

FACT SHEET

HOME ENERGY EFFICIENCY AND MORTGAGE RISKS

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Household energy use accounts for 20 percent of the country's total energy use. American households spend around \$230 billion each year on energy, not including transportation.

Home Energy Efficiency and Mortgage Risks

[A report published by the UNC Center for Community Capital and the Institute for Market Transformation- March 2013](#)

Key Findings

- Loans on ENERGY STAR homes are **32 percent less likely to go into default**.

- Within efficient homes, **the more efficient the house, the lower the default risk**. For each point on the Home Energy Rating System (HERS) index of efficiency, the risk of default drops.

- This is the first report of its kind and is based on a sample of **71,000 home loans** from across the country. The level of confidence is 99 percent.

- The findings have significant policy implications: Lenders might allow for lower risk premiums that are associated with interest rates, a more flexible credit profile, or a higher debt-to-income ratio for people buying or refinancing efficient homes. This would increase the affordability of energy-efficient homes among many borrowers, especially in high-cost areas.

- Lenders may want to require or strongly recommend an energy audit or energy rating during the process of mortgage underwriting. In the same manner that appraisals are done to calculate the value of the home, **an energy rating or audit could define other important loan characteristics**.

- The study controls for:** the size of the house; the age of the house; neighborhood income;* house value relative to the area median value; local unemployment rate; borrower credit score; loan-to-value ratio;* loan type; local weather; price of electricity
**Proxies for borrower income*

- The sample is restricted to **single-family, owner-occupied houses whose loans originated from 2002 to 2012** and were used for purchase only. **About 35 percent** of the homes in the sample are energy efficient, i.e., ENERGY STAR rated.

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Frequently Asked Questions

Are the homes in this study higher-end than the norm? Is that why they're less likely to go into default?

The average sale price of the homes in the sample was about \$220,000 (for both the energy-efficient and less-efficient homes). These are not just luxury homes.

Do the findings have more to do with the type of borrower than the efficiency of the home?

The study controlled for neighborhood income and loan-to-value ratio, which are proxies for borrower income. But the possibility of some degree of self-selection can't be ruled out. Buyers of energy-efficient homes may be more financially astute than other borrowers. The authors identify this as a question for future research. However, if the purchase of an efficient home does signal a more savvy borrower, this is an important factor for lenders to consider, as these borrowers present a lower risk.

Are these new homes only? What about condos?

They are both new and older homes. The sample was restricted to owner-occupied, single-family homes whose loans originated during 2002-2012. Condominiums were not included.

Why are certain states not represented in the study?

The sample draws on loans made in 38 states and the District of Columbia. Because of data privacy restrictions, inconsistent addresses, and a low market share of HERS-rated homes, the states of Alaska, Arizona, California, Louisiana, Maine, Minnesota, North Dakota, Oregon, South Dakota, Tennessee, West Virginia, and Wyoming were excluded from the sample.

What is an ENERGY STAR rating?

ENERGY STAR-rated homes are built or renovated to deliver energy efficiency savings of over 15 percent when compared to typical new homes. A home that has earned the ENERGY STAR label has undergone a process of inspections, testing, and verification to meet strict requirements set by the U.S. EPA.

What is a HERS Score?

A Home Energy Rating System (HERS) score is a tool used for measuring a home's relative energy efficiency. The lower the score, the more efficient the home. A home built to current market standards is given a rating of 100. Typically, a HERS score of 85 is required to achieve ENERGY STAR certification.

What is prepayment risk?

Prepayment risk is the risk that a mortgage loan will be paid off early, meaning the investor or lender will not receive the projected return from the transaction.

Do energy-efficient homes sell for more than less efficient homes?

This study does not address the value premium for energy-efficient homes.

Why was the study restricted to 30-year fixed-rate mortgages?

Adjustable-rate mortgages (ARM) and other types of loans require panel data that tracks the payment schedule and time-varying attributes. Such data are not available and the models used in the study are not suitable to study such mortgages, but should be considered in future work.

Since ENERGY STAR homes are newer, on average, did this affect the results?

To account for the distributional differences in age between the ENERGY STAR and non-ENERGY STAR homes, we ran a model restricting the sample to houses that were built after 2000. The findings are similar in direction and significance as those presented here. Refer to the report's appendix (Table 3B) for findings when restricting the sample to post-2000 homes. We also control for the age of the home in our baseline model.

Why was the debt-to-income ratio excluded?

As a rule, ability to pay (captured by debt-to-income ratio or DTI) has been omitted from most loan termination studies due to methodological considerations. Controlling for income, DTI is generally found to be insignificantly associated with default.