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Applied Forest Economics at Work

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Applied Forest Economics at Work

How has economic analysis informed timberland investment during recent decades? What are some current and future issues in need of attention from forest economists?

- Markets for timber and other forest products
- Markets for timberland properties
- Performance of timberland investments

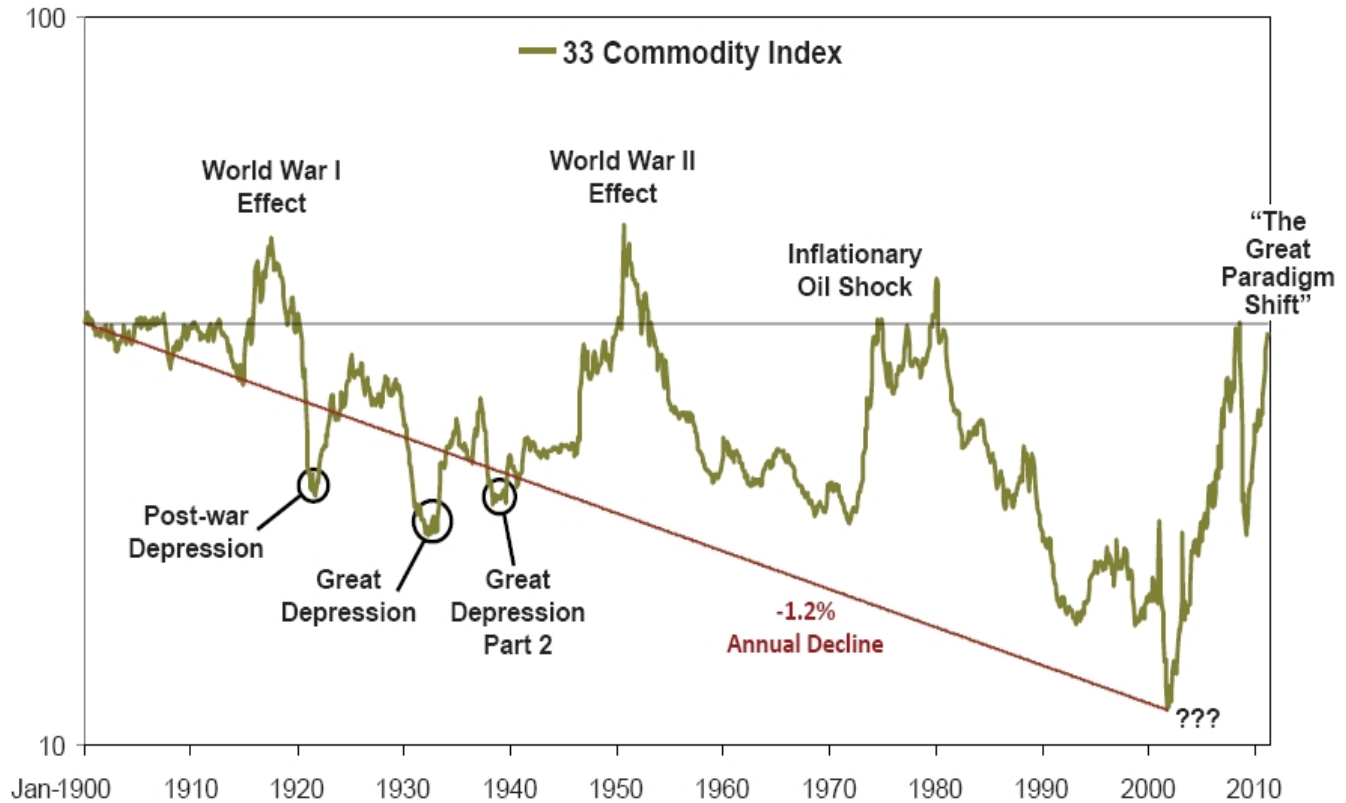


Markets for Timber and other Forest Products

Resource scarcity is the currently popular theme



GMO Commodity Index: The Great Paradigm Shift



Note: The GMO commodity index is an index comprised of the following 33 commodities, equally weighted at initiation: aluminum, coal, coconut oil, coffee, copper, corn, cotton, diammonium phosphate, flaxseed, gold, iron ore, jute, lard, lead, natural gas, nickel, oil, palladium, palm oil, pepper, platinum, plywood, rubber, silver, sorghum, soybeans, sugar, tin, tobacco, uranium, wheat, wool, zinc.

Source: GMO As of 2/28/11



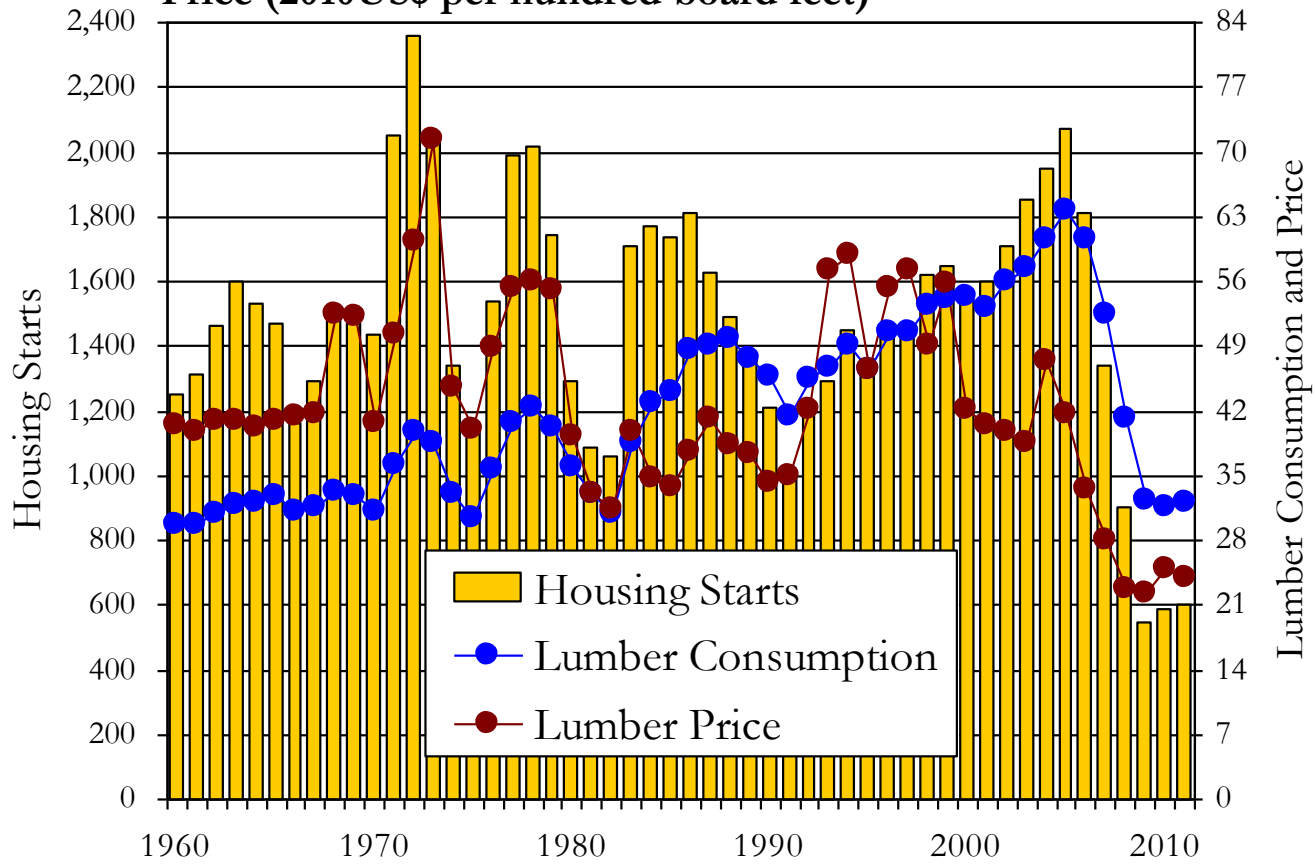
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US Lumber Demand is Extraordinarily Low

When and how will the US housing sector rebound?

Annual US Housing Starts (1000 units), Softwood Lumber Consumption (billion board feet), and Softwood Lumber Price (2010US\$ per hundred board feet)



Sources: Resource Information Systems Inc. and HTRG Research



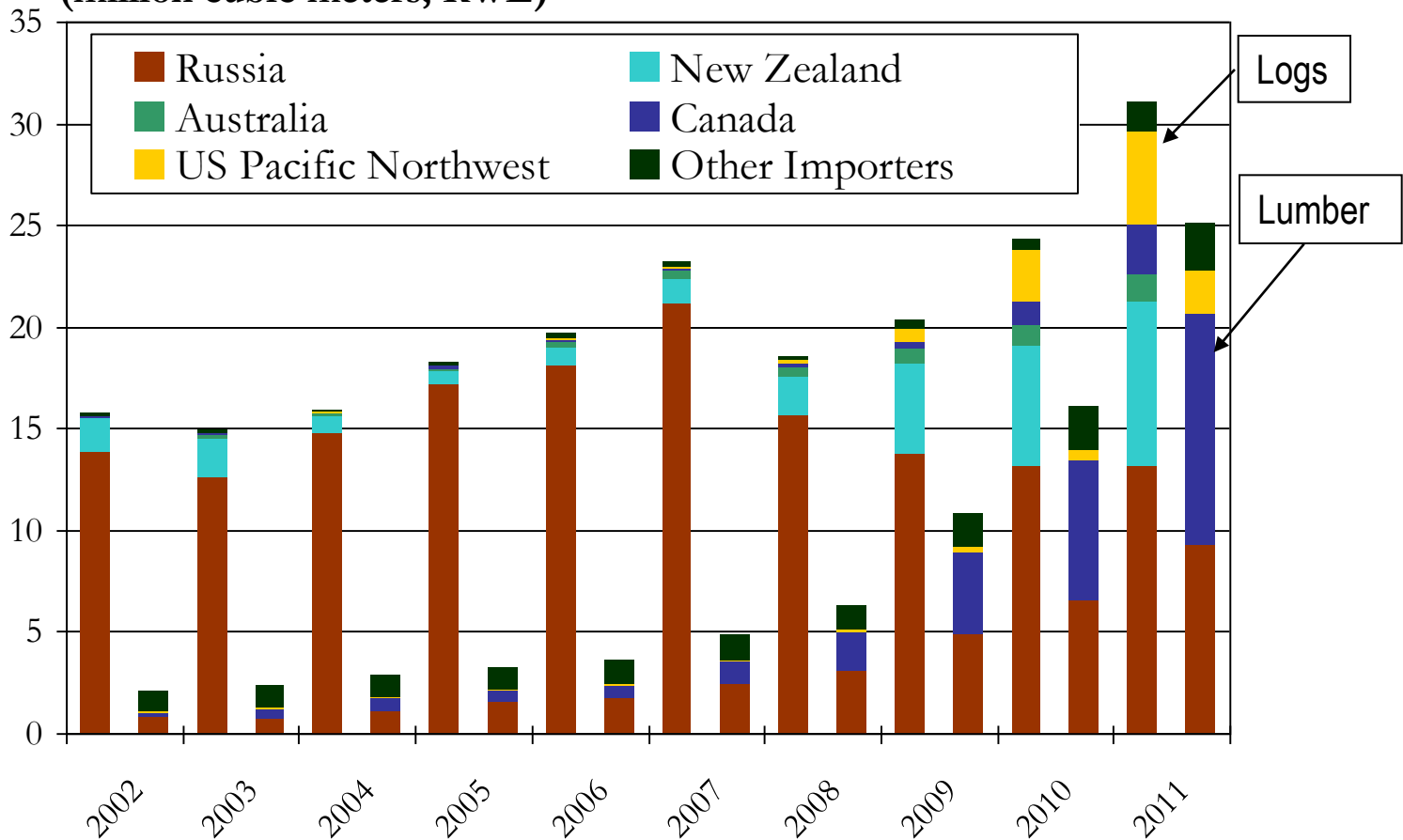
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Log and Lumber Exports to China have Surged

Are current log export volumes to China from the US Pacific Northwest sustainable when domestic markets recover?

**Softwood Log and Lumber Imports into China
(million cubic meters, RWE)**

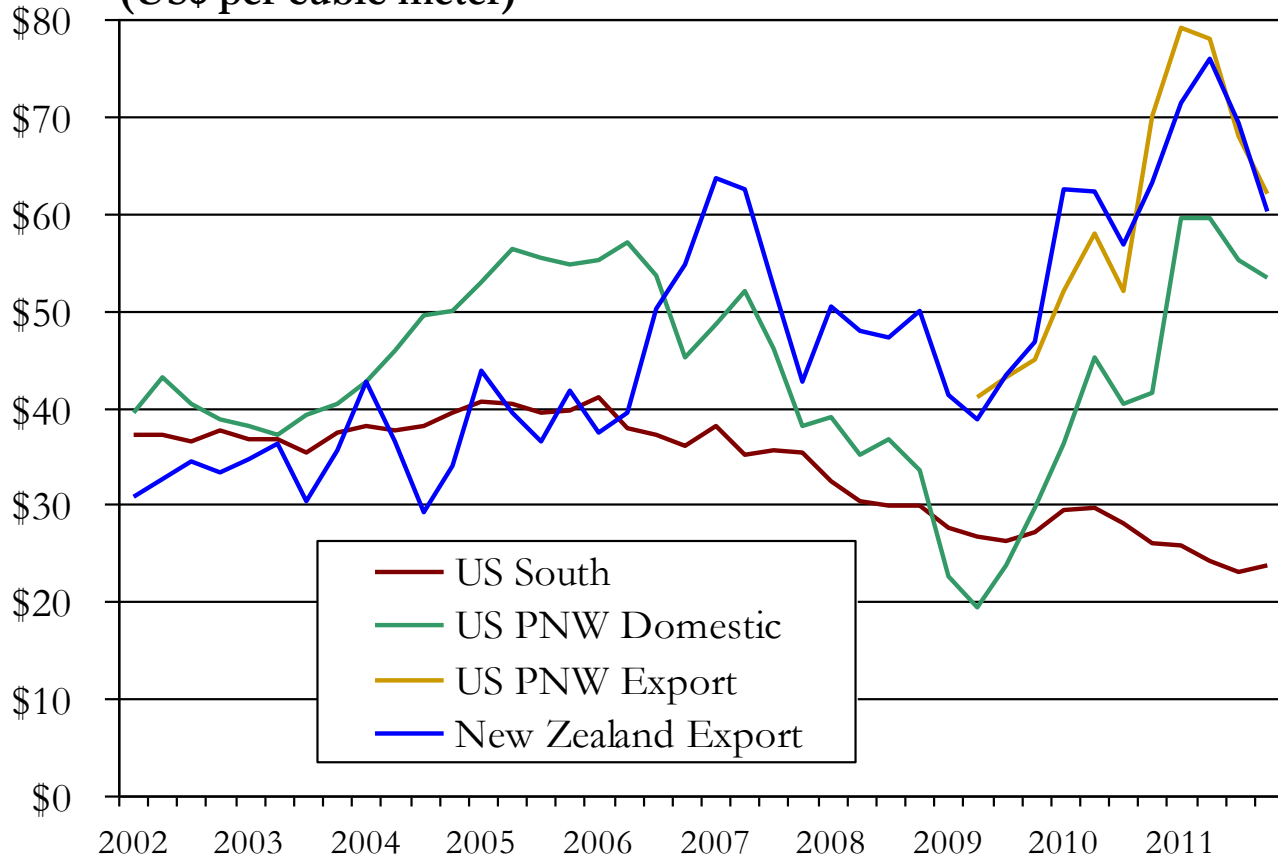




Pacific Rim Prices Boosted by Asian Demand

Southern pine sawtimber stumpage prices at 50-year lows

**Regional Composite Prices for Softwood Sawtimber Stumpage
(US\$ per cubic meter)**



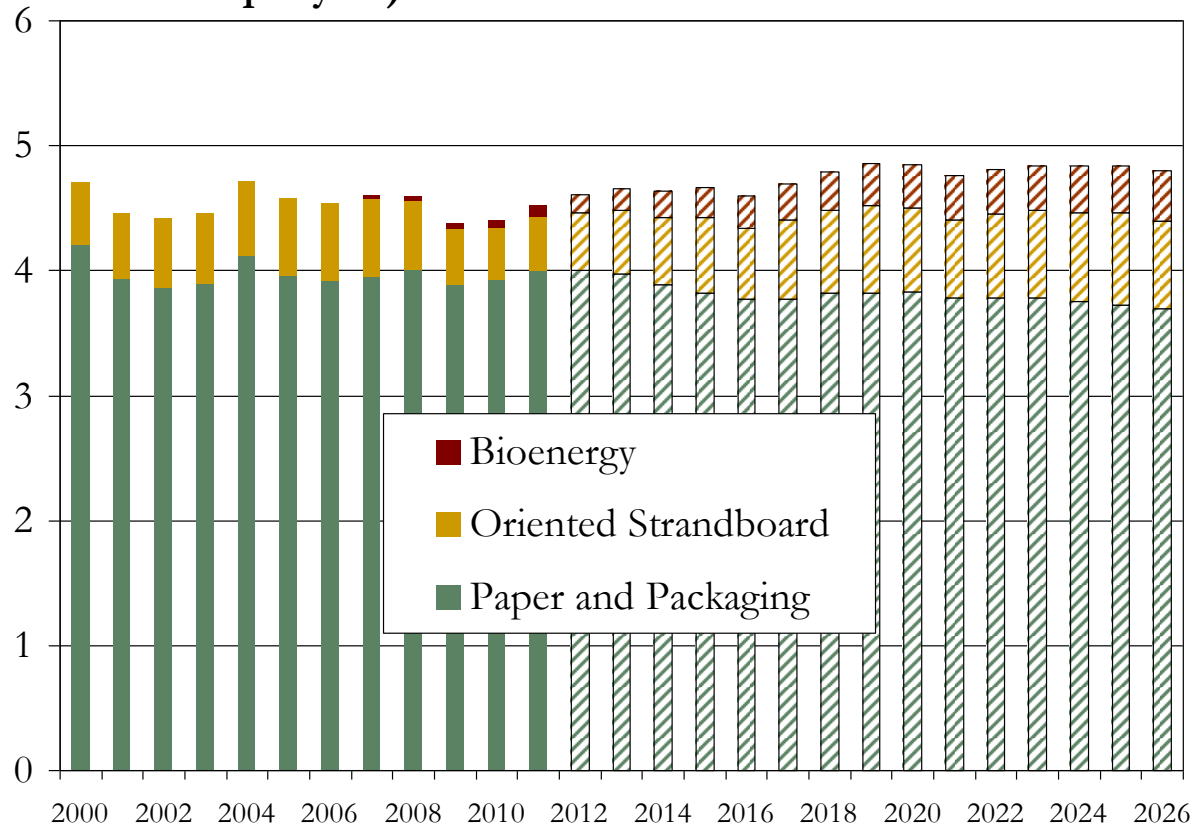
Sources: Timber Mart-South, Log Lines, New Zealand MAF, and HTRG Research



Timber Demand from Bioenergy Producers

Substantial growth from very low base

US Pulpwood Consumption by Source of Demand (billion cubic feet per year)

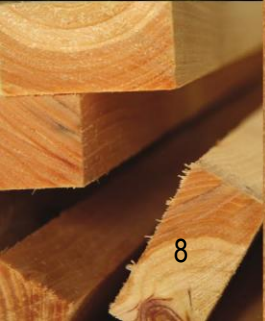


Source: RISI (September 2011)



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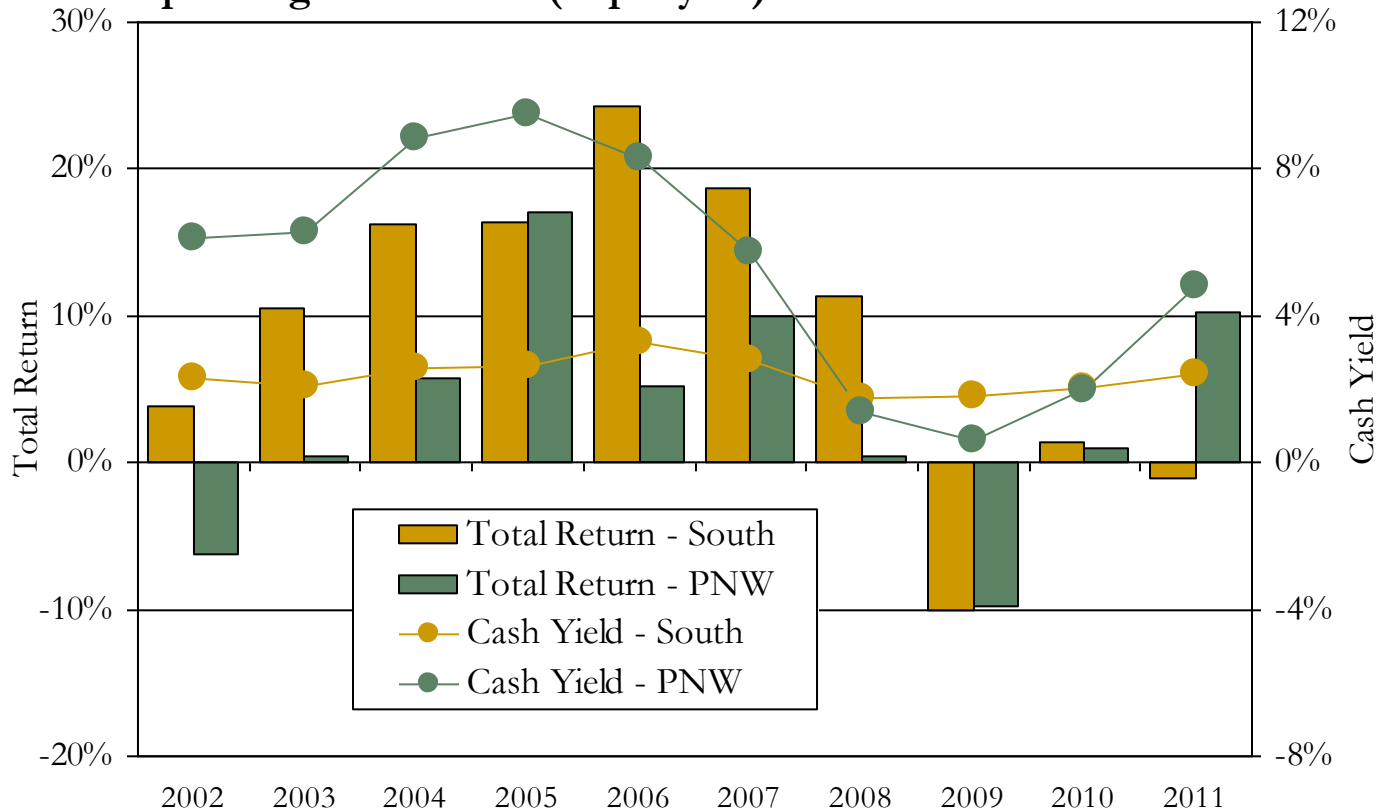
MFC Participation in Acquisition of Tristar Timberlands



Timberland Investment Performance

Institutional investment has allowed for further analysis of timberland property markets

US NCREIF Timberland Property Returns and Operating Cash Yields (% per year)



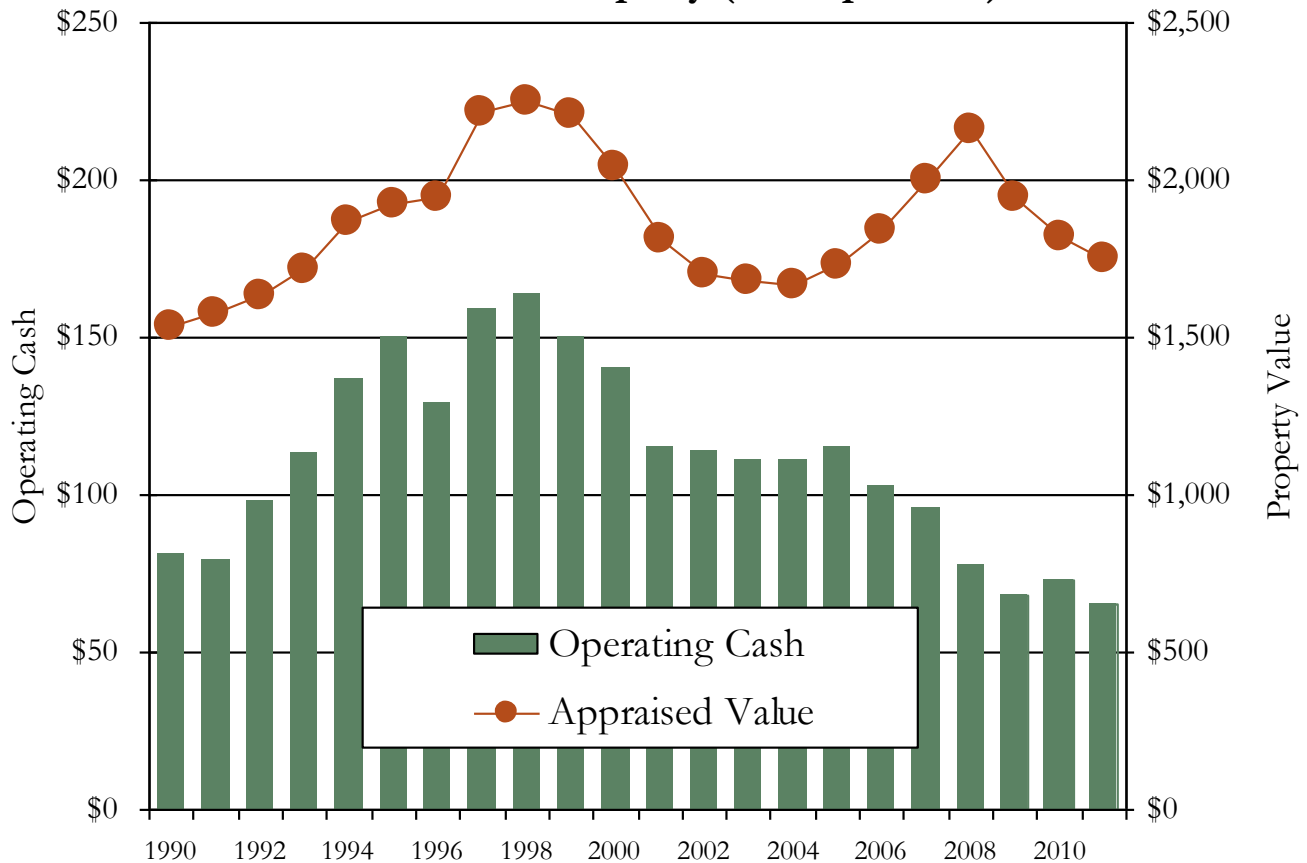
Sources: NCREIF Timberland Property Index and HTRG Research



Timberland Values have Moderated

Disconnect between timberland values and cash flows?

Operating Cash and Value for Prototypical All Age US South Timberland Property (2010\$ per acre)



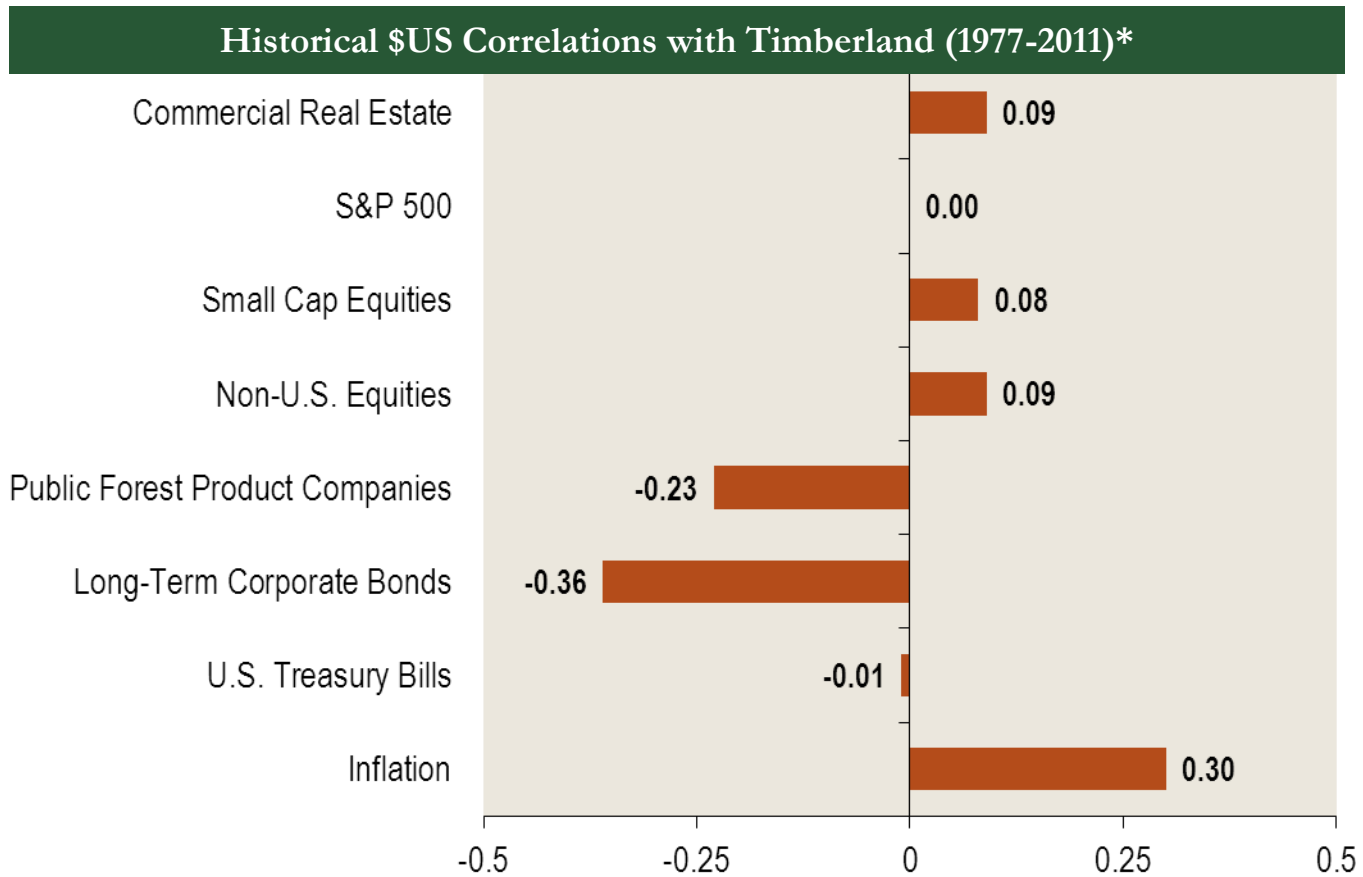
Sources: NCRIF and HTRG Research. Methodology detailed in “Explaining Timberland Values in the United States,” *Journal of Forestry*, December 2004.





Timberland and Conventional Asset Pricing Models

Portfolio diversification and low risk, but not consistently low required returns



*Data for timberland returns refer to John Hancock Timberland Index for 1977-1986, NCREIF Timberland Index for 1987-2011. Past returns are not a guarantee of future results; potential for profit as well as for loss exists.

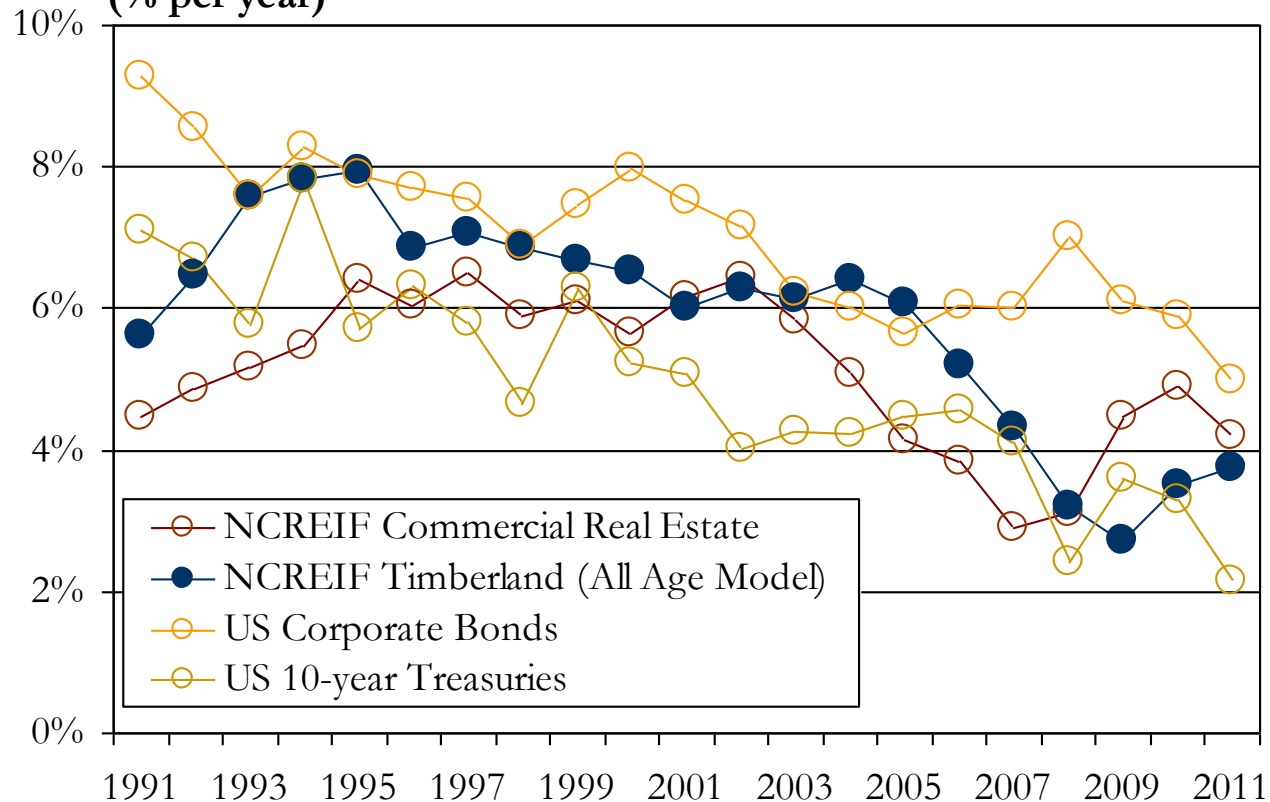


Timberland in Context of Broader Capital Markets

What's relationship between required returns for timberland and other competing investment classes?

Current Cash Yields on Reported Values for US Properties

(% per year)





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Summary comments

- The more we learn the more questions we have
- Economic analysis informs decisions but rarely makes them

