

#### Table of Contents

#### **Authors**





Natalie Ambrosio Preudhomme Associate Director Moody's Analytics CRE



Kevin Fagan Head of CRE Economic Analysis Moody's Analytics CRE

Insurance Market Structure and Current Stresses

CREClientService@moodys.com

855 702 2018

- How Insurers Set P&C Premiums
- 3 Navigating Tumultuous Times in the Insurance Industry

## INSURANCE MARKET STRUCTURE AND CURRENT STRESSES

There are several different factors which have coalesced to create an insurance market in which affordability and availability are persistent challenges. While some are external influences, others emerged due to the way the insurance market operates.

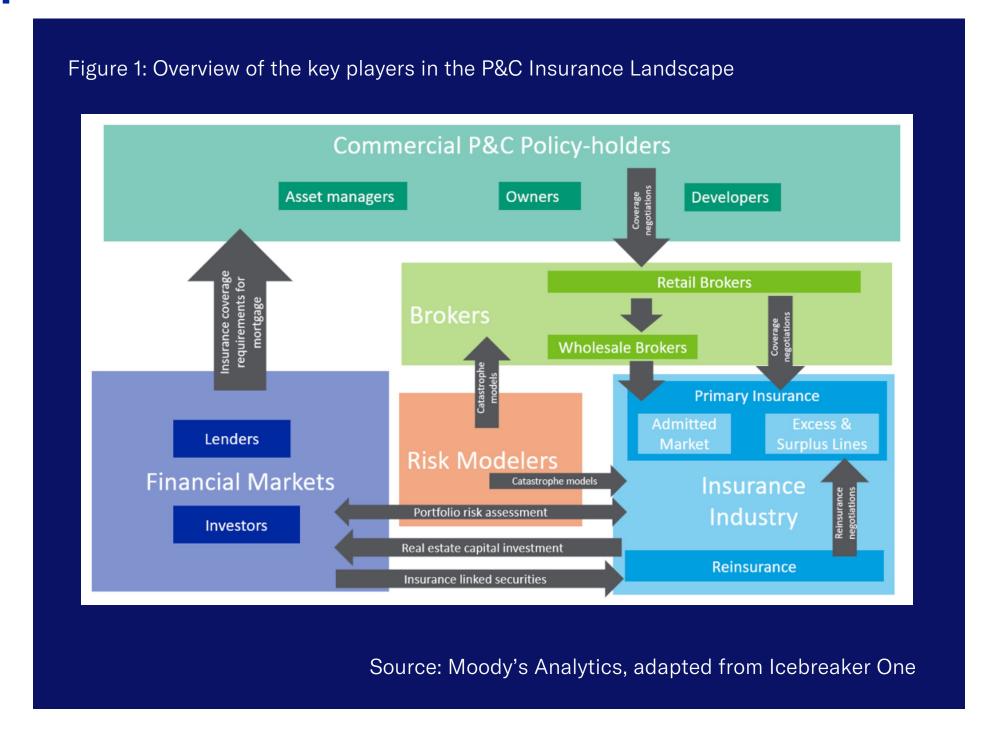
We'll unpack three key drivers behind current challenges in the insurance market, but first we'll provide a high-level recap of how the market works.



#### **How Do Insurance Markets Work?**

Firstly, in 2022, there were 2,648 individual property & casualty (P&C) insurance companies in the US; however, many individual companies are part of larger groups. The top ten commercial lines insurers covered 36% of the market share, with the top 100 covering 87%.<sup>[1]</sup> Every insurer has a set underwriting capacity, which is a total maximum amount of liability that it can take on through underwriting. Insurers often begin by balancing risk across a region, but many also home in much more closely, evaluating their underwriting exposure at a state or local level.

Insurers collect premiums and earn investment income, both of which they use for any required payouts to policy holders. They also maintain capital and reinsurance to manage tail risks, in the case of more severe claims payouts than anticipated. Reinsurance is essentially insurance for insurers. It operates in its own market underpinning the insurance industry, with its own set of regulations. This means that reinsurance market dynamics have a large impact on insurance, which we'll get back to below. There are two primary types of reinsurance contracts, known as treaty agreements, in which a reinsurer is covering a group of an insurer's policies, and facultative agreements which are for a specific asset.



#### Reinsurance Structure

Regardless of the type of contract, there are different ways for reinsurance policies to be structured. A common structure for property insurance is called a **proportional agreement, in which the insurer and reinsurer share the premium and losses.** Meanwhile, **an excess of loss agreement is when the primary insurer pays the reinsurer to cover losses above an agreed upon amount.** These agreements can be negotiated for a range of coverages, including a primary insurer's aggregate loss per policy per year; a specific event affecting a range of policies; or an individual policy.

An insurer's reinsurance coverage is typically complex, with layers of different types of coverage stacking up to provide the necessary backstop. Reinsurers can also purchase reinsurance, known as <u>retrocession</u>.



Property and casualty reinsurance contracts tend to be renewed annually and, in the US, especially in the Southeast, renewals tend to be June 1st or July 1st, around the start of hurricane season. Primary insurance (the contract between a building owner and insurer) typically renews in January but can renew at other times.

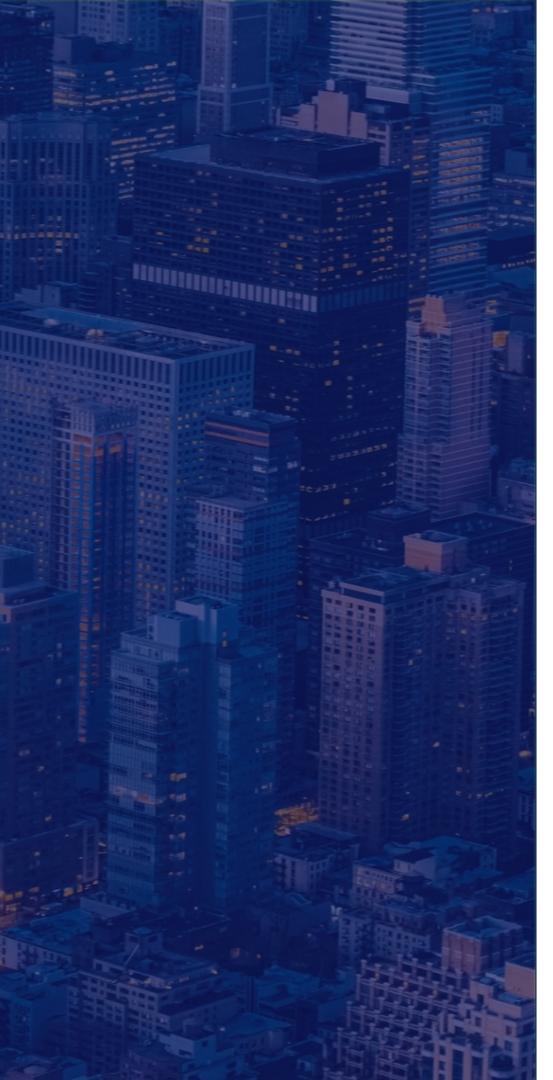
#### There are Two Primary Types of Insurance Companies:

#### Admitted

Admitted insurers are those that are licensed by the insurance regulator of the state(s) where they write policies and must comply with regulations governing their premiums, capital requirements and claims processes. Admitted insurers are generally backed by guarantee funds within a state. Policyholders' claims will be paid even if the insurer goes insolvent, to a point. However, this assurance is capped at \$300,000 in most states, which is a small portion of most commercial policies.

#### Non-Admitted

A non-admitted insurer (also called an excess or surplus lines insurer), on the other hand, doesn't have the same type of regulatory oversight and likewise also lacks the access to guarantee funds. This means that non-admitted insurers have more leeway to charge risk-based pricing. This flexibility means that non-admitted insurers have an opportunity to adapt more tactically to market dynamics than admitted insurers who are more limited in their pricing and terms.



## **Exploring the Dynamics of Non-Admitted and Subscription Insurance Markets**

The non-admitted market has been growing in the past several years. Although it's still a small overall slice of the market, at about 8.7% market share in 2022 excluding Lloyd's of London syndicates. <sup>[2]</sup> In many states, <u>brokers must demonstrate that they are facing difficulty</u> getting coverage in the admitted market before they seek coverage in the non-admitted market. It's also important to note that most commercial policyholders will get their coverage from multiple sources, which may include some admitted and some non-admitted insurers.

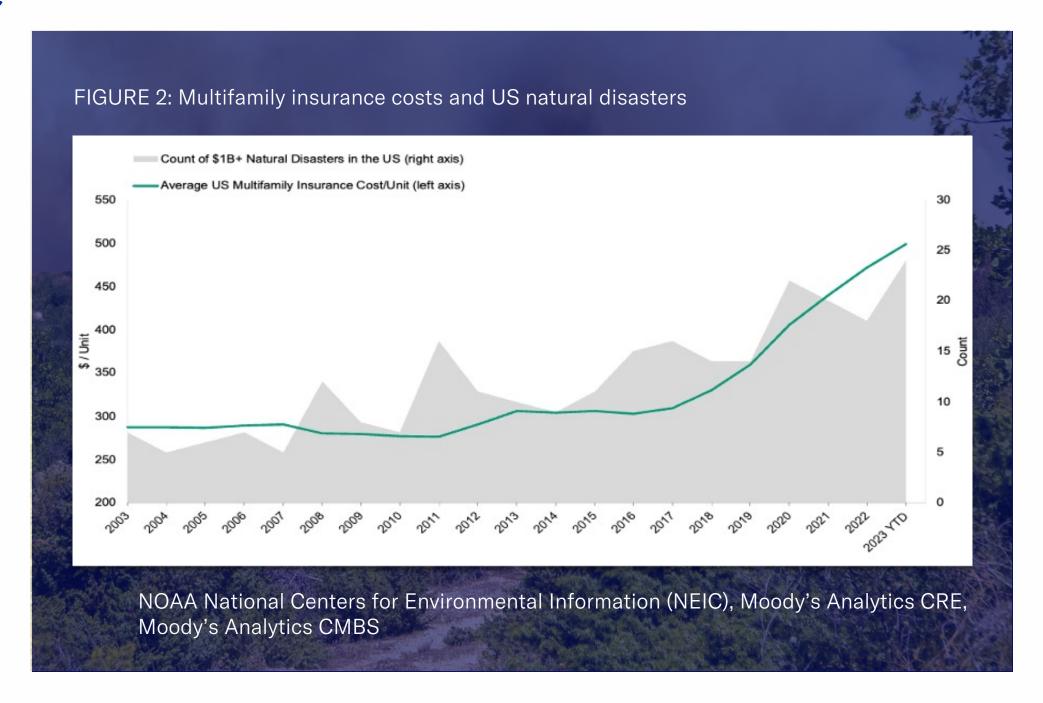
Another facet in the insurance industry is the subscription market, in which multiple insurers share a policy. They each get a portion of the premiums and hold a portion of the risk. This allows an insured to get larger limits on a policy and is usually organized by one <u>managing general agent</u>, which is a specialized broker, who has carriers sign up for different amounts of the coverage, each with their own liability. In such constructs it is essential to ensure that each carrier will be ready to pay their portion of the coverage when the time comes

### What are Current Stresses on the Market?

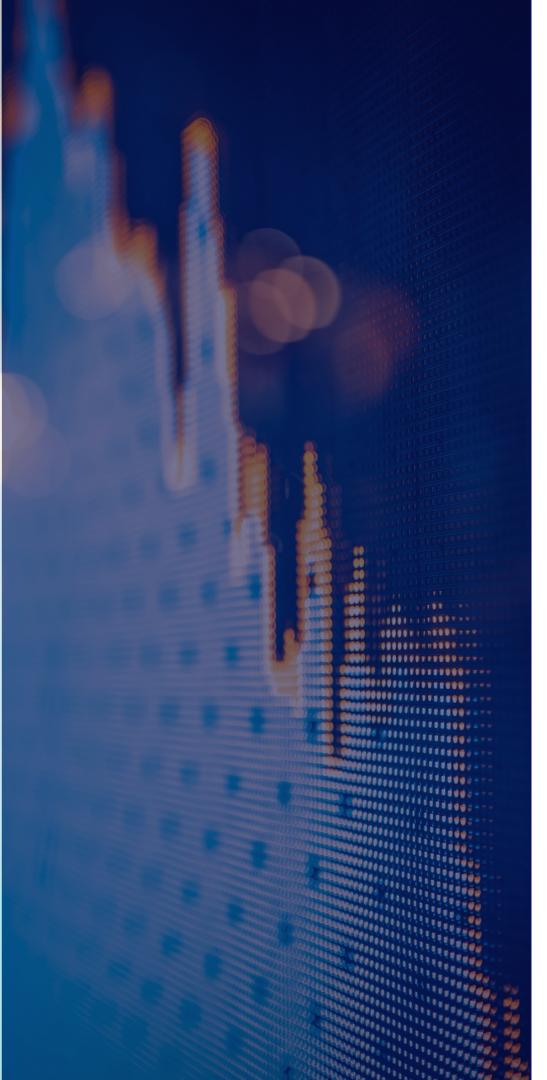
Several factors contribute to ongoing challenges in the insurance market, including the rise in frequency and severity of natural catastrophes, the current high costs of reinsurance and the high inflation.

Figure 2 shows the rise in costly weather-related disasters in the US. For example, there has been increased hurricane activity over the past five to six years, compared to a relatively quiet previous five years. Traditionally the insurance industry differentiates between **primary perils**, **or hurricanes and earthquakes**, which each tend to cause substantial damage, and **secondary perils**, **such as convective storms and wildfires**, which are typically smaller events that are not expected to cause as much damage.

Secondary perils used to receive less attention from insurers, but they have also ramped up in the past several years, compared to the years immediately prior. Secondary perils are responsible for increasing percentages of claims and the aggregate damage from these perils can now match or exceed that of the primary perils.



Likewise, losses from these smaller individual events often don't reach insurers' reinsurance protections, which means that a year with above average occurrence of hazards like wildfires and convective storms can have material impact on insurers' profitability, even if the individual events don't cause as much loss as a single hurricane, for example. Consequently, there has been a push to move away from these labels, as insurers increasingly must pay closer attention to perils once considered secondary.



## Challenges and Shifts in Insurance Markets: Catastrophes, Reinsurance, and Inflation

Large catastrophes can lead to a <u>demand surge</u>, in which the cost of rebuilding increases due to the rapid increase in demand for materials and labor. As insurers' claims payments increase, raising rates or reducing underwriting capacity helps them to minimize loss.

Another ongoing stress in the insurance markets involves challenges in obtaining reinsurance. Following the 2008 financial crisis the low interest rate environment contributed to an abundance of cheap alternative capital to complement the reinsurance market. It was easy for insurers to get enough reinsurance to maintain their underwriting capacity. However, this started to tighten up after significant losses occurred from 2017-2020, followed by the stresses of COVID. Inflation related to reconstruction costs and higher retrocessional costs has led reinsurers to increase their prices significantly over the last year or so. This means that primary insurers face skyrocketing prices for reinsurance and have to pass that through to their premiums. Anecdotally, many reinsurers have said that the 2023 renewal season was the hardest they've seen in decades.

There are also a range of other factors that are inflating the cost of claims and thus threatening insurers' capital. Firstly, high inflation has led to a high cost of construction materials and labor, making construction costs and thus claims payouts larger. By increasing the value of the property, inflation means that the premium and policy terms are no longer aligned with the right percentage of total insured value. If the value of the property increases but the deductible does not, the insurer's chance of loss increases.



## Social Inflation and Its Impact on Insurance Market Dynamics

The insurance market is also affected by <u>social inflation</u>, which refers to human-induced factors that lead to higher claims payments. This happens in a variety of ways, including litigation such as when a homeowner takes an insurer to court because they think the claim is not sufficient. This adds legal fees to the cost the insurer is already paying for the claim. Similarly, the claims process often involves multiple parties and can add to the cost of claims. States like Florida, Louisiana, Texas and Colorado are all known for having social inflation. Although it can happen in all markets.

Inflation, both social and otherwise; the current reinsurance environment; and the recent increase in activity across a range of natural catastrophes are all contributing to today's challenges in the insurance industry.



## HOW INSURERS SET P&C PREMIUMS

What Influences Insurance Pricing?

Several, often competing, factors influence insurers' premiums. At high a level, there are three main categories that insurers consider when setting premiums: technical premium, regulation, and <a href="market dynamics">market dynamics</a>. These factors are layered on top of (re)insurers' own loss experience which they also factor into their price setting. We'll unpack these different elements in this section.



### **Insurance Pricing Influence: Technical Premium**

A **technical premium** is composed of risk-based pricing, estimating how much an insurer would expect to lose in a given year for a given asset for the perils covered, (i.e., fire, flood, wind). The insurer then applies adjustments based on estimated expenses (i.e., cost of capital, underwriting and operating expenses and claims); and volatility around average loss expectations. The risk elements of the technical premium are determined by some type of risk modeling, which varies by peril type.

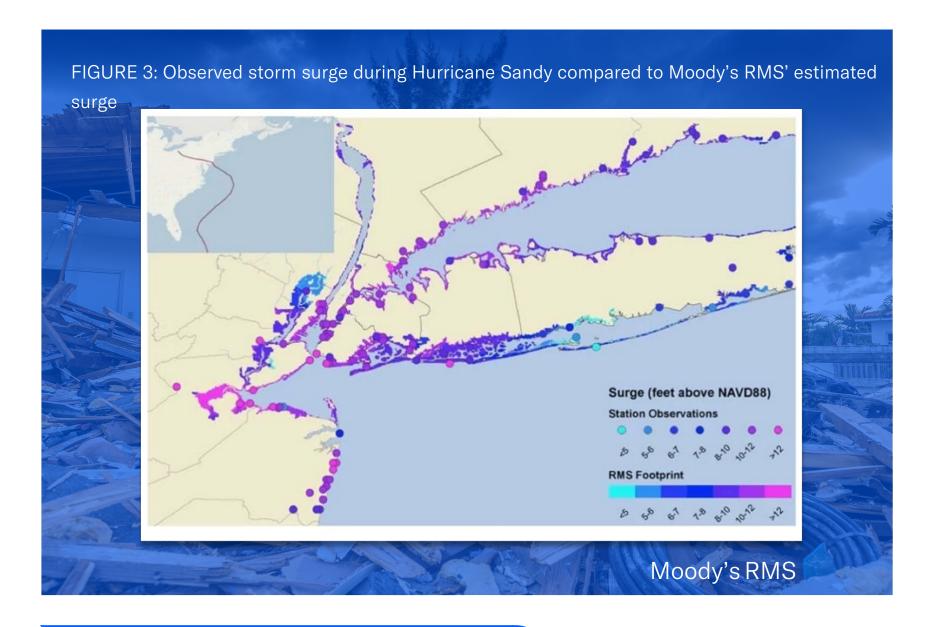


Historical models (or historical experience) are traditionally used by insurers when they have ample observed events or data, such as on car crashes, for auto insurance. Using averages run from this information provides a meaningful indication of the potential for loss in the future.



Catastrophe modeling is typically used when there is not a sufficient dataset of historical experience, as is the case for many natural catastrophes. These models simulate thousands of possible events to provide a view of what events could happen in the region of interest and their potential impact, including those events that haven't occurred yet in history, but are plausible. Catastrophe models are specific to hazard and region. Moody's RMS contributes to insurance pricing through its development of catastrophe models.

#### Catastrophe Models: The Four Components



#### **The Event Module**

A stochastic model that generates hundreds of thousands of possible events, defined by their strength and location, which may include the entirety of a hurricane track from genesis to dissolution, for example. This module also factors in the events' probability of occurrence to identify the range of possible events for a specific hazard.

#### The Hazard Module

Estimates the amount of monetary loss due to physical damage and business interruption at the property, to different degrees of likelihood. Models such as those produced by Moody's RMS are calibrated by decades of observed claims data.

#### The Vulnerability Module

Captures the detail of the risk driver across the impacted area through the entire lifecycle of each stochastic event. In other words, it assesses all aspects of the event that will cause physical damage to any exposed property. For example, for hurricanes, the model estimates the strength of wind, its geographic distribution around the storm, and the wind direction every five minutes throughout the lifecycle of each event at a location level. In addition to wind, the hurricane hazard module would also include storm surge modeling, as shown in Figure 1 to the left.

#### The Financial Module

Factors in the relationship between the hazard and the damage to the building and its contents and duration of any downtime or loss of use. The model factors in primary characteristics including the occupancy type, construction type, age and height of the building. Secondary characteristics, such as roof or glass type, presence of basements or lower-ground floor height can also be included and can have significant impacts on the loss results.

#### Catastrophe Model Outputs

Catastrophe models have <u>several different outputs</u> which are used by the insurance industry. These include estimated average annual loss and standard deviation for a specific peril and each individual property. Property-level metrics are then aggregated across the entire portfolio, which is what insurers focus on when evaluating the risk to their book of business.

**Exceedance Probability** 

(EP) provides a curve showing the probability of losses to a certain property or portfolio of properties from a certain hazard that exceeds a set threshold.

**Event Loss Tables** 

(ELT) provide the mean loss standard deviation, exposure value and event rate for each event that's estimated to cause loss.

Period Loss Table

(PLT) provides information on the maximum event occurrence loss and distribution of losses, within a set timeframe. The financial module allows the application of insurance terms and conditions, such as deductibles, limits, etc., and thus, the calculation of loss with and without the effect of insurance, and the split of those costs between the insured and the insurer.

Insurers employ these metrics to effectively manage risk and inform prices. EP curves play a crucial role in establishing underwriting criteria, influencing policies with higher risk to have higher premiums and deductibles. Insurers strategically align pricing with their expertise and risk appetite, maintaining a balanced portfolio that includes both high and low-risk policies. Those comfortable with higher risk may specialize in riskier sectors, while those favoring lower risk focus on safer portfolios. Premiums are set to reflect the level of risk and market competitiveness.

EP curves also inform the amount of <u>capital that insurers are required to hold</u>, which is set based on an exceedance probability basis, rather than based on annual average loss estimates. The amount and cost of capital will in turn trickle down into how the portfolio policies are priced as well.









## Catastrophe Model History and Future Development

Catastrophe models for hurricanes and earthquakes have been in use the longest, becoming widespread after Hurricane Andrew in 1992 and the Northridge earthquake in 1994 respectively, both of which caused significant insolvencies in the primary insurance markets as the scale of these types of events were not foreseen at the time using traditional modeling methods based on historical data. Catastrophe models for floods and wildfires are newer and less widely adopted so far, partially for regulatory reasons as discussed below. Given the number of events, hurricane models have had more opportunities to be tested compared to earthquakes and the newer models.

While catastrophe models include a broader set of possible outcomes than historically observed outcomes, they are calibrated to represent today's risk. However, as increasing global average temperatures drive new atmospheric phenomena, some modelers are beginning to develop <u>climate conditioned</u> <u>catastrophe models</u>, which integrate outputs from climate models for a range of climate scenarios and time horizons, demonstrating how the frequency and severity of events may change in the future, along with potential changes in size, speed and geographic distributions.

#### Insurance Pricing Influence: Examples of Regulation

State insurance regulation is primarily focused on establishing a healthy insurance market and protecting the consumer from prohibitively high insurance premiums.

01

For example, in 1995 Florida created the <u>Florida Commission on Hurricane Loss Projection Methodology</u> which is composed of an independent group of experts tasked with reviewing the latest developments in hurricane modeling to help ensure that the industry leverages the most effective models to inform insurance pricing that is neither too burdensome nor not sufficient for the risk.

However, in some instances, regulation means that insurers are not allowed to use catastrophe modeling to set their premiums, which in turn means that their prices do not reflect the true risk exposure for certain perils. This can contribute to substantial loss in the insurance industry which then places pressure on the rest of the market.



For example, in California, insurers cannot currently leverage catastrophe modeling to set their wildfire premiums and must instead rely on historical data based on the average impact of wildfires in the last few decades. Recent events have made it clear that relying solely on historical data does not provide enough information to accurately capture potential risk for wildfires, or other perils that are now occurring with greater frequency or severity. In California, property & casualty insurers, and their reinsurers, absorbed \$36 billion of losses from major California wildfires in 2017 and 2018 combined. California acknowledges these challenges and hosted workshops on the issue in July and September 2023.

Insurance regulation also has a large impact on a range of other factors affecting loss and pricing in the market.



For example, in Florida a law known as the <u>"25 percent rule"</u> mandated that if 25% or more of a roof is deemed damaged, the entire roof must be replaced. While the rule has since been amended, it contributed to "loss creep," in which insurance payouts were higher than one would expect just based on storm damage.



## Insurance Pricing Influence: Market Dynamics

Capital is provided by both the traditional reinsurance market, increasingly over the past 15 years by alternative capital in the <u>form of catastrophe bonds</u>. However, as insurance payouts increase, it is harder to keep premiums low and manage the risk. In the <u>past several years, some insurance companies have gone bankrupt in Florida for example.</u> Likewise in low interest rate environments, the capital that they're holding makes lower returns which further challenges their ability to keep premiums low.

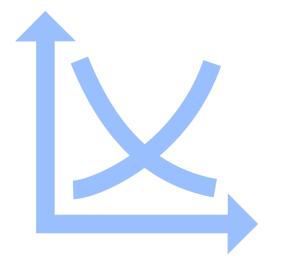
Insurers' premiums are also driven partly by the cost and availability of reinsurance. In the past several years, reinsurance costs have been steadily increasing, and availability for some highly catastrophe-exposed markets such as Florida have been restricted in particular. Factors such as social inflation and litigation have contributed to the tightening of the reinsurance markets). However, last year's June/July renewal saw some increase in reinsurance capacity, which is starting to ease pressures on insurance availability, though costs remain high for now.

These market conditions will affect an insurers' negotiations around the policy's parameters. This includes deductible amount and coverage limit, which are dictated by the replacement cost of the property. While these are parts of the contract that can be negotiated to adjust the premium, lenders may require certain conditions. Some insurers are increasingly setting prices based not on full replacement cost, but rather on a depreciated cost. For example, if a roof was built ten years ago, rather than covering the replacement cost of a brand new roof, the insurer may cover the depreciated cost of the older roof since it's already incurred wear and tear.

#### **Navigating a Changing Market**

The dynamics discussed on the previous page apply to private insurers, with a focus on those in the admitted market. However, public insurance plans for specific hazards, also known colloquially as "insurers of last resort" have been taking on increasing numbers of policies in certain states both for homes and businesses, as it becomes harder to obtain coverage from the private market. 33 states and DC have some public insurance option, which is generally administered by the state but may be funded by a pool from private companies operating in the state.

To obtain coverage through these plans, typically called FAIR or citizens plans, property owners often need to show that they can't receive coverage from the private market without prohibitively high price tags. Since they serve a different role in the market, different decisions govern the pricing for these insurers.



As property owners face rising insurance premiums and developers are challenged to get loans in certain geographies due to prohibitive insurance terms, the market is actively seeking solutions. Our next section will survey the landscape of existing solutions, building on this foundational understanding of how insurers price their policies.

# NAVIGATING TUMULTUOUS TIMES IN THE INSURANCE INDUSTRY

As US CRE owners deal with rising insurance availability and affordability challenges, participants across the CRE value chain are striving to adapt to these new conditions. While the current insurance environment feels unprecedented in many ways, there is an opportunity to leverage existing tools to manage the market.

This chapter will unpack three categories of solutions including new negotiation strategies, alternative risk transfer mechanisms, and incentivizing resilience. In many instances, market participants have an opportunity to leverage these tools together to create a holistic approach to managing risk.





Insurance can become a sticking point in CRE transactions, where owners are no longer able to continue obtaining full replacement cost coverage that's typically required by lenders, without facing sizable increases in premiums that <u>could hit property cash flows</u>. This has caused lenders to change their underwriting to factor in the additional risk or reconsider their insurance requirements, which may involve adjusting their risk appetite and risk management strategies.

#### **Have Early and Nuanced Negotiations**

One approach is for both owners and lenders to better <u>understand the stochastic catastrophe (cat) models</u> that insurers use to set their premiums. The conversation about the risk modeling to determine insurance limits needs to happen earlier than ever in the loan application process. This allows for a more nuanced discussion on the expected loss for a particular asset under different extremes, alongside the cost of different amounts of insurance coverage and the consideration of opting for a higher deductible or lower coverage limit to reduce the premium.

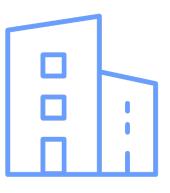
For example, a premium for full replacement cost for named storm damage for an asset will be substantially higher than a premium for coverage up to the estimated damage in a 1-in-200 year event. Depending on the specific asset, location and other factors, the modelled 1-in-200 year damage and business interruption costs may be substantially less than replacement cost. Such an event only has a 0.5% chance of happening in a given year, so while this coverage is less than full replacement cost, it still could be considered negligible incremental risk. Additionally, less insurance cost means a better loan debt service coverage ratio (DSCR).

For properties backing CMBS loans, where a portion of the loan is typically rated AAA/Aaa (sf), the thresholds may be higher, where credit neutral coverage for AAA/Aaa (sf) ratings may be to the 1-in-5,000 year event. However, even with that high threshold, there can be a significant gap between full replacement cost and modelled loss cost, and therefore using the modeled loss cost can result in significant savings on insurance premiums.















Using cat models to set policy limits is nothing new. However, with insurance premiums soaring in the last five years and many markets facing a serious scarcity of private market insurers, the need to understand the models has been greatly heightened. What assumptions went into the modelling? Are there any site or property characteristics that mitigate risks? What resilience measures could be taken to best reduce risks? Are there routine management actions that could mitigate risk? Are there insurance or replacement cost reserves? What is the loss history of the property? What is the modelled loss including the deductible? Answering these questions help to inform the best insurance coverage decisions, as well as other actions that may be useful alongside insurance, which we'll discuss below.

Long before a policy is signed, a detailed conversation between lender, loan applicant, insurance broker and risk modeler can help lenders align their requirements with an asset's true risk, rather that requiring full replacement cost coverage for every asset irrespective of its risk profile. Additional time and understanding will allow for a fuller picture of the property-specific risks for lenders and borrowers and for an insurance broker to shop the policy around for the most cost-efficient structure. If this approach becomes more widespread, it will also help to reduce the supply and demand challenge that's occurring in markets such as Florida. There will be more insurance coverage to go around if property owners increasingly focus on understanding their true likelihood of experiencing certain losses and purchasing insurance coverage accordingly.

#### **Explore Alternative Risk Transfer**

There are a range of alternative sources of capital to cover insurance risk, which are starting to gain increasing attention as insurance capacity is restricted in certain areas. These include a variety of mechanisms, and we'll explain three of the most common options below. These approaches can also be used in combination with each other or traditional insurance coverage to construct the most cost-efficient insurance capital stack. As it's increasingly important to explore all possible options for insurance coverage, owners would benefit from asking brokers for the list of the bids they've gotten and to ensure the broker has explored a variety of options to find the best structure for a particular property.

#### Parametric Insurance

provides insurance payouts based on when conditions (typically based on relevant hazard parameters, i.e. wind speeds; storm surge height; or temperature) reach a certain threshold, rather than based on the loss incurred by the insured. This type of policy has three key benefits:

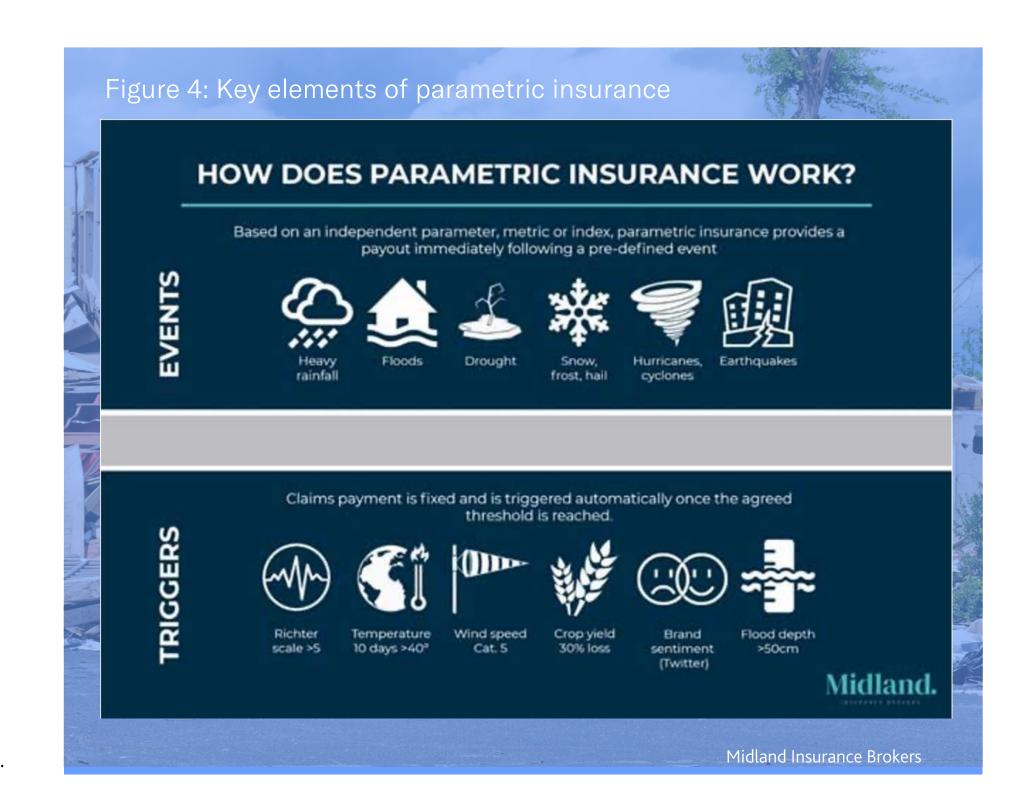
- Since conditions are much faster to verify than the loss sustained at a particular property, this allows for payouts to be received almost immediately after an event, which can allow property owners to respond to post-disaster emergency costs without dipping into as many reserves.
- The cash payout is typically not restricted to a specific loss type, and no types of loss are excluded. For example, parametric payouts can be used to compensate a policyholder for lost income, balance-sheet impairments or outdoor assets that may be excluded from coverage in a traditional **indemnity policy** (which pays out for the actual damage or losses incurred).
- Because the underwriter isn't exposed to uncertainty about how a given water depth, earthquake magnitude or central pressure translates to financial impact, they may be willing to use it as a mechanism to provide coverage in high-risk areas that they're unwilling to take on with traditional coverage.

#### Alternative Risk Transfer: Parametric Insurance

Parametric insurance is typically sold by retail brokers. These programs tend to provide smaller payouts and in many cases are complementary to traditional insurance coverage. For example, Moody's RMS works with a company that has wind stations which inform a parametric insurance program for a hotel. When winds exceed a certain agreed-upon speed, the hotel gets a relatively small payout, which its owners can then use to cover their insurance deductible and reduce cash flow impacts from critical repairs in the direct aftermath of an event.

While parametric insurance is traditionally more common for larger reinsurance or catastrophe bond programs, our experts are increasingly encountering examples of parametric insurance for smaller portfolios and even individual properties. Several companies (such as <a href="FloodFlash">FloodFlash</a> and <a href="New Paradigm Underwriters">New Paradigm Underwriters</a>, among others) have emerged to offer these solutions to large and small property owners.

The downside to parametric policies compared to indemnity policies is what is known as "basis risk." This is the potential risk that arises from mismatches between the hazard threshold chosen and the actual damage incurred. Basis risk can affect either the provider or the purchaser of such policies, as the damage could be greater than was estimated for that hazard threshold, or less than was estimated. There are approaches that strive to reduce this risk.





#### Reducing Basis Risk in Parametric Insurance

- One approach is to measure a new parameter that correlates more closely with loss than pre-existing datasets. For example, <u>FloodFlash</u>, a company focused specifically on providing parametric flood insurance, bases its payout thresholds on a flood depth sensor which the policy holders set in a location of their choice on the building. Since damage from flooding is highly likely to align with depth of the flood at the property as opposed to, say, a radar measurement of nearby rainfall there is minimal uncertainty and associated basis risk.
- A second approach to reducing basis risk is to use engineering studies to make sure the payouts match the expected losses based on a particular building's type of construction and setting the parameter and associated payout accordingly. For example, a wood-framed property could require a full rebuild after lower windspeeds than a steel-framed building.

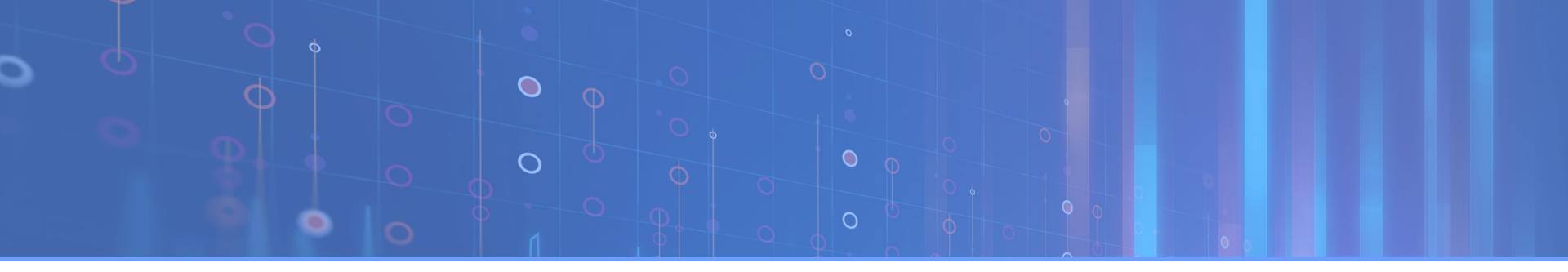
## Alternative Risk Transfer: Insurance-linked Securities & Captives

#### **Insurance-Linked Securities**

Allow the capital markets to hold some of the risk, for example through catastrophe bonds. These investments typically only make up a small sliver of an institutional investor's fixed income portfolio, unlike in a property & casualty insurance portfolio, making the risk more appealing as part of a diversified investment strategy. These vehicles are complicated to set up and are thus most commonly sponsored by insurers to access reinsurance capital. However, in some instances, companies may engage directly with the capital markets. For example the New York Metropolitan Transportation Authority issued a parametric catastrophe bond to get insurance after the insurance capacity it was offered by the "traditional" insurance market reduced sharply when it experienced significant losses during Superstorm Sandy.

#### Captives

Include a range of different programs, but at the most basic level they refer to a wholly owned subsidiary of a company, created to provide it with insurance. These are essentially a form of self- insurance which provides flexibility in the insurance terms and provides particular tax benefits. There are a wide variety of different types of captives. However, traditionally this is only a viable option for very large firms, due to the high administrative and overhead costs, as well as the complex compliance challenges. There is the potential for captives to become more common as the costs of open market insurance continue to increase.



#### Incentivize Resilience

As discussed in our <u>Insurance Market Structure and Current Stresses section</u>, the inputs into cat models that are used to inform insurance premiums include a range of factors about a facility, including its age, roof type, first floor height, site vegetation, flood walls, equipment location, power redundancies and others. This means that insurers have a detailed understanding of how asset-level risk mitigation measures translate into reduced expected loss for individual properties. This puts them in a unique position to help quantify the value of resilience investments and in turn help to incentivize such risk mitigants. There is an opportunity for insurers and brokers to help educate policy holders on the value of asset level risk mitigation measures.

On the flipside, property owners typically have the best understanding of which mitigation measures may already be in place at their property. By building understanding of the risk modeling tools used by the insurance industry (as discussed above) they can ensure that their existing investments in resilience are appropriately reflected in the pricing of their policies.

A broker recently shared an example of an account that had a couple of highly undesirable characteristics, so that only one or two carriers would even consider quoting. This year the insured got a non-renewal from their existing insurer. Realizing the challenges of finding affordable coverage with their two more risky property characteristics the insured proactively remediated those characteristics at large expense. Consequently, they were able to secure relatively affordable coverage from a carrier that would have otherwise declined to quote due to the undesirable characteristics. Had the risk mitigation measures not been implemented the insured's best option would have been more than double the premium cost compared to what they were able to find due to their risk mitigation investments.



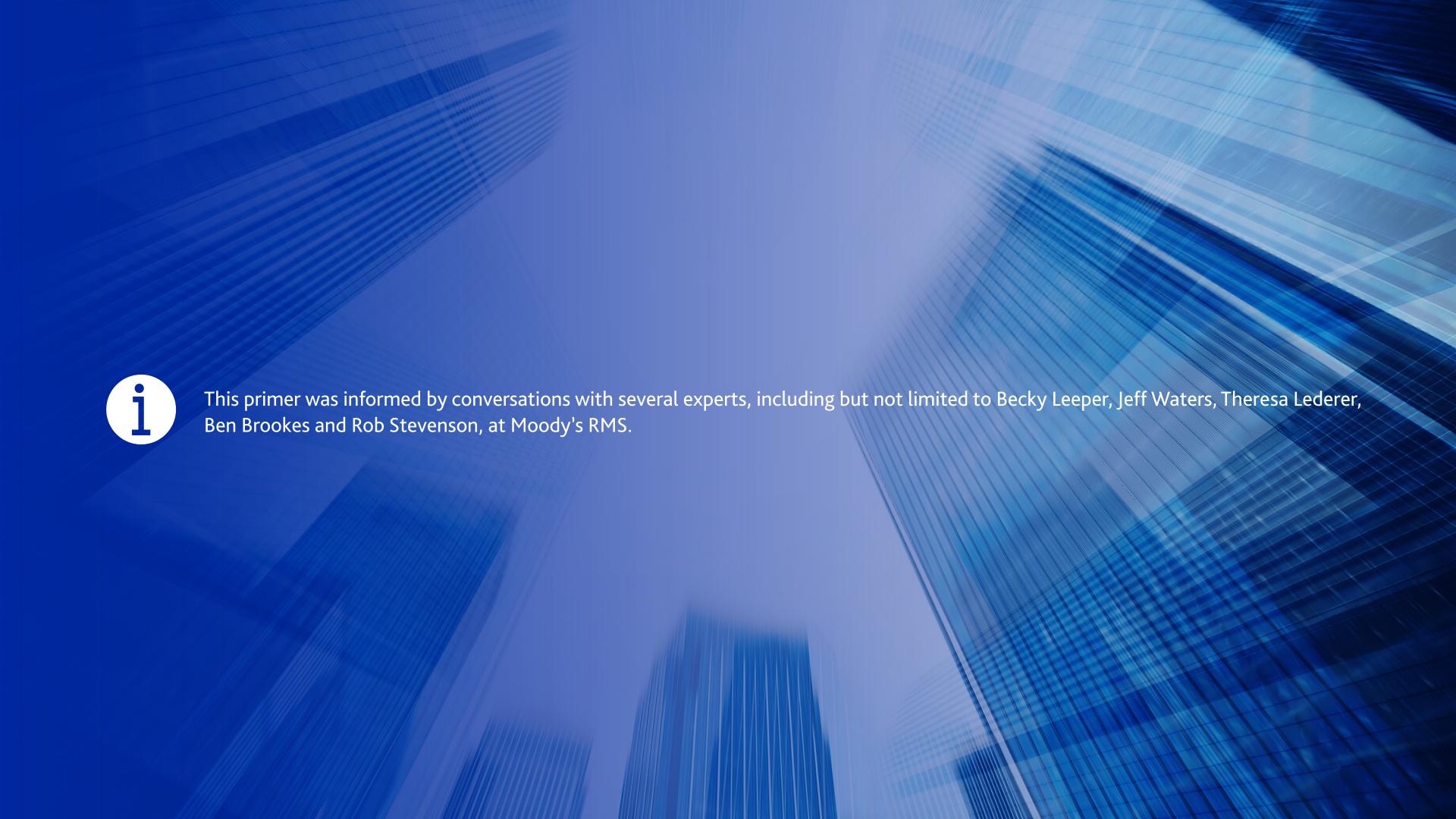
#### Incentivize Resilience

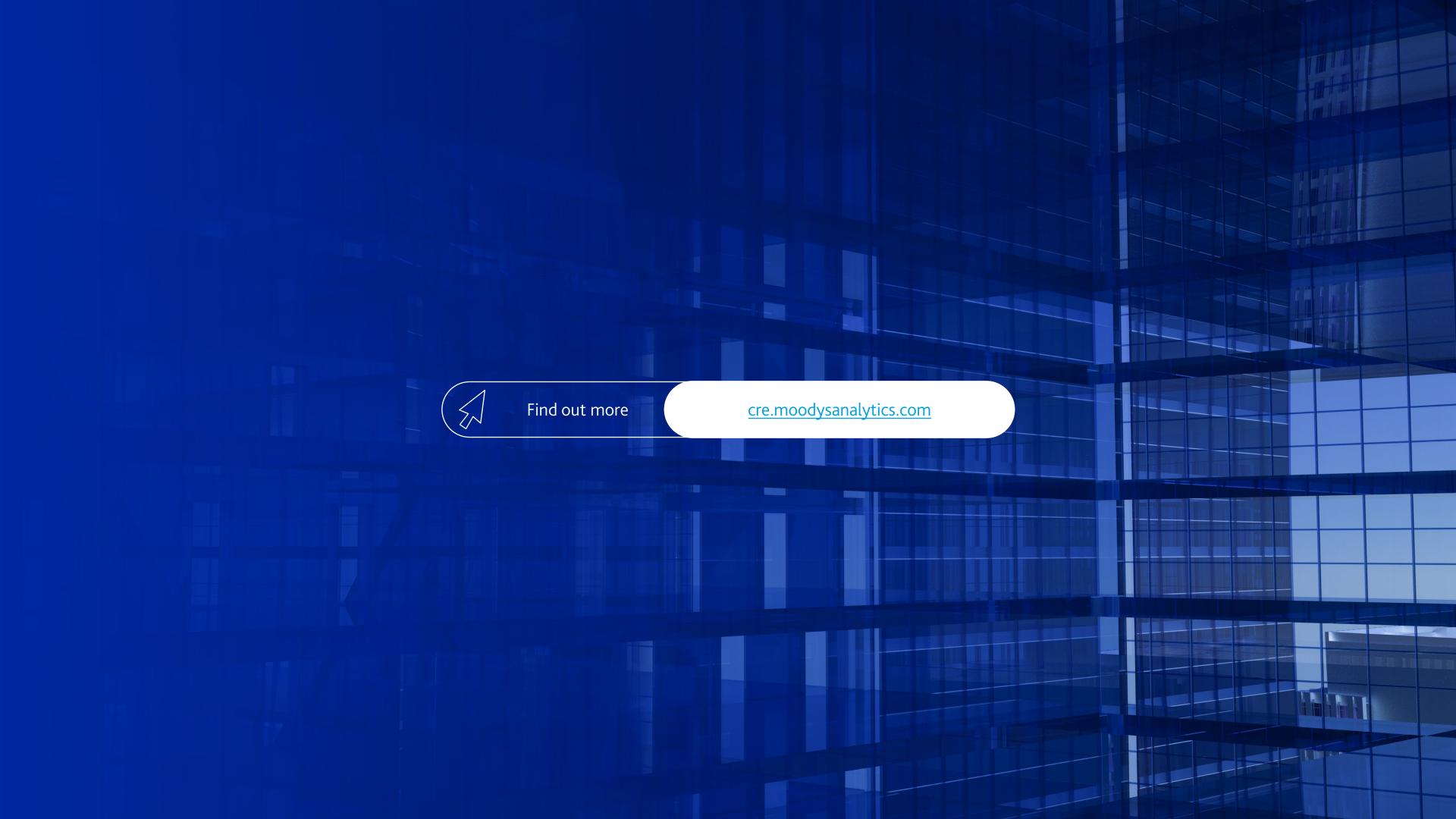
This is a developing space, with ample room for innovation. However, a few more examples of this dynamic have emerged to date. In <u>Fall 2022, the California Insurance Commissioner mandated that insurers provide discounts on premiums</u> if certain wildfire risk mitigation efforts were taken at the property. Some insurers have also begun offering similar discounts on their own accord. For example, FM Global announced a resilience credit, offering premium reductions when clients invest in resilience measures.

There is also an opportunity for insurers to leverage their detailed understanding of asset characteristics to get involved in the capital stack. For example, the National Energy Improvement Fund is a lender and insurer, helping to finance energy efficiency and resilience retrofits for both commercial and residential buildings. So far this is still an emerging space for insurers, but one that holds potential.



Similarly, insurers could play a role in the community, helping to educate and encourage resilience measures at a municipal level, which would help to reduce expected loss at the asset level. This in turn, could also include collaboration with risk modelers who could better integrate regional risk and resilience into their models. It's becoming increasingly clear that efforts to prepare assets and communities for the hazards to which they're exposed provide multifaceted benefits, for owners, tenants, insurers and lenders, which in turn helps to retain population and economic activity. As such, there is a growing need for multistakeholder dialogue on risk and resilience to identify additional solutions to the ongoing insurance crisis.





© 2024 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at <a href="https://www.moodys.com">www.moodys.com</a> under the heading "Investor Relations — Corporate Governance — Charter Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V, I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Calificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions (as defined in Moody's Investors Service Rating Symbols and Definitions): Please note that a Second Party Opinion ("SPO") is not a "credit rating". The issuance of SPOs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs fall under the category of "Ancillary Businesss", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.