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UK forestry investment fundamentals

Not investment advice. Capital at risk.

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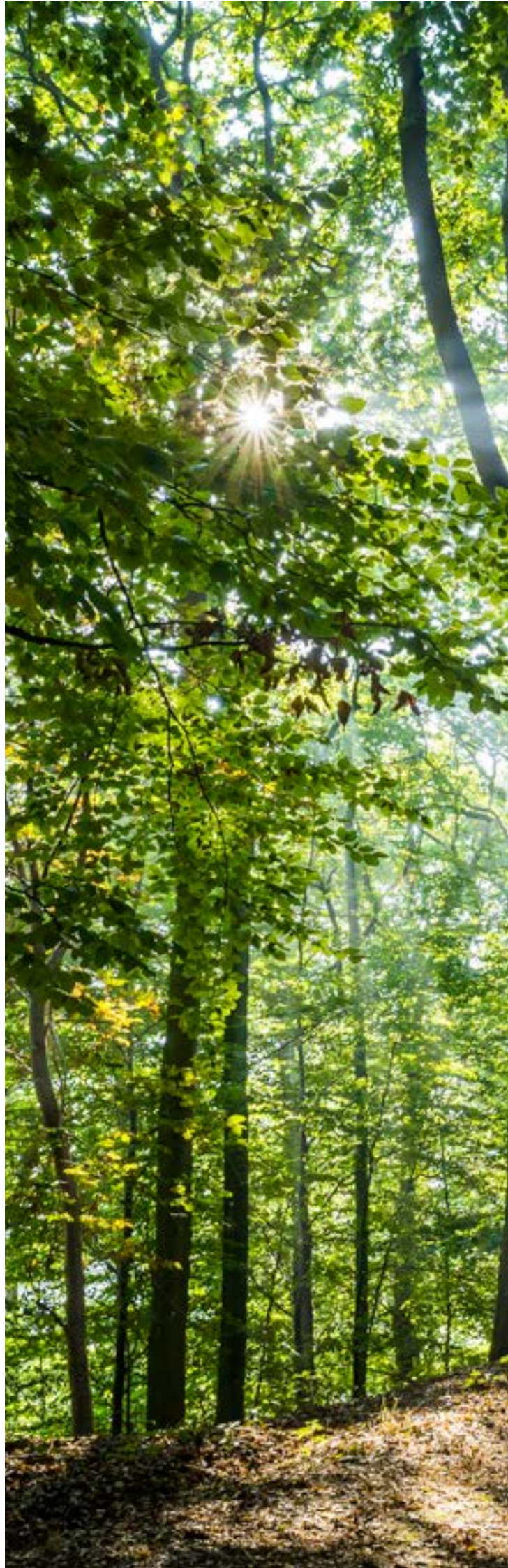
2024



Gresham House
Specialist investment

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Introduction

Forestry has a proven risk return profile which has delivered compelling real returns, with minimal correlation to mainstream asset classes.

Key attributes

- Returns have minimal correlation to mainstream asset classes, but positive correlation to inflation, making forestry an effective portfolio diversifier and an inflation hedge¹
- Global demand for timber is expected to increase substantially, as urbanisation and GDP per capita rise further, at the same time as the focus on sustainable materials becomes ever more pronounced²
- Timber supply will continue to be constrained by ongoing reductions in illegal logging globally
- As these supply and demand drivers converge, Gresham House believes that both domestic and global timber prices will continue to rise in the medium and long term. The world Bank estimates that global timber demand is set to quadruple by 2050³
- The UK currently imports 80% of its overall timber consumption
- The ability to invest in a portfolio with a mix of crop ages allows investors the potential for both capital growth and income
- A modern timber processing industry in the UK provides forest owners with strong competition for timber sales from multiple end users
- Local investment offers tangible benefits to communities by driving job creation and supporting the transition to a circular economy
- There is no currency risk for UK investors
- Gresham House⁴ forestry management is independently certified as a sustainable and socially responsible investment
- There is upside potential to returns from both carbon credits and natural capital enhancements as well as active portfolio management

1. Gresham House, Forestry Reliance in Turbulent Markets, 2022

2. Gresham House, Global Timber Outlook, 2020

3. House Of Commons, Environmental Audit Committee, 2023

4. Gresham House Asset Management Limited, 2024

Past performance is not necessarily a guide to future performance. Capital at risk.

The drivers of forestry returns

Gresham House have a 40 year track record of investing in UK forestry, and our forestry management comprises:

- the ownership of freehold (or in occasional instances leasehold) land, with a growing crop of timber

Forests are managed to maximise the crop yield, whilst minimising the risks for the owner. Value is realised through:

- a sale of the crop (harvesting) or by disposing of the asset

Typically returns from sustainable forestry are driven by three main variables:

- biological growth of the crop
- increases in the value of timber
- increases in the value of land

Returns are underpinned by biological growth

Biological growth underpins a forestry investment. It provides investors with annual volume increases, as crop growth occurs irrespective of the global economic cycle.

The physical growth of a tree results in an annual increase in the volume of timber. The main commercial tree species in the UK is Sitka spruce, which is ideally suited to the UK's maritime climate, requiring rotations of 35 to 50 years to reach maturity, compared to at least 70 to 100 years in Europe's main timber exporting regions, Scandinavia and the Baltics.

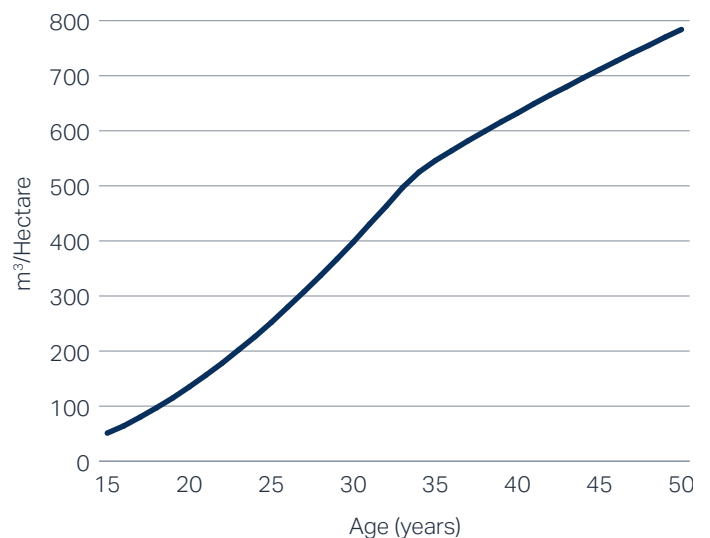
Extensive long-term research has provided significant data on commercial conifer growth rates in the UK. The resulting datasets allow accurate forecasting of tree growth rates, known as yield class. Yield class measures the productivity of the crop – the higher the yield class the greater the volume of timber produced over a given period.

In the UK the national average yield class for privately owned commercial forests is between 12 and 14 (yield class 12 = 12 cubic metres of timber growth per hectare per annum, throughout the crop rotation). Gresham House targets high-quality forests, generally with an average yield class of 16 and above (See Yield Class 16 Graph).

To maximise and enhance biological growth rates, Gresham House employs active management practices. UK forestry owners benefit from excellent research from the Forestry Commission (FC), such that expertise in forest management practices, including optimisation of tree species and site selection, is amongst the best in the world. Such expertise and development helps enhance yields over those achieved on previous rotations.

As trees increase in size, the number of potential end uses of timber rises, which in turn leads to an increase in unit timber value as there are more market participants. Smaller trees, with the lowest unit value, are used primarily for fibre products such as wood pulp. As the trees get larger, logs can be used in higher value applications, such as sawnwood for construction. More end uses result in a greater number of timber processors seeking to purchase the crop.

Sitka spruce growth in the UK - Yield Class 16



Source: Forestry Commission Sitka Spruce Yield Class 16 Model (2.0m no thin spacing), 2016

In the UK there is flexibility as the harvesting window for commercial conifers is c.15 years. Therefore, forestry owners also benefit from the ability to 'warehouse' timber (by leaving it standing) at times of market weakness, ensuring owners do not needlessly crystallise lower returns at times of lower timber prices. The trees should continue to add both volume and value, which can be realised when prices improve.



The macro timber market: positive forecasts

Demand drivers

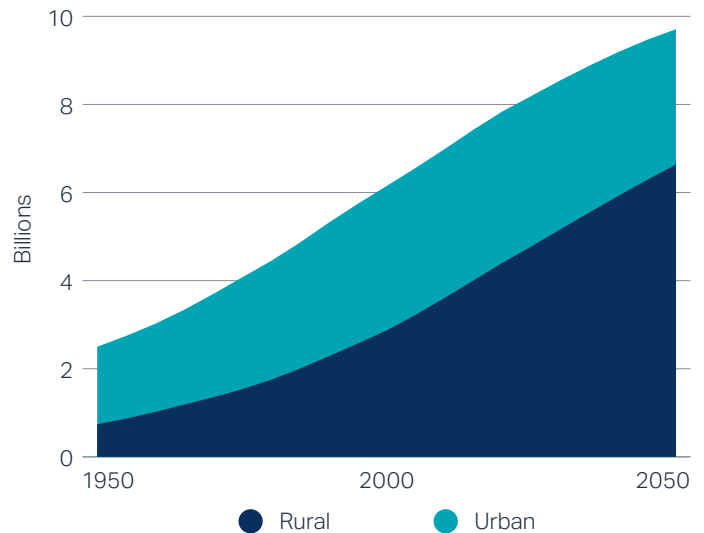
Gresham House anticipates global demand for timber will increase significantly over the next decade. Key macroeconomic and macroenvironmental factors, we believe, lie at the core of this structural increase. Our forecasting suggests that timber consumption will increase 2.7 times by 2050, a 3.1% increase per annum, driven by an increasing global population, a chronic shortage of new housing (resulting in rising house prices), and the transition to a low carbon economy. Additionally, we believe our outlook is more conservative compared to others. For example, the World Bank November 2022 forecasted a quadrupling of demand for wood in the period to 2050.

As a result of these macro trends, timber prices are projected to rise faster than the growth in consumption due to the increasing pressure on this limited resource.

Timber plays a crucial role in many global economies, including the UK. The World Bank's demand forecast for wood in the period to 2050 asserts the notion that many populous countries are following a well-established path of increased wood consumption alongside development. As people become wealthier, their demand for timber product - used in construction, fencing, packaging, furniture, newspapers, magazines, and biomass for electricity - also increases.

The UK also faces an acute housing shortage. In 2023, around 210,400 new homes were built, falling short of the government's target of 300,000 per year. The government now views offsite construction as key to addressing this deficit which will support timber demand. In England, only 9% of new homes were timber-framed in 2019, compared to 92% in Scotland. This illustrates the market potential for wood-based construction and presents a significant opportunity to expand timber construction in England.

Urban and rural population projected to 2050, fuelling the demand for timber

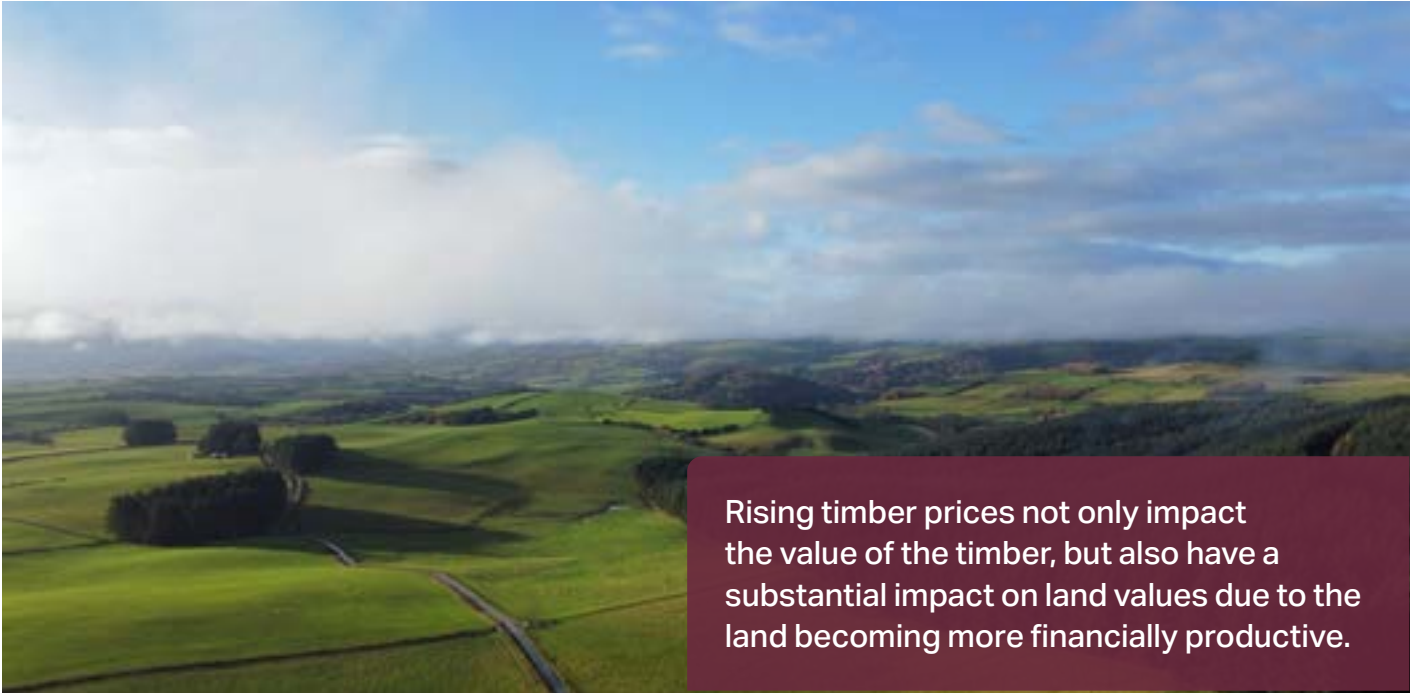


Source: United Nations Population Division, 2024

Building with wood instead of concrete or steel can significantly reduce a project's carbon footprint. As new building regulations push for lower carbon use, timber is becoming a more popular building material. For instance, new 'engineered' wood products like Cross Laminated Timber (CLT) are increasingly used in high-rise construction, offering a cheaper, faster, and more fire-resistant alternative to traditional materials like concrete and steel.



Section 1 - The drivers of forestry returns



This is one of the reasons timber-framed buildings are becoming more popular in the UK. For example, the Dalston Works in London, which features 121 residential flats and over 5,000 square metres of commercial and retail space, was built using Cross Laminated Timber (CLT) and stands up to ten storeys tall. The world's tallest CLT building, located in Norway, is 85.4 metres high. Japan is planning an even taller wooden skyscraper - 70 storeys and 350 metres tall.

On the whole, timber products are being more frequently used in a wider range of industries across society including agriculture, aquaculture, construction, pharmaceuticals, cosmetics, food, batteries, and biofuels. The effect of a broadening consumer base, will likely diversify the supply chain and ultimately drive a higher aggregated demand over the medium to long term.

Supply constraints

Unlike many other real assets, forestry is finite and cannot be 'overbuilt.' Timber supply can only be increased over long investment cycles, typically taking 40 years in the UK or up to 100 years in regions where the UK imports most of its timber.

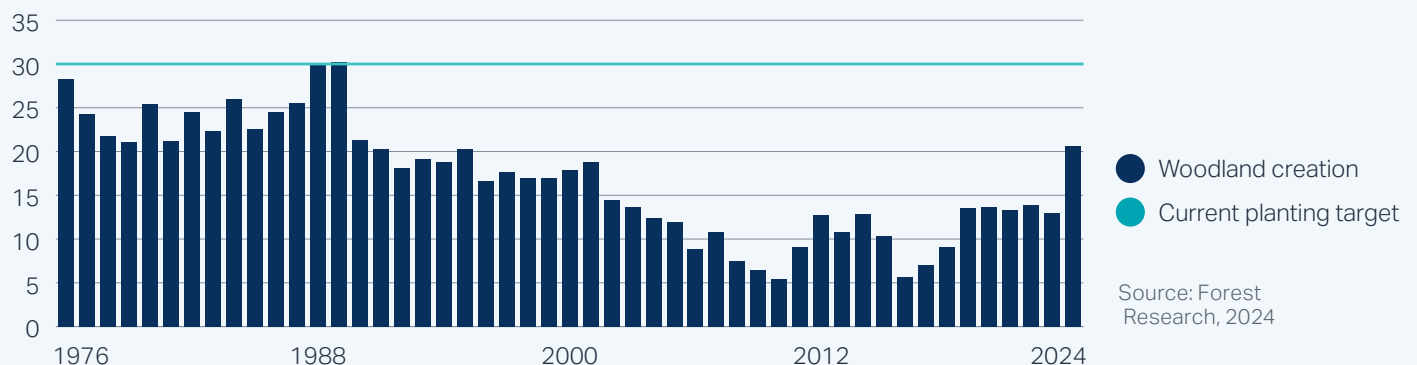
The target for new woodland creation in the UK is 30,000 ha per annum, in reality only 10-15,000 ha per annum are being created, a long way behind the target⁵.

World Bank data shows that global forestry supply is declining due to deforestation, especially in tropical areas. The Forest Stewardship Council (FSC) estimates that approximately 12 million hectares of forest are lost annually, equivalent to 36 football fields every minute.⁶

5. UK Parliament, Research Briefing 2021

6. Forest Stewardship Council (FSC), 2024

New woodland creation in the UK



In 2013, the EU Timber Regulation was introduced, requiring companies to ensure that all timber sold in the EU is legally harvested. Similar regulations exist in the US under the Lacey Act. Authorities will continue to crack down on illegal deforestation and, in doing so, contribute to a falling global supply.

The Gresham House view is that from an effectively fixed supply, demand for timber products is set to increase, both in the UK and globally. For roundwood lumber, for example, consumption has grown by an average of 1.1% annually over the last 20 years, and reached an all-time high in 2021. This is one such example, that is underpinned by these key macroeconomic and macroenvironmental factors that are creating the timber supply/demand imbalance - an imbalance that we project will continue to grow over the course of the decade.

Ultimately, timber prices will rise faster than the growth in consumption, as increased pressure is placed on a largely fixed supply, which is already becoming more limited as timber becomes more expensive to extract.

Political outlook and the future of timber's supply and demand in the UK

The UK General Election in July 2024 resulted in a new Labour government with a significant majority, following 14 years of Conservative rule. While this will result in changes to UK Government policy, the conclusion of the process has at least drawn a line under a period of political uncertainty. The upcoming Autumn Budget will provide further detail of Labour's economic and fiscal proposals.

Please read our [Global Timber Outlook paper](#), for further forestry insights.

One policy that has been announced is an intention to significantly increase UK housebuilding to deliver 1.5 million new homes over the next five-years, which would equate to an average of 300,000 new homes per annum which is in line with the previous Conservative Government targets, however in 2023 there were only approximately 210,400 new homes constructed⁷.

This is substantially in excess of the annual average of 200,000 that have been built over the last five-years. If this policy is delivered, then it would increase demand for domestic timber (the UK currently imports 80% of its timber requirements), which would have a positive effect on timber prices. The new administration has also stated their commitment to the transition to net zero carbon emissions which should lead to encouragement for sustainable raw materials such as timber.

7. UK office for National Statistics, 2024

Additionally, the Labour government has indicated support for wind farm development for electricity generation which will involve the establishment of a new publicly owned entity "Great British Energy", to provide finance for projects and the renewables industry. Although grid capacity will continue to be a key constraint to onshore wind developments until the grid network infrastructure is upgraded, a more accommodative stance on planning permission for wind farms should still be regarded as positive for UK forest owners as it will provide additional confidence to the industry to progress with new developments which are often located on, or accessed through, forest land.

The value of land

Over the last 100 years rural land in the UK has consistently increased in value, agricultural land for example has increased in value at a rate of 5.7% per annum over this period. In real terms, this equates to a 2% compound annual growth rate per annum.⁸

The core drivers of this increase include: security, population change, government policy and associated subsidies, and technological innovation.

Since 2000, UK rural land has seen the longest period of sustained growth of the last century. Knight Frank's Q4 2023 Farmland Index recorded a 2% increase in land values during the final quarter of the year alone and a 7% increase in value over the preceding 12 months⁹

The constant imbalance between supply and demand for rural land in the UK is likely to continue to drive competing land use and indeed land value in the future. Demand for new homes is a significant driver of land value which constrains the amount of land available for other uses. Renewable energy development continues to expand in line with the UK's commitment toward net zero. Climate change and biodiversity loss are now seen as existential threats and investors are increasingly recognising the value of land which can help combat both issues. There is also an increasing preference toward more sustainable lifestyles creating demand for sustainable products like timber, and for greater recognition of the ecosystem services that forests provide.

In times of prolonged uncertainty investment in real assets typically increases. The drivers of land value are complex and diverse, but Gresham House believe that the constrained supply of land in the UK for the multitude of uses required is likely to continue to increase land values in the future.

8. Savills., What is rural land worth?

9. Knight Frank, Farmland Index, 2023

Forestry returns

Over the 20 years to 31 December 2023, which includes 14 years of the external IPD Index (to 31 December 2017) plus six years of Gresham House extrapolated data (to 31 December 2023), UK forestry has provided an average annualised return of 17%.

Annual returns from UK forestry have been highly competitive relative to mainstream asset classes. The IPD Index provider, MSCI, discontinued their production of the Index after the 31 December 2017 publication.

For the past six years, Gresham House has used independent valuations of multiple Gresham House managed portfolios, as a proxy index¹⁰. (See **Forestry returns over periods to 31 December 2023** in the chart opposite)

Strong risk-adjusted performance

UK forestry has a long-term track record of producing strong performance with relatively low volatility, therefore providing risk adjusted returns that are in excess of many traditional asset classes.

Over the 20 years to 2023, UK forestry generated an annualised return of 17%, with a standard deviation of 10.7% (see **Returns versus volatility to 31 December 2023**). This return profile would have enhanced an investment portfolio by increasing returns and reducing volatility.

The Sharpe Ratio (which measures risk adjusted returns) for UK forestry over the 20 years to 2023 is 1.3, which is significantly better than mainstream asset classes over the same period. 1: risk and return are equal. Greater than 1: returns achieved are better than the associated risk.

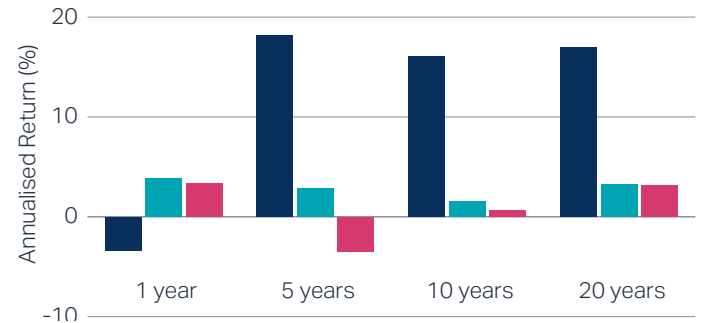
Performance over the past 20 years has been the result of rising timber prices and increasing capital values. Discount rates also hardened as UK forestry's favourable investment characteristics became better understood and investment prospects improved as timber prices continued to rise.

The CAGR of the Gresham House Nominal Timber Index was 6.1% over the 20 years and 4.9% over the 10 years to 31 March 2024. The Gresham House Timber Index uses statistics published by the FC. It comprises an equal weighting of the Coniferous Standing Sales Price Index (CSSPI), being the average price of standing conifer sales, and the Softwood Sawlog Price Index (SSPI), being the average price of all softwood sawlogs sold on the FC estate.

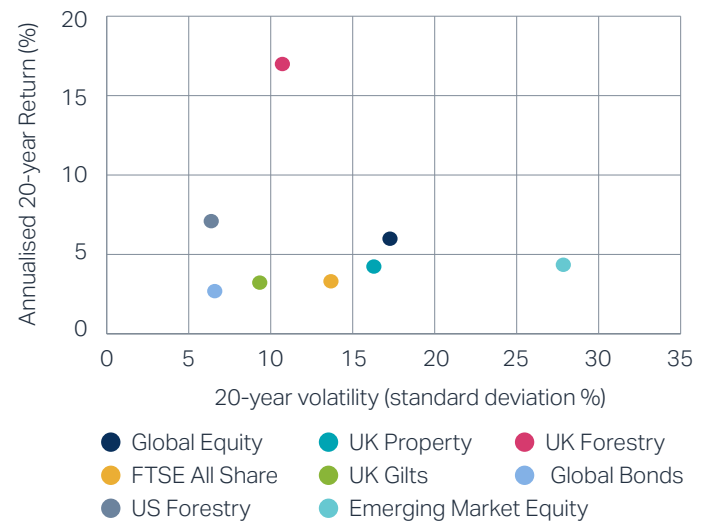
Gresham House believe that investment in UK forestry continues to offer the prospect of generating further attractive real returns. Forecasts core annual returns are 8%, net of all fees and costs, with additional value drivers potentially increasing annual returns to 10%+. It is also important to note that when UK investors invest in UK forestry there is no currency exchange risks, which can be very relevant.

10. Gresham House composes a substantial proportion of the UK market and will provide an appropriate representation

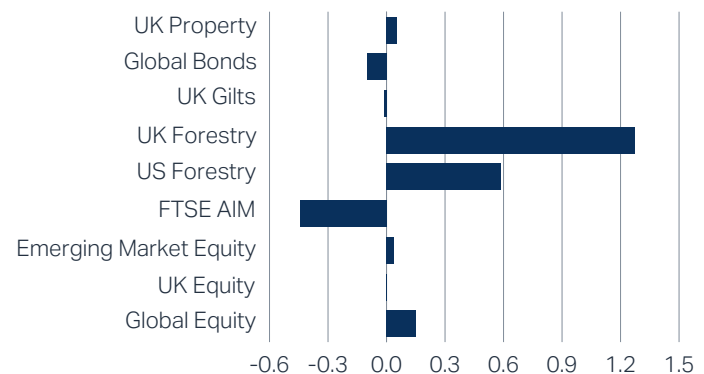
Forestry returns over periods to 31 December 2023



Returns versus volatility to 31 December 2023



Sharpe Ratio: 20 Years (to 31 December 2023)



Sources: IPD, Gresham House, MSCI, PIMCO



Forestry provides effective diversification from traditional asset classes but is positively correlated to inflation

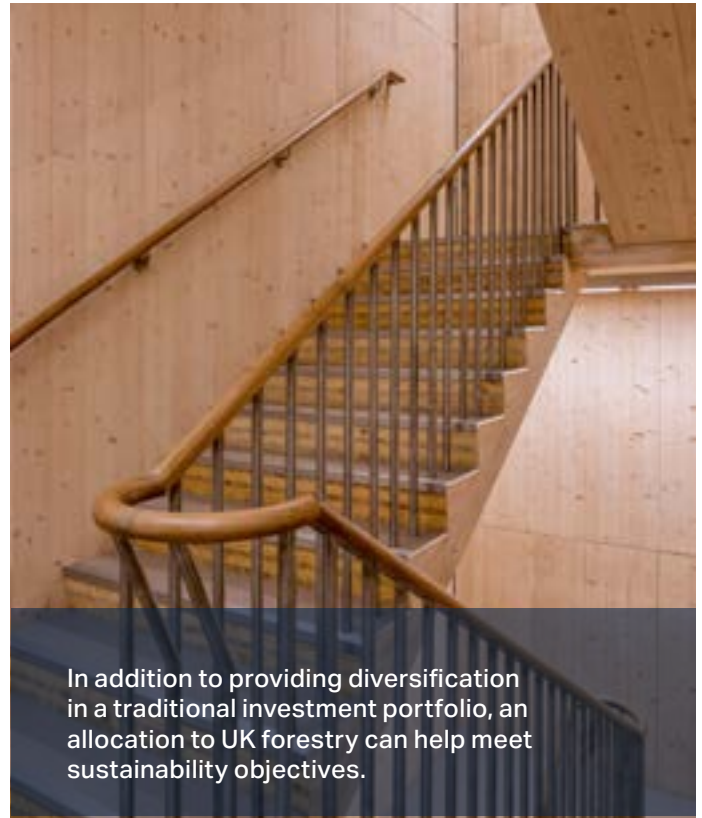
Whilst not strongly correlated to most other asset classes, UK forestry returns have been positively correlated to inflation, thereby protecting real returns.

Forestry's inflation hedging attributes are due to the close association between timber prices and the price of goods in the wider economy. When the latter rise because of inflation, this leads to timber prices also increasing, as a result of the multitude of products that timber is the raw material for.

Returns from forestry are driven by both capital growth and income - and timber prices have the greatest influence over both components.

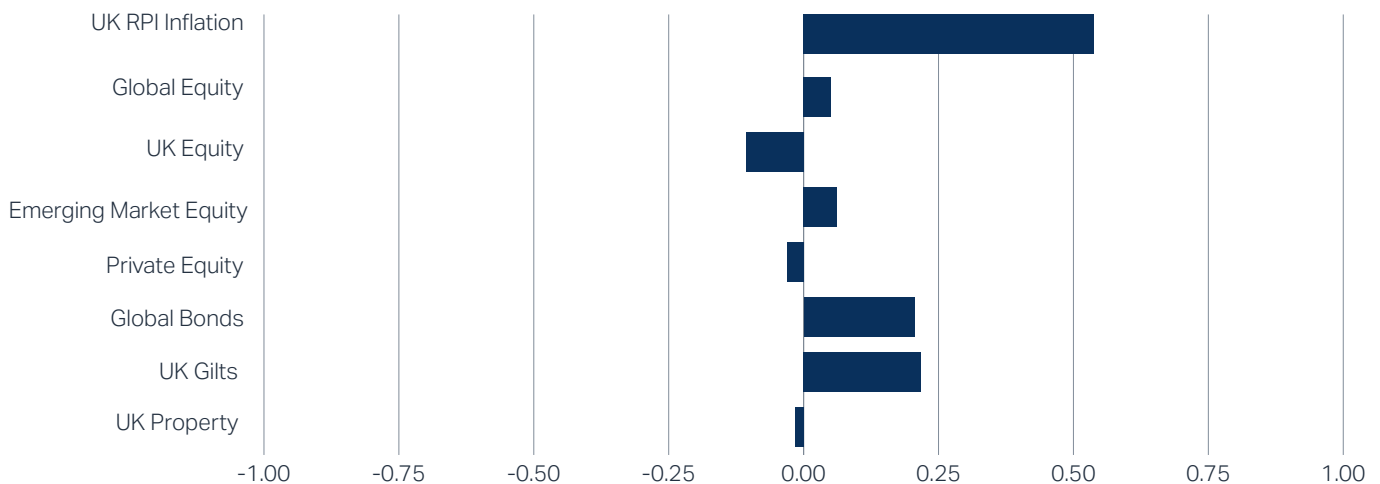
As part of a managed portfolio, UK forestry provides effective diversification and risk mitigation, compared to mainstream asset classes.

The below graph shows forestry's relationship with other asset classes and inflation (1 = perfect correlation, 0 = no correlation and -1 = perfect negative correlation). international standard.



In addition to providing diversification in a traditional investment portfolio, an allocation to UK forestry can help meet sustainability objectives.

UK forestry returns correlation coefficient: 20 years (to 31 December 2023)



Sources: Gresham House, Calendar year returns up to December 2023

Sustainability

Gresham House invests in and manages forestry assets in a sustainable manner as per the commitments made in our Forest Charter.

Sustainable forest management involves ensuring that all benefits gained from forest ecosystems are maintained over the long term. This is achieved when the environmental, economic, and social functions of forests interact in support of each other. We apply a strict sustainable forest management approach to the ongoing management of our clients' forests, with the aim of minimising negative impact on the environment or communities, whilst enhancing positive environmental, economic, and social impact.

Our Forestry assets offer solutions to key sustainability challenges:

- Timber can support the decarbonisation of residential and commercial construction through the production of renewable building materials.
- Sustainable forest management can also provide wider ecological co-benefits, such as carbon sequestration and storage, and biodiversity gains through improved habitat connectivity.
- Investment in sustainable forestry and afforestation, under strict sustainability certification standards, may help to contribute to the avoidance of deforestation of natural forest, ensuring that an ever larger portion of the world's future timber demand is met by harvesting trees grown in forests that are sustainably managed.

Our Forest Charter defines our approach to sustainability in relation to key elements of sustainably managed forests. It sets out our verifiable commitments and targets for forest management as well as ongoing sustainable and natural capital development and confirms the key performance indicators that we can be measured against, which we believe align with and - go beyond - national and international standard.



Past performance is not necessarily a guide to future performance. Capital at risk. Target returns are not guaranteed.

Forest certification and standards

International forestry certification standards provide globally recognised frameworks for how forests should be managed to preserve biological diversity, mitigate climate change and benefit the lives of local people and workers, while ensuring continued economic viability.

Gresham House commits to managing all our forests sustainably in line with, or beyond, international standards. We will certify all forests under management, within discretionary managed funds, in line with the Forest Stewardship Council (FSC), the Programme for the Endorsement of Forest Certification (PEFC) or other local standard as relevant, within a reasonable timeframe.

Climate change

Achieving net zero will require a significant reduction in CO₂ emissions with offsetting used on the remaining, hardest to abate emissions, ideally by measures that remove carbon from the atmosphere, such as planting trees.

If global warming is to be kept below the 2°C target, as much as 11 billion tonnes of CO₂ needs to be removed from the atmosphere by 2050, and even more will be needed to limit this to 1.5°C.

Forestry has a crucial role in the race to net zero. Firstly, the carbon sequestered by growing forests removes and stores carbon from the atmosphere and can be used to offset unavoidable emissions. Secondly, the increased use of timber is expected to underpin emission reductions. Timber can be a substitute for the use of energy-intensive raw materials in construction such as steel and concrete, whose production accounts for 3% and 5% of annual anthropogenic greenhouse gas emissions respectively.

Carbon Credits

An additional opportunity to add returns to a forestry portfolio is through the sale of carbon credits generated through afforestation. In the UK, the market for carbon credits is voluntary, meaning that individuals and businesses can voluntarily purchase carbon credits in order to offset their emissions.

At Gresham House, we commit to a reliable and transparent approach to measuring the carbon sequestered by our clients' forests. Where claims of carbon sequestration are made for the purpose of creating carbon credits, we ensure these are registered with publicly recognised accreditation schemes that meet relevant international standards for high-quality carbon credits.



Biodiversity and forestry protection

Preserving and enhancing biodiversity underpins forest productivity, provides resilience to diseases and weather events, while also contributing to intangible social benefits that spread far beyond the forest boundary.

As a minimum, 10% of the area of our UK forests is open ground or ground managed for the conservation and/or enhancement of biodiversity. Opportunities for enhancing biodiversity are considered in forest management plans for all forests. Measures implemented will be based on the expertise of our forest managers in combination with specialist ecologists and academic research as necessary.

As well as this, Gresham House is committed to not converting any habitats specifically sensitive to loss or with high conservation value such as Sites of Special Scientific Interest or ancient woodlands, and we avoid deforestation unless legally required to do so.



At Gresham House, we commit to promoting the integration of forests into the local economy, for instance by providing local people with opportunities for employment.

Designing and replanting forests

We work alongside local communities when designing forests to ensure their views and needs are incorporated in the design of the scheme. When thinking about the overall forest design, key areas that Gresham House consider include the opportunities around species diversification, age of trees and biodiversity.

After harvesting, a more diverse range of conifer and broadleaf species are typically planted on the next rotation in Gresham House managed forests. Diversifying forests' species in this way increases biodiversity, as different tree species support different habitats. This also improves the general health of a forest making them less susceptible to pests and disease. Under UKFS regulations, the proportion of a single species in a forest must be no higher than 65%. This represents the restructuring of widespread single species forests, characteristic of the 1970s and 1980s, to the sustainable, diverse forests that Gresham House manage today.

Gresham House are also supporting research into tree genetics. With current supply failing to keep pace with the increasing demand for sustainable home-grown timber, growing the best quality trees is of great importance. Improvement of tree genetics is a key aspect of sustainable forestry management.

Gresham House supports a conifer breeding programme which aims to maintain a supply of diverse trees with high-quality and sustainable characteristics, including fast growing rates, enhanced form (straightness) and density, as well as greater resilience to pests and disease.

Employment and community benefits

As well as being a sustainable commodity, timber plays an important role in the UK economy. The forestry sector is a significant employer in rural areas where there are often few other job opportunities. The wider timber processing industry also adds value and employment through the processing plants, hauliers and contractors that it services and who service it. It is estimated that the forestry sector employs c.40,000 people in the forestry, sawmilling and panel mills sector.

Key performance indicators (KPIs)

Examples of KPIs that we use to ensure we adhere to the commitments made in our Forest Charter include:

- Total carbon sequestered (tCO₂e)
- Area of forest land managed for biodiversity (% ha)
- Number of jobs supported by the activity
- Forest area with public access (%)

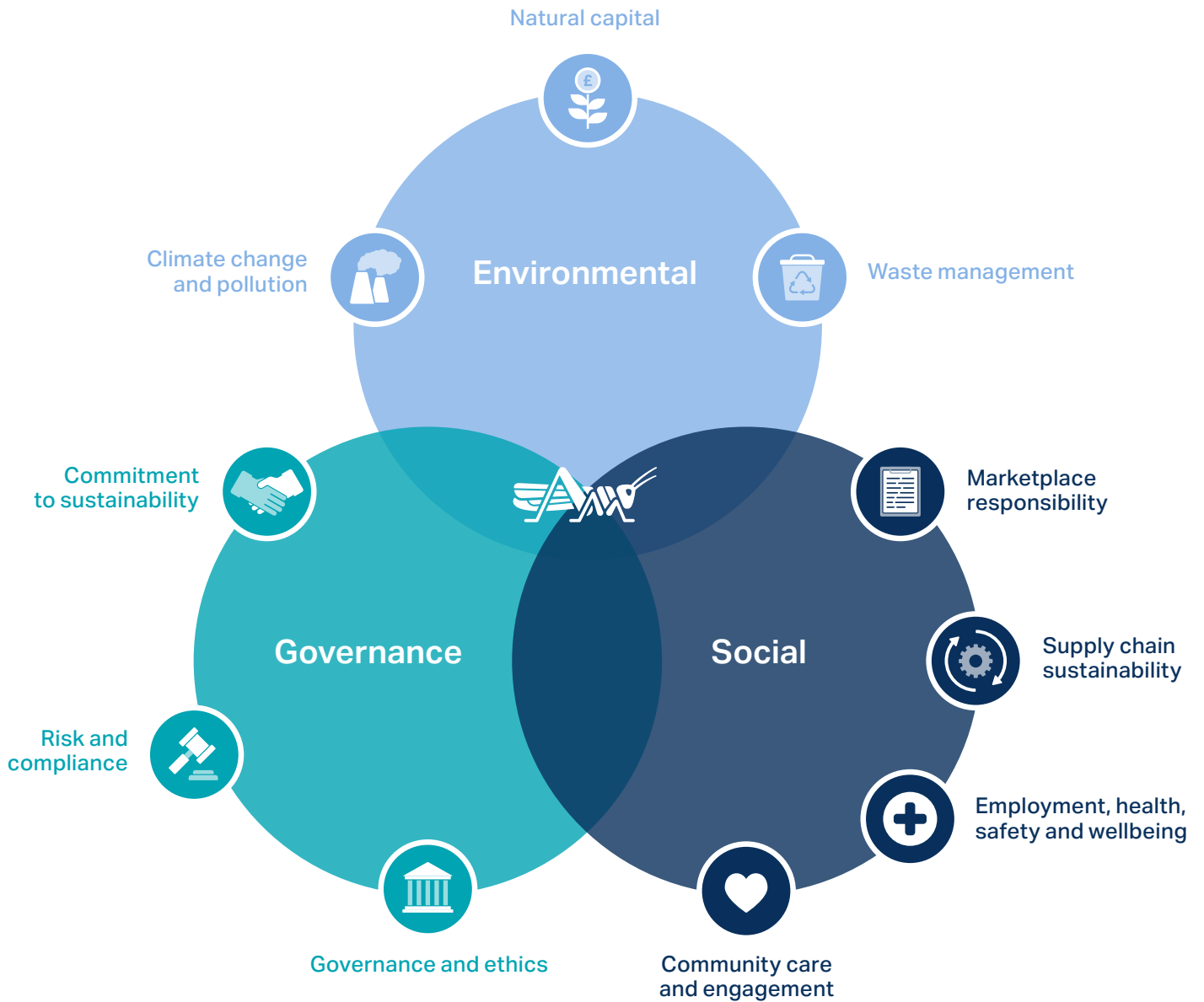
Integrating ESG

Environmental, social, governance (ESG) and economic benefits are integrated as an important consideration across the lifecycle of each investment as part of our sourcing, due diligence, acquisition, and ongoing management of assets. We use the Gresham House Sustainable Investment Framework (see next page for the framework) to structure our analysis and monitoring of ESG considerations, ensuring that key considerations across the framework's ten ESG themes are specific to forestry investments and reflect the sustainability commitments we make in our Gresham House Forest Charter.



Existing UK forests are a large store of carbon and remove CO₂ from the atmosphere.

Sustainable Investment Framework



Forestry risks are clearly identified and managed

Physical risks that impact forestry are both identifiable and manageable. Incidences from these risks that actually result in a loss to investors (such as pests, disease and natural disasters) represent a tiny fraction of value over the long term.

Crops are generally at risk of windblow damage from 30 years of age upwards, however mature crops can usually be salvaged with minimal loss of value or increased working costs and insurance is therefore not required.

The main physical risks in the UK which can be covered by insurance, are:

Fire

- Crops are generally most at risk up to ten years of age. Should damage occur the site requires clearing and replanting.

Public Liability

- Each property is covered up to £10 million.

The main uninsured risk is from the loss of crop due to pests or disease. However, there is currently no evidence of any significant problem impacting Sitka spruce, the main commercial tree species in the UK.

This risk can be mitigated through a portfolio providing geographic diversification, spread of age classes and sound, pro-active management.

In addition the UK benefits from a maritime climate and therefore trees are far less likely to become stressed by drought conditions than trees in continental Europe.

Most species of commercial conifer in the UK are vigorous and fast-growing, making them less susceptible to pests and disease than both slower growing broadleaves in the UK and commercial conifers with longer rotations in other regions.

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