



Home tenure, stock market participation, and composition of the household portfolio



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ABSTRACT

In this study, we empirically analyze the simultaneous decisions of households to participate in the stock market and/or own their home. A vast literature stream exists on decisions to buy or rent a home, and many contributions report the low participation rate of American households in the US stock market. Numerous authors have also provided evidence that home tenure (modeled as an exogenous variable) affects the share of household portfolios held as stocks. However, the present study is the first to allow decisions on homeownership and stockholding to be simultaneous and endogenous. We use a dynamic bivariate logistic panel data model on the Panel Study of Income Dynamics data from 1999 to 2007, controlling for sample selection bias and time-invariant unobserved heterogeneity. These estimates allow us to simulate the individual paths of homeownership and stockholding status over whole life cycles, according to household characteristics. *Ceteris paribus*, we show that households acquiring one asset (either home or stocks) acquire the other at an earlier stage in their life cycles, implying that some households become trapped in a no-stockholding, renting position.

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1. Introduction

This study provides an empirical analysis of household portfolio choices to understand the dynamic interactions between homeownership and stock market participation. Our contribution is twofold. First, we focus on understanding the simultaneous nature of these choices: whether a change in either homeownership or stockownership can distort the current and future decisions of a household regarding the other asset. Second, we investigate, over the whole life cycle, the extent to which US data support the cross-causality between home tenure and stockholding decisions.

Despite their importance, the dynamic interactions in household choices between homeownership and stock market participation remain rather unexplored and most of the empirical works on household portfolio choices are static¹. A notable exception is the work of [Vissing-Jorgensen \(2002\)](#) who explained the stock market participation puzzle (i.e., the majority of US households do not participate in the stock market) using a dynamic empirical setup that focused on the role of the heterogeneity of non-financial income patterns and the costs of participating in the stock market. The author argued that the presence of fixed transaction costs might explain the persistence of individual stockholding positions. Households that have not held stocks previously are less likely to participate in the stock market than those that have.

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¹ See [Allen and Gale \(1994\)](#) and [Heaton and Lucas \(2000\)](#).

Other authors have explicitly emphasized the role of real estate holdings in household portfolio choices². For instance, (Yao and Zhang, 2005a), in extending the analyzes of Cocco (2005) and Hu (2005), provide evidence that housing transaction costs may explain the stock market participation of households³. From these results, homeowners hold a higher proportion of equity in liquid financial assets (i.e., stocks and bonds) than renters do. In the same vein, households with less financial wealth mainly choose to hold risk-free assets (such as bonds) rather than stocks or real estate because of the fixed costs associated with stock market participation and the liquidity constraints imposed by mortgage down payments. Kullmann and Siegel (2005) proposed an empirical contribution focused on the role of home tenure in equity holdings. They constructed a dynamic panel data model that controlled for possible state dependence in stock market participation and found that exposure to real estate risk (i.e., the background risk measured by the local volatility of property values) plays a significant role. Moreover, Yao and Zhang (2005b) added to their earlier contribution by proposing a theoretical setup characterized by stock market entry and participation costs as well as housing and mortgage constraints, thereby reproducing well-documented home- and stockownership life-cycle patterns and mimicking the negative effect of homeownership on equity exposure.

While most of these previous empirical contributions examine how home tenure influences equity holdings, the reverse causation is not considered. Indeed, this empirical literature, including the complementary empirical works of Cocco (2005) and Yao and Zhang (2005a), only focus on the causal impact of home tenure on stockholding decisions. Homeownership position is treated as exogenous and the role of past or current stockholding on the decision to own or rent is thus omitted. In our opinion, such a view is rather extreme because it implicitly assumes the homeownership decision first that is then followed by the stockownership decision. The purpose of our study is to propose a setup suitable to capture two distinct effects, namely, the (cross-)causality and simultaneity effects between home tenure and stockholding decisions. For example, consider a household that currently rents a property and has few liquid financial assets (i.e., a small amount of bonds and no stocks). Suppose this household exogenously receives a large sum of money. This positive transitory

earnings shock allows it to either pay the transaction costs associated with stock market participation or make a down payment on the purchase of its house. In this case, the interdependence of each decision is obvious: at a given date, the household must choose between “becoming an owner with no stocks” and “becoming a stockholder” while continuing to rent accommodation. The potential importance of these simultaneous choices is also clear when considering the households’ wealth reallocation day by day⁴. Although the majority of US households hold their wealth in the form of riskless assets that will further constitute their mortgage down payments, it also appears that a proportion of households that participate in the equity market may sell their stocks to realize the down payment needed to qualify for a mortgage, and thereby become homeowners. In this case, the prior “renter with stocks” changes to an “owner with no stocks.”

We now assess the quantitative importance of the interdependent and simultaneous home/stock decisions as well as the covariates that affect these choices. We estimate a bivariate dynamic logit model in the manner of Bartolucci and Farcomeni (2009), using data from the Panel Study of Income Dynamics (PSID) from 1999 to 2007⁵. We obtained information on the home and equity positions of 2, 684 US households and their sociodemographic attributes (gender, age, marital status, and number of children), real income, real net worth (i.e., bonds, stocks, and home equity), ratio of mortgage to house value, and time dummies. We simultaneously estimate three equations: (i) two marginal conditional logit equations (the first for stock market participation and the second for home tenure) using state dependence terms (lagged position variables) and unobserved heterogeneity terms to control for household-specific effects, and (ii) a log odds ratio equation including selected covariates accounting for potential simultaneity in home and stock market decisions. Our findings strongly support the hypothesis that both simultaneity and cross-causality effects affect the portfolio composition of households.

First, we provide evidence that previous homeowners are more likely to become stockholders: the well-known crowding-out effect of homeownership is no longer present in our setup. From our estimates, a homeowner in 1999 has a 53% chance to become stockholder in 2007, ten percentage points higher than that of a renter with similar socioeconomic profiles. This result is in line with earlier results derived from dynamic models but sharply contrasts most of the static empirical literature. Moreover, the negative impact of the low liquidity of home equity on decisions to participate in the stock market, which has been shown in studies using older data (between 1984 and 1999), is no longer significant in our more recent

² For (Grossman and Laroque, 1990), housing is simultaneously a consumption good and an investment asset, distorting the way it is held in household portfolios. The value of home equity is much greater than it would be if housing were a standard financial asset. Flavin and Nakagawa (2004) used a similar model to explain how housing adjustment costs distort household preferences and portfolio allocation.

³ Some theoretical contributions (Campbell and Cocco (2003), and Cocco, Gomes, and Maenhout, 2005) have already dealt with the determinants of home tenure and participation in equity markets simultaneously. Yao and Zhang (2005b), for example, proposed a life cycle framework suggesting that liquid assets of households play a significant role in explaining their home- and stockownership decisions. As investors grow older, their home tenure and stockholding decisions become distorted, yielding a hump-shaped pattern of home- and stockownership over the life cycle. This theoretical framework also shows that households’ previous home equity positions also influence their housing and stock market decisions over their life cycles.

⁴ Regarding theoretical contributions, (Cocco, 2005; Flavin and Yamashita, 2002; Yao and Zhang, 2005a; 2005b) and Cauley et al. (2007) all propose theoretical optimal portfolio models with endogenous housing decisions to deal with the joint decision of whether to invest in housing or stocks

⁵ We exclude the waves prior to 1999, when the typical frequency of the PSID surveys was five years, because the period between surveys might be too long when considering the transition rates in home and equity markets, in that more than one transition may occur in a five-year period.

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