



The future of private markets

The four megatrends shaping the
portfolios of 2030 and beyond

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Executive summary

We believe that exposure to private markets can potentially add to total portfolio returns for multi-asset investors. Alongside the diversification benefits investing in private assets can offer, this can also potentially reduce overall portfolio risk and boost risk-adjusted returns.

However, there are several observable megatrends that are in our view already reshaping private markets, creating both risks and opportunities.

To maximise the benefits of adding private market exposure, we believe it is vital to embrace structural change when allocating in different asset classes and sectors.



We have developed a long-term structural framework to guide our investment strategy around four powerful megatrends that we believe are reshaping the global economy:

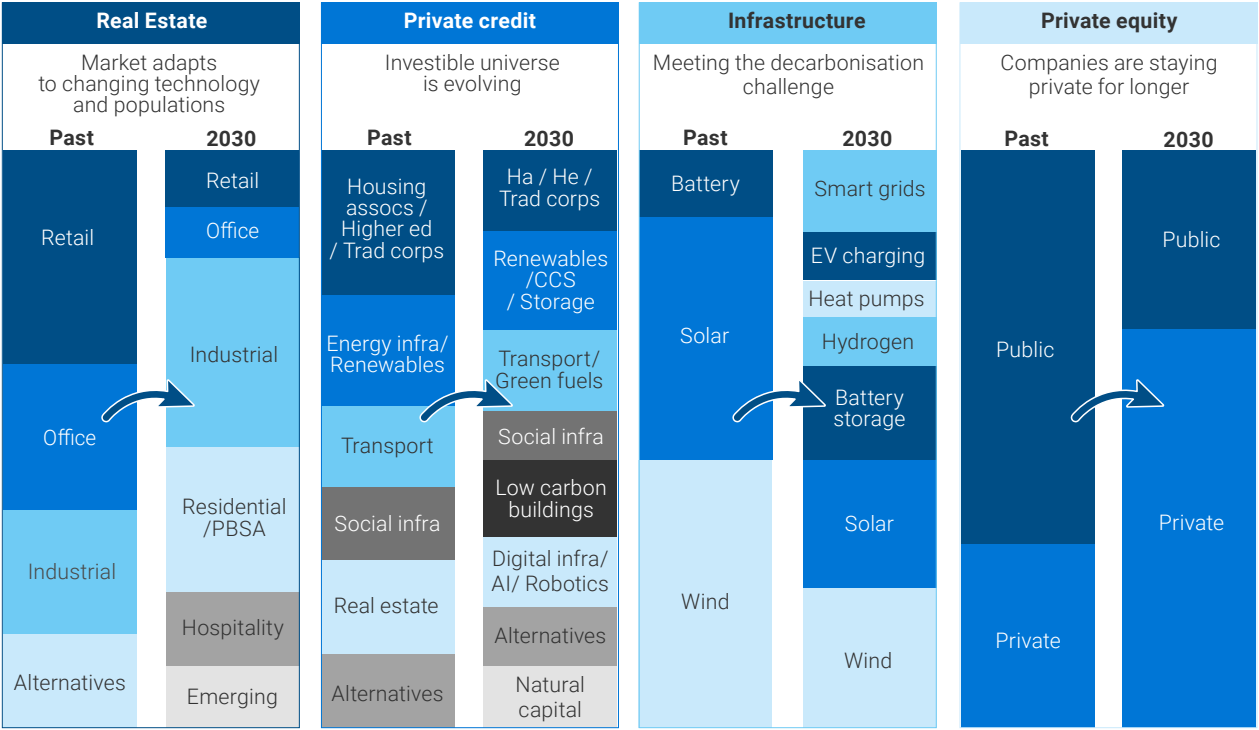
The Four D's



Click on each button to explore

We believe that these trends will be positive for a number of sectors and challenging for others, and that portfolios that embrace them may see outsized risk-adjusted returns.

We have illustrated one possible scenario for how private market allocations could evolve in response below:



Source: LGIM, 2024. Illustrative 2030 portfolios by private markets asset class.

The value of any investment and any income taken from it is not guaranteed and can go down as well as up, and investors may get back less than the amount originally invested.

We see these megatrends as particularly beneficial for infrastructure supporting the energy transition, residential real estate, urban logistics, and assets/ companies associated with the digital economy.

We believe investors increasingly need to build expertise in areas that may at present appear niche, but could represent scalable investment opportunities over the longer term. In this light, we see great potential in sectors like desalination, green hydrogen, natural capital and senior living.

It should be noted that diversification is no guarantee against a loss in a declining market.

The four key megatrends

The plates under the global economy are shifting.

Advances in technology, changes in population structures, geopolitical pressures and the drive toward decarbonisation are catalysing the development of new industries and rendering some assets and investment behaviours obsolete.

We believe there are four core megatrends that will influence the investment environment over the short, medium and long term: **demographics**, **decarbonisation**, **digitalisation** and **deglobalisation**.

We expect these megatrends to be significant determinants of long-term investment performance and capital allocations in real assets for the remainder of this decade – and beyond.



1. Demographics

To an extent, demography is economic destiny.

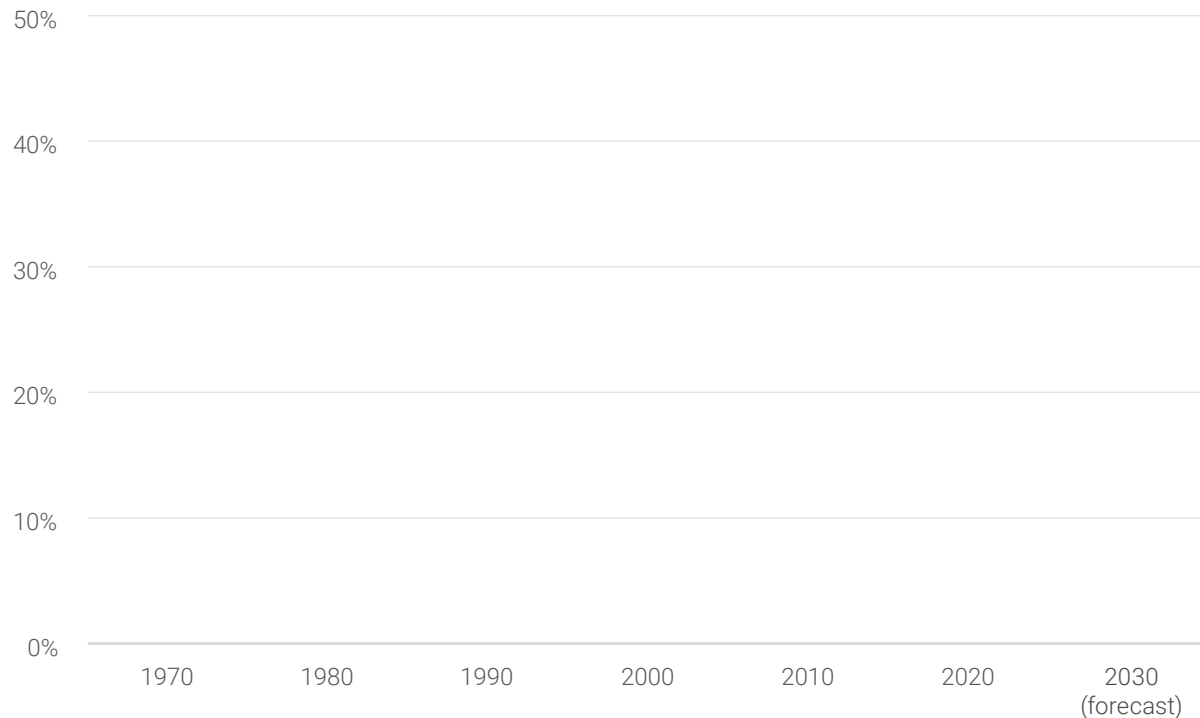
Tailwinds deriving from the post-war baby boom played an important role in many major economies' development in the decades after the 1950s. Alongside a growing and healthier workforce, improving life expectancy and increasing urbanisation contributed to a period of reasonable economic growth, improving living conditions and rising disposable incomes.

In most developed economies, this **demographic** tide is now receding. Many face the dual challenges of shrinking labour forces and increasingly elderly populations. Declining fertility rates and ongoing political sensitivities around immigration mean these issues are likely to become entrenched. In the absence of the natural boost delivered by a young, growing population, these economies will need to increase their productivity to maintain living standards.

This should in turn require greater adoption of technologies like robotics and AI, which can take the place of a shrinking workforce.



Age dependency: Ratio of working age population to over 65s



Source: World Bank DataBank as at December 2023

**Assumptions, opinions and estimates are provided for illustrative purposes only.
There is no guarantee that any forecasts made will come to pass.**

1. Source: UN, 2022 Revision of World Population Prospects, <https://population.un.org/wpp/>

We think these trends will create increased investment opportunities in emerging markets that display growing labour forces and favourable **demographic** characteristics. Weak fertility rates in both high income countries and China mean their share of the global population is expected to fall from 15.7% and 17.8% respectively in 2022, to 12.6% and 12.0% in 2060¹.

Meanwhile, sub-Saharan Africa's share of the global population is forecast to balloon from 14.6% in 2022 to 24.4% in 2060, with India and Southeast Asia's proportion remaining relatively stable over this period¹.

In developed markets with ageing populations (and shrinking workforces) we are already seeing increasing physical and capital requirements for healthcare facilities and technologies, and a need for more specialist accommodation for elderly communities.

From a lifestyle perspective, we expect a growing emphasis on wellbeing and leisure, which should stimulate associated industries.



2. Decarbonisation



There is a growing consensus among policymakers of the urgent need to decarbonise the global economy.

According to the Intergovernmental Panel on Climate Change (IPCC), the world must reach net-zero emissions by 2050 if we are to limit global average temperature increases to 1.5°C above pre-industrial levels.

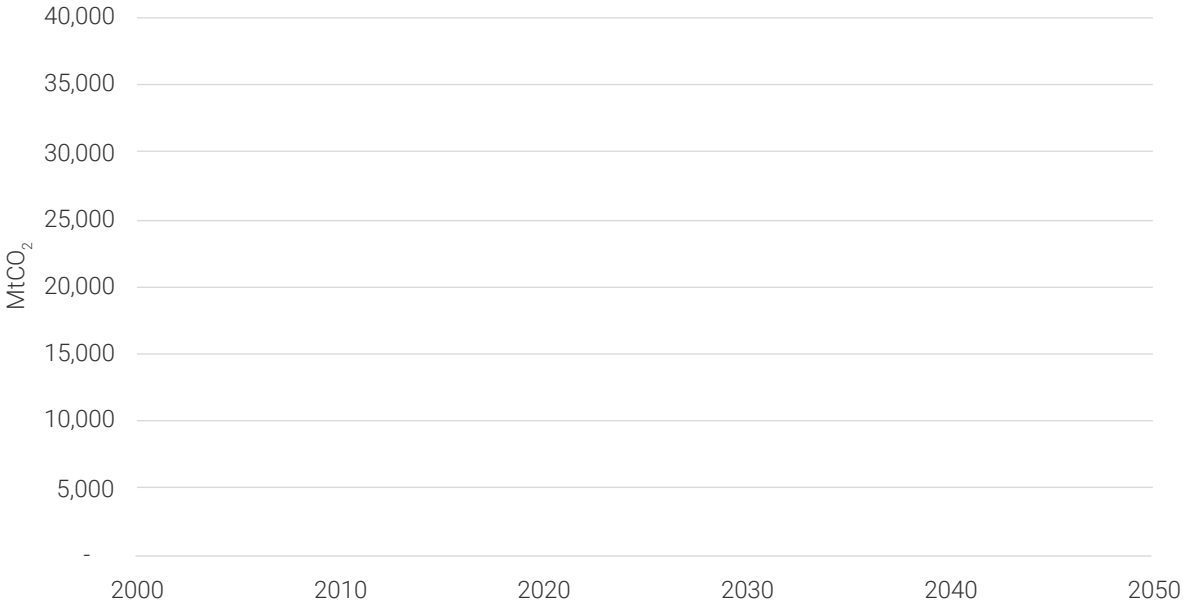
This is the threshold outlined in the 2015 Paris Agreement and committed to by almost every country in the world.


However, progress in **decarbonisation** has been patchy and global greenhouse gas (GHG) emissions are yet to meaningfully decline. One of the key challenges impeding progress is decoupling emissions from economic growth in emerging nations, where rapid increases in population and GDP have in recent decades been correlated with large expansions in GHGs released.





Projected direct CO2 emissions by sector



 Click on the icons

Source: BloombergNEF as at 20 November 2023.
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That said, **decarbonisation** has received significant policy focus in the EU and US, with considerable subsidies now introduced in support of constructing the infrastructure required for achieving net-zero carbon emissions. This is resulting in increased electrification as transport, home heating and certain industrial processes substitute burning fossil fuels for electricity.

Simultaneous **decarbonisation** efforts in the power sector have accelerated the buildout of renewable energy capacity, mainly in solar and wind farms. Increased deployment of renewables is placing pressure on power networks and demanding increased battery storage to deal with the intermittency of wind and solar output; addressing both challenges will require significant investment.

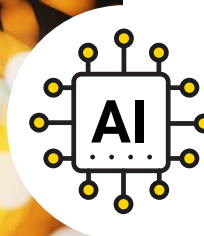
However, constraints in technology and remaining carbon budgets will likely lead to build-out of carbon capture and storage assets in certain sectors such as cement and power generation. This is likely to contribute to a greater focus on nature-based climate solutions that can assist in offsetting the impacts of hard-to-abate emissions.

3. Digitalisation

The digital revolution is set only to gather pace.

We define 'digitalisation' as the integration of new digital technologies into existing business processes².

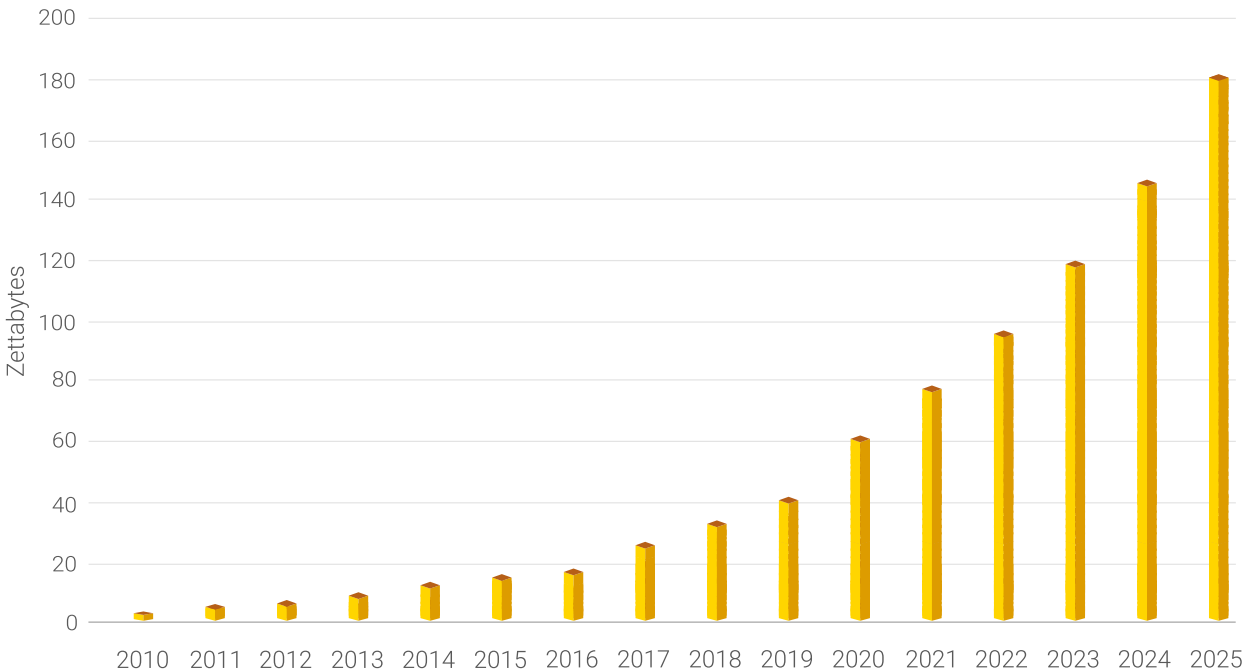
These technologies have already radically altered business practices across many industries; the pace of development in big data, AI and machine learning is only likely to accelerate, with the scope of their impacts set to grow in parallel.



2. By contrast, we define 'digitisation' as the conversion of information and documents from analogue to digital formats.



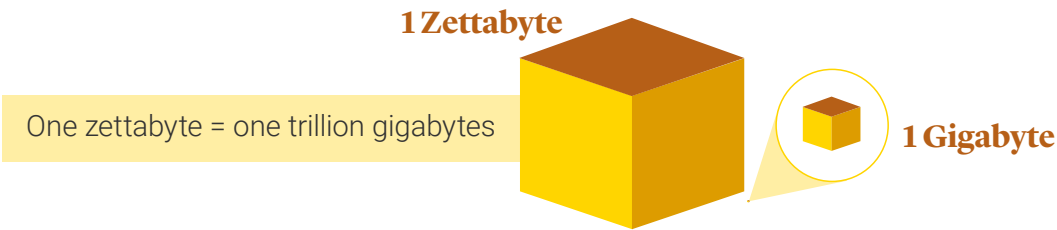
Data generated annually



The growth of robotics, automation and AI-assisted design is likely to facilitate the modernisation of a range of industries and ultimately deliver broad-ranging efficiency savings.

At the same time, the enormous computational demands of generative AI alone are likely to support long-term demand for associated services like data storage, cybersecurity, connectivity networks and hardware components. This should have follow-on impacts for materials, labour and real estate.

Digitalisation is also likely to reshape the global labour force, with some jobs being replaced, and others requiring new skillsets to develop and deploy emerging technologies. As with **demographics**, this should create opportunities in further education and vocational training and could usher in a new era of productivity growth in economies burdened with unfavourable demographic trends.



Source: Statista, Bernard Marr & Co.
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4. Deglobalisation

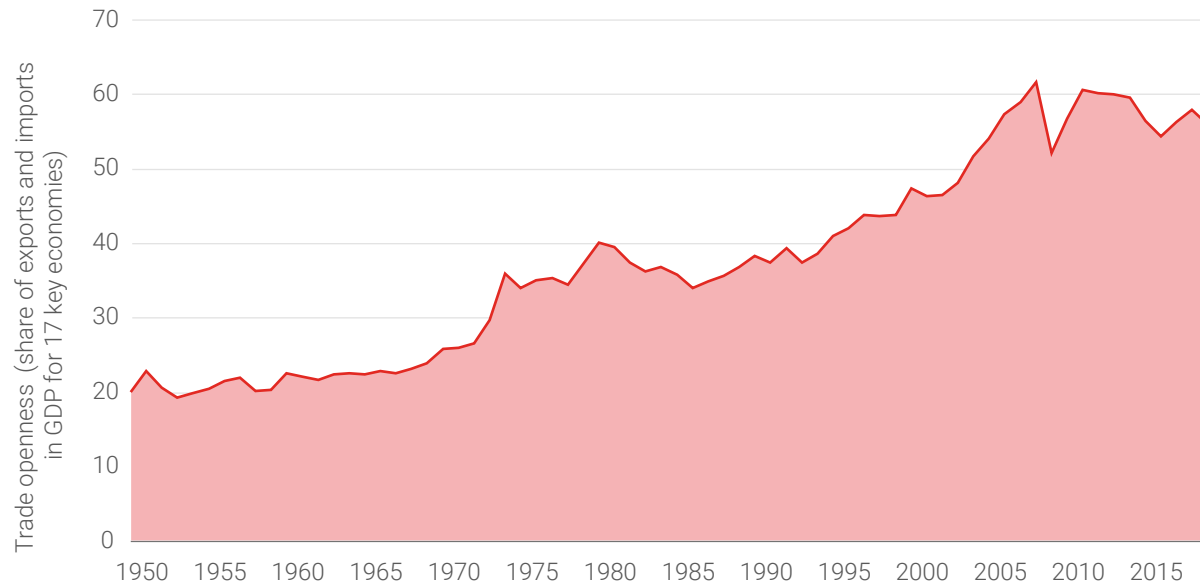


What do fraying global connections mean for private markets?

We use the term 'deglobalisation' to describe the weakening global integration of trade, capital flows, people, intellectual property and cooperation.

So far, we have seen a slowdown in globalisation, rather than a reversal. Nevertheless, the consequences of weakening global economic integration and political cooperation, particularly between the US and China, represents a material shift in the world's economic landscape. Growth in global trade has stagnated since the Global Financial Crisis; with protectionism on the rise, as exemplified by the USA's Inflation Reduction Act and China's weakening international trade, we believe that 'peak globalisation' may well be behind us.

Globalisation in recent history



Click on the dots

Source: World Economic Forum as at January 2023.

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We believe this will result in the permanent reconfiguration of supply chains, with resilience and diversification of supply prioritised over efficiency, and supply risks mitigated with larger inventories. We anticipate a trend towards onshoring, where supply chains that were once international are reshaped to favour domestic production that carries less political risk, or 'friendshoring' in countries with more stable relationships with companies' home nations.

In our view, this should translate into more real estate demand, with onshoring and friendshoring likely to be highly selective and focused on key strategic sectors where diversification of supply will remain a priority. Meanwhile, weaker global cooperation and heightened geopolitical tensions are likely to create more macroeconomic risks and volatility, favouring more needs-based and counter-cyclical asset classes.

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Our top picks for future-facing portfolios



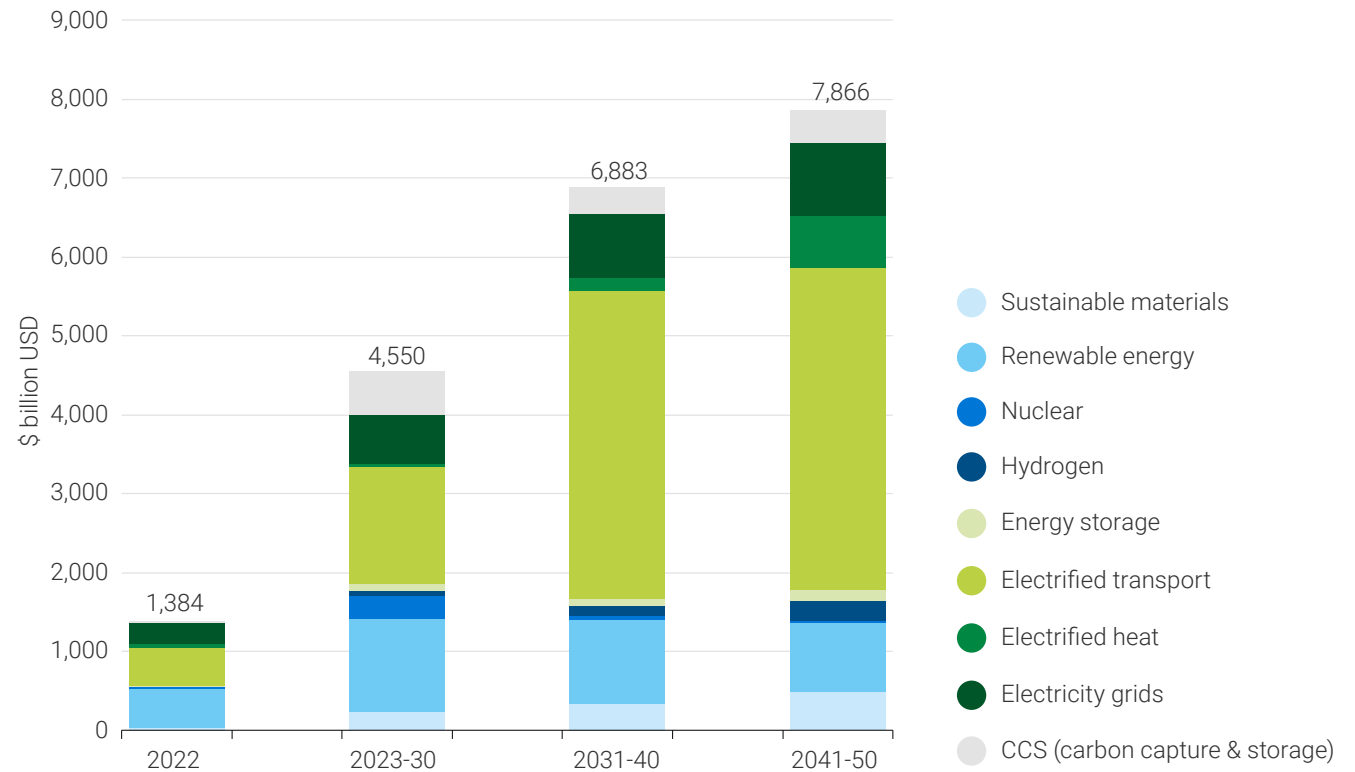
Energy transition infrastructure

Almost 90% of the world's population lives in countries that have adopted net-zero targets³.

In an indication of the scale of these efforts, the infrastructure required for Europe's energy transition alone offers an €840 billion opportunity for investors⁴.

We see strong potential in wind and solar farms, battery storage, and the upgrading of power networks to accommodate increased renewable capacity.

2022 energy transition and grid investment versus required future annual investment (net-zero scenario)



Source: Energy Transition Investment Trends, October 2023, BNEF as at 2023.

Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.

3. Source: Net Zero Stocktake 2023; NewClimate Institute, Oxford Net Zero, Energy and Climate Intelligence Unit and Data-Driven EnviroLab

4. Source: <https://www.lgim.com/lu/en/responsible-investing/clean-power/>



We think the diversification benefits of infrastructure portfolios will grow as new risk factors are added and the investible universe expands.

As decarbonisation accelerates, the infrastructure investment universe should expand and offer an increasingly diverse set of assets with varying risk/return characteristics for both debt and equity investors.

Certain assets may offer stable cash flows, predictable offtake agreements⁵ and significant barriers to entry – offshore wind assets with long-term contract for difference arrangements, for example. Other assets like green hydrogen production facilities or carbon capture/storage may carry higher (perceived) technology risks and offer less certainty on offtake prices.

We think the diversification benefits of infrastructure portfolios will grow as new risk factors are added and the investible universe expands.

Equally, we see a growing role for ‘natural capital’ alongside other real assets in support of both financial and non-financial investor objectives. This involves nature-based climate solutions that seek to reduce greenhouse gas emissions or sequester carbon dioxide from the atmosphere, in the process generating verified carbon credits that can aid investors with net-zero targets in their emission reduction pathways.

5. An offtake agreement is an arrangement between a producer and a buyer to purchase or sell portions of the producer's upcoming goods. It is normally negotiated before construction to secure a market and revenue stream for its future output.



Residential

An increasingly volatile macroeconomic and geopolitical environment could support more needs-based, counter-cyclical, inflation-hedging assets. Over a long-term basis, residential rents have outstripped inflation across many key markets, while at the same time exhibiting lower volatility than other commercial property sectors, as illustrated on the right.

We believe the combination of ongoing urbanisation, population growth and shortages of residential supply will continue to support new asset creation and comparatively stable rental growth over the long term.

We see continued debt and equity investment opportunities for multi- and single-family residential, including affordable housing, and we anticipate purpose-built student accommodation for top-tier universities could deliver healthy rental growth and accretive risk-adjusted returns against the right backdrop.

Residential rental growth versus inflation



Click on each button to reveal

Source: OECD as at January 2024.

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Industrial and urban logistics

E-commerce and social media have driven a radical shift in shopping behaviours. The need for traditional bricks-and-mortar shops has declined and demand for logistics facilities and multi-let industrial estates has burgeoned as retail undergoes its digital transition. At the same time, with globalisation slowing, we see future potential benefits emerging from selective onshoring in nationally critical industries and greater demand for higher inventory capacities.

This growth in industrial real estate portfolios is not new. Over the past 20 years, the industrial sector has grown from 16% to 32% of real estate portfolios in the UK by value⁶, and from 23% to 39% in the US⁷.

The strength of the structural forces underpinning the sector means we expect it to retain its dominant role in real estate portfolios, with significant scope for expansion among higher-growth sub-sectors like cold storage⁸ and self-storage.

We think cold storage represents a particularly compelling emerging growth opportunity. Demographic factors like population growth, the increase in single-person households, urbanisation and the prevalence of households with two working members have led to strong growth in both online grocery shopping and convenience store networks, contributing to increasing demand for efficient cold chain logistics. According to JLL, the sector enjoys higher rents, occupancy, and lease lengths than other industrial assets⁹, with Green Street forecasting stronger returns for the sector in the US than the All Property average¹⁰.



6. Source: MSCI UK Quarterly Index: Q4 2003 versus Q3 2023

7. Source: MSCI UK Quarterly Index: Q4 2003 versus Q3 2023

8. Source: Cold storage is a facility that primarily stores food items that are short-lived and highly likely to get spoilt under normal conditions (e.g. fruits, vegetables, fish, meat etc)

9. Source: JLL, Cold storage: a real estate perspective

10. Source: Green Street Global Property Allocator, January 2024

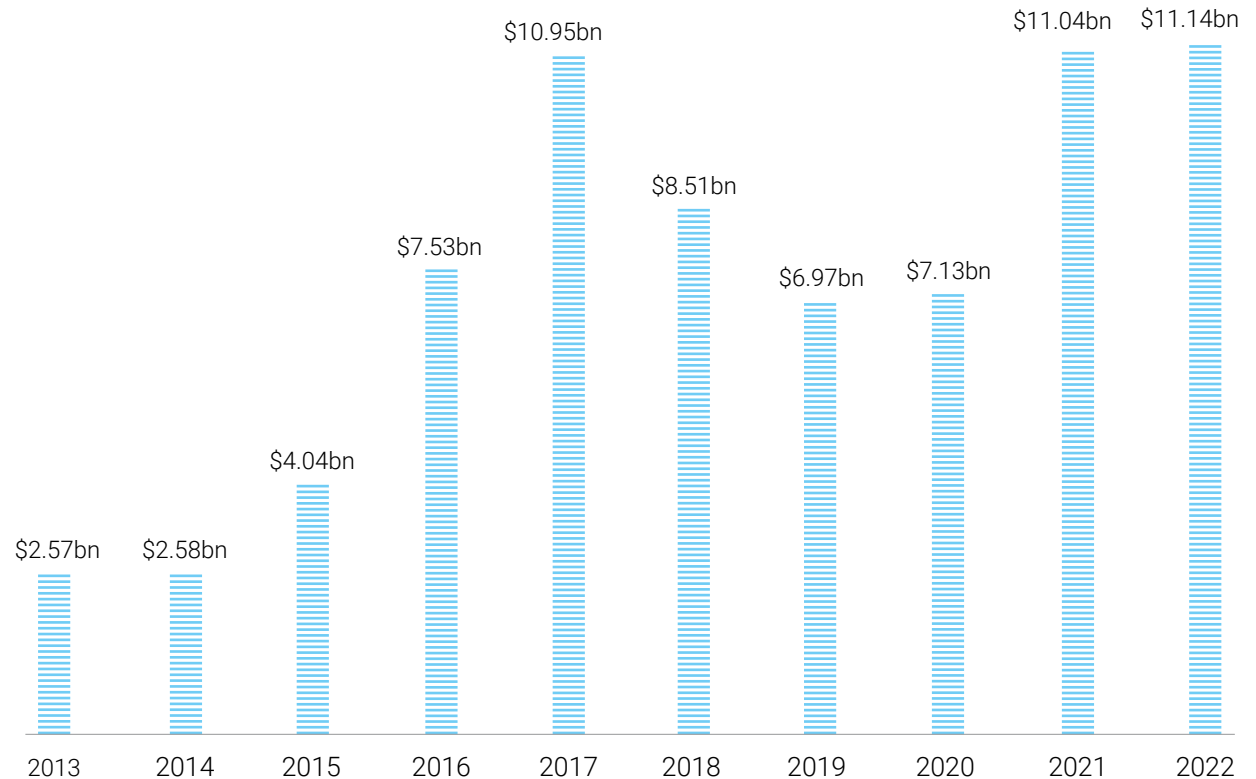


Digital and high tech

The advent of generative AI has only added to the already vast demand for computing power and data storage to support the digital revolution. In our view, this next generation of digitalisation will require a rapid increase in data processing and storage facilities (i.e. data centres) and substantial additions to digital infrastructure networks (5G, mobile and fibre networks etc). We think this could increase the attractiveness and volume of investment opportunities in these sectors.

While data centres' environmental impacts need to be reduced over time and rapidly changing specifications require investor attention, we expect demand for data storage and processing to grow exponentially. We anticipate that it will be challenging for supply to keep pace with this growing demand, with power and planning constraints already restricting data centre development in certain key locations, with Frankfurt in particular struggling to deliver the infrastructure it needs. Combined with restrictions around new supply, in our view increased space demands are likely to create favourable supply and demand dynamics and support rental growth.

Global data centre annual transaction volumes in (\$ billions)



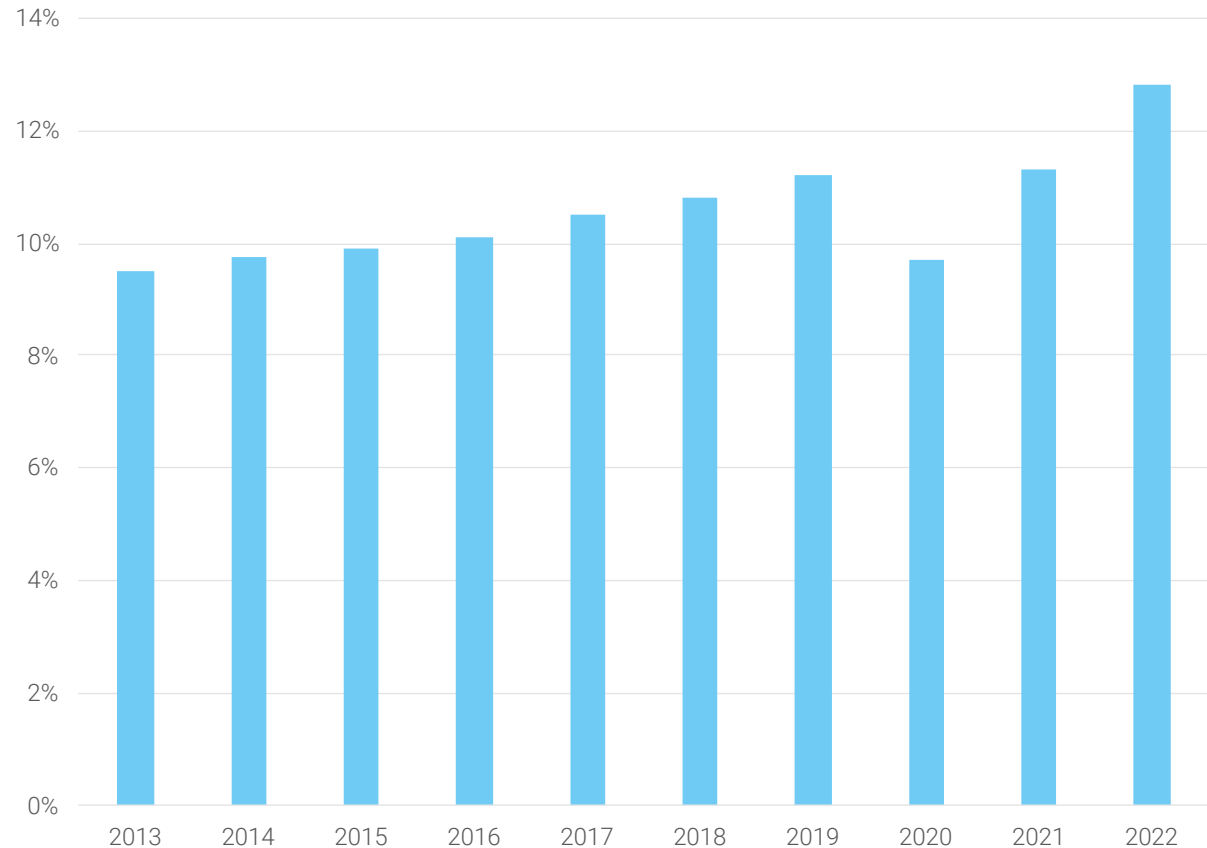
Source: JLL, Global Data Centres Outlook, 2023.

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We also believe life science companies are well placed to benefit from several key markets' ageing populations, their increasing emphasis on personalised medicine, and their global healthcare spend, with continued venture capital funding playing a key role. We see investment opportunities across the risk-return spectrum, incorporating lending to high-quality credits, core and value add real estate equity assets, and direct investment in early growth stage companies. The trend towards companies staying private for longer means that private equity exposure is an increasingly critical component of accessing the huge growth opportunities available through early stage digital and tech businesses. Market expertise, relationships and the targeting of specific geographic clusters is key to accessing the sector at scale.

Perhaps counterintuitively, an increasingly digital world may add a premium to creativity, idea generation and human interaction. As we can see opposite, leisure has grown as a proportion of consumer spending over the past decade, despite the concurrent explosion in digital connectivity. We see this as reflecting the continued value of social spaces in a digital world and continue to see a role for hospitality investments within future-facing portfolios.

Real leisure spending in the US as share of consumption (2012 dollars, annual average)



Source: Visa as at April 2023.

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The watchlist: Emerging sectors for 2030 and beyond

As the global economy evolves, we believe it is increasingly vital to build expertise in emerging technologies and asset classes likely to be relevant beyond 2030.

We believe there will be a growing number of opportunities created in sectors now considered niche, but that have the potential to scale meaningfully into the next decade and beyond.

Sectors of particular interest to us include:



Green hydrogen

Policy support for hydrogen has never been greater. While there is debate on the size of the addressable market amid competition from batteries and other energy sources, governments are increasingly supporting hydrogen production. In the UK alone, the government announced support for 11 major projects in December 2023¹¹.

Although it is starting from a low base, we expect hydrogen to play a greater role in the energy mix, particularly in sectors like fertiliser and steel production where there are high obstacles to decarbonisation and hydrogen is the only feasible low-carbon alternative.

We are more cautious on the viability of hydrogen in areas where electricity (batteries) or biomass can compete for market share, for example container shipping and both domestic and commercial heating.

That said, the industry is in the early stages of development. Projects with higher chances of success will likely include those with credible offtakers in place, concrete subsidies or other forms of support, and with sponsors whose strategic focus is hydrogen. As always, investment discipline is key,

We expect hydrogen to play a greater role in the energy mix, particularly in sectors where there are high obstacles to decarbonisation.

11. Source: <https://www.gov.uk/government/news/major-boost-for-hydrogen-as-uk-unlocks-new-investment-and-jobs>



Desalination

Water shortages are likely to become a systemic crisis in coming years, driven by climate change, evolving land use, and global population pressures. The Global Commission on the Economics of Water estimates that the world faces a 40% shortfall in fresh water supply by 2030, which could place two billion people under an acute water shortage¹².

Desalination can extend water supplies beyond what is available from the hydrological cycle, providing a steady, climate-independent source of potable water. The global desalination market is predicted to grow from \$18bn in 2020 to \$32bn by 2027, with demand concentrated in the most water-stressed areas, such as the Middle East and coastal areas of the US and Mediterranean nations¹³.

Associated assets have attractive infrastructure characteristics. Multiple governments worldwide are pursuing public-private partnerships (PPPs) to reduce their cost of building desalination plants; Water Purchase Agreements are the foundation to PPPs as they provide guaranteed revenue typically lasting 30 or more years.

Countries able to improve their water security through desalination are likely to experience enhanced health and sanitation outcomes, reduced food prices, and the more robust development of industries that require large amounts of water.

However, there are environmental considerations: the process is very energy-intensive and requires decarbonised power to reduce its carbon emissions.



Countries able to improve their water security through desalination are likely to experience enhanced health outcomes, reduced food prices, and more robust development.

12. Source: <https://watercommission.org/wp-content/uploads/2023/03/Turning-the-Tide-Report-Web.pdf>

13. Source: Renub research; Desalination Market, Size, Global Forecast 2022-2027, Industry Trends, Growth, Insight, Impact of COVID-19, Opportunity Company Analysis



Natural capital

With an increasing number of organisations in a growing variety of sectors making net-zero commitments, there will be some industries where it is not possible to achieve carbon neutrality while maintaining activity and output. In these situations, carbon credits will be required to offset the impact of these hard-to-abate emissions. McKinsey has estimated that demand for carbon credits, currently valued at c.\$2 billion, could be worth upwards of \$50 billion by 2030, with consensus forecasts indicating the price per tonne of carbon will increase at a CAGR of 5.5% between 2023 and 2027¹⁴.

Nature-based climate solutions provide a potential opportunity to generate verified carbon credits by reducing emissions or sequestering carbon from the atmosphere, ultimately supporting asset owners in meeting their targets. Some assets can provide additional flexibility and risk diversification via direct revenue generation, for example the responsible harvesting and selling of timber.

The IUCN estimated that these nature-based solutions can contribute up to 30% of the climate change mitigation required to meet the 2030 goals outlined in the Paris Agreement¹⁵.

Nature-based climate solutions include peatland restoration, afforestation (the reversing of deforestation), and regenerative agriculture that prioritises sustainable techniques. They could enable investors to deliver a positive impact on the environment alongside financial returns.



Retirement communities

Senior housing provides homes suitable for the needs of an ageing population, ranging from independent living to 24-hour care. There is an emphasis on safety, accessibility, adaptability and longevity that many conventional housing options may lack. We anticipate that an increasingly ageing population will create opportunities for specialist senior accommodation alongside age-appropriate healthcare and lifestyle facilities.

The market for global retirement communities is expected to grow from \$189.3 billion in 2020 to \$285.1 billion in 2025: a CAGR of 8.5%¹⁶.

We would highlight the UK as an area of particular growth potential, as there has been relatively limited supply/adoption so far compared to other markets. In the UK, only c.1% of over-65s in the UK live in retirement communities, a markedly lower rate than the 6.5% exhibited in the US and 5.5% in Australia¹⁷. This shortage is reflective of UK planning challenges and embedded supply/demand imbalances across British housing. It's also likely to worsen: Knight Frank has forecast that in the UK the number of senior housing units per 1,000 individuals aged 75+ is to drop to 120 by 2025 –down from 137 in 2010 and 128 currently¹⁸.

The market for global retirement communities is expected to grow from \$189.3 billion in 2020 to \$285.1 billion in 2025.

14. Source: <https://www.mckinsey.com/capabilities/sustainability/our-insights/a-blueprint-for-scaling-voluntary-carbon-markets-to-meet-the-climate-challenge>

15. Source: International Union for Conservation of Nature, 2023. <https://www.iucn.org/our-work/topic/nature-based-solutions-climate>

16. Source: Altus Market Research, Retirement Communities Global Market 2022

17. Source: https://www.savills.co.uk/research_articles/229130/325256-0

18. Source: <https://content.knightfrank.com/research/2285/documents/en/seniors-housing-development-update-2022-9176.pdf>

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Conclusion

“In the long run, we are all dead”.

So wrote John Maynard Keynes, one of the most influential thinkers in all economics, in his 1923 'Tract on Monetary Reform'.

In that spirit, there has always been a danger that megatrends are perceived as factors that matter tomorrow and not today. Investors will often guiltily put them on the back burner, knowing that they are important but allowing a lack of urgency and confidence to prevent them from incorporating them in their strategies.

However, change is accelerating. In just the past decade, in some countries we have seen the e-commerce revolution undercut the role of retail property. The office property sector is arguably undergoing a similar transition now, and allocations to it are increasingly being replaced by investments in residential and industrial property.

In infrastructure, renewable energy generation has emerged as a material asset class, significantly displacing the role of fossil fuel-related assets in many investors' portfolios. In parallel, private credit has emerged as a major asset class, partly boosted by long-term trends in banking regulation that have opened up opportunities for investors.

In this light, we believe investors should consider constructing their portfolios to align with these megatrends.

Here we have set out a number of specific implications for different sectors and asset types – there will be many more. We will continue to deepen our analysis and share our thoughts on where both the potential risks and opportunities lie for investors willing to consider their portfolios in the long run.

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