Discussion of Discrete Thresholds in Availability of Credit

Paul Calem, Federal Reserve Bank of Philadelphia

(visiting scholar at CFPB)

CFPB Research Conference

December 2016

The opinions expressed herein are mine alone and should not be construed as representing the opinions or policy of the Consumer Financial Protection Bureau, Federal Reserve Bank of Philadelphia, or Federal Reserve System.

Impacts of Credit Thresholds

- *Laufer and Paciorek*: Impact of credit score thresholds in mortgage lending on mortgage origination and other credit-related outcomes

- *Argyle, Nadauld, and Palmer*: Impact of credit score thresholds in auto lending on loan terms and other credit-related outcomes, and role of borrower search costs in this context

- *DeFusco, Johnson, and Mondragon*: Impact of the DTI threshold in the ATR/QM rule (implemented January 2014) on pricing and availability of jumbo mortgages

Impacts of Credit Thresholds

- All three papers highlight significant credit availability and pricing impacts of thresholds used in lending decisions
  - Discontinuous drop in mortgage originations as FICO scores fall below 620 and 640, after credit tightening (by FHA lenders) in 2010
  - Discrete increase in average auto loan interest rate and decline in term to maturity at FICO thresholds applied by (credit union) lenders (analyzed at representative values of 600, 640, and 700)
    - Also, decrease in value of purchased auto
  - Interest rate premium on jumbo mortgages to borrowers with DTI greater than 43 percent following implementation of the ATR/QM rule
    - Drop in FRM originations to this group, as reported by large servicers
- These represent important contributions to our understanding of mortgage and consumer credit markets

Impacts of Credit Thresholds: Other Findings

- *Laufer and Paciorek* find that reduced mortgage credit availability below the score thresholds are associated with reduced auto loan availability and with reduced mobility of households

- *Argyle, Nadauld, and Palmer* find that the impacts of auto lending thresholds are exacerbated in markets with larger search costs for borrowers

Impacts of Credit Thresholds

- The three papers are distinguished by specific empirical goals and challenges
  - *Laufer and Paciorek:* Are the threshold effects observed for large mortgage servicers representative of the full population?
    - Challenge: extrapolate observed impact of FICO score thresholds in servicing data to the general population in Equifax data (with Risk Score)
  - *Argyle, Nadauld, and Palmer* argue that borrowers with lower credit scores face higher search costs and, consequently, are adversely impacted by score thresholds in auto loan markets
    - Challenge: Relating threshold effects to search propensity and search costs
  - *DeFusco, Johnson, and Mondragon*: Difference-in-difference approach to examine the impact of adoption of the ATR-QM DTI threshold
    - Challenge: Requires data representative of the entire market (study relies on data from large servicers, FRM only)

Borrower self-selection at lending thresholds

- All three papers are subject to potentially confounding impacts of borrower self-selection
  - *FICO Thresholds:* Assuming that better options are available to those who seek them, as argued by *Argyle, Nadauld, and Palmer,* more sophisticated borrowers with FICO scores below the applicable thresholds might self-select to these better options
    - In *Argyle, Nadauld, and Palmer,* such borrowers may self-select to lenders applying thresholds other than 600, 640, and 700, leading to biased assessment of the impact of these thresholds
    - In *Laufer and Paciorek,* such borrowers may self-select to regional or community banks non-banks external to the servicer database used in the study
  - *DTI threshold*: Households with the ability to do so can reduce their debt exposure to meet the DTI requirement
    - Such self-selection may impact *DeFusco, Johnson, and Mondragon*

Other Limitations of these Studies

- *Laufer and Paciorek:*
  - Empirical approach is murky and seems overly complicated
    - A regression discontinuity approach that tests for impact of ad hoc “affordability measure” (defined as the probability that FICO < threshold times the threshold impact derived from the servicing data)
    - Assumes a linear relationship between number of originated mortgages and Equifax’s Risk Score in neighborhood of the threshold
    - Could just as well assume a linear relationship to probability of FICO less than threshold and non-linear relationship to Risk Score

Other Limitations of these Studies

- *Laufer and Paciorek:*
  - Would be more transparent and intuitive to define a Risk Score range such that probability that FICO exceeds some critical level (say 75 percent), and test for threshold impact in this neighborhood
    - Control linearly for Risk Score, but only after confirming that the relationship of number of originated mortgages to Equifax's Risk Score is roughly linear above and below the threshold neighborhood

Other Limitations of these Studies

- *Laufer and Paciorek:*
  - Affordability measure implicitly assumes the impact of the threshold doesn’t vary with distance from the threshold
    - When distinguishing between borrowers with and without a previous mortgage, further assumes that the impact of the threshold doesn’t vary across these groups
  - This study is really about two specific instances of post-crisis credit tightening —2009 and 2010 for FHA originations
    - These occurred in the context of an already tight market for conventional loans (with the exception of the segment eligible for HARP refinancing)
    - The paper seems to lose sight of this context

Other Limitations of these Studies

- *Argyle, Nadauld, and Palmer*:
  - A direct link between search costs and threshold impacts is not firmly established
    - Separately demonstrates threshold impacts at 600, 640, and 700 score boundaries; price dispersion; and link between search cost proxies and loan “take-up rates”
    - One is left wondering whether the price dispersion primarily reflects niche lenders, since 600, 640, and 700 are purportedly the predominant thresholds
  - Alternatives to the search cost explanation are borrower financial sophistication (noted previously) and statistical discrimination (see Calem and Stutzer, *Journal of Financial Intermediation* 1994)

Other Limitations of these Studies

- *DeFusco, Johnson, and Mondragon*:
  - As noted previously, ARM mortgages and mortgages originated by other than the large servicers contributing to the CoreLogic database are absent from the data
    - May especially bias the findings on credit availability impact of the ATR/QM rule

Summary

- Each of these studies contributes significantly to our understanding of how the use of risk measurement thresholds in lending decisions impacts loan pricing, credit availability, and related outcomes

- Each could benefit from increased attention to limitations of the data and empirical approaches