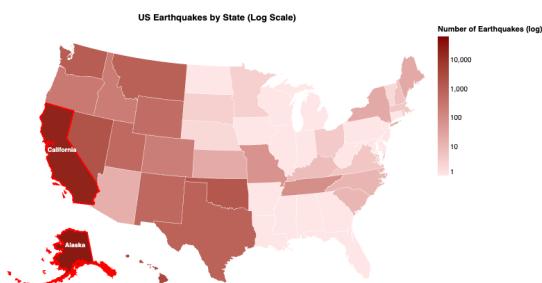


SEISMIC SHOCKS VS. MARKET SHOCKS

Do natural disasters dictate housing value in high-risk zones?

Spatial Context: The "Ring of Fire"



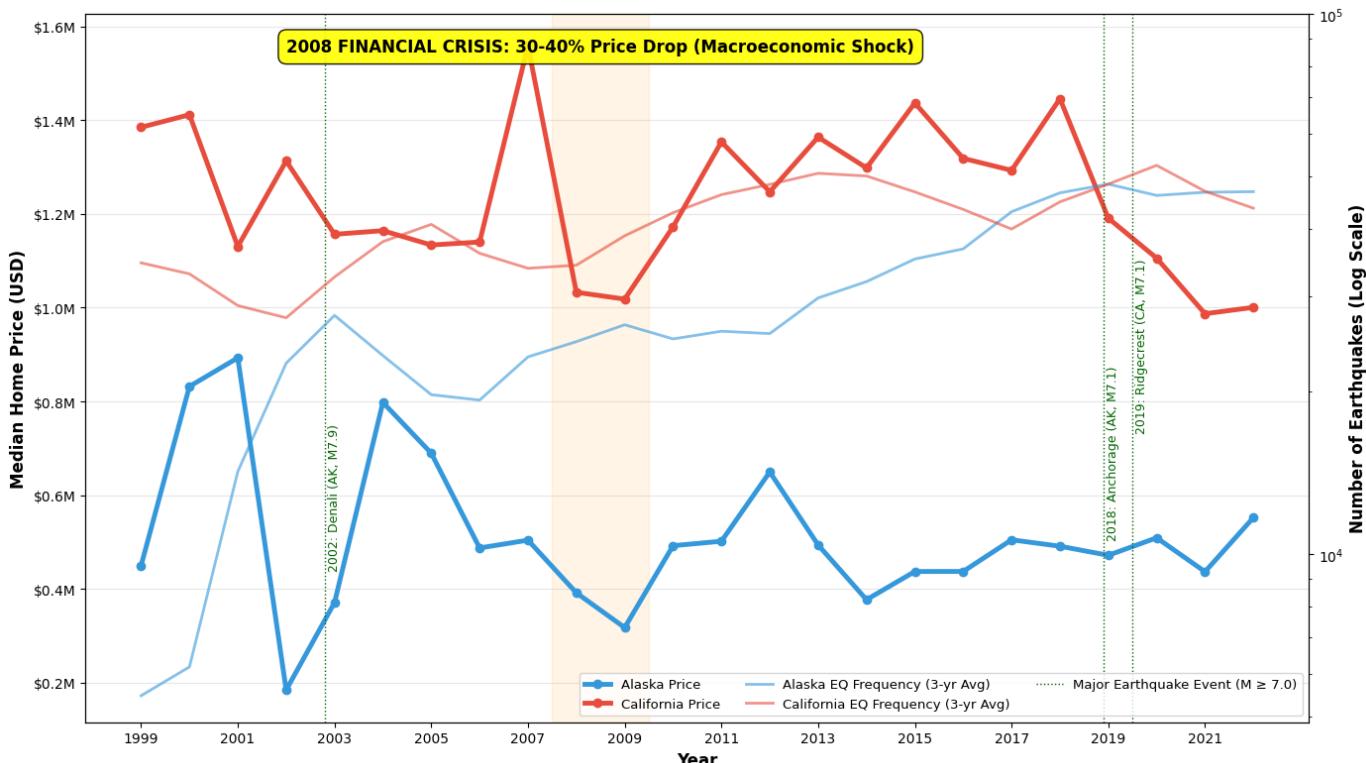
California & Alaska account for 95% of US seismic energy.

The Insight: Macroeconomics > Geophysics

Despite frequent seismic activity, housing prices in AK and CA are driven by national economic trends, not ground motion.

- Correlation (Earthquakes vs Price): $r = -0.15$ (Insignificant)
- Correlation (Urbanization vs Price): $r = 0.78$ (Strong)
- 2008 Financial Crisis Impact: Prices dropped 30-40%.
- Major Earthquakes Impact: No visible price deviation after M7.0+ events.

Temporal Evidence (1999-2022): Prices Ignore Seismic Spikes



1. The 2008 Crash (Yellow Zone)

The visualization highlights a massive global economic shock. In 2008, prices in California (Red Line) plummeted by nearly 40%. This movement is perfectly synchronized with the national recession, unrelated to any seismic anomaly.

2. The Major Earthquakes (Green Lines)

Vertical dotted lines indicate major earthquakes ($M \geq 7.0$). Notice the 2022 Denali (Alaska) or 2018 Anchorage (Alaska) events: Housing prices (solid lines) show zero negative reaction.

3. The Earthquake number rise

The light blue and red trending line show the rise of earthquakes event 30k in 2003 to 50k in 2019. However the real estate market trend continues its trajectory, completely decoupled from the frequency of earthquakes.

Methodology: Time-series analysis comparing median ZHVI (Zillow Home Value Index) against USGS Seismic Frequency data (Log Scale) for AK and CA. Correlations calculated using Pearson's r.

Data Sources: USGS Earthquake Catalog (1990-2023) • Zillow Housing Data • US Census Bureau.

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