Timber-Backed Bonds

*This team proposes the establishment of a new asset class (timber backed bonds) created by decoupling timber and land rights - followed by the subsequent securitization of the timber asset - to deliver both social and environmental outcomes in Costa Rica. The scheme is replicable and scalable globally in countries where timber and land rights can be unbundled. The team is currently working with Costa Rica's National Public Forestry Fund (**FONAFIFO**), Pan-American Woods, a leading reforestation company, and a group of small landowners to implement a $27m project in Costa Rica based on the proposal.*

Background

Costa Rica intends to grow an additional 72,000ha of commercial timber by 2025, to protect its native forests, help assist its (World Bank funded) goal of becoming carbon neutral by 2021, and increase landowner income levels. However, the plantation forestry industry has shrunk 35% since 2010, with over 5000 associated job losses in the last 4 years alone, and harvests twice as much as it replants.

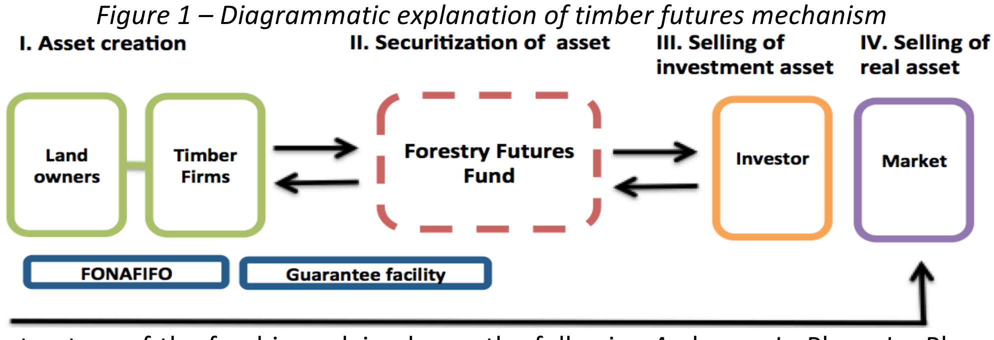
The underlying problem – barriers for all key actors

Timber companies, small landowners[1], FONAFIFO and investors are all key actors, yet all face problems under the current system, which are collectively contributing to its collapse. High land costs are preventing timber companies from purchasing and developing timber assets directly. Landowners either lack up-front capital or are deterred by unevenly distributed cash flows throughout the timber growing cycle. FONAFIFO, who promotes forestry in Costa Rica, has insufficient capital to support the timber companies & landowners. Additionally, the non-existence of specialized forest investment vehicles in Costa Rica prevents Institutional investors from entering a market that otherwise fits their criteria.

The solution – establishment of a new asset class & forestry fund, removing the barriers

In short, the scheme involves decoupling timber and land rights, which allows timber companies to develop timber assets grown by small landowners without having to own the land outright. In return, landowners receive a guaranteed income, and expert management skills from the timber company. Following the establishment of a contract between the timber companies and landowner, the timber rights (**timber-futures**) are then pooled into a fund, securitized according to risk and sold as fixed income securities to institutional investors. The timber-backed bond is a security whose value and income payments are derived and collateralized from a diverse pool of 'timber futures'.

Figure 1 – Diagrammatic explanation of timber futures mechanism



The capital structure of the fund is explained over the following 4 phases. In Phase I – Phase II, timber futures are brought into a trust and divided by risk criteria into "A futures" and "B Futures"[2]. In Phase III, capital for the fund is raised according to risk. "A Futures" are securitized and sold via debt as fixed income securities to low risk profile investors, while "B Futures" are used as guarantee to attract mezzanine debt and subordinated loans. In Phase IV the real asset (i.e. timber itself) is sold and returns are calculated for each investor.

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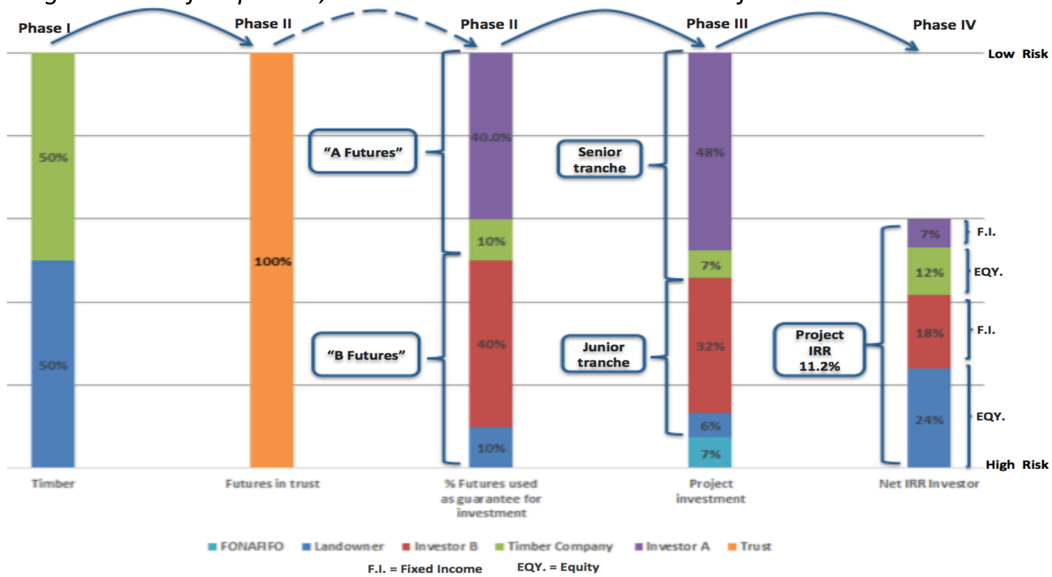
[1] 83% of Costa Rican landholdings proposed in the World Bank's CO_2 emission reduction program are 50ha or less in size, for a total of approximately 43,000ha. These small holders will comprise the target market for the fund.

[2] "A Futures" and "B Futures" both represent a fixed quantity of timber. "A Futures" are considered less risky as they represent <50% of the initial expected harvest, which the landowner is paid for upfront (hence lower risk), while "B Futures" represent 50% but are the remaining half.

Figure 2 – Project phases, investment distribution and rate of returns across investors



Managing risk

Risk mitigation occurs throughout the asset and fund life cycle. Third party's will be used to certify timber future contracts and ensure landowner's titles are covenanted. Guidelines have been developed to guarantee the asset and lower risk; e.g. ≤ 50% of the expected timber harvest will be used to back "A" class securities. At the fund stage, the pooling of a range of varied timber futures from plantations in different locations will diversify risk. Timber-futures will be bundled according to species, risk, & time to match investor's needs. Credit Enhancers &/or Guarantors will also play an important role in this phase.

Financial Analysis

Extensive financial analysis carried out by the team indicates the project's net IRR is between 11% and 13%. Sensitivity analysis indicates that the proposed scheme has low sensitivity to variations in projected timber price & interest rates, but is more sensitive to the amount of leverage, which the fund has control over. The graph below shows an example investment distribution & returns across investors.

Figure 2 – expected return to investors[3] across 2000ha planting shared with 50+ landowners

Equity	**Investment**	**Share of equity**	**Expected Return on Equity**	**Net IRR on equity**
Timber company	$ 1,785,653.18	7%	12%	12%
Landowners	$ 1,575,201.26	6%	20%	24%
FONAFIFO (government)	$ 2,000,000.00	7%	0%	0%
Total equity	*$ 5,360,854.44*	*20%*	*10%*	*16%*
Debt	**Investment**	**Share of debt**	**Expected return on debt**	**Net IRR on debt**
Investor A	$ 12,742,612.71	48%	7%	7%
Investor B	$ 8,700,805.05	32%	15%	18%
Total Debt	*$ 21,443,417.76*	*80%*	*10%*	*10%*
Equity + Debt	***Total Investment***	***Total share***	***WACC***	***Net IRR Project***
Project	***$ 26,804,272.21***	***100%***	***7.7%***	***11.2%***

* Investment = Total amount through the project cycle, approx. 20% of total needed in year 0.

The Opportunity

Conservative estimates indicate that the Fund could create investment opportunities of $100-250 million by securitizing 25% of the countries reforestation expansion, although the fund could increase substantially if it were to expand in the region. This fund will be a bridge to funnel national pension capital into a patient green investment sector, which today can't attract such investment due to the lack of such a vehicle. Timber is a growing asset-class among institutional investors due to its low correlation with other asset classes, ability to hedge inflation, and positive environmental benefits. Costa Rica is also known internationally for its competence in the sector and for being a stable country to invest in. The time is ripe to harvest the triple social, environmental and financial outcomes on offer by this proposal.

[3] FONAFIFO's IRR is zero as they already profit by taking the carbon rights & associated income, via their agreement with the World Bank.