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journal homepage: www.elsevier.com/locate/jhecBorrowing constraints during the housing bubble[☆]Irina Barakova^{a,*}, Paul S. Calem^b, Susan M. Wachter^c^a Office of the Comptroller of the Currency (OCC), US Treasury Department, 400 7th St SW, Washington, DC 20219, USA^b Federal Reserve Bank of Philadelphia, Ten Independence Mall, Philadelphia, PA 19106, USA^c The Wharton School, University of Pennsylvania, 3620 Locust Walk, Philadelphia, PA 19104, USA

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ABSTRACT

The impact of borrowing constraints on homeownership has been well established in the literature. Wealth is most likely to restrict homeownership followed by credit and income. Using recent movers from the 1979 National Longitudinal Survey of Youth and borrowing constraint definitions commonly used in the literature, we examine the impact of these constraints on the probability of homeownership during the housing market boom between 2003 and 2007. We show that whereas the pool of financially constrained households expanded, the marginal impact of borrowing constraints associated with income and credit quality declined during this period. The constraint associated with wealth, however, continued to have a negative impact on homeownership status, all else equal. The fact that lending standards became less strict is accepted; however the impact of this on homeownership has not been previously studied. Here we find that less restrictive underwriting does appear to have reduced the impact of income and credit quality on homeownership but the impact of the wealth constraint persists.

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1. Introduction

An extensive literature studying financial barriers to homeownership has developed over the past two decades. This line of research provides ample evidence that down

payment and monthly payment requirements, which respectively depend on the household's wealth and income, traditionally have been a factor in tenure status. The research also documents the impact of borrowers' credit quality, a determinant of access to mortgage credit, on tenure status. A second line of research, theoretical and empirical, demonstrates both that loosened mortgage underwriting helped fuel the boom in house prices between 2003 and 2007 and the boom in house prices supported the credit expansion.

What the literature does not identify is the effect of this credit expansion on borrowing constraints, and the effect of changing borrowing constraints on homeownership. In fact, homeownership did not expand after 2004 despite the expansion of credit supply and loosening of traditional credit constraints. Our paper contributes to the literature by being the first to measure the changes in borrowing constraints during the 2003–2007 period of rapidly rising

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house values, and the associated impacts on homeownership. We also consider the relationship of changing borrowing constraints to regional house price appreciation.¹

We use data from the National Longitudinal Survey of Youth (NLSY) which is comprised of households headed by persons in their 40s, excluding immigrants. As a relatively homogeneous demographic group, these households provide a controlled sample for studying the impact of the evolving housing and credit environment. The survey provides information on the homeownership status and current house values, as well as income, wealth and credit quality of households that allows us to identify those that face potential income, wealth or credit constraints. Within this sample, we focus on households that have recently moved, because these households face an actual tenure choice decision. The timing of the survey provides two important snapshots bounding the boom period: we use the 2004 and 2008 data which reflects tenure choices among households that moved during 2002–2003 and 2006–2007, respectively.

Consistent with prior studies, the three constraint categories of income, wealth, and credit history are found to be associated with reduced likelihood of homeownership among the recent movers in the first wave of the survey. Importantly, however, although the pool of financially constrained households increased during the boom period, as reflected in comparison across the two snapshots, the marginal impact of borrowing constraints, other than the wealth constraint, declined.

The paper is organized as follows: The next section reviews the relevant literature, Section 3 discusses the data, and Section 4 outlines the methodology. Section 5 discusses the results, and Section 6 concludes.

2. Literature review

As noted, our paper builds on the well-established literature that documents a significant role of borrowing constraints as a factor in homeownership status, especially among low-income and minority households. For instance, Haurin et al. (1996, 1997) demonstrates that the wealth constraint plays an important role, even after taking into account the endogeneity of wealth in tenure decisions.²

The earlier literature examines wealth and income constraints but does not consider the role of borrowing constraints tied to household credit quality. Rosenthal (2002) introduces credit quality in investigating barriers to homeownership by considering the combined impact of all three types of borrowing constraints using the 1998 Survey of Consumer Finance. Barakova et al. (2003) confirms the importance of credit quality and evaluates the relative impact of credit quality on homeownership rates, distinguishing it from wealth and income constraints.

¹ See “Explaining the Housing Bubble” (Levitin and Wachter, 2012) for a discussion of the timing of the housing bubble as it relates to real estate fundamentals in particular as it relates to rents and interest rates.

² The study arrived at similar findings with and without endogenizing wealth. Similarly, Calem et al. (2010) consider potential endogeneity of wealth and income in a study of the impact of financing constraints using NLSY data, and determine the findings to be robust to using instruments.

The current study extends Calem et al. (2010), which uses information on wealth, income, and credit in the 2004 wave of the National Longitudinal Survey of Youth (NLSY) to demonstrate the effect of wealth, income and credit constraints in accessing homeownership status.

This paper also relates to the recent and expanding literature that considers the relationship of collateral values to house price dynamics. Demyanyk and Van Hemert (2009) argue that less restrictive underwriting standards prior to the mortgage crisis could have been detected but were masked by rapid house-price appreciation. Pavlov and Wachter (2011) investigate the relationship between riskier, mortgage lending instruments with less restrictive underwriting standards and asset market prices and find that the expansion of credit supply through these instruments increases asset prices and magnifies the effects of demand shocks.

Like Pavlov and Wachter (2011) and Adelino et al. (2011) agree that higher credit supply induces an increase in asset prices. In particular, they reject the notion that an increase in housing demand loosens financial constraints. On the other hand, Brueckner et al. (2012) find feedback effects between expectations of rising house prices and less restrictive mortgage underwriting. Coleman et al. (2008) also find that the expansion of credit is a result of the rise in house prices during the boom period.

Another line of investigation uses structural vector error correction models to determine whether mortgage expansion Granger-causes price rises or whether price rises Granger-causes an expansion in mortgage credit in the US and elsewhere. The findings generally support bidirectional causality. (See Anundsen and Jansen, 2013; Berlinghieri, 2012; Oikarinen, 2009a; Oikarinen, 2009b; Sophocles and Vlassopoulos, 2009; Fitzpatrick and McQuinn, 2007; Gerlach and Peng, 2005; Gimeno and Martinez-Carrascal, 2010; Hoffman, 2004; Hoffman, 2003.)

A related question the literature addresses is whether the rise in house prices is associated with greater reliance on risk-based pricing allowing for lower credit scores, and low- or no-documentation (low-, no-doc) mortgages (see Getter, 2011). The argument is that when collateral (house) values are rising, lenders do not need to verify income to underwrite a loan but rather can rely primarily on credit scores and price the loan according to the riskiness of the borrower. Based on this analysis, wealth, income and credit constraints reduce the probability of homeownership when house prices do not increase, but when they do increase, risk-based pricing (with the assumption that house values will continue to rise) makes these constraints non-binding.³ Our empirical tests allow us to identify whether

³ This is consistent with practices documented in the Federal Reserve interagency guidance on Nontraditional Mortgage Product Risks (September 29, 2006), Final Rule amending Regulation Z (July 14, 2008). The result, according to Getter (2011), is that no-doc lending makes it possible to follow a life-cycle consumption pattern where income is no longer tied to consumption, consistent with the literature on credit constraints to consumption (Zeldes, 1989; Campbell and Cocco, 2003). This possible relationship between house borrowing constraints and consumer welfare outcome is discussed in theoretical general equilibrium models (see Favalukis et al., 2010); see also “Why Housing” (Levitin and Wachter, 2013) for another perspective on this argument.

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