Limited asset markets participation, monetary policy and (inverted) aggregate demand logic

Florin O. Bilbiie[a,b,*]

[a]*Department of Finance and Economics, HEC Paris Business School, 1 Rue de la Liberation, 78351 Jouy-en-Josas Cedex, France*
[b]*Nuffield College, Oxford University, UK*

Abstract

This paper incorporates limited asset markets participation in dynamic general equilibrium and develops a simple analytical framework for monetary policy analysis. Aggregate dynamics and stability properties of an otherwise standard business cycle model depend nonlinearly on the degree of asset market participation. While 'moderate' participation rates strengthen the role of monetary policy, low enough participation causes an inversion of results dictated by conventional wisdom. The slope of the 'IS' curve changes sign, the 'Taylor principle' is inverted, optimal welfare-maximizing discretionary monetary policy requires a passive policy rule and the effects and propagation of shocks are changed. However, a targeting rule implementing optimal policy under commitment delivers equilibrium determinacy regardless of the degree of asset market participation. Our results may justify Fed's behavior during the 'Great Inflation' period.
© 2007 Elsevier Inc. All rights reserved.

1. Introduction

At the heart of modern macroeconomic literature dealing with monetary policy issues lies some form of 'aggregate Euler equation', or 'IS' curve: an inverse relationship between aggregate consumption today and the expected real interest rate. This relationship is derived from

---

* Corresponding author at: Department of Finance and Economics, HEC Paris Business School, 1 Rue de la Liberation, 78351 Jouy-en-Josas Cedex, France.
E-mail address: bilbiie@hec.fr.

the households' individual Euler equations assuming that all households substitute consumption intertemporally—for example using assets. Normative prescriptions are then derived by using this equation as a building block, together with an inflation dynamics equation ('Phillips curve') derived under the assumption of imperfect price adjustment.[1]

This paper introduces *limited asset markets participation* (LAMP) into an otherwise standard dynamic general equilibrium model and studies the implications of this for monetary policy. We model LAMP in a way that has become standard in the macroeconomic literature reviewed below. Namely, we assume that a fraction of agents have zero asset holdings, and hence do not smooth consumption but merely consume their current disposable income, while the rest of the agents hold all assets and smooth consumption.[2] This modelling choice is motivated both by direct data on asset holdings and by an extensive empirical literature studying consumption behavior. The latter seems to suggest that, regardless of whether aggregate time series or micro data are used, consumption tracks current income for a large fraction of the US population. To give just some prominent examples, Campbell and Mankiw [11] used aggregate time series data to find that a fraction of 0.4 to 0.5 of the US population merely consumed their current income. More recent studies using micro data also find that a significant fraction of the US population fails to behave as prescribed by the permanent income hypothesis (e.g. [25,28]).[3] Finally, direct data on asset holdings shows that a low fraction of US population holds assets in various forms.[4] Models incorporating this insight have been recently used in the macroeconomic literature. First, some version of this assumption—whereby a fraction of agents does not hold physical capital- has been proposed by Mankiw [34] and extended by Gali et al. [20] for fiscal policy issues.[5] Second, it is the norm in the monetary policy literature trying to capture the 'liquidity effect', where it is assumed that asset markets are 'segmented' (e.g. Alvarez et al. [1]). This modelling choice has only recently been incorporated into the sticky-price monetary policy research in a paper that we review in detail below.

We show how the general equilibrium model with LAMP can be reduced to a familiar 2-equations system, consisting of a Phillips- and an IS- curve, which nests the standard New Keynesian model; since the resulting system is very simple, it might be of independent interest to some researchers. Notably, we capture the influence of LAMP on aggregate dynamics through an unique parameter, the elasticity of aggregate demand to real interest rates, which depends non-linearly on the degree of asset market participation and is at the core of the intuition for all our results. In a nutshell, we show that limited asset market participation has a non-linear effect on most predictions of the standard full-participation model.

---

[1] See Woodford [46] for a state-of-the art review of this literature. Earlier overviews comprise, amongst others, [13] and [24].

[2] In an appendix of an earlier working paper version [7] we outline a simple model in which high enough proportional transaction costs can rationalize limited participation. We also review some evidence concerning the magnitude of these costs necessary to generate observed non-participation levels.

[3] Johnson et al. show that a large part of the US population consumed the unexpected increase in transitory income generated by the 2001 tax rebate and find that the response was higher for households with low wealth. Relatedly, Wolff and Caner [43] use 1999 PSID data to find that 41.7% of the US population can be classified as asset-poor when home equity is excluded from net worth, whereas 25.9% are asset-poor based on net worth data.

[4] Vissing-Jorgensen [42] reports based on the PSID data that of US population 21.75% hold stock and 31.40% hold bonds. Data from the 1989 Survey of Consumer Finances (see e.g. [36]) shows that 59% of US population had no interest-bearing financial assets, while 25% had no checking account either.

[5] The latter paper argues that this modelling assumption can help explaining the effects of government spending shocks. See also Bilbiie and Straub [8].