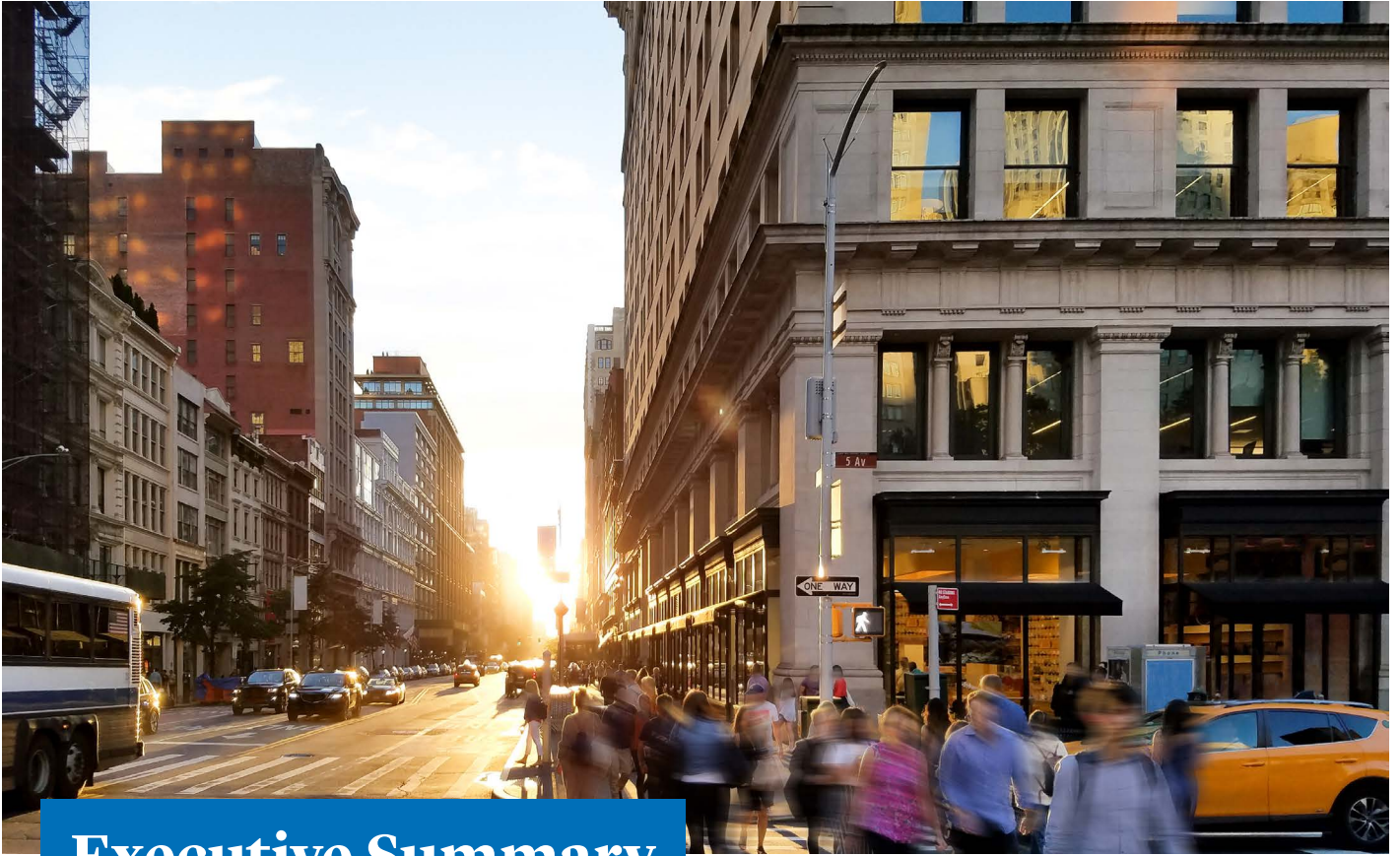


Demographic detail:
**How climate and
population flows
are impacting
US real estate**





Executive Summary

- Population movements are, in our view, a critical and often under-appreciated driver of potential relative real estate returns
- The pandemic and the associated acceleration in working from home benefited Sunbelt markets at the expense of coastal Gateways. However, this trend is normalising¹
- While the near-term prospects for employment growth in Sunbelt markets remain strong, over the longer term we expect this relative strength to moderate, with climate risk an increasingly important factor
- Recent extreme weather events are a stark reminder of the potential physical impacts of climate change, but of equal importance are the chronic physical climate risks that negatively impact the liveability of certain markets
- We believe these could hurt the long-term attractiveness of some Sunbelt markets, and provide potential upside for a few more resilient non-Sunbelt markets, necessitating more nuance around location selection for long-term investors, with implications for cap rates
- Real estate and infrastructure assets in higher climate risk areas will increasingly have to contend with the additional capex required for adaptation, the loss of revenues from operational disruptions and higher insurance premiums
- Heightened climate-associated risks and costs could exacerbate existing supply constraints in residential markets. Extending the useful life of existing supply, through retrofitting and decarbonisation strategies, will be increasingly important in addressing local supply and demand imbalances, in our view

¹) Sunbelt markets categorised at state level as Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Kansas, Louisiana, Mississippi, Nevada, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Utah. Gateway markets include California, Illinois, Massachusetts, New York and Washington.

Population flows post-pandemic: What has happened and why?

Population growth is a fundamental driver of demand for almost all types of real estate. Growth across US metro areas has varied widely in recent years; for the 56 large, liquid metros with a population of over one million that are commonly targeted by institutional real estate investors, the most recent data, for 2020-2023, shows average population growth of 1.1%². The range is enormous, from 7.5% for the Austin metro to -4.3% for the New Orleans metro (see chart below). We believe the longevity of these trends, and future long-term drivers of population flows, will be key to real estate performance.

The pandemic period (2020-2022) was characterised by an acceleration of the long-standing trend of stronger population flows towards Sunbelt markets. This was predominantly driven by two factors:

1. Increased working from home untethering people and businesses from city life
2. Cost of living concerns, with expensive coastal markets most severely impacted

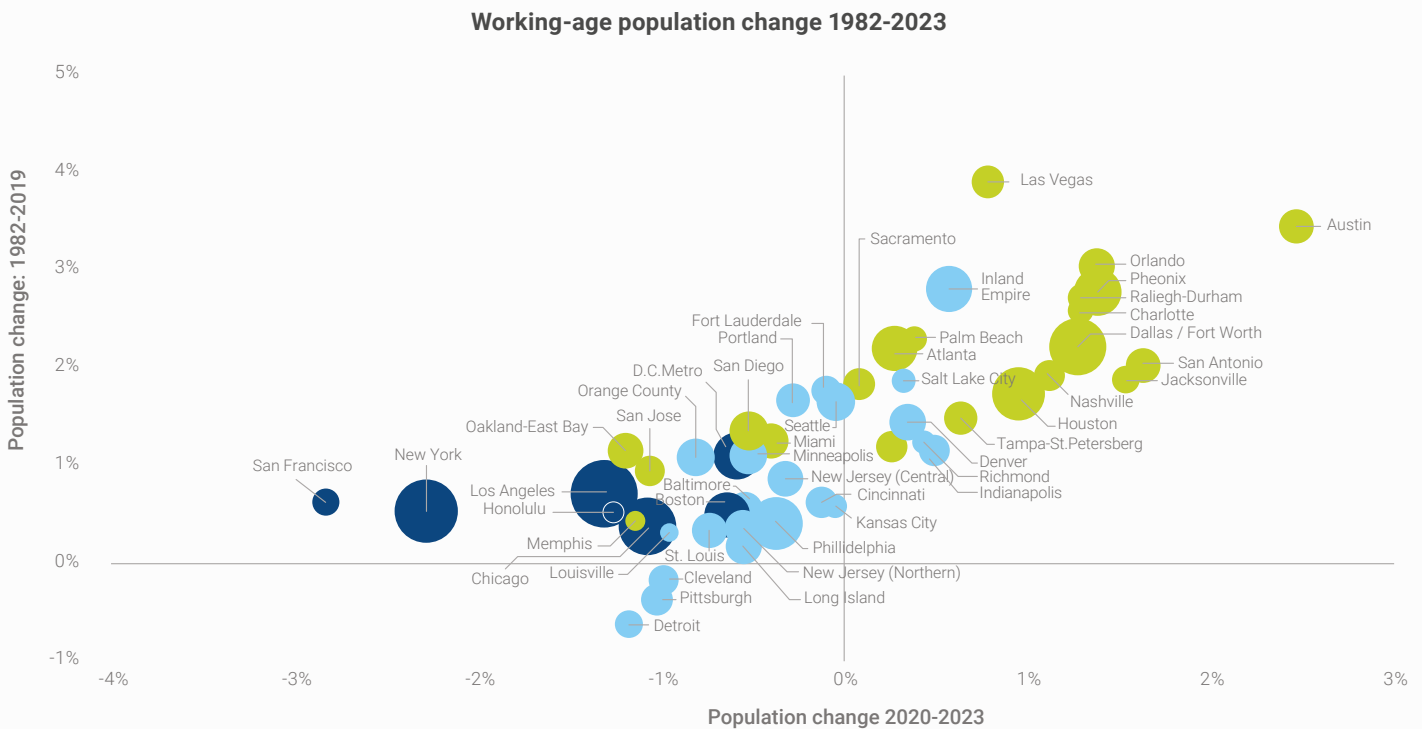


Fig1: Working age population change across top 50 US real estate markets. Bubbles weighted by 2023 population. Source: Green Street, US Census. 2024

Businesses have also followed this trend, with growing numbers of companies relocating to Sunbelt markets, attracted by easier tax and regulatory regimes, as well as appropriately skilled labour forces.

2) United States Census Bureau, July 2024.

Number of company relocations, 2019-Aug 2024

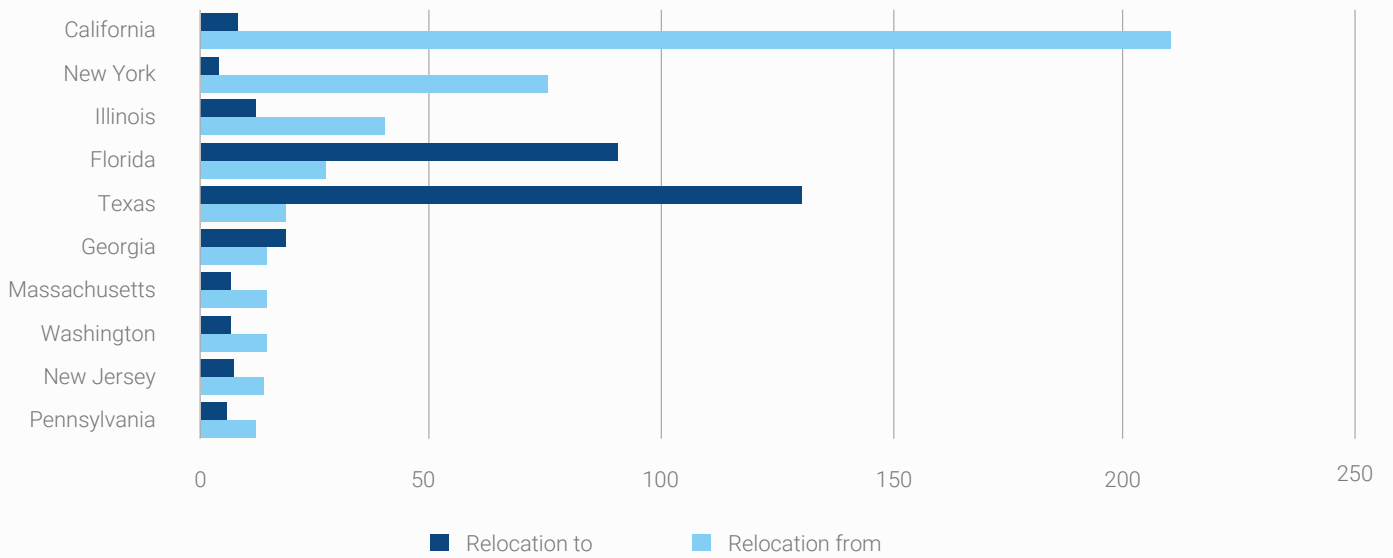
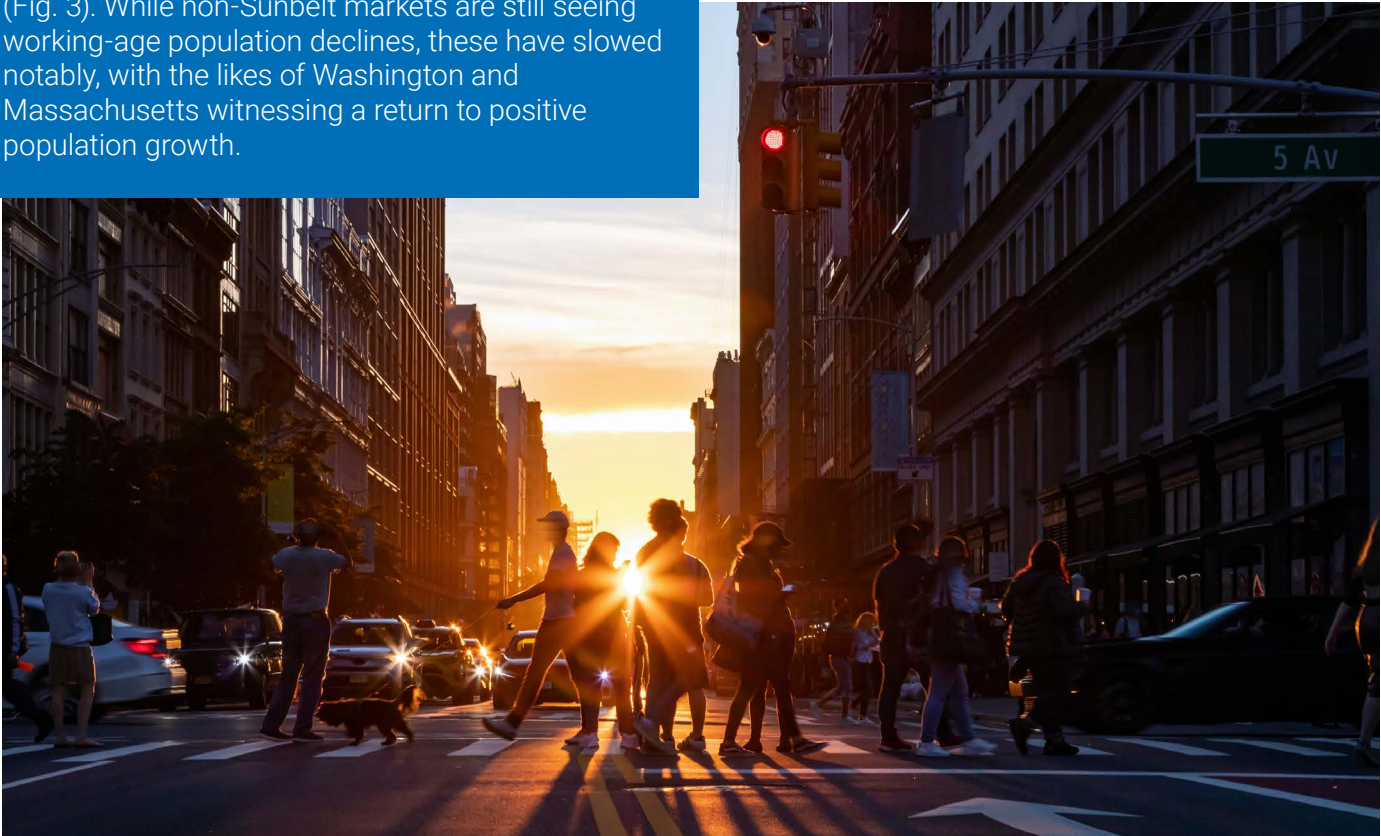


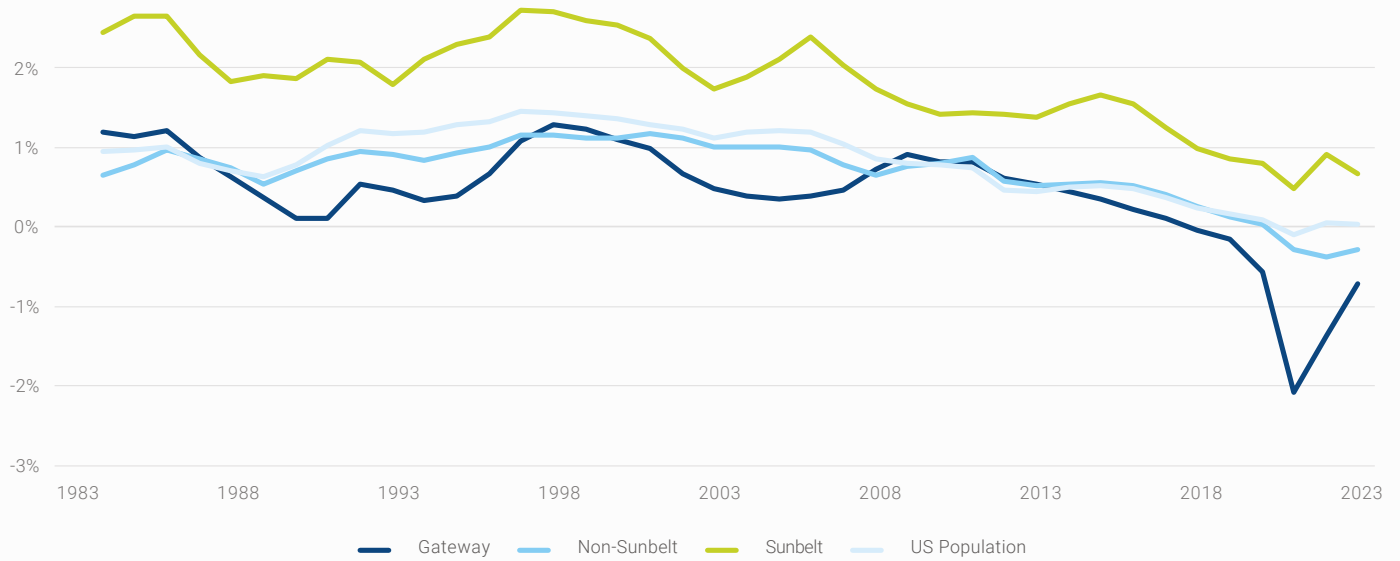
Fig2: Company relocations. Source: fDi Markets, Financial Times. 2024

This trend is partially normalising. While Sunbelt markets continue to see population growth, this has reverted to levels closer to the pre-pandemic trend (Fig. 3). While non-Sunbelt markets are still seeing working-age population declines, these have slowed notably, with the likes of Washington and Massachusetts witnessing a return to positive population growth.



Normalising population data suggests that Covid was a demographic shock with a dissipating effect. Despite a challenging pandemic period, we believe Gateway markets should not be discounted, with these continuing to attract high volumes of inward domestic migration from younger demographics (i.e., 18-35 year-olds) and international migrants over the 2010-2023 period (United States Census Bureau, 2024). While immigration remains a highly sensitive political topic, an ageing US population means it is likely to be an increasingly critical driver of future population – and employment – growth.

Annual working-age population change by market type



Annual working-age population change by market type

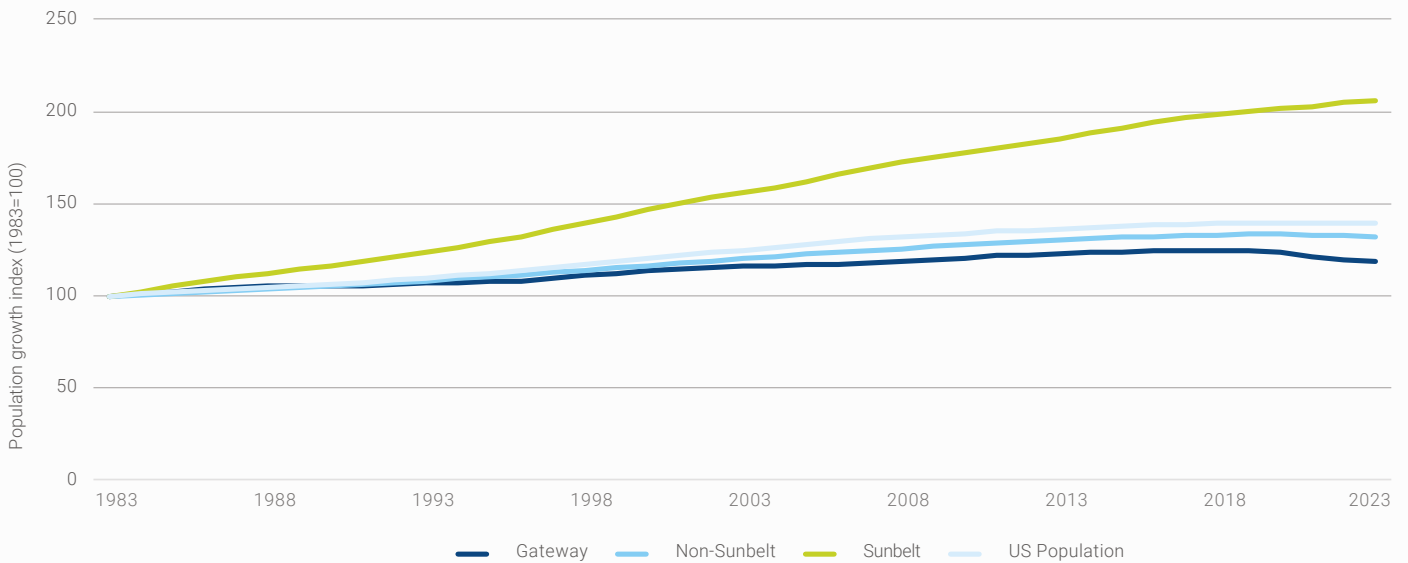


Fig3: Working age population change by market type. Source: Green Street. 2024

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

Longer-term drivers of population flows: Responding to growing climate risks

The importance of climate in influencing population flows across the US is not new; since the 1960s, growing numbers of the US populace have been moving away from the cooler Northeast and Midwest to warmer areas.

However, more extreme weather events and the hotter climate are posing a risk to this long-standing trend. The frequency, costs and human impact of extreme weather events are growing (Fig. 4), with Hurricanes Milton and Helene providing stark recent examples.

Weather events and more chronic climate risks, such as extreme heat days and increasing water scarcity, are impacting the liveability of higher-risk locations, and there is emerging

evidence of a consequential effect on population flows. Leduc and Wilson (2024) analysed the relationship between population growth, extreme heat days and extreme cold days at a county level. They found that over the past five decades, the historically positive relationship between population growth and the number of extreme heat days, and the historically negative relationship with extreme cold days,³ had weakened, and according to some measures, even reversed.

If this moderating trend persists, it could present a risk to the long-established positive migration story for the Sunbelt, requiring a more granular and selective approach when targeting real estate markets within the region. Conversely, more resilient Gateway markets may benefit from renewed population inflows in response.

Climate disaster events, US: cost / year (\$bn)

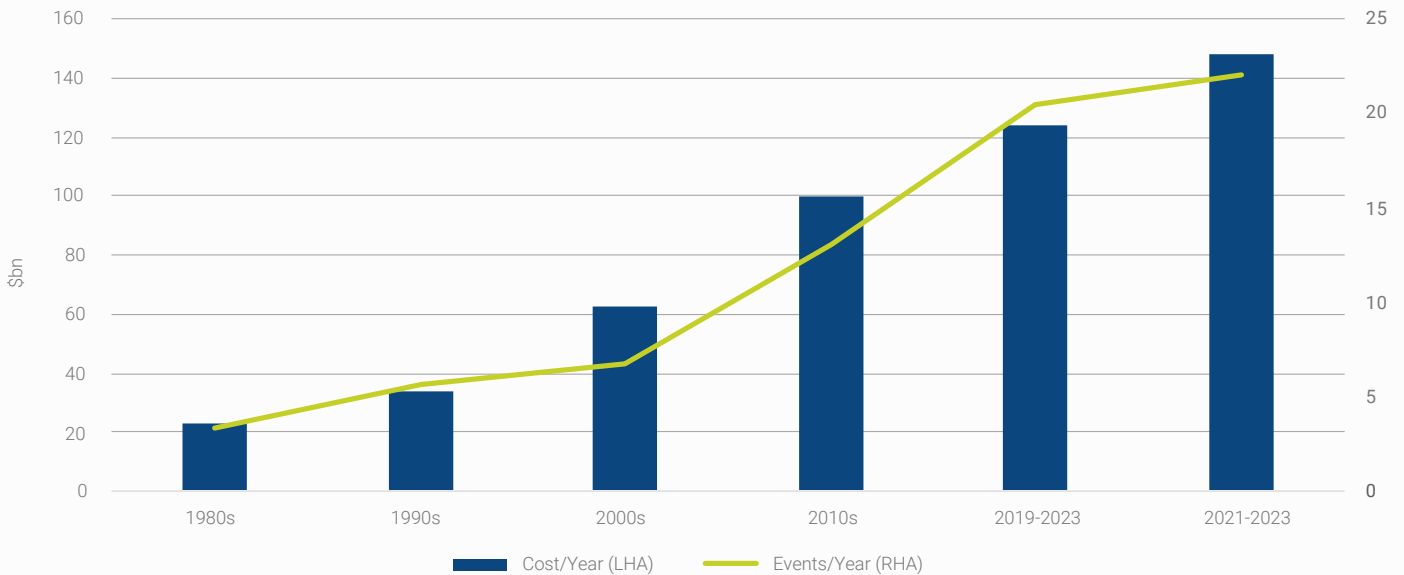


Fig4: Extreme climate events: damage cost and frequency. Source: NOAA, 2024.

3) Extreme hot day classed as a day where the average 24-hour temperature was above 80 degrees Fahrenheit, with an extreme cold day being one where the temperature was beneath 20 degrees Fahrenheit. The same trend is observed when replacing population with net migration.

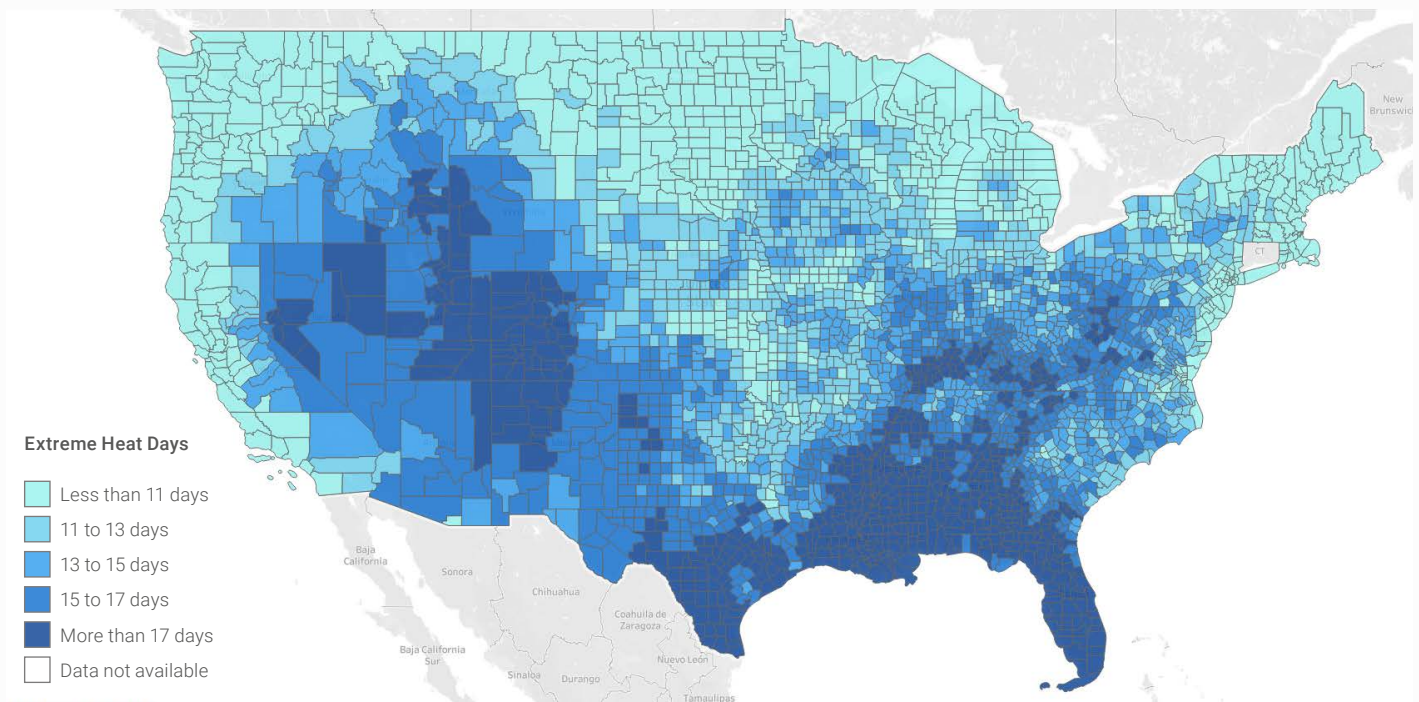
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Climate and insurance: An increasingly material impact on cashflows

Climate is having a more immediate impact on real estate returns through insurance. Rising climate-related insurance claims are leading to increased costs and reduced availability⁴ in higher-risk areas. Keys and Mulder (2024) observed a 33% increase in average premiums for homeowners between 2020-2023 (13% in real terms), with “a one standard-deviation increase in disaster risk associated with \$500 higher premiums in 2023, up from \$300 in 2018”, indicating a causal relationship between climate risk and higher increases in insurance premiums. Meanwhile, Green Street (2024) noted that annual commercial property insurance premiums were up 11% p.a. over 2018-2023, versus 4% for wider real estate expenses.

While insurance has historically represented a relatively negligible expense for commercial real estate investors, this is likely to become a more meaningful cost in higher-risk sub-markets. For example, Green Street estimates that home insurance costs in 2023 represented 9% of after-tax income in Miami, versus a national average of 3%.

Extreme heat days by county



©2024 Mapbox ©OpenStreetMap

⁴ [Florida's home insurer of last resort is in serious trouble. Will Milton put it over the edge? | CNN Business](#)

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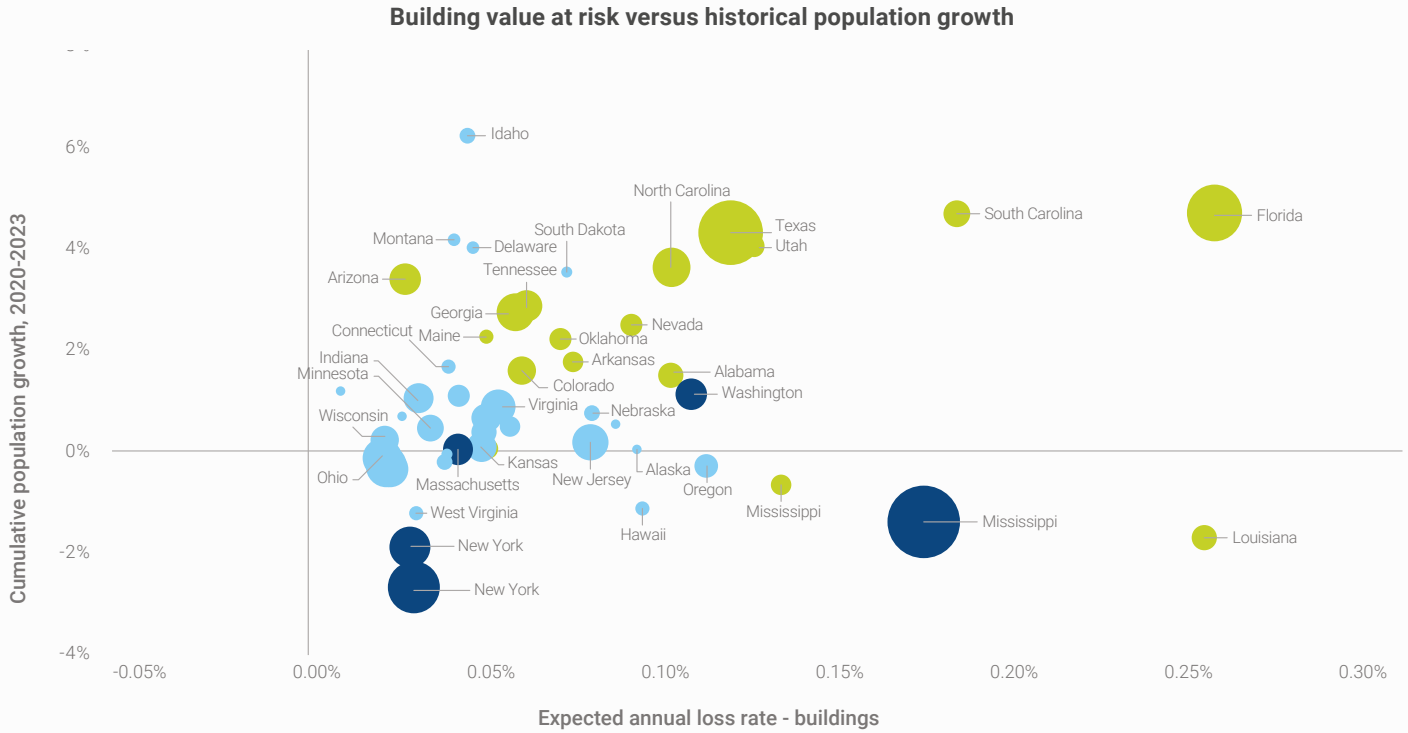


Fig6: climate value at risk versus historical population growth. Source: FEMA, US census. 2024



Fig. 6, above, shows that climate event risks tend to be higher in some Sunbelt markets, many of which have seen significant recent population growth and strong real estate performance. In future, our view is that the region should not be viewed in a homogeneous way, necessitating more nuance around location selection for long-term investors.

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Climate risks and implications for infrastructure

Extreme weather is increasingly an operational risk for key infrastructure assets, such as power networks, airports and wind farms. Infrastructure typically involves considerable upfront investments in assets designed with useful lives of up to 100 years, with the design of these facilities usually assuming past climate patterns will continue. A changing climate, however, and the resulting extreme weather events

mean that historical climate bands utilised in planning are becoming outdated, in our view, leaving infrastructure in many locations operating outside of its tolerance levels. McKinsey highlights the relative climate risk across infrastructure sectors in Fig. 7, with transport, energy transmission and water infrastructure screening as most at risk.

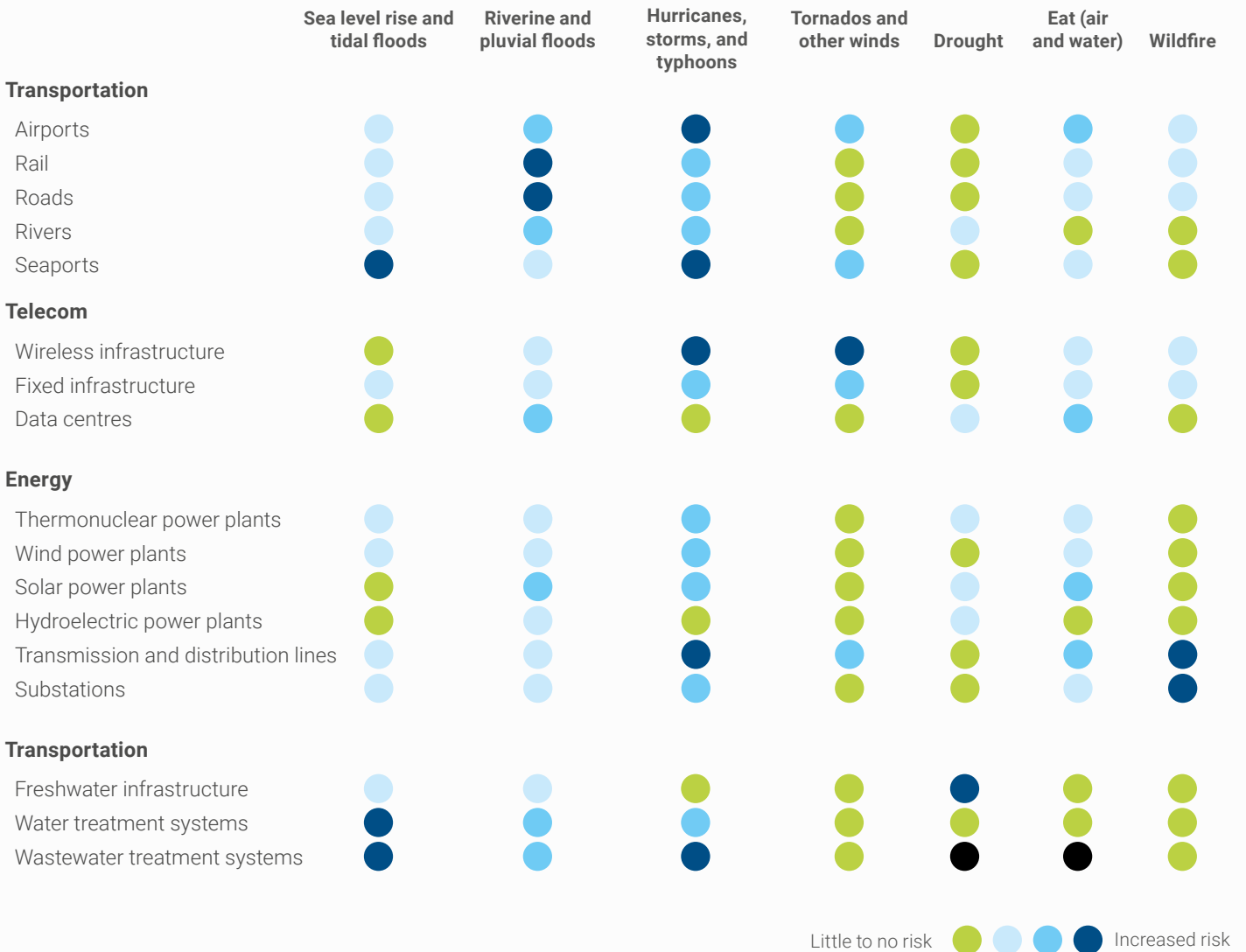


Fig7: relative potential future losses from climate hazards by infrastructure sector. Source: McKinsey, 2022

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Building resilience to climate and transition risks

We expect asset-level climate-risk analysis to become an increasingly important component of portfolio management and stock selection in the future, with higher-risk locations becoming more vulnerable to changing occupier demand, increased operating costs and reduced liquidity at exit. Robust assessments of climate risks requires granular, building-level assessments alongside an appreciation of wider interdependent risks, such as neighbourhood-level infrastructure vulnerabilities.

We believe any consideration of future portfolio resilience increasingly needs to consider net-zero transition risks. The built environment is a significant contributor to global carbon emissions, and, while the stringency of decarbonisation legislation varies significantly by state, over the long term we expect the sector to be subject to increasing scrutiny from

regulators and wider stakeholders. We believe a proactive approach to mitigating environmental risks is prudent and expect real assets with greater transition and climate exposure to be negatively affected, leaving uncompliant assets with reduced liquidity.

We also expect a proactive approach to confer some early mover advantages and upside potential in rental outcomes in more supply-constrained markets. We believe heightened climate risk and increased insurance and adaptation costs will exacerbate existing constraints in residential supply, particularly in a number of larger Gateway markets. This requires, in our view, a focus on retrofitting existing stock, thereby extending the useful life of the buildings, reducing their energy and fossil fuel consumption and ongoing repair and maintenance costs.



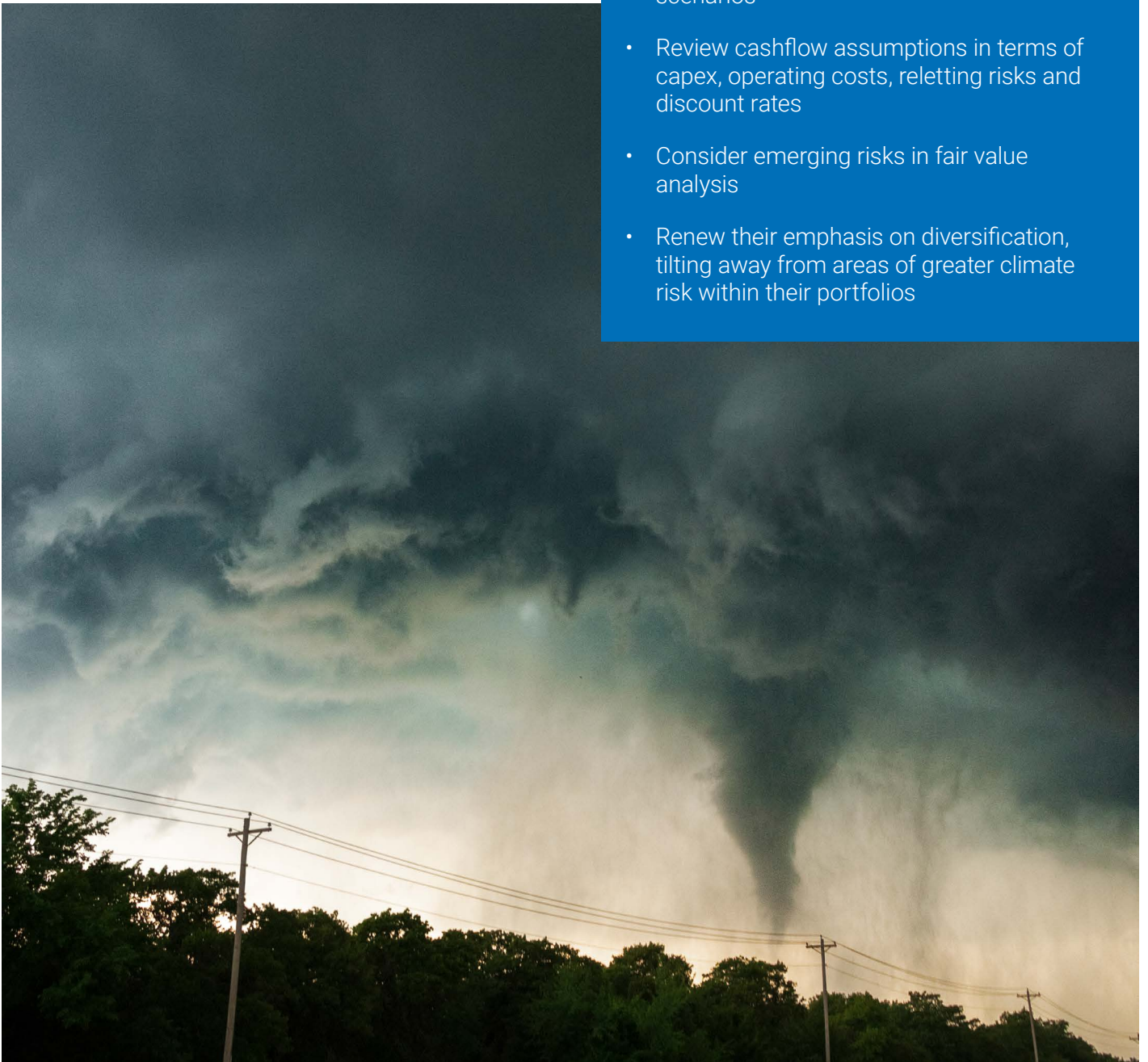
Key risks: Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.

Summary

As climate-related disruption becomes more frequent, we believe both real estate and infrastructure investors will increasingly have to contend with the additional capex required for adaptation, loss of revenues from operational disruptions and higher insurance premiums. We have seen early signs of elevated climate risk translating into higher costs for assets located in particularly vulnerable locations and expect this to become a more prominent trend as climate risks intensify.

In our view, investors will have to:

- Increase the depth and granularity of climate risk due diligence at an asset level, considering future climate scenarios
- Regularly review portfolio climate resilience assessments under various climate-change scenarios
- Review cashflow assumptions in terms of capex, operating costs, reletting risks and discount rates
- Consider emerging risks in fair value analysis
- Renew their emphasis on diversification, tilting away from areas of greater climate risk within their portfolios



Key risks: Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass. It should be noted that diversification is no guarantee against a loss in a declining market.

08

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Key risks

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

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