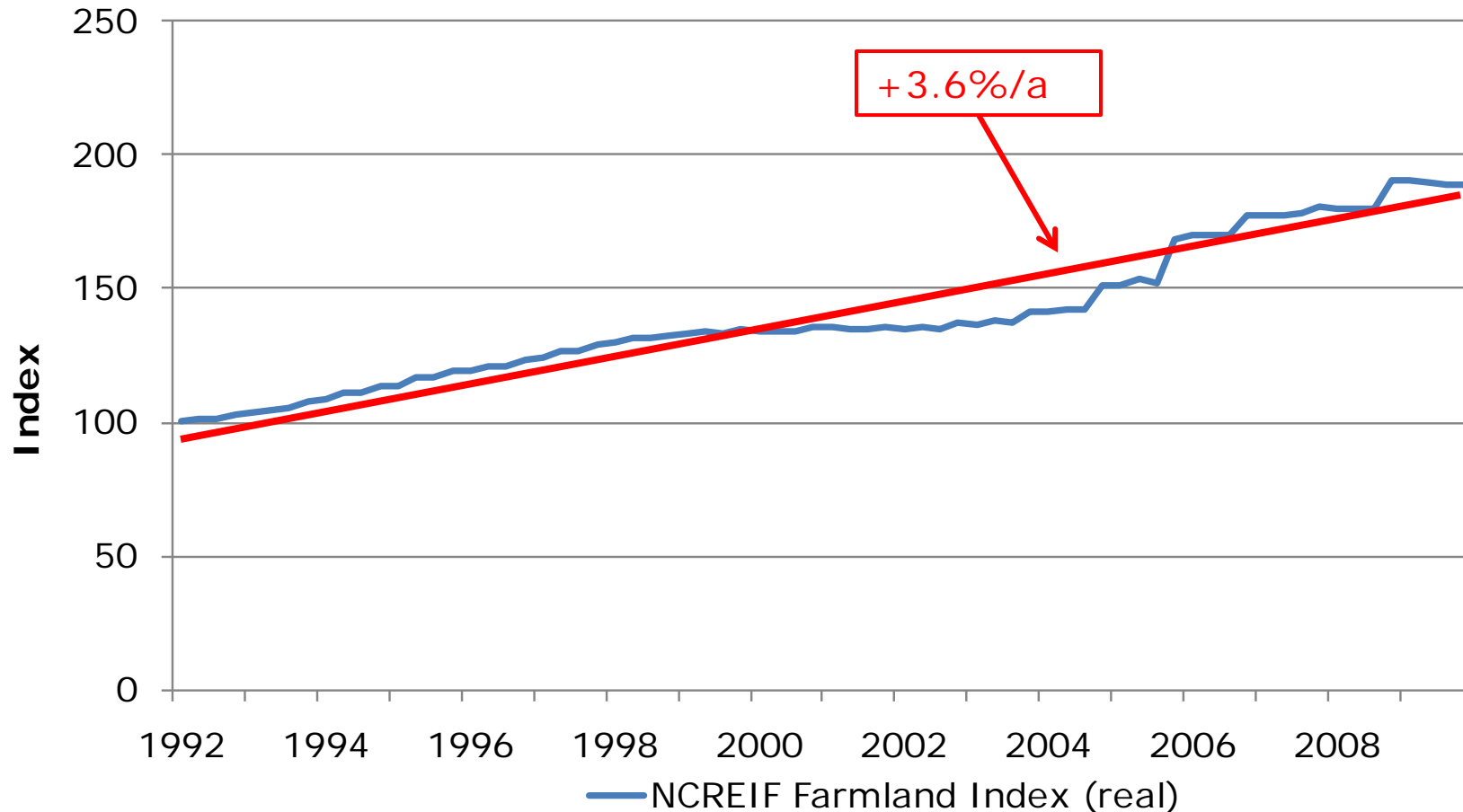


# Wood Prices – Recent Cycle



### 3. Land Prices – Robust Track as an Inflation Hedge

*"Buy land, they're not making it anymore."*  
 - Mark Twain



## Key Investment Features of Timberland

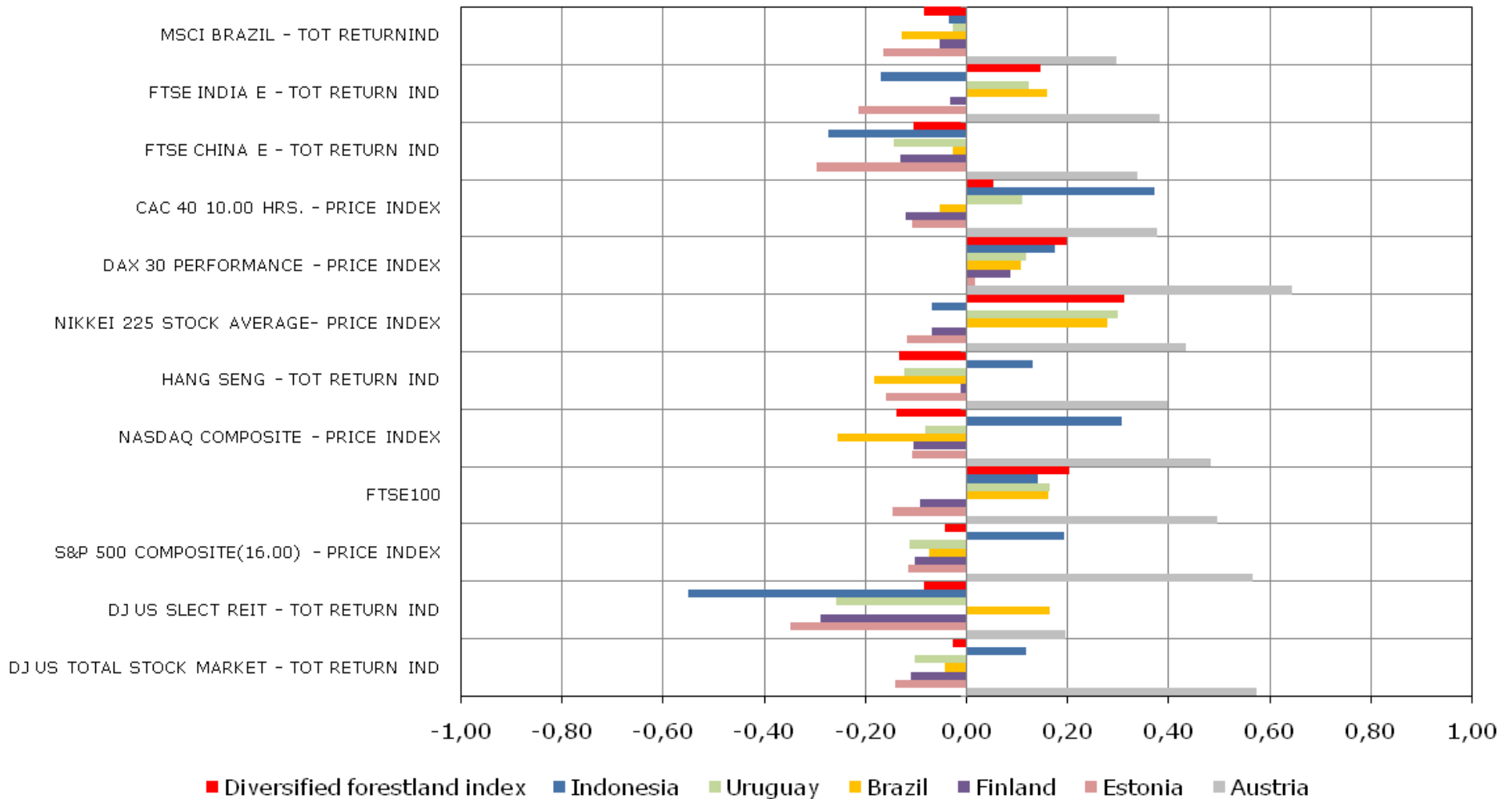
- 1) Forest investments generate relatively stable, usually predictable cash flow.
- 2) Timberland has an excellent track as an inflation hedge and has the capacity to preserve value.
- 3) *Biological growth* is not dependent on business cycles: therefore, timberland performs low correlation with most 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

# International Timberland Correlation to Stock Market (1)

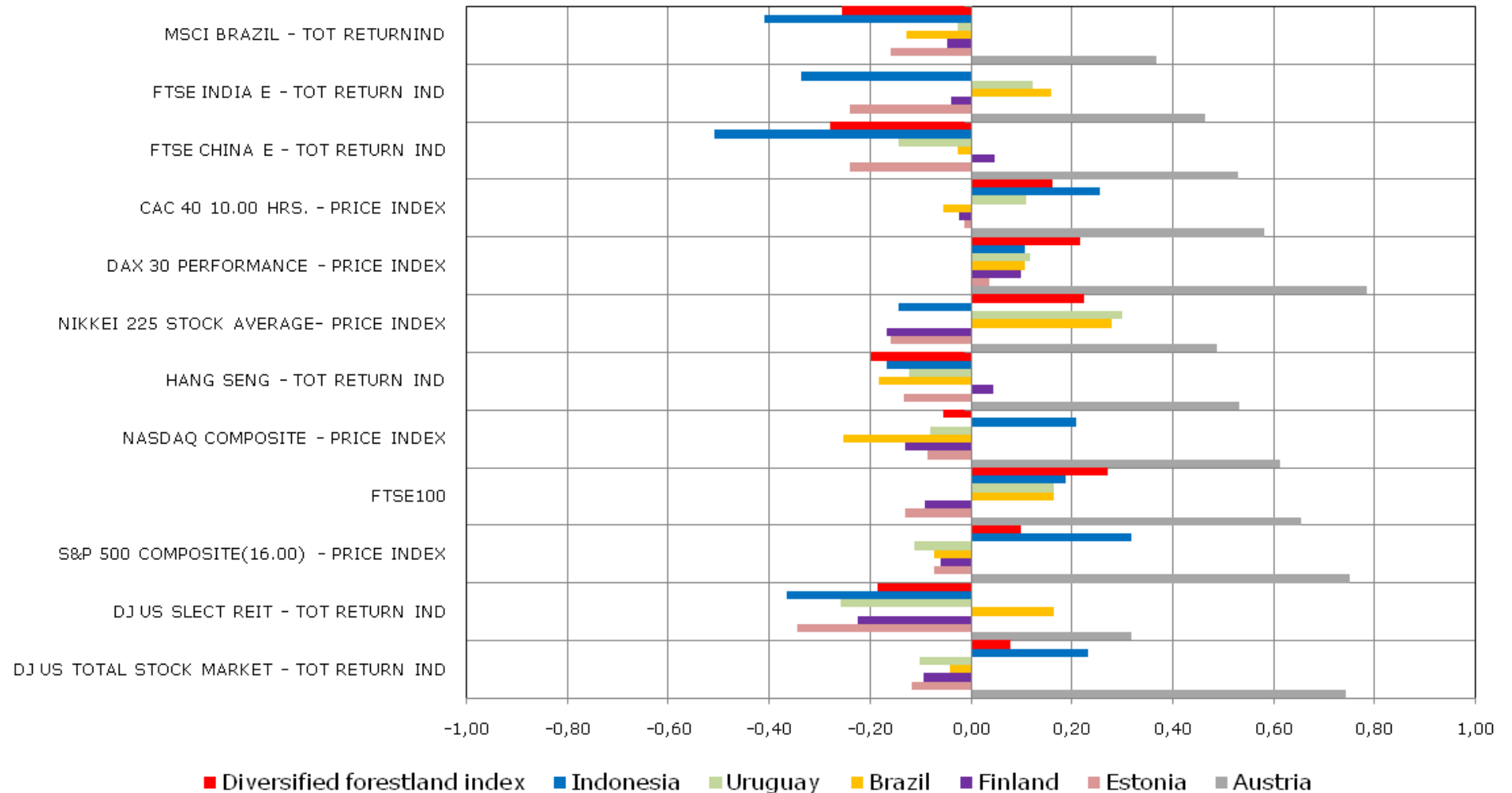
## Correlation of Returns to Major Stock Market Indexes: USD Returns 1998-2009



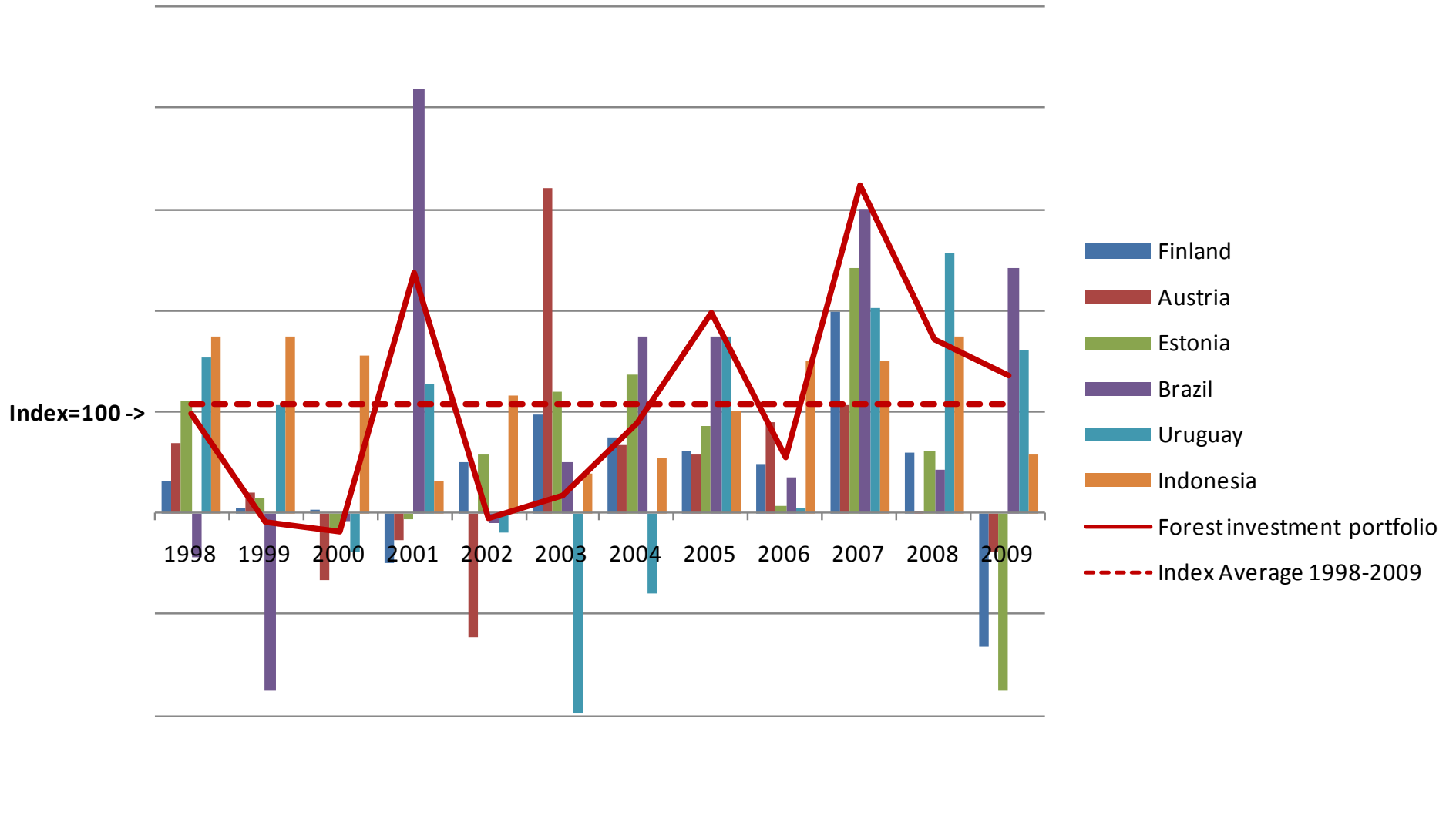


# International Timberland Correlation to Stock Market (2)

## Correlation of Returns to Major Stock Market Indexes: Local Currency Returns 1998-2009

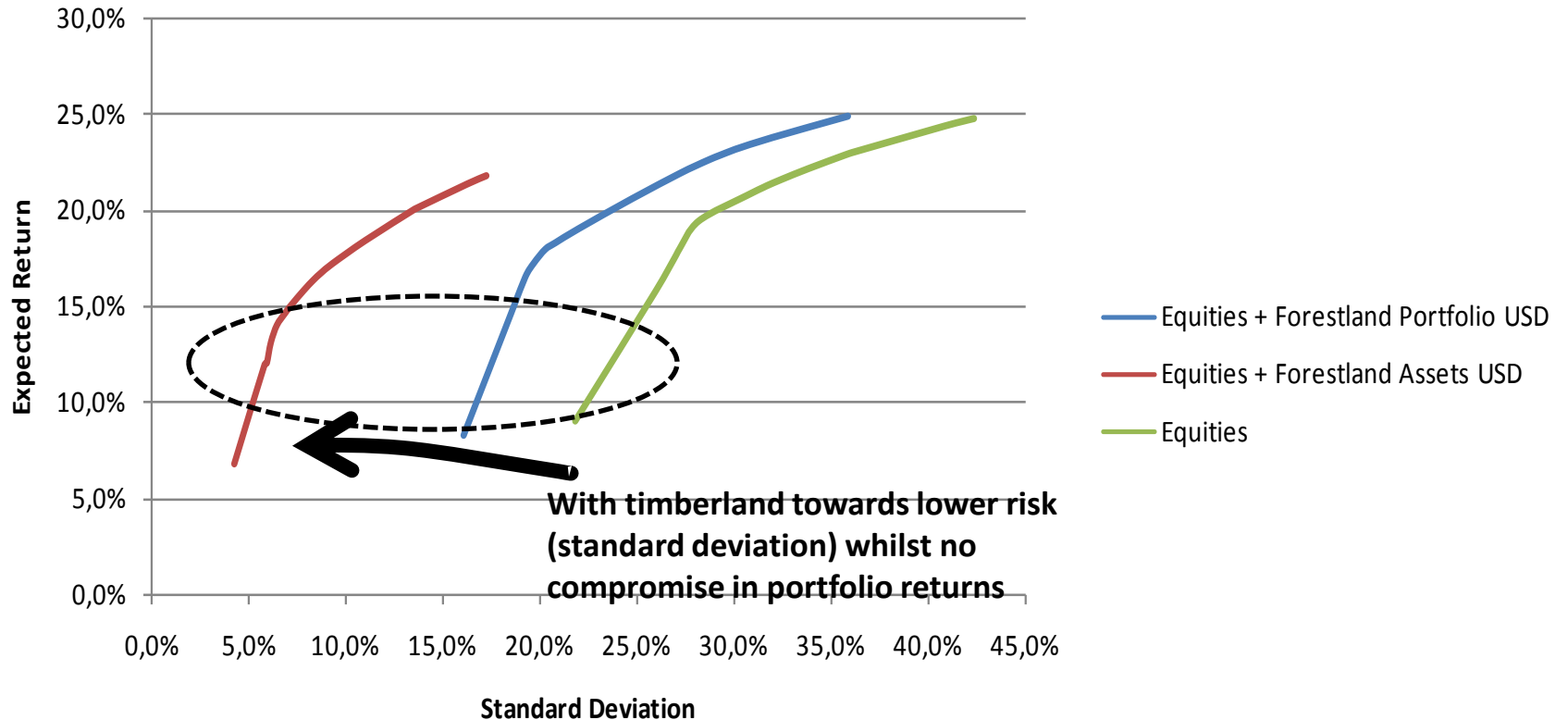


# Forestland Investments: USD Returns



# Timberland in Investment Portfolio: Risk/Return Impact

## Efficient Frontiers 1998-2009



15 % maximum asset weight limitation; Source: Dasos

Where does the demand for wood come from?

## Thesis

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

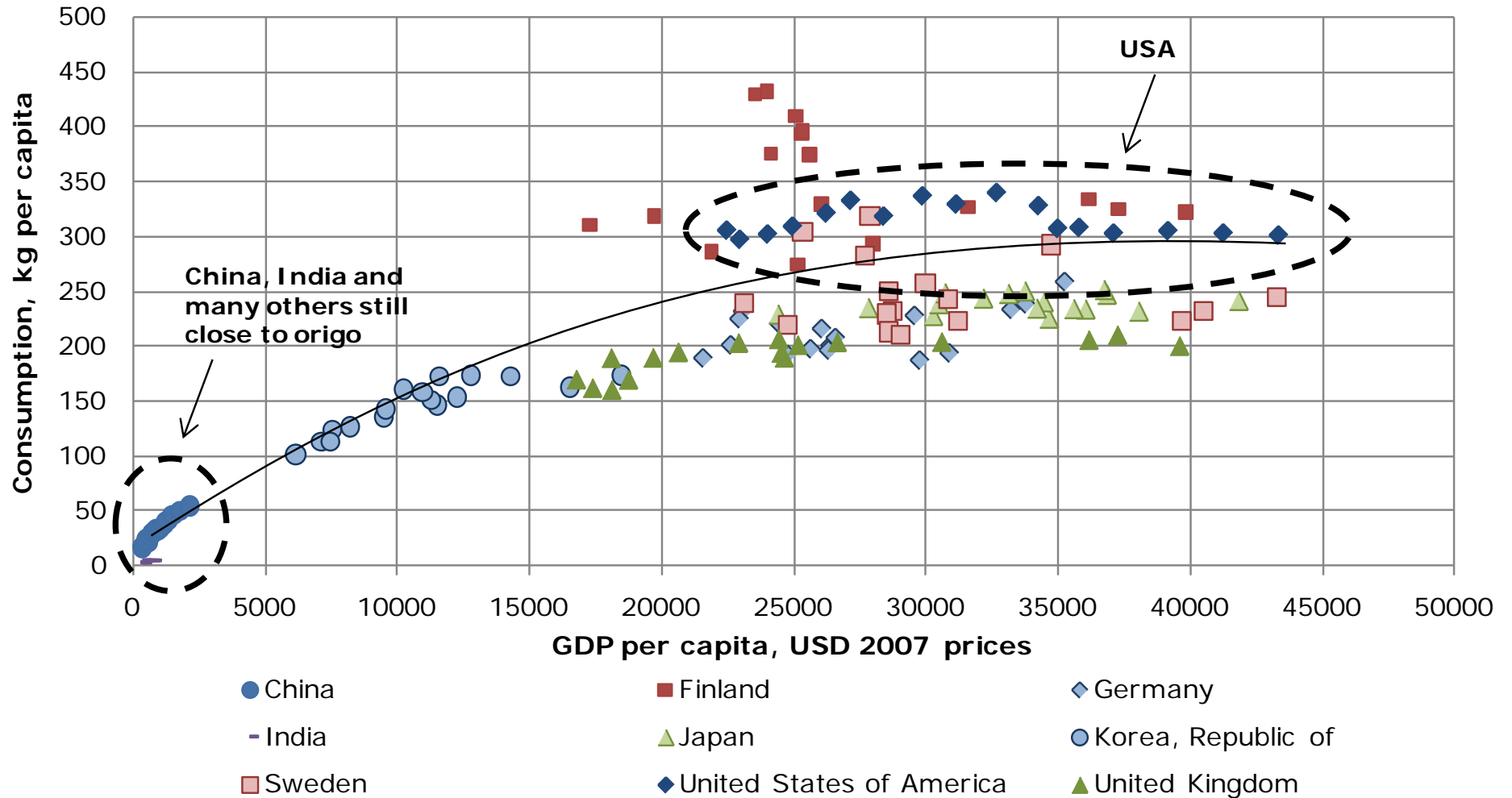
"Kaikki risut ja kävyt nousevat kyllä arvoonsa."

Jorma Ollila

Chairman of Board, Royal Dutch Shell

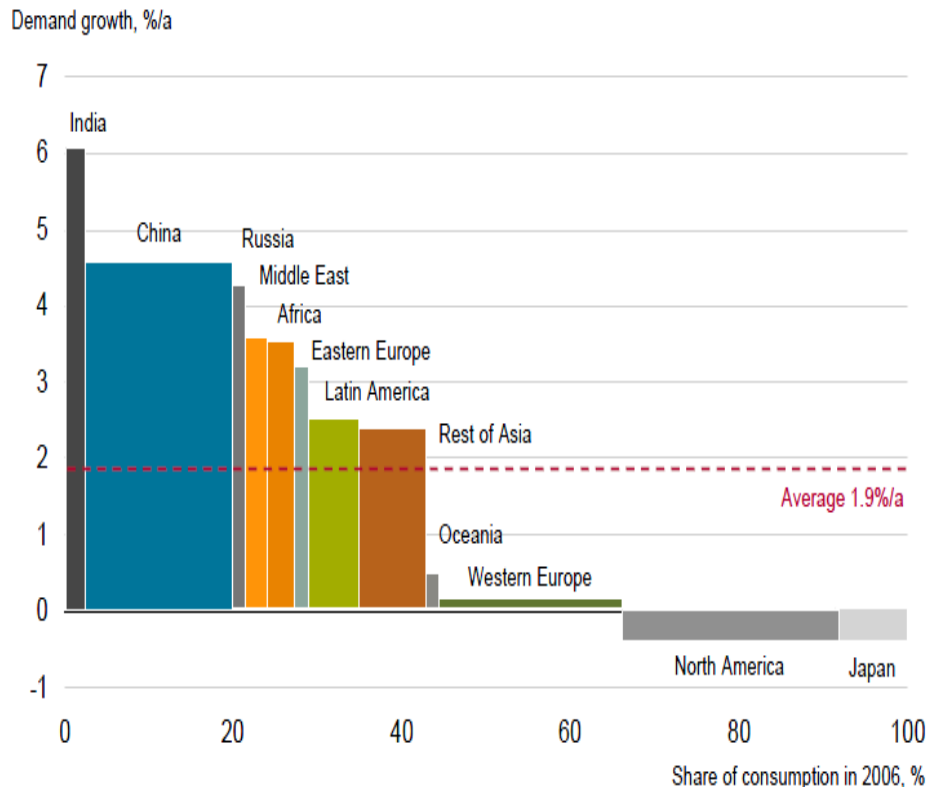
Suomen Kuvalehti 18/2008

# GDP and Paper Consumption Per Capita 1990-2006



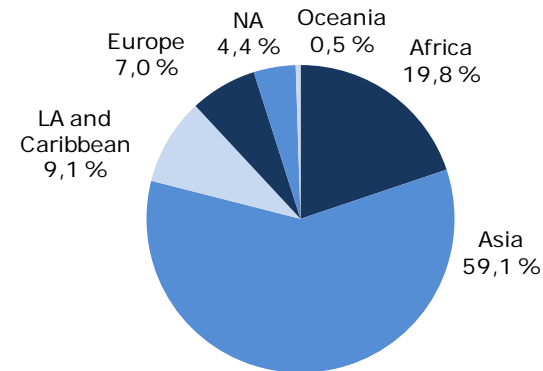
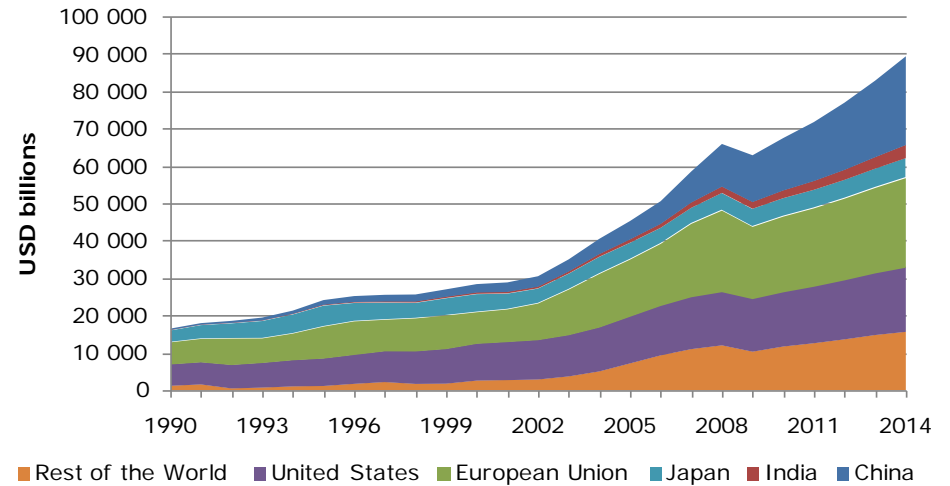
# Long-term Paper Demand, GDP and World Population

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



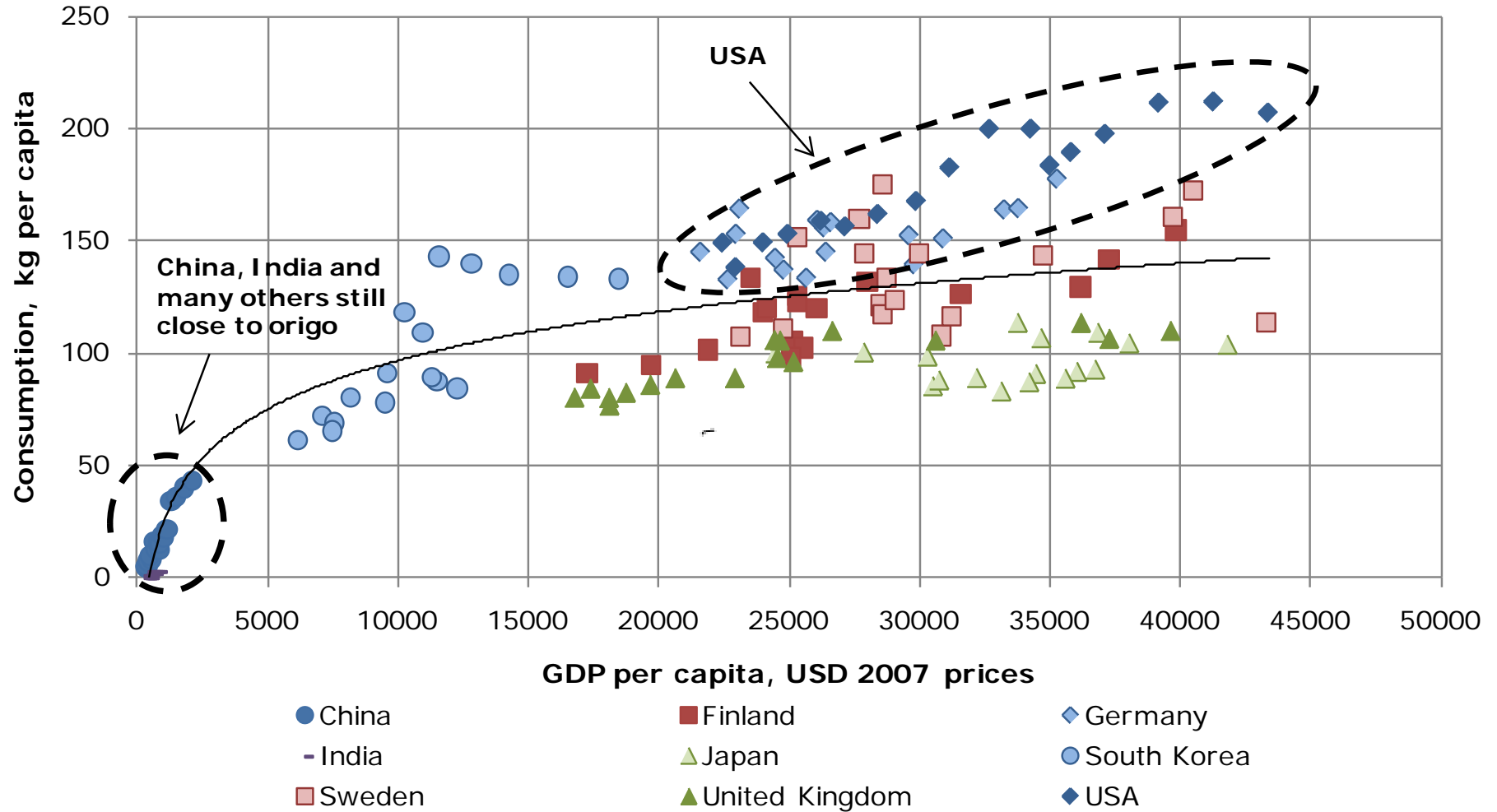
Source: Pöyry 2009

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



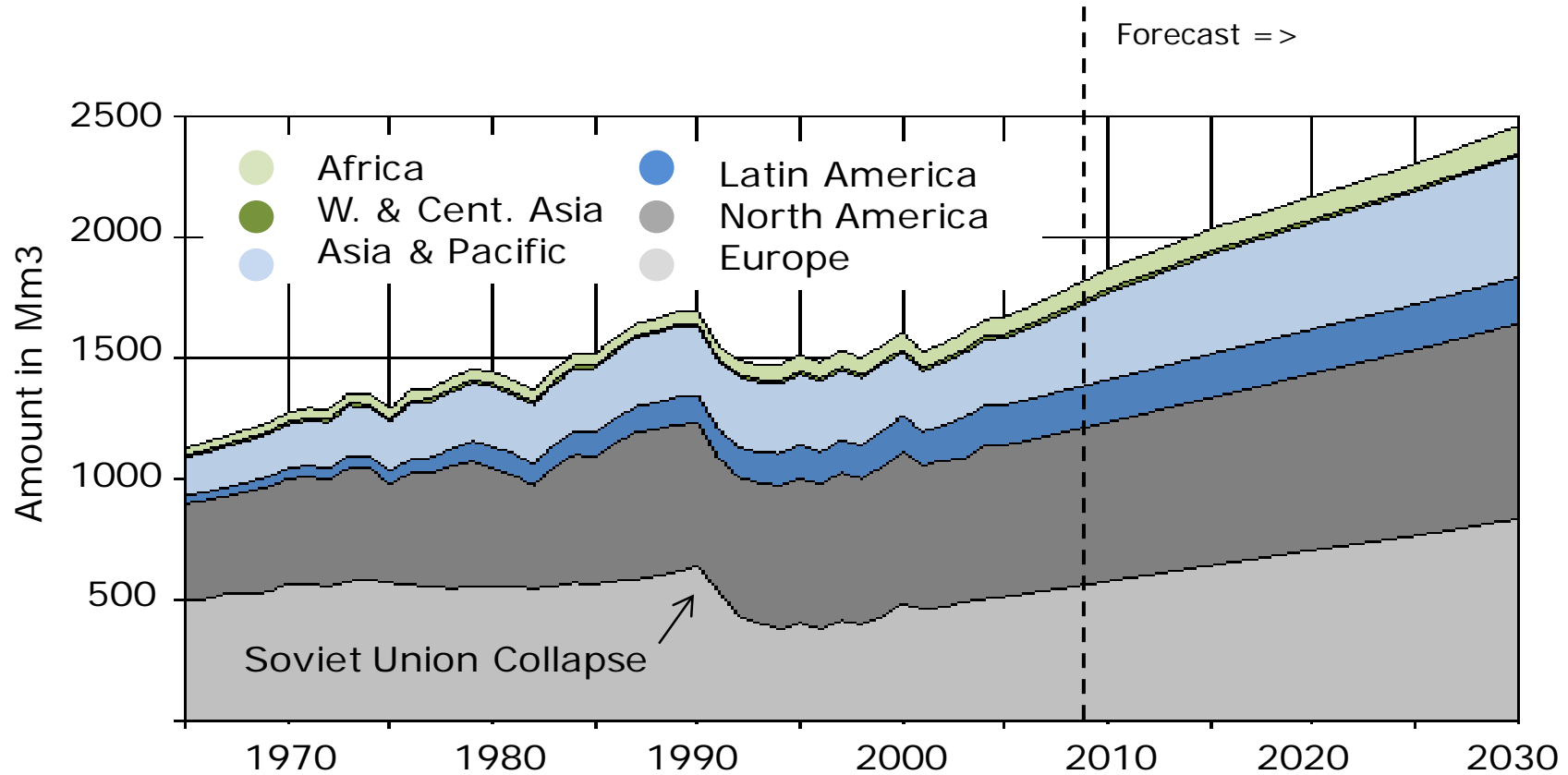
Source: IMF and UN World Population Prospects 2006

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





# Global Consumption of Industrial Roundwood, 1965–2030

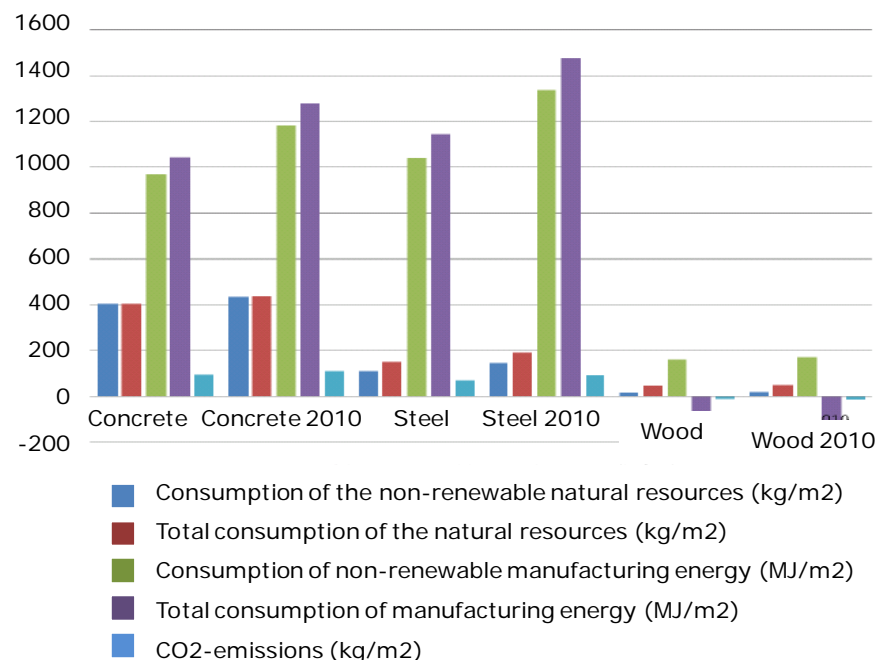


Source: FAO 2009, Unpublished Draft

## Green Housing – Buildings as CO<sub>2</sub> 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

**Environmental Impacts of Different Raw Materials in Construction in Finland in 2007 and 2010 after New Regulations Take Effect (Viljakainen 2009)**



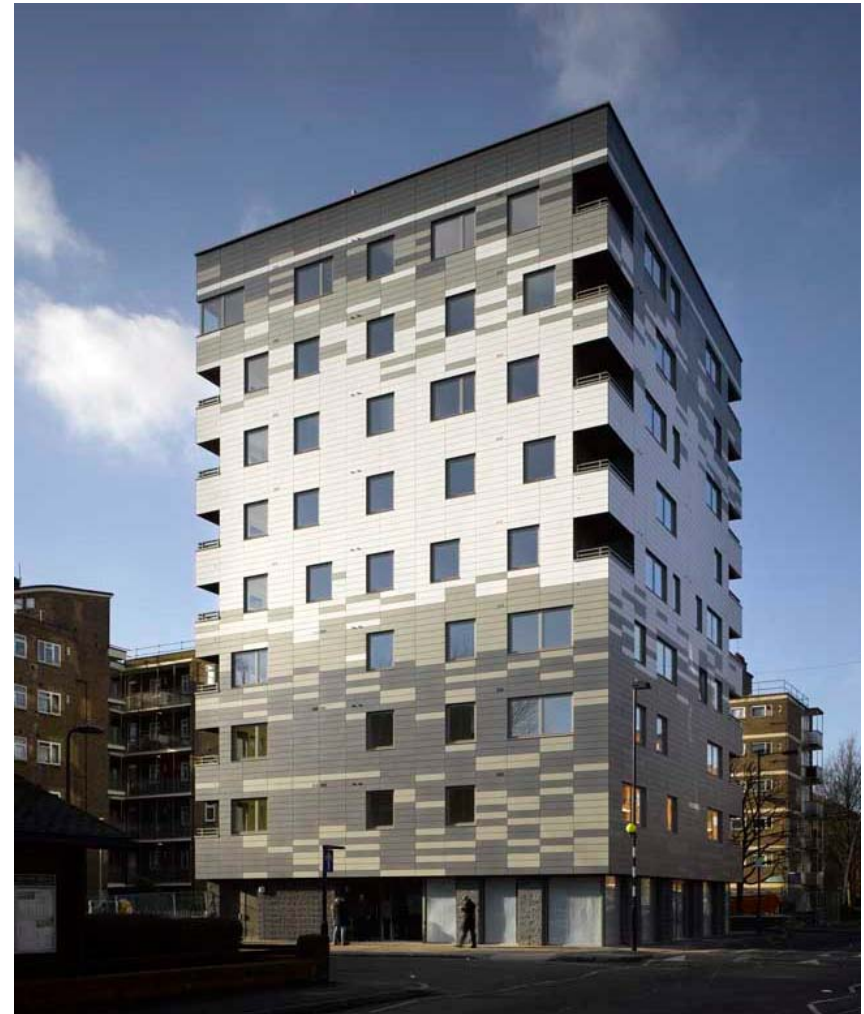
## Examples of Wood Buildings



Concert Hall Sibelius in Lahti, Finland



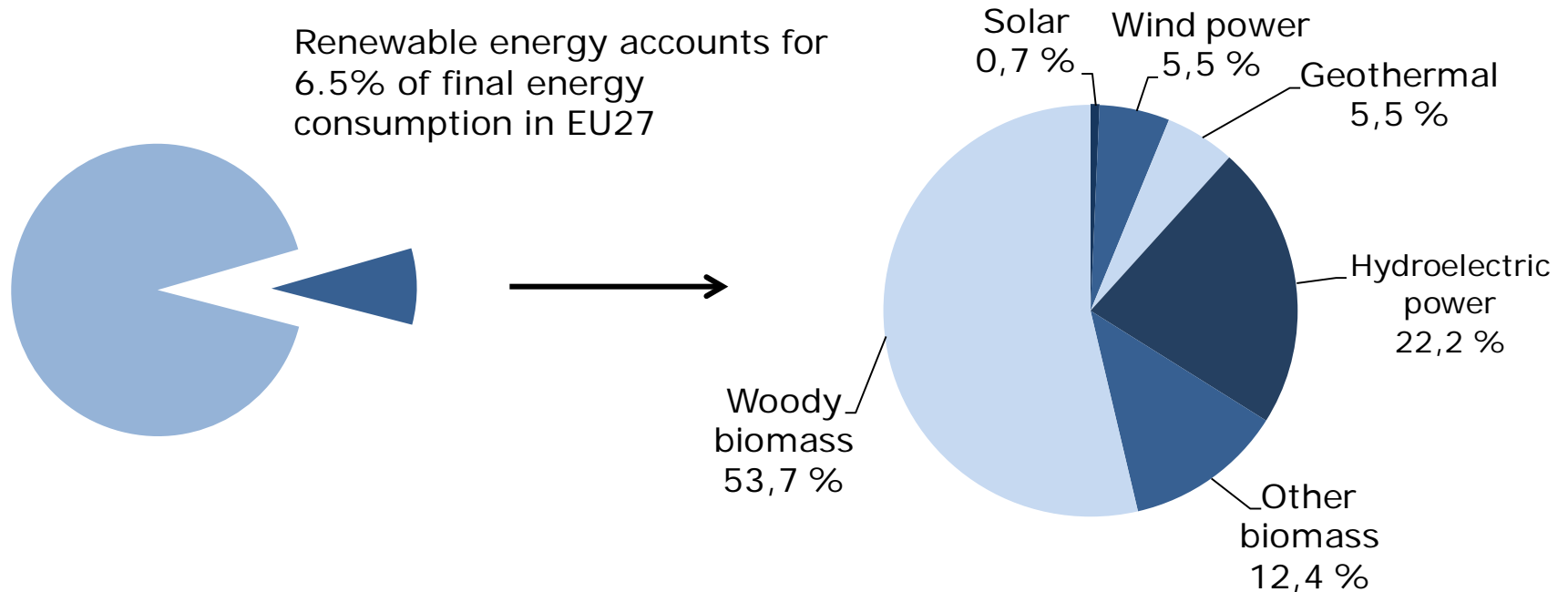
University Library in Skellefteå, Sweden



Stadthaus in London, UK

The tallest timber residential building, opened in 2009

## EU 20-20-20

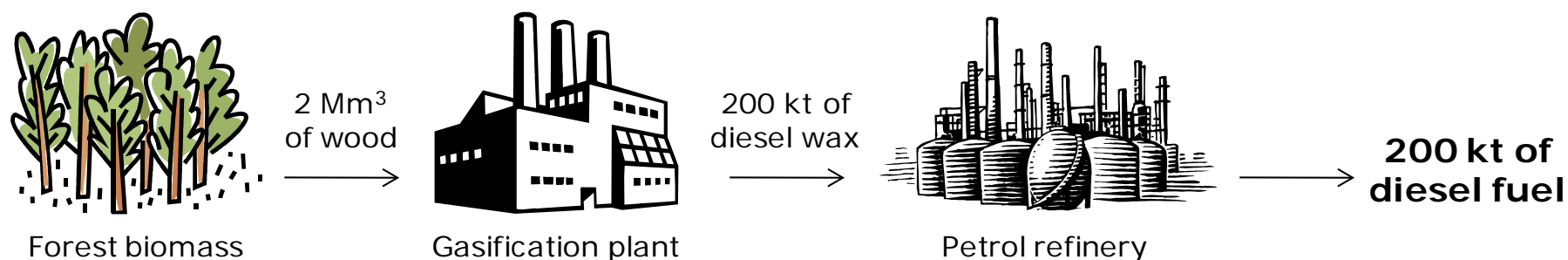


- Replacing only one percent of the total primary energy consumption in EU27 (about 1,800 million tons of oil equivalent) would require over 90 million m<sup>3</sup> of wood corresponding to about 1/8 of the Net Annual Increment (NAI) of Europe's forests

Source: UNECE/FAO

## Biofuels – Two Plants/Refineries for Finland by 2020?

### Fischer-Tropsch Biodiesel Plant Concept

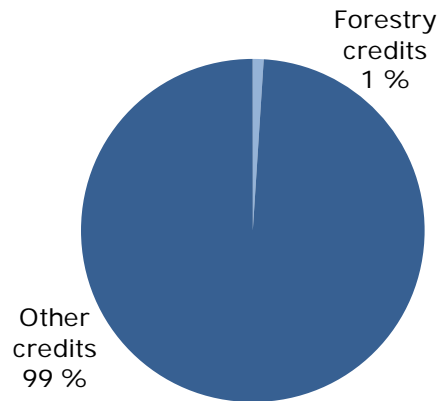


Two 200kt plants would be able to produce enough biodiesel to account for about 9% of road traffic fuel consumption in Finland, closely matching the *EU biofuel target of 10% by 2020*

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

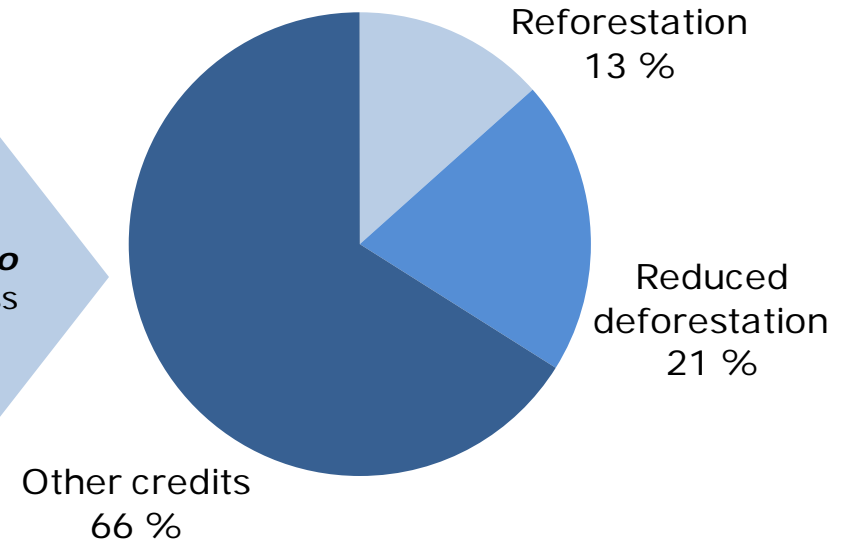
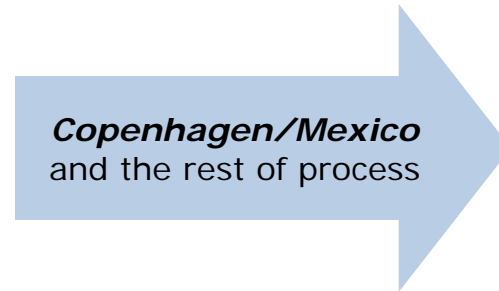
# Global Process of Climate Change, Carbon and Forests

## 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**

# Thank you!

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