



A new 'Natural Infrastructure' investment model

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An aerial photograph showing a vast, dense forest of tall, thin trees stretching across the horizon. In the foreground, a paved road curves through a grassy area, with a small white building and a dirt path nearby. The sky is clear and blue.

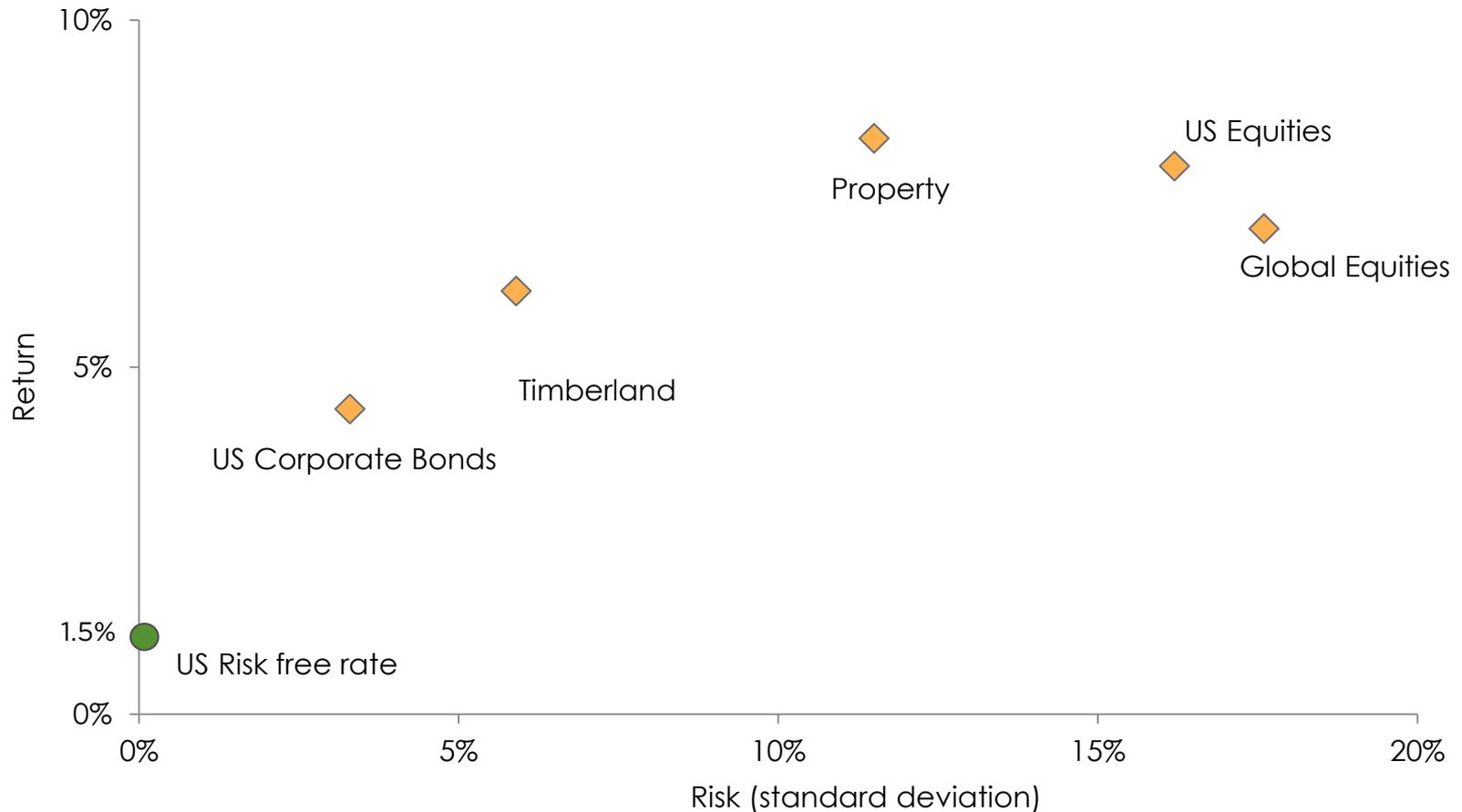
About New Forests

- Founded in 2005 to manage institutional investment in the forest sector
- Managing approximately \$US 2.3 billion in investments including over 780,000 hectares of plantation forests and rural land, timber processing facilities, infrastructure, forest carbon offset projects, wetlands, stream and biodiversity mitigation banks, and water rights across Asia-Pacific and USA
- Head office in Sydney; over 50 employees in Australia, New Zealand, Singapore, and the USA

Investment Fundamentals

The goal is to achieve returns commensurate with the risks associated with the investment

10 Year Risk/Return Comparison of Asset Classes



Notes: **US Equities index** is S&P 500 index. **Global (ex US) Equities** index is MSCI World ex US index. **US Bonds** is the Barclays Capital Aggregate Bond Index (includes Treasury securities, government agency bonds and investment-grade corporate bonds), **Timberland** index is NCREIF Timberland Index. **Property** index is NCREIF Property Index. NCREIF is a measure of the investment performance of a pool of timberland properties/commercial real estate in the US acquired for investment purposes. Returns are as at 30 June of each year.

Source: Pension Consulting Alliance. Data to June 2015.



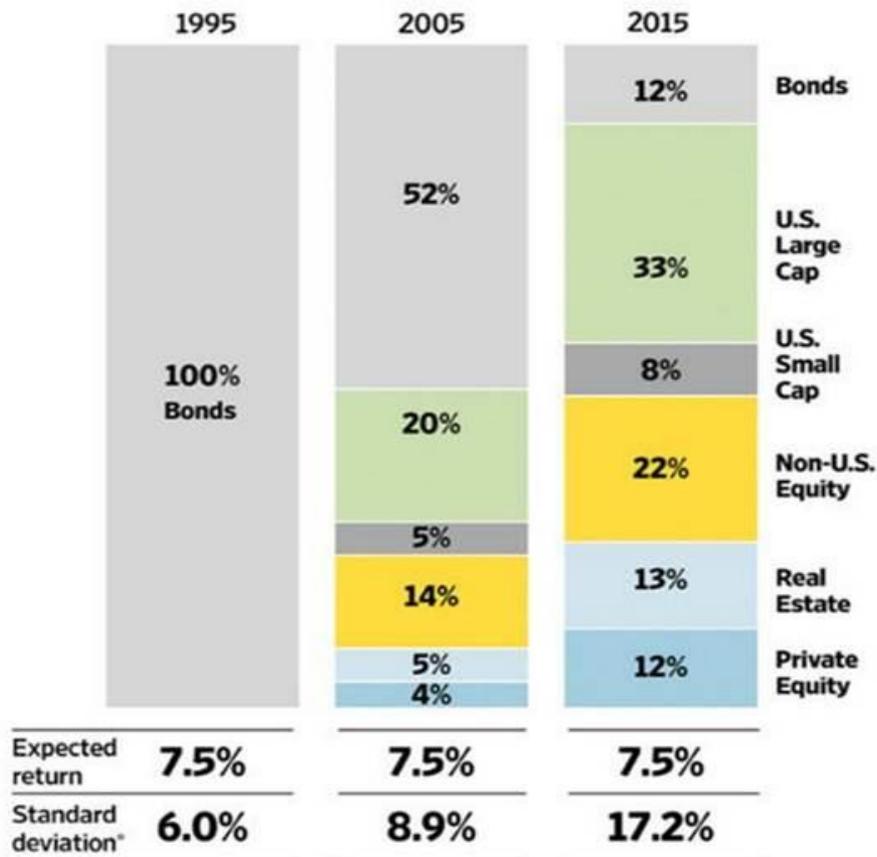
The challenge of generating returns

- Typical portfolio has a mix of assets including fixed income (e.g. bonds), listed equities (e.g. stocks), and alternative assets (hedge funds, real assets, infrastructure, commodities, etc.).
- Portfolios have evolved substantially over the past two decades as fixed interest yields have declined.
- As more risk is taken to achieve the target return, a key task is finding uncorrelated assets to reduce overall portfolio volatility.

Rolling the Dice

Investors grappling with lower interest rates have to take bigger risks if they want to equal returns of two decades ago.

Estimates of what investors needed to earn 7.5%



*Likely amount by which returns could vary
Source: Callan Associates

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Forestry Is an Increasingly Important Asset Class

Forestry is an important diversifier to investment portfolios

- Approximately 70% of returns come from biological growth. Biological growth is not correlated with the stock market, interest rates or property value.
- Forestry assets are 'long-dated' and even perpetual assets that generate both capital appreciation via growth and income via timber harvest. Very attractive for matching future liabilities (e.g. pensions, medical costs, university expenses)
- Forestry assets also tend to have a positive correlation with inflation.
- Approximately \$100 billion and rising has been invested in forestry by institutional investors over the past 25 years.
- As demand for forestry assets has risen, investment has expanded internationally, and investment strategies have diversified.
- More and more investors are seeking sustainable and responsible investments, decarbonisation of investment portfolios, and positive social and environmental impacts.



A New “Natural Infrastructure” Investment Model

- Typical infrastructure model is based on returns from user fees—toll roads, airports, ports, pipelines, etc.
- Assets are priced as a multiple of cash yield or net present value (NPV)
- Key to generating higher returns is by finding ways to increase revenues
- For example an airport investor can generate higher returns from adding parking lot fees, retail development, baggage trolley rentals, etc. to base airport landing fees that may be government regulated
- Forestry investment has also traditionally had this kind of option value:
 - Selling hunting and fishing rights
 - Selling off land with high real estate value
- Recently this has been expanding to include environmental option values including conservation easements, carbon offsets including REDD+, water rights, mitigation banks, watershed protection payments—collectively PES.
- This is beginning to open up a new investment opportunity modelled on the infrastructure approach.



Regulatory and Methodological Base

Payments for Ecosystem Services need consistent rules to be successful

- The more uncertainty about the rules, the higher the return needed by investors
 - Carbon markets have come and gone, rules have changed from scheme to scheme, prices have been very volatile
 - Wetland mitigation bank rules seem to vary from one regulator to another, and can change when staff changes
 - Government regulators often very slow to approve projects, and delays impact returns because of the time value of money
- Some real success stories
 - California carbon market is well designed—floor price, permit auctions, clear rules for forest offsets, recent extension to 2030 to create demand
 - Australian water rights have driven a rationalization of agriculture, financial innovations, water funds, sale and leaseback structures, risk management tools
 - US mitigation banking has created high prices for critical habitat, wetlands and streams, changing development patterns



Investment Models

- **Project Finance Model:**
 - Investor funds development of carbon offsets, mitigation banks, watershed management project
 - Revenue is split between investor and landowner/community, often 20:80
 - Investor takes regulatory risk, but invested capital is relatively low
 - Return expectations similar to private equity – can be 20% per annum IRR or higher
- **Asset Management Model**
 - Investor buys forestry property on the basis of a market forestry return, then monetizes ecosystem services to create a higher return
 - As markets mature and prove successful returns decline
 - Blended model: Communities or private owners retain land, but investor puts up capital to enhance PES value—fencing riparian areas, tree planting, stream restoration, road upgrades—expected return a function of capital invested and regulatory risk—may be seeking 15% per annum returns



Risk and Risk Management

- Investors price investments by discounting the future value of cash flows by a discount rate that reflects risk. Investors are willing to accept risk, but the more risk the higher the return expected. In some cases the investment doesn't generate a return high enough to justify taking the risk.
- Risks for natural infrastructure investments include:
 - Regulatory risk—the risk that rules change and money is lost or market design leads to price crash
 - Counterparty risk—if a PES project is based on a contract with a company or government business how reliable are they and how likely are they to pay future obligations
 - Country risk factors—quality of legal system, general business environment, bribery, corruption risk, sovereign risk around taxation, repatriation of funds
 - Physical risk—fire, floods, extreme weather, insect epidemic, etc.
 - Force Majeure – war, civil insurrection, earthquake, hurricane impacts that prevent investment functioning
- Risk can be accepted; transferred by insurance or government guarantee; managed via governance arrangements; or managed via financial instruments like preferred equity, first loss investment, bank guarantees and funds in escrow



Who Will Invest in Natural Infrastructure Opportunities?

- Impact Investors and Impact Investment Funds—seeking market returns but with positive social or environmental outcomes
- DFIs—development banks and international funds (GEF, IADB, Green Climate Fund) will often be early investors
- Corporates who are beneficiaries of the improvements in water quality, carbon stock, or biodiversity values
- Infrastructure fund that includes an allocation for Green Infrastructure (say 10-20%) to address sustainability and responsible investment commitments
- Institutional investors will generally need a core return from a conventional revenue source with PES as upside exposure, or will come in to provide the capital needed to scale business models once proven by early stage investors



Lessons Learned

- Many carbon funds and mitigation banking funds have had mixed results, mainly because of regulatory risk issues.
- More success from project development facilities and option value based strategies.
- Large flow of funds currently from DFIs, climate funds, etc. could be harnessed for PES or natural infrastructure funds, possibly with structures that de-risk investments for traditional institutional investors who have substantial capital.
- Need proven managers with track record, scale, ability to manage project development, complex contractual negotiations, risk management systems.
- Properly constructed regulatory or market systems will attract capital.





Thank you

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