The background of the cover features a dark blue and black color palette with various financial data visualizations. On the right side, there is a 3D bar chart with several bars of varying heights. Below it, a line graph with multiple colored lines (yellow, red, blue) is overlaid on a grid. Some numerical values like '-05.22', '00.01', and '-00' are visible on the graph. The overall aesthetic is modern and data-driven.

# THE Frontier Line

Thought leadership and insights from Frontier Advisors

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## Timberland and Agriculture: A Primer

# ▶ Frontier Advisors

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*Frontier's purpose is to enable our clients to generate superior investment and business outcomes through knowledge sharing, customisation, client empowering technology and an alignment and focus unconstrained by product or manager conflict.*



## AUTHOR

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# Timberland and Agriculture: A Primer

*This Frontier Line provides a high level overview of both the timberland and agriculture asset classes from an institutional investor's perspective. We will cover a number of aspects of these asset classes, which will hopefully help with understanding the nature of the assets, the managers that manage them and the risks within these sectors.*

*Covering both sectors at the same time will allow us to compare and contrast the two. Broadly speaking, they are both biological asset classes and involve growing living organisms. In fact, one could argue that timberland is a subsector of agriculture (as it is essentially tree farming).*

*Both assets often include large amounts of land, which is one of the reasons why both sectors are placed within the real assets sector. Other than these similarities, they are quite different sectors, which will hopefully become apparent.*

## Products and uses

*In some ways, it's easier to start at the end, so a good place to start is outlining what the actual end uses of these asset classes are.*

Timberland's output is naturally wood, but this can come from a range of different tree types, broadly split into hardwoods and softwoods. Softwoods are often used to produce lumber for construction – in particular housing. So housing construction is a driver. Hardwoods are often used for products like furniture, flooring and paper. But the reality is that there isn't any hard and fast delineation. Different characteristics of different tree species will also guide their usage. This includes some very specific, specialised uses, such as charcoal production, biofuels and perfumes.

Agriculture's outputs are much more variable, but effectively involve growing various organisms in what is commonly referred to as farming. This can involve growing plants, animals and fungi. These organisms are used for a whole range of end purposes, much of which is for consumption,

but also for other outputs such as fibre and clothing.

In terms of the farming part of the market, which makes up much of the traditional agriculture sector, farms can be classified broadly into annual crops, permanent crops and livestock farming, but there are many ways to classify types of farming. Annual crops are usually planted and harvested annually, such as wheat. Permanent crops are things like fruit and nut trees which produce over multiple years, whereas livestock farming is looking after various animal species to produce outputs including meat, wool, milk and other products.

Then there are agribusinesses, which are essentially other businesses in agriculture which are either inputs into the production process or handle the outputs. This can cover water, fertiliser, and equipment through to logistics, processing and distribution.

# What are the assets?

*So we've covered what the outputs are, but as an investor, what is one actually buying?*

Timber is generally commercial timber plantations of various species of harvestable trees. The value is largely in the land, as well as the existing trees. It's worth noting though that various tenure structures exist (i.e. conditions under which the assets are held) and, in the case of timberland, an investor may sometimes only own the trees and the right to harvest these under a single rotation (a single rotation harvesting right). Other tenures include freehold interests, which typically come with a perpetual right to re-plant and harvest attached to the ownership of the land, and licenced interests such as a licence to hold under a long term leasehold, sometimes under Crown ownership. The US is the by far the most developed market in timberland, making up about half the universe. However, Australia is still quite developed, as is New Zealand. There is also considerable interest in timberland in emerging markets, particularly South America.

Individual assets within timberland can be quite small, but many are sizable. A few hundred million US dollars is normal, but some assets can be worth billions. In terms of actual physical size, the average transaction in recent years in the Western US was around 400 square kilometres (think of a square 20 km by 20 km).

In agriculture, the asset is usually the land, permanent crops on this land, if any, and potentially livestock and equipment. These assets can then be used to grow various crops, plants, or livestock. What can actually be grown will depend on climate and other conditions. Water can also be a significant point of value, particularly in irrigated areas. The size of individual assets varies, but many are very small. This may be due to the capital constrained owner-operator nature of many farms, but in some types of farming there are natural constraints, such as dairy farming.



# Make-up of the institutional market

*Both timberland and agriculture are tiny asset classes relative to most others such as equities, bonds and even infrastructure.*

Estimates for the size of institutional timberland are somewhere around US\$100 billion to US\$200 billion in assets, but turnover is in the single digits globally per annum. The institutional agriculture market is even smaller, with estimates of assets around US\$20 billion globally. If you move beyond institutionally held assets, the numbers go up, quite dramatically for agriculture, but these assets are very fragmented and not necessarily straightforward to convert into investible form.

Between the two sectors, the managers operating in timberland are much more developed. These are typically Timberland Investment Management Organisations (TIMOs). Hancock Timber Group and Campbell Global are the two largest (with around US\$10 billion in assets each) and operate globally, including in Australia. There are also other TIMOs, such as New Forests, which is based in Australia and represents the largest private owner of plantations in Australia following the acquisition of several plantations previously held under the now defunct MIS tax schemes.

There is also one unlisted fund of funds manager in the timber sector, Stafford Timberland. In addition to the TIMOs, other significant investors in the timberland space are timber REITs. All of these groups will have significant track records.

The institutional agriculture market is much more fragmented than the timberland market with very few managers with a substantial track record. The single largest investor in the space is TIAA, which holds agriculture in the high single billions, but numbers fall off quite dramatically after this. Hancock is also one of the larger players in this market, as is Macquarie. There is a long tail of managers with quite small amounts of capital under management.

Fees in these sectors are generally high relative to most other asset classes. Timberland will usually have around a 1% p.a. base fee and sometimes a performance fee, while agriculture will normally have a greater than 1% p.a. base fee plus a performance fee.



# Components of the return

*Understanding where the return comes from helps with understanding these asset classes. Both asset classes generate income through biological growth, which produces the end product.*

In agriculture, this income typically makes up most of the return, which can also be volatile as the products are usually commodities and many are also perishable. Most of the remaining return is from land value appreciation.

In timberland, income makes up a smaller proportion of return than agriculture (dependant on the tenure type), but it is also generally less volatile. Timber also has the advantage that trees don't need to be harvested at a specific time, subject to the constraints imposed by long term supply agreements and the estate's age distribution profile, and thus can exploit the prevailing market conditions (such as log prices and harvesting costs). Additionally, the value increase

from biological growth isn't necessarily linear – larger trees can be worth more per unit of volume. It is worth noting that a typical rotation cycle for softwood timber (from planting to harvesting) is circa 25 years but could be as long as 35 years for hardwood timber. Unlike other commodity price exposed primary assets, timber can be stored and value will continue to grow through biological growth but there is a cash flow trade off through deferral of income. Estimates are that half or more of the return from timberland assets is from land value appreciation.

Return can also be enhanced through various strategies which we will touch on next.

## What value enhancement strategies are there?

*The core approach of many timberland strategies is planting and growing trees, followed by harvesting and selling the timber subject to a value optimisation model which takes into account log prices, cost of planting, harvesting costs, ocean freight, the age distribution profile of the plantation, and long term supply agreements.*

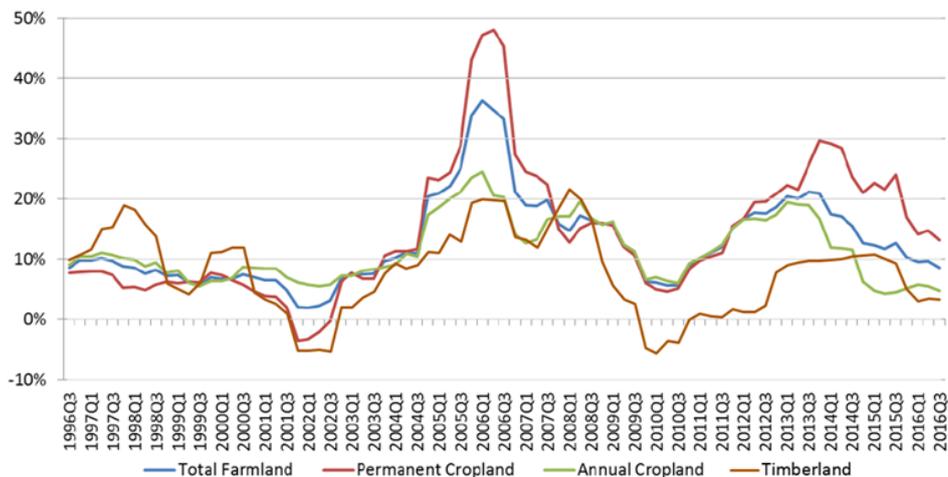
However, there are some value adding approaches and strategies that can be undertaken. This can include focusing on specific specialist timbers, investing in emerging markets, improved silviculture (tree farming) practices, improvement strategies on poorly managed plantations, or selling certain rights for additional income (such as conservation overlays). More macro level strategies can also be undertaken, which involves choosing assets based on where demand is expected to come from in the future. Expansion up the supply chain (vertical integration) is also possible in some circumstances (such as owning timber mills). The risk profile of a timberland estate is enhanced through proximity to processing mills and ports for access to export markets. The quality of the timber plantation is also a critical element of its risk profile and hence risk adjusted value.

Agriculture is considerably more variable in terms of strategy, since there is such a broad range of farmed organisms and products produced from these. In addition to the different types of farming, there are other strategies that can be applied, such as roll-ups (combining multiple farms into a single entity), conversion to higher and better use (such as switching an irrigated farm to permanent crops) or increasing control over different stages within the supply chain. In many respects, agriculture is quite private equity-like, given the wide variability of sectors, assets and strategies. Macro level themes are also commonly raised in agriculture.

# Historical performance and outlook

Unsurprisingly, given the small size of the timberland and agriculture sectors, the amount of solid performance data available is limited. The main source for both sectors is the National Council of Real Estate Investment Fiduciaries (NCREIF), but this is limited to the US.

Chart 1: NCREIF timberland and agriculture annual performance



The above chart shows rolling annual performance from NCREIF, which would suggest on average agriculture is the higher performing of the two sectors, but is also the more volatile. However, some managers have stated that their own studies indicate the opposite is true.

Within Australia, the Australia Bureau of Agricultural and Resource Economics and Sciences (ABARES) undertakes periodic surveys of the agriculture sector, which provides some indication of agriculture sector performance. This would suggest that, as a whole, agriculture performs quite poorly, but the situation is improved when removing very small farms from the data set.

The manager experience has also been generally poor. Frontier’s primary historical exposure to timberland has been via fund of funds products. Performance here has been mixed at both the fund of funds and underlying fund level. This has largely been driven by how these funds are positioned relative to the big themes of Chinese timber demand and the US housing market recovery. Those that were positioned well for the China theme have done well (such as New Zealand and Pacific Northwest assets), whereas those funds positioned for a recovery in the US housing market (such as Southeast US) have disappointed. In agriculture, the Australian experience has been disappointing as weather conditions (particularly drought) over the past ten years has impacted across a range of agriculture strategies. This has improved considerably more recently, particularly for cattle

farming, due to good weather conditions and strong beef pricing.

While the experience with Australian agriculture managers has been poor, some US managers (such as Hancock and TIAA) appear to have performed considerably better than domestic players.

In terms of forward looking returns, most agriculture managers are currently stating a targeted nominal return at around 10% p.a. net of fees. Given the risks, this could be considered low on a risk-adjusted basis, with returns in the low to mid-teens more appropriate (noting that there is a large diversity of strategies in this sector). In timberland, discount rates can be used as a guide to expected returns. These are around 7% p.a. for developed market assets, and 10% p.a. for emerging market assets (such as those in South America). Depending on the risk profile of the individual estate, this may also be considered low on a risk-adjusted basis given the sector’s underlying risks but reflects the strong market demand for yielding assets.

While the risk-return trade-off of these asset classes is weaker than would be preferred, it would also be expected that timberland and agriculture would have low correlations with other asset classes due to their unique underlying drivers. This is likely a significant benefit in a portfolio context. These sectors may also have benefits as inflation hedges, given the nature of their outputs. Solid data on these factors is limited however.

# Risks

There are a number of specific risks that both agriculture and timberland investments have exposure to, some of which we have outlined in the Table 1. The sensitivity to these will vary from asset to asset, but most will be exposed to these categories of risk to some extent.

Table 1: Characteristic risks in timberland and agriculture

Risk	Comment
Commodity prices	More demand side driven in timber, more supply side in agriculture
Weather	Such as fire, storms and drought
Sovereign/regulatory risk	For example, foreign ownership restrictions, export restrictions, subsidies, tariffs
Biological/pests, weeds and diseases	From weed control through to locust plagues or pathogen/disease epidemics
Supply chain	Timber mill bankruptcy or capacity constraints is a common example
Currency	Has an influence on commodity prices. Typically, export revenues are denominated in USD which introduces currency risk for non-USD domiciled investee companies

A key point is that many of these risks are quite binary and can be difficult to manage. This means that diversification is important in these sectors, but this then conflicts with developing scale which is beneficial in many strategies (particularly those that attempt to own or manage more of the supply chain). It is valuable to keep these risks in mind when considering opportunities in these asset classes, especially when considering expected returns.

Clearly, commodity prices are a significant risk for both sectors, but arguably more so for agriculture given the perishability of agricultural products. This not only applies to the outputs of the assets, but also input costs. For example, high grain prices can impact on profitability of a grain fed cattle strategy. Commodity price exposure naturally introduces volatility and expected returns should be considered in light of this.



# Macroeconomic themes

*While these are related to investment strategies, it is worth touching on a couple of macroeconomic themes separately, as these are commonly raised by managers as important drivers of their strategies.*

The growing demand for animal protein from emerging/developing markets is a commonly cited macroeconomic theme in agriculture. The argument goes that, as the populations in these countries become wealthier, demand for animal protein (meat) increases. For Australian managers, the focus is on emerging Asia and particularly China. This makes intuitive sense and the data indicates increasing protein consumption per capita in these countries. It is commonly raised as a justification for cattle strategies.

In timber, a common macroeconomic theme revolves around regional housing construction. Assets that can supply timber into strong housing construction markets should experience strong demand for their output. As with many asset classes, China has been a strong driver here, with assets that have been able to supply the Chinese market (such as New Zealand

and the Pacific Northwest of North America) generally performing well as a result. Another expected region for strengthening housing construction has been the US, but this has taken much longer than most investors expected.

Both of these themes are demand side stories. In some ways, these themes are probably more important drivers in timber due to supply being much more static than in agriculture. A key consideration when thinking about these themes is whether they have already been factored into pricing. If they have been (which is often the case), then assets will underperform if the demand effect is weaker than expected or occurs later than expected. Managers with funds positioned to take advantage of an expected US housing construction upturn, which never eventuated as expected, are a perfect example of this.

## The final words...

To summarise, both agriculture and timberland are very small institutional investment sectors, which limits the amount of capital that can be invested. The actual asset base in agriculture is quite large, despite it being the smaller of the two sectors. This suggests there is much more potential for agriculture to grow. The small size of the sectors also means that the manager universes are very limited, with the more experienced and institutional quality investors in timberland.

In terms of risk, agriculture is arguably the higher risk of the two sectors (though there is some disagreement on this). However, timberland is still risky. It is also difficult to diversify away from many of the risks in agriculture due to the small size of the sector and limited manager universe.

In terms of return, timberland expected returns are low, which reflects the relative maturity of the sector, its small size and the high demand for yielding assets.

Expected returns from agriculture are higher than timberland, but often still lower than preferred given the risks. Fees are also quite high in both sectors, though higher in agriculture.

Both agriculture and timberland are interesting sectors, with unique characteristics. However, as the less mature sector with the largest pool of potential assets, agriculture arguably has the most potential, though a significant challenge is finding both appropriate strategies and managers to execute on these. The risk/return trade-off in both sectors is also relatively unattractive at the current point in time, though once again there is arguably more upside potential in agriculture than in timberland. While timberland is very highly priced across the board, this doesn't preclude the possibility of some assets transacting at more attractive valuations, but a strategy focusing on this would need to be very opportunistic and would be potentially quite concentrated by asset typically through a mandate style arrangement with a TIMO.



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