Mortgages and Monetary Policy

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Most theories of how monetary policy affects the real economy rely on some form of nominal rigidity. Frequently made assumptions are that prices and wages of individual firms or households are pre-set in nominal terms for a given period of time, with the result that nominal variables under the control of a monetary authority affect relative prices and real incomes. A specific form of nominal rigidity, but somewhat overlooked in the literature, characterizes standard mortgage loans. In particular, fully-amortizing mortgages require the homeowner to make nominal instalments---regular interest and amortization payments---for the duration of the loan. The instalments are calculated so as to guarantee that the principal is repaid in full by the end of the loan's life. This applies to both fixed-rate mortgages (FRMs) and adjustable (variable)-rate mortgages (ARMs).

This paper studies the macroeconomic consequences of this nominal rigidity. In particular, our aim is to characterize the channels through which the rigidity facilitates the transmission of monetary policy into the real economy, especially into housing investment, and to investigate the strength of the transmission in general equilibrium. Recent monetary policies in a number of advanced economies have aimed at reducing long-term interest rates or have committed to low short-term interest rates for long periods of time. One of the goals of such policies is to encourage housing investment. Policy makers have also expressed concerns about the consequences of potential future rises in short-term interest rates for existing homeowners with ARMs. The model developed in this paper provides a step towards a framework allowing formal, general equilibrium, analysis of the effects of such policies on aggregate housing investment and income redistribution.

We show that in the presence of incomplete asset markets (e.g., homeowners cannot fully smooth fluctuations in income through unsecured credit) the nominal rigidity in mortgages leads to two channels of monetary policy transmission. One channel works through new mortgage borrowing (a "price effect"), the other through outstanding mortgage debt (current and expected future "wealth effects").

The results can be summarized as follows. First, monetary policy has a larger effect on housing investment under ARM than under FRM. Broadly speaking, this is because the price and wealth effects reinforce each other under ARM, but tend to offset each other under FRM. Second, monetary policy decisions that shift the entire yield curve (modelled here as changes in the inflation target) have larger effects than policies that only affect the cyclical long-short spread (modelled here as the

weights on inflation and output gap in a Taylor rule). In the latter case, general equilibrium adjustments in the expected future path of the real interest rate tend to offset the real effects of the nominal rigidity in mortgages, whereas in the former case such offsetting general equilibrium forces are weaker. Third, higher inflation redistributes income from lenders to borrowers under FRM, but (at least initially) from borrowers to lenders under ARM.

An implication of our findings for the current policy debate is that, other things being equal, low nominal interest rates are likely to have larger real effects in ARM countries (e.g., United Kingdom) than FRM countries (e.g., United States). The impact is likely to be larger the longer is the time horizon for which the rates are expected to stay low.