

Mortgage Design in an Equilibrium Model of the Housing Market

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Abstract

How can mortgages be redesigned or modified in a crisis to reduce housing market volatility, consumption volatility, and default? We answer these questions using a quantitative general equilibrium life cycle model with aggregate shocks in which households have realistic long-term mortgages and a rich set of choices as to whether to prepay, refinance, move, or default, and household and lender decisions aggregate up to determine house prices. The calibrated model is used to quantitatively assess how different mortgage contracts affect housing market volatility, particularly in busts like the Great Recession. In this preliminary draft, we focus on comparing fixed-rate mortgages (FRMs) and adjustable-rate mortgages (ARMs). Although FRMs allow homeowners to increase consumption by locking in a low rate, this effect is swamped by the insurance benefits of ARMs in a crisis. ARMs reduce default and improves consumption smoothing, particularly for young and high LTV homeowners. Quantitatively, in a crisis episode defaults are 50 percent lower with ARMs, and over five years the cumulative consumption-equivalent welfare loss under ARMs is 20 percent of annual consumption. These findings suggest that welfare could be improved dramatically by introducing the insurance features of ARMs into mortgage designs.

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