

MORTGAGES AND THE TRANSMISSION OF MONETARY POLICY

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1. EXTENDED ABSTRACT

Previous work has documented that housing and refinancing decisions play an important role in shaping the aggregate and cross-sectional consumption elasticities to interest rate shocks. For instance, declining life-cycle consumption responses to interest rate fluctuations can be explained by the higher propensity of younger borrowers to refinance existing mortgages or to enter new home loans after interest rate declines.¹ In turn, this negative association between age and the responsiveness of mortgage debt arises from the larger effects of interest rate variations on longer-lived assets, as is the case for houses owned by younger borrowers. New home purchases and refinances can then affect durable and non-durable consumption through the associated fluctuations in disposable income and the complementarity between housing and consumption.

In this paper, we further examine the transmission of monetary policy through housing debt. Specifically, we work with detailed micro data to answer three related questions regarding the effects of monetary policy on mortgage debt decisions, the accumulation of other forms of borrowing and expenditures on durable goods.

First, what factors affect an individual's decision to acquire a new mortgage or refinance an existing one in response to monetary policy shocks? To answer this question we document how these decisions vary with individual characteristics, such as age and credit scores, and for the case of refinances with the existing loan amount and mortgage rate. We also characterize key moments of the mortgage rates distribution for existing loans (i.e. skewness, variance, modal rate, etc), how the distribution varies across regions, and how it relates to local area refinancing propensities. By working with detailed and representative borrower-loan panels that include both fixed and adjustable rate mortgages and key individual characteristics, our analysis overcomes data limitations from earlier work and

Date: February 14 2016.

¹See for instance, Wong 2016.

broadens the scope to encompass many types of mortgage products (including fixed rate mortgages, adjustable rate mortgages, interest-only mortgages, etc).²

Second how do refinancing and new mortgage decisions vary over time? Specifically, we examine fluctuations in three key dimensions that affect the loan adjustment propensities: (i) the distribution of existing mortgage rates relative to current new mortgage rates, (ii) the fraction of mortgages at fixed rates and the duration of loans, and (iii) the distribution of credit scores. Moreover, we document how these three factors vary with the policy rate cycle. This allows us to shed light on any asymmetry or state dependency in the transmission of monetary policy to housing debt, particularly due to the history of policy rate changes.

Third, how do decisions to refinance or enter a new mortgage alter the response of non-mortgage debt and durable goods expenditures to monetary policy shocks? We are able to explore this questions since the richness of the dataset allows us to explore the accumulation of other forms of debt beyond mortgages (such as home equity lines of credit and bank and retail credit cards), and durable spending (focusing on cars). We also quantify improvements in credit scores that arise from the declines in an individual's mortgage payments after refinancing to a lower rate, and the effect that this has on other non-mortgage borrowing. This analysis informs the potential amplification of monetary policy shocks on consumption via the credit channel. Building on the previous two questions we also explore if the distribution of mortgage rates and the history of policy changes alter the pass-through of monetary policy to non-mortgage debt and durable spending.

For our analysis, we rely primarily on the FRBNY Consumer Credit Panel (CCP), which is a quarterly dataset of household liabilities based on consumer credit data from Equifax. The CCP provides us detailed panel data on a 5% representative sample of all individuals with a credit history in the U.S. from 1999 through 2011. This dataset allows us to identify borrowers with new mortgages and to control for individual characteristics such as credit scores and balances on other forms of debt. Unfortunately, new mortgages are not classified as refinances, which considerably complicates our analysis. For this reason we merge two loan-level panels to the CCP. Following Beraja et al. (2015) the first uses mortgage information from Black Knight Financial services and includes a rich set of loan characteristics,

²For example, the data allows us to explore many types of mortgage products, beyond adjustable rate mortgages as in Di Maggio et al. (2014).

but only starts in 2005. Therefore, we also construct a borrower-loan panel using data on individual mortgage trades from Equifax.

Preliminary results confirm that policy driven changes in interest rates significantly influence decisions to acquire or refinance mortgages. Furthermore, these effects decline substantially with age. Monetary policy surprises are identified as the high-frequency changes in interest rates of different maturities surrounding the policy announcements of the Federal Open Market Committee (Gurkanyak, Sack and Swanson, 2005). With this measure we estimate linear probability models including various borrower characteristics, as well as controls for changes in macroeconomic conditions and house prices. Regression analysis then indicates that a monetary policy tightening substantially diminishes an individual's probability of entering a mortgage or modifying an existing loan. As predicted by theory, these effects are more pronounced for *young* borrowers (ages 25-35) than those in the *middle-age* group (36-65), who in turn are more responsive than *older* individuals (above 65). Interestingly, both for purchases and refinances the level effects are considerably stronger when policy surprises are identified from longer maturity rates rather than innovations in the current feds funds rate, which is more customary in the literature.

In ongoing work we are extending the analysis and assessing the robustness of results. For instance, we are revisiting our study of refinances using the first loan-level panel. Importantly, this second database provides a valuable cross-validation for our current algorithm to identify loan modifications. Furthermore, these data allow us to quantify the magnitude of the decline in monthly mortgage payments from refinances. This, combined with the analysis of policy induced changes in borrowing against home equity and durables purchases, can inform the pass-through of monetary policy and mortgage borrowing to consumption expenditures.

REFERENCES

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