

An Analysis of Transaction Price Changes in US Timberland Markets Over the Past Decade

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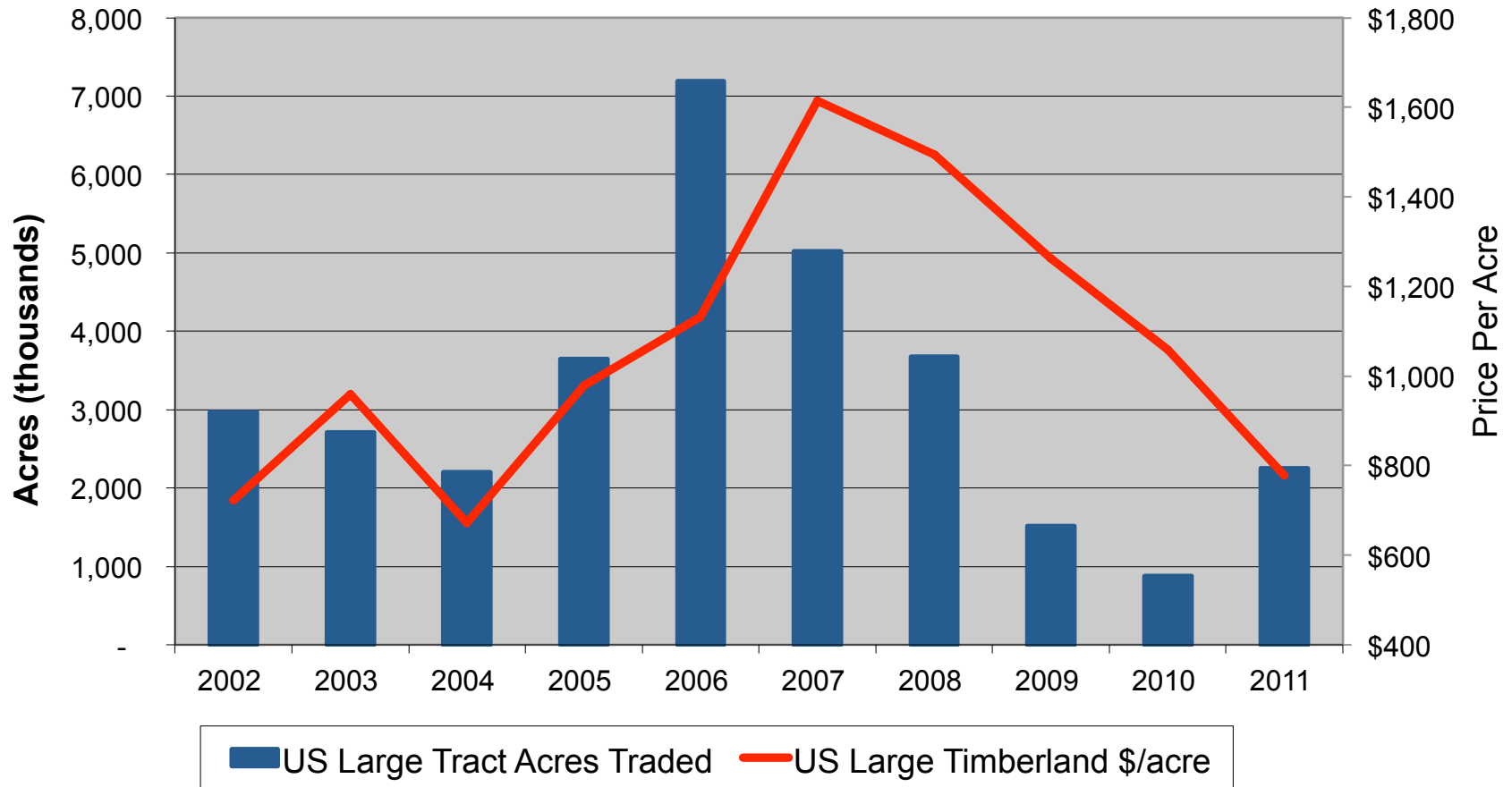
Purposes

- To review price changes in the US timberland market over the last ten years.
- Analyze any notable price trends in specific regions with a focus on the eastern US.

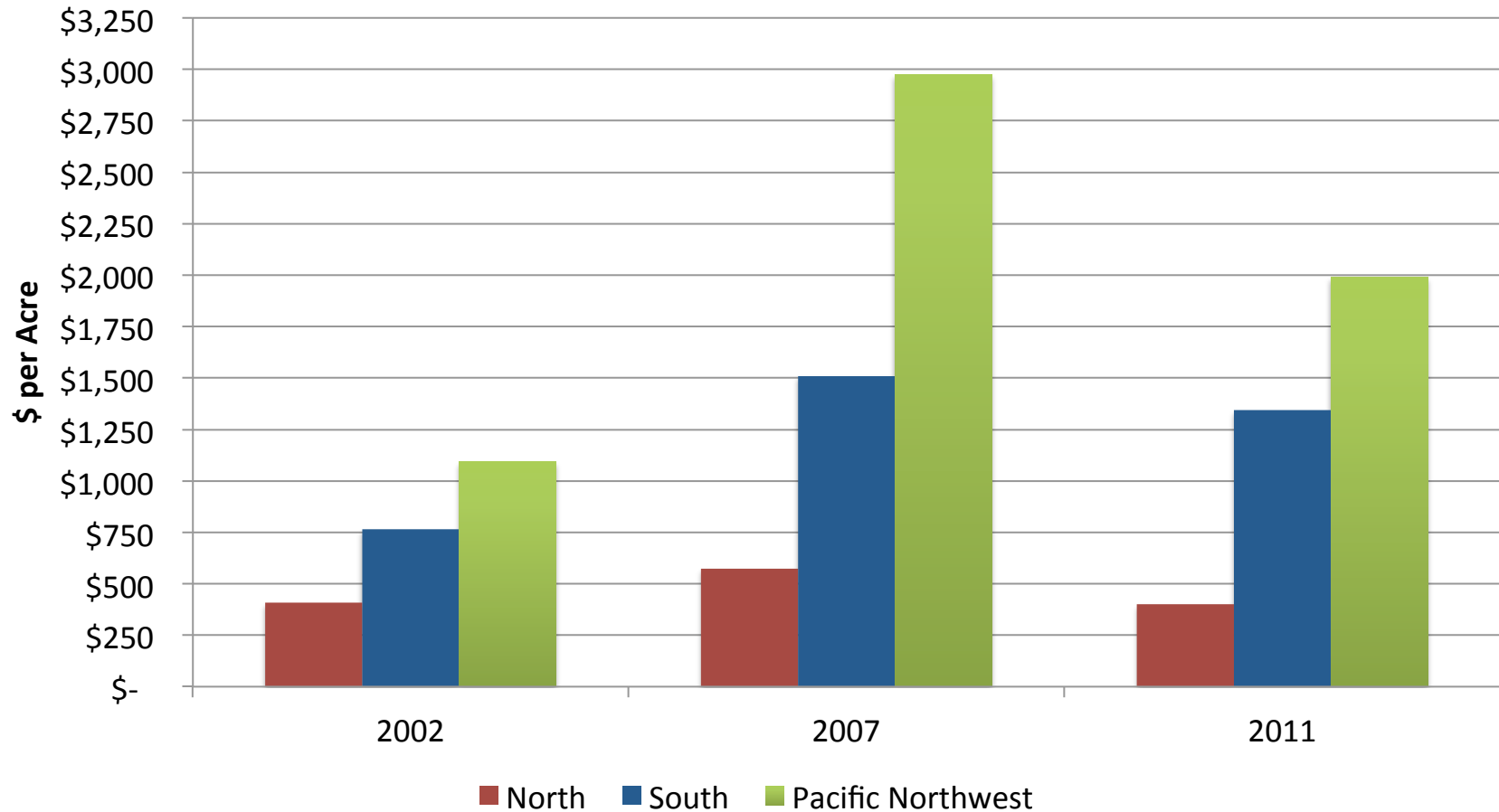
Description of the US Timberland Marketplace Over the Past Decade *2002 – 2011*

- Approximately 32 million acres and more than \$36 billion of transactions.
- Only one year in the last decade with less than \$1 billion of large timberland transactions—2010.
- The peak years for volume and price were from 2006 to 2008 when an average of over 5 million acres and \$7 billion per year were transacted.
- Transaction size has trended down in recent years: in 2010, the number of transactions was greater than in 2007, but the total value of transactions in 2010 was only 1/10th of the value traded in 2007.
- For the entire decade:
 - More than 1/2 of the traded acres were in the South and involved primarily pine plantation
 - About 1/3 were northern transactions (mostly hardwood and natural softwood)
 - The remaining deals were in the Pacific Northwest.
- The 2011 average price per acre is down more than 50% from the 2007 peak. Why? We will attempt to address this question in our presentation.

Large Timberland Acres Sold and Average Price per Acre US: 2002 – 2011

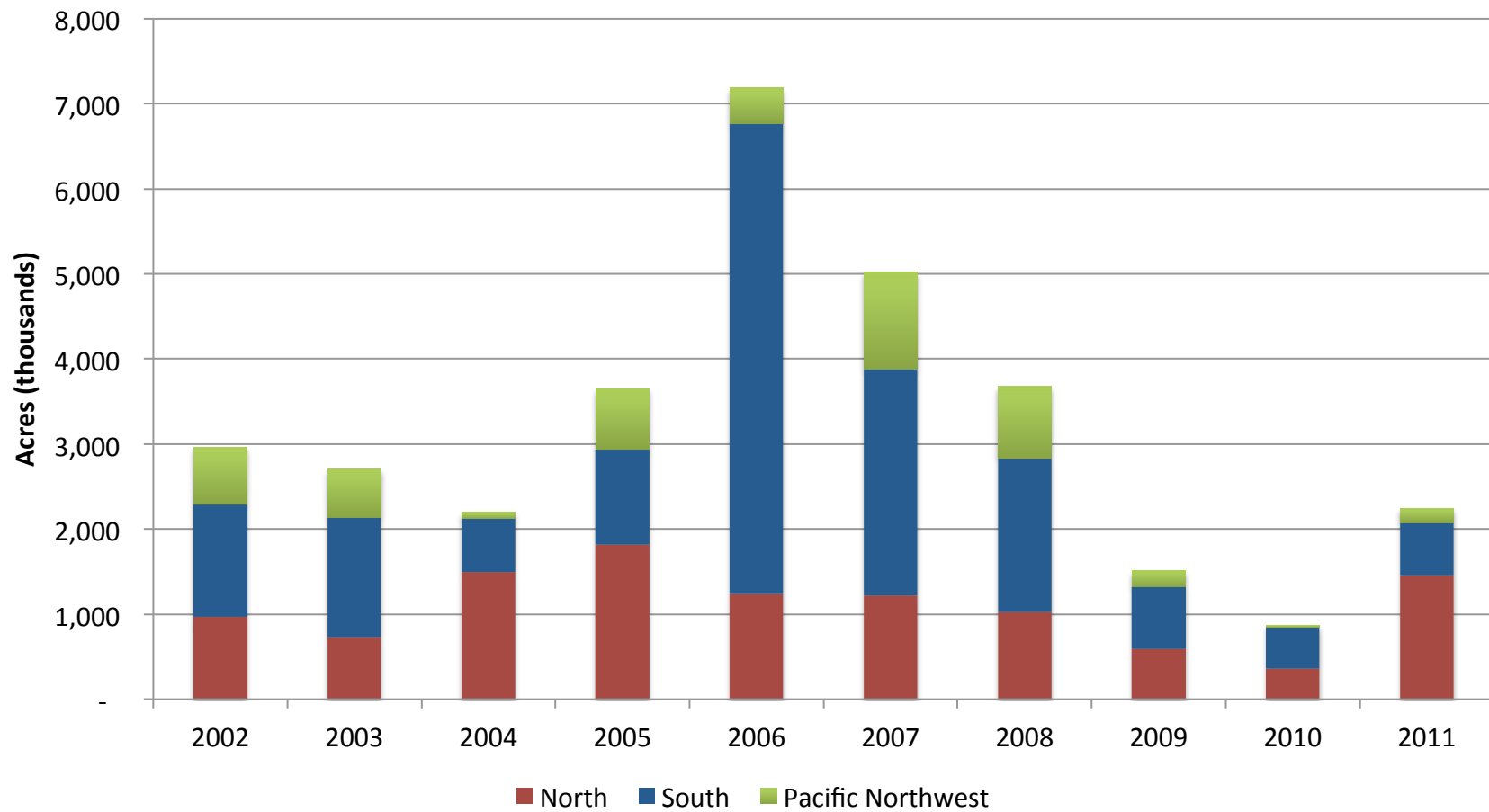


Large Timberland Transaction Prices by Region: *2002, 2007, and 2011*



Large Timberland Acres Traded by Region: *2002 – 2011*

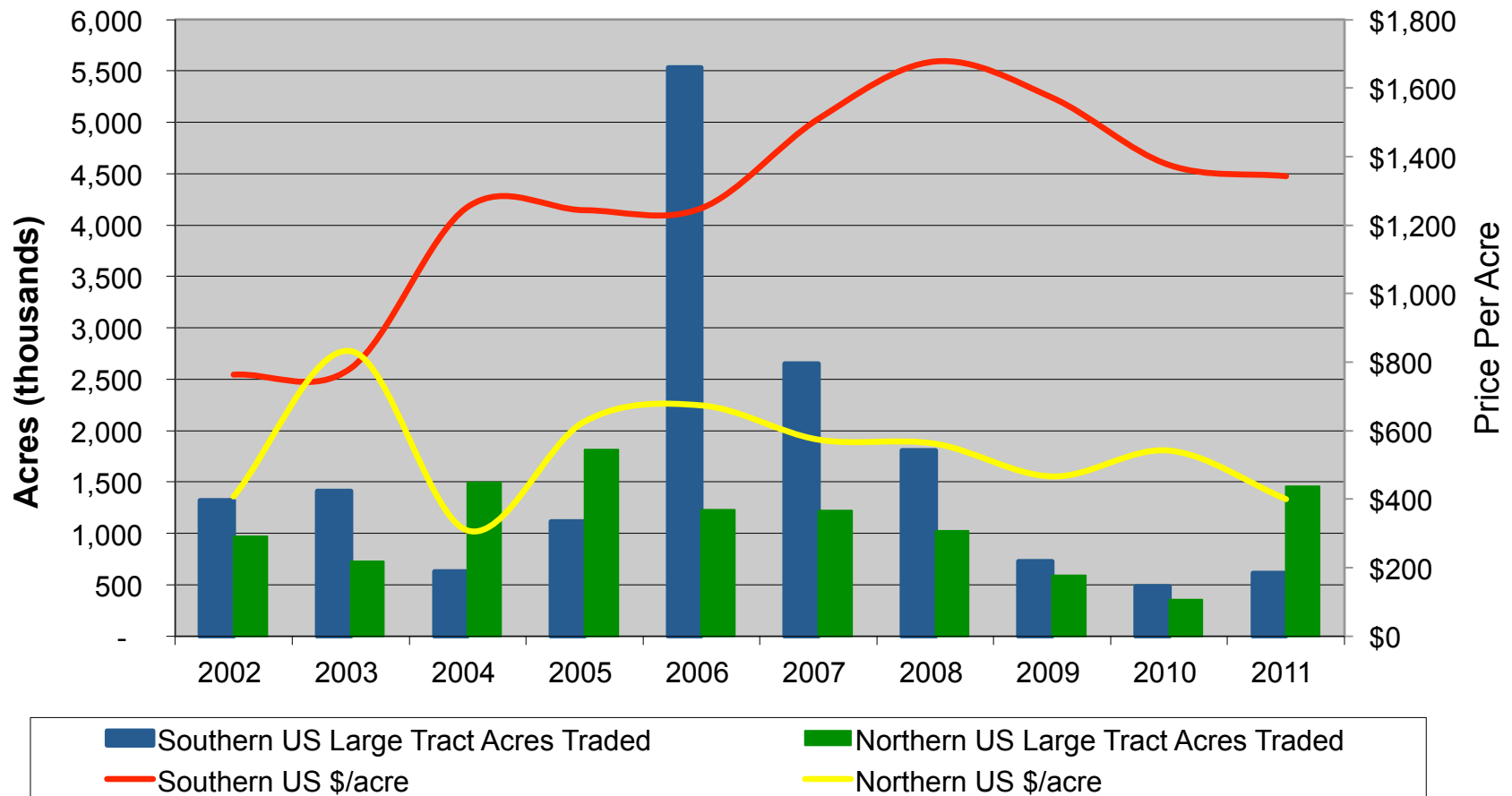
The Mix has Changed



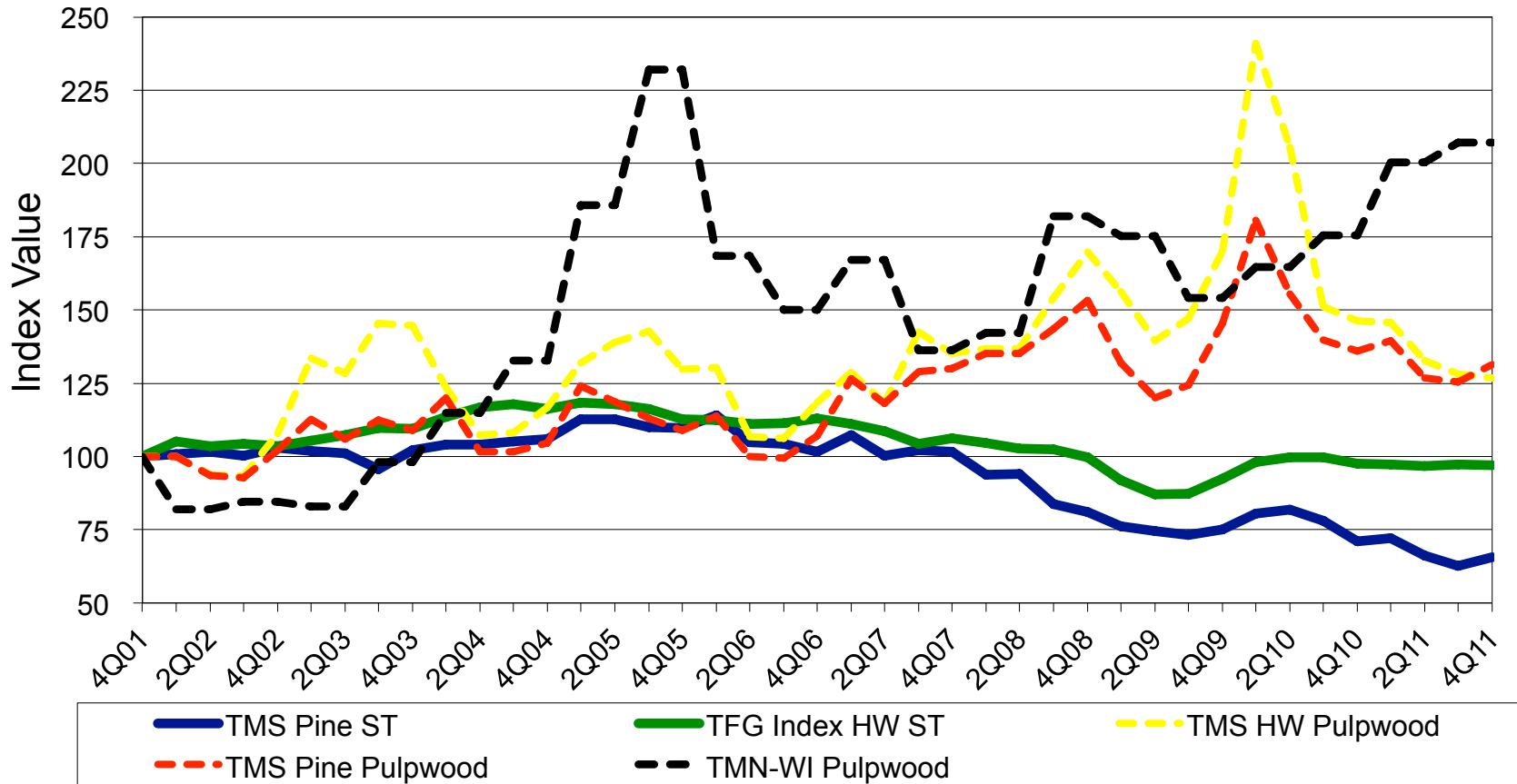
Eastern US Timber and Timberland Market Trends: *North vs. South*

- The average price per acre for southern transactions is up about 60% over the past decade, while the average for northern transactions is up only modestly (2%).
- Volume has shifted over time to include more northern transactions.
- Sawtimber prices have trended down, but at a significantly different pace in the two regions:
 - TMS Southwide Pine Sawtimber Index cumulative drop: 34%.
 - TFG Hardwood Sawtimber Index cumulative drop: 3%.
- Pulpwood prices (especially for hardwood) have increased substantially in both northern and southern timber regions:
 - TMS Southwide Hardwood Pulpwood Index cumulative increase: 27%.
 - TMN Wisconsin Statewide Hardwood Pulpwood price has more than doubled in the past decade.

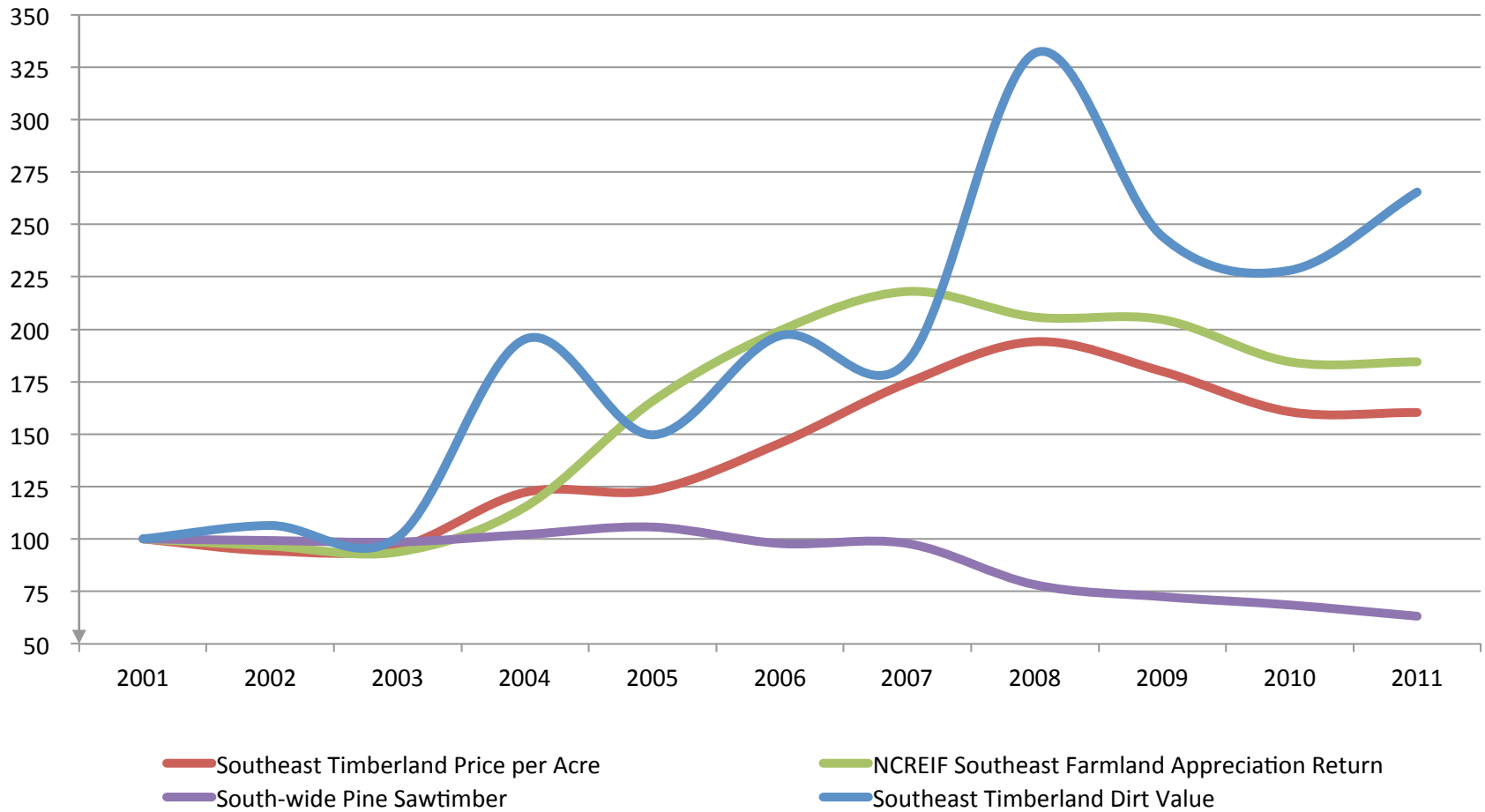
Regional Timberland Acres Sold and Average Price per Acre *Northern and Southern US: 2002 – 2011*



Timber Markets: *2002 to 2011*



Price Trends: Southern Timberland, Southeast Timberland Dirt, Farmland, and Pine Sawtimber 2002 to 2011

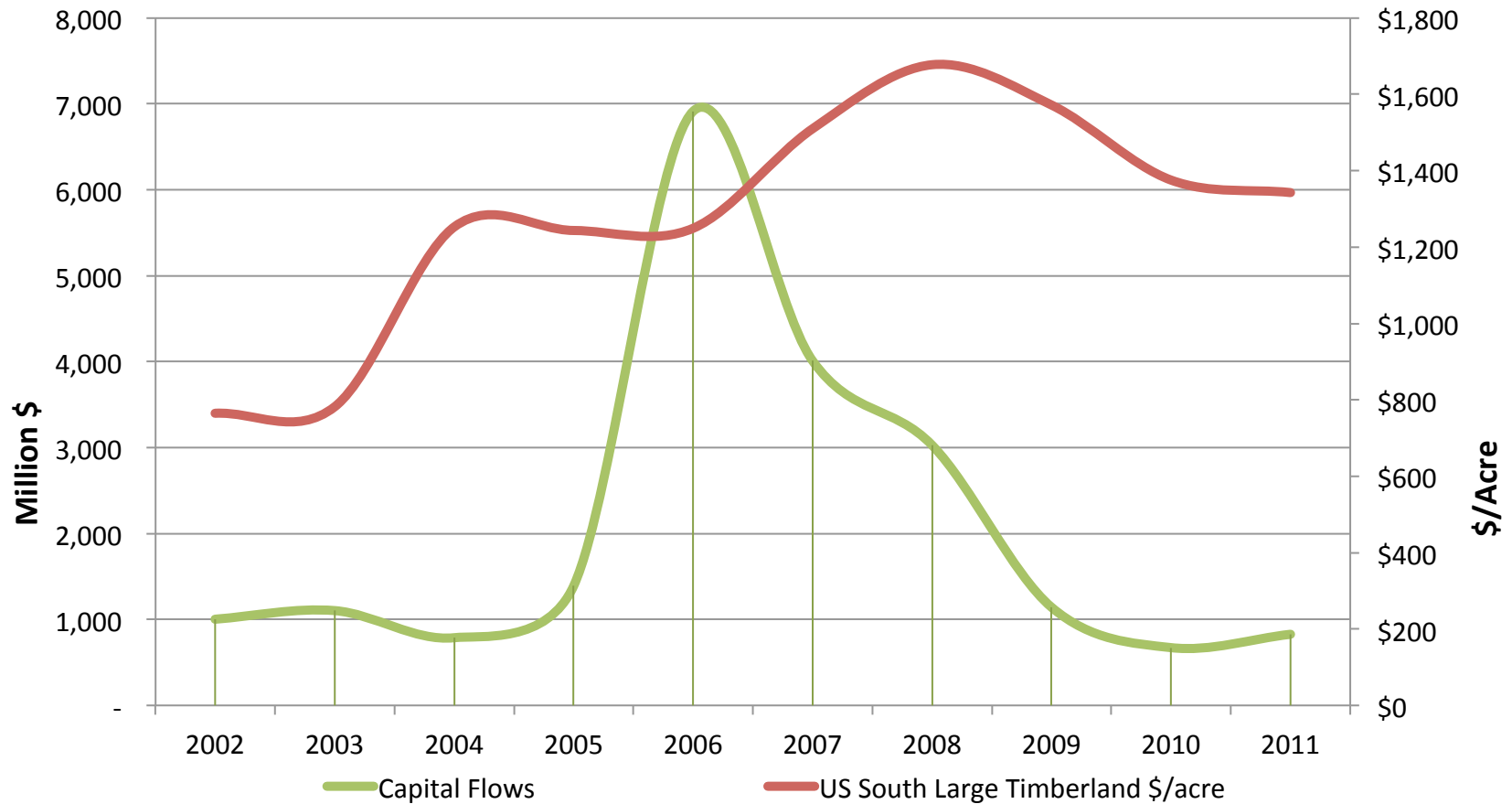


Why Have Timberland Transaction Prices and Sawtimber Prices Moved in Opposite Directions?

Potential Explanations:

1. Land values for large timberland properties in the South have increased substantially over the past decade as alternative land-use values have increased: primarily farmland and recreational timberland. The same has not occurred in most northern timberland areas where fewer alternative land uses exist.
2. Capital flowing (measured by transaction volume) into southern timberland increased substantially in 2006 and 2007 and has since dropped significantly through 2011. Timberland prices have been sticky, contracting only modestly as capital flow dropped—reflecting reluctance of landowners to reduce their asking prices. Only deals on the margin (i.e. the most aggressive buyers and most anxious sellers) have been getting consummated.
3. Discount rates were compressed as more capital was available to pursue fewer timberland opportunities. Also, interest rates in general have declined.
4. Increased interest in woody biomass as an energy source has resulted in an uptick in pulpwood prices in both the southern and northern regions.
5. Expectations of improved yields?

Capital Flow and Average Price per Acre for Large US South Timberland 2002 - 2011



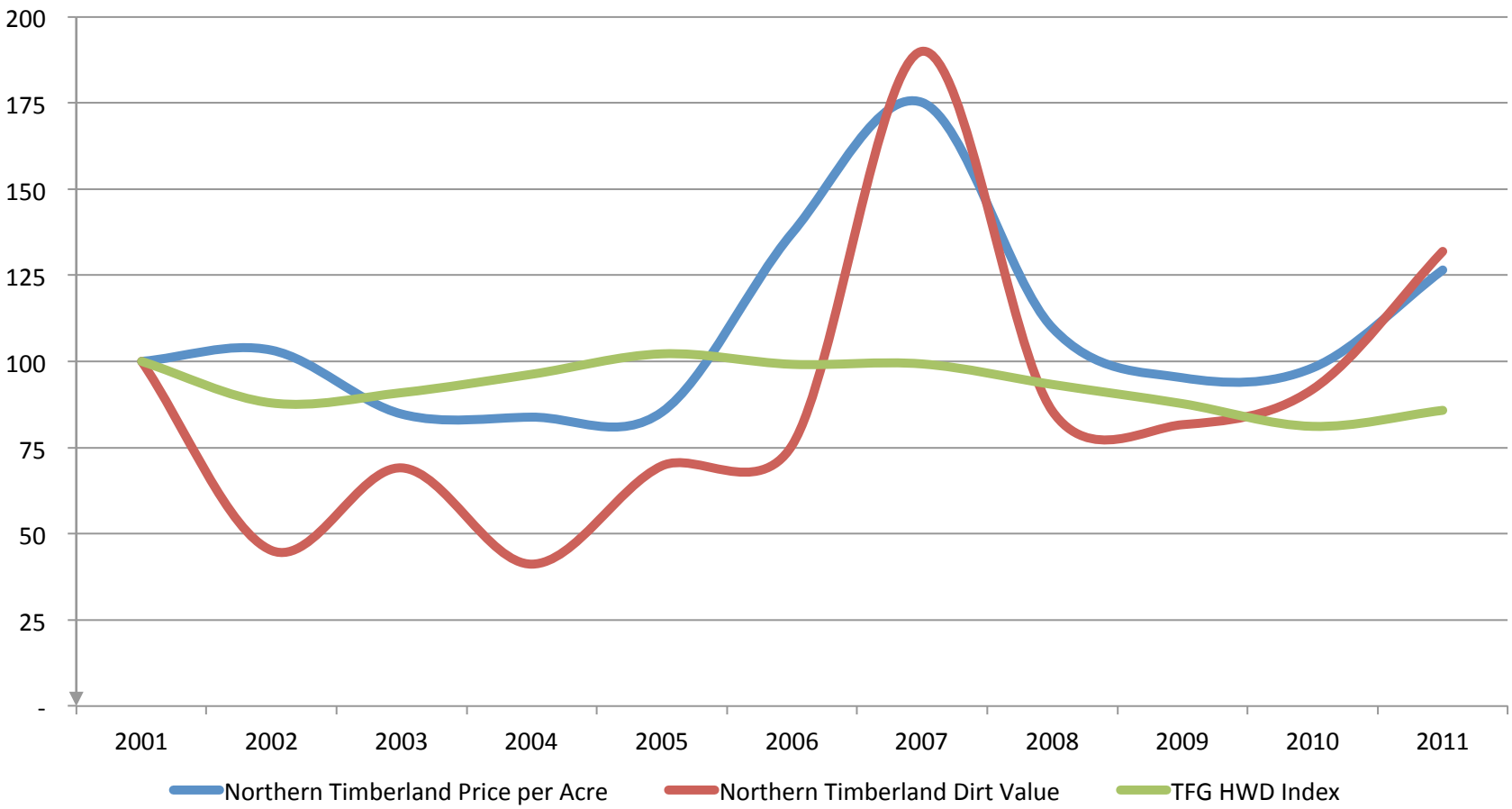
Timberland Pricing Sensitivity Analysis

Lower Hurdle Rates Can Explain Pricing Gains

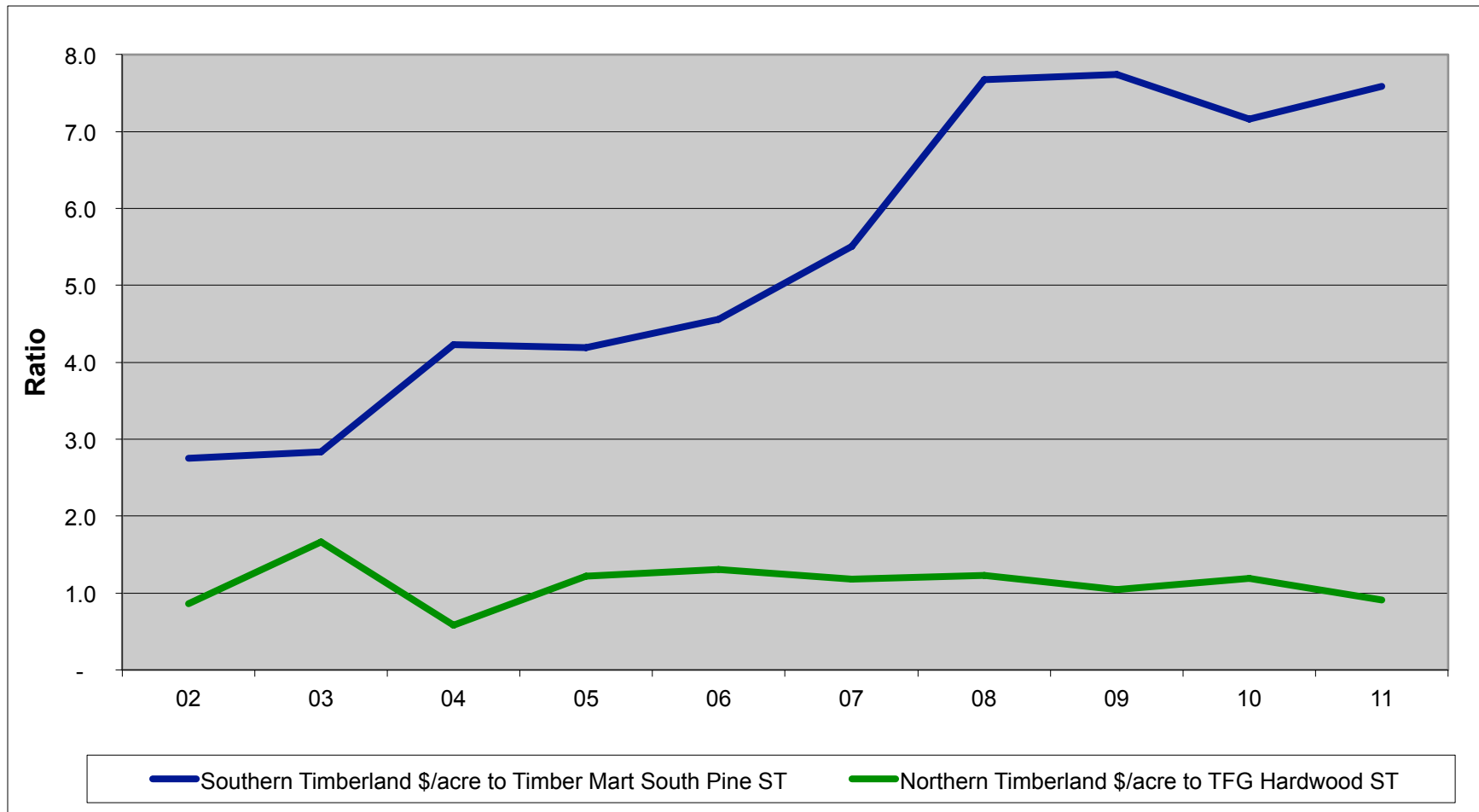
	Base Case	Scenario A	Scenario B	Scenario C
Real Hurdle Rate	7.0%	6.0%	6.0%	5.0%
Real Timber Pricing Outlook	1.0%	1.0%	0.5%	0.0%
Timberland Value Change		20.0%	9.1%	20.0%

Note: Presumes a fully regulated southern pine forest without HBU attributes. Assumes everything else the same.

Price Trends: Northern Timberland, Northern Timberland Dirt, and Hardwood Sawtimber *2002 to 2011*



Timberland Price Indicators: *North vs. South* 2002 – 2011



Why No Run-up in Northern Timberland Values?

- Some states have regulations that restrict subdivision and/or clearcutting: Maine, Upstate New York Adirondack Park.
- Amount of acres which are feasibly convertible to non-timber uses—especially agricultural land—is much smaller in the North: e.g., topography in Appalachia, environmental regulations in Northeast.
- In pockets of the Northern region where competing land uses are more prevalent than others (such as recreational usage) the increase in land values have been similar to those in the South, but the volume of recreational transactions is down significantly.
- Stumpage markets have been mixed across the North: Appalachian Oak versus Michigan Hard Maple versus Pennsylvania Black Cherry.

Conclusions

- Increase in the value of farmland in the South likely contributed to the run up in southern timberland values over the past decade.
- Northern timberland prices have increased, but the change has been less dramatic and dirt has remained a smaller portion of overall timberland value. Limited conversion potential and a less robust recreation market probably explain this phenomenon.
- In the South, land value changes do not fully explain the magnitude of the increase in transaction prices in the face of falling timber prices. Other factors include discount rate decreases and, to a lesser degree, pulpwood price increases.
- Further empirical research is needed: a detailed assessment/ decomposition of individual transactions from different time periods, in specific locations to better quantify the value change drivers.