



NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
10 Corporate Woods Drive Albany, New York

Via WebEx

February 24, 2022

AGENDA

Investment Committee 3:00pm

- Call to Order
- Timber Primer
- Motion to go into **Executive Session** for Discussion on Manager pp. (Open Meetings Law §105(1) (h) and Open Meetings Law §108 (3) to discuss the proposed acquisition of real property)
- Resolution

Sustainable Forestry Investing with FIA

February 2022



FOREST INVESTMENT ASSOCIATES

www.forestinvest.com

Sustainable Forestry Investing with FIA

Overview

	Page number
Introduction	3
Why Invests in Forests?	4
Growth of the Asset Class	5
Global Markets	6
The Basics of Plantation Management	7
Current Age Class Distribution	8
Southern Pines – Products and End Use	9
Southern Pines – Growth of a Forest Over Time	10
Optimizing Timber Growth Through Active Management	11
The Climate Impacts of Sustainable Forestry	12
Stewardship	13
Disclaimer	14

Michael F. Hart
Senior Portfolio Manager
mhart@forestinvest.com
+1.404.495.8593



Forest Investment Associates

Introduction



The Broad Arrow is a symbol of quality. In pre-revolutionary days, it was blazed on the choicest of trees to indicate that they had been reserved for use by the Royal Navy.

Founded in 1986, FIA pioneered institutional timberland management

FIA believes it is our responsibility to manage our clients' timberland assets for competitive financial returns while also taking seriously our responsibility to maintain the long-term viability of the forest

U.S. \$4.3 billion in sustainable timberland assets under management across U.S., Brazil and Chile

Independent, majority employee-owned firm with 52 team members (47 are shareholders and 22 are foresters)

FIA has the ability to evaluate and operate timberland investments anywhere in the world leveraging our team members' 24 years average experience in complex transactions, joint ventures, supply agreements, and financing structures

Diversity, Equity and Inclusion*: Overall, there has been a 5% increase in the percentage of females and a 4% increase in the percentage of minorities employed by FIA in the past two years.

*FIA has an Equal Employment Opportunity Policy that states FIA will recruit, hire, train and promote persons in all job titles without regard to race, color, religion, national origin, sex, age or physical or mental disability

Why Invest in Forests?

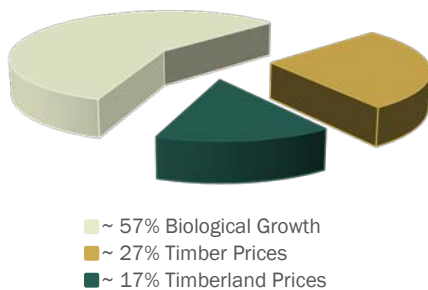
Sustainable, Diversified, Hedge Against Inflation and Competitive Returns

Sustainable

Owning forests is widely considered to be one of the most sustainable investments around. Forests serve the environment; providing clean air and water, carbon storage, diverse wildlife habitat and useful consumer products all from a renewable resource. Beyond the commercial aspects, investors in forests are also active participants in the fight against climate change and protecting wildlife for future generations.

Inflation Hedge

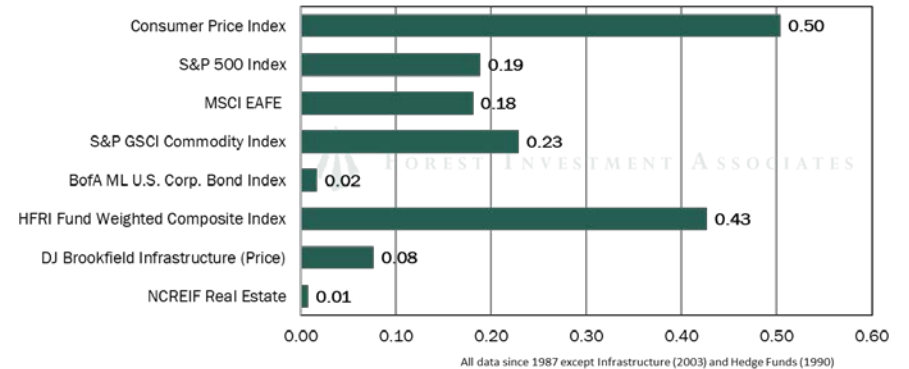
Return Drivers of a Timberland Investment 1992-2007



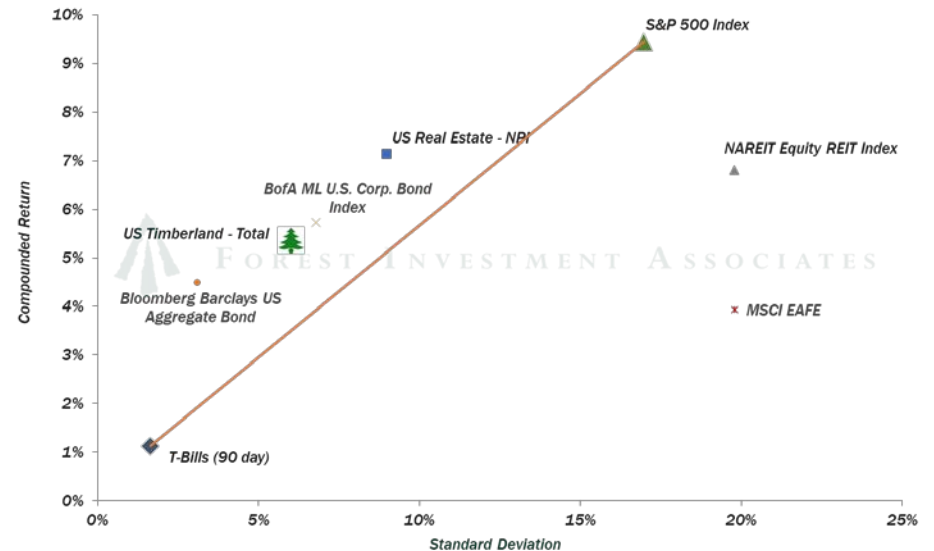
Source: Timberland Return Drivers and Timberland Returns and Risks: A Simulation Approach (2013 Society of American Foresters)

Diversified

Asset Correlation with U.S. Timberland (1987 - 2020)



Competitive Returns: Capital Markets Line 2006 - 2020

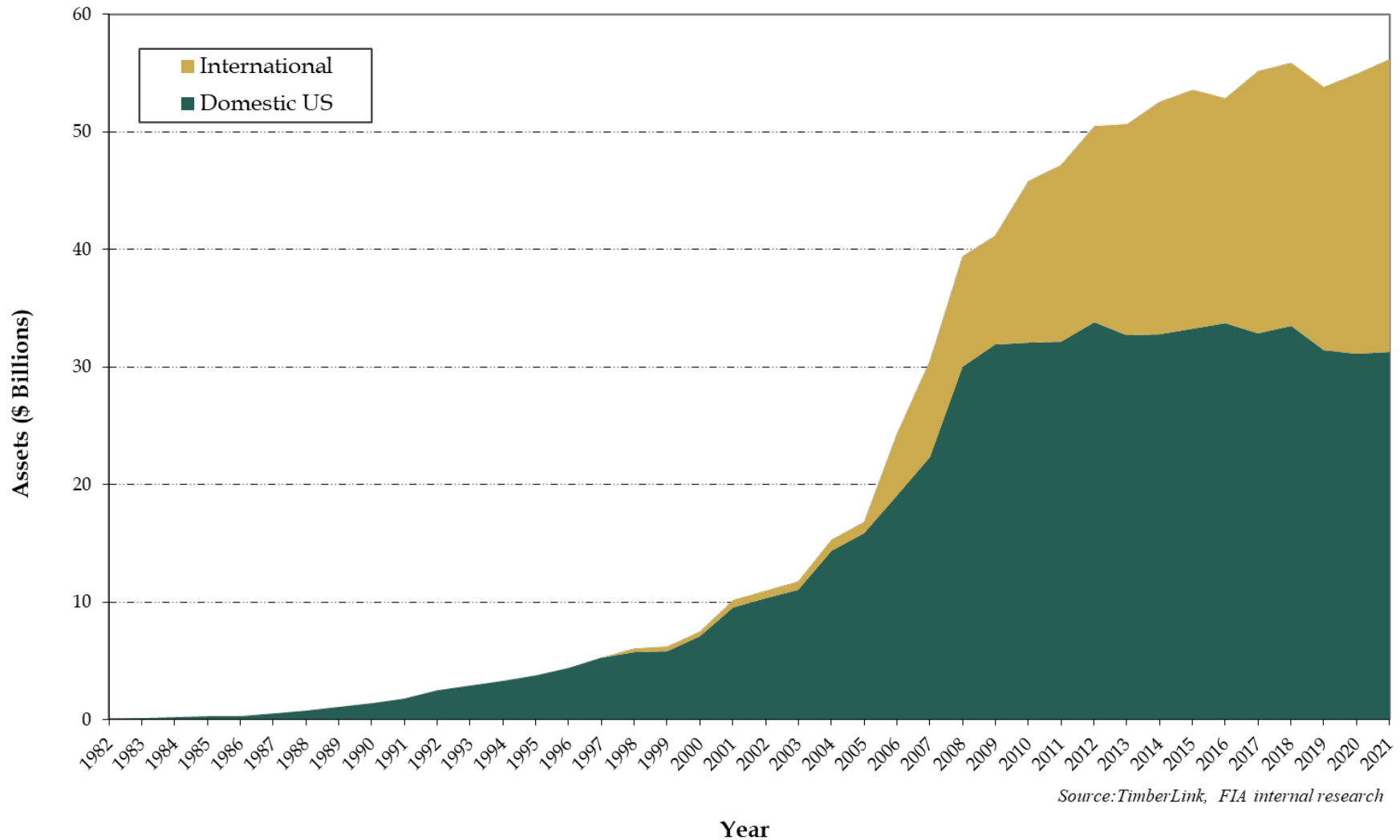


* All correlations are with NCREIF timberland index since 1987 except infrastructure (2003); Inflation data US CPI-U (<http://www.bls.gov/cpi/#tables>)

Growth of the Asset Class

Assets Under Management

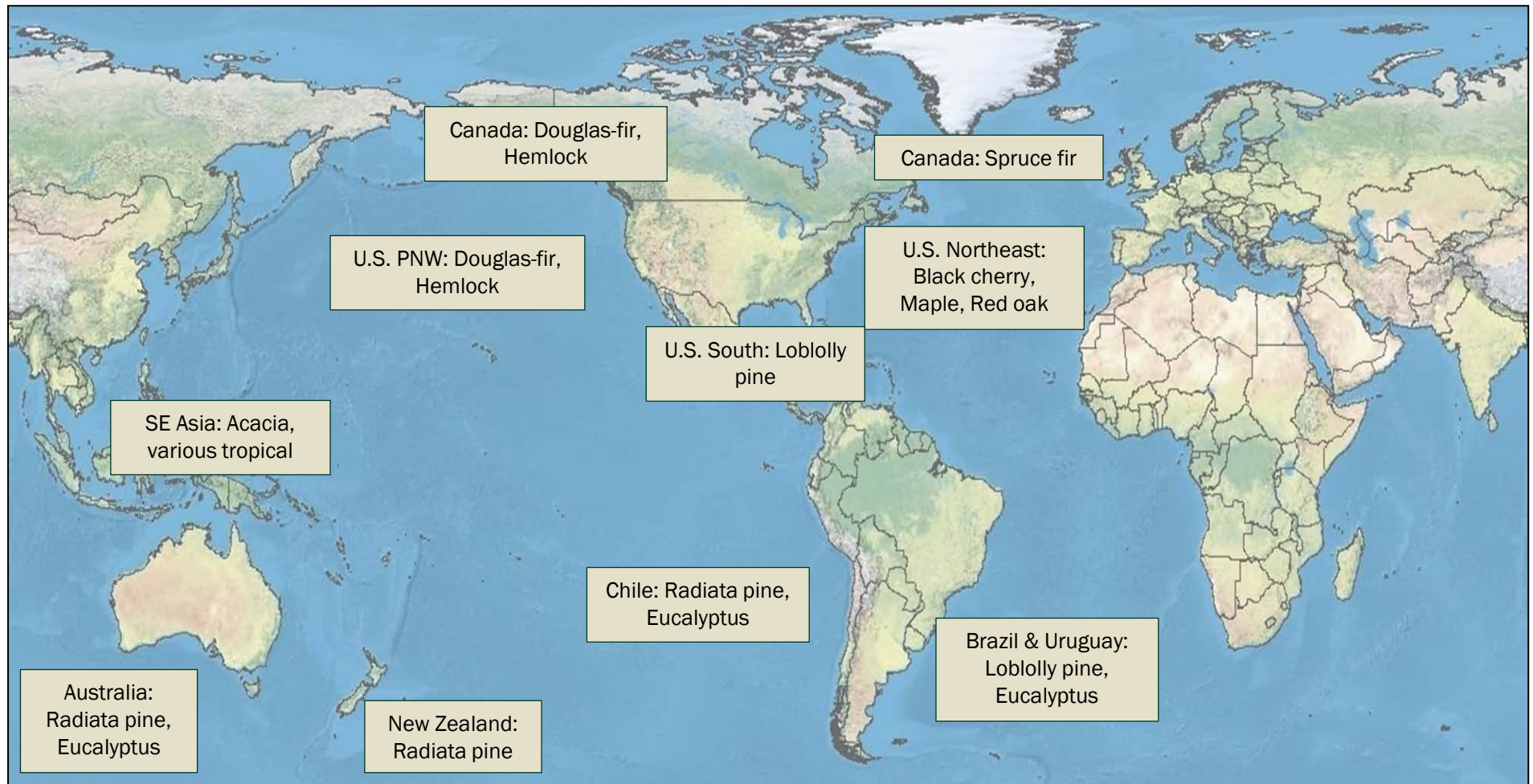
Forestry Assets Under Management
(USD in Billions)



Source: TimberLink, FIA internal research

Global Markets

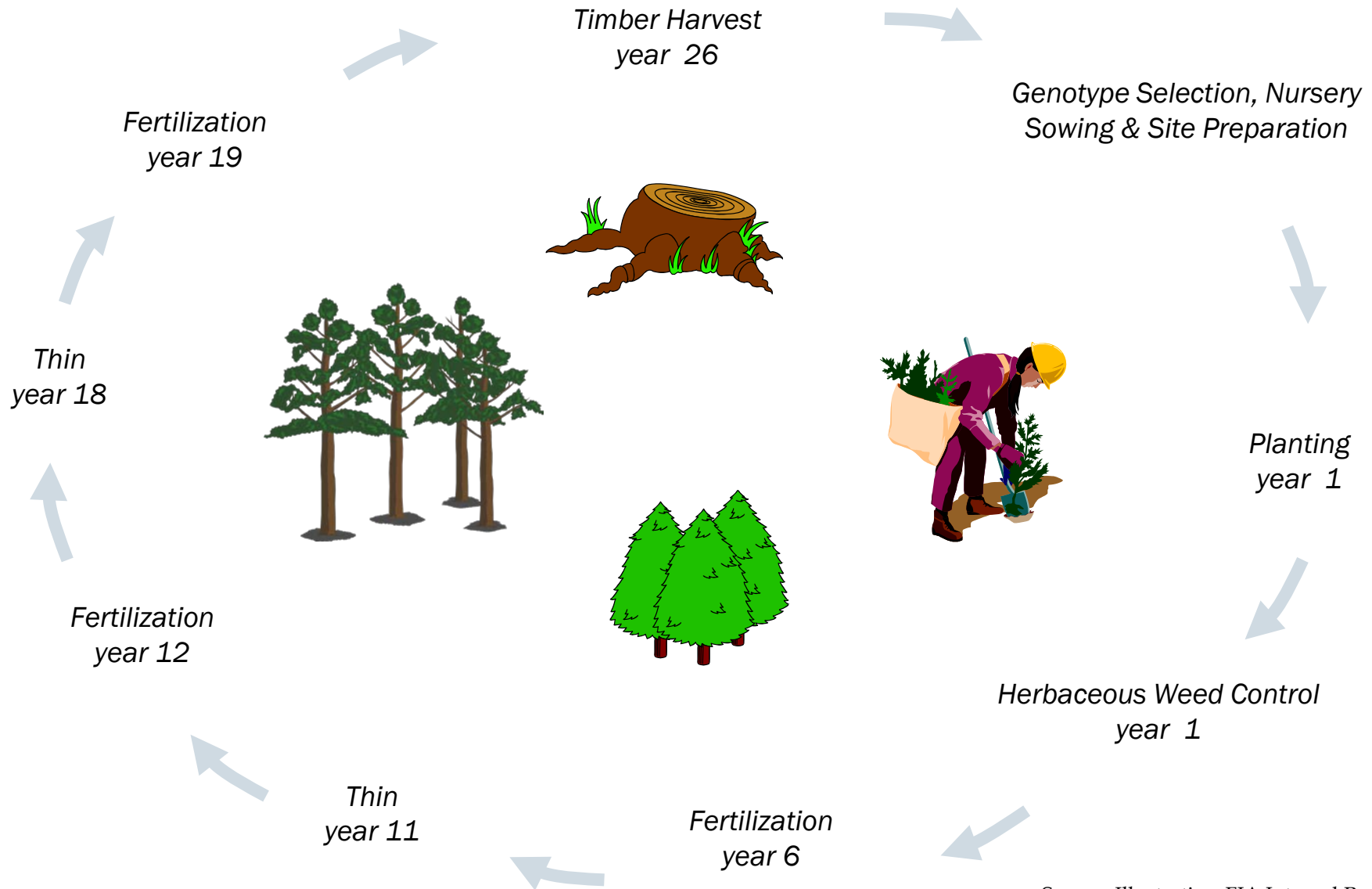
International: Species Diversification



Source: Illustrative, FIA Internal Research

The Basics of Plantation Management

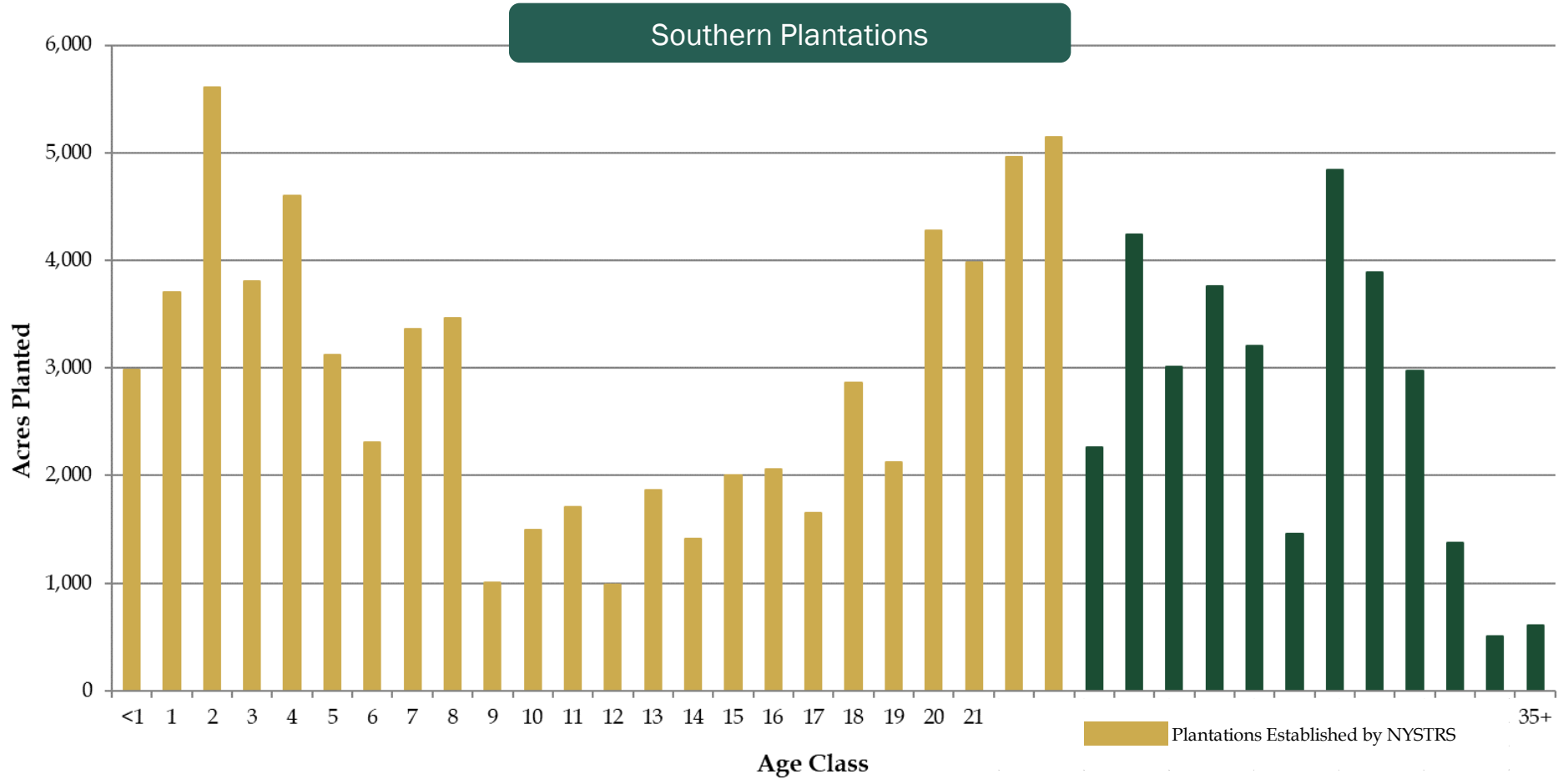
Southern Pine Plantation Regime



Source: Illustrative, FIA Internal Research

NYSTRS

Current Age Class Distribution



Source: FIA Internal Research

Southern Pines

Products and End Use

Product

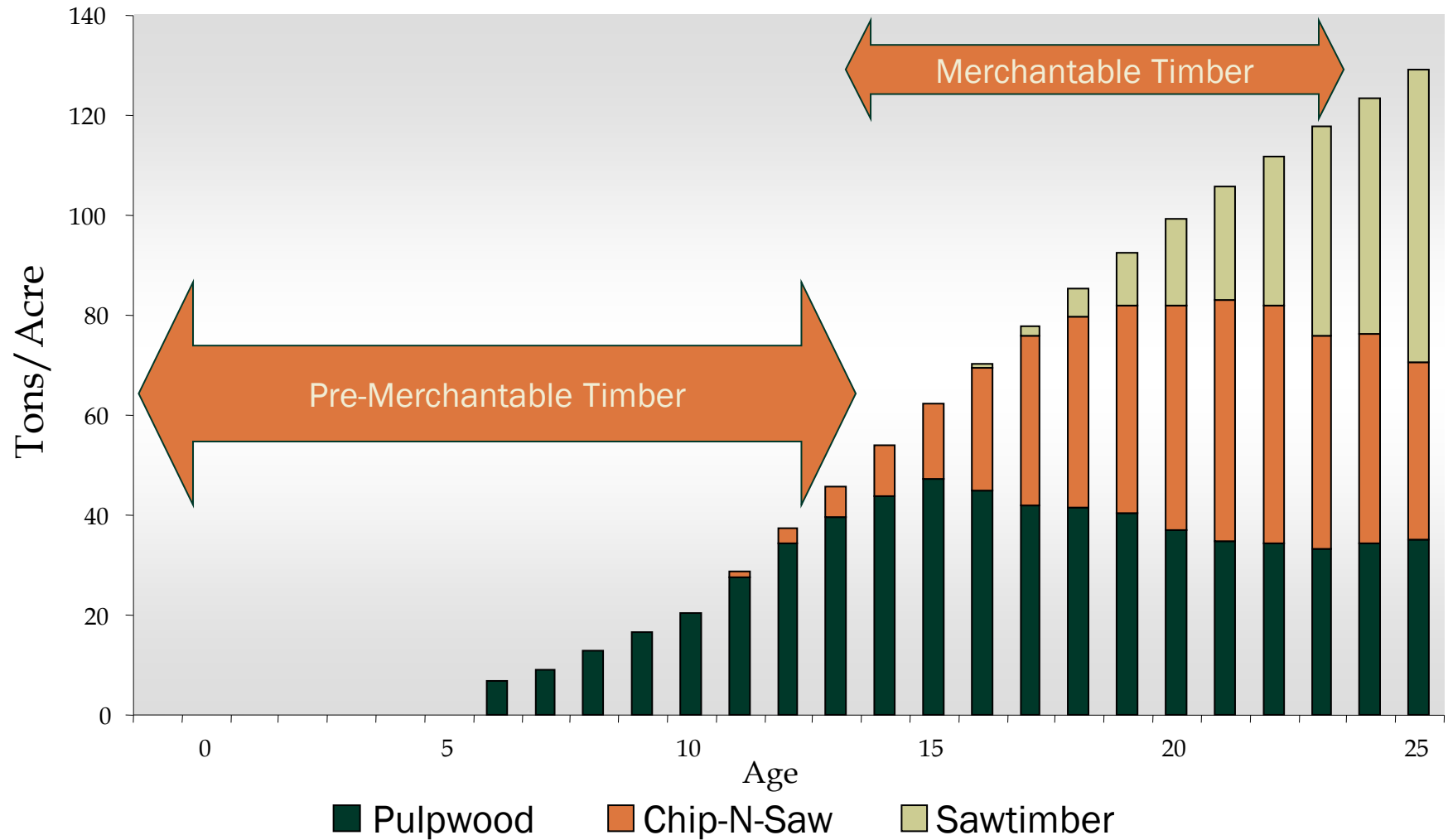
Pulpwood	Minimum DBH = 5"
Value and Age:	Lowest value by weight, youngest trees by similar site index.
End Products:	Oriented Strand Board, particle board, fiber board, paper, containers, packaging, tissue, paper towels, cellulose, biomass, etc.
Chip-N-Saw	Minimum DBH = 9"
Value and Age:	Intermediate value and age between pulpwood and sawtimber
End Products:	2x4 Lumber, chips
Sawtimber	Minimum DBH = 12"
Value and Age:	Highest value by weight, oldest trees by similar site index.
End Products:	Lumber, pallets and poles



Southern Pines

Growth of a Forest Over Time

Illustrative U.S. Southern Pine Plantation: Volume and Products Over Time

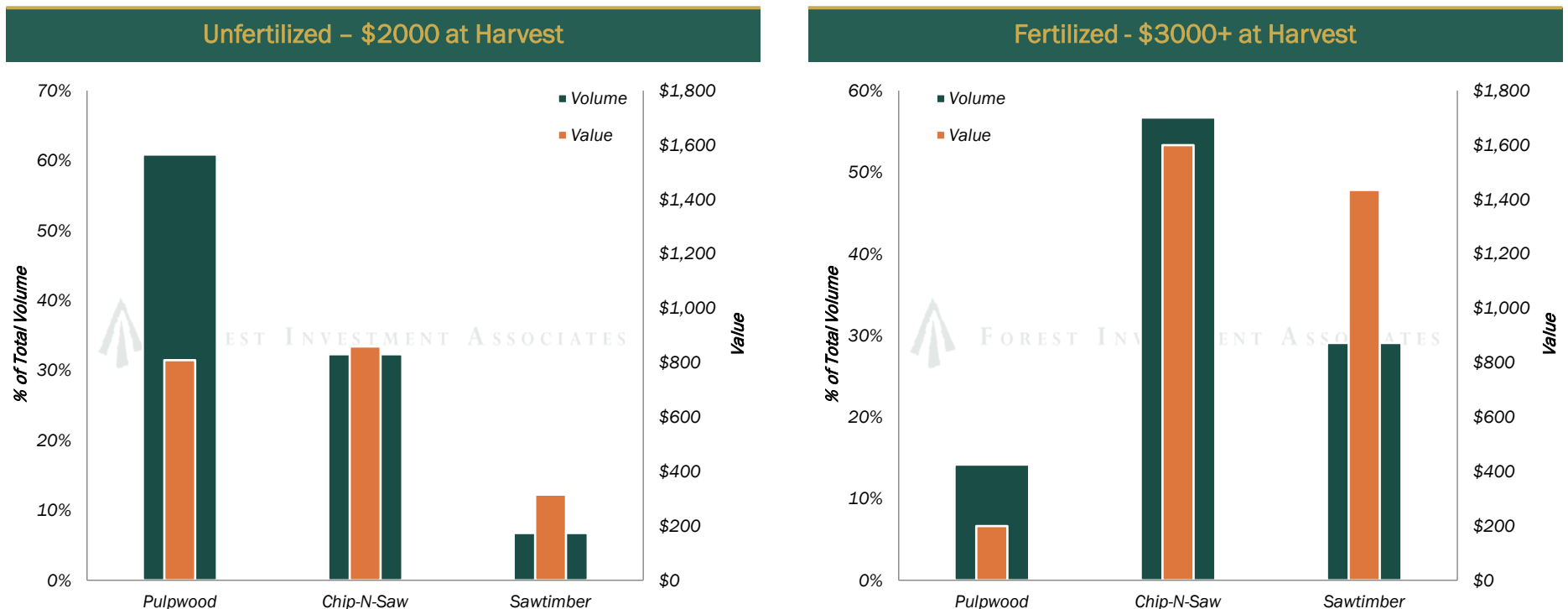


Source: Illustrative, FIA Internal Research

How Foresters Make Decisions About Silviculture

Optimizing Timber Growth Through Active Management

- Managing forestry as an investment requires active and efficient management to maximize returns while mitigating risk
- Case study: fertilized vs. unfertilized plantation
 - 6% more volume at harvest
 - 63% more value at harvest, as volume heavily weighted to higher value products
 - 100bp+ incremental return to total investment



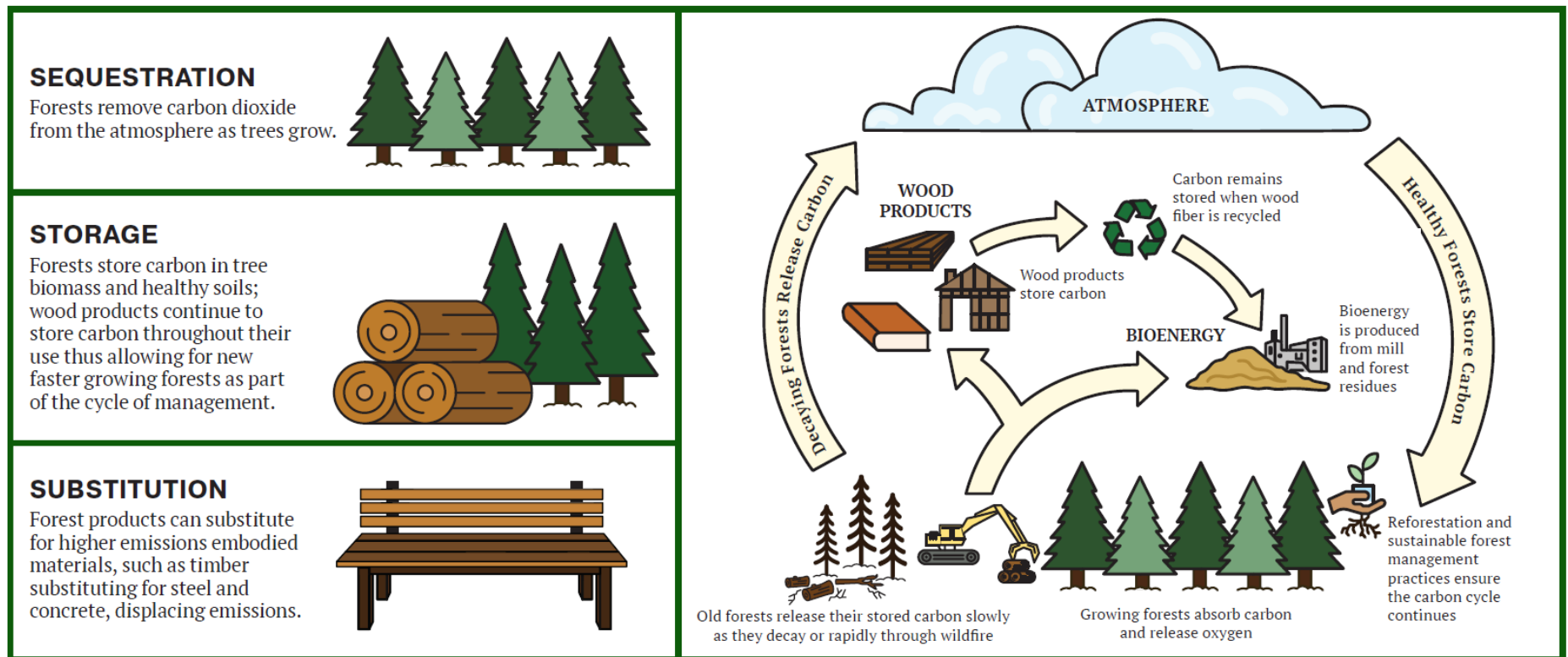
Source: FIA Internal Research

The Climate Impacts of Sustainable Forestry

Mitigation through sequestration, storage and substitution

The forest-carbon cycle is a natural process through which carbon cycles from the atmosphere into forests. Managed, or working, forests enhance this process through the ability to create harvested wood products that continue to store carbon while forests are re-planted in a positive feedback loop that accumulates carbon in forests and wood products.

Responsibly managed forests contribute to climate mitigation and resilience through:



Graphic source: FIA, Washington Forest Products Association.

Stewardship

Clients Want to Consider Their Environmental and Social Impact

Forestry is one of the most sustainable investments

The maintenance of the ecological well-being of forests yields a competitive financial return, making the success of one dependent upon the success of the other.

FIA uses:

- Environmentally sensitive forest management practices
- Silvicultural techniques that enhance timber production while conserving soil, water and wildlife.

Looking at forestry investing through a stewardship lens, a well-managed forestry investment is about actively creating positive outcomes to the environment and society while producing risk-adjusted returns for our clients. To see stewardship and impact investing in real life, a client only needs to visit one of our forestry operations.



Disclaimer

- *The FIA composite performance portrays the composite actual returns realized by all client investments (separate accounts and commingled funds) in timberlands since inception in 1987 through the stated period.*
- *Performance calculations for any accounts requiring co-investments by the investment manager include those General Partner investments. Therefore, an investor's actual net return may be less than the net return stated for the composite.*
- *Performance comparisons portray the composite actual returns for the periods indicated compared to the stated index for the same periods.*
- *The historical performance portrayed should not be considered predictive as past performance is not a guarantee of future results. The results portrayed may not be representative of any individual client's or fund's results and certain clients or funds may have had results materially different than the composite results portrayed. Results portrayed do not reflect the reinvestment of earnings.*
- *Total return is materially affected by timber prices, which in turn are affected by conditions in the housing industry, which affect demand for lumber, and general economic conditions, which affect demand for pulpwood for paper and packaging. Any significant downturn in the housing market or in the general economy, as in the recession beginning in 2008, will negatively affect total return.*
- *Our investment advisory fees are described in our ADV Part 2 on file with the Securities and Exchange Commission. We will provide without charge a copy of our ADV Part 2 upon request.*
- *Timberland is not traded on an exchange or other public market. NCREIF established the NCREIF Timberland Index (NTI) and the NCREIF Timberland Fund and Separate Account Index (NFI) to serve the institutional real estate investment community as a non-partisan collector, processor, and disseminator of timberland performance information and are the most widely recognized and accepted indices that measure cash flow returns and changes in timberland value (appreciation returns) over time. The NFI may also be filtered to present information on commingled funds only. The original intent of the NTI was to serve as a proxy for timberland returns as an asset class. If the NTI is used as a benchmark, it is important to understand that not all of the timberland included in the NTI is actively managed. Moreover, differences in valuation methodology, geography, transaction volume, property composition, calculation methodology, and reporting methods among the various properties and data contributors all have a significant effect on each of the NTI and NFI. An understanding of how these factors influence these indices is a prerequisite to getting the full benefit of comparisons with individual performance results to the NTI or the NFI.*
- *Timberland properties are periodically appraised by independent certified appraisers. Between independent appraisals, the market values for all timberland properties are updated quarterly to account for timber growth, timber harvest removals, land sales and inventory adjustments. In addition, interim market changes are reflected in one of two ways:*
 - *1) For the majority of FIA client accounts, the independent appraiser who performed the most recent comprehensive appraisal performs an appraisal update on an annual basis until a new, comprehensive appraisal is performed, typically every three years. Under this approach, the unit values for merchantable timber, premerchantable timber and land remain constant in the interim quarters until the annual appraisal update is performed.*
 - *2) For the remaining FIA client accounts that continue under FIA's legacy portfolio valuation methodology, merchantable timber unit values are indexed to publicly reported timber prices and adjusted each quarter based on the movements of those publicly reported prices. Premerchantable timber unit values are generally also adjusted quarterly based on an internal valuation system that ties premerchantable timber unit values to current quarter merchantable timber unit values, but alternatively, premerchantable timber unit values may be held at the most recent independent appraised values. Under this approach land unit values are generally held constant at the most recent independent appraised value until the next independent appraisal is performed.*
- *For all periods ended on or prior to December 31, 2003, FIA calculated returns using the NTI methodology; however, beginning on January 1, 2004 FIA changed its method of calculating returns in two respects in connection with moving all of its clients to GAAP format financial reporting: (1) it adopted the "Modified Dietz" method, which accounts for cash flows on the actual date made, in replacement of the "Simple Dietz" method, which assumes that all cash flows occur in the middle of the applicable period; and (2) it used the net asset value of each client's account, which includes cash and other balance sheet items attributable to the client's account, instead of the value of the timberlands on a stand alone basis. The difference in calculation methodology does not have a material effect on the results portrayed.*



NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
10 Corporate Woods Drive Albany, New York

Via WebEx

February 24, 2022

AGENDA

Board Meeting

- Call to Order
- Resolution