

Bank Leverage and Hurricane Risk Management in Household Lending

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Financial risks from climate change are gaining more attention and investors are increasingly demanding more disclosure on these risks. In 2015, an international Task Force on Climate-Related Disclosures was established to standardize the reporting of the financial risks from climate change, or “climate change risks” (1). Important to boards, one recommendation of the report is for companies to disclose their governance of climate risks and to describe the board’s oversight of risks and opportunities. Legislation on similar disclosure requirements has been proposed in Canada (2).

Financial risks from climate change can fall into two broad categories: physical and transition risks (1). Physical risks include the direct impacts of climate change, such as an increase in the risk of natural disasters damaging company property. Transition risks include indirect impacts from the economy transitioning to meet lower greenhouse gas emission targets. Transition risks can include financial costs from a carbon tax or revenue risk from shifting consumer preferences. The most significant financial risks for a company depend on its industry and location.

Boards overseeing climate risk can consider implementing the following steps. First, a board can identify all of the risks that climate change poses to their company’s revenue, costs and asset values (1). Second, companies can develop internal metrics of risks to evaluate their risk management performance over time. Sometimes not as well understood, another step in overseeing climate risk is to consider the incentives in place within an organization to manage risk. Often incentives for risk management are considered in designing a CEO’s pay structure. About half of FTSE 100 companies are already linking CEO pay to ESG performance (3). In addition to CEO pay, there are also other incentives to consider within an organization for risk management. Theoretically, the amount of debt a company has can impact company risk-taking. My PhD research focuses on how debt levels impact climate risk management among U.S. banks.

In finance, significant research has looked at optimal debt levels for a company. Debt financing provides tax benefits over equity financing but as debt levels become higher there is an increase in the risk of bankruptcy (4). There are also possibly incentive problems that arise as debt levels get too high. If debt levels are high and a firm is at risk of bankruptcy, equity holders may encourage management to make riskier project investments. Equity holders would gain the upside if the project was successful but do not incur project investment costs since those funds would otherwise be paid out to debtholders (5). Alternatively, with higher debt levels, management may become more cautious with risk taking since it can impact whether their company continues to be a going concern, potentially jeopardizing management’s earning or even livelihood. For this reason, it is unclear whether high debt levels encourage or discourage risk management within companies. Further, climate risk may exacerbate incentive problems since the payoff of ESG investments may be beyond the traditional business horizon (6).

This open question motivates my research project to study the impact of debt levels on climate risk management. Specifically, I look at how debt affects a bank’s management of climate risk in the U.S. household mortgage sector. The frequency of severe Atlantic hurricanes is expected to increase based on climate model projections (7). Moreover, economic damages from hurricanes are projected to

increase due to sea-level rise (8). For this reason, hurricane risk should increasingly be taken into account when banks decide on household mortgage lending. As hurricane risk increases, banks may manage this risk by rejecting more loans or granting smaller loans in high hurricane risk areas to manage their risk exposure. I study whether banks with different debt levels are more or less likely to reject high hurricane risk loans or grant a smaller amount to borrowers.

A key component of this research question is to ensure that banks with high debt levels are comparable to banks with lower debt levels and the change in behaviour isn't due to some other factor. In order to address this, I look at banks that had relatively more loan write-offs during the Great Recession relative to banks that had relatively fewer loan write-offs. Banks with more loan write-offs experience an increase in debt leverage (debt/assets). Loan write-offs are a balance sheet correction to reduce asset values. Since debt does not change proportionately, a reduction in the denominator mechanically increases debt leverage. I see how this change in debt leverage influences a bank's decision to lend to households in high hurricane risk areas *relative to banks that did not experience a change in their debt leverage*. Crucially, the banks that wrote off more loans during the recession were very similar to the banks that wrote off fewer loans in terms of historical leverage levels and return on assets.

Using this research design, my preliminary results suggest that banks with higher debt levels are more cautious with respect to hurricane risk. Banks with more debt were more likely to reject loans in high hurricane risk areas and grant smaller loans. Larger banks were more likely to reject loans flat out, whereas smaller banks were more likely to reduce the size of the loan granted. These results suggest that banks that had higher debt levels were more cautious with their management of climate risk in their investment portfolios.

While the preliminary results suggest that higher debt levels encourage banks to be more cautious with hurricane risk, additional research is required in order to extrapolate to other climate related risks. In addition, banks are highly regulated so these results may not apply to companies in other industries.

In conclusion, since debt levels do seem to influence the climate risk management of banks, boards that oversee climate risk should consider debt levels and other incentives for an organization's risk management in their governance strategy.

References

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