A Neurological Explanation of Strategic Mortgage Default

Published: 31 July 2014

Volume 51, pages 215–230 (2015) Cite this article

The Journal of Real Estate Finance and Economics

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Abstract

This study examines strategic mortgage default on a neurological level. Specifically, we test two mainstream behavioral finance/economic theories: sunk cost fallacy and cognitive dissonance. Using fMRI technology, we identify a number of substrates within the brain that provide a neurobiological explanation for why some homeowners exercise their mortgage put option while others do not. We find that borrowers rationally do not suffer from the sunk cost fallacy as it relates to strategic default in that they significantly prioritize their negative equity position over the amount of their initial down payment. We do, however, find neurological support that cognitive dissonance is relevant in homeowners' thought processes as they toil with the hesitancy brought on by the believe that strategic

default is immoral against the strong financial incentive to walk away from a substantially underwater mortgage.

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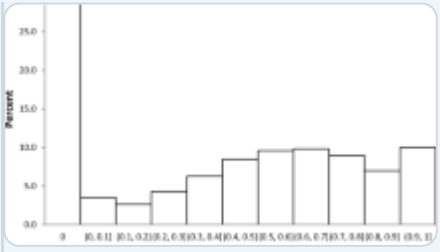

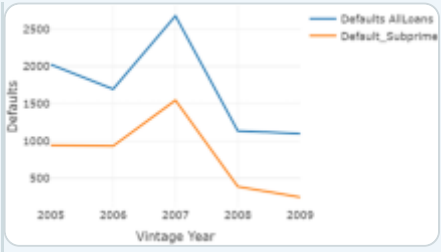

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Notes

1. The inability to pay one's mortgage due to such factors as job loss, income curtailment, or prolonged illness is known as an "economic default."

2. The negative monthly cash flow refers to the ability to rent a comparable home for less than what it costs to own the same home.

3. Even in recourse states (there are 41 of them), legal maneuvers can make it unpalatable for lenders to come after defaulting underwater homeowners.

4. The way in which the foreclosure process is being handled is constantly evolving across the country so much so that attorneys who specialize in helping homeowners navigate the process are often unsure of how to coach their clients through the maze of legal uncertainty.

5. Seiler et al. (2012) document that additional disadvantages to defaulting include a reduced credit score making future credit both more difficult and

more expensive to obtain, potential moving costs (if the home is a primary residence), uncertainly surrounding the tax treatment of waived deficiency judgments, and the social stigma of friends and family learning that the homeowner defaulted on a loan.

6. The tamping rod landed 30 yards away. It measured 3 feet, 8 in. in length and 1.25 in. in diameter. The rod (and Phineas' skull) is currently on display at the Warren Anatomical Museum at Harvard University's School of Medicine.

7. At the time of Staw (1976), the more common term was "escalation of commitment." It has subsequently been referred to more often in a business environment as "sunk cost fallacy." In game theory, consideration of sunk costs are often referred to the "Concorde Effect," named after the observed behavior of the British and French governments' continued investment in the Concorde airplane long after it was evident the economics clearly did not support further production efforts.

8. While a bit of a hard sell, authors such as Baliga and Ely (2011) argue that due to an array of possible alternative mental constraints, considering sunk costs can be partially justified. In this study, we adopt a more traditional approach of viewing the incorporation of sunk costs as a fallacy.

9. Several studies have documented the moral desire to avoid any type of breach of contract as well as the real estate specific immorality of hurting their neighbors through a foreclosure contagion, or spillover, effect.

10. To the extent tests are possible, demographic characteristics do not appear to impact our results.

11. We selected participants on a first come basis until our desired sample size of 20 was met.

12. Baker and Chinloy (2012) discuss that compensation need only be based on performance in tasks where choices are strictly economic. Alternatively, in a strategic mortgage default setting, paying participants based on performance makes no sense because considerations surrounding this decision go beyond purely economic factors to include a number of well-documented behavioral inputs. Moreover, the outcome of such decisions varies greatly from one person to another and may not be felt for many years to come. For all these reasons, we compensate participants using a flat fee.

13. Because being underwater is a necessary condition for strategic mortgage default, all of our scenarios are associated with negative equity. As such, the behavioral theories we test are all taking place in the loss domain as defined in Kahneman and Tversky (1979).

14. Note that by pairing the scenarios the way we did allows us to conduct a ceteris paribus analysis so that we can attribute and difference in results to the sole variable that differs in the analysis.

15. This interval was deemed appropriate through pre-testing in that it allows sufficient time for blood to flow to the specific area (s) of the brain while contemplating the decision, but not so much time that the respondent's mind begins to drift. It should be noted that if a sub-optimal interval is selected, it would work towards a null result. It is also worthy of noting the limitation of any fMRI study in that the reaction observed is an initial reaction and may or may not be different over time. This is especially important to note given that the strategic default process is typically lengthy.

16. Two people claimed they would never default under any condition, and as such, have been temporarily excluded from this portion of the analysis.

17. Mortgage payments are typically automatically drafted from homeowners' banking accounts.

18. In addition to initiating the stopping of automatic drafts, the homeowners will eventually have to move out as well.

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Cite this article

Seiler, M.J., Walden, E. A Neurological Explanation of Strategic Mortgage Default. *J Real Estate Finan Econ* **51**, 215–230 (2015). https://doi.org/10.1007/s11146-014-9479-7

Published	Issue date
31 July 2014	August 2015

DOI

https://doi.org/10.1007/s11146-014-9479-7

Keywords

Neurological real estate | Forensic real estate | fMRI | Strategic mortgage default

JEL Classification

C91 D81 G02 R39

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