balance sheet capacity is fixed and allow banks to alter balance sheet capacity through equity issuance and asset sales.

Following the current institutional setup of the U.S. mortgage market, a central distinction between jumbo and conforming mortgages is that only conforming mortgages can be financed by originating to distribute; jumbo loans are portfolio loans. Moreover, only banks can access deposits, which give them the ability to finance portfolio loans.[9] Shadow banks can only originate to distribute. With this setup, our model generates endogenous market segmentation between traditional and shadow banks and within the traditional banking sector between well-capitalized and poorly capitalized banks. In Section V.E we extend our analysis to allow jumbo mortgage securitization.

On the demand side, we build a rich discrete-continuous choice framework with an application to the mortgage market. Importantly, we allow preferences of borrowers to be correlated with their income and house prices. These differences in preferences, especially for larger mortgages, play a critical role in studying the distributional aspects of policies.

IV.A Demand

A market c in year t is defined at the MSA-loan purpose level. For example, a market may be borrowers in New York City attempting to refinance their mortgages. Each market has $i = 1, \dots, I_{ct}$ consumers, with an ideal mortgage size F_i, and $j = 1, \dots, J$ lenders.

Lenders can offer up to two types of products: conforming and jumbo mortgages. Conforming mortgage amounts that are available to an individual borrower, $\overline{F_{ict}}$, have to satisfy two constraints. First, the amount must be below the market-specific conforming loan limit $\overline{F_{ct}}$, which is $417,000 in most markets during our estimation period. Second, the loan has to satisfy the individual-specific LTV constraint, where $\overline{LTV} \times P_i$ is the LTV constraint times the borrower's house price. Then the individual's maximum conforming loan size $\overline{F_{ict}}$ is the minimum of the market-level conforming level, and the LTV constraint:

$$\overline{F_{ict}} = \min\{\overline{F_{ct}}, \overline{LTV} \times P_i\} \tag{D.1}$$

Any mortgage that does not satisfy these two conditions is a jumbo mortgage. Jumbo mortgages must also satisfy the LTV constraint, i.e., the chosen mortgage size $F_i^* \leq \overline{LTV} \times P_i$. Let $g \in \{C, NC\}$ denote whether the mortgage is conforming (*C*) or jumbo (*NC*). Conditional on an offered rate, consumers can choose any loan size subject to the limits described above.

Consumers' utility from a mortgage depends on the mortgage interest rate r_{jctg}, the chosen mortgage size F_i^*, which can differ from the ideal mortgage size F_i, and the convenience or quality of the service provided by the lender:

[9] Because banks have access to a subsidized funding of their balance sheet through insured deposits, one can model the shadow bank decision not to engage in balance sheet lending as a competitive outcome with a corner solution.