SEWALL
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FORESTRY & NATURAL RESOURCES CONSULTING LLC

February 21, 2020

The Board of Directors
Stichting Administratie- en Trustkantoor Tectona
Bussummergrindweg 1 H, 1406 NZ Bussum

RE: SATT Fund Teak Appraisal

Dear Sirs:

We are pleased to submit this appraisal of the Stichting Administratie - en Trustkantoor Tectona (SATT) teak interests in Brazil. SATT owns the timber rights to existing teak stands located in 21 teak farms scattered across Mato Grosso State, Brazil. The interest totals 15,628 productive hectares.

The purpose of this appraisal is to provide an independent opinion of market value for the SATT interest in the overall project. SATT is our client and SATT and its investors are the sole intended users of this report. We understand SATT will use this appraisal for asset tracking and financial reporting purposes.

Based on our inspection of the property, and our investigation and analysis of market data, the market value of the SATT interest, as of June 30, 2019 is:

***** USD SEVENTY-ONE MILLION SIX HUNDRED THOUSAND *****
***** $71,600,000 *****
($4,581 per net plantable hectare)
Market Value Range: $63.5 to $80.0 Million

Overall value is down 15% from 2018. Reasons for the change are mixed. Overall area is down 5% as a result of harvesting, while overall inventory is up as a result of growth. Changes to cost assumptions and lower stumpage price assumptions are the primary reasons for the decrease.

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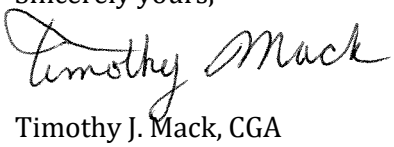
Mount Pleasant, SC 29466
843 606 1022

This appraisal is documented in a USPAP appraisal report format with all prices and values stated in United States Dollars (USD), unless otherwise noted. The following report presents assumptions and limiting conditions, pertinent facts about the market and the subject property, and the reasoning leading to my conclusions. It conforms to the *Uniform Standards of Professional Appraisal Practice* (USPAP), the Appraisal Institute's Code of Professional Ethics and Standards of Professional Appraisal Practice. The signed Certification of Value is attached as Appendix A.

Sincerely yours,



Timothy J. Mack, CGA
Timberland Appraiser
Sewall Forestry & Natural Resources Consulting

EXECUTIVE SUMMARY

SUBJECT PROPERTY

The subject is located in two areas, one clustered north of Cuiabá in the Jangada region of Mato Grosso and another around the small city of Cáceres in the Cáceres region. The property is highly parcelized, totaling 15,628 hectares.

EFFECTIVE DATE OF APPRAISAL

June 30, 2019

PURPOSE & INTENDED USE OF APPRAISAL

The purpose of the appraisal is to develop an opinion of market value for the SATT interest in teak timber rights.

CLIENT AND INTENDED USERS

SATT is our client and SATT and their investors are the sole intended users of this appraisal. The intended use of the report is to estimate market value for tracking of asset performance and financial reporting.

HIGHEST AND BEST USE

Highest and best use is commercial timber production.

PROPERTY RIGHTS APPRAISED

Property rights appraised are the SATT interest in the rights to the existing teak crop located across the 21 farms.

VALUE CONCLUSION (USD)

Income Approach:	$71,600,000
Final Value Conclusion:	$71,600,000
Value per Plantable Hectare:	$4,581

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ASSUMPTIONS AND LIMITING CONDITIONS

1. Unless specified otherwise, this appraisal assumes that the subject properties are free of liens and encumbrances, in responsible ownership, and under competent management, with free and clear title. The appraiser assumes no responsibility for matters legal in nature, and infers no opinion of title.
2. The appraiser has taken legal descriptions and dimensions from sources thought to be authoritative, but neither assumes nor suggests responsibility for either. The appraiser has not surveyed the properties. Maps, drawings and pictures presented in this report are intended merely to assist the reader.
3. This report may not be used by any party other than the *client* and *intended users*, as so identified in this report, without the prior written consent of the appraiser. No portion of this report or addendum material may be photocopied and/or distributed to a third party without the prior written consent of the appraiser.
4. Possession of all or any part of this report, or a copy thereof, does not confer the right of publication. Neither all nor any part of this report may be conveyed to the public through advertising, public relations, news releases, sales brochures, or other media without the written consent and approval of the appraiser. Nor shall the appraiser, firm, or professional organization of which the appraiser is a member be identified without prior written consent of the appraiser.
5. This report may not be used for any purpose other than the purpose for which it was prepared. Its use is restricted to consideration of its entire contents.
6. The preparation of this report shall not obligate the appraiser to testify or appear in court unless prior arrangements have been made with the appraiser.
7. In the event that this valuation relates to a portion of real estate that is part of a larger interest in real estate:
    a) The value reported is for only such real estate as outlined and should not be construed as applying with equal validity to other portions of a larger portion or interest;
    b) The sum of values estimated for individual portions of real property may not equal the value of the entire property considered in its entirety.
8. Unless specified otherwise, the appraiser has not considered the existence of potentially hazardous material on the property used in the construction or maintenance of improvements, if any, or the existence of toxic wastes. The appraiser is not qualified to detect such substances. It is assumed that the property is free of hazardous waste as that term is defined under both federal and state statutes. The appraiser has not been provided with an environmental study, nor has the appraiser undertaken any environmental study. The reader is urged to consult experts in this field if appropriate.
9. The appraiser has not undertaken a soils analysis in conjunction with this study.
10. It is customary for clients to make available to the appraiser certain data that are relevant to the market value of the subject property. In cases where the income capitalization approach is applied, these data would include income and expense data for the past three years or more. Standards Rule 1-4 of the *Uniform Standards of Professional Appraisal Practice* states: "In developing a real property appraisal, an appraiser must collect, verify, and analyze…such comparable rental data as are available to estimate the market rental of the property; [and] such comparable operating expense data as are available to estimate the operating expenses of the property." Floresteca SA

(FSA) provided terms of the investment arrangement with SATT, but did not provide detailed revenue and cost information data for the property. Sewall's income and expense projections are based upon timber projections as supplied by FSA, as well as the terms of the investment, as described by FSA.

11. USPAP requires appraisers to report sales of the subject property within the past three years, and to analyze these sales in relation to current market value. SATT report no sales or additions to the property over the last three years.
12. The Uniform Standards of Appraisal Practice (2018-2019 ed.) defines an **extraordinary assumption** as "an assignment-specific assumption as of the effective date regarding uncertain information used in the analysis which, if found to be false, could alter the appraiser's opinions or conclusions." We treat the following items as extraordinary assumptions for this appraisal:
    a) The area and GIS information are extraordinarily assumed to be accurate.
    b) The estimate of future growth rates provided for the property.
    c) Estimates of current inventory.
13. The effective date for which this appraisal is valid is June 30, 2019. Accordingly, our estimates reflect our perception of what a prudent investor would expect to pay for the subject property on that date.
14. This appraisal is documented as an appraisal report as set forth in USPAP Standard 2.
15. The appraiser is not liable for any consequential or special damages arising from any error in the conduct or presentation of the appraisal. Any liability on the part of the appraiser or appraiser's firm is limited to the amount of fees actually collected for work conducted by the appraiser or appraiser's firm in connection with the appraisal.
16. All values unless otherwise noted are expressed in terms of United States dollars. And unless otherwise noted, all prices were converted at the following rate of 1.000 USD = 3.830 BRL. We make the extraordinary assumption that this rate will be materially similar as of our effective date of June 30, 2019.
17. Acceptance of this report is subject to the understanding that Sewall's client indemnifies Sewall against any costs that Sewall incurs outside the scope of the assignment for which Sewall has been engaged. Such costs include labor and direct costs arising from: (a) extended discussions of our work product, provided these discussions do not arise from substandard performance by Sewall or by some other circumstance caused directly by Sewall, and provided these discussions could not have reasonably been anticipated by Sewall under the terms of our engagement; (b) requests for information, to the extent that such requests lie outside the scope of what would reasonably be expected of Sewall in performing the assignment; (c) re-work or additional analysis that lies beyond the scope of what would reasonably be expected of Sewall in performing the assignment; (d) compliance with audits of Sewall's client or any party or intended user connected with the client or the property that is the subject of this assignment, and regardless of whether such audit is conducted by the client, a representative of the client, or some external party such as the Securities and Exchange Commission, and where compliance includes demands for information and/or testimony; and, (e) other unanticipated matters related to the original assignment. Should such costs arise, Sewall reserves the right to charge reasonable fees for labor (hourly or daily rates) and direct expenses, and to expect payment within 30 days of invoicing.

1. INTRODUCTION

The subject of this appraisal is a teak timber interest held by the Stichting Administratie - en Trustkantoor Tectona (SATT).

PROPERTY IDENTIFICATION AND HISTORY

SATT owns an interest in a teak investment project initiated by the Floresteca S.A. (FSA), in the mid-1990s. The overall project is estimated to total 15,628 hectares,[1] as of the June 30, 2019, the effective date of appraisal. The interest is in 21 teak farms scattered across Mato Grosso State, Brazil (Figure 1.1).

FSA initiated the investment in the mid-1990s with numerous investment groups. Investors were sold interests in the rights to a single rotation of teak. The underlying land is owned by a combination of owners, including FSA. The investors own the rights to the timber up until final harvest, at which time full control of the land reverts to the underlying landowners. FSA was responsible for establishing the farms and continues to manage them on behalf of the various owners, based on arrangements spelled out in the investment agreement described to Sewall.

[1] There is ongoing harvesting on the property. The total area estimate is based on TRC estimates of harvesting to be complete as of the effective date.

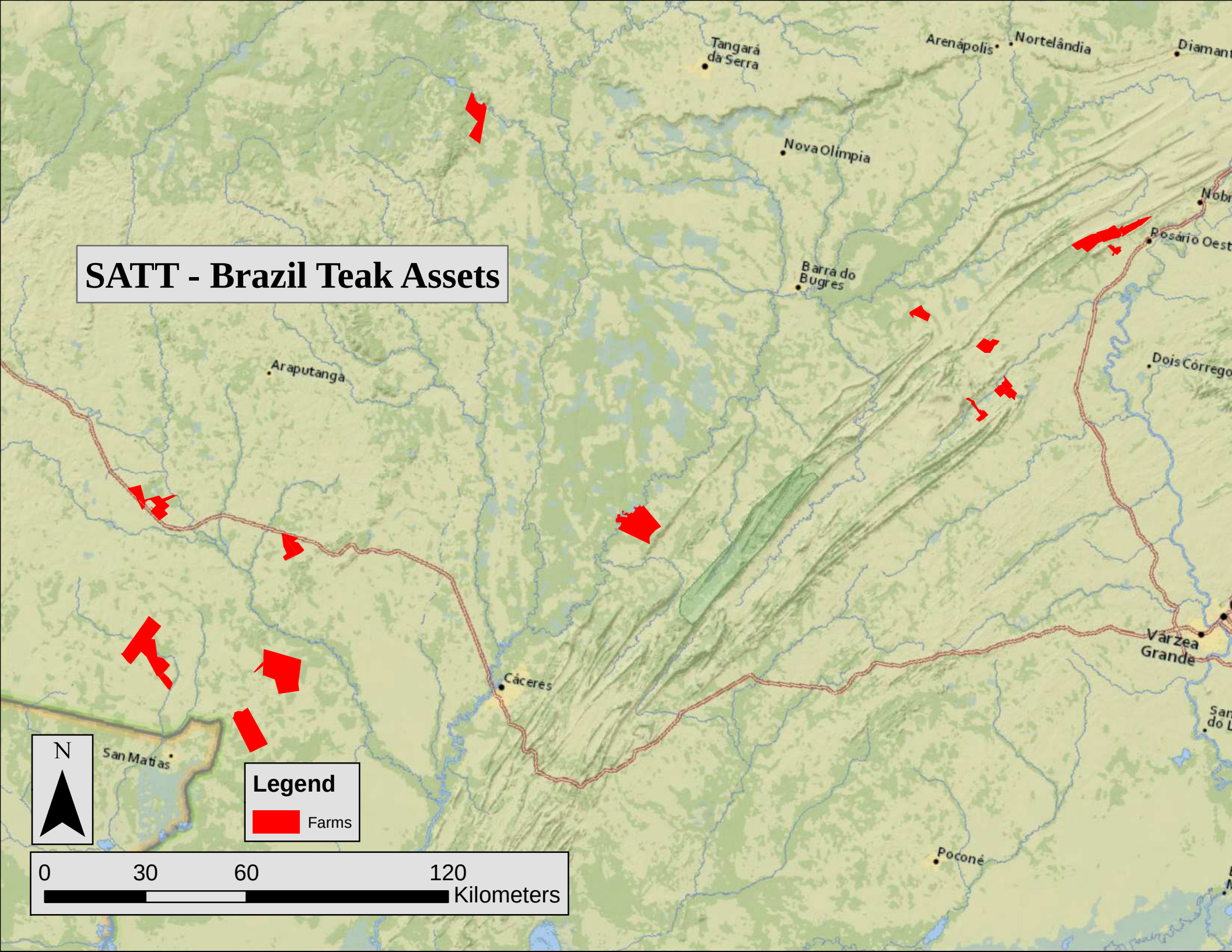

SATT - Brazil Teak Assets
Tangará da Serra
Arenápolis
Nortelândia
Nova Olímpia
Barra do Bugres
Rosário Oeste
Araputanga
Dois Córregos
Cáceres
Várzea Grande
San Matías
Poconé
N
Legend
Farms
0
30
60
120
Kilometers

Table 1.1. SATT Interests by Farm

Region	Farm	Planting Year	As of 6/30/2019 Total Planted Area
Cáceres	Bambu	1999	549.07
		2000	513.83
	Barranquinho	2002	970.20
		2003	12.95
		2004	1,021.00
	Cacimba	2002	571.03
		2003	10.19
	Duas Lagoas	2000	1,527.51
		2001	1,764.34
		2002	48.41
		2005	207.67
		2006	233.88
	Mutum	2007	539.18
	Sao Jose	2007	301.30
	Sao Miguel	2001	97.52
		2002	5.71
	Santa Maria do Jaru	2002	1,085.18
		2003	207.87
	Santa Maria do Jaru II	2008	99.87
	Santa Fe	2003	2,562.71
Jangada	Araras	1999	98.88
	Bocaina	1998	180.46
		1999	108.18
	Cassange	1999	88.49
	Sao Judas Tadeu	1998	26.76
	Capim Branco	1999	507.87
	Sao Jose da Canastra	1998	44.62
	Paiolandia	1997	297.92
		1998	93.95
	Paraiso	1997	555.05
	Serra das Araras	1999	105.01
	Vale Dourado	1999	48.59
Salto do Céu	Terra Santa	2004	1,143.17
Total:			**15,628.37**

Source: TRC

PROPERTY RIGHTS APPRAISED

Property rights appraised are the SATT interest in the rights to the existing teak crop located across the 21 farms, as described in Table 1.1.

PURPOSE OF THE APPRAISAL

The purpose of the appraisal is to develop an opinion of market value for the SATT interest in the teak timber rights described above.

CLIENT, INTENDED USER AND INTENDED USE

SATT is our client and SATT and their investors are the sole intended users of this appraisal. The intended use of the report is to estimate market value for tracking of asset performance and financial reporting.

IMPORTANT DATES

Tim Mack of Sewall inspected the subject on July 16 to 19, 2019. Mr. Mack was accompanied by Cassiano Sasaki of TRC, FSA's contracted manager. The effective date of appraisal is June 30, 2019. Sewall completed the analysis on December 3, 2019 and the report on February 21, 2020.

SCOPE OF WORK

For this appraisal, Sewall conducted the following tasks:

- Reviewed and analyzed data and materials provided by SATT and FSA;
- Interviewed representatives from FSA.
- Inspected the subject property;
- Applied the income and cost approaches;
- Reconciled the values to arrive at a value conclusion;
- Prepared this appraisal report.

EXTRAORDINARY ASSUMPTIONS

The Uniform Standards of Appraisal Practice (2018-2019 ed.) defines an extraordinary assumption as "an assignment-specific assumption as of the effective date regarding uncertain information used in the analysis which, if found to be false, could alter the appraiser's opinions or conclusions."[2] Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal, or economic characteristics of the subject property; or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in an analysis. For this appraisal, we have made the following extraordinary assumptions:

[2] Appraisal Institute. 2015. The Dictionary of Real Estate Appraisal, Sixth Edition, Chicago, IL, p. 83.

1. The area and GIS information are extraordinarily assumed to be accurate.
2. The estimate of future growth rates provided for the property are accurate.
3. Estimates of current inventory, as derived from our Woodstock model developed for the property, are accurate.

DEFINITION OF MARKET VALUE

The Dictionary of Real Estate Appraisal, 6th Edition, states that "The most widely accepted components of market value are incorporated in the following definition: *"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress."*[3]

The Dictionary also cites the definition used by agencies that regulate federally insured financial institutions in the United States, and the definition used for this appraisal, as: *"The most probable price that a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:*

- Buyer and seller are typically motivated;
- Both parties are well informed or well advised, and acting in what they consider their best interests;
- A reasonable time is allowed for exposure in the open market;
- Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
- The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale."

(12 C.F.R. Part 34.42(g); 55 Federal Register 34696, August 24, 1990, as amended at 57 Federal Register 12202, April 9, 1992; 59 Federal Register 29499, June 7, 1994)"[4]

The International Valuation Standards define "fair market value," as: "The estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion."[5]

[3] Ibid. p. 141.
[4] Ibid, p. 142.
[5] International Valuation Standards Committee. 2011. International Valuation Standards 2011, Eighth Edition, London, U.K, p. 20.

It is important to observe that the following elements are common to each of the foregoing definitions:

- Market value results when the parties are typically motivated, are generally well informed, and are acting in their own best interests;
- Market value results when the property is exposed to the market for a reasonable length of time;
- Payment is in cash or its equivalent.

Sewall's market value estimate is our opinion of the probable price obtainable in a market free of abnormal influences. A basic limitation of any appraisal is that it is an opinion of value, and is therefore not a guarantee that a property will sell at the appraised value.

APPRAISAL UNITS

Unless otherwise stated, units reported for this appraisal are based on U.S. dollars (USD) for value, hectares for area and cubic meters for volume. Where necessary, any prices provided in Brazilian Reais (BRL) have been converted to USD using an exchange rate of 3.830 BRL per USD.

APPRAISAL STANDARDS

The complete appraisal process and resulting report were performed in accordance with the *Uniform Standards of Professional Appraisal Practice* ("USPAP") , the Appraisal Institute's Code of Professional Ethics and Standards of Professional Appraisal Practice.

INVESTMENT TERMS

The terms of the investment agreement between SATT and FSA differ from conventional practices common to the timberland investment market. As such, they are worth enumerating, as they form the basis for the assumptions used in our analysis. The following are key terms in the agreement, as described to Sewall by FSA:

- SATT owns the rights to the existing crop of timber on the various properties.
- FSA is responsible for managing the timber, including oversight of all harvest activity.
- FSA has entered into an agreement with Teak Resources Company (TRC) for the management of the assets and sales and purchase of the teak.
- SATT does not pay for any ongoing silvicultural or administrative costs related to the management of the property, as would be the case for most timberland investments. FSA is responsible for these costs, but will charge SATT with a one-time management fee of $4,500 per hectare, plus $600 per year per hectare in which a harvest cycle takes longer than 20 years, incurred at the time of final harvest. This cost is expected to adjust downward, based on revenues owed to SATT for past harvests.
- Harvest revenues are based on quarterly market surveys of roadside prices contracted with Consufor, a Brazilian consulting firm.
    - TRC buys logs from SATT from harvests at own risk for its account.
    - SATT is paid on a residual stumpage basis, based on the Consufor roadside pricing, less harvest costs.
- SATT is required to pay for all final harvest costs, but not harvest costs from thinnings. Thinning costs are assumed to be included in the management fee described above.
- SATT must also pay all necessary costs to bring the property back to a pre-forestry condition following final harvest. This includes clearing the land of stumps ($826 per hectare).
- SATT must pay FSA a 5% performance fee upon harvest of the trees. The performance fee is based on the following:
    - 5% * (Roadside Harvest Revenues – Harvest Costs – Land Clearing – Silvicultural and Overhead Fees)
- Full rights to the land revert to FSA or the other underlying land owners following final harvest and stump clearing. SATT has no right to future rotations.

2. MARKET DESCRIPTION

Notwithstanding current and short-term economic conditions, which can be quite variable, global markets are expected to continue consuming forest products in tandem with population growth. However, markets for forest products shift, with price implications for regions that are either attracting or losing mill capacity. Trends show forest products industry capacity moving toward population centers where end products are consumed based on growing demand (Asia, South America, Eastern Europe) and timberland investors are following these moves.

Long-Run Global Markets

There is broad consensus that global roundwood demand will continue to increase over the long term. A larger population and improving standards of living are expected to drive demand for wood products. However, timber supply may not keep pace with this demand, thereby justifying increased investment to boost forest productivity and better meet future demand. The supply of timberland tends to be relatively inelastic, limited by competing land uses and suitable climate and soil realities. Nevertheless, anticipated demand can spark increased investment in silviculture, including genetic qualities, in existing forests as well as afforestation of land currently in non-forest use.

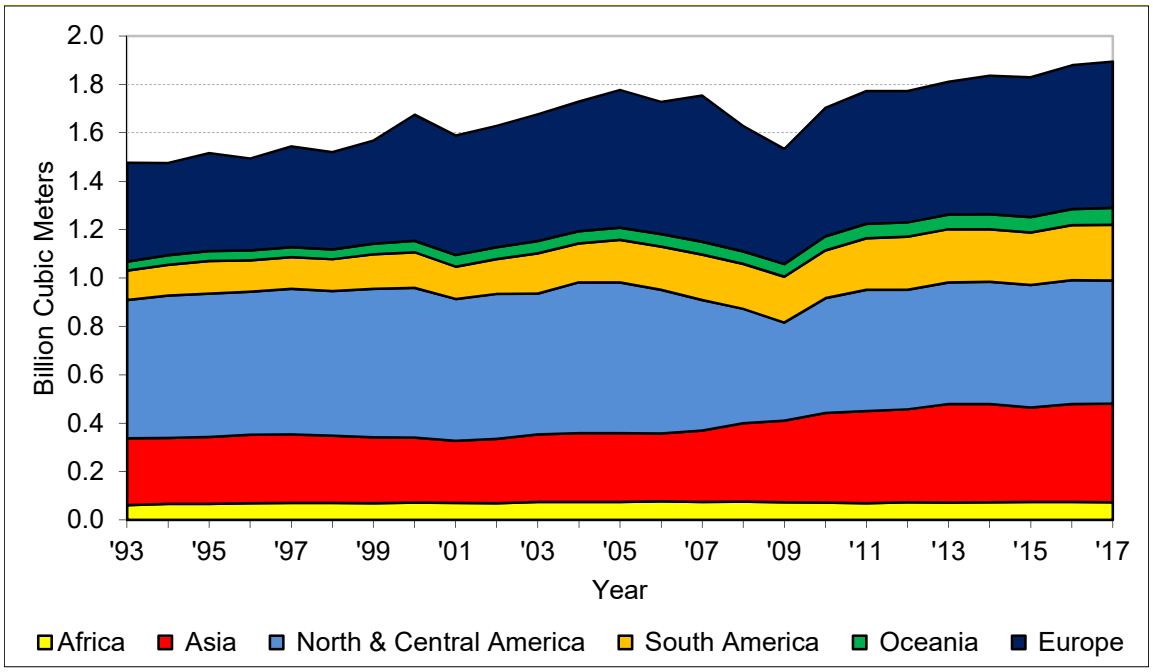
Short-Run Global Markets

Although potentially constricted supply seems some time away, anticipating a shortage has prompted a number of countries in various regions to promote timber plantation establishment. Some in Asia have been planting heavily, however only about half of the plantations on the continent are considered industrial-grade. Uruguay, Brazil and Argentina all have a history of encouraging timber plantation investments, yet various government initiatives in each of these countries have created environments that are less attractive to foreign investment in land for this purpose. Central America has seen continued growth in plantation investment, although on a relatively minor scale to date.

Global industrial roundwood production has slowly trended up over time, with ebbs and flows according to global economic cycles (Figure 2.1). Production rose to a new high in 2005 before declining to 1.5 billion m^3 in 2009 associated with the global financial crisis. Global production has been gaining most years since, increasing to 1.91 billion m^3 in 2017.[6]

[6] http://http://www.fao.org/faostat/en/#data/FO/visualize. Retrieved 2 April 2019.

Figure 2.1. Industrial Roundwood Production 1993-2017



Source: Food and Agriculture Organization of the United Nations, Forest products statistics.

Even before the 2008-2009 global financial crisis, several factors affected world roundwood supply and demand. In the early 1990s, supply in North America was disrupted when the US government took steps to protect the northern spotted owl. The curtailed supply from public lands coincided with the 1991-1992 economic recession to cause major dislocations in the industry in the US Pacific Northwest. Then in 1997, the rapid and unexpected collapse of several Asian economies sharply reduced Pacific Rim wood demand.

The global financial crisis significantly lowered timber demand and prices. Pacific Rim suppliers that had been shipping timber to Southeast Asia suddenly had limited outlets, with the result that trade flows shifted. Logs that had been exported from the US West to Asia were instead sawn into lumber in the United States and utilized domestically. Lumber and panels once exported from the Canadian and American West were railed or trucked east, instead of shipped west to Asian markets.

Radiata pine lumber from Chile and New Zealand continued to be shipped to the United States during this period, resulting in a temporary oversupply of sawlogs in North America and falling sawlog prices. This trend began to reverse in 2010, as increased Asian demand resulted in a surge in log exports from the West Coast of North America. Log prices in the Pacific Northwest were now being driven primarily by the log export markets; moreover, export pricing provided a floor to domestic log prices. Recovery of Asia demand led many in the industry to expect a "super-cycle" for North American lumber prices as US housing markets recovered and competed for the same volumes being sent to Asia.

By 2014, there were a number of economies growing below expectations (Japan, Europe, China), and the end of the commodity supercycle drove many commodity-exporting countries toward lower economic output. Throughout 2015, conditions continued to deteriorate, as export earnings were disrupted by a sharp decline in crude oil prices. Brent crude traded at under $40 per barrel, a 65% decline compared to $115 per barrel in June 2014. This shifted global economic risk from oil- importers to oil exporters, conditions revisited in 2018.

For 2019, the outlook for global growth includes several geopolitical uncertainties: the UK's exit from the European Union is unresolved as the effective date is extended; the US and China threaten and impose tariffs in various sectors based on trade unfairness or national security grounds, the outcome of which will depend on follow-through and appeals processes; and human migration issues are politically volatile and difficult to solve. Economically, the US's tax change boost to corporate earnings may have run its course in the light of slowing GDP growth. Growing government deficits and debt, though out of the headlines, deserve attention from economists. Global output grew an estimated 3.7% again in 2018,[7] matching the highest since 2011. For 2019-20, forecast growth is 3.5-3.6%. The outlook has moderated, given international trade actions, tighter financial conditions and geopolitical tensions.

A positive element has been the US economy, which is expected to increase its GDP growth rate of 2.2% in 2017 to 2.9%, then track toward 2%. The US has regained its role as a material contributor to global demand for a variety of goods and services. Brazil's economy is emerging from its deep 2015-16 recession, with economic growth of 1.3% in 2018 and 2.2-2.5% anticipated in 2019-20, with recent national elections now behind it. Russia, highly dependent on oil exports, had been in recession as well, but with higher commodity prices, especially oil and gas, grew 1.7% in 2018 and is expected to maintain that rate.

As a general trend and certainly in times of sustained strength of the US dollar, higher comparative operating and transportation costs in North America and Europe can be expected to push more production and distribution into lower-cost regions. We can always expect shifts of capacity to regions with lower operating costs for mills and better growing conditions for trees, if these net out favorably considering transportation, legal and other costs as well. One potential constraint in some areas is infrastructure, as capital investment may be necessary to provide power as well as transportation systems.

[7] International Monetary Fund. World Economic Outlook Update, January 2019. A Weakening Global Expansion. https://www.imf.org/en/Publications/WEO/Issues/ 2019/01/11/weo-update-january-2019.

Global Trade in Wood Products

Table 2.1 shows that the volume of key wood products shipped around the world over the past 10 years (2008-2017) has trended up and down along with the global business cycle. Prior to 2008, there were steady increases across most product categories. The sharp contraction in 2008-2009 was followed by a general uptrend through 2014. Some categories paused in 2015, yet growth resumed in 2016 and 2017 across all categories.

Table 2.1. Worldwide Export Volumes of Forest Products

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Annual Growth Rate 2008-17
Industrial Roundwood (million m^3)	113.8	91.4	105.2	118.2	110.9	126.6	132.6	121.6	122.5	139.0	2.2%
Sawnwood (million m^3)	118.0	101.0	112.3	118.5	118.9	125.6	132.6	135.1	147.0	153.0	2.9%
Wood-based Panels (million m^3)	74.8	63.4	69.8	73.4	76.5	78.8	84.0	85.2	91.0	91.0	2.2%
Wood Pulp (milllion tonnes)	48.7	48.5	50.1	53.6	54.1	56.5	58.1	59.0	64.0	64.0	3.1%
Paper & Paperboard (million tonnes)	113.9	103.2	109.7	110.0	108.0	110.3	112.1	110.9	111.0	117.0	0.3%

Source: FAOStat-Forestry database, last updated January 19, 2019

For timberland investors, regardless of short-term cyclical economic conditions, global demand and trade are expected to grow, and markets and participants in them may change, with possible value implications for the next 10-15 years. Key themes include:

- The trend is for industry capacity to shift to population centers where the finished products are consumed. These new global demand centers include China, South America and, to a lesser degree, Eastern Europe. Some timberland managers and investors are following these trends by allocating some capital in countries that will ultimately provide wood fiber to these regions.
- Exchange-rate fluctuations, political uncertainty, natural disasters, energy prices and inflation are all external forces that will affect timber markets from time to time. The effect on regional timber prices depends on regional market maturity, timber product diversification and the sufficiency and cost of local labor, among other things.
- Strategies undertaken by public and private sectors include developing alternative energy sources and monetizing non-traditional forest values. Construction of biofuel and wood pellet plants is an important initiative in many regions which have an excess of non-merchantable wood fiber. There is also growing interest in afforestation as a means of securing carbon credits.

Global Environmental Influences

Environmental pressures on timberland owners vary around the world. In the case of the United States, the current environmental debate concerning timberlands in the US South focuses on forest fragmentation, urbanization, and the costs and benefits of timberland certification. Despite relative prevalence of plantation management, the US South has been much less subject to environmentalist pressures than the Northeast and US West. Concerns over monoculture forests and chemically-intensive management are mitigated by the fact

that many view these plantations as a relatively benign land use compared to formerly dominant, soil-depleting agricultural practices. These concerns, along with others relating to regional forestry practices and environmental considerations, are being expressed in other places throughout the world.

Forest sustainability certification has emerged as a solution to some environmental concerns. Currently, only a fraction of global forests are certified as sustainably managed and over 90% of certified forests are located in developed countries. The area of certified forests increased such that as of 2018, an estimated 450 million hectares were certified, based on PEFC's 300+ million certified hectares representing 2/3 of the total certified.[8]

Environmentalism influences forest certification, and wood product retailers interested in maintaining a green image and avoiding protests have responded accordingly. Research in the US based on in-store tests indicates that consumers prefer certified products when prices are equivalent, but are unwilling to pay more for certified goods. Importantly, certification rarely yields higher prices for certified products; however, it can open up markets that would normally be closed to products coming from uncertified forests. An example of this is the European Union, which accounts for most global certified forest product demand. FSC certification has become standard for Latin American timberland investments, and PEFC-affiliated standards are common in Australasia.

In conclusion, although there will be periodic short-term market dislocations likely in specific regions, the prospects for global forest product demand and supply suggest a relatively balanced overall market over the long-term. On the demand side, global population growth, economic development and an emerging middle class in developing economies should drive sustained demand for paper and forest products. On the supply side, a combination of increasing areas of productive forest plantations, the growing use of modern silviculture, and regulated forest harvesting in many regions have produced industrial roundwood inventories able to meet this demand.

INTERNATIONAL TIMBERLAND MARKETS

In the 1990s, a broader set of timberland markets received attention from US institutional investment managers. From the US South-US West scope that encompassed these firms' emergence in the 1980s, the investment universe successively encompassed Canada, New Zealand, Chile, northeastern US, Australia, Argentina, Brazil and Uruguay by 2000.

[8] PEFC International. https://www.pefc.org/images/documents/PEFC_Global_Certificates_-_Sep_2018.pdf.

Other investment managers moved toward investing outside of North America, with particular emphasis on the Southern Hemisphere, where high timber growth rates and the opportunity to diversify investors' exposure into emerging markets attracted them. Table 2.2 presents DANA Limited's estimate of the major institutional investment managers by country and region.[9] Much of this reflects the change in the forest products industry during the 2000s to divest timberland to raise capital, concluding that timberland integration was not necessary for many firms' business models. Many of these timberland assets were acquired by institutional investment entities, and especially for the large transactions, were encumbered by long-term supply agreements with the timberland seller.

Table 2.2. Major Institutional Investors by Country or Region

Investment Manager	USA	Canada	Latin America	Oceania	Southern Africa	Europe	Russia	Asia Pacific
Brookfield Asset Management - Canada	X	X	X					
BTG Pactual - Brazil	X		X		X	X		
Campbell Global	X			X				
Forest Investment Associates	X		X					
Forestland Group	X	X	X					
Global Forest Partners	X		X	X				X
Rohatyn Group	X		X	X				
GreenGold Asset Mgt - Sweden						X		
TIAA	X					X		X
Hancock Timber Resource Group	X	X	X	X				
Harvard Management	X		X	X	X	X		
International Woodland - Denmark	X		X	X	X	X	X	X
New Forests - Australia	X			X				X
Resource Management Service	X		X	X				X
Wagner Forest Management	X	X						

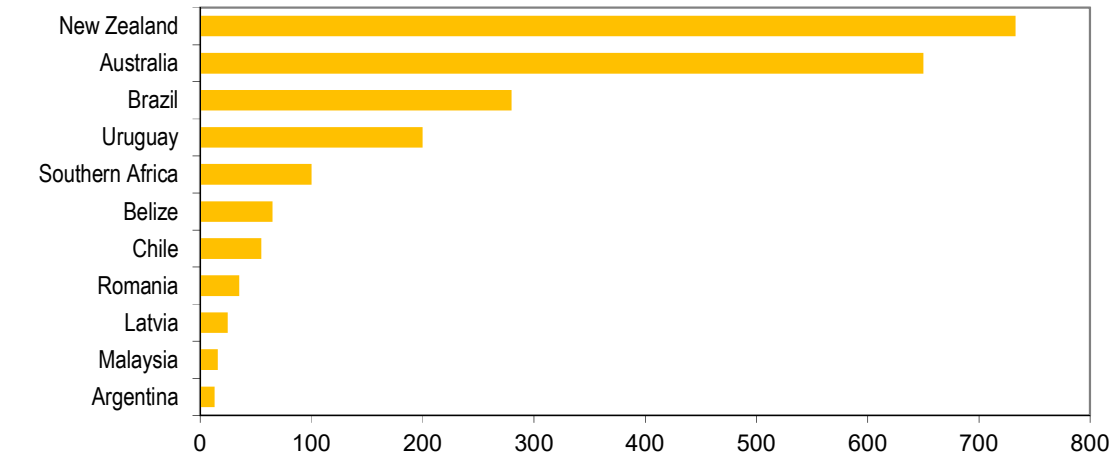
Source: DANA International, supplemented with Sewall data.

In addition to the institutional managers, various long-time forest products companies have forestry operations in the Southern Hemisphere, such as the US timber REIT Rayonier in New Zealand. Global forest products companies including Stora Enso and SAPPI have purchased US companies and subsequently sold the timberland assets. To ensure access to long-term supplies, various Japanese pulp producers have invested in Pacific Rim plantations for many years. Chinese entities are similarly interested in securing access to raw materials by way of direct investment in forest plantations outside of China.

Institutional ownership by country (other than the US) is illustrated in Figure 2.2.[10] Beyond the US, Australasia has by far the most institutional investors in timberland to date, although Latin America (notably Brazil and Uruguay) is also an attractive investment region. The reason that Chile, a relatively safe and desirable place to invest, shows little institutional ownership is because most of its industrial-grade timberland is controlled by the three largest forest products companies: CMPC, Arauco and Masisa. There are signs that this may be changing as these firms divest some interests in their timberland holdings.

[9] DANA Limited. International Timberlands Ownership and Investment Review. 2011 Edition.

Figure 2.2. Overseas Institutional Ownership Estimate (Thousand Hectares)



Source: Dana International, supplemented with Sewall data.

Interest in offshore investment is driven in large part by decreasing prospective investment returns in the US, whether for mainstream investments or specialized assets like timberland. Low interest rates and ample capital drive prices higher, and expected returns lower. On one hand, the increased number of investment managers participating in the market has lowered the exit risk; owners of larger timberland tracts now have more options to sell their assets. On the other hand, the increased liquidity means that investors accept a lower expected rate of return in gaining exposure to the asset class. However, with the US market adequately subscribed, the same phenomenon may visit investment in other geographies as well.

Diversification is another benefit derived from investing outside of North America, both in terms of where the trees are grown and in the end-use markets served. While the US has historically been an important export customer for many Southern Hemisphere producers, most have developed alternative export markets in Asia and Europe as well, particularly in the wake of the 2007 US housing market crash. Investment capital will continue to be attracted to those investment geographies that are the best positioned to satisfy growing demand centers. As the number of timberland investors in the Southern Hemisphere increases, market efficiencies should ensue as more transactions allow greater transparency.

As timberland investors become increasingly comfortable with Latin America, these geographies are no longer perceived to be as risky as they once were. For instance, 15 years ago, Brazil was perceived as a "frontier" geography requiring a high rate of return to compensate for the risk being taken. Today, investing in Brazil is considered part of a Southern Hemisphere strategy to gain exposure to high-growth plantations in a large market, although recent turmoil there has dampened enthusiasm with some investors until the situation stabilizes.

[10] Ibid.

BRAZIL ECONOMIC ANALYSIS

Background

With an area of 8.5 million km² (3.3 million mi²), Brazil is the fifth-largest country by area and by far the largest in South America (Figure 2.3). Located on the eastern side of the continent, the Atlantic Ocean borders Brazil to the east and 10 other countries border it to the south, west and north. Chile and Ecuador are the only South American nations that do not border Brazil. Ninety percent of Brazil lies within the tropical zone; almost all of the country's population of 208 million[11] live in subtropical or temperate regions along the Atlantic Coast. Over the last several decades, a surge of rural population has migrated from its drought-prone and impoverished northeastern region into southeastern cities.

Figure 2.3. Map of Brazil

Source: CIA World Factbook

Brazil's topography is quite varied, ranging from the vast Amazon region in the north, to a vast tropical savannah eco-region (cerrado) in the interior, to the narrow coastal belt. The more temperate southern states of Sao Paulo, Parana, Santa Catarina and Rio Grande do Sul contain the majority of the population and industrial production centers.

[11] The World Bank | Data. https://data.worldbank.org/country/Brazil. Retrieved 7 March 2018.

Brazil is an anomaly in South America in that it is the only country that has Portuguese as the official language. This resulted from its more than three centuries under Portuguese rule. In 1822, Brazil gained independence, yet maintained a monarchical system of government until the abolition of slavery in 1888 and subsequent military rule. In fact, the country sustained a prolonged (50-year) period of both populist and military governments until 1985, after which civilian rule was established.

Since then, Brazil has emerged as a key developing market with a large domestic population base and an important contributor to global economic growth. Its domestic economy has been supported by a substantial natural resource base and labor pool, as well as a concerted effort by the government to pursue industrial and agricultural growth. Development of the country's more remote interior regions has also been a priority, including the infrastructure necessary to move product to coastal ports and export markets.

In 2007, the government-run oil company Petroleo Brasileiro SA (PetroBras) announced the discovery of a large but deep-water "pre-salt" layer oil field off the southern Atlantic coast of Brazil. This is potentially the largest Western Hemisphere discovery in 30 years and as of 2018, daily production grew to 1.5 million barrels.[12]

More recently, however, Brazil has been subject to political scandal (the 2016 impeachment of President Rousseff, arrest of successor Michel Temer for bribery, criminal conviction of her predecessor Lula da Silva), corruption involving Petrobras and government contracts, severe economic difficulties, and a restive population. Brazil's new president Jair Bolsonaro took office in January 2019, a swing to the conservative direction on the political spectrum. Among Bolsonaro's early aims is reform of the pension system, deemed unaffordably generous.

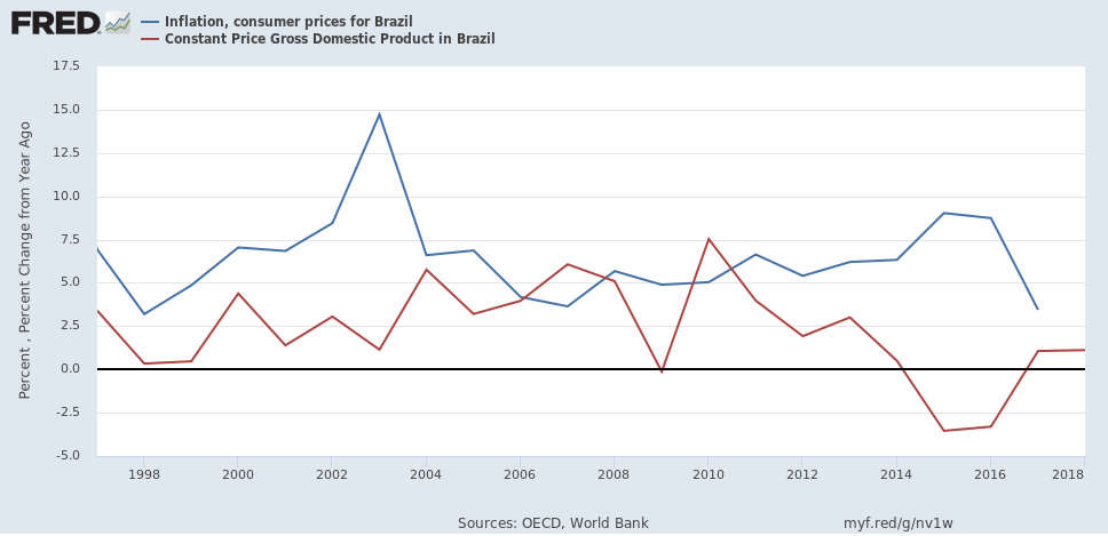
Economy

Brazil's $2.1 trillion (2017) economy ranks it 8th largest globally, now larger than Italy.[13] The 1994 implementation of the "The Real Plan," under the Cardoso administration, successfully stabilized Brazil's historically volatile economy. Since 1994, strategic sectors such as communications, mining and transportation have undergone massive privatization. The economy's opening was supported by the establishment of import tariffs, export incentives, and industry privatization and deregulation to improve inefficiencies; these measures increased foreign investment and modernization in many industries. The economy is well-balanced among a variety of sectors including agricultural, mining, manufacturing, and service sectors.

[12] http://www.petrobras.com.br/en/our-activities/performance-areas/oil-and-gas-exploration-and-production/pre-salt/, accessed 2 April 2019.
[13] World Bank (latest available)

The country's GDP growth has been quite variable in the last two decades (Figure 2.4), positive leading into the 2008-2009 global financial crisis, recovering well in 2010, yet struggling ever since. There was substantial economic contraction in 2015-16, the deepest economic recession in generations. Slow growth has since returned and the International Monetary Fund's forecast is for GDP growth to reach approximately 2% in the near term. Brazil's recession has been linked to such external forces as lower commodity prices and slower growth in China, the country's largest trading partner. Export revenues have suffered for such products as oil, iron ore and soybeans. Other factors include overdependence on exports of raw commodities in the country's export mix, low labor productivity, relatively high operational costs, high inflation, and declining investment.

Figure 2.4. Brazil's Recent GDP Growth and Inflation



Note: St. Louis Fed data series FPCPITOTLZGBRA and BRAGDPRAPSMEI

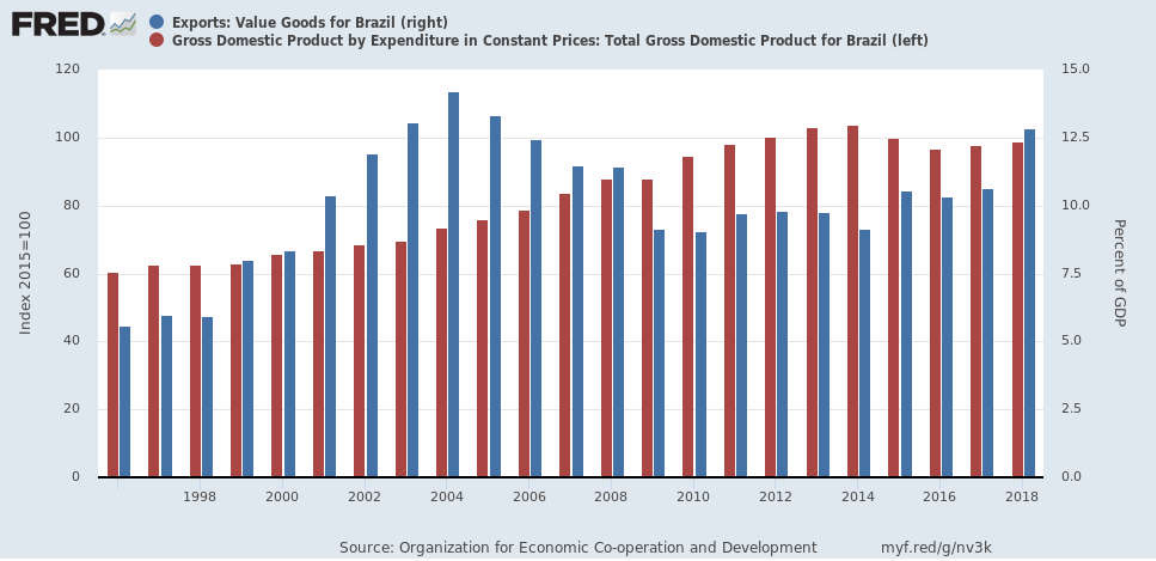
Exacerbating the problem is a budget deficit that remained around 7% of GDP in 2018 (from 9.0% in 2016).[14] The structural deficit and the role of state pension payments was a key factor in the recent presidential election. Previous proponents of fiscal austerity have met significant opposition.

Since the 1999 flotation of the Brazilian real, inflationary pressure has occurred during times of currency depreciation. Brazil's inflation rate has varied, with periods of high inflation corresponding to periods of low or negative economic growth (Figure 2.4). Brazil became a net creditor in 2008, an important milestone for a developing country. However, in the absence of fiscal reform, Brazil's sovereign debt credit rating has since been lowered to non-investment grade by major credit rating agencies[15] and will likely remain there until progress is made in stabilizing the economy.

[14] OECD Economic Outlook, Volume 2018 Issue 2 © OECD 2018 – Preliminary Version, pp. 79-81. http://www.oecd.org/eco/outlook/economic-forecast-summary-brazil-oecd-economic-outlook.pdf
[15] Please refer to discount rate discussion

For the Brazilian economy, its large population and efforts to move more people from rural poverty into the middle class remain primary drivers of future economic growth. However, exports contribute a relatively small proportion to GDP (Figure 2.5), having stayed within a range of 9-15% over the past decade. Whereas Brazil's GDP output has flattened since 2011, aggregate economic output on a PPP basis has shown a steady uptrend, more than doubling between 2000 and 2015. Until Brazil is able to upgrade its port infrastructure and road/rail systems, trade's contribution to economic growth seems likely to remain constrained in the coming decade.

Figure 2.5. Brazil GDP and Export Contribution



Note: St. Louis Fed data series XTEXVA01BRA188S and NAEXKP01BRA661S

GDP composition is heavily-weighted to the services sector: 73% services, 21% industry and 7% agriculture by 2017 estimates. By end-use, Brazil's GDP is weighted 63% to household consumption, 20% to government consumption, 16% to fixed capital investment and 1% to net exports.[16] The country's substantial weighting to both services and consumption are positive factors long-term in that Brazil is clearly diversifying away from a strict raw materials-based economy.

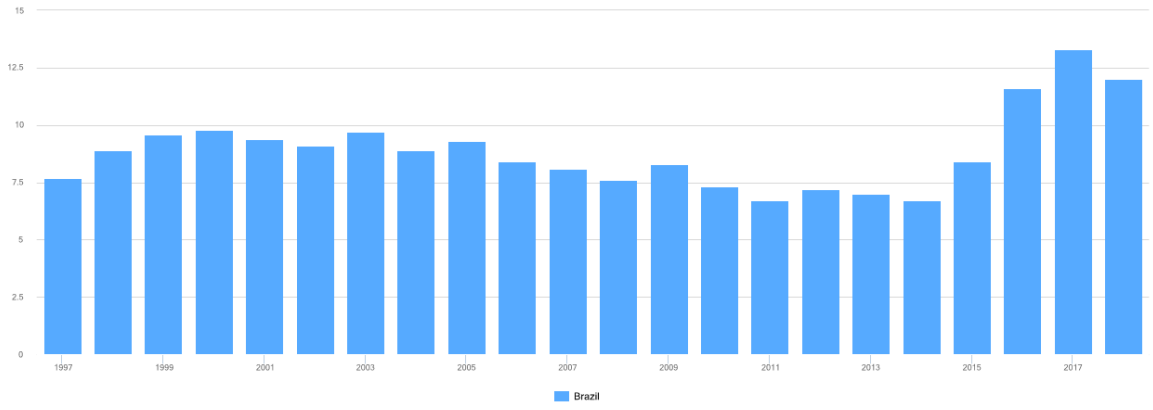
Population Distribution and Labor Force

Brazil has a relatively young population age profile (median age of 32 years). The country's age dispersion reflects over 60% of the population in the 2nd and 3rd age cohorts: 0-14 years: 22%; 15-24 years: 16%; 25-54 years: 44%; 55-64 years: 9%; and 65+ years: 9%. This suggests substantial economic growth potential in the years ahead, although 21% of the population remains below the poverty line. Brazil's urbanization and literacy rates are

87% and 92%, respectively.[17] Major urban centers include Sao Paulo (22 million); Rio de Janeiro (13 million); Belo Horizonte (6 million); Brasilia (capital, 4 million); Porto Allegre (4 million); and Recife (4 million).

Brazil's unemployment rate increased sharply in the 2015-16 recession (Figure 2.6) and averaged 12.0% in 2018, very high but receding from the peak. The number of unemployed persons only adds to a dissatisfied populace which has grown impatient with the pace of government reform to set the economy back on a growth path.

Figure 2.6. Brazil Unemployment Rate (Annual)

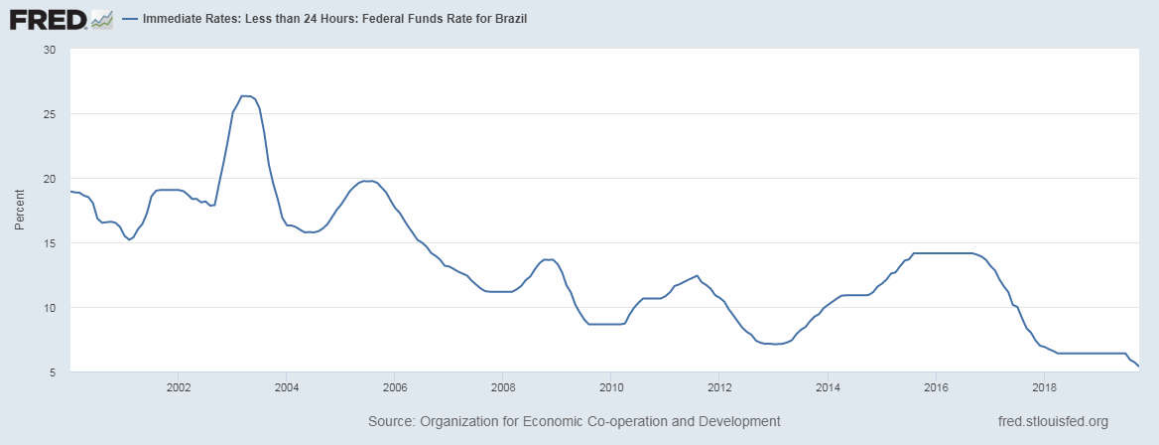


Series : Unemployment, total (% of total labor force) (modeled ILO estimate)
Source: World Development Indicators
Created on: 04/02/2019

Brazil's Central Bank (Banco Central do Brasil) actively manages interest rate policy as a means of trying to influence the two key economic metrics discussed above: GDP growth and inflation. Figure 2.7 shows the central bank's official policy rate, including loosening and tightening episodes prior to the global financial crisis. The left half cycles around a mid-point of approximately 20 percent, whereas the right half's rate profile matches the actions by many central banks during this period – a marked global reduction in 2009, with subsequent adjustments depending on domestic conditions. Brazil's rate is consistently well above other central bank rates, indicative of the historically high rates of inflation which the bank is trying to contain. The cash rate declined dramatically through the course of 2017, leveled in 2018, and most recently was reduced to 5.38%.

[16] CIA World Factbook. https://www.cia.gov/library/publications/the-world-factbook/geos/print_br.html. Retrieved 2 April 2019.
[17] ibid.

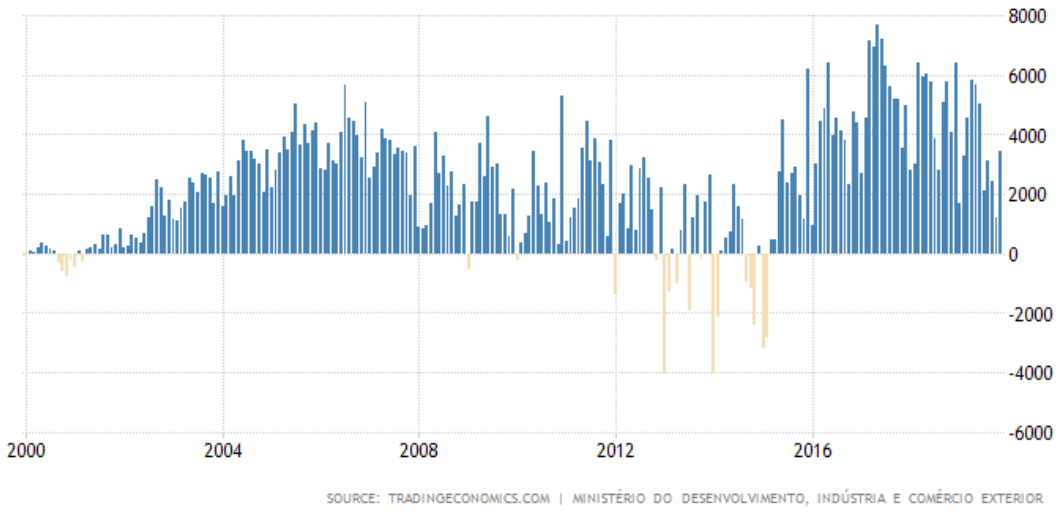
Figure 2.7. Brazil Federal Funds Rate



Note: St. Louis Fed data series IRSTFR01BRM156N

Brazil's balance of trade (exports relative to imports) has been very positive for the past three years, in tandem with the country's currency depreciation (see below), which typically reduces imports while simultaneously encouraging exports of a country's goods. The trade balance looking further back shows considerable monthly volatility (Figure 2.8).

Figure 2.8. Brazil Trade Balance – Monthly (USD million)



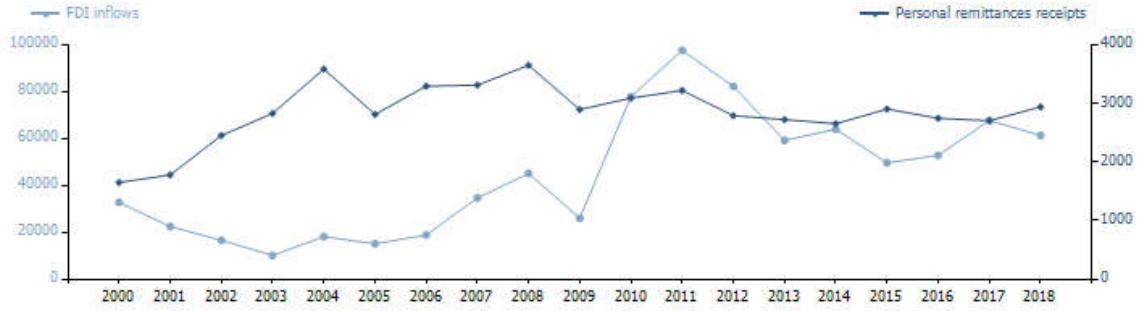
Source: Trading Economics

Brazil has a diversified manufacturing base, with key domestic industries including textiles, shoes, chemicals and cement, lumber, iron ore mining, tin, steel production, aerospace, motor vehicles/parts, and other machinery/equipment. Important agricultural products include coffee, soybeans, wheat, rice, corn, sugarcane, cocoa, citrus, and beef. Brazil's larger domestic companies include Petrobras (oil and gas); Banco do Brasil (banking); Vale (mining); Embraer (aerospace); AmBev (beverages); Votorantim (conglomerate); and a number of large pulp and paper producers: Fibra-Suzano and Klabin.

Brazil's major export partners included China (22%), US (11%) and Argentina (8%) in 2017. Principal exports include soybeans (12%), iron ore (9%), crude petroleum (8%), and sugar (5%), and Brazil is also a major exporter of such forest products as pulp, paper, lumber, and panels. Key import partners include China (19%), US (15%), Germany (7%) and Argentina (7%). Imported products feature refined petroleum (8%) and vehicle parts (4%).[18]

Foreign direct investment (FDI) net inflows to Brazil were $63 billion in 2017, near the average of the past decade (Figure 2.9), and Brazil remains the region's largest target for FDI. The primary FDI sources to Brazil are the Netherlands, US, Luxembourg and Spain.[19]

Figure 2.9. Brazil Foreign Direct Investment (Monthly) – USD Million



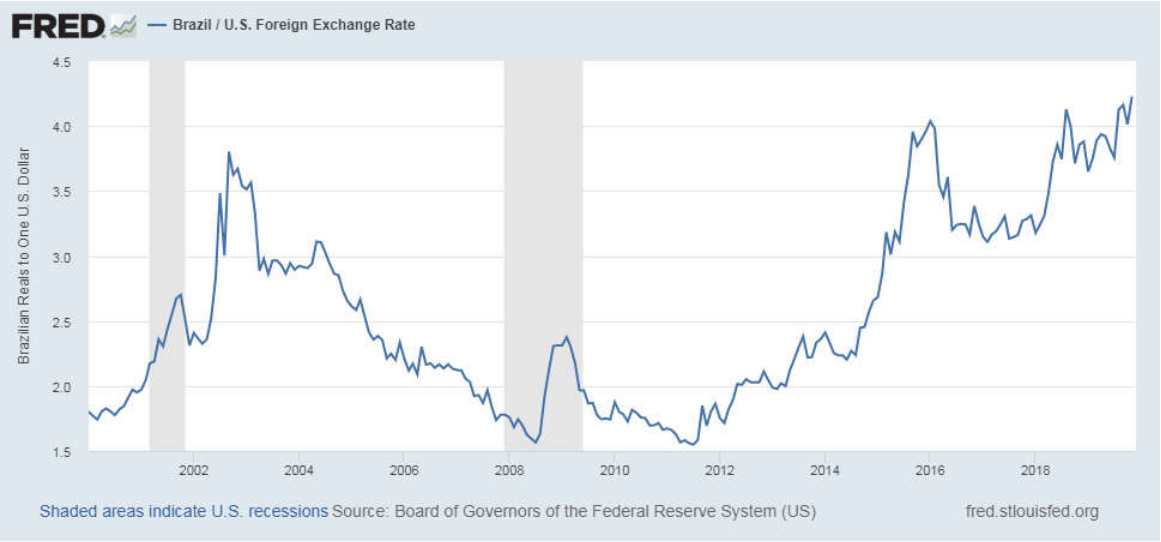
Source: United Nations Conference on Trade and Development,
https://unctadstat.unctad.org/CountryProfile/GeneralProfile/en-GB/076/GeneralProfile076.pdf

Foreign Exchange (Brazilian Real)

Brazil's currency, the Brazilian real (BRL) has cycled up and down vs the dollar over time, like most currency exchange rates. Relative to the average since 2000 of 2.5, in recent years the real depreciated notably from 2011 to 2015 (1.5 to 4.1). The real recovered to 3.1 in 2016, but has most recently traded in a 3.7-4.2 band since mid-2018 (Figure 2.10).

[18] https://atlas.media.mit.edu/en/profile/country/bra/
[19] Foreign Direct Investment in Brazil Report 2018. Banco Central do Brasil. https://www.bcb.gov.br/Rex/CensoCE/ingl/FDIReport2016.pdf

Figure 2.10. Dollar-Real Exchange Rate History



Note: St. Louis Fed data series DEXBZUS

Currencies are a useful barometer of investor sentiment, relative inflation differences among countries and the underlying economic prospects of a country. In all of these categories, Brazil has had substantial challenges in protecting its currency. Reasons for the decline include Brazil's persistent political corruption matters, and the structural budget deficit that weakened Brazil's sovereign debt rating. Foreign investors would interpret any such currency weakness as a risk factor for two primary reasons: (1) repatriation risk (e.g. returning capital to investors at the most advantageous time); and (2) return risk (the exchange rate applied to year-end calculations of investment returns).

From a local operations standpoint, however, a depreciating currency can often translate to comparatively lower operating costs compared with other countries. When combined with top line revenue generated in USD, this can lead to margin expansion. On the other hand, any BRL-based timber prices, when translated into USD equivalent, present potentially lower cash flows to operators in-country.

Political Landscape and Risk Factors

For over a decade, The Heritage Foundation has tracked the economic freedom of countries around the world with the Index of Economic Freedom. The Heritage Foundation measures 12 components of economic freedom, assigning a grade in each using a scale from 0 to 100, where 100 represents the maximum freedom. The component scores are then averaged to give an overall economic freedom score for each country. The operative range of the most recent rankings is 5.9 to 90.2. In the 2019 Index of Economic Freedom, Brazil had a score of 51.9, toward the bottom of the "Mostly Unfree" category, or ranked 150th out of 180 countries. Brazil scores best in Monetary Freedom (75.5), Tax Burden (70.5) and Trade

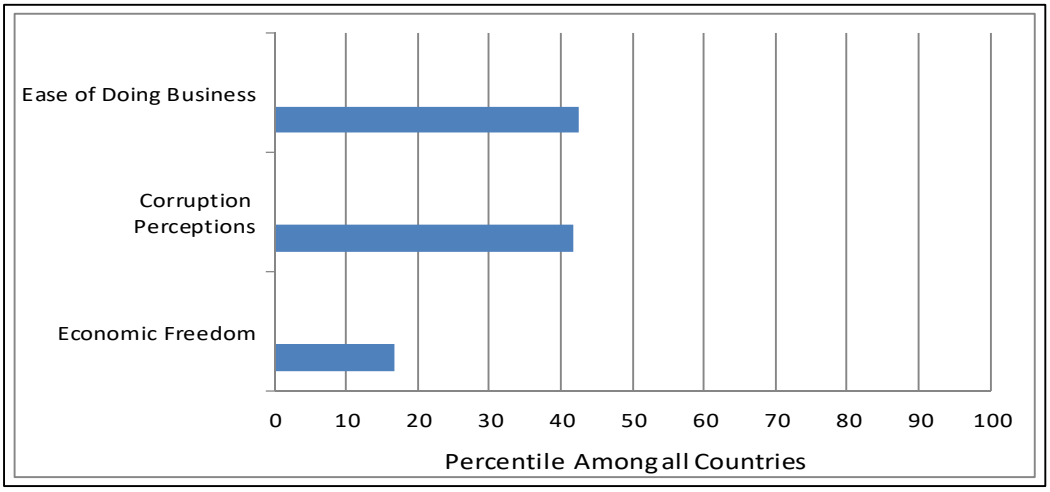
Freedom (69.0), while lagging in Fiscal Health (5.9) and Government Integrity (28.1). In the Americas, Brazil ranks 27th out of 32. For reference, the US ranks 12th globally and 2nd in the Americas, behind Canada, with a score of 76.8.

As another measure, Transparency International, an organization whose mission is to create change towards a world free of corruption, annually publishes a Corruption Perceptions Index. The 2018 index showed Brazil with an overall score of 35 (from 37 in 2017 and 40 in 2016), ranked 105th (from 96th in 2017) out of 180 countries. Other nations with the same score were Algeria, Armenia, Cote d'Ivoire, Egypt, El Salvador, Peru, Timor-Leste and Zambia. For reference, the US also declined, to 22nd (from 16th in 2017) with a score of 71 (from 75 in 2017, and 76 in 2015).

Last, the World Bank ranks various economies around the globe and publishes an Ease of Doing Business ranking. This rates the regulatory environment, with a "high" ease of doing business suggesting that the regulatory environment is more conducive to starting and operating a local firm. In 2019, Brazil ranks #109 out of 190 countries in the survey, pulled down by ease of Paying Taxes (ranked 184th) and Dealing with Construction Permits (175th). Attributes on which Brazil fared best were Getting Electricity (40th), Protecting Minority Investors (48th) and Enforcing Contracts (48th). For context, Paraguay, Brazil's southwestern neighbor, was closest to it within the region, ranking 113th. Around the southern cone, Chile, Uruguay and Argentina were 56, 95 and 119. The US ranked 8th.

Figure 2.11 summarizes these various rankings, with the blue-shaded area indicating Brazil's percentile among the countries ranked by each organization.

Figure 2.11. Rankings of Elements of Brazil's Business Environment



MACRO-ECONOMY CONCLUSION

Brazil has clear near-term economic and political challenges which affect its attractiveness as a core timberland investment geography in Latin America. An optimistic view would be that Brazil's economy is slowly emerging from recession and learning lessons from government corruption, which should address some of its social unrest. These need to be weighed against deficit government spending and protectionist policies that can undermine confidence in longer-lasting economic improvement, investment and international trade that raise living standards in the long run.

BRAZILIAN REGIONAL TIMBERLAND MARKETS

Several factors come together to form timberland markets throughout Brazil. The country as a whole currently supports some 7.2 million hectares of plantations.[20] Eucalyptus is the largest component at 71.0%, followed by pine at 21.7%, and other species at 7.3%. Most of the pine plantations were established in the 1970s and '80s, such that the surge of pine growth created is now in the process of being utilized. These plantations, estimated to be growing 20 to 30 m^3 per hectare per year, have fostered a thriving industry. As these stands are being replanted, more refined silviculture and improved growing stock are increasing volume, improving quality and shortening rotations. The industry dependent on these plantations is now thriving on its own accord, without subsidy.

Over the last few years, a substantial and increasing proportion of the region's pine forest product output is being exported. A generally healthy, growing domestic market for pine exists as well. Given Brazil's youthful demographics, along with a well-documented housing deficit, domestic timber markets are expected to improve significantly over time.

Historically, most of the region's eucalyptus plantations have been owned by vertically integrated, domestic forest products firms. Foreign investment in these firms has increased steadily over the last few years. Species such as teak are increasingly popular with the international timberland investment community. Plantations have been assembled by purchasing fazendas (farm tree plantations) from farmers or by acquiring the farmland and then establishing the plantations through afforestation. This process continues in various regions. Private domestic investors, domestic and global forest products companies and international timberland investment groups originating from the US, Europe and Chile have purchased properties here.

Recreational uses of rural land here are restricted mostly to fishing, in ponds or natural waterways. There is little hunting, as there are few game species and both gun control and hunting restrictions are extensive. Thus, there is a limited market for recreational land use.

[20] ABRAF Statistical Yearbook 2013 (Base Year 2012)

In 2010 the Brazilian government reactivated a long-dormant (1971) law restricting foreign ownership of land. This new action meant that Brazilian companies backed by foreign capital were limited to owning 5,000 ha. Land can be leased, but this negates a major reason for investing in Brazil – to enjoy the HBU "option value" later as land prices rise.[21] As a result, new international investment has slowed in rural areas. The law remains in place as Brazilian factions on both sides of the issue continue to debate liberalizing the policy.

Despite the uncertainty surrounding the land issue, sources in the region report that foreign investors continue to have access to land. The initial response was for investment to stop as investors reassessed the situation. However, it is still possible for foreign investors to acquire properties as large as 5,000 hectares. Perhaps not large areas in the context of a pine or eucalyptus investment, these are a significant investment in terms of teak. Investors are beginning to form joint ventures with Brazilian firms to avoid the size constraint. Still others are engaging in what has been described as more "alternative structures" or "riskier financial schemes" designed to avoid the regulation. Overall, the situation has cast a shadow over the investment environment in Brazil from the perspective of foreign investors. At least one investment manager we are aware of in the US has stated that they are re-evaluating their stance on Brazil until the issue surrounding land ownership has been resolved. While it remains possible to place capital there from offshore, the new policy has limited the universe of potential buyers for Brazilian timberland. The end result is best viewed as a presumably temporary drop in liquidity for this particular asset class.

ENVIRONMENTAL ISSUES

By far the most important Brazilian forestry environmental issue has been the protection of the Amazon basin. In 1989, as a result of international outcry over reported Amazon forest destruction, the Brazilian constitution was augmented, reformulating the four existing environmental agencies into IBAMA, the Brazilian Institute of the Environment and Renewable Resources. From mapping forests by satellite to urban center pollution control, from registration and preservation of endangered species to programs for ecological preservation, there is no aspect of Brazilian environmental activity that takes place without IBAMA's participation. The creation of IBAMA, along with a cessation of the country's western settlement policy, has greatly alleviated immediate concern over the Amazon's destruction.

The new legal environment resulted in a significant amount of protection of other forests as well. The Brazilian Forestry Code (Law 4.771, Sep. 1965, modified in 1989) regulates forestry plantation activities, and includes the following requirements:

- Legal Reserve Areas - 80% of a property must be covered by native vegetation as of 2001 (was 50% prior to 2001).

[21] Ibid

- Selective cutting may occur in these areas, within the scope of approved management plans which place a major emphasis on sustainability.
- Permanent Reserve Areas - Along river courses and drainages, natural growth areas must be left untouched.
- As many existing plantation properties did not comply with this law, there are various ways of establishing the correct minimum legal reserve ratios, including the natural regeneration of both types of reserve areas and the purchase of nearby natural areas.
- IBAMA must approve the harvesting in plantation areas.

Another law, established in 1989, requires that all companies which consume more than 12,000 m^3 per year of wood procure this supply from sustainably managed forests. This law has ensured that plantations be replanted, as well as promoted afforestation of further agricultural areas.

INTERNATIONAL TEAK SUPPLY

The global teak supply was once restricted to natural forests in India, Thailand, Myanmar and Indonesia. Because of the development of plantations in Latin America and Africa, there is an increased global supply of teak, as usage of the species has grown. However, due to over-exploitation, teak reserves in African countries are close to exhaustion. Therefore, that particular source of supply to the international market is expected to be significantly lower in coming years.

Currently, global demand for teak is sufficient that all harvested volume finds its way to market. This has created an incentive for managers to overharvest naturally grown teak. As these teak supplies dwindle, plantation investment has increased in an attempt to meet demand. Plantation-grown trees generally yield a relatively low density wood that lacks many of the qualities that make natural teak so unique and valuable (Keogh, 2008). Some have argued that because the global teak market is relatively small and specialized, a flood of lower-quality plantation-grown wood could potentially swamp the market and drive prices down. There is currently some evidence for this reflected in the price of smaller thinning-aged logs, which have increased in recent years as Latin American plantation managers begin to thin their maturing stands. However, while prices have softened for the smallest log grades, demand remains good for the larger sizes.

Figure 2.12 shows a price series for Myanmar's SG-4 export grade, one of the lower-end sawlog grades, commonly exported to India. The chart shows that demand for natural teak, even low grade, has remained strong over the years, as evidenced by a positive trend line. The trend line supports an average real annual increase of over $100 per hoppus ton (FOB) over the period.

Closer to home, the Latin American trend is mixed. The International Tropical Timber Organization (ITTO) regularly reports ranges of prices for teak exports to India, the primary consumer of Latin American logs. Figure 2.13 presents an inflation-adjusted analysis of the ITTO data for Brazil, dating back to 2010. ITTO reports a high/low range. The red line shown in the graph represents the midpoint of the range. The ITTO prices reflect a range of prices reported for the country, regardless of log quality. For instance, during times when harvest activity within a country is heavy to thinning operations, reported prices will tend to fall, while an emphasis on final harvesting causes reported prices to rise. Thus, the metric is obscured by the fact that it is as much a reflection of product quality shift as it is of a true price trend. Moreover, Sewall notes that, while ITTO continues to report the data in its periodic newsletter, actual prices reported by ITTO have not changed over the last year or more, suggesting that the data is no longer as reliable as it once was. Neither graph represents a definitive price trend. Myanmar's trend reflects an Asian surrogate based on natural teak, while the ITTO series suffers from the weaknesses just described.

Figure 2.12. Myanmar SG-4 Price Series.

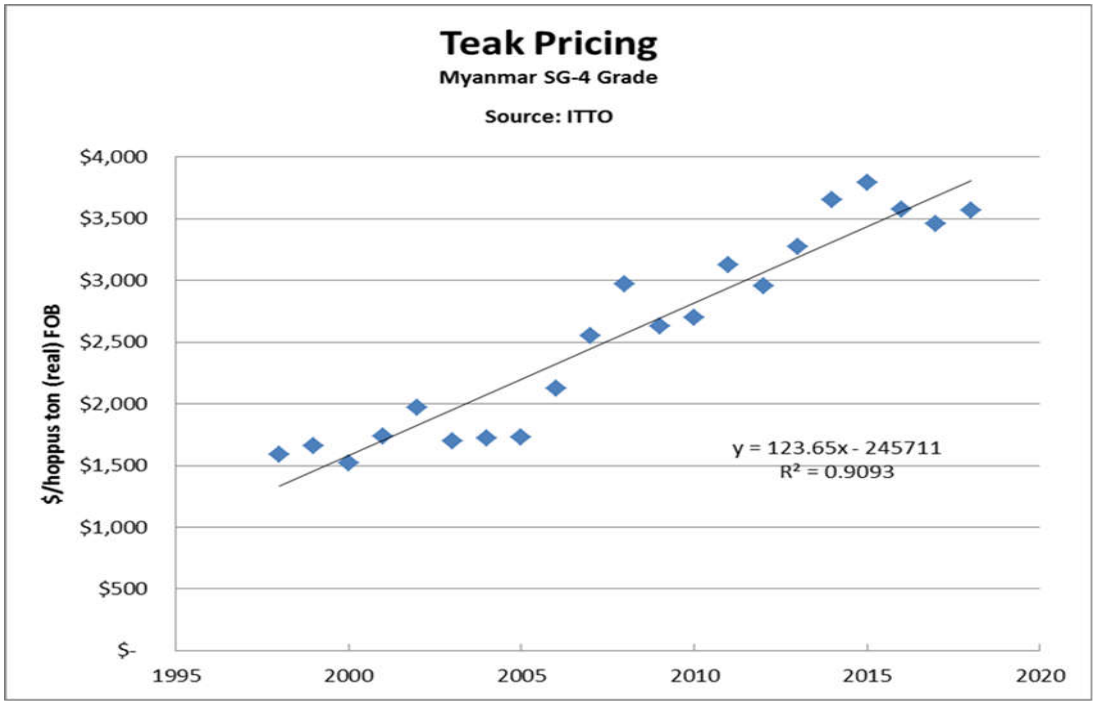
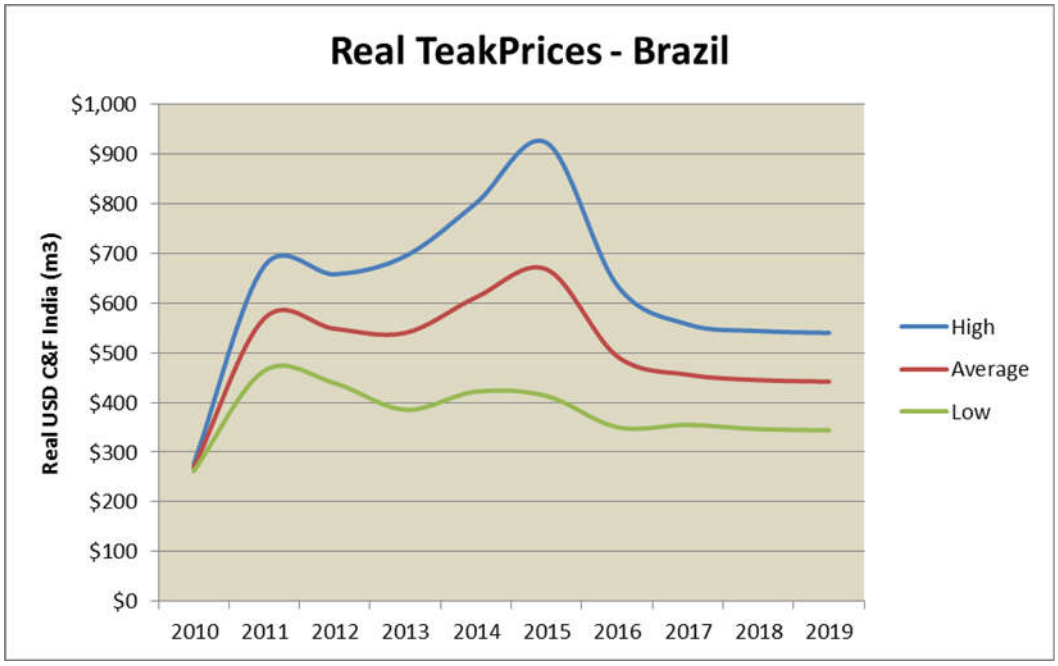


Figure 2.13. ITTO Brazilian Teak Export Prices.



Where are teak prices likely to go over the long-term? There are two schools of thought on this. Those less bullish point to the fact that the current crop of plantations established across the globe have the potential to supply enough wood in excess of current consumption. While supply is currently in balance with current demand over the short-term (next 5 years), it may actually exceed demand 10 to 15 years from now, thus negatively impacting prices over the long-term. Recent price declines for small thinning-sized logs demonstrate how this theory could play out.

On the other hand are the optimists, who point to the 2014 loss of Myanmar logs and a growing Indian middle class as support that demand is likely to keep up with supply. Future consumption will come from middle-class Indian consumption, which at this point, has plenty of upside potential. Speculation over long-term teak pricing has been ongoing for some time. If the Sewall data (Figure 2.14) are any indication, whether we have reached either extreme yet remains inconclusive in the case of Latin American plantation teak.

Brazilian Teak Resource

Most teak farms in Brazil are planted on former cattle grazing lands. Teak is generally found in the States of Mato Grosso, Pará, and Roraima. Teak investors include local business interests seeking tax shelters available from forestry investment to institutional timberland investment organizations. The emergence of teak as a commercial plantation species is part of a broader trend seen throughout the rest of Latin America, especially Central America, where teak farming has taken place over a long period of time in some areas.

Most teak growers produce teak for the export sawlog markets. Primary destinations include such Asian countries as India and Vietnam. The business model throughout much of Latin America is to sell "stumpage" roadside from thinnings and final harvests to teak buyers. Logs are loaded into containers roadside and hauled to a local port for shipment to Asia. TRC, the property's manager, is an exception to the rule. They have chosen to take control of a larger portion of the supply chain. TRC is currently marketing logs directly to buyers in Asia, and selling logs directly to teak buyers there on a CIF basis in the various Asian ports. TRC has also developed a small sawmill in the Mato Grosso region in cooperation with other teak investors. Small logs from first thinnings are sawn into squares for export to Asia.

3. REGIONAL AND NEIGHBORHOOD DESCRIPTION

ECONOMIC NEIGHBORHOOD

Demographics

The subject property area is located in two primary groupings in southwestern Mato Grosso. A portion of the property is clustered north of the City of Cuiabá in the Jangada region. The rest of the property is located around the smaller city of Cáceres. Both regions are lightly populated, with only a few medium-sized towns. Mato Grosso as a state has one of the lowest population densities in Brazil; 2017 estimated population[22] was 3,344,544. The areas around the subject property are home to agricultural operations, including sugarcane, soy, and rice, as well as numerous cattle ranching operations. Cattle ranching dominates among these uses.

Infrastructure

The primary public highways in the immediate vicinity of the properties in the Jangada region are BR-163 and MT-246, while BR-174, MT-174, MT-339, BR-070, and MT-343 serve the Cáceres region. Federal highways important in greater Mato Grosso include BR-163, which runs north from Cuiabá to Cachimbo in Amazonas, and BR-174, 264, 251 and 242. Most of the high quality roads and thoroughfares are found in the southern and eastern parts of the state. The northwestern corner of Mato Grosso is very remote.

The region's paved highway infrastructure is somewhat limited, though unpaved local and state roads provide adequate access to most areas. In places, the local roads are poorly maintained and often clogged with slow moving commercial traffic. Trucks transport over 75% of Brazil's cargo.

In general, Brazil's railroad infrastructure is incompletely developed. Several differing regional rail gauges were initially built and continue to disrupt continuous national rail service. Brazil has recently privatized its railway system, reportedly improving freight transport efficiencies. There is rail service planned across the state of Mato Grosso that would transverse the southern portion of the state, passing through Cuiabá.

Land Uses

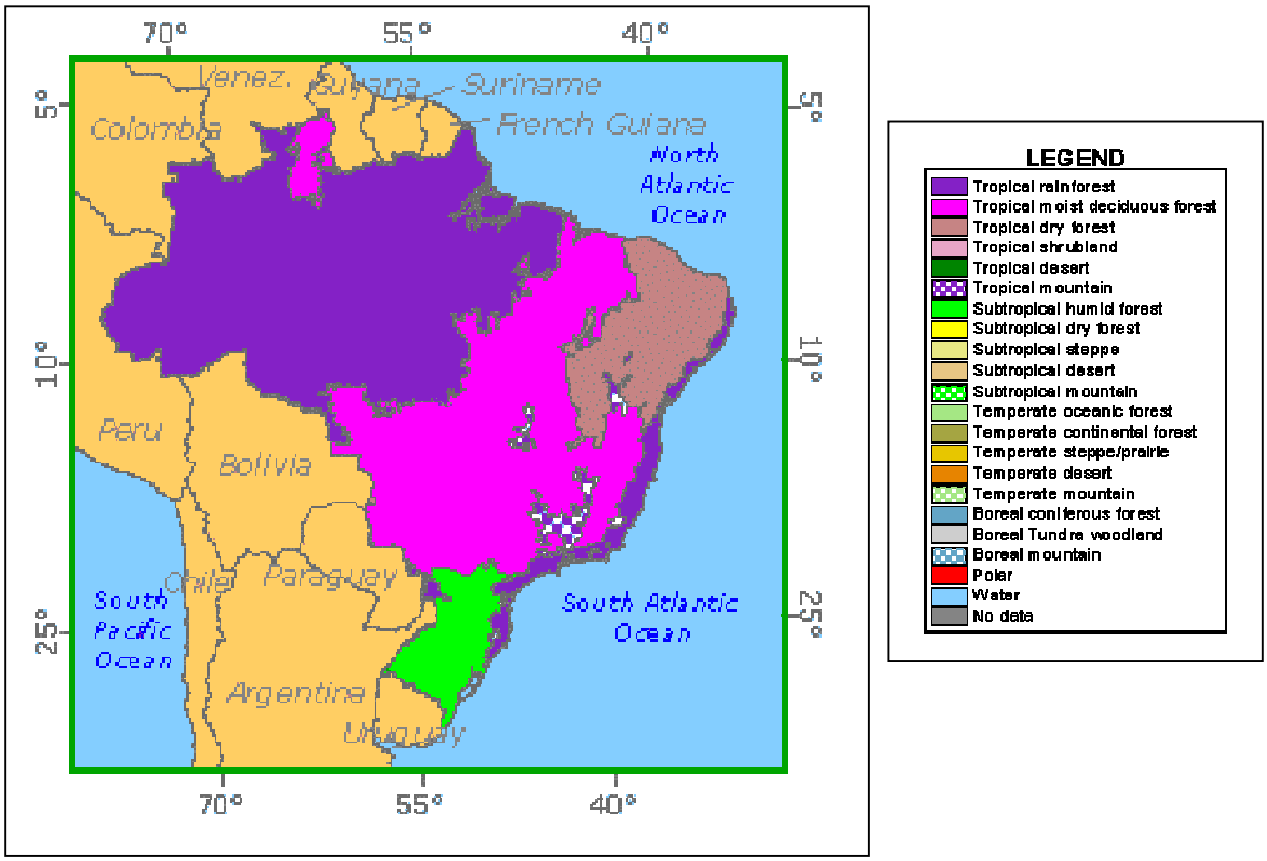
In addition to the region's substantial amount of cattle grazing, it supports scattered agriculture, primarily sugarcane, but also soybeans and cotton. Though subsistence farms and pastures may be located anywhere, most slopes support native timber growth. Few teak plantations, other than the subject property, are evident. Each of the properties is in an

area devoted primarily to farming and ranching, unaffected by any urban or suburban influences. Though a low density of scattered rural residential uses exists along the public roads, no impending changes in land use are apparent.

PHYSIOGRAPHIC NEIGHBORHOOD

The physiographic neighborhood is defined by the locational and physical characteristics of the subject property's environs. It is important to understand how a subject property compares to similar properties with respect to several physical characteristics. Climate, topography and soils influence the relative values for similar properties within a physiographic neighborhood. Figure 3.1 depicts Brazil's ecological zones. The subject property is subject to a tropical wet and dry climate. The original vegetation here was mixed tropical forest, but much of this has been replaced by grasses of the genus *Brachiaria* that are used for cattle grazing.

Figure 3.1. Ecological Zone Map



[22] http://www.citypopulation.de/Brazil-MatoGrosso.html

Climate

This region has a tropical wet and dry climate characterized by consistently high temperatures (above 18°C year-round) and a pronounced wet and dry season. Mato Grosso state has a slightly lower average annual rainfall of approximately 1,600 millimeters as compared to Pará at 2,000 millimeters on average, another teak-growing region. The rainy season is somewhat shorter, running from early October to the end of April.

Topography, Soils and Drainage

The region's topography is defined by a series of small mountain ranges in the southern portions of the state. These mountainous regions give rise to local relief that ranges from very steep to gently rolling. Areas in close proximity to river systems are much flatter. The northwestern reaches of Mato Gross state, closer to the Amazon basin, become much more flat with shallow local relief.

4. PROPERTY DESCRIPTION

PROPERTY SIZE AND CONFIGURATION

The subject is located in two areas, one clustered north of Cuiabá in the Jangada region and another around the small city of Cáceres in the Cáceres region. The property is highly parcelized, with the SATT interest effectively totaling 15,628 hectares of the gross area. Figure 1.1 summarizes the interest by region and farm. Overall size is down 5.3% from our 2018 appraisal. The reduction results from two factors:

- Ongoing final harvesting in which the land is returned to underlying landowners, and
- The reclassification of some 400 hectares at Duas Lagoas from productive to unproductive resulting from failed plantings.

The subject has a weighted average age of 16.7 years (Figure 4.1). The majority of stands (91%) were planted with conventional seed stock, but there are some newer clonal plantings present (Figure 4.1). Most of the plantations are from 15 to 22 years old (Figure 4.2). Clonal plantings are more recent.

Table 4.1. Property Age Class Summary

SATT - Brazilian Teak - June 30, 2019			
Species	**Age**	**Hectares**	**Percent**
Teak			
Seeds	10	58	0.4%
	11	239	1.5%
	15	2,263	14.5%
	16	4,144	26.5%
	17	2,135	13.7%
	18	2,522	16.1%
	19	1,080	6.9%
	20	900	5.8%
	21	387	2.5%
	22	555	3.6%
Teak Seed Stock	**17.1**	**14,283**	**91.4%**
Clones	10	42	0.3%
	11	601	3.8%
	12	234	1.5%
	13	208	1.3%
	15	119	0.8%
	16	142	0.9%
Teak Clonal Stock	**12.3**	**1,345**	**8.6%**
Established Teak	**16.7**	**15,628**	**100.0%**
Total Area:		**15,628**	**100.0%**

Source: TRC

Figure 4.1. Area by Genetic Material

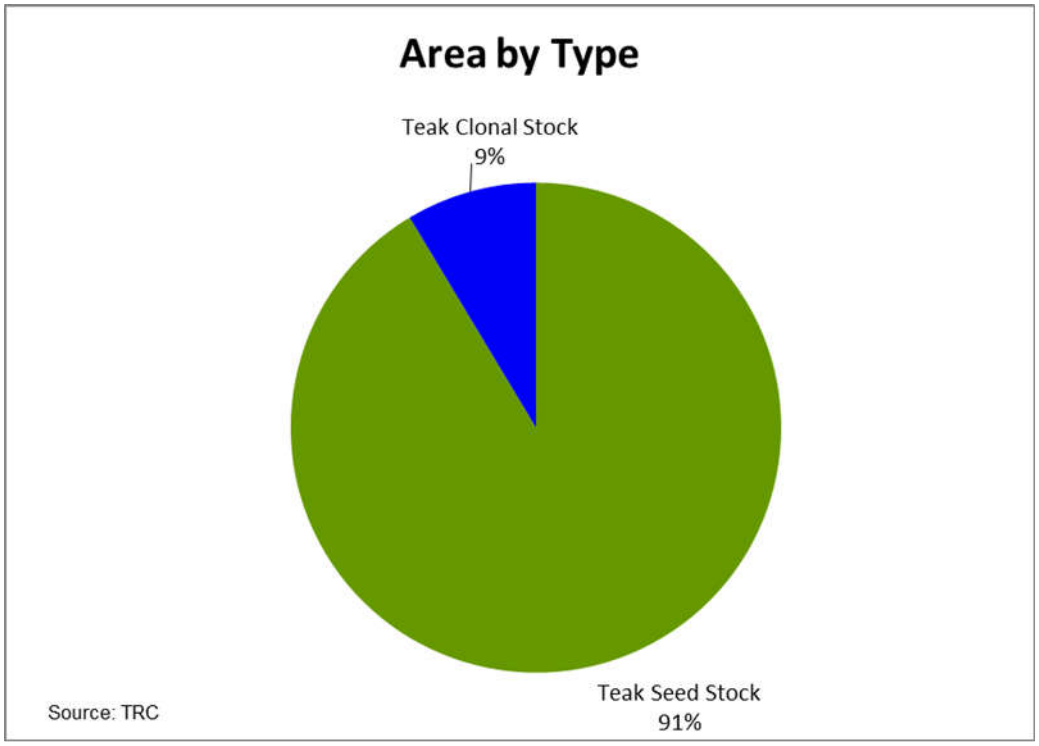
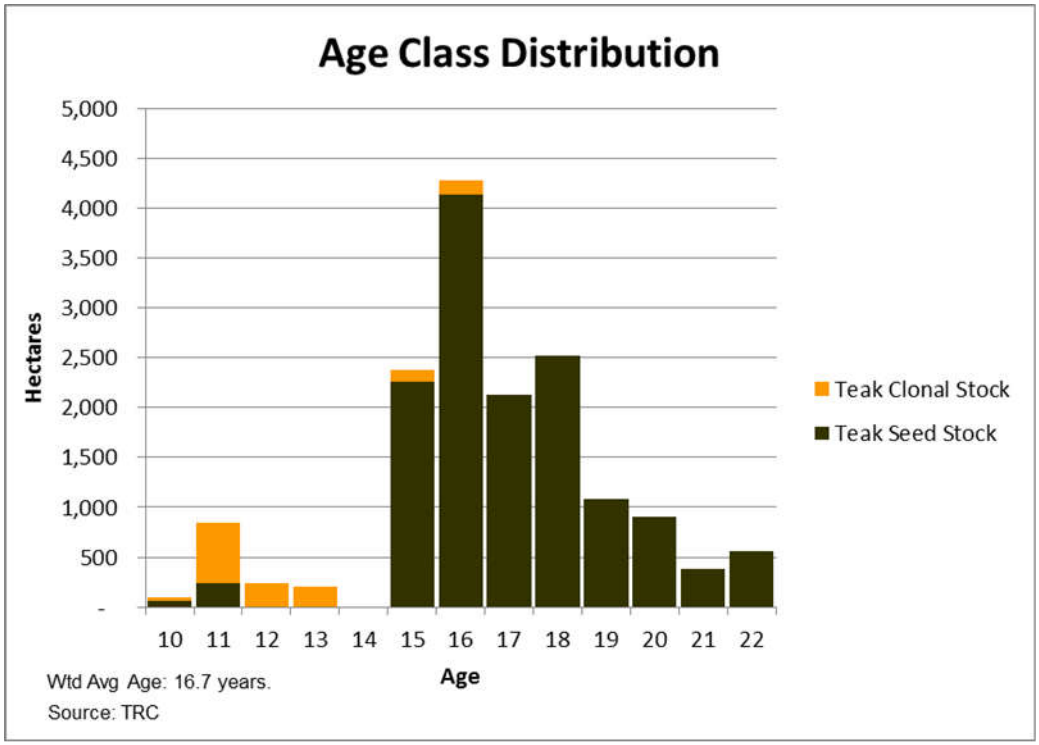


Figure 4.2. Age Class Distribution



MERCHANTABLE TIMBER

Merchantable volume is estimated to be 902,637 cubic meters, or 63.4 cubic meters per merchantable hectare. Merchantable volume is based on stands 14 years and older for purposes of this appraisal. Gross timber value, the retail value of the timber regardless of liquidity constraints, is estimated to be $67,283,908. The inventory is based on 2017 and 2018 permanent sample point data provided by FSA. Volumes have been updated by Sewall to the effective date for this appraisal, based on growth and yield information reported by FSA.

Table 4.2. Timber Volumes

SATT - Brazilian Teak - June 30, 2019

	Hectares	m^3/Ha	GTV/Hectare
Planted Area	14,246	63.4	$4,723

Species	Product	Volume (m^3)	% Volume	Unit Value	Total Value	% of Value
Teak	Logs 18-20 cm	150,261	16.6%	$ 10.00	$1,502,606	2.2%
	Logs 20-25 cm	363,041	40.2%	$ 43.00	$15,610,742	23.2%
	Logs 25-30 cm	245,251	27.2%	$ 89.00	$21,827,308	32.4%
	Logs 30-40 cm	138,023	15.3%	$ 192.00	$26,500,343	39.4%
	Logs 40+ cm	6,062	0.7%	$ 304.00	$1,842,909	2.7%
	Subtotal	**902,637**	**100.0%**	**$ 74.54**	**$67,283,908**	**100.0%**
Total:		**902,637**	**100.0%**	**$74.54**	**$67,283,908**	**100.0%**

Source: Woodstock model starting inventory.

SOILS

A detailed soils analysis has not been provided. This description is based entirely upon the inspection of a representative portion of the property. The soils are for the most part alluvial in origin. Soil quality varies from farm to farm, which likely explains much of the variation observed among the plantations visited. Most of the wetter soils along the drains and streams are located in permanent reserve areas and are therefore not included in the productive portion of the properties.

ACCESS

Each of the farms is well accessed by a network of public paved and dirt public roads along with graded private dirt roads. Private interior roads appeared to be in good condition. The region supports a large amount of agriculture, including grazing and sugar cane production. It was evident during our inspection that the other landowners in the region helped in the maintenance of secondary roads. Overall, access was observed to be good.

SILVICULTURE

Silviculture is intensive, as with other plantation species. Site preparation is typically a disc and subsoil (site-specific), followed by pre-emergent herbicide. Most of the seed stock was planted on a 3 x 3 (1,111 trees per hectare) or 3 x 2 (1,667 tph) meter basis, clones were planted predominately at a spacing of 3 x4 (833 tph) meters. In the weeks following planting, young seedlings are manually cleared of competition in a small area around the plant using a hoe or spade. Once the seedlings are larger, much of the competition control can be accomplished with periodic mowing or herbicide applications.

Trees are pruned for quality during the early years of the rotation. Current prune heights are 5 meters. The property is managed on a 3- to 4-thinning regime. The ideal plan for seed-stock stands is for a pre-commercial thinning around age 4 years, followed by commercial thinnings around 8, 12, and 15 years. Clonal stands are scheduled for a pre-commercial thinning at age 5 years, followed by commercial thinnings around age 10 and 14 years. The purpose of this early density-management regime is to ensure good tree form during early growth, and an ample collection of crop trees entering the middle portion of the rotation. The goal of the thinning regime is to produce approximately 150 to 160 trees per hectare for the final harvest, which is scheduled to occur beginning at age 20.

Many teak growers in Latin America are switching from traditional seedling stock to clonal stock for planting. The advantage to clonal stock is increased productivity, with yield gains estimated at 20% to 30%. Only 9% of the property is currently planted to clones. Differences between clones and seed stock planted side-by-side are visually striking. While clonal production has become commonplace among teak growers, the property has a low percentage of clonal stock because much of it was established prior to the emergence of the use of clonal stock. Were it planted today, it would almost certainly be 100% clonal stock.

FOREST RISKS

Insects

One main insect species possesses the ability to cause damage to plantations in this region of Brazil: leaf cutter ants. Leaf cutter ants can be a problem in younger forest plantations, but are present in nearly all plantations. Control of leaf cutter ants is with spot insecticide treatments one to two times annually, usually early in the rotation. FSA reports having treated stands in the past for ants.

Pathogens

No obvious signs of disease were observed during our inspection. TRC reports some problem with disease in 2016 in some of the plantations at the Capim Branco and Bocaina farms. FSA conducted a series of sanitation harvests to capture mortality and eliminate the problem.

Fire

There is a defined wet and dry season in Mato Grosso. Annual rainfall averages 1,600 millimeters. During the dry season, which usually occurs in late May through September, there may be up to 3 months with little to no rainfall. During this dry season wildfires are common, but are most frequently small and localized. FSA has implemented fire breaks both internally and externally surrounding many of the farms. Fire breaks, for the most part, were observed to be well-maintained. Agriculture and cattle farmers in the region use fire as an agricultural tool, so fire breaks on the property boundaries are essential. Overall, fire is of no greater threat to the subject than it would for any other timberland property in the region. The effects of recent fires were observed throughout the property during our recent inspection. Older teak trees are fire resistant. We observed no signs of fire-induced mortality during our recent visit.

IMPROVEMENTS

Building improvements on the property have not been considered in this valuation. Improvements consist primarily of encampments for forest workers and buildings for equipment storage and maintenance.

PROPERTY TAXES

The main taxes that apply to the subject are a variety of income taxes. The ICMS taxes, which are levied on state to state commerce within Brazil, do not apply to these farms since the ICMS does not apply, or gets credited back, on products destined for export. Fuelwood sales are local (within state) and therefore are not subject to the ICMS tax.

The property is also subject to property taxes (ITR), for which SATT is responsible for paying. FSA did not provide property tax information for the subject. However, they do report that SATT's property tax obligation is covered under the management fee due at final harvest.

ZONING AND ENVIRONMENTAL ISSUES

Forest management activities are subject to national land use restrictions that limit the area that can be converted to forest plantations. The legal reserves usually include buffers around water bodies, natural forest, and additional areas where the landowner has had to replant with native tree species. The property is fully planted and TRC reports that all necessary reserves are in place to meet the government's reserve requirements.

The property is Forest Stewardship Council-certified. FSA reports that certification does not necessarily garner higher prices, but it does gain access to markets, such as those in Europe, which might not otherwise accept the wood.

5. HIGHEST AND BEST USE ANALYSIS AND VALUATION PREMISES

HIGHEST AND BEST USE ANALYSIS

Highest and best use (HBU) is the cornerstone of value in the appraisal process. *The Dictionary of Real Estate Appraisal* defines HBU as: *"the reasonably probable use of property that results in the highest value. The four criteria that the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum productivity" (Appraisal Institute, 2015, p.109).*[23] The subject property is vacant timberland. Consequently, we will only consider the highest and best use "as vacant".

For a use to pass as the HBU, it must be **legally permissible, physically possible, financially feasible,** and **maximally productive**. Above all, it must be supported by land use trends for similar property in the market area. Therefore, it must be plausible when considering the most likely buyers and the uses they anticipate. The actions of the marketplace must ultimately guide the appraiser's HBU analysis.

Highest and best use analysis proceeds in two ways: an examination of the land as if vacant and of the property as improved. The first analysis is undertaken either with vacant land or when the existing improvements clearly have come to the end of their economic life. The second analysis addresses the present and possible future alternative uses of the property as currently improved. In both analyses, four categories of uses are sequentially examined:

1. Possible - Uses that are physically possible on a particular site considering its size, configuration, topography and geological characteristics.
2. Legally permissible - Uses allowed by zoning and other restrictive authority (town ordinance, deeds, etc.)
3. Feasible - Uses yielding positive economic returns.
4. Maximally productive – The use that maximizes property value.

Physically possible: The existing timber stands reveal that the subject properties are capable of producing timber; therefore, forestry is a physically possible use for the subject property. Because of its size and rural, somewhat remote location, the subject property is well suited for timber production. Other physically possible uses observed within the immediate neighborhood include sugar cane and cattle production.

Legally permissible: Despite the fact the other uses besides timber production exist within the neighborhood, legal uses of the appraised interest are limited to timber production, under the terms of the investment agreement between FSA and SATT.

[23] In Federal condemnation, HBU is defined as "That use of property which may reasonably be expected to produce the greatest net return to the land over a given period of time. It is sometimes called the 'optimum use'."

Financially feasible: Because timber production is the only legal use of the property allowed under the terms of the investment agreement, timber production is by default the only financially feasible use of the property.

Maximally productive: Of the uses that meet the test of legally permissible, physically possible, and financially feasible, and with the presence of local and international timber export markets in the subject market area, the maximally productive use is estimated to be for teak production for local and international markets.

Likely buyers would come from both within and outside Brazil. Within Brazil, investment entities such as pension funds might have interest in the property. From outside, institutional investment managers, REITs (U.S.), or pension funds would express interest.

Therefore, the highest and best use for the subject is for timber production.

VALUATION PREMISES

Appraisal technique seeks to duplicate the process, conscious or unconscious, by which the typical buyer of the property would arrive at the price to be paid. That is, in appraising property, the appraiser must put himself in the shoes of the typical buyer. What process would this prospective purchaser use to arrive at the price to be paid? It is also important to consider the willing seller's viewpoint.

Appraisal theory holds that market value can be estimated in three ways: the cost approach, the income capitalization approach, and the sales comparison approach.

The **cost approach** consists of the summation of several elements, usually including bare land, pre-merchantable timber, and merchantable timber (and, if present, the depreciated replacement cost of improvements). It is founded on the principle of substitution; that is, a buyer would pay no more for the subject property than the cost to purchase a comparable parcel of land and replace improvements having similar utility. When applied to timberland, it can be useful if there are several distinct economic units that can be valued separately. The bare land component can be valued from sales of cutover land, or from land allocations in timberland sales. Timber is treated as an improvement, and is valued by comparing it with open market stumpage sales of similar timber. Other assets can also be valued separately.

The cost approach extracts the value of separate economic units from different sales transactions, and then "assembles" the value components into an indication of total property value. A difficulty with the cost approach is that it violates the "unit" rule by assuming that the property is purchased piecemeal instead of as a package of assets. Investors in South America

sometimes apply the cost approach to timberland properties, although more as a check on the income approach than as an independent basis for establishing acquisition price. When large quantities of land and slow growing timber are involved, it often results in grossly inflated total values. However, applied to rapidly growing plantation forests in Brazil, it may produce credible results if projected timber value increases match or outpace the discount rate.

The **income capitalization approach** is based on the principle of anticipation, which states that value is derived from the anticipation of future benefits. It is most appropriate for properties that are regularly bought and sold based on their ability to generate a net operating income stream. Large commercial timberland properties fall into this category.

The **sales comparison approach**, also founded on the principle of substitution, holds that a buyer will pay no more for the property than the price at which he can obtain a substitute property having similar utility. Analysis is based on open market prices recently paid for similar properties in the market area. Purchase price allocations produce unit rates that may be applied to the subject property components. Where necessary, each sale's unit prices are adjusted to account for the influences of financing, interest conveyed, sale conditions, time (market conditions), location, physical characteristics, and other factors that drive sale price. The approach is particularly useful for commercial timberland in active, competitive markets.

SUBJECT VALUATION METHODOLOGY

We have discussed market issues with most of the small group of timberland investors involved in this area of international investment. It is clear that most market participants rely primarily upon the income approach when valuing international timberland investments. The institutional investors may appear to rely exclusively on it, but they nevertheless collect information about other transactions to ensure they remain competitive in their acquisition efforts. Thus, to emulate the process used by informed investors, we perform an income analysis.

To appropriately understand the data used to perform income projection, cost, or component, values must be analyzed. Because many investors often employ the cost approach as a check on DCF analysis when conducting due diligence, it is reasonable to do so in support of this appraisal. We therefore perform a cost approach for this appraisal.

Sewall has endeavored to utilize the sales comparison approach in this appraisal assignment. Sewall's interpretation of USPAP is that the appraiser should make a reasonable attempt to employ this relatively empirical valuation approach. Furthermore, investors participating in international timberland investments have expressed to Sewall a desire that, where relevant comparable sales data of sufficient quality exists, the sales

comparison analysis should be used. Sewall maintains a database of teak timberland sales from Central America,[24] which we have used for sales comparison analysis in the past. However, a major problem with the sales approach in this case is the nature of the interest appraised. The interest is a timber right to an existing timber rotation, excluding rights to the land. All of the teak transactions in the Sewall database involve fee simple interests, not timber rights. Therefore any use of these transactions, in the case of the subject, would be inappropriate. We therefore do not incorporate the sales approach for this appraisal.

[24] We are also aware of several deal involving Brazilian properties, but neither buyers or sellers from these deals have volunteered sufficient data to incorporate them in our analyses.

6. COST APPROACH

The cost approach analysis uses unit rates from timberland transactions to derive unit values for bare land and open market stumpage sales to derive merchantable timber prices. A combination of cost forwarding and discounted cash flow analysis is used to derive pre-merchantable timber prices. Table 6.3 summarizes the results of the cost approach.

LAND VALUE

The subject is the interest in a current timber crop; therefore, there is no need to value the land.

LOCAL TIMBER PRICES

FSA reports that log prices paid to SATT for harvested timber are based on quarterly teak price surveys conducted by Consufor, based in Curitiba, Brazil. The Consufor survey focuses on non-FSA teak sales from around Mato Grosso. Consufor reports prices on a roadside basis in both BRL and USD. Table 6.1 summarizes the Consufor prices for the last eleven quarters. Revenues paid to SATT by FSA are essentially a residual stumpage rate, based on the Consufor price less harvesting costs.[25] Because the terms of the agreement are set by the Consufor study, the payment arrangement is analogous in many ways to a fiber supply agreement between a land base and a forest products mill, such as a sawmill or pulp mill. In such cases, the terms of the agreement are generally assigned to any potential buyer. It is our understanding that were the SATT interest to be sold, any potential buyer would be locked into the Consufor pricing mechanism. As such, Consufor prices are integral to any valuation of the interest, as they will dictate future revenues.

[25] SATT is responsible for harvest costs for final harvests, but not at the time of thinnings. All thinning costs are included in the management cost fee SATT pays at the time of final harvest.

Table 6.1. Consufor Roadside Pricing Survey Results

Year	Quarter	Price by Log Size (m3 true)					
		18-20 cm	20-25 cm	25-30 cm	30-35 cm	35-40 cm	40+ cm
2017	Q1	$40	$94	$109	$200	$304	$366
	Q2	$42	$65	$110	$181	$266	$351
	Q3	$34	$60	$112	$181	$268	$353
	Q4	$28	$60	$113	$183	$272	$357
2018	Q1	$28	$60	$112	$180	$267	$349
	Q2	$28	$62	$108	$166	$255	$361
	Q3	$26	$57	$105	$160	$234	$304
	Q4	$27	$57	$105	$159	$233	$286
2019	Q1	$28	$60	$109	$158	$229	$282
	Q2	$27	$59	$107	$157	$220	$277
	Q3	$26	$64	$110	$159	$222	$280
Average		$30	$63	$109	$171	$252	$324

Source: Consufor Surveys

The prices shown in Table 6.1 are on a roadside basis. The cost approaches relies on stumpage pricing, so we must adjust these prices to account for harvest and transport costs to roadside. Table 6.2 shows our final stumpage estimates based on the Consufor survey data and the harvest cost information provided by FSA.

Table 6.2. Teak Stumpage Prices

Diameter (cm)	Stumpage Thinning $/m^3	Stumpage Final Harvests $/m^3
Current Roadside Pricing		
Logs 18-20 cm	$ 30	$ 30
Logs 20-25 cm	$ 63	$ 63
Logs 25-30 cm	$ 109	$ 109
Logs 30-40 cm	$ 212	$ 212
Logs 40+ cm	$ 324	$ 324
Stumpage		
Harvest Costs ($/m3)	$ -	$ (20.00)
Logs 18-20 cm	$ 30.00	$ 10.00
Logs 20-25 cm	$ 63.00	$ 43.00
Logs 25-30 cm	$ 109.00	$ 89.00
Logs 30-40 cm	$ 212.00	$ 192.00
Logs 40+ cm	$ 324.00	$ 304.00

Source: Consufor and Floresteca

Prices shown are for logs 18 centimeters and larger. TRC's's Cassiano Sasaki reports that there are energy markets (biomass) in the area, but demand is sporadic, and that sales into such markets tend to be opportunistic in nature. We therefore choose to limit our analysis to log products. We model a minimum log diameter of 18 centimeters. Mr. Sasaki reports that the smallest logs sizes are shipped to Floresteca's sawmill in Cáceras, where they are sawn into squares before shipment to India. He also reports that, based on haul distances from the subject farms to the mill, combined with logistics costs from the square mill to India, that it is not economical to export logs less than 18 centimeters in diameter.

MERCHANTABLE TIMBER VALUE

Merchantable timber value is calculated by multiplying total standing merchantable timber by the stumpage values just described. In this case, merchantable timber is defined as belonging to stands 14 years or older. Prices shown in Table 6.2 form the basis of the merchantable timber value reported in Table 6.3. Merchantable timber volumes shown in the table are based on inventory estimates taken from the Woodstock model developed for the income approach. Gross merchantable timber value is estimated at $67,283,908, based on this calculation. Under normal circumstances, this would become our final estimate of merchantable timber value. However the SATT interest is unique in its cost-sharing arrangement. Besides harvesting costs at the time of final harvest, SATT must also pay a one-time management cost of $3,325[26] per harvested hectare. SATT is also responsible for land clearing costs of $826 per hectare to bring the land back to a pre-forestry condition. Finally, FSA is entitled to a 5% performance fee on roadside revenues, less harvest costs and the management fees. Assuming a liquidation scenario, it is therefore reasonable to subtract these costs from gross timber value to arrive at an adjusted timber value. Management, land clearing, and FSA incentive costs total $59,538,986, resulting in final adjusted timber value of $7,744,922.

It is highly unusual for a value this low to occur within the cost approach. There are several reasons for this:

1. The management cost arrangement in which SATT must pay a large one-time management cost at the time of final harvest is unusual in that it is "back-loaded" and does not accurately reflect current costs. In most instances, timberland investors would have paid for management costs on an as-required basis over the life of a stand, thereby obviating the need for such a charge at final harvest. This cost factor is the leading contributor to such a low indication of value.

[26] Note that the base cost is $4,500, but TRC owes SATT back revenues from prior harvest activity. The revenues are to be subtracted from the management cost, resulting in the reduced cost reported above.

2. The same can be said for the land clearing cost, which is significant, but still less than the gross value of the timber.
3. A common problem with the cost approach is that it often treats the value of standing timber based on a "liquidation" basis. That is, it only recognizes the value of the timber based on its current condition. Teak stands always generate their maximum value at the very end of their rotation when their product mix includes a much higher proportion of larger, higher-value logs. As such, the approach almost always fails to recognize future value, thereby understating the intrinsic value of the investment.

Often one can argue that the conservative nature of the merchantable timber value calculation is offset by an overly optimistic view of liquidity, which assumes that all the timber could be harvested at once and placed into the market with no price impact. However, in this case, the magnitude of the management costs on the back end of the investment period completely overwhelms any value derived from the gross estimate of timber value, resulting in an unrealistically low value. An alternative would be to treat the merchantable timber similar to that of pre-merchantable timber, which factors in future value, as well as costs. However, to do so effectively reduces the cost approach to a simple DCF analysis. This would obviate any need for the approach in the first place, since we are already applying a DCF analysis within the income approach (to be described later).

PLANTATION TIMBER VALUE

Although pre-merchantable timber is not large enough for harvest, the market allocates increasing amounts of value to it, particularly for well-maintained plantations. Numerous formulas have been used to develop pre-merchantable values, falling into the categories of historical cost (or cost forwarding), anticipated income and internal rate of return approaches.

We can estimate the value of plantation timber using three approaches. The first approach is discounted cash flow, where the expected net income from future harvest is discounted to the present. The anticipated income approach takes the view of the buyer, who anticipates realizing revenue at some future point from the stand of pre-merchantable timber. Here, the expected net income from future harvest is discounted to the present. For this analysis, we discount future cash flows at an 11.25% discount rate (refer to our discussion under the income approach for more on discount rates).

The historical cost or cost-forwarding approach accounts directly for the actual costs incurred in site preparation, planting, and other activities contributing to the establishment of the pre-merchantable stocking. These costs are carried forward at a real, pre-tax interest rate. This approach is attractive because it is straightforward in application and deals with

historical fact rather than speculation. The primary pitfall of the historical cost approach is that it views the problem only from the perspective of the seller, who has borne the regeneration costs. Because value reflects anticipated benefits, the buyer has no reason to be concerned with the costs borne by the seller. Another issue with the cost-forwarding approach is that it does not allow one to account for risk in analyzing the value of pre-merchantable stands.

The internal rate of return approach offers a middle ground between the seller's value (historical cost) and the buyer's value (anticipated income). Here, the internal rate of return from the cost of stand establishment to harvest is determined. The internal rate of return is then used in the pre-merchantable valuation process by compounding the establishment cost forward at that rate. This approach assumes that the buyer and seller have agreed to compromise. It also assumes that the buyer is satisfied with the cost of past management practices.

Once again, the nature of the terms of the investment agreement between FSA and SATT confounds the situation. SATT does not currently have any obligations to pay for management activities leading to the successful harvest of the trees. Because there are no up-front costs, it becomes impossible to employ either the cost-forwarding or the IRR method. We are therefore reduced to the use of the DCF analysis solely for purposes of valuing pre-merchantable timber. Table 6.3 shows the estimate for the pre-merchantable timber value of $5,970,512, which is based on the DCF method.

INDICATED VALUE BY THE COST APPROACH

Table 6.3 summarizes the results of the cost approach analysis. Based on this unit summation analysis, the estimated market value is $13,700,000. Were it not for the negative value generated by the cost adjustments, the concluded value under the cost approach would be higher. Under normal appraisal conditions we would not have to adjust value downward for deferred management and clearing costs. These costs combined equal -$59.5 million dollars. It is worth noting that under normal conditions in which we would typically ignore these costs, the indicated value from the cost approach would be $73.0 million. One could argue that this is the correct value, since it produces a value more in line with customary management practices and the charging of costs. However, insofar as the current estimate of value from the Cost Approach is much lower than we would expect, this fails to account for any influence on value resulting from the typical timing and allocation of management and clearing costs. This cost stream is one which any knowledgeable buyer would almost certainly factor into their due diligence.

The cost approach, because of the unique circumstances surrounding the SATT interest, does not produce a credible measure of value. Because of this, we do not factor it into our final estimate of value. We have, however, included discussion of it here for purposes of providing a comprehensive opinion of value. It is instructive, as it helps to highlight the unique nature of the investment.

Table 6.3. Cost Approach

SATT - Brazilian Teak - June 30, 2019

MERCHANTABLE TIMBER:		**Volume (m3)**	**Unit Value**	**Total $**
	Logs 18-20 cm	150,261	$10.00	$1,502,606
	Logs 20-25 cm	363,041	$43.00	$15,610,742
Teak	Logs 25-30 cm	245,251	$89.00	$21,827,308
	Logs 30-40 cm	138,023	$192.00	$26,500,343
	Logs 40+ cm	6,062	$304.00	$1,842,909
		902,637	**$74.54**	**$67,283,908**
Management Costs		**14,246.5**	**-$3,324.60**	**-$47,363,774**
Stump Clearing Costs		**14,246.5**	**-$826.00**	**-$11,767,585**
TRC Performance Fee	(Roadside price - harvest costs - management fee) * 5%			**-$407,627**
Subtotal Costs:				**-$59,538,986**
Adjusted Merchantable Timber:				**$7,744,922**

PRE-MERCHANTABLE PLANTATIONS:

1: Per-acre value reconciled by giving 0% weight to the liquidation approach, 100% weight to the discounted revenue method, and 0% weight to the IRR approach.

Teak Seed Stock		**Plantation Area (ha)**	**IRR Approach USD/ha**	**Cost Forwarding USD/ha**	**Discounted Revenues USD/ha**	**Reconciled USD/ha**	**Reconciled Total USD**
Age	10	58	$0.00	$0.00	$3,829.42	$3,829.42	$222,566
Age	11	239	$0.00	$0.00	$4,260.23	$4,260.23	$1,019,260
Teak Seed Stock		**297.4**				**$4,176.03**	**$1,241,825**

Teak Clonal Stock		**Plantation Area (ha)**	**IRR Approach USD/ha**	**Cost Forwarding USD/ha**	**Discounted Revenues USD/ha**	**Reconciled USD/ha**	**Reconciled Total USD**
Age	10	42	$0.00	$0.00	$4,331.87	$4,331.87	$180,856
Age	11	601	$0.00	$0.00	$4,066.21	$4,066.21	$2,444,726
Age	12	234	$0.00	$0.00	$4,523.66	$4,523.66	$1,057,992
Age	13	208	$0.00	$0.00	$5,032.57	$5,032.57	$1,045,113
Teak Clonal Stock		**1,084.5**				**$4,360.13**	**$4,728,687**
Total Pre-Merch		**1,381.9**				**$4,320.51**	**$5,970,512**

	Hectares	USD/Hectare		
Total Area	**15,628**	**$877**		
Plantable Area	**15,628**	**$877**		**$13,715,434**
			Rounded to	**$13,700,000**

7. INCOME CAPITALIZATION APPROACH

The Income Capitalization Approach (ICA) derives market value directly from the income-producing potential of the property. The format used in this appraisal is Discounted Cash Flow (DCF) analysis. The DCF analysis estimates net annual income to the subject property in each year of the projected holding period. The analysis is conducted on a real, pre-tax basis, designed to emulate typical investor behavior. It is Sewall's experience that most investors hold to this convention. The analysis assumes no taxes, other than property taxes. Because of this, a real, pre-tax market-derived discount rate is used to discount annual net incomes. Sewall worked with the timberland managers in estimating forest management costs and timber productivity estimates specific to the property. These data include timber rotations, silvicultural treatments, and management costs. Base timber prices are as discussed in the previous chapter (see Table 6.2). FSA provided the expenses included in the model, which were based on historical costs and future projections.

UNIT MEASURES

All financial values are expressed in USD. All volumes are presented in cubic meters and all area figures are hectares.

DISCOUNTED CASH FLOW METHOD ASSUMPTIONS

The DCF process has several aspects that can vary, depending on country, region, property type and value definition. This section provides Sewall's approaches on timing convention, projection period and reversion value.

Timing Conventions

Each Woodstock planning period is one year in length (i.e., an annual period). Woodstock applies all actions (harvest and silvicultural activities) at one point in time during the planning period. When applying discount rates, Sewall assumes that cash flows occur at different points in time during the year. The following timing conventions are typically used for Southern Hemisphere DCF models. Sewall recognizes that revenues generated from harvesting can occur throughout the year. In order not to be too aggressive on the timing of the cash flows, harvest revenue is treated as mid-year. Costs are also assumed to occur at mid-year.

Projection Period

The projection period should reflect or account for the holding period anticipated by typical investors. In most cases where properties are held fee simple or future rotations are anticipated, we model a 20-year holding period. However, because this is a timber right with a finite lifespan, we model the investment to its natural conclusion.

Inflation

The appraisal analysis is presented in real terms. The cash flow projections and discount rates are therefore net of inflation.

Reversion Value

There is no need for a reversionary value, as the interest is subject to a finite term.

Tax Considerations

Forests can be valued either pre-tax or post-tax. Institutional capital makes up the bulk of current timberland investors. Such investors often analyze deals on a pre-tax basis. While this treatment often does not apply to offshore investments, deals are typically structured to mitigate most, or all, of the tax burden. Therefore, we model cash flows for the subject on a pre-tax basis.

Since our analysis is pre-tax, we employ a pre-tax discount rate. Producing a post-tax analysis would require using a lower discount rate that would more or less offset the outflow of cash included in the post-tax model, thus arriving at generally the same conclusion.

YIELD TABLE GENERATION

Growth and yield assumptions used for the DCF analysis are based on inventory information and yields provided by FSA for the subject. The inventory, based on a collection of Permanent Sample Points (PSPs), is taken every one to two years, with the most recent data measured from 2016 to 2018. The FSA inventory includes volumes for logs from a small-end diameter (SED) from 4 centimeters on up. Not all log sizes in the inventory are commercially viable. TRC's Cassiano Sasaki reports that logs smaller 18 centimeters are not currently economically usable. Our analysis, therefore, assumes a minimum SED of 18 centimeters. The inventory data provided for this year's appraisal has been updated for measurements not available at the time of our2018 appraisal.

FSA provided a collection of yield tables for the properties, based on PSP measurements. The yields were differentiated by genetic material (clones vs seeds) and site quality. Mean annual increment (MAI) ranges from under 5 cubic meters per hectare per year on the worst seed sites to over 13 on the best clonal sites.[27] Growth and yield was observed to be highly variable across the properties. Site 1 seed and clonal plantings looked good, while many of the Site 3 areas are in bad shape, and may not develop much beyond their current state. Difference between seed and clonal plantings were visually striking. In general, the clonal stock exhibits superior growth and form, which should translate into superior yield performance over the early seed-stock plantings. The growth projections provided for this year's appraisal remain unchanged from 2018.

Sewall used the starting inventory data in conjunction with the FSA yield tables to build a collection of yields for the property. The starting points for existing yields are based on the recent inventory data, adjusted for expected growth between the point of last measurement and the effective date of appraisal. Some stands were thinned since their last measurement, which was not reflected in the data. Sewall requested and FSA provided a list of these stands. Stocking in the inventory for these stands was adjusted to reflect a post-thinned condition, based on the information provided by FSA. The yields in the model therefore reflect all past and/or anticipated thinning as of the effective date of appraisal. The data were also adjusted to account for any final harvests anticipated between the time of last inventory and the effective date of appraisal. As such, the starting condition assumed by the model is our best effort to accurately portray the condition of the forest as of the effective date of appraisal. In summary, starting inventories for this year's appraisal have been updated since 2018, but the general growth assumptions used to project stands forward remain unchanged.

Stands were grown based on expected growth rates derived from their respective yield tables. In general, seed stands are assumed to receive commercial thinnings at 12 and 15 years, while clonal stands receive thinnings around ages 10 and 14 years. Actual thinning regimes chosen by the model depend on a stand-by-stand basis, based on their current condition. All stands are allowed an initial final harvest beginning at age 20, with a maximum final harvest age of 24 years. Woodstock was forced to harvest all stands. It may leave no stands uncut at the end of the optimization process.

Yields provided for the property by FSA appear reasonable, based on observation made during our inspection of the property. However, a more rigorous analysis of the data was outside the scope of this assignment. In general, we find the yields associated with this property to be below average, based on the overall condition of the forest. The Woodstock

[27] Assuming a rotation age of 20 years and an SED of 18 centimeters.

model described here results in an average MAI of around 7 cubic meters per hectare per year. We would expect MAIs for normal properties within Latin America to range from 10 to 14 cubic meters per hectare per year; significantly higher than the subject MAI. The value difference between a property with an MAI of 7 versus 12 cubic meters, for example, is significant.

DISCOUNT RATE

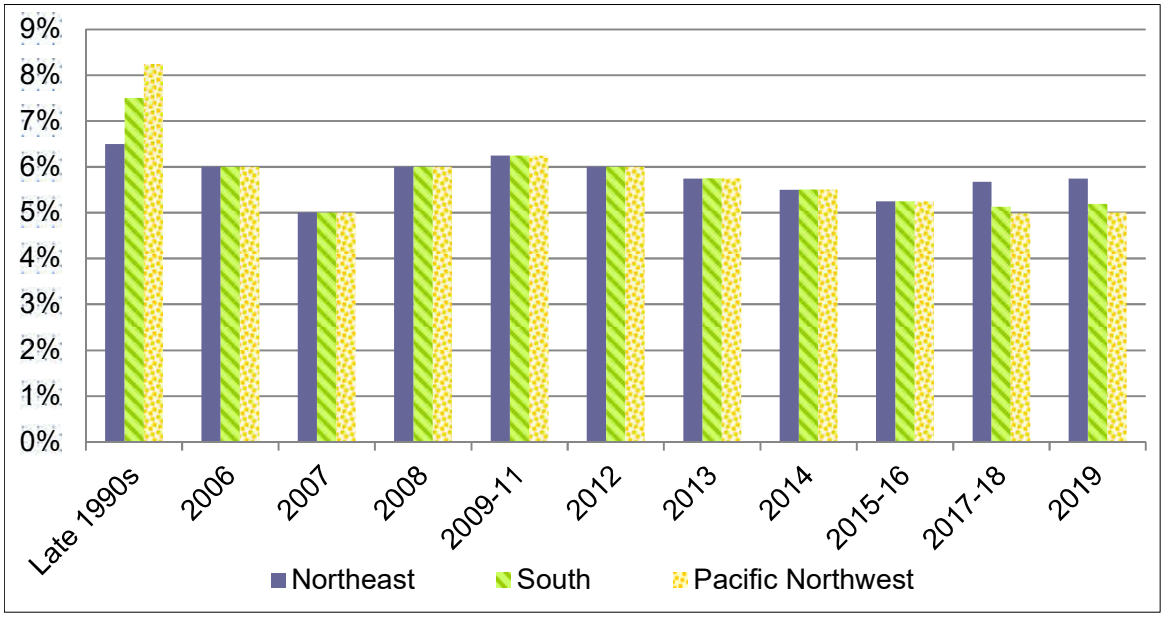
The discount rate is used to convert anticipated cash flows into a net present value for an investment. A market-based derivation of the discount rate is critical in providing a reasonable estimate of value, particularly for a longer-term investment in which the value is particularly sensitive to the timing of cash flows. For this appraisal, Sewall is applying a discount rate of **11.25%** real.

Evolution in Discount Rates

We first consider the evolution of discount rates applied to timberland valuations that has occurred in the US for context. US timberland markets seemed to previously peak in pricing in early 2008 in conjunction with compressed risk premia across most of the investment universe, as ample capital sought refuge in assets that might offer a better return than traditional markets that seemed overvalued. In order to remain competitive, investors applied progressively lower discount rates to timberland as was occurring in most investment sectors, driving values higher.

Although spot timber prices were declining during this period, *expected* prices are often stickier because of the common assumption, based on observation of the past, that prices will return to a prior average or level. Also, there was little variation in discount rates among timber regions and properties as purchasers assumed relatively little difference in risk regardless of location in the US (Figure 7.1).

Figure 7.1. Real Discount Rate for Timberland by US Region Since the 1990s



When the 2008 global financial crisis struck, there was considerable investor uncertainty, and timberland discount rates rose above 6.0% real. The bid-ask spread widened and "no-sales" characterized some offerings. Timberland prices reflected higher discount rates, indicating that available capital had declined. Sewall's representation of prospective buyers in their due diligence, various appraisal assignments and our analysis of significant transactions shed some light on the prevailing investment environment.

In 2010-11, discount rates for US investments changed little. However, by 2012, Sewall's Investor Survey indicated discount rates fell by about ¼ percentage point. A similar decline occurred in 2013, and by 2015, rates had dropped to pre-financial crisis levels. Investor Survey results in 2019 showed the median real discount rate subsided to 5.0% for the US generally, with some differences among the major regions.

We attribute the decline in rates since 2012 to a similar decline in prospective rates of return for other investments, such as common stocks and bonds, as well as relative demand for timberland assets. Optimism around fundamentals such as recovery in the housing market and strengthening log demand from China may now be wavering, though prices have been buoyed by sales of comparable properties.

Discount Rate Approaches

In selecting a discount rate, we consider the recent US 10-year Treasury yield as a proxy for a "risk free" benchmark; we then review alternative indicators to see that an appropriate risk premium for the subject based on its asset type is added, implicitly or explicitly, to arrive at a discount rate that reflects the risk parameters of the specific timberland investment. For non-US timberland valuations, we also provide any necessary risk premium or discount to account for country risk as well.

There are three approaches that we considered to determine an appropriate discount rate for a timberland investment by a US dollar-based investor:

1. Implied discount rate based on transaction evidence
2. Sewall's Annual Investor Survey of market participants
3. The Capital Asset Pricing Model (CAPM)

In the case of the last two, we begin with the US rate, treating it as our timberland benchmark for a well-established, low-risk, active market. For non-US timberland valuations such as the subject, we then add any risk premium to account for property-specific risk as well as country-specific risk.

1. Implied Discount Rate

Actual sales transactions can provide empirical evidence of market discount rates. Sewall can derive discount rates from transactions by two methods. First, we might ask a buyer the discount rate they applied to arrive at their acquisition price. The advantage to this approach is that it most directly reflects investor behavior regarding the transaction in question. Unfortunately, investors are generally reluctant to disclose their actual discount rate for a particular transaction. This is especially true for non-US deals. While most investors decline to disclose deal-specific rates, many are willing to opine on geographically specific generic rates, which in some ways can be more useful than deal-specific implied discount rates. More on this in the discussion of our annual investor survey below.

Second, we can compute the acquisition's projected internal rate of return based on a known sale price and assumptions regarding projected expenses and revenues. In some cases, Sewall has direct experience as a result of being involved in acquisition due diligence for a bidder. By virtue of this, we are well-informed regarding the cash flow profile of a given property to then derive the implied discount rate for that transaction. However, even under these conditions, we may be limited to our own interpretation of the "correct" set of assumptions for the transactions. This is often due to the fact that investors may share data with the appraiser, while at the same time hold back the assumptions they apply to the data.

Regardless of the method employed, it is important to recognize that the buyer's discount rate is driven by their particular perception of risk, future prices and costs, projected timber yield, and sale of portions of the property, for example. There are a number of variables and assumptions to consider when estimating a discount rate. When not privy to the buyer's assumptions, it is necessary to estimate them to derive the implied discount rate.

Risk can be incorporated into an analysis by adjusting projected cash flows, adjusting the discount rate itself, or a combination of the two. Some investors account for risk by adjusting project cash flows directly. In this case, adjustments to the discount rate from one project to another will be relatively small compared to investors who account for risk by adjustments to the discount rate itself.

Regarding Brazil, we have insufficient evidence from recent deals from which to derive project-specific Brazilian discount rates.

2. Sewall Investor Survey

Sewall uses as a key reference point our Annual Investor Survey as a gauge of overall market sentiment. This is an effective way to capture investor sentiment and the relative risk profile which they ascribe to various investment regions and opportunities.

In 2019, Sewall received responses from 31 active timberland investment managers, most of which are US-based, and 27 replies applied to the US discount rate. We collected data around the "base" discount rate (real, pre-tax, before investment manager fees and expenses) currently required to purchase generic timberland investments in the US. Respondents could report a single rate for the US, or if they assumed regional differences, they could specify rates they would apply to the South, Northeast, Lakes States, Pacific Northwest, Inland Northwest, and Northern California.

Selected survey results are summarized below:

What is the US base discount rate required for competitive bids?
Mean 5.07%; Median 5.0%; Mode 5.0%; Range 4.0% to 6.5%

Over the past 12 months, have discount rates stayed the same, risen, or fallen?
Same (21) | Fallen (3) | Risen (2)
By how much? Mean -0.01%; Median 0.0%; Mode 0.0%; Range -0.50% to +0.5%

Compared to 12 months ago, how difficult is it to raise capital?
Same (14) | Harder (11) | Easier (0)

How much committed capital is out there now?
Mean $2.8 billion; Median $3 billion; Mode $3 billion; Range $1-5 billion

Brazil Base Rate

Respondents to our annual investor survey are asked to opine on appropriate discount rate premiums to be applied to the base US rate in order to build country-specific discount rates. Respondent risk premiums account for country-specific risks related to political, economic, and currency related factors.

Brazil is one of the countries included in the survey. The mean response in 2019 was 5.35 percentage points, and the median 5.0 points for teak investment. Adding these rates to our 5.0% base US rate produces a Brazil discount rate of 10.35% and 10.0%, respectively. The full range in responses of 3.5 to 10.0 points was wide relative to the range in perceptions of other geographies. This indicative range produces a discount rate range of 8.5% to 15.0%, and thereby a midpoint of 11.75%. Comments indicated that distant end markets' sensitivity to transportation cost changes, as well as regulatory and political uncertainty, weighed on required return considerations for this investment type in Brazil.

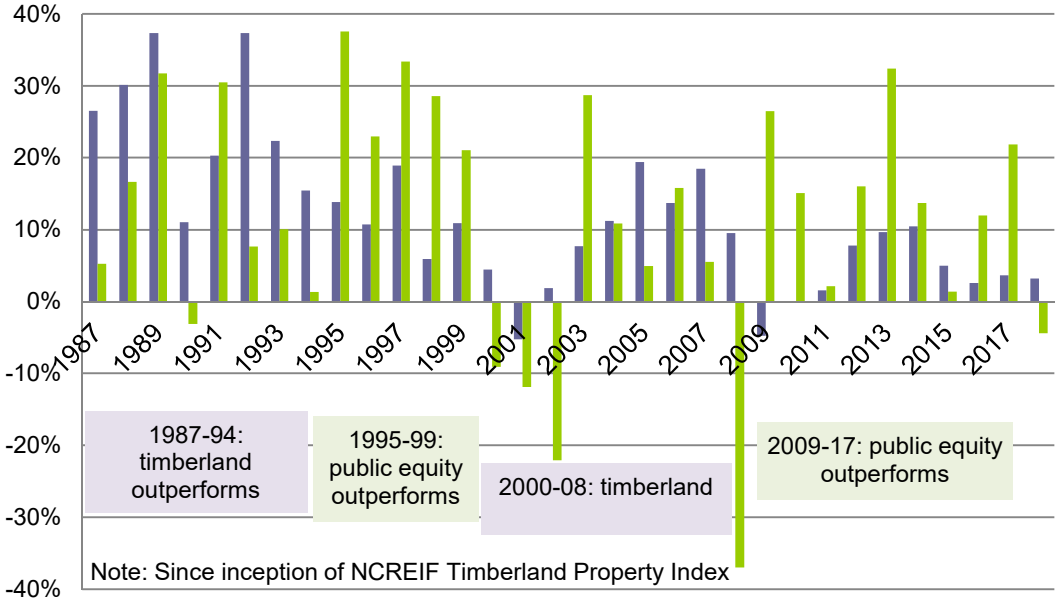
3. Capital Asset Pricing Model (CAPM)[28]

The advantage of the Investor Survey is that it provides direct input as to current investor sentiment regarding the market in question. The CAPM offers a quantitative, public equity-based alternative to investor surveys. The risk premium that CAPM derives is not a function of a project's stand-alone risk, but rather its contribution to a well-diversified investment portfolio. In other words, CAPM calculates the risk premium for an asset based on its performance relative to the overall equity market. As with the investor survey, we begin by analyzing US timberland investments in the context of the CAPM and expand our analysis to include risk for the geography in question.

US Investment Performance Measures

The US has a history of timberland investment going back to the 1980s via the NCREIF Timberland Property Index. As a starting point, Figure 7.2 compares total returns (EBITDDA plus appreciation) of the NCREIF Timberland Property Index and the Standard & Poor's 500 Total Return Index since inception of the NCREIF Timberland series in 1987. There are multi-year periods in which timberland has outperformed stocks, and vice-versa.

Figure 7.2. NCREIF Timberland Property Index and S&P 500 Total Return Index



Source: NCREIF, St. Louis Fed

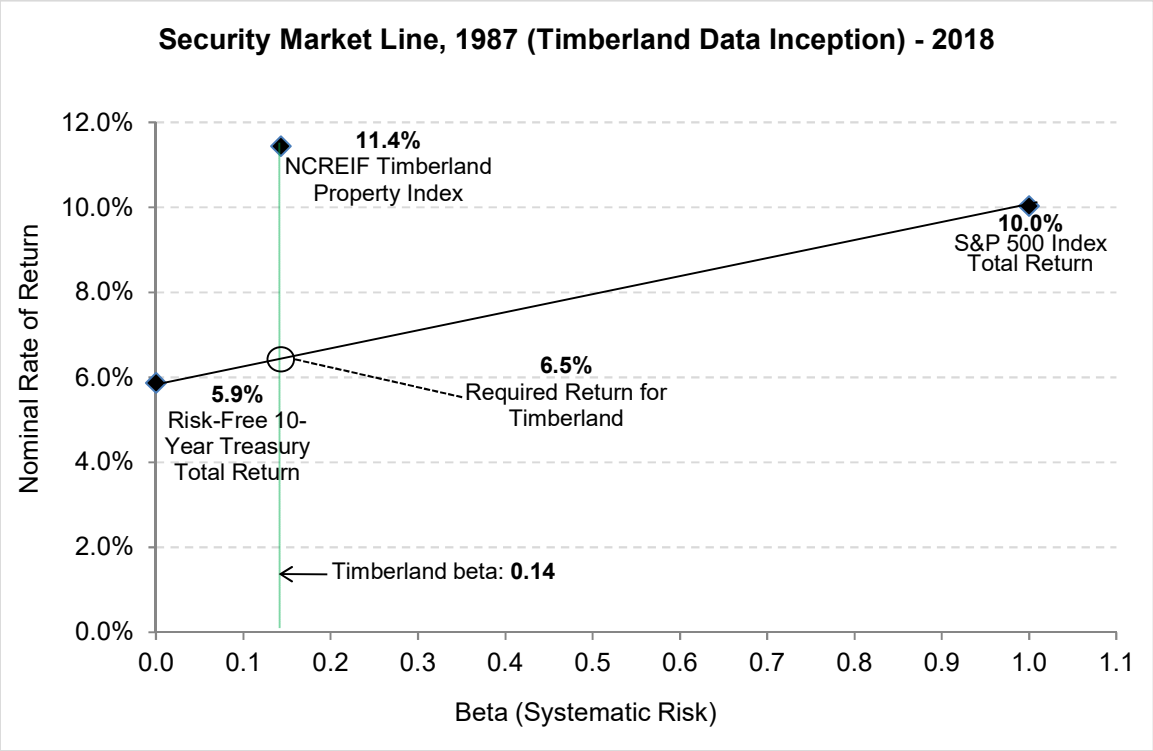
Subsequent to the market correction in 2008-10, discount rate compression and capital appreciation drove up US timberland and publicly traded equity returns markedly from 2011-2014. Timberland's positive returns look modest as public equities' prices charged higher through 2017, then timberland outperformed when publicly traded share values corrected in 2018.

The correlation between annual returns, one rationale for investor interest in timberland and best measured over long periods covering multiple business cycles, of US timberland and US public equities shown in the figure is just 0.24 (US timberland's correlation with the Barclays US Aggregate Bond Index is even lower at 0.20 over the same period).

Figure 7.3 is a graphical depiction of Sewall's CAPM model. The Security Market Line shows how annualized rates of return correspond with volatility (beta).[29] The positive slope of the line indicates that, as the volatility (or risk) of an investment rises, an investor should expect to receive a commensurately higher rate of return for accepting that risk. The risk-free rate of 5.9% is the average return on a 10-year government bond, to correspond with the typical minimum investment horizon for timberland, since inception of the NCREIF Timberland Property Index in 1987.

[29] Beta measures an asset's correlation with the overall equity market. A beta = 1.0 would represent perfect correlation; an asset with a beta of 0.9 would be expected to rise 9% if the stock market increased 10%.

Figure 7.3. Capital Asset Pricing Line



Sources: NCREIF, St. Louis Fed

The security market line indicates that, with a beta of 0.14, the return for timberland should have averaged 6.5% in nominal terms to fairly compensate for its risk. Actual returns are higher - the 1987 inception-to-date annualized return was 11.4%[30], suggesting excess return (or outperformance) of nearly 5% per year over this time period. Some of the outperformance may be attributed to non-systematic factors (early-mover advantages, fortunate timing relative to events unique to the forest sector), while some outperformance could be more systematic (niche investment in which few investors have dedicated expertise, illiquidity premium, etc.). This risk/return relationship has bolstered timberland's attractiveness for investors.

Below is the CAPM equation that we apply for generic timberland:

$$R_a = R_f + \beta(R_m - R_f)$$

Elements of this equation are defined below.

R_a = Required rate of return of the asset, or discount rate (DR)
R_m= Expected equity market return, represented by the S&P 500 Total Return Index
R_f = Expected risk-free *real* return; represented by US Treasury bonds

[30] Through December 31, 2018.

R_m-R_f = Market risk premium
b = Timberland beta (adjusted)

$R_a = R_f + b(R_m-R_f)$
= 1.0% + 0.3 * 6.0%
= 1.0% + 1.8%
= 2.8% real

With regard to the specific factors above:

- The risk-free rate (R_f) applied is the average yield on long-term US Treasury securities. This rate ranged from 2.5-3.2% in nominal terms, and 0.5-1.2% in real terms, in 2018.[31]
- The US timberland beta is calculated at a relatively low 0.14. In private commercial real estate, rates of return may understate volatility due to a "lag effect" between when actual market conditions are reflected in the appraised values used to calculate rate of return. This theorized lag and smoothing effect on returns remains a subject of debate.[32] Our sense is that if this effect applied to timberland, the increased variability of rates of return would increase beta to approximately 0.2-0.4.
- The equity risk premium[33] (R_m-R_f) is an annual estimate of 5.96% published as of year-end 2018. The equity risk premium (ERP) is in line with the 4-6% range typically cited in academic literature for the historic average ERP in the US; it has ranged from 2-6.5 since 1961 by this source's methodology.
- At this point, the indicated *real* required return or discount rate is 2.8%.

Our CAPM analysis so far does not account for more subjective items such as reduced liquidity and related high transaction costs associated with private-market assets. Our impression is that each of these factors could add 0-1 percentage point of required return, for a total of 2.8-4.8% on a real (net of inflation) basis. Moreover, current instability in the global economy suggests to us that CAPM has limited direct application to forward-looking discount rates for timberland assets.

Country-Specific Risk Measures

To quantify the risk associated with non-US investments relative to the US, Sewall's approach is to categorize the offshore risk elements according to: (1) forest-sector risk; (2) country macro-economic risk; and (3) unique, non-diversifiable property-specific risk not captured by (1) and (2). In the context of the CAPM equation expanded below, the corresponding factors that adjust for these three types of risk are as follows: timberland beta (b) for forest sector risk; country-specific risk premium (RP_c) for macro-economic risk; and z for unique, non-diversifiable risk. Sewall's goal is to provide as much transparency as possible regarding our logic at arriving at key inputs for the CAPM equation.

[31] St. Louis Fed

[32] Cheng, P., Z. Lin. and Y. Liu. Heterogeneous Information and Appraisal Smoothing. *Journal of Real Estate Research*, 2011, 33(4), 443-469.

[33] http://pages.stern.nyu.edu/~adamodar/New_Home_Page/

The 0.14 beta calculated (0.3 adjusted for possible lag effect) using NCREIF return data is quite low and represents a relatively lengthy and accepted performance history, in turn supported by the relatively deep timberland markets available to US investors and lower associated risk. In adjusting beta, a key lever in the CAPM equation, we make adjustments relative to the US timberland market. In the case of the subject property being appraised, the characteristics of its timberland sector and available market information suggests to Sewall an increase in beta to reflect increased risk.

Below is the CAPM equation that we apply specifically for the subject property:

$$R_a = R_f + \mathbf{b}(R_m - R_f) + RP_c + z$$

Elements of this equation that apply to the subject property in Brazil are defined below:

R_a = Required rate of return of the asset, or discount rate
R_m= Expected return of S&P 500 Total Return Index
R_f = Expected risk-free *real* rate of return
R_m-R_f = Equity risk premium (ERP)
b = Timberland beta (adjusted)
RP_c = Country-specific risk premium
z = Property-specific risk

$R_a = R_f + b(R_m\text{-}R_f) + RP_c + z$
$= 1.0\% + 1.0 * 6.0\% + RP_c + z$
$= 1.0\% + 6.0\% + RP_c + z$
$= 7.0\% + 3.4\% + z$
$= 10.4\%$ (rounded) real + z

We purposely start with US-based market metrics and then adjust for country-specific factors that would apply to the geography involved. We also reference nearer-term market metrics relative to the effective date of the appraisal as more reflective of the current investment environment and options available to investors.

With regard to the specific factors above:

- As noted above, the risk-free rate (**R_f**) applied is the real yield on long-term US Treasuries in 2018. We use 1.0%, at the upper end of the recent range.
- Also discussed above, the US timberland beta (**b**) is calculated at a relatively low 0.14, and we adjust it to 0.3 for potentially smoothed returns caused by appraisal-based return series. However, this reflects US timberland risk in isolation and US market exposure. We typically increase beta to a minimum of 0.50 for a non-US asset to account for the comparatively less robust domestic growth and yield models, timber consumption base, exposure of timber prices to export markets and the volatility of

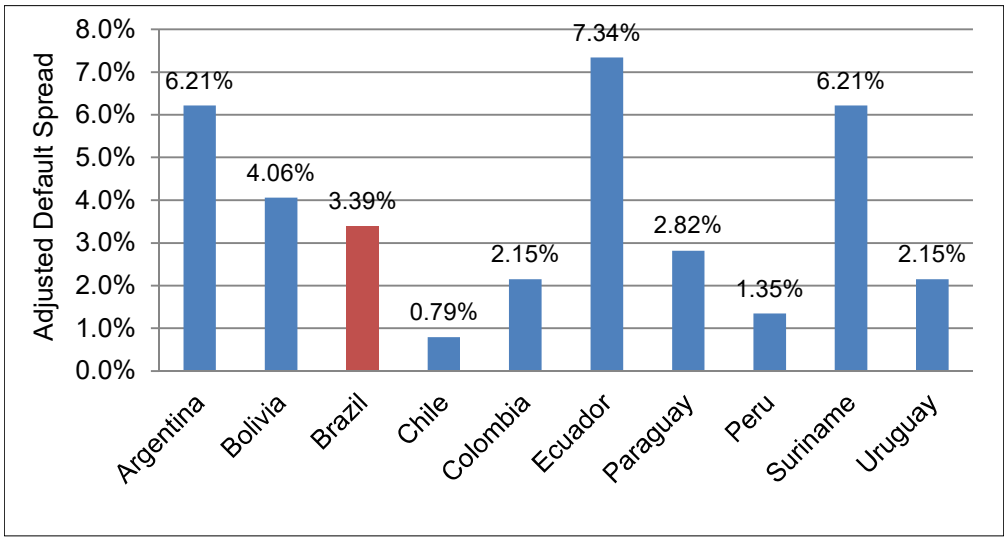
transportation economics, and the limited extent and uncertainty of information regarding timberland transactions and investment performance history.

- In the case of the subject property, we feel it is prudent to increase beta (**b**) to 1.0 in total, lower than previous 1.1 to reflect more comfort with growth and yield projections.
- The indicated equity risk premium is the same 6.0% applied for a US investment; it is an estimate based on both long-term investment performance history and the current price level of public equities (relatively high).
- We add 3.4% for the country risk premium (RP_c), rounded from that indicated by the CDS spread, discussed below.
- As already noted, CAPM analysis does not account for subjective items such as reduced liquidity and related high transaction costs associated with private-market assets, which could each add 0-1 percentage points of required return. Incorporating these leaves our CAPM analysis indicating a total required annualized return rate of 10.4-12.4% in real (net of inflation) terms.

The country risk premium for Brazil can be estimated by using a couple of established market measures as proxies. One is the credit default swap (CDS) spread, a common proxy for sovereign risk pricing in the debt market. In the swap market, it is effectively an insurance premium paid by the buyer (who holds sovereign debt) to ensure a loan payoff in the event of a default. Although it is limited to risk exposure within the debt market, it is a useful measure of perceived investment risk linked to economic growth and government economic policies. CDS spreads can be thought of as a debt-based risk metric that captures a country's economic risk as a cost of doing business in global capital markets.

Figure 7.4 compares the average CDS spread at the beginning of 2019 for Brazil and its rated neighbors. Brazil's CDS spread of 3.39 points adjusted in relation to the US and countries of similar credit rating indicates a premium for country risk is warranted for a Brazil investment.

Figure 7.4. Credit Default Swap Spreads



Source: Damodaran Online; http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

Sovereign Debt Credit Rating

Another measure of risk is the credit ratings agencies which rate sovereign debt. The three major US ratings agencies each rate Brazil's sovereign debt as non-investment grade, and speculative. Brazil is perceived as presenting a debt investor with uncertainty regarding its ability to meet financial obligations, due to vulnerability to changes in circumstances. For Brazil, ratings are unchanged in the wake of the national elections. Fitch's rating reflects recent review.

- S&P BB- (Stable), 11 January 2018
- Moody's Ba2 (Stable), 9 April 2018
- Fitch BB-, 14 November 2019

Subject Conclusion

Sewall's recent 2019 investor survey supports a range of generic real discount rates for west-central Brazilian teak from 8.5-15.0% and indicates 10.0% using the median result of the survey. The CAPM suggests a real discount rate of 10.4-12.4%, though elements of it are determined subjectively. Based on the foregoing analysis, we conclude a generic rate for the region of 10.5%. It is not uncommon for experienced investors to couple their choice of discount rate with their assumptions, depending on how aggressive they may or may not be. For example an investor might adopt aggressive pricing assumptions, while at the same time employing a higher discount rate.

However, we must also consider any property-specific risk. The property is a timber right, not a fee simple interest. We regularly ask respondents to our annual investor survey how they treat discount rates in the case of partial interests such as leasehold arrangements or timber rights in relation to fee simple (freehold) interests. Some report no difference in

their choice of rate, but most generally add a risk premium. This is not surprising, given the fact that investors under a leasehold agreement have less control over a property than those with a fee simple interest, which affords complete control. Investors in our most recent survey indicate applying a risk premium of 25 to 250 bps to leasehold properties, or in this case, a timber right. The mean response was 93 bps, with a median of 75 bps.

Based on these factors, it is therefore reasonable to assume a risk premium over and above our base Brazilian rate. We therefore conclude a real pre-tax rate for the subject of **11.25%,** by adding an additional risk premium of 75 basis points to our base Brazilian rate of 10.5%.

STUMPAGE REVENUES

The basis for the roadside prices used in the Income Approach is as described under the Cost Approach chapter (see Table 6.2).

Investors vary in their approach to account for stumpage appreciation. Some investors tend to be conservative, choosing to model little or no real appreciation associated with stumpage prices. Often such investors will do so with a tendency towards lower discount rates. On the other end of the spectrum are investors who tend to be more bullish with regard to stumpage appreciation rates, but typically will offset this by applying higher discount rates.

We are aware of investors in Latin America that use either approach when modeling cash flows for teak. Many investors model zero appreciation, while others we have spoken with model as much as 4.5%. Appreciation periods also vary from short periods at the beginning of the cash flow model to indefinite appreciation periods lasting the entire investment horizon.

Most teak timberland investors we are aware of are currently assuming flat pricing going forward. This includes successful buyers. Markets have been flat to declining over the last several years and there is much discussion among those familiar with the market with some suggesting prices will rise, while others are less optimistic. We chose to model flat pricing, reflecting current market trends.

COSTS

We model costs based on information provided by FSA.

Harvest Costs

SATT is responsible for all harvest costs for final harvest activities. FSA reports current rates vary from $20 to $24 per cubic meter, depending on harvest type. We assume a $20 per cubic meter rate for clearcut harvesting, the only type of harvesting for which SATT is explicitly charged under the terms of the agreement.

Land Clearing Costs (Stumps)

SATT is responsible for clearing the land of stumps following final harvests,; thereby returning the land to pre-forestry condition. FSA reports clearing costs at BRL 3,162 per hectare, or equivalent $826 per hectare at prevailing exchange rate of 3.830 BRL per USD. We model this rate going forward following all final harvests. This rate is 40% higher than our last appraisal. TRC reports that these costs are up based on a revised understanding of landowner expectations regarding post-harvest condition. This change negatively impacts value.

Silvicultural and Administrative Costs

Normally we would explicitly model silvicultural costs for each stand by year, as well as annual fixed costs (administrative costs). However, due to the terms of the investment deal, SATT is not required to pay either of these costs at present. Instead, they must pay a one-time management cost fee at the time of final harvest, plus any land-clearing costs. However, this cost is expected to be offset by the fact FSA has not distributed past thinning revenues to SATT.

The full management fee for a 20-year-old stand at final harvest is $4,500 per hectare, plus $600 per hectare for each year a stand is held for harvest from ages 21 to 25. At the same time, outstanding thinnings revenues, based on the 2018 Harvest Report, owed to SATT total approximately $28.5 million, or $1,824 per productive hectare.

We model an adjusted management fee in which we begin with the full fee and subtract from it outstanding thinning revenues, on a per-hectare basis, to arrive at a net management fee. For example, if a stand is harvested at age 22, the full management fee owed to FSA would be $4,500 per hectare (through year 20), plus $1,200 (years 21 and 22 at $600 per hectare per year), less $1,824, resulting in a net payment of $3,876 per hectare.

Based on the optimized harvest schedule chosen by Woodstock, the average net management fee for the projection is $3,324 per hectare, implying an average harvest age slightly greater than 20 years. The DCF model allows for harvest ages past year 20. Because it is an optimization model, it does choose stands to be harvested older than year 20 when the marginal value gain from favorable log product shifts (larger logs) outpaces the marginal $600-per-hectare management fee.

Property Taxes

FSA reports that property taxes (ITR) are SATT's responsibility. However, they are incorporated into the one-time management fee described above. Therefore, there is no need to explicitly model them.

FSA Performance Fee

SATT must pay FSA a performance fee of 5% based on the following formula:

> 5% * (Roadside Harvest Revenues – Harvest Costs – Land Clearing – Silvicultural and Overhead Fees)

We model this fee going forward.

MODEL CONSTRAINTS

Harvest Age Considerations

As described earlier for the yield table assumptions.

Harvest Flow Constraints

The subject is small within the overall context of the larger teak market. Therefore, it would be theoretically possible to cut it as fast as possible. FSA reports that they currently have limited capacity to harvest the property all at once. Expectations are that they will be able to add additional harvest teams to accommodate future demand as existing stands become eligible for future harvests. We assume that this will be the case, allowing the model to choose stands for harvest purely on an economic basis.

RESULTS AND SENSITIVITY ANALYSIS

The cash flow model results in total undiscounted revenues of $242.4 million over the investment horizon. Undiscounted costs over the same period total $103.5 million, for a total undiscounted net income of $138.9 million. Figures 7.5 to 7.7 summarize harvest activity by area and volume, as well as projected inventories over the course of the planning horizon. The DCF model is sensitive to several key inputs, the most important being the discount rate and pricing. We believe the most likely range is 10.25% to 12.25% real for the base discount rate. Table 7.1 summarizes the results of the DCF analysis and sensitivity analysis. Sensitivity analysis produces present values ranging from $68.0 million at 12.25% to $75.8 million at 10.25%. Sensitivity analysis based on decreasing or increasing the value of products by 10% results in values ranging from $59.0 million to $84.1 million. Appendix B provides additional supporting detail for Sewall's DCF analysis. Table 7.2 provides supplemental analysis of the effects of discount rate on value showing a range of values corresponding to rates ranging from as low as 5.25% to as high as 14.25%.

Figure 7.3. Plantation Harvest Area

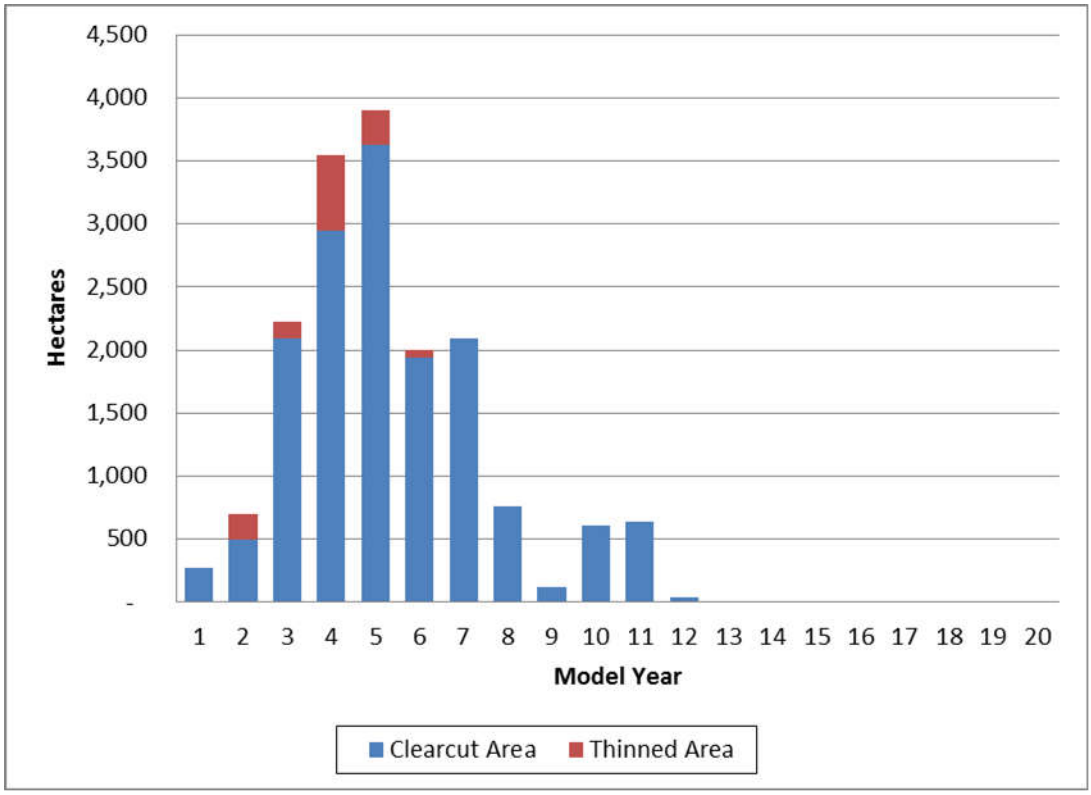


Figure 7.4. Harvest Volume by Product and Average Clearcut Age

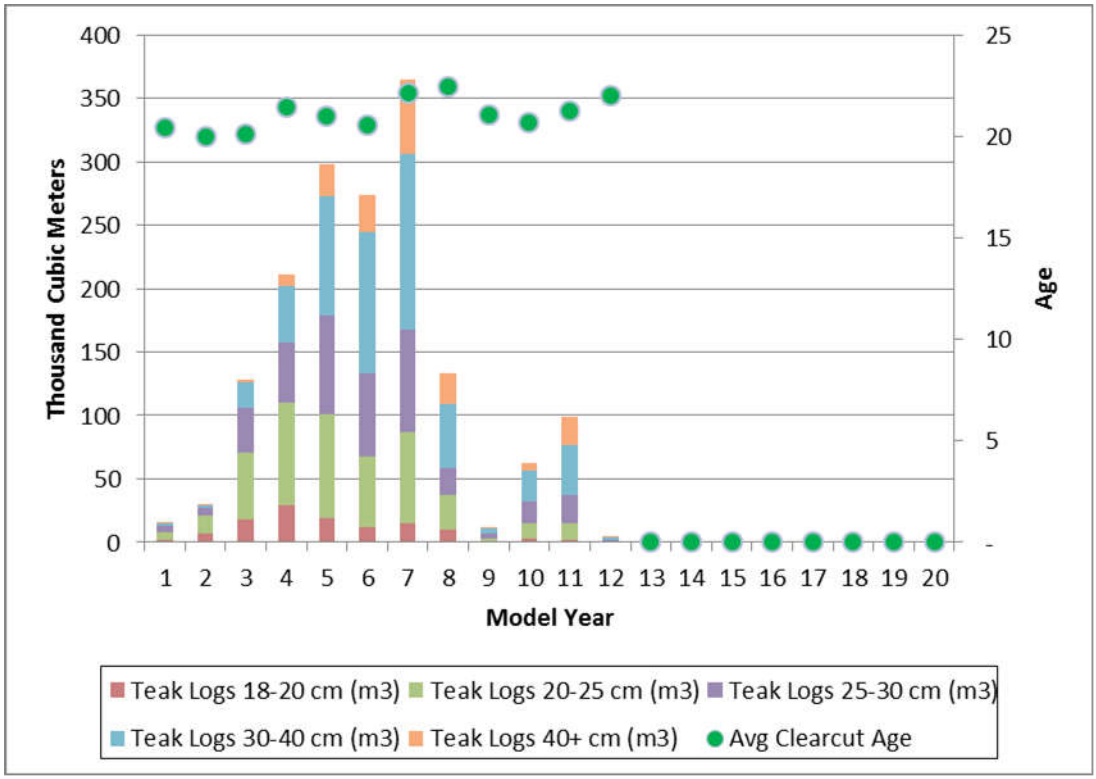
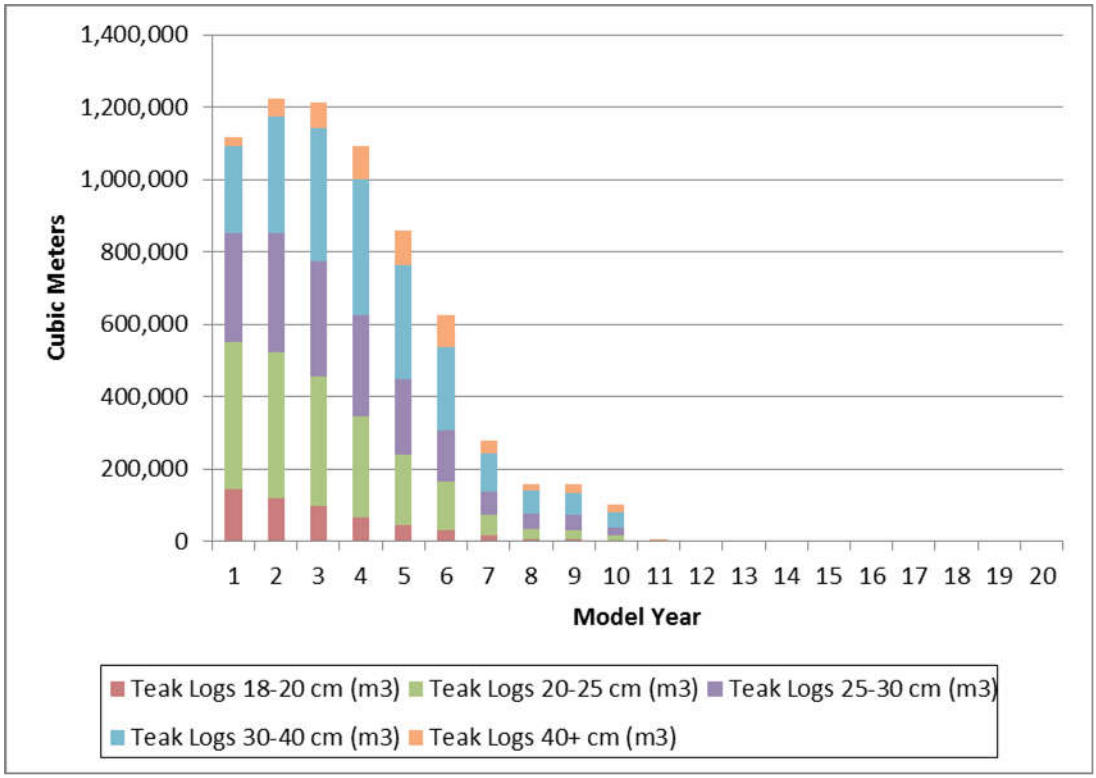


Figure 7.5. Total Merchantable Inventory by Product



INDICATED VALUE BY THE INCOME CAPITALIZATION APPROACH.

The base rate analysis produces a present value of $71,582,847 rounded to $71,600,000 or $4,581 per plantable hectare. This analysis is subjective, requiring many assumptions, but it directly models cash flows anticipated by institutional investors. Therefore, the estimated market value by the income capitalization approach is $71,600,000.

Due to the complexity of the model in regards to pricing changes, future silviculture projections and currency exchange volatility, and other factors, it is entirely appropriate to regard the full range of values shown in the Table 7.1 - $59.0 million to $84.1 million - as plausible.

Table 7.1. DCF Summary

SATT - Brazilian Teak - June 30, 2019

Estimated Value by Income Capitalization Approach:	**$71,582,847**	**Conclusion:**	**$71,600,000**
Per Total Area:	$4,580		$4,581
Per Productive Area:	$4,580		$4,581

Sensitivity Analysis				***Capitalization Rate***	
(Assume base data as indicated below unless otherwise indicated)				Years 1-20	Planted Hec
Discount Rate	Present Value	Mean Price/m3	Present Value		
10.25%	$75,827,652	90%	$59,044,902	Revenues	$775.58
11.25%	**$71,582,847**	**$148.65**	**$71,582,847**	Expenses	-$331.28
12.25%	$67,972,263	110%	$84,119,191	NOI	$444.30
				Cap Rate	9.70%

Data and Assumptions

Revenues	**Assumption**	**Units**	**Present Value of Cash Flows**
Timber	$148.65	Average	$131,943,782
Expenses			
Forest Costs	$3,325	per Productive Area @ CC	($31,155,605)
Harvest Costs	$20.00	per m3	($17,582,179)
Land Clearing	$826	per final harvest hectare	($7,855,633)
Performance Fee	5%	$ per Hectare	($3,767,518)

Area:		**Other Assumptions**	
Total Area (ha)	15,628	Discount Rate:	
Productive Area (ha)	15,628	Base Rate:	11.25%

Roadside Prices:	**Current**		**Future**	
Species/Product	**Thin $/m3**	**Clearcut $/m3**	**Thin $/m3**	**Clearcut $/m3**
		Teak		
Logs 18-20 cm	$30.00	$30.00	$30.00	$30.00
Logs 20-25 cm	$63.00	$63.00	$63.00	$63.00
Logs 25-30 cm	$109.00	$109.00	$109.00	$109.00
Logs 30-40 cm	$212.00	$212.00	$212.00	$212.00
Logs 40+ cm	$324.00	$324.00	$324.00	$324.00

Table 7.2. Supplemental Discount Rate Analysis

Discount Rate	Indicate Value (million USD)
5.25%	$100.5
6.25%	$94.8
7.25%	$89.5
8.25%	$84.5
9.25%	$79.9
10.25%	$75.6
11.25%	**$71.6**
12.25%	$67.8
13.25%	$64.3
14.25%	$61.0

8. RECONCILIATION & FINAL OPINION OF VALUE - FEE SIMPLE INTEREST

The final step of the appraisal process is to reconcile the results of the three valuation approaches. We have conducted a Cost Approach (CA) and an Income Capitalization Approach (ICA) for this appraisal. Because of the unique nature of the interest, we have not used the Sales Comparison Approach (SCA). The values estimated by the two approaches are as follows:

- Cost Approach (CA) - $13,700,000
- Income Capitalization Approach (ICA) - $71,600,000

The cost approach indicates a value of $13.7 million. It enables the appraiser to separately identify and evaluate each of the basic property components, using market-derived sources for each. However, simply adding together each separate component may not accurately reflect the contributory value of each of the assets. In addition, the cost approach does not consider all sources of cost and revenue and does not recognize discounts for liquidity or potential to increase timber value through price appreciation or future yield improvements. Moreover, the cost approach violates the unit rule and is not often used by investors to drive their decision processes. However, where plantations are young and afforestation common, the cost approach may be used by investors as a supplemental check on value, and it models the sort of afforestation efforts that have been applied to teak plantation development. The cost approach result falls well below that of the ICA ranges. It does not appear in this instance to provide a reliable indication of value; we therefore give it no weight.

The Income Capitalization Approach indicates a value of $71.6 million and a supportable range between $63.5 million and $80.0 million. The range of likely values set by the income approach is determined by sensitivity analysis of important assumptions: pricing and discount rate. The approach is the primary method employed by investors to determine bid prices. As such, it serves as a good indication of the investor thought process. Its primary weakness lies in how sensitive it is to many assumptions. Teak markets in Latin America are developing but far from mature; silviculture and growth and yield science is developing; and present value remains highly sensitive to such assumptions. Because of the manner in which the income approach allows us to directly model individual assumptions about the subject property and the markets affecting its value, and because it is the method of choice for acquisition analysis, we allocate 100% weight to this approach.

Therefore, the estimated market value of the SATT interest in the Mato Grosso timber right, as of June 30, 2019 is:

***** USD SEVENTY-ONE MILLION SIX HUNDRED THOUSAND *****
***** $71,600,000*****
($4,581 per net plantable hectare)
Market Value Range: $63.5 to $80.0 Million

Overall value is down 15% from 2018 (Table 8.1). Value is up, based on forest growth and yield assumption changes, despite a 5.3% reduction in overall property size resulting from harvesting. Value declines result from changes to costs (harvesting, stump removal, and the management fee) and lower stumpage price assumptions.

Table 8.1. Stepwise Change Analysis

June 30, 2018 Indicated Value	**$**	**84,100,000**	**% Change**	**Cumulative Change**
Areas, Ages, Inventory, & Yields	$	86,014,021	2.3%	2.3%
Cost Assumptions	$	80,416,137	-6.5%	-4.4%
Log Price Assumptions	$	71,582,847	-11.0%	-14.9%
Discount Rate Changes	$	71,582,847	0.0%	-14.9%
June 30, 2019 Indicated Value	**$**	**71,600,000**		**-14.9%**

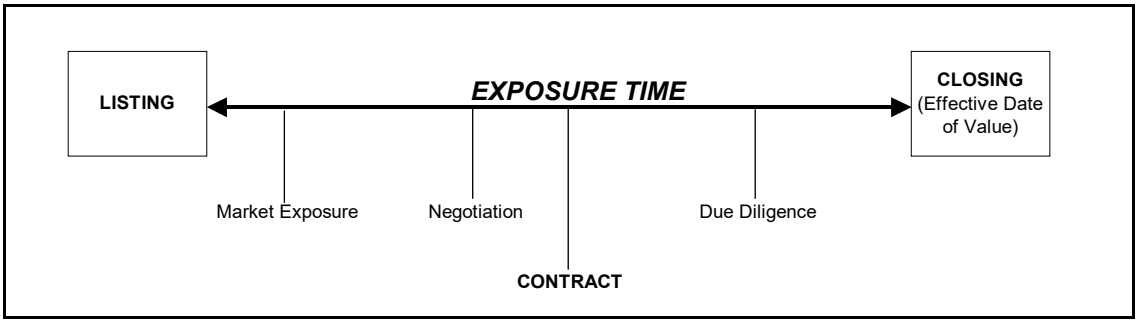
EXPOSURE PERIOD

Exposure period is the estimated length of time the property being appraised would have been offered on the market prior to the hypothetical consummation of a sale at market value on the effective date of the appraisal; a retrospective estimate based on an analysis of past events assuming a competitive and open market. Exposure time is always presumed to occur prior to the effective date of the appraisal.

Figure 8.1 shows the activities that comprise "exposure time" for a real property sale. The first major segment of that timeline is the period between listing and contract. In auctions of large forest properties, which would be the most expeditious way to sell a property such as the subject, that period is typically 90-120 days. Following the contract, there can be a significant time period for due diligence. Although the due diligence period can vary, a range of 60-90 days is typical, which means a Reasonable Exposure Time for typical properties such as the subject is 150-210 days, or 5-7 months. However, given the unique financial arrangements surrounding the subject, it is reasonable to expect a longer than normal exposure period. We estimate a long period on the order of 9 to 12 months.

For this appraisal, Market Value is estimated as of June 30, 2019, so the hypothetical sale of the subject is assumed to have been listed during Q2 2018.

Figure 8.1. Conceptual Timeline of Activities Comprising "Exposure Time"[34]



[34] After J. Parks Roundtree and Robert W. Taylor, 1993, "Marketing/Exposure Time and Market Value Estimates". The Appraisal Journal LXI(4):489-493.

ALLOCATION OF VALUE

The interests are organized by farm and planting year. Each unique farm/year combination is considered a project within the investment scheme. Table 8.2 presents an allocation of value by project, based on the income approach. Also shown is a column listing "effective" value. Several projects have negative value (Araras/1999, Bambu/1999, Bambu/2000, and Paraiso/1997). The condition of the trees for these projects are such that they are unlikely to produce positive cash flows over time. They therefore have effectively no value, as shown in the table.

Table 8.2. Value Allocation by Project

Project			Discounted Value			Undiscounted Cash Flows	
Farm	Year	Hectares	Value	$ / Hectare	Effective Value	Cash Flow	$ / Hectare
Araras	1999	98.88	-$7,787	-$79	$0	-$29,991	-$303
Bambu	1999	549.07	-$1,228,059	-$2,237	$0	-$1,850,383	-$3,370
	2000	513.83	-$197,402	-$384	$0	-$266,716	-$519
Barranquinho	2002	970.20	$2,831,369	$2,918	$2,831,369	$5,113,179	$5,270
	2003	12.95	$212,871	$16,438	$212,871	$392,208	$30,286
	2004	1,021.00	$5,455,960	$5,344	$5,455,960	$11,639,041	$11,400
Bocaina	1998	180.46	$1,911,682	$10,593	$1,911,682	$2,657,481	$14,726
	1999	108.18	$1,105,547	$10,220	$1,105,547	$1,605,179	$14,838
São José da Canastra	1998	44.62	$364,164	$8,161	$364,164	$588,225	$13,183
Cassange	1999	88.49	$588,910	$6,655	$588,910	$910,469	$10,289
Cacimba	2002	571.03	$5,969,564	$10,454	$5,969,564	$10,829,244	$18,964
	2003	10.19	$170,559	$16,738	$170,559	$306,492	$30,078
Capim Branco	1999	507.87	$3,848,302	$7,577	$3,848,302	$5,997,423	$11,809
Duas Lagoas	2000	1,527.51	$4,508,223	$2,951	$4,508,223	$7,307,637	$4,784
	2001	1,764.34	$1,487,361	$843	$1,487,361	$2,707,668	$1,535
	2002	48.41	$840,551	$17,363	$840,551	$1,357,719	$28,046
	2005	207.67	$934,364	$4,499	$934,364	$1,844,040	$8,880
	2006	233.88	$1,452,249	$6,209	$1,452,249	$3,557,805	$15,212
Mutum	2007	539.18	$3,305,958	$6,131	$3,305,958	$7,779,609	$14,429
Paiolândia	1997	297.92	$722,748	$2,426	$722,748	$1,051,751	$3,530
	1998	93.95	$444,055	$4,727	$444,055	$715,797	$7,619
Paraiso	1997	555.05	-$1,599,663	-$2,882	$0	-$2,322,600	-$4,184
São José	2007	301.30	$4,845,092	$16,081	$4,845,092	$12,173,662	$40,404
Serras das Araras	1999	105.01	$168,597	$1,606	$168,597	$197,786	$1,883
São Judas Tadeu	1998	26.76	$297,847	$11,130	$297,847	$437,479	$16,348
São Miguel	2001	97.52	$94,787	$972	$94,787	$137,625	$1,411
	2002	5.71	$53,358	$9,345	$53,358	$118,672	$20,783
Santa Maris do Jauru	2002	1,085.18	$4,560,757	$4,203	$4,560,757	$8,695,546	$8,013
	2003	207.87	$2,788,325	$13,414	$2,788,325	$5,139,869	$24,726
Santa Maria do Jauru II	2008	99.87	$201,950	$2,022	$201,950	$494,329	$4,950
Santa Fé	2003	2,562.71	$11,014,723	$4,298	$11,014,723	$22,375,099	$8,731
Terra Santa	2004	1,143.17	$13,880,773	$12,142	$13,880,773	$26,323,610	$23,027
Vale Dourado	1999	48.59	$572,265	$11,777	$572,265	$887,552	$18,266
		15,628.37	$71,600,000	$4,581		$138,872,504	$8,886

Appendix A
Certification & Qualifications of Appraisers

CERTIFICATION

I certify that, to the best of our knowledge and belief:

1. The statements of fact contained in this report are true and correct.

2. The reported analyses, opinions and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, unbiased professional analyses, opinions, and conclusions.

3. I have no present or prospective interest in the subject property, nor do I have a personal interest or bias with respect to parties involved.

4. I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.

5. My engagement in this assignment was not contingent upon developing or reporting predetermined results.

6. My compensation is not contingent upon: (a) the development or reporting of a predetermined value or direction in value that favors the cause of the client, (b) the amount of the value estimate, (c) the attainment of a stipulated result, or (d) the occurrence of a subsequent event directly related to the intended use of this appraisal.

7. The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.

8. I personally inspected the subject property on July 16 to 19, 2019.

9. Sewall has appraised the subject property in the past 3 years prior to accepting this appraisal assignment.

10. The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute.

11. As of the date of this report, I have not completed he Standards and Ethics Education Requirement of the Appraisal Institute for Associated Members.

Timothy Mack

Timothy J. Mack

February 21, 2020

Date

QUALIFICATIONS OF APPRAISER

TIMOTHY MACK

APPRAISER / BIOMETRICIAN

Tim Mack specializes in timberland appraisal, forest inventory, growth and yield modeling, harvest scheduling, and acquisition due diligence for Sewall out of its Lakes States office. Mr. Mack has appraised timberland all over the world, including properties in North America, Hawai'i, Central & South America, Australasia, Europe, and Africa. Species for which Mr. Mack has had experience range include aspen/spruce/pine in the north, to northern hardwoods in the Lake States and New England region. International experience includes eucalyptus in Australia, Uganda, Uruguay and Brazil. Mr. Mack has done pine work in Uganda, New Zealand, Argentina, Uruguay, and Brazil. Mr. Mack's international specialty is teak, having cruised, appraised, or modeled it in Panama, Costa Rica, Nicaragua, Guatemala, Colombia, and Brazil.

During his career, Mr. Mack has developed expertise with various growth and yield models throughout the Eastern United States and has designed and built forest-level harvest schedule models, implementing their results on the ground. This expertise includes the use of the US Forest Service's Forest Vegetation Simulator (FVS) and linear programming (Woodstock and FORPLAN). He has designed and supervised forest inventories and implemented forest information systems at small and large scales. In addition, Mr. Mack has experience with forest information system design and discounted cash flow analysis, and financial analysis for silvicultural alternatives. He is also a regular contributor to wood supply studies conducted by Sewall.

Education

M.S., Forestry--Biometrics and Business, University of Minnesota
B.S., Forest Resources, University of Minnesota

Professional Affiliations/Designations

Licensed & Certified General Appraiser, Minnesota, Michigan, Wisconsin
Licensed Professional Forester, Michigan
Association of Consulting Foresters of America

Relevant Experience

2006 - Present, James W. Sewall Company, International Falls, Minnesota
Appraiser/Biometrician: Timberland appraisal, due diligence assistance, timber inventory, and resource study support.

2005 - 2006
Independent Forestry Consultant: Oversaw a large inventory project in Pennsylvania. Assisted with due diligence work for timberland investors. Conducted financial analysis for forestry properties.

2004 - 2005, James W. Sewall Company, Old Town, Maine
Biometrician: Supervised forest inventory design and implementation, performed due diligence analysis for land acquisitions, appraised timberlands, and developed mill resource studies. Also performed forest modeling.

2002 - 2003, MeadWestvaco, New England Region
Inventory and Analysis Forester: Designed, implemented, and oversaw new inventory systems for MeadWestvaco timberlands in Western Maine. Advised field staff regarding forest inventory needs. Assisted with the maintenance of the region's forest information systems.

2000 - 2003, College of Natural Resources, University of Minnesota
Research Assistant/Pawek Fellowship: Developed a model-based approach for the development of a density management diagram for red pine in the Lake States (RESINOSA model).

1991 - 2000, Boise Cascade, Northern Minnesota Region
Planning Forester: Performed forest planning and allowable cut determination for 308,000 acres, including extensive use of linear programming (FORPLAN) and growth and yield modeling (FVS). Coordinated with the operational foresters to achieve the region's planning goals in the field. Performed financial analyses for silvicultural alternatives. Responsible for the region's forest information systems including two year experience managing the GIS (ArcInfo). Oversaw the design, upkeep and implementation of various forest inventory systems including an operational stand inventory and a continuous permanent plot inventory. Analyzed and executed land deals involving company property. Participated in wood supply analyses for the company's International Falls paper mill.

Appendix B
Base DCF Harvest Schedule and Projected Cash Flows

Cash Flow Summary, Years 1-10

SATT - Brazilian Teak - June 30, 2019	Period									
	1	2	3	4	5	6	7	8	9	10
Revenues:										
Timber	$1,504,774	$2,148,709	$12,733,155	$23,585,204	$42,249,789	$44,138,718	$62,257,520	$22,965,775	$1,547,217	$9,758,397
Total Revenues	$1,504,774	$2,148,709	$12,733,155	$23,585,204	$42,249,789	$44,138,718	$62,257,520	$22,965,775	$1,547,217	$9,758,397
Expenses:										
Silviculture	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Management Cost Fee	$813,623	$1,317,840	$5,737,131	$10,383,333	$11,800,327	$5,831,630	$8,293,896	$3,138,167	$403,516	$1,872,071
Harvest Costs	$305,654	$424,092	$2,427,523	$3,483,798	$5,776,540	$5,451,392	$7,299,681	$2,668,816	$220,245	$1,246,229
Land Clearing	$228,116	$406,777	$1,725,919	$2,435,866	$2,992,259	$1,601,548	$1,725,327	$625,224	$100,442	$502,026
Performance Fee	$7,869	$0	$142,129	$364,110	$1,084,033	$1,562,707	$2,246,931	$826,678	$41,151	$306,904
Total Expenses	$1,355,262	$2,148,709	$10,032,702	$16,667,107	$21,653,159	$14,447,277	$19,565,835	$7,258,886	$765,353	$3,927,230
Net Income:	$149,512	$0	$2,700,453	$6,918,096	$20,596,630	$29,691,441	$42,691,686	$15,706,890	$781,865	$5,831,167

Cash Flow Summary, Years 11-20

SATT - Brazilian Teak - June 30, 2019	Period									
	11	12	13	14	15	16	17	18	19	20
Revenues:										
Timber	$18,951,665	$579,721	$0	$0	$0	$0	$0	$0	$0	$0
Total Revenues	$18,951,665	$579,721	$0	$0	$0	$0	$0	$0	$0	$0
Expenses:										
Silviculture	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Management Cost Fee	$2,198,745	$167,753	$0	$0	$0	$0	$0	$0	$0	$0
Harvest Costs	$1,987,073	$80,954	$0	$0	$0	$0	$0	$0	$0	$0
Land Clearing	$529,780	$35,749	$0	$0	$0	$0	$0	$0	$0	$0
Performance Fee	$711,803	$14,763	$0	$0	$0	$0	$0	$0	$0	$0
Total Expenses	$5,427,401	$299,219	$0	$0	$0	$0	$0	$0	$0	$0
Net Income:	$13,524,264	$280,502	$0	$0	$0	$0	$0	$0	$0	$0

Harvest Schedule, Years 1-10

SATT - Brazilian Teak - June 30, 2019	Period									
	1	2	3	4	5	6	7	8	9	10
Species/Product										
Thinnings										
Teak Logs 18-20 cm (m3)	0	1,318	1,226	2,991	2,178	406	0	0	0	0
Teak Logs 20-25 cm (m3)	0	4,333	4,082	16,261	4,179	706	0	0	0	0
Teak Logs 25-30 cm (m3)	0	1,624	1,499	10,482	1,905	242	0	0	0	0
Teak Logs 30-40 cm (m3)	0	435	386	7,108	772	41	0	0	0	0
Teak Logs 40+ cm (m3)	0	0	0	0	0	0	0	0	0	0
Thinning Volumes	**0**	**7,711**	**7,194**	**36,842**	**9,033**	**1,396**	**0**	**0**	**0**	**0**
Final Harvests										
Teak Logs 18-20 cm (m3)	2,081	5,888	17,307	26,041	17,019	11,274	14,894	9,674	567	3,021
Teak Logs 20-25 cm (m3)	5,899	9,670	47,658	64,810	77,263	54,852	71,603	27,868	2,446	12,054
Teak Logs 25-30 cm (m3)	4,710	4,085	33,983	36,586	76,473	65,937	80,750	20,949	3,572	17,182
Teak Logs 30-40 cm (m3)	2,524	1,520	20,524	37,309	93,028	111,235	139,007	50,423	3,995	24,126
Teak Logs 40+ cm (m3)	69	41	1,904	9,445	25,044	29,272	58,730	24,527	431	5,928
Final Harvest Volumes	**15,283**	**21,205**	**121,376**	**174,190**	**288,827**	**272,570**	**364,984**	**133,441**	**11,012**	**62,311**
Total Teak (m3)	***15,283***	***28,916***	***128,570***	***211,032***	***297,860***	***273,965***	***364,984***	***133,441***	***11,012***	***62,311***
Total Merchantable Timber (m3)	**15,283**	**28,916**	**128,570**	**211,032**	**297,860**	**273,965**	**364,984**	**133,441**	**11,012**	**62,311**

Harvest Schedule, Years 11-20

SATT - Brazilian Teak - June 30, 2019	Period									
	11	12	13	14	15	16	17	18	19	20
Species/Product										
Thinnings										
Teak Logs 18-20 cm (m3)	0	0	0	0	0	0	0	0	0	0
Teak Logs 20-25 cm (m3)	0	0	0	0	0	0	0	0	0	0
Teak Logs 25-30 cm (m3)	0	0	0	0	0	0	0	0	0	0
Teak Logs 30-40 cm (m3)	0	0	0	0	0	0	0	0	0	0
Teak Logs 40+ cm (m3)	0	0	0	0	0	0	0	0	0	0
Thinning Volumes	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Final Harvests										
Teak Logs 18-20 cm (m3)	1,959	606	0	0	0	0	0	0	0	0
Teak Logs 20-25 cm (m3)	13,036	688	0	0	0	0	0	0	0	0
Teak Logs 25-30 cm (m3)	22,375	903	0	0	0	0	0	0	0	0
Teak Logs 30-40 cm (m3)	39,732	1,605	0	0	0	0	0	0	0	0
Teak Logs 40+ cm (m3)	22,252	245	0	0	0	0	0	0	0	0
Final Harvest Volumes	**99,354**	**4,048**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Teak (m3)	***99,354***	***4,048***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
Total Merchantable Timber (m3)	**99,354**	**4,048**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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