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Valuation impact of extreme weather events on real estate

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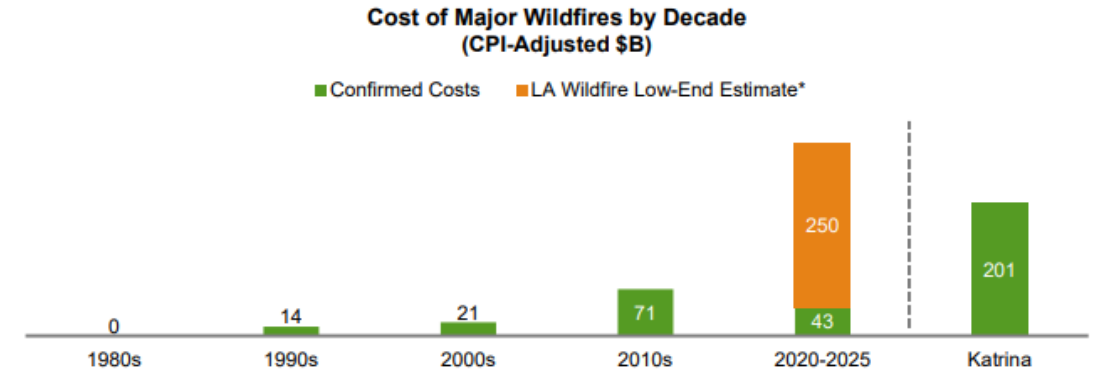
The recent wildfires in Southern California are a harrowing reminder of the devastation that extreme weather events can cause. More than ten thousand homes, business properties, and other structures were irreparably destroyed, consequently more than one hundred and fifty thousand people have been displaced. At the time of writing this report, the total damage caused by the fires was estimated to be more than $250 billion. This is the highest in recent US history. Moreover, the frequency and severity of extreme weather events is increasingly rising and inevitably bears watching. In this report, we unpack the impact of extreme weather events on the valuation of real estate assets over the long term.

History of extreme weather events

There have been several catastrophic weather events globally over the past decade, notably Hurricane Harvey (Texas, US) in 2017, the severe flooding that affected numerous European countries in 2021, the Black Summer Bushfires in Australia from late 2019 to March 2020, the flash floods in Spain in the back end of 2024, and the Los Angeles (LA) wildfires in January 2025. These are but a few of the multiple extreme weather events that have led to enormous destruction of real assets, and regrettably, loss of life. In the US, the estimated cost of damage caused by the January 2025 wildfires in LA vastly exceeds the confirmed costs of major wildfires that have occurred in the past (see figure 1).

Figure 1: Confirmed and estimated costs of major wildfires in the US.

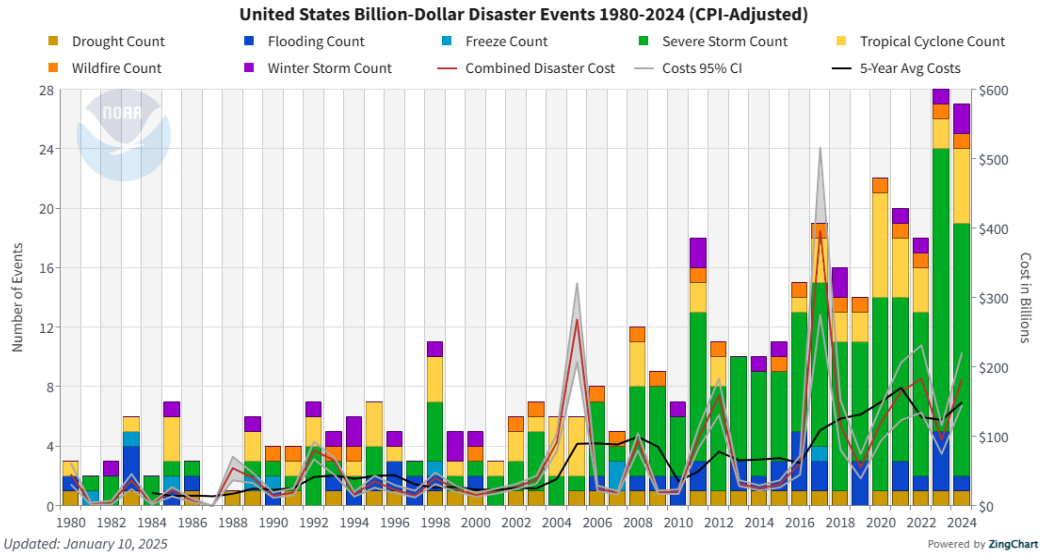


*Lower bound of AccuWeather estimate of total cost. Confirmed costs from National Oceanic and Atmospheric Administration.

Source: National Oceanic and Atmospheric Administration, Green Street

The frequency and severity of extreme weather events is alarming. To give some perspective, the five-year annual average cost of confirmed weather/climate disaster events in the US has grown from $18.9bn in 1984 to a staggering $149.3bn in 2024 adjusted for inflation (see figure 2). That translates to an annualized growth rate of 5.3%. Similarly, the frequency of natural disasters has increased from a recorded total count of just three natural disasters in 1980 to twenty seven in 2024 (see figure 2). The rising frequency and severity of extreme weather events warrant a closer look.

Figure 2: History of recorded natural disasters in the US



Source: The US National Center for Environmental Information

Property valuation implications

Extreme weather events have varying and disparate valuation implications across different property types, influenced by several factors with both short-term and long-term effects. Chief among which is the nature of the event (i.e., tropical cyclones, severe floods, wildfires, etc.), the severity of the weather event, the existing properties' proximity to affected locations, and over the long term, the frequency and severity of the event.

Given the disruption to business operations, and potentially business continuity over time, the frequency and severity of extreme weather events can impact economic activity in the long term. Over time, this can have a meaningful impact on population migration patterns and therefore household formation. These factors all play a pivotal role in the evolution of the **supply-demand** dynamics within the broader real estate sector. As such, extreme weather events can impact property values in the long run.

To unpack the potential valuation implications of extreme weather events on property values, the following simple property-level valuation formula can be used:

$$Property\ Value = \frac{\text{Forward Net Operating Income}}{\text{Capitalization Rate}}$$

Where the net operating income (NOI) is simply the difference between rental revenues and property-level operating expenses (opex). The capitalization rate (cap rate) is the yield generated by the property. The asset-level risk profile of the property is captured in the cap rate.

Using the above framework, extreme weather events can impact property values via the numerator and (or) the denominator.

A simple hypothesis is that the frequency and severity of extreme weather events has significantly increased over the past several decades, and this can potentially lead to locations that are highly susceptible to extreme natural disasters being less desirable from a “live, work and play” standpoint. Consequently, demand for real estate will be negatively impacted, and therefore property values will decline over time.

In such a scenario, property values would decline due to both the numerator and the denominator inputs negatively weighing down on the valuation:

- Numerator:
    - Rental revenues: As demand for property declines, existing landlords lose pricing power and therefore rental revenues decline over time leading to a lower NOI and therefore a decrease in property values.
    - Opex: Rising frequency and severity of natural disasters can translate into higher insurance costs over time, and therefore a higher opex. A higher opex lowers NOI and therefore translates into a decline in property values.
- Denominator:
    - Cap rate: The increased risk of property destruction because of extreme weather events worsens the property’s risk profile. As such, investors can demand a higher cap rate to be compensated for the additional risk.

      Another way to think about this is asking if it is justifiable for a shopping mall in a city that is more susceptible to extreme weather events to trade at the same cap rate as a comparable shopping mall (with similar property and catchment area attributes) in a city that is less susceptible to extreme weather events.

The above is a simplistic theoretical framework for assessing the potential implications of extreme weather events on property values over time. In the next section, we review historical extreme weather events and their impact on listed REITs.

How extreme weather events have impacted REITs in the past?

As a result of Hurricane Maria in 2017, Kimco Realty (KIM), the largest US listed owner and operator of a portfolio of open-air shopping centers in the US, suffered damage to seven of its shopping centers located in Puerto Rico. KIM had comprehensive property and business interruption insurance, and this considerably alleviated the impact from the loss of income due to the properties being inoperable during the rebuilding period.

That said, it is important to note that insurance coverage has its limitations and as such can fall short of fully compensating for the income loss during the rebuilding phase due to several reasons including, but not limited

to, legal disputes over coverage, increased costs of rebuilding due to unforeseen delays resulting from challenged infrastructure, availability of labor and building materials, etc.

To highlight some of the limitations of insurance coverage, the 2010 flooding of the Simon Property Group (SPG) owned mall, Opry Mills Mall in Nashville, serves as a notable cautionary tale. The Opry Mills Mall remained closed for nearly two years as it had to undergo extensive rebuilding, and this was coupled with a legal dispute over insurance coverage that concluded with the payout being limited to just 25% of the original estimated value. The Supreme Court ruled that the mall was in a “high hazard flood zone” and this placed a limit on the insurance liability.

In 2019, a tornado with an Enhanced-Fujita (EF) Scale of 3 (5 being the worst level on the EF scale) resulted in severe damage to a North Dallas shopping center owned by Regency Centers (REG). A considerable part of the property had to be demolished on account of the severity of the damage. This resulted in loss of income, and protracted downtime as the rebuilding process was carried out. However, the mitigating factor is that the loss of income and the cost to rebuild was largely covered by REG’s comprehensive insurance policies. That said, the Insurance Council of Texas asserted that it was the costliest tornado in the history of the state of Texas at the time. This highlights the increased risk of higher insurance costs stemming from the continually heightening severity of extreme weather events.

In 2018, American Homes 4 Rent (AMH), had approximately 30% of its properties affected by Hurricane Florence in the states of North and South Carolina. Additionally, properties owned by Welltower (WELL), a $90+ billon market cap US listed healthcare REIT, have reportedly been impacted by several different extreme weather events across its different markets of interest, including Hurricane Irma (2017) in Florida, Hurricane Harvey (2017) in Texas and Winter Storm Uri (2021) in Texas. Data centers owned by Equinix (EQIX), the largest US listed data center REIT, have historically been reported to have been affected by extreme weather events including, but not limited to Hurricane Sandy (2012) in New York and New Jersey, and Hurricane Harvey (2017) in Texas.

Bringing it back home, Fortress REIT, the South African listed REIT, reported that a few of its properties were impacted by the KwaZulu Natal floods in 2022. While the impacted properties only made up a small portion of the company’s overall gross leasable area, the frequency and severity of such weather events bears monitoring. Moreover, the November 2024 flash floods in Spain, led to the delay of Vukile Property Fund’s Spanish subsidiary, Castellana Properties SOCIMI’s efforts to acquire the Bonaire Shopping Centre in Valencia from Unibail-Rodamco-Westfield. It is not clear at the time of writing this report how the delay could potentially impact the transaction from a valuation standpoint.

Lessons from the 2025 Southern California wildfires

While the impact on commercial properties was limited, the recent wildfires cast a bright light on the insurance industry dynamics in California, which serve as an important cautionary tale on the question of the **insurability** of locations (or markets) that are highly prone to extreme weather events. State Farm, California’s largest property insurer, issued a press release in May 2023 stating that it will no longer be accepting new applications

for business and personal property in the state of California, on account of the “rapidly growing catastrophe exposure” among other factors. Other insurance service providers that have taken similar decisions include Allstate, The Hartford, and Farmers Insurance Group among others. This then leads to two important questions; **are locations prone to extreme weather events uninsurable?** If so, **does that make these locations un-investable over the long term?**

Conclusion

This report highlights the importance of incorporating extreme weather events into the valuation of real estate at the asset level over the long term. Beyond the scope of this report, it is important to highlight that governments, municipalities and other state-owned entities have an instrumental role to play in endeavouring to reduce the severity of extreme weather events. This can be done through various means including, but not limited to, investments directed towards infrastructure resiliency, adequate funding for first responders in regions that are highly prone to extreme weather events, drafting and enacting regulations, and policies that promote and incentivise capital investment towards the development or redevelopment of extreme weather-proof or resilient properties.

In closing, the three notable factors that will impact property values because of extreme weather events over time, are **rental revenue growth prospects**, which can be driven by businesses’ long-term capital allocation decisions with respect to investing in locations that are highly prone to extreme weather events, **opex**, which can be impacted by the effect of rising frequency and severity of weather events on insurance costs, and the **cap rate**, which can be influenced by the insurability risk of properties located in extreme weather prone locations.

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