Incorporating Energy Risk Metrics in the Commercial Mortgage Underwriting Process

Overview

Typical valuation practices use high-level metrics such as gross rent, maintenance, and insurance costs when determining a properties' Net Operating Income (NOI). But what happens when energy use and default risk are factored into the underwriting process? New DOE-sponsored research from Lawrence Berkeley National Laboratory (LBNL) and the University of California's Haas School of Business quantified the impact that energy factors can have on commercial mortgage default rates and determined that these factors should be fully and routinely incorporated in the underwriting process. Proper consideration of these energy risks will allow commercial lenders to make better-informed investment decisions and potentially accelerate demand for buildings with lower energy usage.

This fact sheet summarizes the demand, challenges, and opportunities for developing and incorporating energy risk metrics in the commercial mortgage underwriting process.

Problem

The Berkeley team has done a considerable research to understand the links between default risk and energy use and quantified how interest rates could be adjusted for buildings with lower energy, but changing the commercial underwriting process is still a challenge. Lenders have indicated potential challenges that would make it difficult to incorporate energy risks during the underwriting process.

With this most recent effort, the team sought to test the theory from prior studies on actual loans with commercial real estate partners; those who participated stated they prefer using a simple score that utilizes traditional industry metrics for determining the potential risk associated with the property. The goal of the pilot studies was to develop an easier method for incorporating energy risks in the valuation process, explore the extent of energy risk on specific loans, and gain insights into how meaningful such analyses would be to lenders.

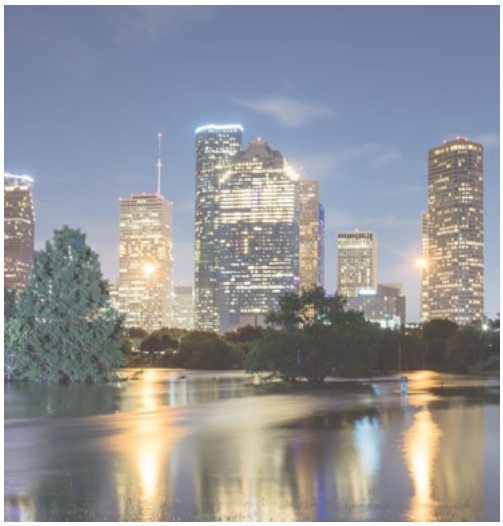
The metrics used to assess the loan data include:

- **Decrease in debt service coverage ratio (ΔDSCR)**

  The change in NOI that occurs because of unexpected increases in energy cost equivalent to the change in energy cost divided by the debt service.

- **Increase in probability of default (ΔDP)**

  Can be compared to the average default rate for the relevant asset class to determine the materiality of the energy risk.



ACTION PLAN FOR LENDERS

- Require that appraisals and property condition assessments (PCAs) include information on energy costs and their range of variation due to weather and occupancy.
- Offer incentives for buildings with lower energy risk. This could take the form of lower interest rates or lower fees ("points") at origination. For example, in the United States, Fannie Mae's Green Rewards program.
- Offer additional loan proceeds for energy efficiency improvements. These would lower the energy risk while also providing an additional business offering for lenders and borrowers since mortgage interest rates are typically lower than a regular commercial loan.

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These metrics are designed to be simple to calculate and familiar to lenders, utilizing data already being collected in loan applications. The team developed a novel "Energy Risk Factor" to assess the tail risk of increased energy costs. By incorporating the energy risk factor into the metrics, organizations can assess the energy-related risks of an asset or portfolio.

Outcomes

The results in **Table 1** suggest that lenders should prescreen buildings based on Debt Service Coverage Ratio. Specifically, if the DSCR is already very high, as shown in MF1 ranging from 2.62-3.20, its energy risk is not likely to impact default risk. If the DSCR is low or closer to the common threshold of 1.25, as seen in MF2's range of 1.30-1.45, then a lender can apply these metrics to calculate if overall energy risk could result in DSCR dropping below the lender threshold.

Overall, the results of this pilot project reinforced the need to evaluate energy risks earlier in the underwriting process and develop guidelines on when and how to incorporate energy risk analysis during mortgage underwriting. All three lenders concurred that these results suggest energy risks can be material and should not be ignored as they have in the past.

Lenders should consider the following:

- Develop guidelines on when and how to incorporate energy risk analysis during mortgage underwriting.
- Explore effective intervention points where energy information can be shared and evaluated, including appraisal, property condition assessment, and underwriting.
- Incorporate proper pricing of energy risks via interest rate premiums or discounts depending on whether energy risks are high or low, respectively. Lenders could also require mitigation measures to help reduce that risk.
- Implement changes in the underwriting process to incorporate energy risk factors so lenders and borrowers are able to better understand and potentially mitigate factors that contribute to mortgage default.

Table 1. Exploratory analysis of 5 loans from 3 lenders

ID	Building Type	Size (sq. ft.)	Location	Year Built	Years of Data	DSCR range	Energy Risk ΔDSCR	
OF1	Office	16,362	Washington, DC	1968	2012-2018	1.52-2.00	**0.04-0.05**	Very Low Risk
OF2	Office	31,175	Denver, CO	1906	2016-2017	0.73-0.78	**0.02-0.03**	Low energy risk but DSCR < 1
MF1	Multifamily	207,078	New York City	1926	2016-2017	2.62-3.20	**0.19-0.30**	High energy risk mitigated by very high DSCR
MF2	Multifamily	45,495	New York City	1915	2016-2017	1.30-1.45	**0.07-0.09**	Energy risk could make DSCR < 1.25
MF3	Multifamily	622,980	Arlington, VA	1998	2013-2018	1.98-2.17	**0.01**	Very Low Risk

To read the full paper, follow this link.

Mathew, P., Issler, P., Wallace, N. 2021. *Should commercial mortgage lenders care about energy efficiency?* Lessons from a pilot study. Energy Policy. Vol. 150, March 2021. https://doi.org/10.1016/j.enpol.2021.112137

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