

Willow Rivers Wealth

Responsible Investments



FORESTRY INVESTMENT REPORT

THE GLOBAL FORESTRY MARKET

Global demand for hardwood has itself multiplied 25 times in the last 40 years, and with population growth rates higher than ever this trend will continue. With less than 13% of the world's surface covered in forests, and concerns over global warming, there is now a global crackdown on illegal logging and deforestation. Supply is being severely restricted and these two factors combined will drive legal timber prices higher in the years to come.

Given the recent volatility in global stock markets, investors are looking towards commodities for security. Tropical forestry offers the ideal diversification from real estate and equity portfolios, providing a non-volatile market with high long-term returns on investment, and a low risk-to-return ratio.

**“If you don't feel comfortable owning something for ten years,
then don't own it for ten minutes.”**

Warren Buffet



WHY YOU SHOULD INVEST IN FORESTRY



- **Environmentally conscious:** sustainable forestry gives a unique opportunity to do something healthy for the planet whilst accruing a healthy capital gain.
- **Long-term, stable investment:** with long growth periods and minimal demand / supply fluctuations, forestry offers stable long term return projections
- **Low entry levels:** Forestry investments require little capital (compared to real estate) and being in a stable un-leveraged market offer more dependable less volatile returns
- **Value rises with maturity:** As trees grow, their marketable timber volume increases at an increasing rate, as does the woods' value
- **Little affected by macroeconomics:** Irrespective of which government is in power or global currency fluctuations, inflation and interest rates, the long-term factor of forestry and its fundamental applications produce a more constant growth rate
- **Hedge against real estate & equity portfolios:** For the reasons above, forestry's stability makes it the perfect portfolio hedge against more volatile markets
- **Flexible exit return dates:** with a range of harvest dates forestry investments have great exit strategy flexibility. If the price were to fall one year, wait another year or 2, whilst your asset continues to physically grow.
- **Potential tax advantages:** such as SIPPs or CGT rollover relief, depending on project location and structure
- **Demand & supply:** Global consumption of tropical hardwoods has multiplied nearly 25 times in the last 4 decades. Around 40m acres of tropical forest are being destroyed each year and not being replaced.
- **Future carbon credit market:** some reforestation projects may be applicable for future carbon accreditation depending on location and project management.

WHERE THE INSTITUTIONAL MONEY GOES

Over the last 20 years **institutional investors have ploughed over US\$35bn in to timberland globally**, via a combination of 100 private pensions, foundations and endowment funds. Last year the Harvard Endowment Fund invested \$500m in forestry and carbon credits in New Zealand alone. So why is timber such a popular asset with institutions?

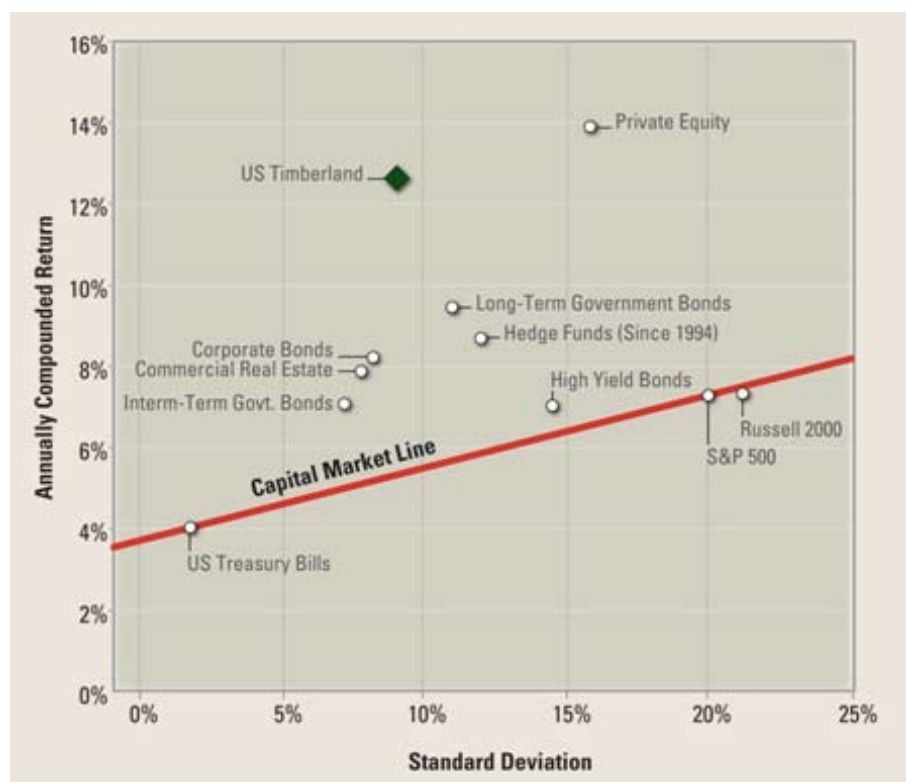
Timber can be classified as a specialised **form of long-term bond**. A forest holds mature timber that generates cash each year through harvests that can be easily modelled, and is scarcely affected by financial market movement. However it is **tax that is a major driver**, in the UK forestry land held for 2 years or more can avoid inheritance tax and is also exempt from income tax.

Having outperformed stocks, bonds and other commodities for the last 30 years at an average of 15% annually, timber is a **low risk, low volatility, high return “dream asset”**.

Future demand is assured. One current forecast predicts that China’s urban population will increase over 350m people in the next 20 years, effectively **requiring 50 cities the size of greater London to be constructed in China alone**.

Trees biological growth adds value to the asset as time passes. Larger volumes (12 inch diameter) have much higher value so any adverse effect from inflation or **downward price movement is naturally mitigated by volume growth**. Additionally, the natural state of trees allows an investor to warehouse the timber on the stump until such time that the favourable market conditions prevail.

Finally timber portfolios are incredibly diverse due to the wide range of growth characteristics of different species, enabling **long-term gain or short-term cash flow focus**, and combinations of the two by investing in different aged and species of stock.



SIMPLE FORESTRY PLANTATION INVESTMENTS

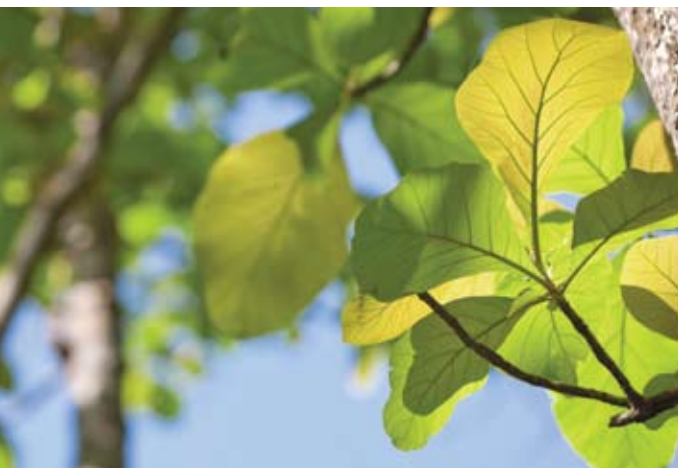
Most forestry investments offer opportunities for the investor to either purchase a number of individual trees, or lease or purchase an area of land located within a plantation. These could be in any type of forestry project as outlined above.

An investor will **acquire the ownership certificate** (for the trees, or leasehold / freehold of the area of land) **along with management contracts** from the plantation company, which ensure that the trees are cared for from seedling through to harvest.

Here are the **four most important points** to look out for when choosing a simple forestry plantation investment:

1. Plantation Management

Select plantation managers that can prove their financial stability. Firms with proven assets and trading history are a must, and those having a **solid relationship with local governments** will give additional security.



A plantation management company that can prove operational and **plantation management**

history in the region and with that type of timber is always preferable.

Ideally also the plantation company will be **responsible for the entire supply chain**, from seedling through to sale of timber. As an investor you want to be certain that the full management service is offered, to make your investment essentially hands free, so make sure the plantation company will oversee the harvest, milling, processing and sale for you.



2. Return Forecast & Schedule; Species Selection

Species selection is a crucial consideration when choosing your investment, not only understanding the potential return but also when this return can be expected.

Different species grow at different rates and so are harvested at different times, anywhere from 3 years for the fastest growing up to 25 years for the best quality hardwoods. **How long you want to commit to your investment will often be the deciding factor in your species selection.** Always request independent growth

projections for that species in that region from the plantation company.

Different species also have different qualities and **supply different markets**, so always consider the potential future movement in your species supply market. Not only having different upfront and ongoing management costs, different species also have different final \$/m³ sales value so again always request an independent sales forecast to have a good idea of the potential return.

3. Investment Security

Due to the long time periods involved with forestry projects it is crucial to have your **ownership contracts** (whether trees, leasehold or freehold land) **separate from your management contracts**.

Ideally for your investment fund security, many project developers will provide **an independent 3rd party law firm to control and protect the flow of funds**. Vehicles such as UK Trusts give investors additional security in knowing

their funds and contracts are passing through a regulated vehicle.

4. Plantation & Asset Protection

One of the biggest concerns with forestry investments is the security of the asset itself. As you will read later, “permanence” is one of the main reasons that forestry is still not recognised by the international carbon credit market.

Drought, floods, fires, storms, blights, insects and freak weather patterns could potentially occur any year and ruin your investment, so always choose a plantation that has taken all the necessary measures to counteract this.

Disease is a major concern so always check the plantation location and ask re any measures the plantation management company have taken to prevent disease.

For fire, storm and also theft of timber (on site or during transit), preferably **select a project that offers maximum security through an insurance policy**.



TYPICAL SIMPLE PLANTATION SPECIES

Teak: strong, weather resistant, golden brown, expensive

Teak is renowned for its strength, durability, weather resistance, and stunning dark gold looks. One of the most expensive hardwoods, sawn mill teak can reach up to US\$4000/m³ and is used for indoor and outdoor furniture, luxury boat decking and construction. With illegal logging boycotts, demand is rallying for legal teak, whilst modern scientific culture-tissue techniques mean that incredibly strong and fast-growing species can now be grown.



Paulownia: fast growing, lightweight, biomass potential

Paulownia is known as the “Aluminium of Timbers”, due to being 30% lighter than any comparable hardwood, durable, strong, twist-resistant and virtually rot free. The Princess Tree as it is known is recognised as the fastest growing hardwood in the world and so can also be harvested much sooner. Paulownia demand comes from furniture, boats, pallets and surfboards and is also now being developed as a biofuel.

Agroforestry: timber & food markets

Agroforestry is the combination of traditional forestry with agricultural processes in order

to achieve maximum land productivity. Crops such as **maize, pineapple, bananas and tea** grow well in shaded areas amongst hardwood trees, and so give the investor the opportunity to diversify and supply an entirely different market.

Agarwood: resinous, unique, fast-growing

The “Wood of the Gods” is unique having been traded for centuries for its use in making perfumes and incense. By early 1990 it was harvested to near extinction and classified endangered, so commercial plantations took off. Scientific research has cultivated a sustainable species that always produces the resinous quality, harvested in just 6 years.



Bamboo: fast harvest, construction

Bamboo is officially the fastest growing plant on land and has very high carbon sequestration levels. With a single bamboo stem able to produce up to 15km of bamboo, it is vital in Asian construction, with over a billion people estimated to be living in bamboo-constructed housing. Also used in food, paper, textiles, flooring and energy industries.

FORESTRY PROJECT TYPES

As well as simple plantation forestry, many other forms of forestation exist in today's environment. In general, "forestation" is any term referring to a land-use change to forest, the opposite of "deforestation" which is a change of land use away from forested land. With so many incentives and such international and political pressure for non-timber harvesting forestation, many project types are underway. Here are some further definitions;

Afforestation

This is the practice of planting new seeds to forest land that has not historically (for the last 50 years) been forested, generally accepted as "agricultural land".

Reforestation

Reforestation is the practice of planting new seeds to forest land that has been recently deforested, harvested or burned. Reforestation projects have the additional opportunity of acquiring financing via the international carbon credit market, via the REDD Projects system

(see later chapters). These are achievable in areas predicted to be under a "high-risk of deforestation" such as many areas in the Amazon Basin.

Sustainable Forestry

Sustainable forestry is the practice of reforestation combined with a small amount of timber harvesting, enabling both the environmental advantages from reforestation combined with the economical incentive of harvesting. Sustainable harvesting programs typically only permit 5% of the timber to be harvested and trees are replanted to ensure a healthy developing forest.

Forestry Practices

A variety of practices are conducted within forestation itself such as modifications to **emphasize carbon storage**, adoption of **low-impact harvesting methods** to reduce carbon release, lengthening of **forest rotation cycles** or the **preservation of forest land** from conversion to alternative use.



MIXED-USE FORESTRY INVESTMENTS

For many investors some of the most interesting projects are known as “**mixed-use**”. In general these **have both a forestry and carbon accreditation aspect within the project**, giving the owner / investor two potential future exit strategies. At time of potential harvest, owners can assess both the timber and carbon credit markets and decide whether to harvest timber or collect credits (protect the timber), and receive the relevant investment return. Some examples of types of mixed-use projects;

- Reforestation of previously deforested land
- Protection of forest under high-risk of deforestation
- Bio-diverse reforestation providing indigenous species to enhance animal habitat
- Timber forestry projects with non-harvest accreditation options
- Agro forestry plantations and harvesting

All of these above, when structured and prepared and managed correctly, can achieve the owner / investor carbon emission reduction credits. At the same time, if any timber harvesting is done sustainably, ie a very small amount or the timber harvested is not burnt and timber plantations are replaced, then owners can enjoy timber returns whilst still mitigating climate change.

These “mixed-use” projects offer the perfect investment to any responsibly-minded investor, offering handsome investment returns whilst also being environmentally conscious from a climate change mitigation perspective.

For investors new to mixed-use projects, whilst considering all the “simple forestry” points highlighted previously, the investors should also check carefully that the project already has carbon accreditation and the current value of the relevant carbon credits.



FORESTS & CLIMATE CHANGE

Forests sequester and store more carbon than any other terrestrial ecosystem on planet earth. With over 20% of the World's carbon currently stored in trees, and 40m of tropical rainforest being destroyed each year, deforestation is currently responsible for 20% of global CO₂ emissions. This is a greater volume than all the planes, trains and automobile on planet earth.

- 20% of the World's carbon is stored in forests and 40m acres of tropical forest are currently destroyed each year
- Deforestation is responsible for 20% of global CO₂ emissions, more than all the planes trains and automobiles on earth
- Tropical deforestation specifically is estimated to have released between 1 < 2 billion tonnes of Carbon per year in the 1990's
- Indonesia has the World's fastest rate of deforestation, losing an area the size of Belgium annually.

With every tonne of CO₂ sequestered (or prevented being released) now having a "carbon credit" value within general global markets, a mechanism for applying monetary value to forestry is taking shape.



Reducing carbon emissions from deforestation and degradation (REDD) is now recognised as being of central importance in efforts to combat climate change.

In conjunction with the carbon credit market, REDD projects enable a monetary value to be applied to various forest protection and reforestation projects. Until very recently developing countries had no financial incentive to protect or replant forests, however REDD now provides a realistic catalyst and an economically-viable alternative to harvesting timber.

The goal of REDD Projects is to prevent deforestation by providing the necessary financial catalyst. REDD projects' carbon credits are currently traded on voluntary markets and are not yet accepted on the official markets

REDD projects also focus on maintaining biodiversity, with tropical forests often containing 300 or more species

However there is a problem with REDD projects which mean that they are still not accepted by the IPCC (International Panel on Climate Change) on the official carbon credit markets.

PROBLEMS WITH REDD

The fundamental concept of the Kyoto Treaty was to create the structure and necessary mechanisms required in order to place suitable financial value on greenhouse gas emission reduction projects. Key to this, with respect to funding these projects, was that the developed countries invested in projects in less-developed nations. With deforestation being responsible for 20% of global CO₂ emissions, and the majority of global rainforests being located in less-developed nations, forest protection and reforestation should have been an obvious candidate.

However there are many issues with regards to forestry in general which have prevented REDD being accepted by the IPCC in the carbon credit markets. Whilst REDD projects' carbon credits are currently accepted and traded on the Voluntary Carbon markets, they are not accepted on the official (CDM) markets, for some of these reasons;



Permanence

Permanence is the title given to the concern over a project's longevity in relation to the carbon credits produced. This is a major issue for forestry when considering potential fire,

disease or logging all of which will release the carbon sequestered back in to the atmosphere. For REDD projects, the only solution is the ongoing verification of the project's forest status once carbon offset emission credits have been generated.

Additionality

Additionality is the assessment of whether a project would have occurred irrespective of whether the carbon credit incentives had been in place, under a "business as usual" scenario. Also crucial to the additionality consideration is



whether the deforestation threat was genuine and real, and whether this itself would also have occurred under a business as usual scenario.

Determination & Quantification

The determination and quantification of the carbon emission reduction credit values of a project depend on agreed systems and procedures from various central controls. These determination methods are required for the analysis of carbon stocks already held within forests, for emissions being released by deforestation programs, and therefore also the emissions prevented by deforestation protection and reforestation programs.

FOREST CARBON DETERMINATION

Many procedures and guidelines exist in the voluntary and official (CDM) markets to determine the “carbon value” of a project. In the case of REDD Projects, there is no single agreed international methodology to determine carbon storage levels and sequestration rates.

Many different historical case scenarios and examples are used, whilst at the same time new sciences are constantly being developed to try to improve measurement procedures. Whilst the scientific methods are being developed, and international standards are still being agreed, REDD Projects are hoped to be included in the CDM markets in the next 2 years.

When assessing a REDD Project’s carbon value, there are two main carbon measurement variables that need to be considered;

a) existing carbon stocks

Estimates of a forest / land carbon stock depending on its actual land and biomass type; for example a Brazilian Amazon carbon stock estimate may be 186 tonnes Carbon / hectare whilst a Mangrove Swamp may be 1440 tonnes Carbon / hectare or a Peat Swamp up to 5700 tonnes Carbon / hectare.

Did You Know: a typical dry wood contains approximately 50% carbon by weight, whilst the molecular ratio of CO₂ : Carbon is 3.67, ie 3.67 tonnes of CO₂ contains 1 tonne of Carbon therefore 1 tonne of dry wood typically sequesters 1.8 tonnes CO₂ on average.

Did You Know: pine plantations in the Southeast US can accumulate almost 100 tonnes CO₂ / acre after 90 years, or roughly one metric ton of carbon per acre per year.

b) carbon sequestration potential

Carbon sequestration rates vary greatly depending on tree age, tree species, tree location, soil type, regional climate, topography and cropping practices, amongst other factors.

Carbon accumulation in forests and soils eventually reaches a saturation point, beyond which additional sequestration is no longer possible. This happens, for example, when trees reach maturity, or when the organic matter in soils builds back up to original levels before losses occurred.

Even after saturation, trees need to be sustained to maintain the accumulated carbon and prevent subsequent losses of carbon back to the atmosphere known as “leakage”.

REDD PROJECT CARBON CREDIT VALUES

Until REDD projects are included in the official carbon markets by the IPCC, all reforestation and deforestation protection projects can only acquire carbon offset credits on the voluntary markets. Voluntary market carbon offset credits are in general a significantly lower price range than carbon offset credits traded on the official CDM markets.

Whilst this means that there are fewer forestry projects than alternative projects (such as renewable energy, solar, wind, hydro, biofuels etc), forestry projects are still highly regarded within the voluntary markets, representing 18% of the voluntary market in 2007. **Forestry projects also had the highest voluntary carbon credit pricing in 2008, averaging US\$ 7.8 / tonne Co2e.**

Despite the IPCC's uncertainty over REDD projects, a recent "**Forestry Carbon Offsetting Survey 2009**" survey conducted by EcoSecurities on 120 of the most active global, multinational and regional corporations, produced results showing that they are certainly popular amongst buyers.

- 90% of respondents surveyed outlined avoided deforestation or ecological reforestation as highly desirable
- 78% of respondents outlined forest offset projects from tropical forests in South America as highly attractive
- 46% of respondents would consider a call option for forestry offsets
- The CCB (Climate, Community & Biodiversity) Standard was found highest desirable (85%) by carbon companies that were surveyed.
- 30% of buyers are willing to pay \$4 premium for VCS credits with a CCB Standard, and 77% willing to pay \$1 premium

For full details on all simple plantation, mixed-use and carbon credit forestry projects, contact Willow Rivers.

**To start investing responsibly, please contact
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