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ESTIMATING THE GLOBAL MARKET SIZE OF INVESTABLE TIMBERLAND

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Introduction

What is the global market size of institutional investable timberland? The answer is more elusive than it may appear. The first issue is dividing timberland between what is investable and what is not. Not all privately owned forestland offer growth rates sufficient to meet basic investment criteria. Other timberland may lack access to markets to sell the timber after it is harvested. Moreover, some markets are restricted from private investment altogether due to excessive government restrictions or poor enforcement of property rights. Compounding the difficulty is the issue of heterogeneity of the asset class. Each timber property is unique in its makeup of species, productivity, land value and product mix.

As a result, estimates of the size of the timberland investment universe are few. Those few estimates that do exist can differ widely. On the high end, Professor Michael Clutter of the University of Georgia estimated in 2004 the investable timberland size to be US\$400 billion.¹ On the other end of the scale, Reid Carter of Brookfield Asset Management more recently reported a value of US\$120 billion.² The spread between Clutter's and Carter's estimates is an amazing US\$280 billion.

Presently, analysts believe that roughly US\$35-\$40 billion of timberland investments exist through direct holdings or private equity vehicles.³ The purpose of this analysis is to provide a reasoned component-based estimate of the current size of the global investable timberland market from the perspective of an institutional investor. Estimating the size is relevant because it gives investors a perspective on the size and depth of individual markets as well as insight into the opportunity that remains for additional investor capital entering the asset class.

¹ Mike Clutter and David Newman. *Advanced Forest Finance* course materials, April 7-8, 2004, University of Georgia, Athens, Georgia.

² Reid Carter. *Who Will Own the Forest?* conference proceedings p. 286. Sept. 8-10, 2008. World Forestry Center, Portland, Oregon.

³ Latter, Gordan *et al.* "Timber Survey: What Will Institutional Investors Do Next?" Sept. 5, 2007. Merrill Lynch.



Methodology

Estimating the investable timberland universe begins by defining the market. For purposes of this analysis, we will recognize three types of markets: (1) the established market; (2) the broad market; and the (3) potential market. Here is how we define them:

The **Established Market** is composed of regions that have shown a history of *proven* institutional timberland investments. A *proven* investment is an investment that has completed a full life-cycle from inception to closure and has generated positive returns for the investor.

The **Broad Market** expands beyond the Established Market and includes regions where early stage timberland investments have been made, but these investments have yet to show *proven* returns at this stage. These regions can be considered emerging markets where no investments have gone through a cradle-to-grave lifespan with realized positive returns.

The **Potential Market** goes beyond the broad market and adds countries and regions where investors or timberland investment management organizations (i.e., TIMOs) are showing serious interest and investigation for investment, but where no capital placement by a *prudent* institutional investor has yet been made. By *prudent*, we mean an investor who will rationally execute a portfolio investment strategy reflecting an acceptable risk-to-return profile comparable to its peer group.

This paper will focus primarily on the *Established Market* and the *Broad Market* for timberland investments, where estimates are more reliably gauged. At the conclusion of this discussion, the *Potential Market*, representing countries that presently have a high level of investor interest and that have the potential in the future to be added to the timberland investment universe, will be explored.

Calculating the size of the investable timberland market is a four step process:

1. Identify countries that qualify.
2. Estimate the timberland area in the identified country that can be effectively acquired and managed as an investment property.



3. Estimate the average price for acquiring investment grade timberland in the selected country.
4. Multiply land by price to create an estimate of value of investable timberland in that region. These are summed together for all chosen countries to generate a total market value.

Size of Established Market for Investable Timberland

There are seven countries that have an established track record of significant investments with positive returns for institutional investors of timberland. They are:

- Australia
- Brazil
- Canada
- Chile
- New Zealand
- United States
- Uruguay

These seven regions form the *Established Market* for timberland investment. The table below estimates the total size of this market based on area and land value of investment-grade timberland in each of the seven selected countries:



Country	Available Timberland (x1,000 hectares)	x	Price (\$/hectare)	=	Value (Billion USD)
Australia <i>Total forest plantation area</i>	1,800	x	\$3,900	=	\$7.02
Brazil <i>Eucalyptus and softwood plantations</i>	5,700	x	\$2,600	=	\$14.82
Canada <i>Timberland owned by forest product companies and TIMOs</i>	2,739	x	\$950	=	\$2.60
Chile <i>Total forest plantation area</i>	1,990	x	\$2,400	=	\$4.78
New Zealand <i>Planted radiata and Douglas fir</i>	1,800	x	\$1,850	=	\$3.33
Uruguay <i>Total forest plantation area</i>	630	x	\$1,900	=	\$1.20
Total Ex-US					\$33.75 Billion
US North*	21,145	x	\$1,947	=	\$41.17
US South*	35,233	x	\$3,623	=	\$127.65
US West*	8,340	x	\$5,135	=	\$42.83
<i>*All timberland classified by the U.S. Forest Service as Private Corporate and 1/4 of timberland classified as Private Non-Corporate. Roughly 1/4 of all private, individually held timberland is of sufficient size (>5,000 acres or >2,000 hectares) to be acquired as an investment property</i>					
Total US					\$211.65 Billion
TOTAL					\$245.40 Billion

Notes:

- Average timberland prices for the United States regions are based on the average transaction price of timberland from the Resource Information Systems International (RISI) U.S. Timberland Sales Database between 2006 and 2008 Q2.
- Representative timberland prices for countries excluding the U.S. are taken from the RISI Global Tree Farm Study of 2007.



Size of Broad Market for Investable Timberland

The *Broad Market* includes several additional countries beyond our defined *Established Market* where initial investments in timberland have been made in recent years by institutional investors. However, these investments are still in progress and have not been completed with positive returns. Consider these countries the pioneer or emerging markets for timberland. Based on available market intelligence at the time of writing, they comprise the following 11 countries:

- Argentina
- China
- Latvia
- Mozambique
- South Africa
- Indonesia
- Ireland
- France
- Sweden
- Estonia
- Serbia

The table below estimates the total size of the *Broad Market*, which includes the *Established Market* along with the emerging markets of investment-grade timberland in each of the 11 selected countries above:



Country	Available Timberland (x1,000 hectares)	x	Price (\$/hectare)	=	Value (Billion USD)
Argentina <i>Pine and eucalyptus plantations</i>	1,175	x	\$1,600	=	\$1.88
China <i>Plantations existing and planned (by 2010) by forest product companies, foreign companies and TIMOs. No government plantings.</i>	4,978	x	\$434	=	\$2.16
					<i>For prepaid long-term lease (no fee ownership)</i>
Estonia <i>Ownerships above 1,000 ha (corporate and private)</i>	74	x	\$800	=	\$0.06
France <i>Total planted forestland that is privately owned and above 100 ha in parcel size</i>	2,663	x	\$2,500	=	\$6.66
					<i>Assumed a price similar to Spain</i>
Indonesia <i>Total plantations reported by the FAO</i>	3,400	x	\$400	=	\$1.36
Ireland <i>Total area of privately held forestland</i>	301	x	\$8,900	=	\$2.68
Latvia <i>Large majority of private individual ownership is small plots, with the average holding size of 12 ha. We chose only industrial owners, which constitute only 6% of Latvia's 2.9 million ha of forestland.</i>	174	x	\$732	=	\$0.13
Mozambique <i>Much of Mozambique timberland investment opportunity lies in afforestation (creation of new timberland). We used estimates of a 2006 report by the Savcor Forest Group for areas where large scale tree farm developments can occur.</i>	7,000	x	\$200	=	\$1.40
Serbia <i>Most of the forests are held in small plots, with an average size of 1.2 hectares. We used an estimate of forestland planted and managed for timber production (i.e., tree farm).</i>	38	x	\$280	=	\$0.01
South Africa <i>Total plantation area of softwood and hardwoods</i>	1,333	x	\$400	=	\$0.53
Sweden <i>Forests under private, corporate/industrial ownership</i>	6,750	x	\$4,100	=	\$27.68
TOTAL EMERGING MARKET					\$44.55 Billion
TOTAL BROAD MARKET (ESTABLISHED AND EMERGING MARKETS)					\$289.95 Billion



Potential Market for Investable Timberland

At the time of writing, countries that TIMOs and institutional investors have researched as places to invest include Columbia, Costa Rica, Malaysia, Romania, and Russia. There are likely more in Africa, Latin America, Europe and Southeast Asia that have been given serious consideration. We can consider this the *Potential Market for Investable Timberland*.

In the coming years, the size of the timberland asset class will likely grow as investors seek fresh new opportunities in other countries. However, in some cases political, regulatory, and economic reforms must be adopted before a new region is considered by a prudent institutional investor to be a viable candidate for timberland investment. For example, many countries with highly productive lands that can support forest plantations lack sufficient enforcement of property rights to allow a private investor to manage the land and timber to its highest economic use. Other countries may lack sufficient infrastructure or forestry support services to efficiently grow, harvest and sell the timber.

In the context of these restraints, many emerging countries recognize the need for reform of their financial, legal and regulatory systems, and the need for sufficient infrastructure to make the country more attractive for foreign investment. Globalization will, in all likelihood, expand the timberland asset class, not reduce it.

Conclusions

Based on this analysis, the size of the investable timberland universe is currently estimated to be roughly \$250 billion for an investor who seeks proven, established markets. For the more aggressive or more risk-tolerant investor who is willing to invest greater resources in due diligence and legwork to uncover opportunities, the universe expands to closer to \$300 billion. That universe could be even larger should one be prepared to invest in markets where no previous institutional investor has yet ventured.

Among the different investment regions, the United States takes the lion share of the investment universe, with 86% of the established, investable timberland market, representing approximately \$210 billion.

Presently, total institutional investments in timberland probably fall around US\$35-40 billion globally. That



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suggests that institutional capital has captured no more than 16% of the investable universe. From this perspective, timberland is still considered a young and emerging asset class. There exists significant opportunities for new investments before timberland becomes a mature, fully subscribed asset.



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