The demand for risky assets: Sample selection and household portfolios

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Received 1 May 1996; received in revised form 1 July 1999; accepted 1 October 1999

Abstract

We estimate a microeconomic model of household asset demands that allows for the fact that households typically have zero holdings of most assets. The adjustments for non-observed heterogeneity generalize methods developed by Dubin and McFadden (1984. Econometrica 52, 345–362). Simulating our model using a random sample of US households, we examine distributional and demographic effects on macroeconomic demands for money, stocks and bonds. © 2000 Elsevier Science S.A. All rights reserved.

\textit{JEL classification:} C35; E41; G11

\textit{Keywords:} Discrete-continuous model; Consumer finances; Monitoring costs; Incomplete portfolios; Logit model

1. Introduction

This paper applies discrete-continuous econometric techniques to microeconomic data on household portfolio composition in order to estimate individual asset demands from the 1983 Survey of Consumer Finances (SCF). Since
the data set we study includes a random sample of the US population, by simulating our model, we obtain estimates of economy-wide money, stock and bond demand elasticities that fully allow for the non-linearities in asset demand generated by the combination of a discrete choice of asset portfolio with a continuous choice of quantities demanded for given portfolio composition.

Early research using cross-sectional, household-level data to investigate portfolio choices includes Uhler and Cragg (1971), Friend and Blume (1975) and King and Leape (1984). Recently, research in this field has become very active and several studies directly complement our own. Ioannides (1992) utilizes the panel data structure of the 1983 and 1986 SCFs, focusing particularly on changes in individual portfolios between these two dates. Hochguertel and van Soest (1996) examine how housing wealth affects total liquid financial wealth, and Poterba and Samwick (1997) use several waves of the SCF but focus exclusively on age versus cohort effects. Hochguertel et al. (1997) examine tax effects, Guiso et al. (1996) consider the relation between labor income risk and portfolio choice, and Heaton and Lucas (1997) study the effect of entrepreneurial risk on portfolio composition. Agell and Edin (1990) estimate a model resembling that of King and Leape on Swedish data, stressing tax effects in particular. Bertaut (1998) estimates bivariate probits on the 1983 and 1989 SCFs to investigate what determines whether households directly own stocks. All the above studies, however, adopt reduced-form specifications and do not link discrete and continuous choices through utility maximization as is done in the present paper.

To cope with the fact that a large number of individuals hold only a subset of the assets available, we make the plausible assumption that households face monitoring costs, either in terms of time or money, of holding various portfolios. Such an assumption is consistent with the observation that hardly anyone holds, say, $1’s worth of stocks. Past attempts at modeling incomplete portfolios have employed the assumption of non-negativity constraints that prevent investors from short selling particular assets as they would ideally choose to do. See, for example, Auerbach and King (1983). The assumption of fixed portfolio monitoring costs adopted in the present study provides a simple and flexible alternative. Similar assumptions might well prove useful in coping with zero consumption levels in studies of deterministic consumer demand.

1 Flavin and Yamashita (1998) argue that housing wealth cannot be easily adjusted, but that the amount of housing wealth is likely to affect the choice between bond and stock holdings.

2 Related papers which use household data to parameterize portfolio simulation models include Bertaut and Haliassos (1997) and Haliassos and Hassapis (1998).

3 There is a large econometric literature on consumption demand with zero consumption of certain commodities. An early paper which uses censored regression models is Tobin (1958). See also Wales and Woodland (1983), Hanemann (1984), Lee and Pitt (1986) and Blundell and Meghir (1987).
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