Financial Considerations of Natural Hardwood Investments

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Outline

- The diversity of Hardwood investments in the US
- The dynamic nature of the Hardwood sector
- Sources of risk and return in conjunction with Hardwood investments
- Drivers of Hardwood timber price trends
- Strategies for maximizing returns on Hardwood investments
- Conclusions

The Diversity of Hardwood Investments in the US

Hardwoods vs. Softwoods

- Nation's Timber Volume: 56% Softwoods and 44% Hardwoods.
- Most of the Nation's Hardwood Resource Is in the East: About 90%.
- In the East: Hardwoods account for 67% of the timber volume.
- In the East: Unlike Softwoods, a very modest portion of the Hardwood timber volume was planted--< 1%.

Most Important Hardwoods

(by % of Eastern US Hardwood Inventory)

Red Oaks	24%
White Oaks	16%
Poplar	9%
Soft Maple	8%
Hard Maple	6%
Black Cherry	2%

Major Hardwood Regions

	Flagship Species
• New England/New York Region	Maple
• Great Lakes Region	Maple
• Allegheny Region	Cherry
• Appalachian Region	Oak/Poplar
• Southern Region	Oak

Sources of these TFG Properties

(% of Total Frequency)

• Integrated Forest Products Companies	36%
• Independent Mill Operators	30%
• Equity Investors	18%
• Families & Other	8%
• Land Companies	8%

Note: *"Equity Investors" include REITs, MLPs, TIMOs, and direct institutional investors.*

Diversity of Blended Hardwood Sawtimber Growth Rates

- New York Property: 3.0%
- Michigan Property: 3.5%
- West Virginia Property: 4.0%
- Arkansas Property: 4.5%
- Mississippi Property: 5.5%

Diversity of Hardwood Sawtimber Prices (Doyle Rule)

	$/mbf
• Appalachian Poplar:	$160
• Appalachian Red Oak:	$320
• Great Lakes Hard Maple:	$900
• Allegheny Black Cherry:	$2,600

Note: *Therefore, Hardwood timberland prices per acre are heterogeneous.*

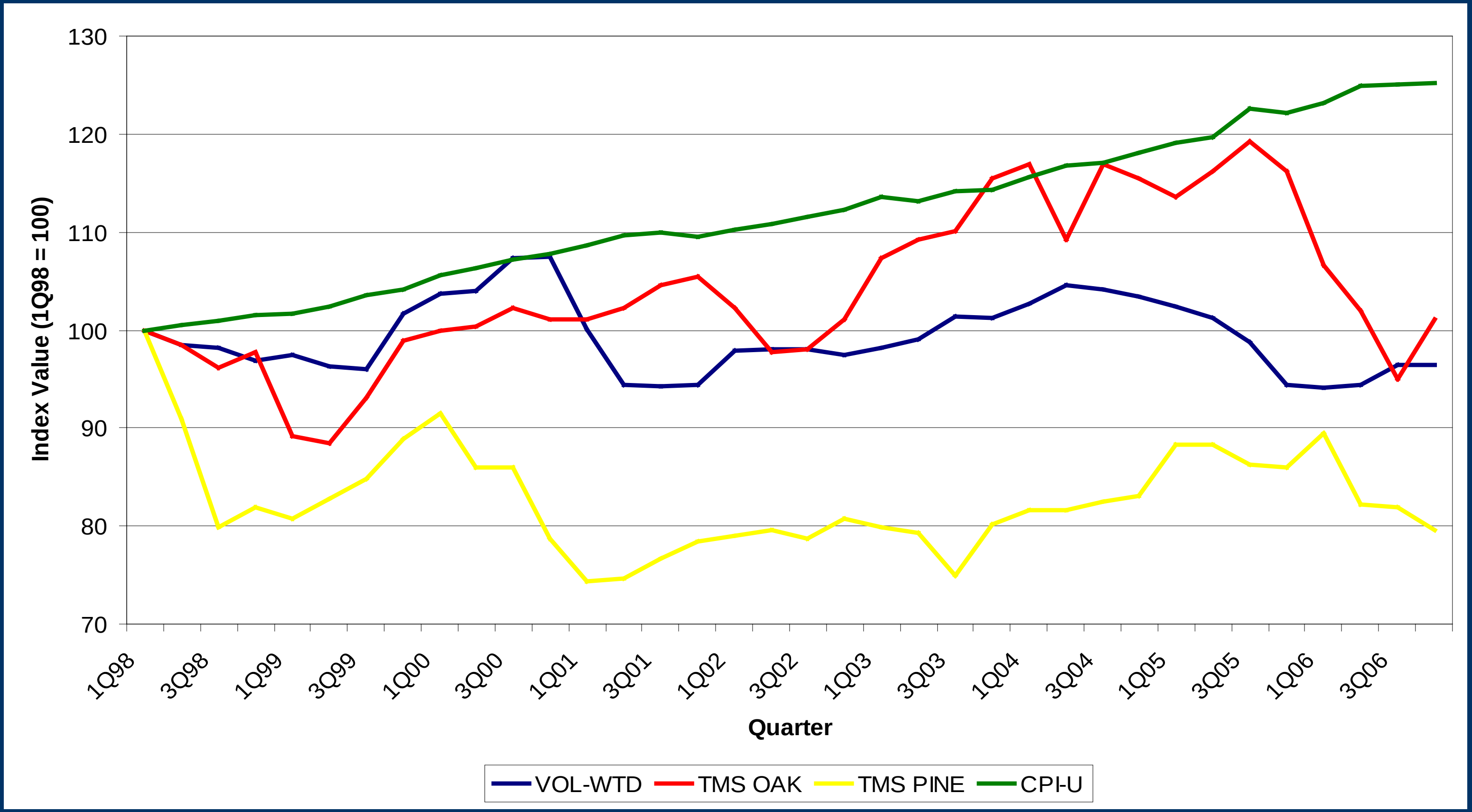
Hardwood Markets Do Not Always Move Together over Time

In 2007, for example, the prices of Michigan Hard Maple and Tennessee White Oak moved in opposite directions:

- Michigan Hard Maple: -17.1%
- Tennessee White Oak: 15.6%

The Dynamic Nature of the Hardwood Sector

Time Series of Volume-Weighted Hardwood Sawtimber vs. Other Benchmarks: 1998-2006



Relative Performance of Volume-Weighted Hardwood Sawtimber Index vs. Other Benchmarks: Annual Returns, 1998-2006

Volume-Weighted Hardwood ST	-0.4%
TMS Oak ST	0.1%
TMS Pine ST	-2.6%
Hardwood Review Green Lumber	0.3%
CPI	2.6%

Diversity of Hardwood Species' Price Movements

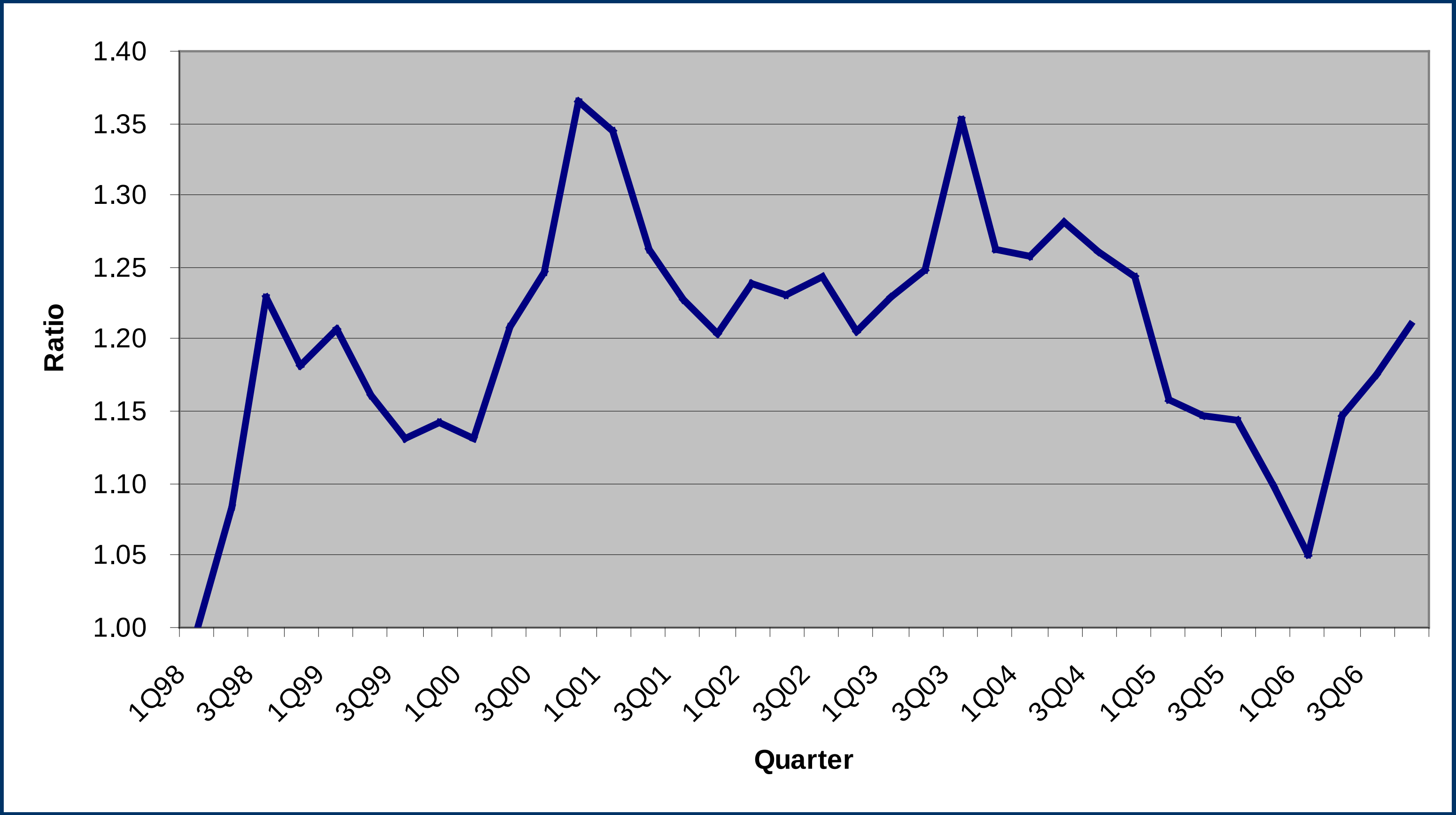
- Annualized Price Changes, 1998-2006

Red Oak (WV)	-2.9%
White Oak (TN)	0.1%
Yellow-Poplar (WV)	-2.7%
Hard Maple (NY)	6.6%
Black Cherry (PA)	3.9%

- Five species groups account for 57% of eastern Hardwood sawtimber inventory.

Diversifying across Timber Types Can Smooth Volatility

Ratio of Volume-Weighted Hardwood Sawtimber Index over TMS Pine Sawtimber Index, 1998-2007



Hardwoods: Sources of Risk and Return

Hardwood Case

- Appalachian Oak-Hickory Forest
- 4% Annual Net Growth Rate
- Discounted Timber Value: $776/ac
- Land Value: $300/ac
- Price: $1,076/ac
- Annual Harvests = Annual Growth
- Lease Income = $5/ac/yr
- Expenses = $7/ac/yr

Return Decomposition

• Diluted Growth	2.9%
• General Inflation	2.5
• Diluted Real Appreciation—Timber	0.7
• Diluted Real Appreciation—Land	0.3
• Lease Income	0.5
• Expenses	(0.7)
Net Annual Return	6.2%

Other Potential Sources of Return

- Overweighting Ingrowth Opportunities
- Merchandising Logs
- Selling Working-Forest Conservation Easements
- HBU Sales
- Land Trading

Sources of Risk

- Volatility of Timber Prices
- Extraordinary Pest, Disease, Wind, and Fire Damage to Timber
- Regulatory/Tax Changes
- Execution Issues

Drivers: Hardwood Timber Price Trends

Demand Volatility

- US Hardwood lumber production down about 30% from peak in 1999.
- The footage consumed by the domestic furniture sector fell from 1.8 billion bd ft in 2002 to 1.2 billion bd ft in 2005. Furniture consumption was 2.6 billion bd ft as recently as 1999.
- Lumber producers had to find alternative markets to domestic furniture manufacturing as that sector shifted production to China and Vietnam.
- Shifts in tastes: Grainy woods vs. "white woods."
- Mill closures and cutbacks.

Global Consumption of US Temperate Hardwoods Positioned for Growth

- Over the last decade, aggregate global demand for Hardwood lumber of all types has ranged from 43 – 50 billion bd ft—with an uptick since 2003.
- The four main consuming nations are: the US, Brazil, China, and India. Of this group, only the US has been a significant ultimate consumer of temperate Hardwood products. The others have been re-manufacturing centers or consumers of tropical Hardwoods.
- Marketing of temperate Hardwood lumber in India is in the pioneering stages.
- China is under pressure by global retailers to prove its exports are sourced from legally harvested timber and sometimes even from sustainable sources. Its main source of raw logs has been Russia.

US Hardwood Timber Supplies Constrained

- Over 99% of US Hardwood acreage is naturally managed (not plantations).
- Material sources of new Hardwood acreage are unlikely.
- US Forest Service characterizes most private Hardwood resources as “unmanaged.”
- Young natural Hardwood timber requires decades to mature.

US Hardwood Timber Supplies Constrained (continued)

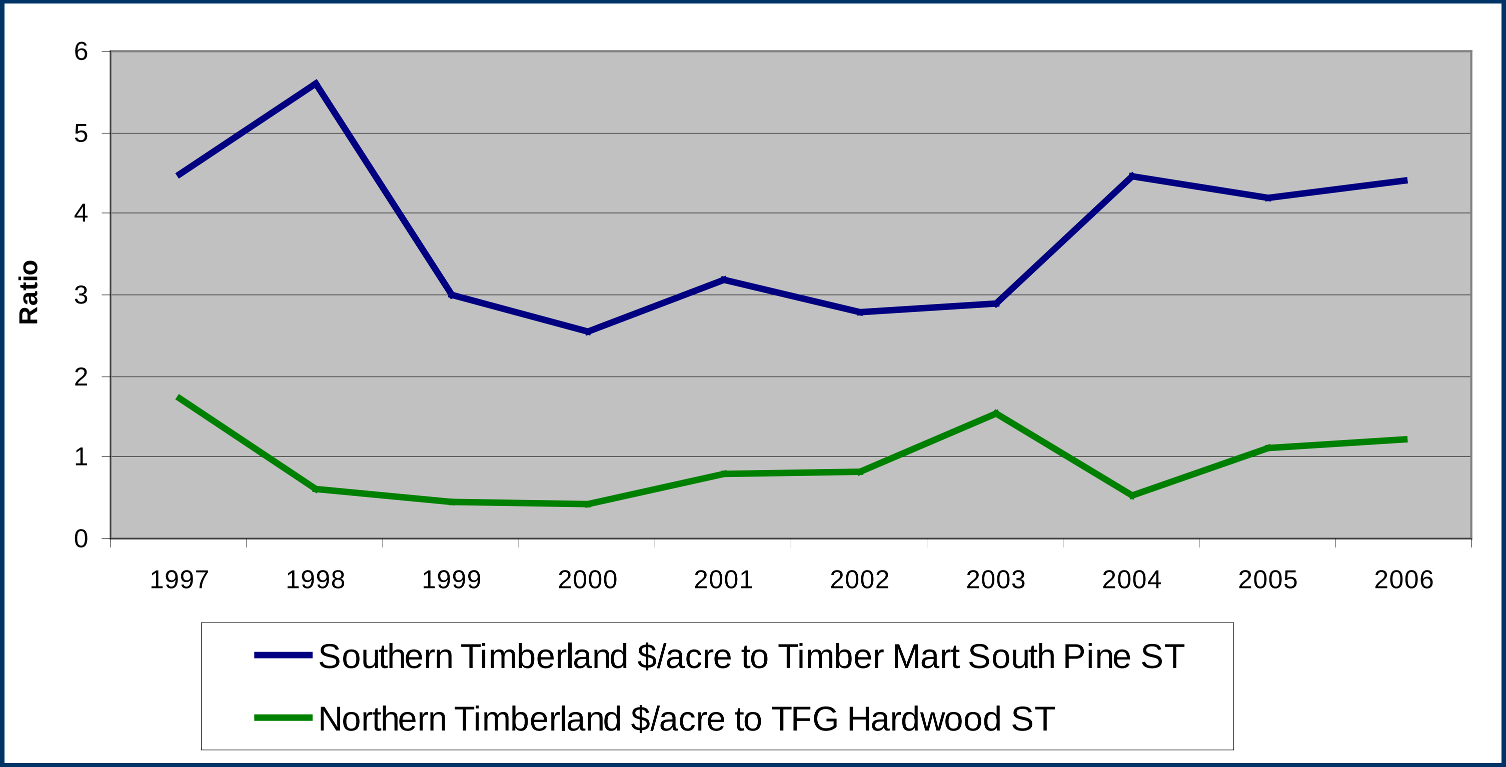
- Conversion of US Hardwood Forests to alternative land uses is expected to continue.
- Just for the South, US Forest Service forecasts of loss of private Timberland of all types to urban-developed areas by the year 2040 range from 21-31 million acres.
- 20% of Oak-Hickory Forests of the eastern US are located in major metro areas; 12% are in small/intermediate metro areas.
- Public and private owners of Hardwood resources are less oriented to timber production than in the past.
- Even dated US Forest Service surveys of nonindustrial owners (the largest category) suggest that timber production/income is not a primary objective with respect to forest ownership.

Hardwood Exports: A Potential Growth Sector

- As a proportion of total US Hardwood lumber production, exports have grown from 8.0% in 1998 to 12.2% in 2006.
- US Hardwood lumber exports, excluding those to Canada, increased by 8.9% in 2006. Asia and Europe represent the largest destinations other than Canada.
- US Hardwood lumber exports to China increased by 13.3% in 2006.
- US Hardwood lumber exports exceed imports by a factor of 2.0X.
- Weak US dollar helps Hardwood-lumber trade balance.
- Most dramatic increase in Hardwood exports: Logs.

US Timberland Price Indicators

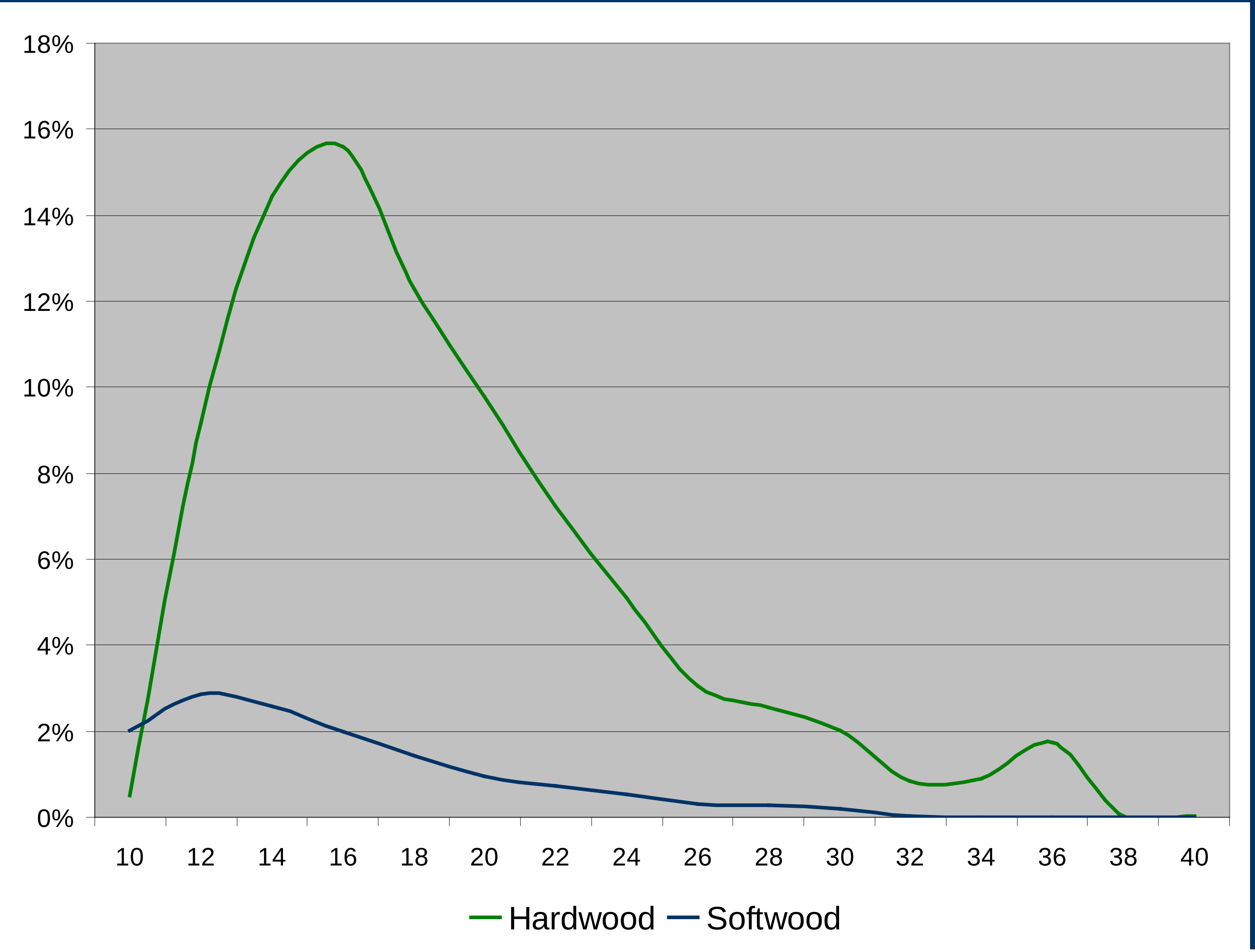
1997–2006



Strategies: Maximizing Returns on Hardwood Investments

Investment Strategy:
Overweight Certain Timber-Size Sectors

Case of TFG (% of Sawtimber by Inches of Diameter)



Investment Strategy Case: Problem-Solving Role

Offer Turn-Key Exit Opportunity to Seller

- *Seller:* Pittston Coal Company.
- *Diversity of Assets Sold:* Oil & gas reserves, mill complex, and 138,000 acres of Virginia Mountain Hardwood Forests.
- *Solutions:* (a) Informal consortium of three buyers created to provide Seller with one-stop exit opportunity; (b) surface-use agreement crafted to coordinate three new owners; and (c) modest timber supply agreement negotiated with mill.
- *Effective Purchase Price:* Less than $275 per acre.

Investment Strategy: Buy Wholesale/Monetize Dirt Retail

Case of Mississippi River Bottomland

- Purchased MS Bottomland in a large transaction at an effective bare-land price of about $600 per acre.
- Then sold a few thousand acres of bare land to hunting clubs for more than $1,500 per acre, with retention of long-term timber-cutting rights.
- Annual recreational lease rates: $10 - $15 per acre.
- Implies: Unreasonable cap rates.

  -*Why?* → Control/certainty of access matters to clubs!
- <u>Point</u>: Enables concentration of capital on timber attributes.

Conclusions: Hardwood Timberland Markets

- Increased capital flow into Hardwoods from institutions and individuals:
  - New TIMOs and REITs.
  - Other buyers with increasing capacity.
- Supply of domestic Hardwoods: Modest relative to appetite.
- Expect pricing of Hardwood Timberland to continue to increase relative to timber pricing.
- Lower implied required returns on domestic Hardwood Timberland transactions; more explicit pricing of non-timber attributes.
- Buyers more willing to take on embedded problems to enhance returns and allocate capital to international opportunities.
- Buyers need to fully explore strategic options embedded within Timberland: Changing silvicultural plans, bundle of property rights to be maintained, land uses, etc.