

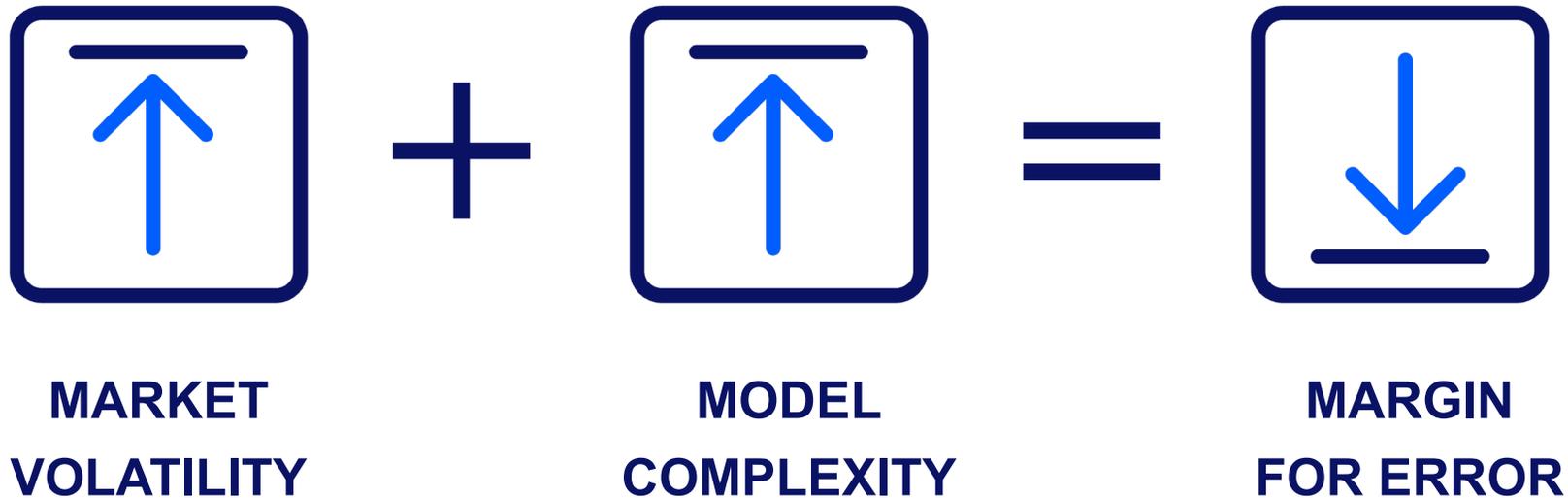
# MOODY'S

## When “Good Enough” Data Isn't Good Enough

John Clark  
Head of Product, Property Intelligence

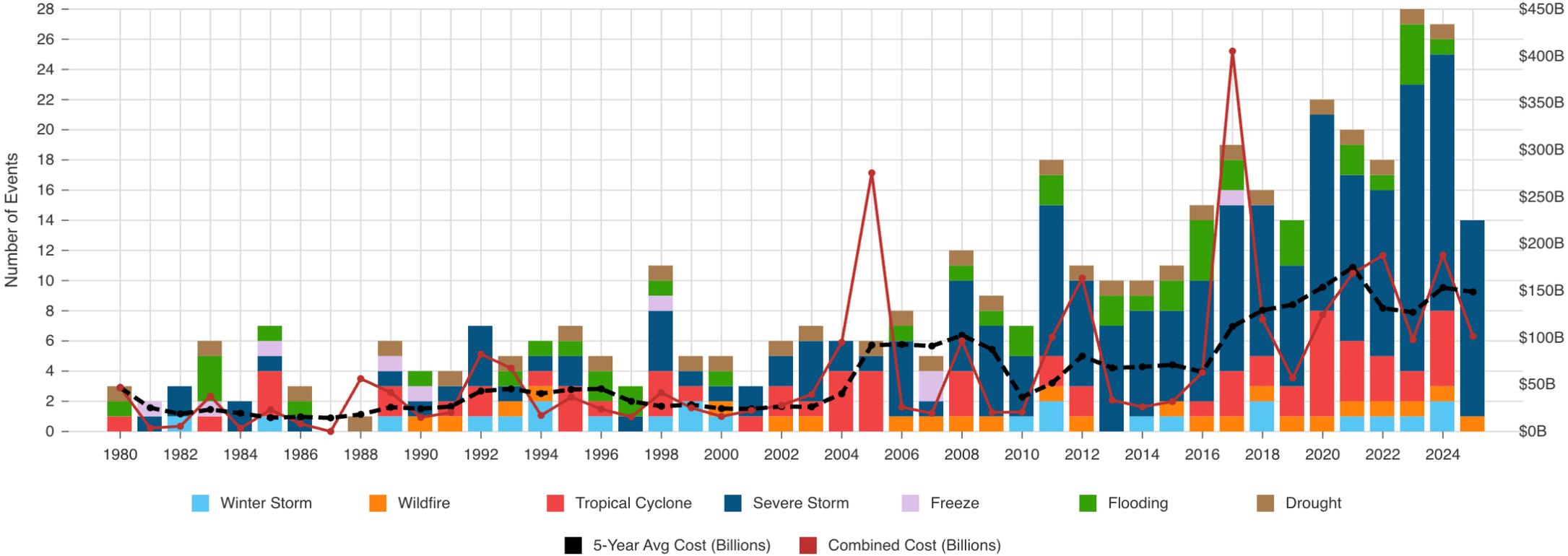
November 10, 2025

# Market volatility and model sophistication have collapsed tolerance for data errors



# Catastrophe-driven losses have raised the stakes

CLIMATE CENTRAL

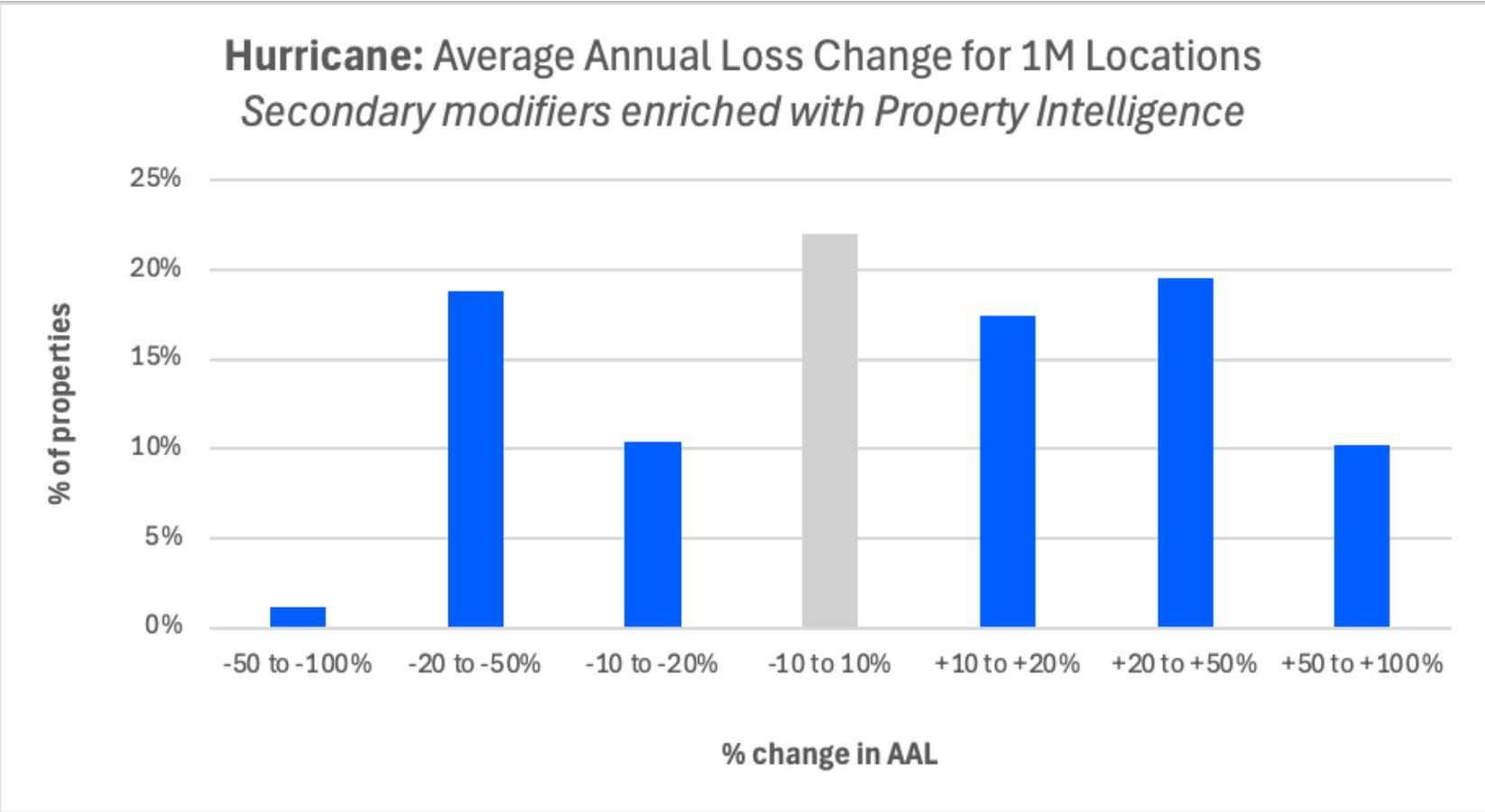


The history of billion-dollar disasters in the United States each year from 1980 to 2025, showing event type (colors), frequency (left-hand vertical axis), and cost (right-hand vertical axis) adjusted for inflation to 2025 dollars.

Source: Climate Central (2025)

# Enhanced exposure data improves modeled loss accuracy

In combination, enhanced exposure data drives major location-level change



**48%**  
of individual locations change AAL by more than 20%

Moody's RMS North Atlantic Hurricane (NAHU) Catastrophe Model

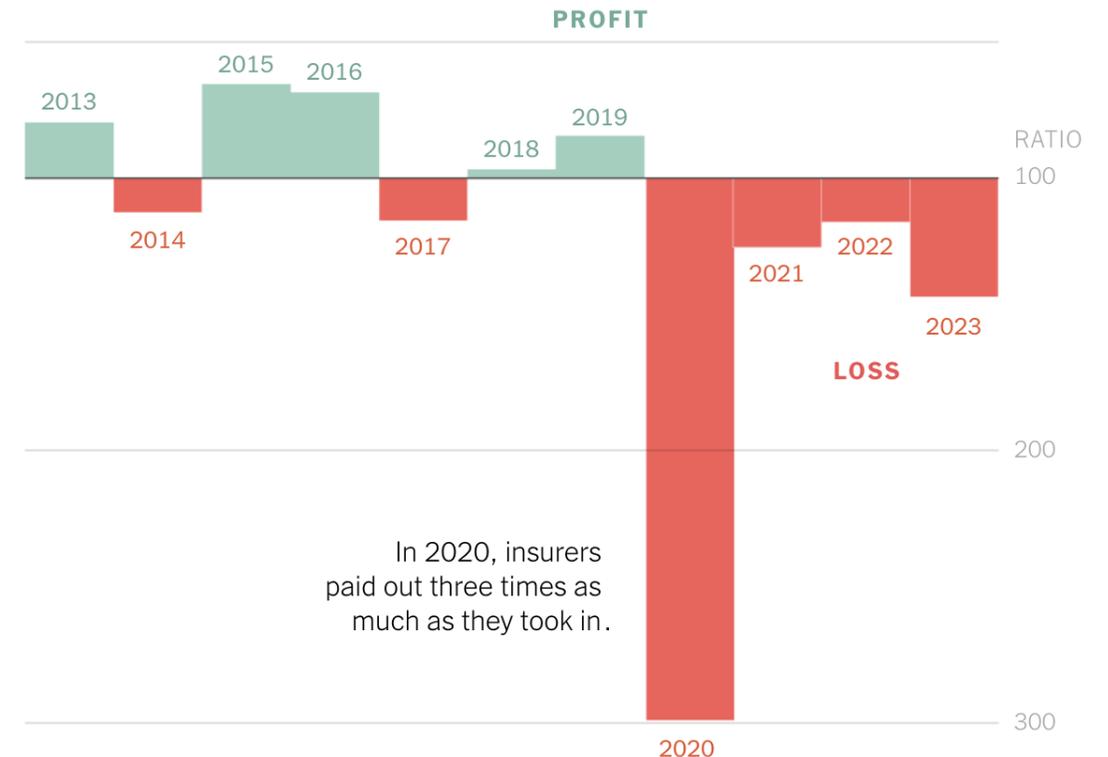
# Cat losses and underinsurance have raised the stakes

The New York Times

## As Insurers Around the U.S. Bleed Cash From Climate Shocks, Homeowners Lose

Across the country, insurers are facing more **bad years** than **good years**. If this trend continues, it could destabilize the broader economy.

Profitability of homeowners insurance in Iowa



# Cat losses and underinsurance have raised the stakes

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Across the country, insurers are facing more **bad years** than **good years**. If this trend continues, it could destabilize the broader economy.

Source: New York Times (2024)

### Where Insurers Are Losing Money

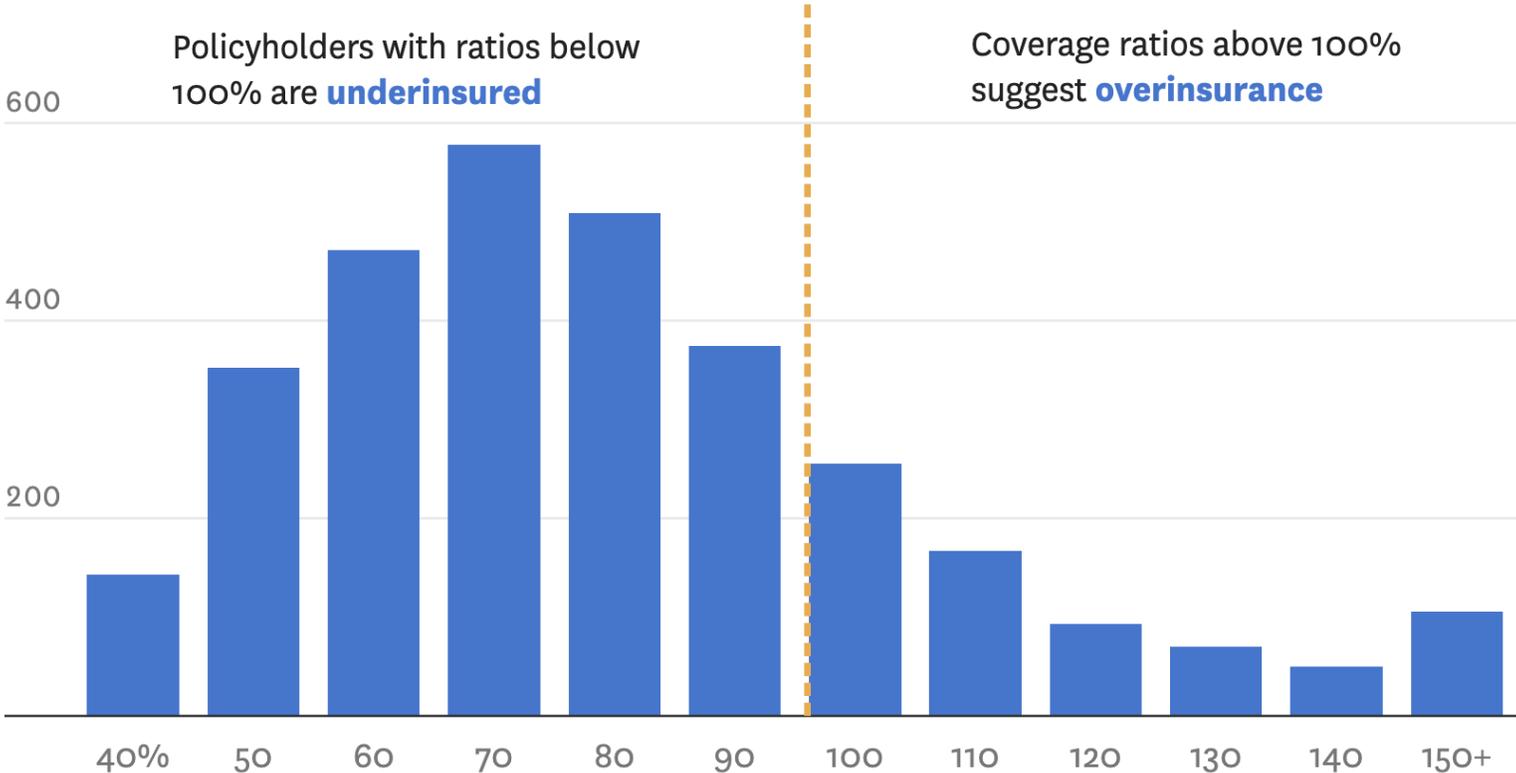
States where homeowners insurance was **unprofitable**.

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Colo.	Colo.	Mass.	Colo.	Calif.	Calif.	Colo.	Ala.	Colo.	Ark.	Ark.
Ga.	Iowa	R.I.	Mont.	Colo.	Colo.	Fla.	Ark.	Iowa	Ariz.	Colo.
Ill.	Ill.	S.D.	N.D.	Fla.	Conn.	Ill.	Del.	Idaho	Fla.	Ga.
Miss.	Mich.		Neb.	Ga.	DC	Minn.	Fla.	Ky.	Ga.	Hawaii
Mont.	Mont.		N.M.	Iowa	Fla.	Mont.	Ga.	La.	Iowa	Iowa
Neb.	Neb.		Texas	Idaho	Ga.	ND	Iowa	Mich.	Md.	Ill.
Okla.	S.D.		Wyo.	Ill.	Idaho	Neb.	Ill.	Minn.	Minn.	Ind.
S.D.	Vt.			Minn.	Md.	Wyo.	La.	Texas	Mont.	Ky.
				Neb.	NC		Minn.		Neb.	Mich.
				N.M.	S.D.		Miss.		N.M.	Minn.
				S.D.	Va.		Ore.		Ohio	Mo.
				Texas	Wyo.		S.D.		S.D.	Miss.
							Tenn.		Wash.	Ohio
							Utah		Wis.	Okla.
							Wyo.			Tenn.
										Utah
										Wash.
										Wis.

Source: AM Best

# Cat losses and underinsurance have raised the stakes

## Underinsurance rates after the 2021 Marshall Fire in Colorado



Coverage ratio values indicate the bottom of the range.

Chart: Nami Sumida/S.F. Chronicle · Source: [Cookson, J. Anthony and Gallagher, Emily and Mulder, Philip, Coverage Neglect in Homeowners Insurance](#)

# The industry relies on powerful tools to quantify risk



**Replacement Cost  
Estimators**



**Catastrophe  
Models**

# The industry relies on powerful tools to quantify risk

CATASTROPHE  
MODELS



Model  
Inputs →

*Event Set*

*Hazard*

*Attributes*

*Vulnerability*

*Financial*

*Labor Cost*

*Materials*

*Attributes*

*Environmental*

*Economic*

→ Model  
Output

REPLACEMENT  
COST  
ESTIMATORS



# Your results are only as good as your inputs

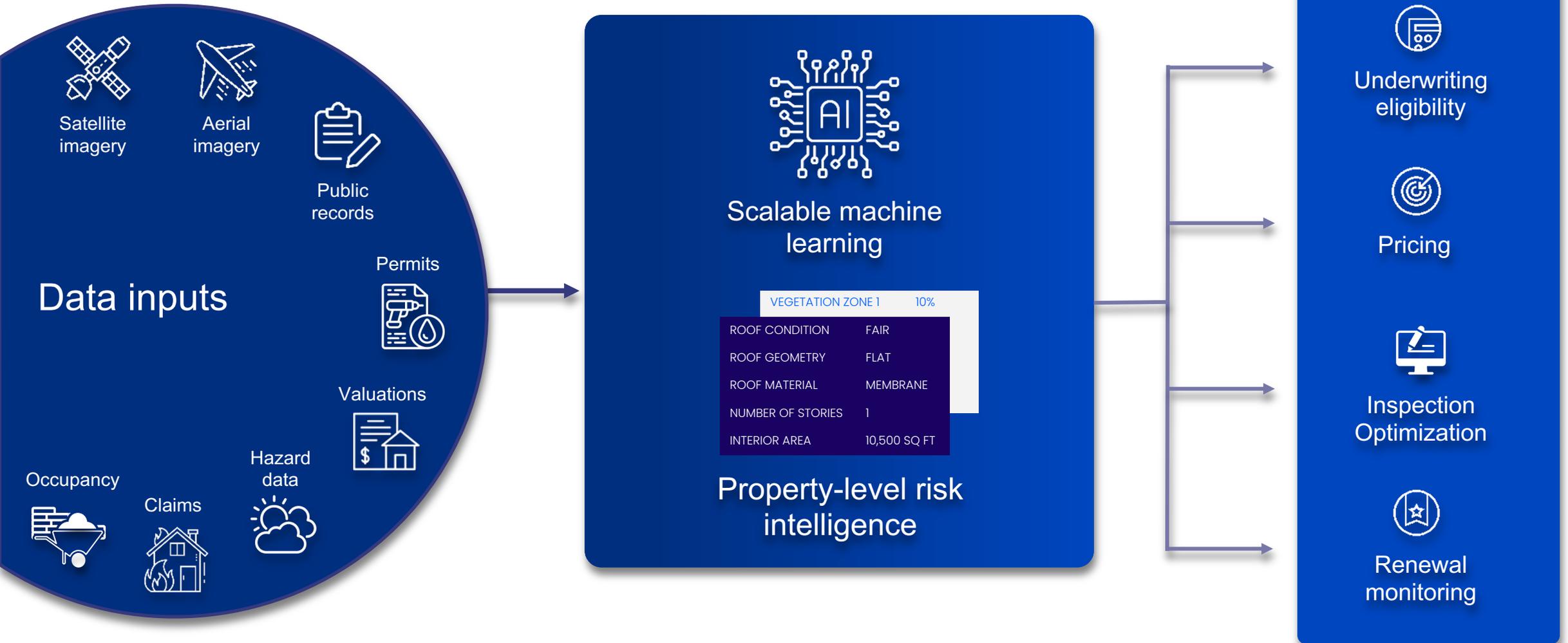
“The property-specific building attributes drive all system assumptions and the subsequent components used to calculate the estimate. **The quantity and quality of this information will influence reliability of the estimate...** The more building attributes used, the more reliable the replacement cost estimate.”

— Xactware executives

Source: Best's Review (2010)

# CAPE Property Intelligence

Quality, reliability, and risk relevance



# Your results are only as good as your inputs

## Traditional data sources vs. enhanced property intelligence

### Default Property Data

Roof Condition ?  
Roof Age 9 years  
Living Area 1550 sq. ft.  
Quality Grade Economy  
Roof Geometry Hip  
Exterior Cladding Vinyl  
Defensible Space ?



### Enhanced Property Intelligence

Roof Condition **Good**  
Roof Age **12 years**  
Living Area **2130 sq. ft.**  
Quality Grade **Economy**  
Roof Geometry **Mixed**  
Exterior Cladding **Vinyl**  
Defensible Space **17 ft.**

# We evaluated the impact of data quality on model results

## Replacement cost and modeled loss by peril

### 3 representative portfolios, each with 1 million homes

1

Random sample of real properties from across the United States

- **Portfolio A:** High hurricane exposure
- **Portfolio B:** High convective storm exposure
- **Portfolio C:** High wildfire exposure

# We evaluated the impact of data quality on model results

## Replacement cost and modeled loss by peril

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2

2 scenarios: **“Default” data vs. CAPE Property Intelligence**

# We evaluated the impact of data quality on model results

## Replacement cost and modeled loss by peril

### 3 representative portfolios, each with 1 million homes

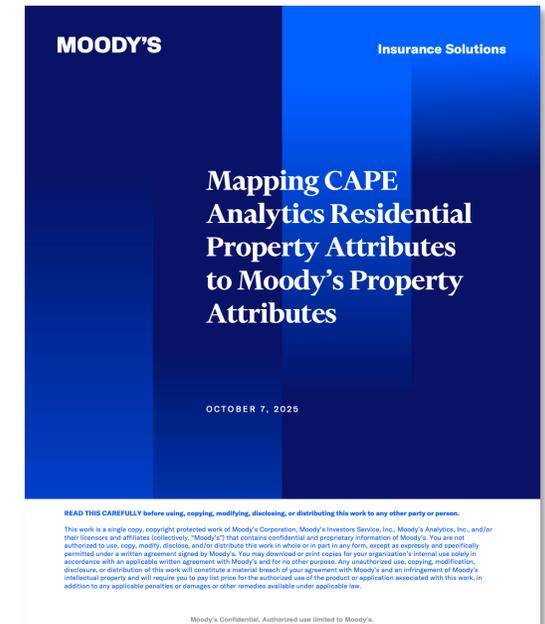
**1** Random sample of real properties from across the United States

- **Portfolio A:** High hurricane exposure
- **Portfolio B:** High convective storm exposure
- **Portfolio C:** High wildfire exposure

**2** 2 scenarios: “Default” data vs. CAPE Property Intelligence

### Evaluated impact on valuation and modeled loss

- 3**
- **Valuation:** Internal Moody’s replacement cost model
  - **Modeled loss:** Moody’s RMS catastrophe models
    - North Atlantic Hurricane (NAHU)
    - North America Severe Convective Storm (NASCS)
    - North America Wildfire (NAWF)



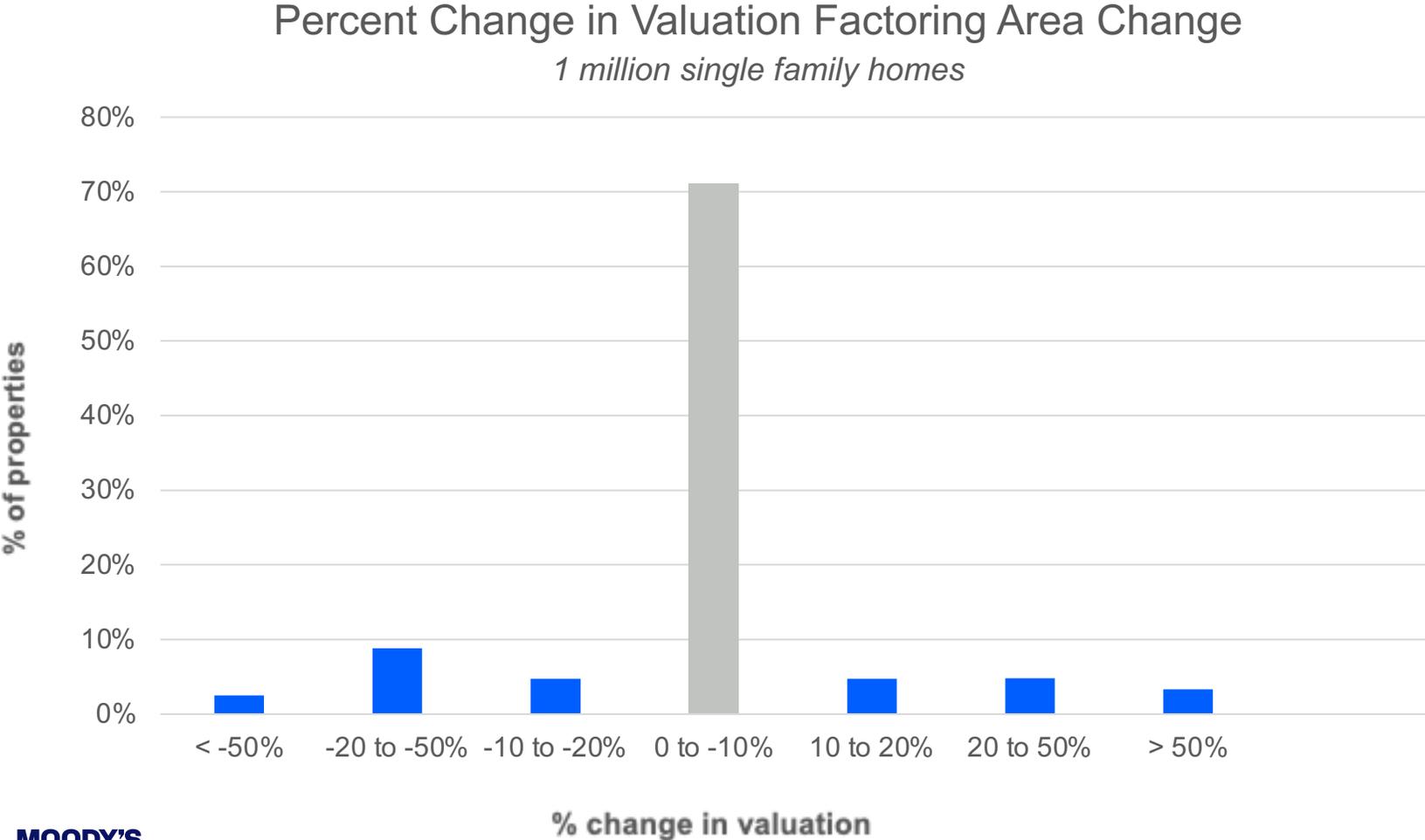
The background is a solid dark blue color. It features several large, overlapping, wavy patterns made of thin, light blue lines. These patterns resemble stylized waves or a complex, layered mesh. The lines are more densely packed in some areas, creating a sense of depth and movement. The overall effect is a modern, digital aesthetic.

# Valuation

Data quality and replacement cost

# Square footage is central to replacement cost estimation

Inaccurate or outdated default values drive major valuation errors



**25%**  
of properties  
are under- or  
over-valued by  
10% or more

# A handful of primary factors drive valuation

## 9 primary building characteristics

*"that will give you the most reliable estimate with the fewest data points" in 360Value*

- Year built
- Total finished square feet
- Quality grade
- Number of stories
- Foundation type
- Finished percentage of lowest level
- Exterior wall finish
- Garage/carport
- Fireplaces

# Default values are often wrong

Primary attributes vary in quality across carrier portfolios



Public Records



Real Estate  
Listings



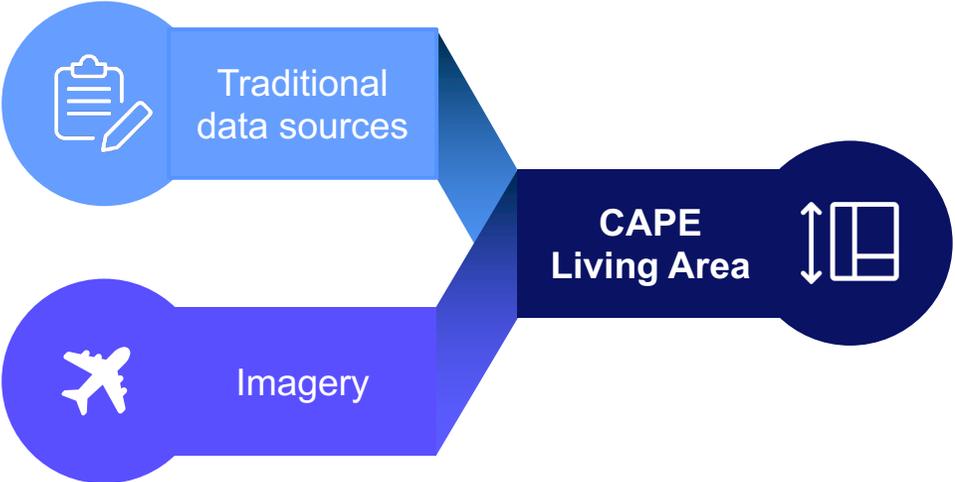
Agents



Homeowners

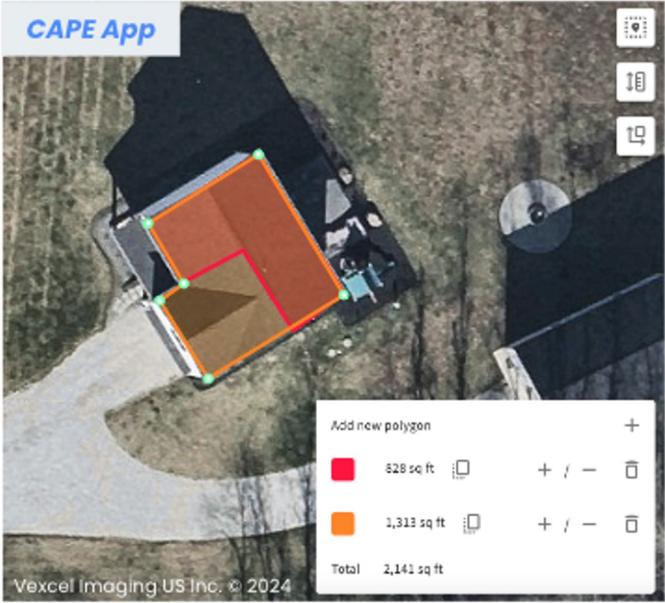
# Verified square footage

Multi-source data integrated with recent imagery to verify or improve Living Area



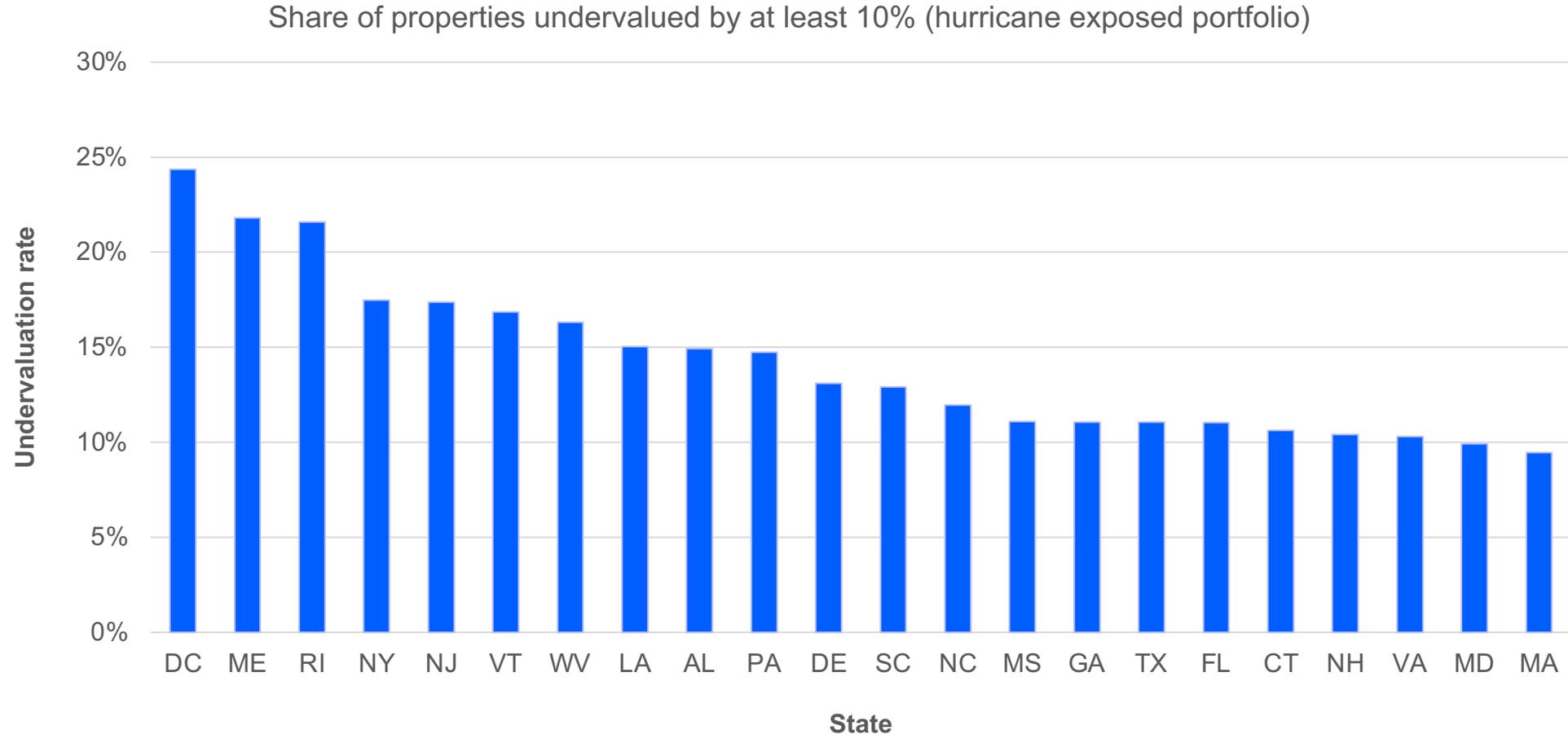
**4644 Wilson Rd. NW  
Lancaster, OH 43130**

Two-story home with a built-in two-car garage; living area exists above the garage.



# Valuation impact varies widely

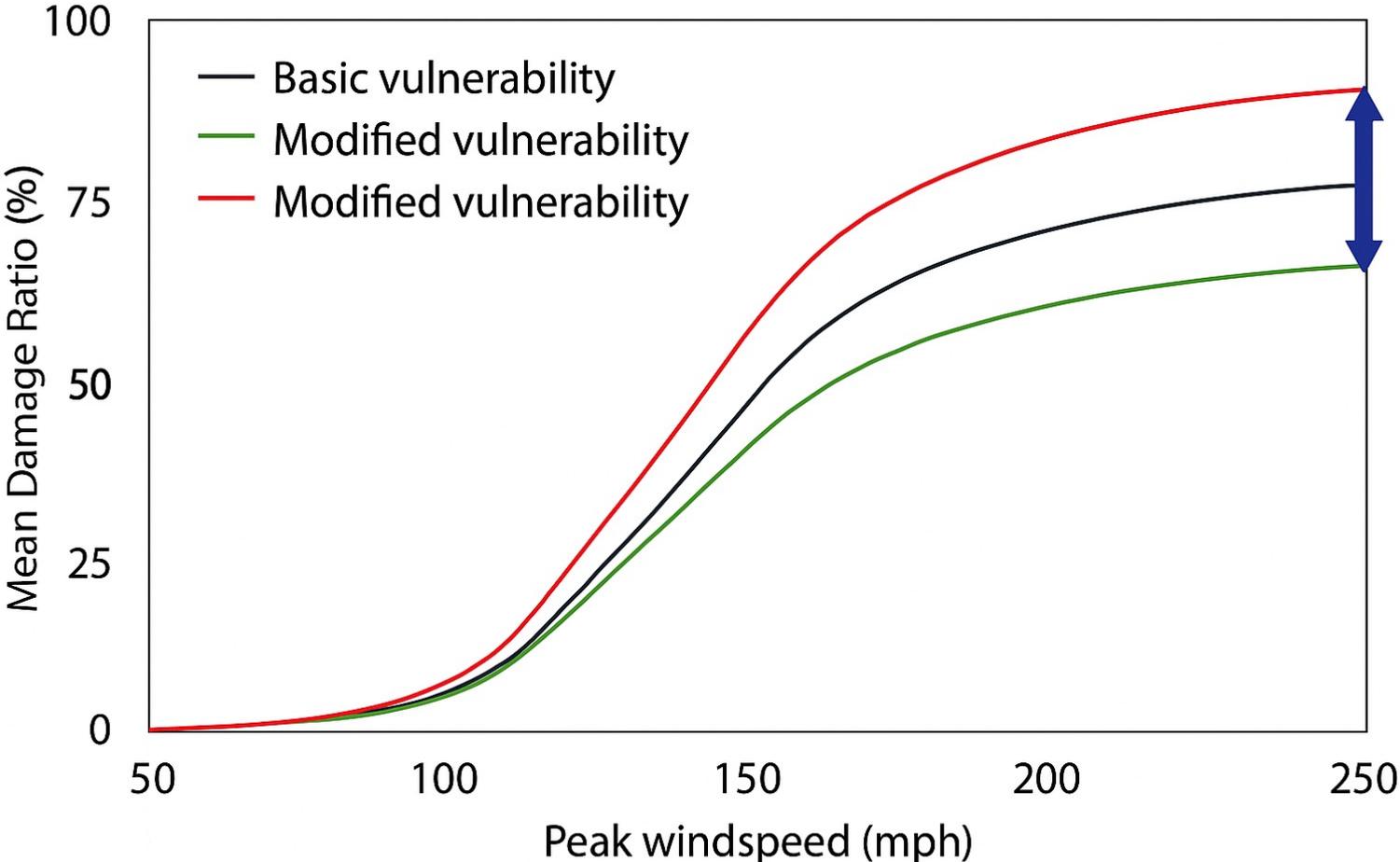
Modifying a single factor reveals material changes that differ by state (or portfolio)



# Modeled loss

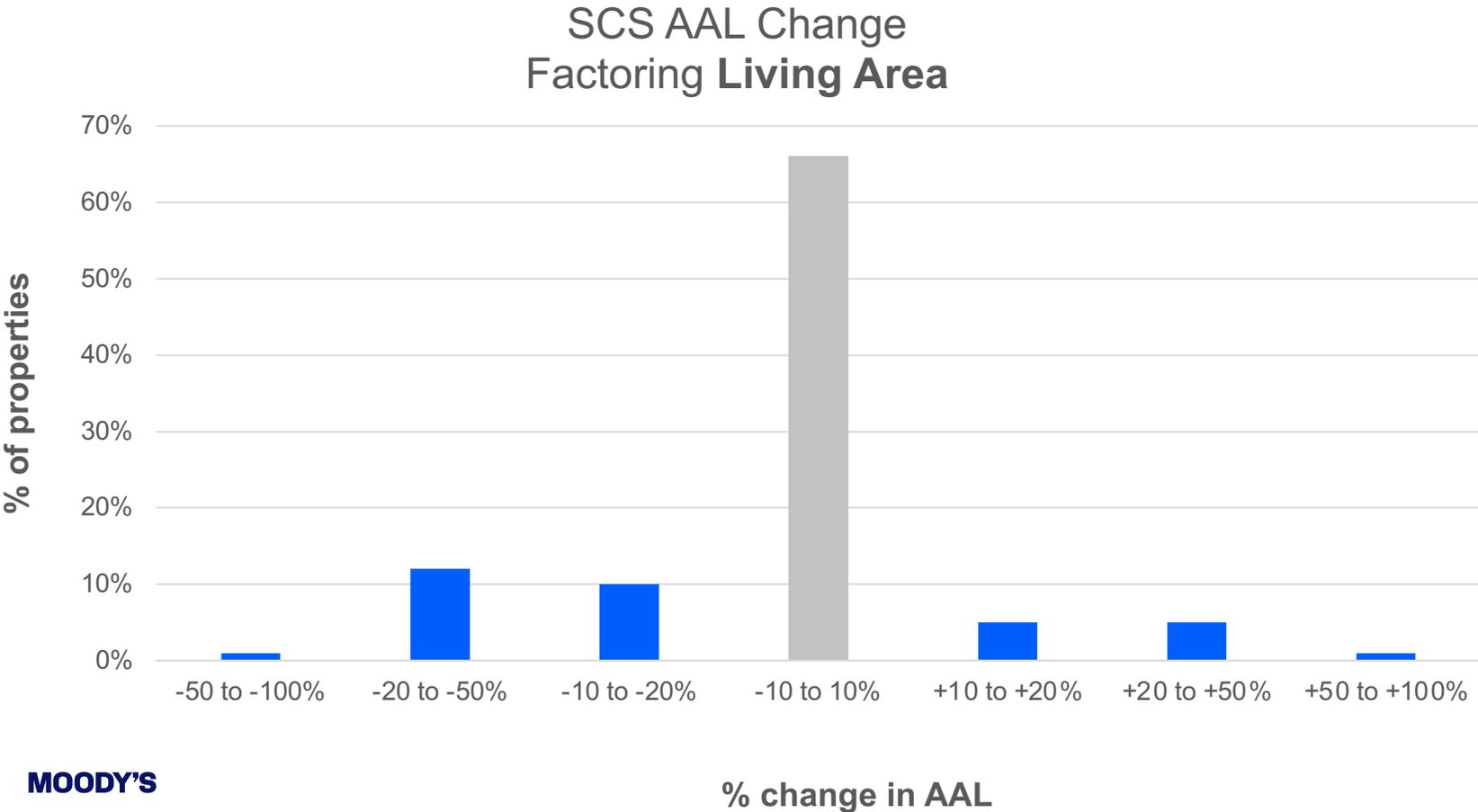
Secondary modifiers in catastrophe models

# Secondary modifiers improve modeled loss accuracy



# Catastrophe models: Univariate impact

Individual inputs drive moderate shifts in modeled loss

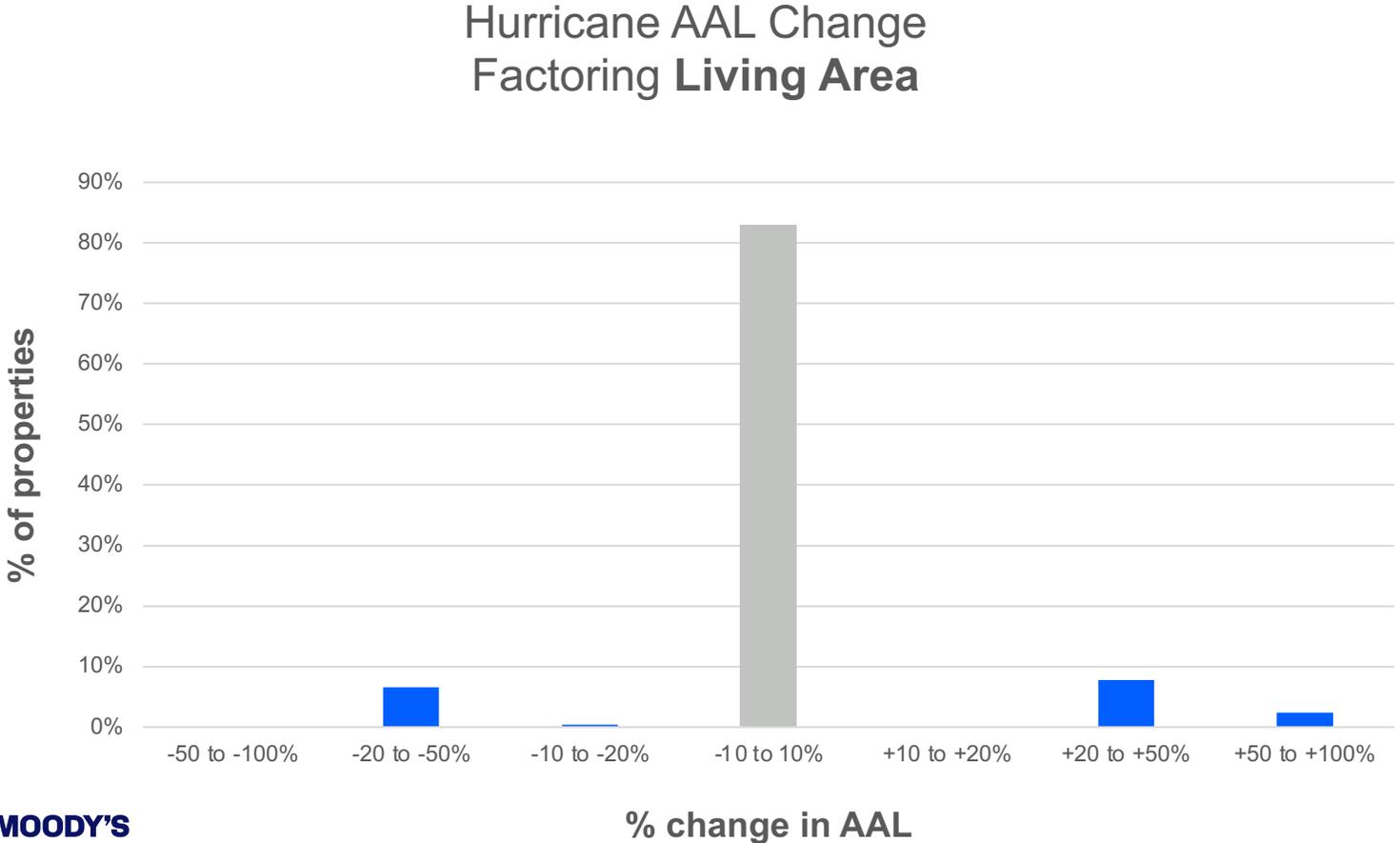


**-6%**

**AAL change in  
SCS portfolio  
when fixing  
valuations w/  
living area**

# Catastrophe models: Univariate impact

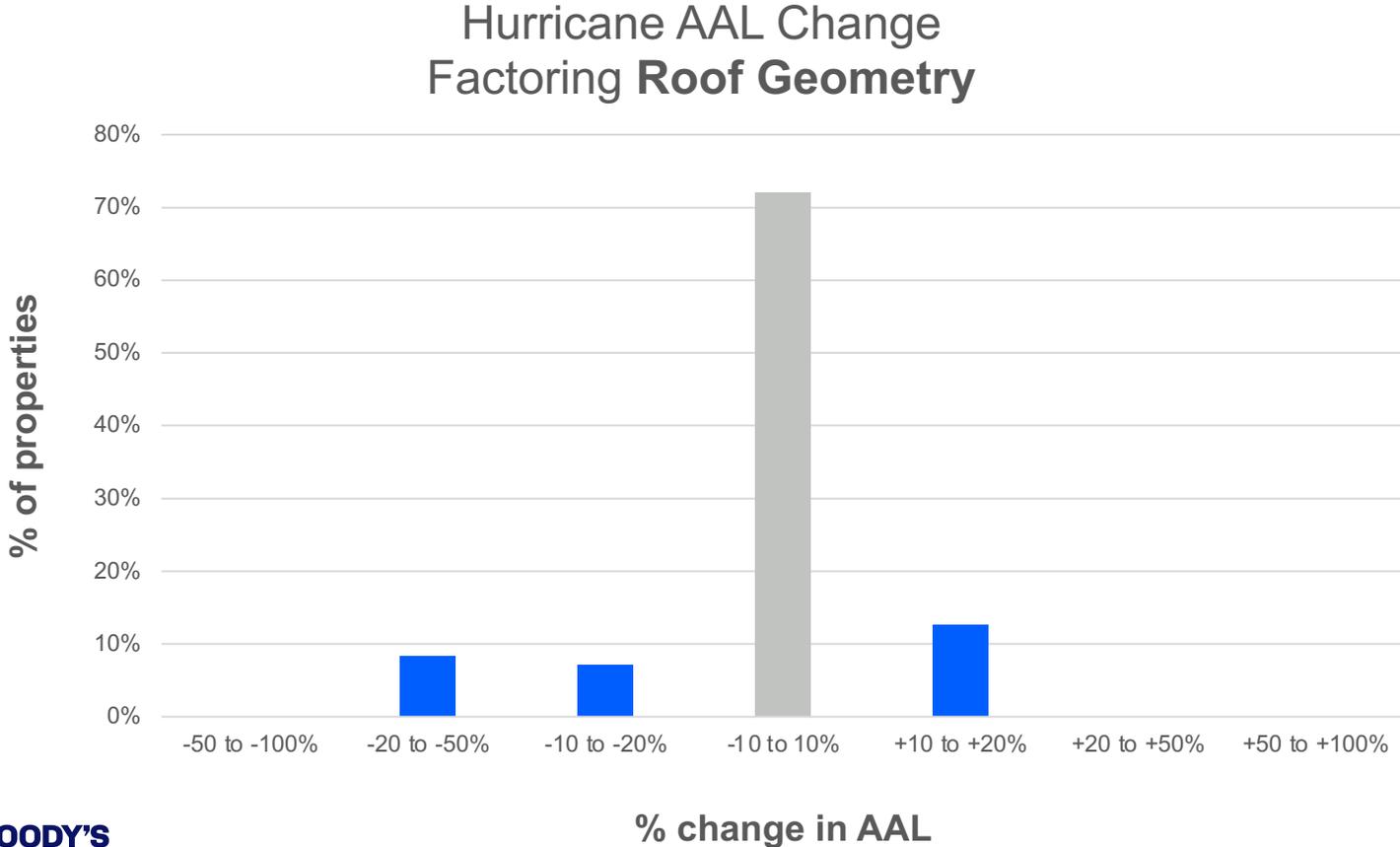
Individual inputs drive moderate shifts in modeled loss



**+3%**  
AAL change in  
HU portfolio  
when using  
living area

# Catastrophe models: Univariate impact

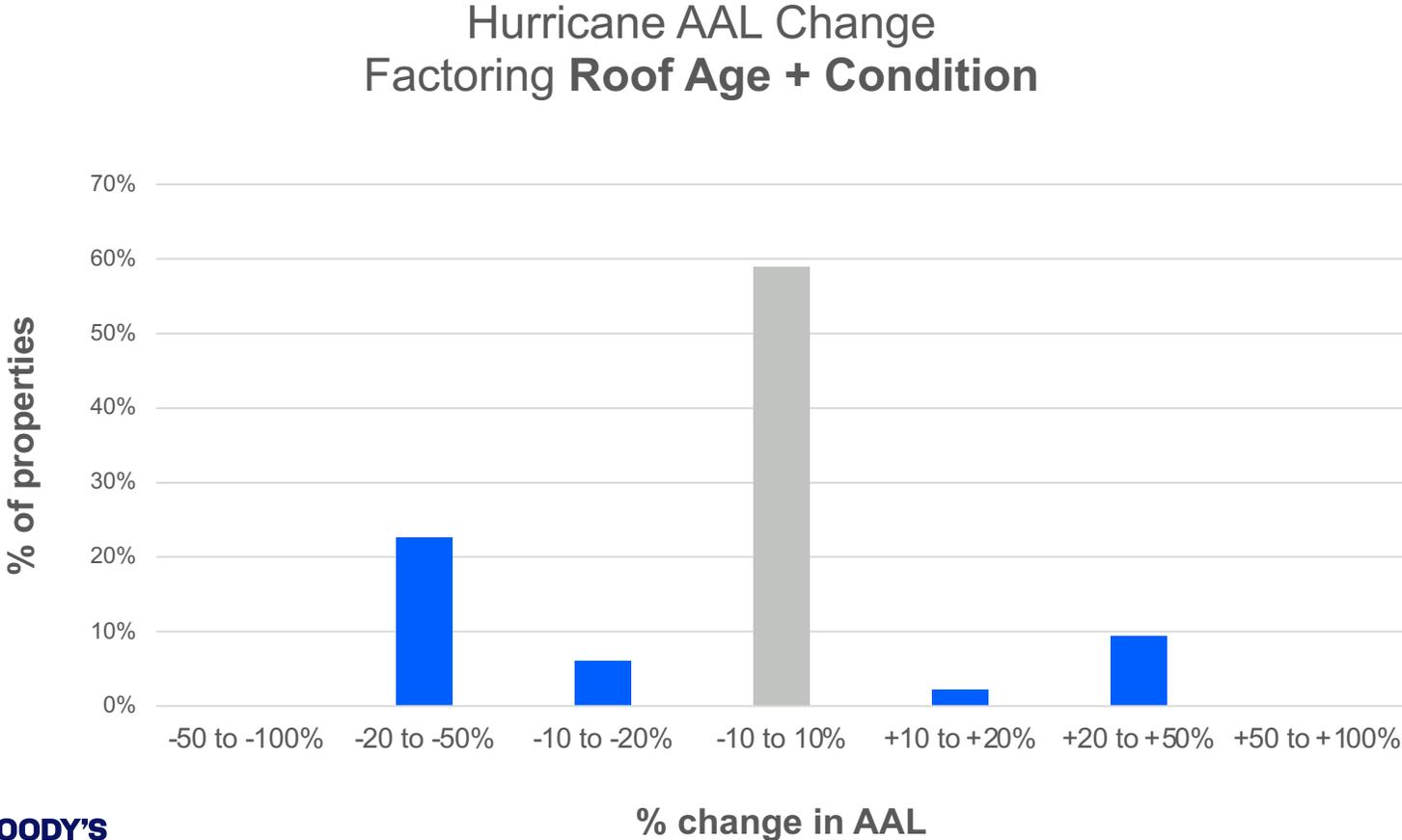
Individual inputs drive moderate shifts in modeled loss



**-2%**  
AAL change in  
HU portfolio  
when using  
roof geometry

# Catastrophe models: Univariate impact

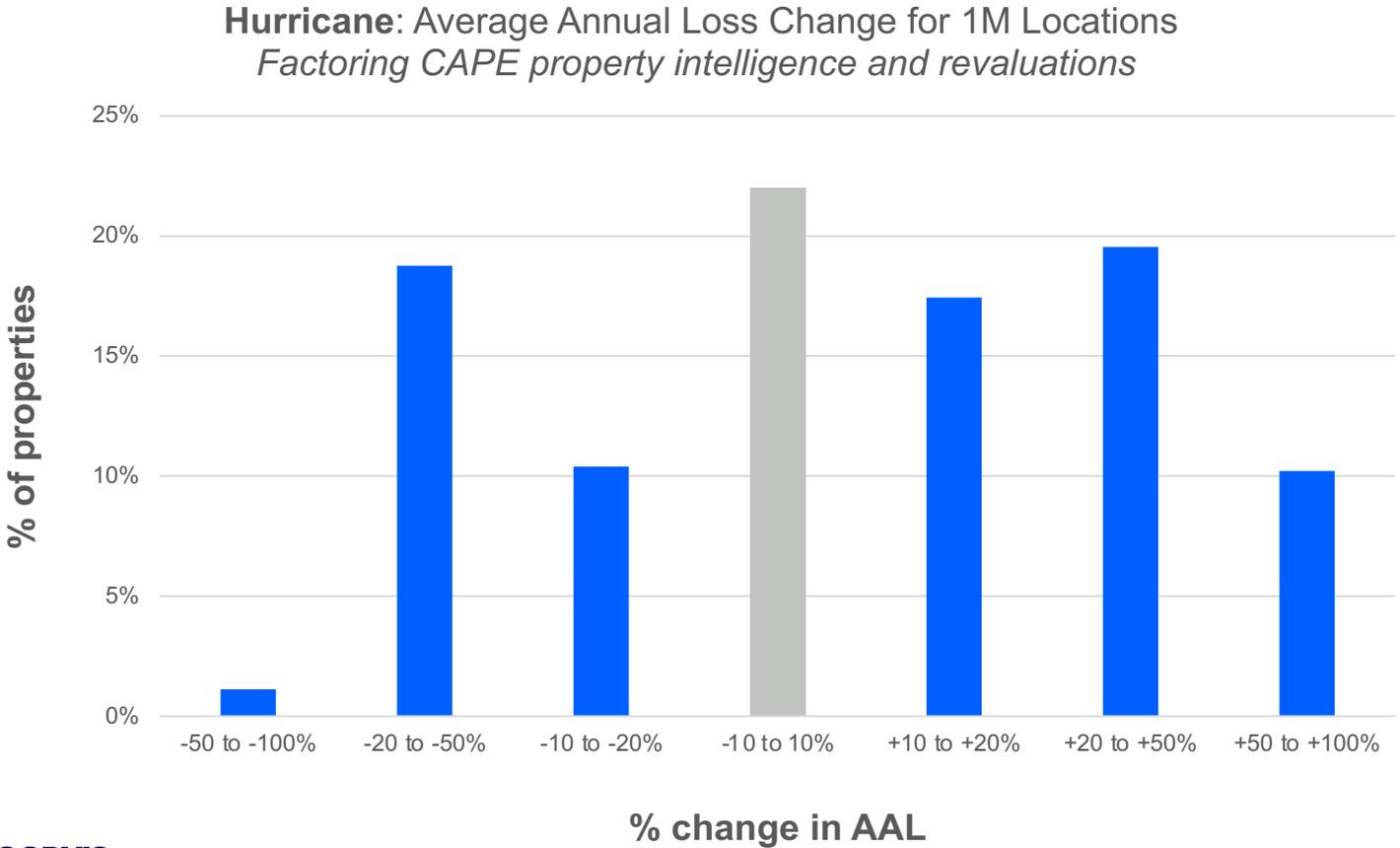
Individual inputs drive moderate shifts in modeled loss



**-5%**  
AAL change in  
HU portfolio  
when using  
roof age and  
condition

# Catastrophe models: Multivariate impact

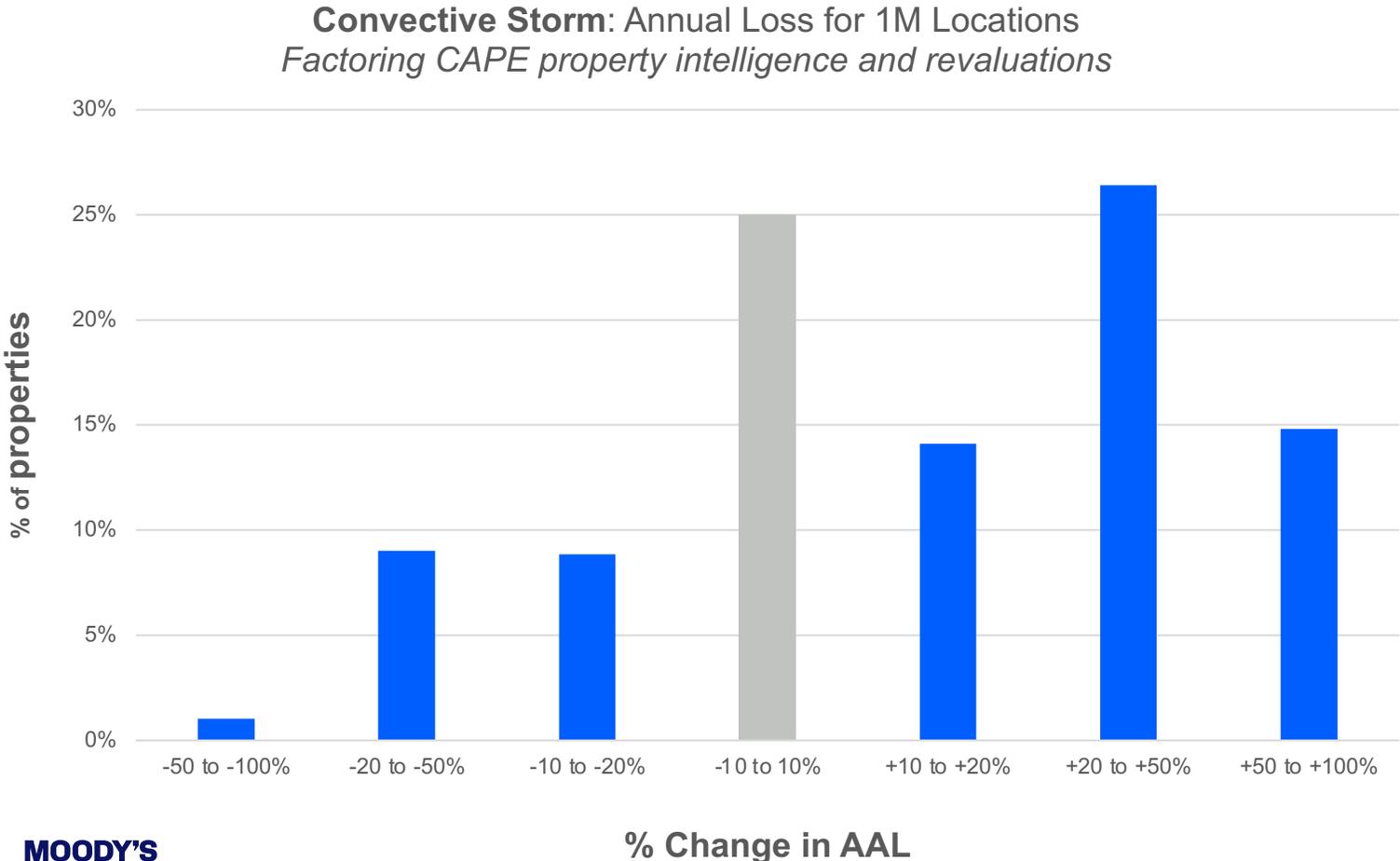
In combination, enhanced exposure data drives major location-level change



**48%**  
of individual locations change AAL by more than 20%  
*\*Every portfolio will experience unique dynamics*

# Catastrophe models: Multivariate impact

In combination, enhanced exposure data drives major location-level change

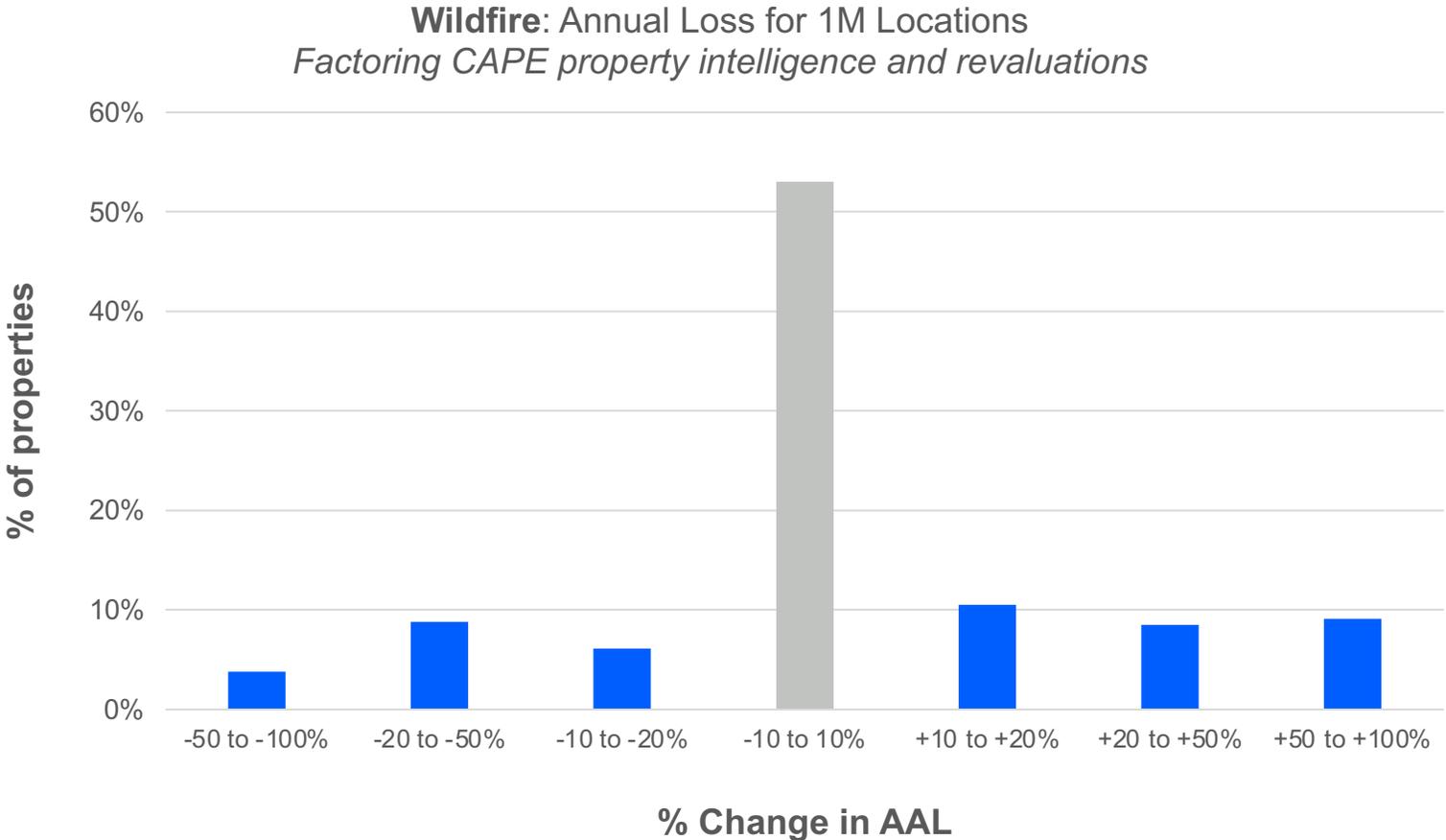


**52%**  
of individual locations change AAL by more than 20%

*\*Every portfolio will experience unique dynamics*

# Catastrophe models: Multivariate impact

In combination, enhanced exposure data drives major location-level change

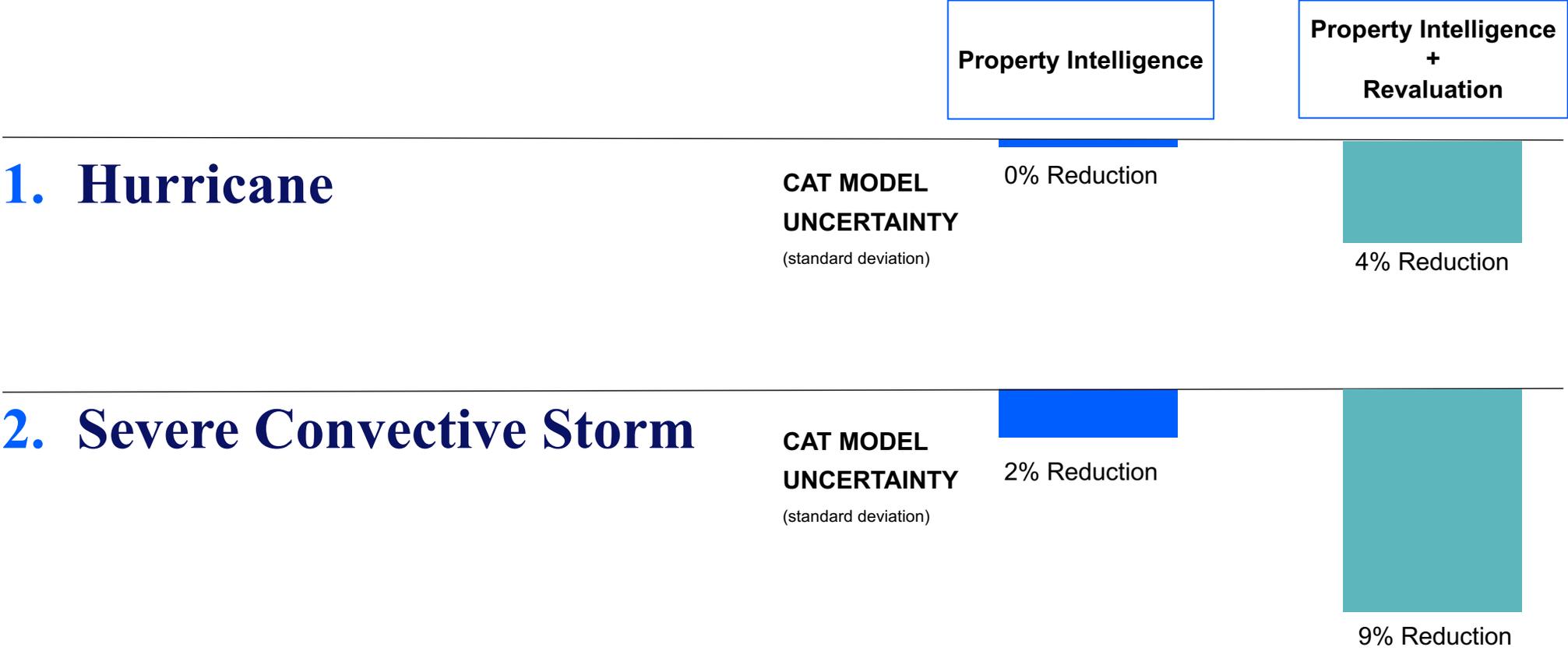


**31%**  
of individual locations change AAL by more than 20%

*\*Every portfolio will experience unique dynamics*

# Catastrophe models: Uncertainty

At the portfolio level, enhanced exposure data greatly reduces model uncertainty



The background is a solid dark blue color. It features several large, overlapping, wavy patterns made of thin, light blue lines. These patterns resemble stylized waves or a complex, layered mesh that flows across the frame. The lines are more densely packed in some areas, creating a sense of depth and movement.

# The underwriting opportunity

# Translating portfolio insights into underwriting action

1. **Achieve coverage adequacy** — it's within reach...and good for everyone
2. **Reshape portfolios** away from the policies driving outsized modeled losses
3. **Improve loss segmentation** beyond catastrophes

# Pursuit of truth

**The next competitive frontier  
starts with better data**

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