

## Environmental Risks and Investments

### About This Column

The “Economic Perspectives” column offers insights by guest columnists on factors currently at play in economic, real estate, and financial markets. This edition of “Economic Perspectives” looks at the interrelationship of environmental concerns and investments.

### Studying Change in Real Estate

Stephen Jay Gould was an evolutionary biologist and distinguished academic with a career at Harvard and at the American Museum of Natural History, and he was an essayist for *Natural History* magazine for almost thirty years. Gould’s writings inspire individuals to pay attention to detail while seeking to grasp broader fundamental principles, to integrate data into a coherent perspective, and above all, to keep an open mind toward evidence as it presents itself. Today, those attributes apply to economics as it studies a world in flux. The attributes also apply to analysis of real estate. Real estate is often thought of as being characterized by its invariance, because it is fixed in its location; land and structures suggest permanence and solidity. Yet, developers, lenders, investors, and appraisers know all too well that real estate values are anything but permanent. The study of real estate markets is a study of change.

### Measuring Risk from Environmental Change

Among the numerous modern-day changes, environmental change is one that can cause profound and pervasive alterations in economic and real estate conditions. To measure these impacts, the Federal Emergency Management Agency (FEMA) has created the National Risk Index, with data by county and census tract that

indicate communities most at risk for eighteen natural hazards.<sup>1</sup> The data quantify risk based on expected financial losses, social vulnerability, and community resilience (Exhibit 1). Another measure of the economic impact of environmental change can be found in the data of the property and casualty insurance industry, which provides risk protection for real estate. For example, Swiss RE estimates that insured losses from natural disasters were \$90 billion in 2020, exceeding the ten-year annual average of \$74 billion. Those losses represent the total physical devastation experienced by properties due to hurricanes, tornadoes, winter storms, floods, wildfires, and other damages inflicted by Mother Nature.<sup>2</sup>

As a result, appraisers face the challenge of addressing environmental change impacts in both the physical and the financial arenas. There are numerous studies suggesting the possible implications of climate change on real estate. The Research Institute for Housing America, founded by the Mortgage Bankers Association, recently published a special report detailing the exposure of residential real estate to physical risks now and to transitional risks ahead. In addition to changes in storm patterns, higher temperatures, and rising sea levels, housing markets face financial impacts from increasing insurance premiums and utility costs. In addition, there are supply-chain risks from supply disruptions and

1. More information on the FEMA National Risk Index can be found at <https://hazards.fema.gov/nri/>.

2. Lucia Bevere and Federica Remondi, “Sigma 1/2022 Natural Catastrophes in 2021” (Zurich, Switzerland: Swiss RE Management Ltd., January 2022). Additional data and analysis are available on the Swiss RE Institute website, at <https://bit.ly/3xzdmdN>.

demand-side risks stemming from workforce disruptions. Moreover, policy and legal changes impact building codes and new technologies, and public awareness alters the desirability of at-risk market locations.<sup>3</sup>

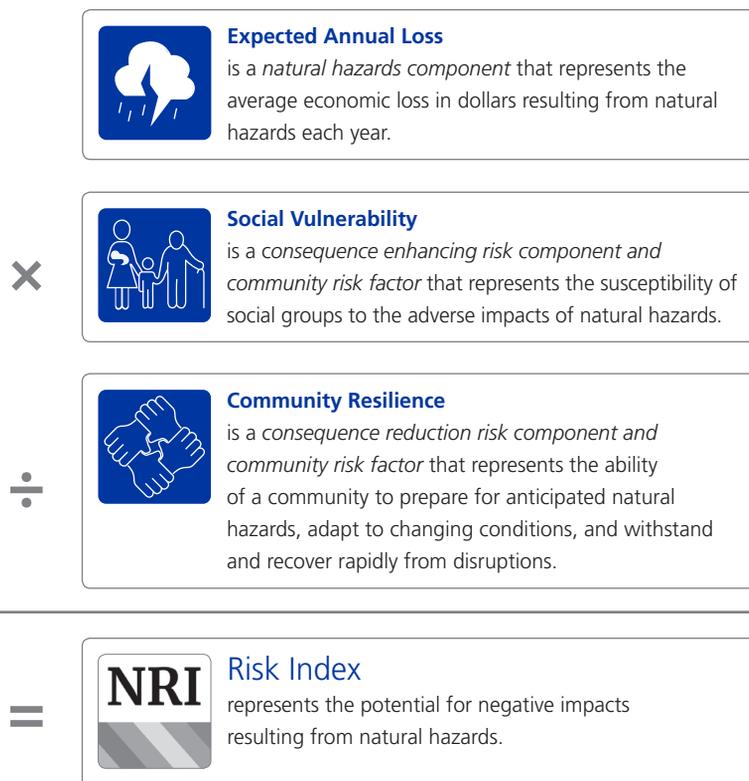
### Investments and ESG Policies

Keep in mind, commercial property is as exposed to physical risk as residential properties, and that exposure is being systematically quantified by researchers. Institutional investors, in particular, require metrics to evaluate the impact of environmental change on the risk-return profiles they depend on to make portfolio investment decisions. Appraisers considering the impact of debt financing on a commercial property will benefit from awareness of environmental, social, and (corporate) governance (ESG) policies. An illustrative case is MetLife Investment Management's ESG policy related to commercial mortgage lending. MetLife's ESG standards vis-à-vis its mortgage platform call for it to

- Track the sustainability attributes of assets,
- Evaluate borrower ESG performance,
- Incorporate ESG into due diligence and loan approval,
- Track and improve resilience to climate change and other natural hazards,
- Collaborate with the lending industry to improve ESG practices,
- Maintain strong governance practices.<sup>4</sup>

MetLife is not alone in adopting such standards, and these standards are important as appraisers have long sought to understand and

### Exhibit 1 FEMA National Risk Index Components



Source: FEMA National Risk Index, "Determining Risk," <https://hazards.fema.gov/nri/determining-risk>

reflect institutional underwriting practices, a key to factoring the availability and price of debt capital as an influence on capitalization rate in the weighted average cost of capital (WACC) equation. At present, it seems essential to be

3. For example, see Sean Beckett, *Special Report: The Impact of Climate Change on Housing and Housing Finance* (Washington, DC: Mortgage Bankers Association and Research Institute for Housing America, September 2021), <https://bit.ly/3aUIADc>. Appendix B to the report provides useful links to private and public data sources that should be of interest to appraisers, including the First Street Foundation (<https://firststreet.org>), a research and technology group, and the Moody's ESG group (<https://bit.ly/3mzk799>).

4. The overall MetLife ESG investment policy statement can be found at <https://bit.ly/3xFaFr6>. Details about the MetLife ESG commercial mortgage lending statement can be found in "Commercial Mortgage Lending Environmental, Social and Governance Investment Policy," <https://bit.ly/3NJjCz>.

aware of ESG policy in consideration of commercial property debt. MetLife Investment Management states it “believes that responsible real estate lending can improve communities, increase financial performance and reduce risk, while generating positive environmental impact.”<sup>5</sup>

On the equity side there are reports of strong consonance in investor perspective. Publicly traded REITs have accelerated their environmental activism. NAREIT’s 2021 ESG REIT report explicitly states, “the business imperative surrounding sustainability has evolved from a ‘nice-to-have’ expectation to a ‘have-to-have’ priority.”<sup>6</sup> Thus, the impetus in the immediate term has been from the investment community itself, although the long-run advocacy of the environmental activist community cannot be denied. NAREIT reports that 55% of its members have publicly disclosed ESG goals, integrating such factors into their strategic and financial planning.

Private equity investors are expressly on board with ESG investments as well. Larry Fink, CEO of BlackRock (\$10 trillion in assets under management, including more than \$60 billion in real estate), has said that awareness of climate risk is growing rapidly, placing capital markets “on the edge of a fundamental reshaping of finance.”<sup>7</sup> A

2021 global investors survey by CBRE indicates that 60% of respondents have already adopted ESG criteria, reflecting a more robust approach to sustainability risks. According to CBRE, “Investors are embedding ESG considerations at every stage of the property lifecycle, from due diligence to acquisitions and from leasing to asset management.”<sup>8</sup>

**Institutional investors, in particular, require metrics to evaluate the impact of environmental change on the risk-return profiles.**

Research on ESG returns is becoming more available. For example, a recent paper funded by the Real Estate Research Institute (RERI) examined fund returns in the NCREIF ODCE Index<sup>9</sup> in relation to the Global Real Estate Sustainability Benchmark (GRESB).<sup>10</sup> The research suggests that GRESB participation was a significant predictor of fund returns, associated positively with higher price appreciation in total fund returns (though not in the income component).<sup>11</sup> At a

5. MetLife ESG, “Commercial Mortgage Lending Environmental, Social and Governance Investment Policy,” 4.

6. See NAREIT, *2021 REIT Industry ESG Report* (Washington, DC: NAREIT, 2021), 8, <https://bit.ly/3zxpBJ4>.

7. Tammy Whitehouse, “Climate-Driven Financial Risks Hard to Ignore,” *WSJ Risk & Compliance Journal*, Deloitte Services Insights (February 2, 2020), <https://bit.ly/39f5Zic>. The Fink quotation comes from his 2020 “Letter to CEOs,” which was addressed to the executives of firms in which BlackRock has investments but was widely followed in the broader business community.

8. See CBRE Research, “ESG and Real Estate: The Top 10 Things Investors Need to Know” (CBRE, January 3, 2022), 3, <https://bit.ly/3zVPeDG>.

9. Open-ended diversified core equity (ODCE) funds in the National Council of Real Estate Investment Fiduciaries (NCREIF) database. At the time of the study’s analysis (Q2 2021), ODCE contained 24 funds with a total of \$218 billion in assets in approximately 190 US CBSAs (core-based statistical areas).

10. The GRESB is a voluntary ESG performance reporting platform, providing standardized and validated data to the capital markets. As of 2020, GRESB covered some 1,200 funds/firms, in 64 countries, with \$4.8 trillion (USD) in assets.

11. Avis Devine, Andrew Sanderford, and Chongyu Wang, “Sustainability and Private Equity Real Estate Returns” (preprint submitted to RERI, December 18, 2021), <https://bit.ly/3mDumsY>.

minimum, such research shows the behavior of large private-market investors in real estate is motivated by ESG factors and that private-market investors are substantially influenced by metrics relating to environmental sustainability. Prior research also has shown that ESG-certified assets have outperformed traditional comparable assets (both buildings and securitized mortgages).<sup>12</sup>

### Environmental Risk in the Marketplace

Appraisers understand that their charge is to reflect the mind of the marketplace. As both debt and equity market participants become increasingly sensitive to environmental considerations, valuations will continue evolving to reflect the changes in the physical world and in the world of investments. For many, the sense that all such changes are compressed economically by the discounting process into the final price may be the impetus for further research and investigation by academics.

Location is a complex economic characteristic. Research into natural disasters reveals that the structure of the local economic base affects both the amplitude and the duration of changes in real estate demand and, consequently, price movements. In the residential sector, severe storms can impact household incomes, increase out-migration, and reduce home prices over a period of years by 2.5% to 5.0%.<sup>13</sup> Such effects can be magnified or mitigated by the diversity of the

local economy, suggesting that such diversity should be addressed in the market study component of appraisal report of at-risk communities.

Although there's increased focus on the economic and financial implications of climate change, relatively "less attention is devoted to understanding how *commercial* real estate markets respond to natural disasters, which is surprising given the size of US commercial real estate."<sup>14</sup> Looking across the major property types, one study reports that "being subject to natural disasters... leads to an immediate and non-trivial reduction to commercial market valuations... [but] regardless of which property type is considered, the negative responses in these outcomes are muted when regional economies are diverse along the dimension of industrial composition."<sup>15</sup>

Appraisers sensitive to the relative probability of a location's natural disaster exposure can perhaps begin by referencing FEMA's risk maps (Exhibit 2), which not only discuss the hazard risk itself but also measure a location's capacity to rebound from severe events. All this can lead to more comprehensive decision making.

Within the technical task of income-expense projection and discounting to present value, appraisers can reflect not only the thinking of insurers and lenders in terms of rates but also the exposure of the property to mitigation needs. Such mitigation needs may be satisfied in advance by a cost-to-cure where a particular

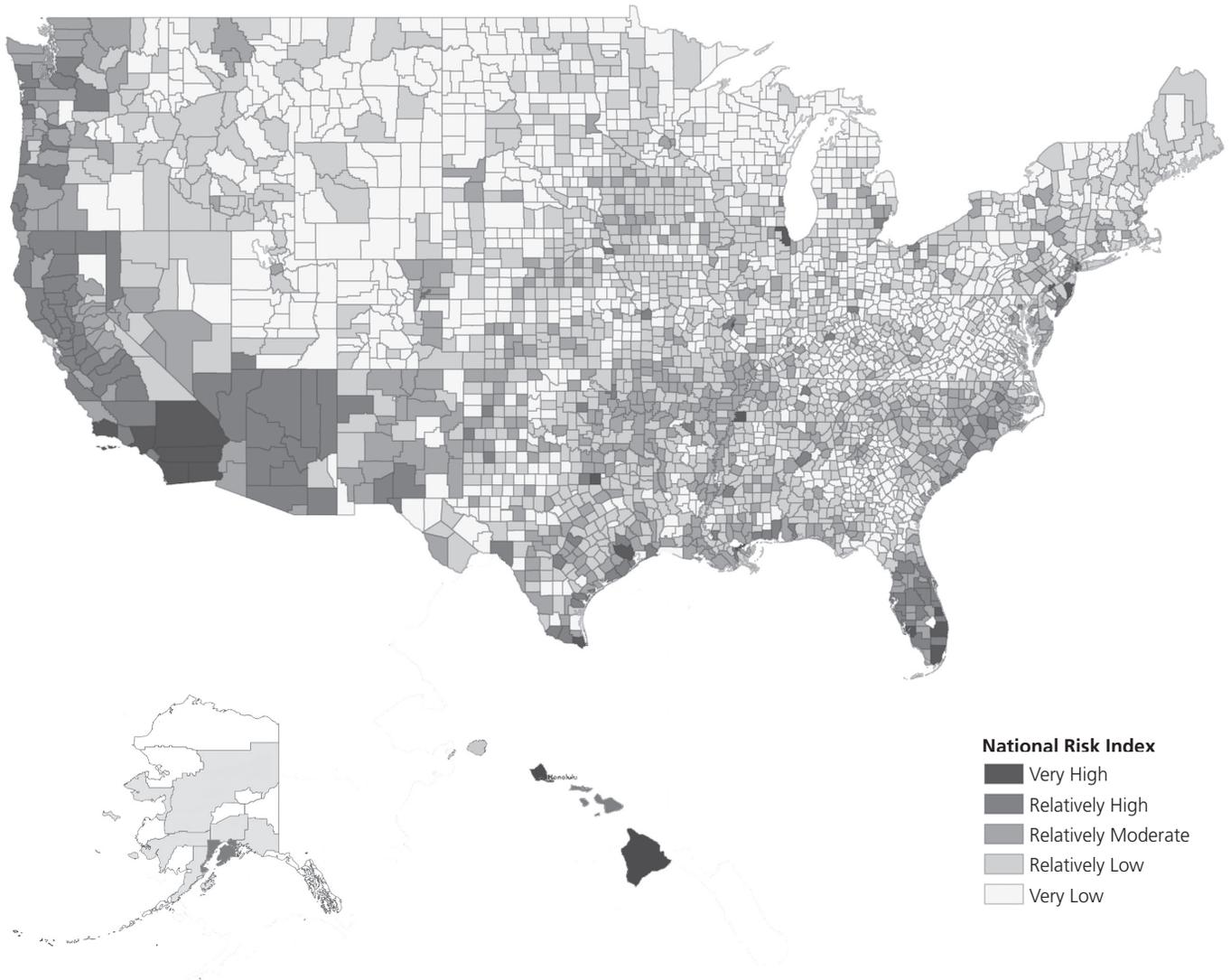
12. Piet Eichholtz, Nils Kok, and John M. Quigley, "Doing Well by Doing Good? Green Office Buildings," *American Economic Review* 100 (2010): 2492–2509; Piet Eichholtz, Nils Kok, Erkan Yonder, "Portfolio Greenness and the Financial Performance of REITs," *Journal of International Money and Finance* 31 (2012): 1911–1929.

13. L. P. Boustan, M. E. Kahn, P. W. Rhode, and M. L. Yanguas, "The Effect of Natural Disasters on Economic Activity in US Counties: A Century of Data," *Journal of Urban Economics* 118 (2020). FEMA states that higher community resilience reduces community risk; see FEMA, "Community Resilience," <https://bit.ly/3l4HjG4>.

14. Shaun A. Bond, Shawn J. McCoy, and Ian K. McDonough, "Natural Disasters, Regional Economic Structure and Commercial Real Estate" (RERI working paper, April 14, 2022), 1–2, <https://bit.ly/3aJknzw>. Emphasis added.

15. Bond, McCoy, and McDonough, "Natural Disasters, Regional Economic Structure and Commercial Real Estate," 20.

**Exhibit 2** FEMA National Risk Index Map



Source: FEMA, National Risk Index, all natural hazards, county view, <https://hazards.fema.gov/nri/map/>

problem is identified (e.g., basement mechanical equipment rooms at flood-prone sites); mitigation may also be anticipated by replacement reserve allowances adjusted for natural risk. And, if cumulative exposure to climate change is shown to be a concern of institutional providers of equity or debt capital, perhaps that concern should be reflected—or at least discussed—in the selection of a terminal capitalization rate.

All such appraisal considerations are taken from the market, just like estimates of market rent, vacancy and collection loss, or capitalization rates.<sup>16</sup> Intelligent weighing of such variables contribute to improved decisions. In this way, the appraisal report contributes to improved judgments by players in commercial investments.<sup>17</sup>

#### About the Author

**Hugh F. Kelly, PhD, CRE**, has been the principal of Hugh Kelly Real Estate Economics, based in Brooklyn, New York, since early 2001. From 1978 to 2001 he worked in Landauer Associates' Valuation and Technical Service division and was the principal author of the firm's annual real estate market forecast and served as its chief economist. Kelly holds a PhD in real estate and the built environment from the University of Ulster, Northern Ireland. A member of the Counselors of Real Estate since 1989, he served as its international chair of the board in 2014. His book, *24-Hour Cities: Real Investment Performance, Not Just Promises*, won the 2017 Gold Award from the National Association of Real Estate Editors. **Contact: [hughkelly@hotmail.com](mailto:hughkelly@hotmail.com)**

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16. This has long been appreciated in the appraisal literature. See, for example, John B. Bailey, "Market Analysis—Fundamental to Defensible Valuations," *The Appraisal Journal* (October 1972): 644–649; and John B. Bailey, Marilyn Kramer Weitzman, and Peter F. Spies, "Market Study + Financial Analysis = Feasibility Report," *The Appraisal Journal* (October 1977): 550–577.

17. Real estate economic research is a dynamic process that follows deep structural relationships in human thinking. For a detailed discussion, see Hugh F. Kelly, "Dimensions in Real Estate Research," *Real Estate Review* 21, no. 1 (Fall 2001): 52–56.