

the drivers of the recent growth of shadow bank and fintech lenders in the U.S. mortgage market. Corbae and D'Erasmo (2019) build a structural model of bank entry and exit to study the impact of capital and liquidity regulations, focusing on bank size and market structure. Allen, Clark, and Houde (2019) structurally estimate the role of search and brand loyalty in the Canadian mortgage market.

Benetton (2019), the closest paper to ours, uses a structural framework to analyze the impact of bank capital regulation on the U.K. residential mortgage market. Similar to this paper, our demand model follows models like Berry et al. (1995) and Nevo (2000) and applies these modeling techniques to answer regulatory and policy questions in finance. We depart from discrete-choice demand models in several ways. Our model, as well as Benetton (2019), extends the discrete-choice model to include continuous choice, although using different modeling techniques. Continuous choice of mortgage size is critical in a market segmented on size. We also depart from the standard identification of demand models by introducing the microeconometric bunching estimation into a structural demand model.

The critical modeling departure from the existing literature is on the supply side of financial intermediation. As in Buchak et al. (2018) we model competition between banks and shadow banks. Most structural models of financial intermediation assume balance sheet lending. We strongly depart from this view and allow banks to choose whether to originate on balance sheet or originate to distribute—i.e., the balance sheet adjustment margin. As we emphasize in the paper, modeling this feature critically changes insights from important policy counterfactuals.

Our paper is related to studies that have examined the changing nature of mortgage origination in the United States. The wake of the financial crisis saw increased interest in the functioning of the originate-to-distribute model and its impact on the recent housing crisis. In particular, papers have focused on the originate-to-distribute model and its costs and benefits. See, for example, Mian and Sufi (2009), Keys et al. (2010) and Purnanandam (2011). We contribute to this literature on several dimensions. We model banks' choice of OTD origination in a structural model and examine the equilibrium choice of OTD and balance sheet lending.

Our paper is also related to the literature on GSEs. Many papers, e.g., Acharya et al. (2011), Bhutta (2012), Hurst et al. (2016), and Elenev et al. (2016), have studied how successful GSEs have been in effecting these goals, and have found mixed results. We focus particularly on the role of GSE financing and its interaction with recent regulatory and bank capital changes in explaining the growth of shadow banks. We study how market segmentation arises out of a GSE-financed market interacting with bank balance sheet capacity and bank capital regulation, and how it affects overall origination volume, distribution of credit across borrowers, and relative pricing of products.

Our paper also connects to a large literature that examines the impact of government regulations and various policy interventions on banking and credit markets adopted during and after the financial crisis. See, for example, Mayer et al. (2014); Agarwal et al. (2014, 2015, 2017); Auclert et al. (2019); Lucca et. al. (2014); Piskorski et al. (2015); Egan, Hortaçsu, and Matvos (2017); Granja and Leuz (2017); Di Maggio et al. (2017, 2019) and Scharfstein and Sunderam (2017). Our paper focuses instead on the growth of shadow banks and their interplay with traditional banks after the crisis.