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The Evolving Case for Timberland Management:

How Global Demand, Science and Sustainability are Creating New Opportunities for Investors

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Timber has produced attractive investment returns at relatively low levels of volatility over the past quarter-century, and its future demand also looks promising. But the asset class has encountered some headwinds since the U.S. housing crash, causing some investors to wonder whether timber markets have become too efficient with a limited opportunity set. While correlation with other major asset classes was largely negative through the 1960s, 1970s and 1980s, the relationship has shifted at times to mildly positive since the 1990s (see Exhibit 1). Also since the 1990s, investors have seen a recurring pattern of timber bull markets and busts coinciding with and driven by fluctuations in the U.S. housing market.

A compelling case for investing in timberland remains but has evolved for both cyclical and structural reasons. Investors need to be aware of these developments and align themselves with a manager capable of navigating an increasingly complex and global marketplace.

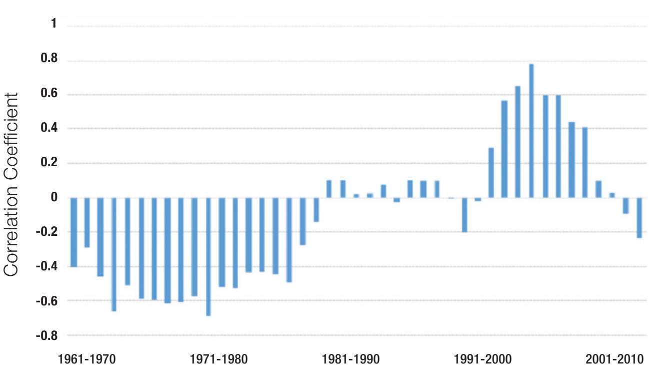
There are many fundamental drivers that point to an especially bright future for timberland investing. While there are no guarantees that past performance will be repeated, emerging markets countries' rapid economic expansion and population growth, plus the long-term build-up of infrastructure is creating strong, long-term global demand for timber. As long-term global demand for timber has grown, however, harvesting trees from native forests has become more challenging, forcing managers to adapt. Increased environmental restrictions on logging, and heightened enforcement of illegally-logged wood, for example, have shifted timberland management's focus to meeting future wood demand through intensively-managed plantations, which in many ways are more similar to agriculture than traditional forest management and harvesting. By one estimate, wood consumption is projected to rise 59% from 2010-2030, which means timberland managers will come under pressure to deliver more wood on fewer acres and at faster rates in the decades to come.[1]

A Changing Environment

Timberland investing is entering a new era and while demand for wood is expected to rise, the opportunities going forward differ from those experienced over the last several decades. Some of the key factors currently changing the face of timberland investments include:

An end to industry restructuring: During the 1980s and 90s, forest products manufacturing companies in North America decided to sell their timberland and buy the trees back from the new owners. This transition in timberland owners created a new opportunity for institutional timberland investment. Initially, timberland was undervalued, because it was illiquid and not well understood. Additionally, operating companies were subject to different tax rules, which made timberland less valuable to them than to financial investors. As this industry restructuring matured, more buyers have taken advantage of the unique qualities of the asset. Consequently, the market has become increasingly competitive and return expectations on domestic timberland investments have moderated.

Exhibit 1: Correlation Between Stocks and U.S. Timberland Over 10-Year Periods (Higher Correlations with Stocks in the 00s')



Source: Timberland Retirn for 1960-1986 John Hancock Timber Index Timberland Return for 1987-2013 NCREIF

Shifting macro environment: The global financial crisis reduced demand for manufactured products of all types, timber included. The U.S.-based NCREIF index, in particular, has been affected by the protracted recovery of the American housing market. However, even as developed markets slow, new markets have opened. Growing populations and a burgeoning middle class in emerging market countries are generating increased demand, even as developed economies moderate. Also, as the need for alternative energy continues to be a global concern, wood pellets and biomass are continuing to be pursued aggressively. This growing demand, coupled with the world's focus on sustainability and better management and protection of our global natural forests, has resulted in the need for improved management of existing timber assets and the development of new sustainable tree farms to meet increasing future demand.

Moderating returns in U.S. markets: Domestic timberland investments have provided lower returns in recent years, as the U.S. market has completed its restructuring and the global financial crisis has reduced domestic demand for timber products. This shift in returns provided by the domestic market can be seen in the benchmark NCREIF Timberland Index, where returns have fallen from an annual average of 15.8% from1987-2003 to 8.5% from 2004-2014 (see Exhibit 2). In addition, the components of returns have shifted, with less coming from cash flow and more from capital appreciation associated with declining capitalization rates.

Investors carving out strategies in international markets have been less exposed to maturing U.S. markets and weakness in U.S. housing and have benefited from greater exposure to emerging market growth.

Higher correlations as housing drives all markets: Correlations of timberland with other investments have largely increased over the last two decades. From the mid-1990s through today, we have seen the pattern of a bull market coinciding with and driven by a housing boom, while the subsequent bust brought increased correlations across seemingly every major asset class.

All these factors have made it more difficult to take advantage of the investment opportunity that timberland offers — and more critical to work with an experienced, forward-looking manager. The market as a whole may be more competitive than in years past, but astute investors can still find compelling opportunities.

Evolving Timber Markets: Global, Flexible and Scientifically-Driven

Evolving global timber markets require a new approach to timber investing and management. First, an expanded geographic reach is necessary to develop a truly globally diversified timber portfolio for institutional capital. Second, scientific research and the application of farm-like management to timber is necessary in order to produce more wood on a limited land-base. And third, identifying and developing a global, regional, and local knowledge base of forest management and markets. Together these three elements are essential to understanding markets—from traditional forest product markets for saw logs to produce lumber and veneer, pulp logs to produce chips for pulp, and paper and panels to renewable energy markets where woody biomass is used for power generation and biofuels—and investing in timberland.

Today's timberland market offers exceptional opportunities for investors who are experienced in and capable of creating and identifying value. With the market evolving, investors must be flexible, and seek out new ways of analyzing, acquiring and managing timber investments. At TIAA-CREF and GreenWood Resources, we have identified five key strategies for enhancing returns in timber investments:

Growing trees for growing markets: Diversification is the key to achieving the best risk-adjusted returns in timber due to the dynamic nature of the global forest products industry. We believe a globally-diversified timber investment portfolio leverages the values of today's core timberland returns with enhanced returns from investments in regions of the world that have the dual tailwinds of a growing wood market and places where there are opportunities to grow trees faster. Today's portfolio construction has largely been influenced by the rationalization of timberland held by North American forest products companies and therefore is overweighted to U.S. domestic softwood assets. Looking at growth in demand for forest products by geography shows the highest

[1] FAOSTAT; FAO (2012).

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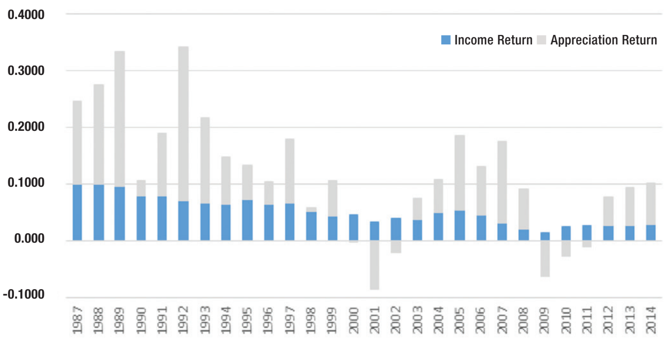
Exhibit 2: NCREIF Timberland Index Returns



Source: NCREIF. It is not possible to invest in an index. Performance for indices does not reflect investment fees or transactions costs.

growth rates in South America, Asia, and Eastern Europe. Expanding investments to regions where growth in timber demand is expected to be higher in the decades to come provides investors the benefit of a more geographically diversified portfolio in terms of risk-adjusted returns and a hedge against the potential for rising inflation. Managers who provide access to both core timberland investments and can identify emerging opportunities in growing markets early, and position their timberland portfolios appropriately, will flourish in the new environment.

Active management and proper alignment with investors: Active management is important for achieving desired long-term returns in timber investments. We believe this involves understanding the regional and local factors influencing day-to-day timber operations, which is best achieved through an integrated management approach and by forging key local partnerships. Investing in these emerging opportunities often involve counterparties that are not just looking for capital but also managers that can provide active professional forest management expertise and key financial and forest management systems to help institutionalize these operations. As many timber investors desire and seek out direct or separate account investment opportunities, working with a manager that can provide an integrated management approach provides a more transparent alignment under these types of engagements. Investing in emerging markets may be more difficult, however, for direct or separate account investors seeking the value of large single transactions. As such, bringing together like-minded investors into new investment entities that balance the need for transparency and a voice in the destiny of the investment program with the ability for the integrated manager to execute is key to achieving proper alignment with investors.

Disciplined investing: The importance of achieving the best price whether for land or standing trees at the beginning of the investment process can't be overstated. This is achieved through global and local knowledge that helps identify opportunistic investments and an underwriting discipline that uses the best available information on key factors affecting the long-term investment returns (i.e. markets, yields, growing costs, etc.). Land prices have generally risen globally, but pockets of opportunity remain for disciplined investors to source land under attractive arrangements for greenfield-developments (purchasing land and planting new timberland). This is especially true in emerging market regions where capital and technology are scarce. Similarly, there are attractive opportunities to invest in existing forestry assets where we see growing wood markets and the ability to grow trees better through deploying improved plant material, silvicultural management, and harvest optimization strategies.

Create value by enhancing tree growth rates and productivity: Biological growth provides a unique opportunity for reliable asset appreciation. Cutting-edge forestry management can increase yields by 1% to 3% per year, potentially creating 150 to 450 basis points of incremental gain for investors. Managers with a strong understanding and commitment to research and development for deploying the best available plant material and silvicultural management techniques have the best opportunity to maximize growth rates and yields.

Protect assets through sustainable land management:

Environmental stewardship has become a key component of forestland management, as governments all over the world seek higher standards of protection for natural resources. Sustainable practices can enhance performance over time by conserving key assets like land, water, trees and energy, and ensure that timberland remains productive and profitable for generations. In addition, sometimes there are opportunities to monetize these environmental assets if they have been well managed.

Conclusion: Growing Global Demand Requires Specialized Approaches to Timber Management

The historical case for timberland investment has evolved and timberland investors should carefully consider their manager's strategy to determine whether or not they are poised to capture future growth in forest products markets. Demand for wood is growing globally and is forecast to expand at a higher rate in emerging market countries than in developed economies. This growing demand will be in both traditional forest products markets (lumber, veneer, wood-based panels, pulp & paper, etc) and in emergent bioenergy markets. Timberland managers have historically focused on growing softwood trees in the U.S., such as Douglas-fir on the west coast and Loblolly pine in the south to supply the residential construction market, which is where they have earned most of their income and returns since inception. But the U.S. housing market crash in 2007-2008—along with growing global demand for different types of wood—has demonstrated that timberland managers and their investors need improved diversification within timber portfolios to recapture the primary benefits of the asset class: income, high returns and low correlations.

Timberland Investing at TIAA-CREF

TIAA-CREF and its timberland manager GreenWood Resources develop investment strategies focused on key attributes needed to be successful in this changing timber investing world. We believe focusing on a globally-diversified approach for timberland investors and developing and maintaining professionals who can provide integrated management of these investments are keys for long-term success. We also see a world where resources are constrained and improved management techniques in growing trees better through improved plant material and silvicultural techniques will allow us to grow more wood on less land to help meet this growing global wood demand.

About GreenWood

GreenWood Resources (GWR), a majority-owned affiliate of TIAA, is one of the nation's leading timberland investment organizations. GWR specializes in the development and management of investment opportunities in globally- diversified portfolios of intensively-managed forestry assets for investors. Recognized worldwide for its scientific leadership in forest genetics and forest management strategies, GWR focuses on growing trees, growing trees better and growing trees for growing markets. In addition, TIAA-CREF has been investing in timberland since 1998, building a strong track record for performance and risk management. GWR and TIAA's timberland group also draws on the organization's robust capabilities in real assets, with expertise in specialized investments like agricultural land, infrastructure and energy.

Together, TIAA and GWR own or manage timber investments totaling approximately $1.8 billion, with investments covering 840,000 acres around the world in North America, Latin America, South America, Central Europe, Asia and Oceania. The combination of TIAA and GWR's experience and scale provides investors with a well-defined strategy for capitalizing on opportunities in the timber asset class, extensive market knowledge, local access through global operations, access to diverse opportunities, and institutional asset management approach that focuses on sustainability and transparency. ■

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