Available online at www.sciencedirect.com
ScienceDirect
Journal of Economic Theory 146 (2011) 812–844
JOURNAL OF Economic Theory
www.elsevier.com/locate/jet

Asset prices in a Huggett economy ☆

Per Krusell [a,b,c,d], Toshihiko Mukoyama [e,f], Anthony A. Smith, Jr. [g,*]

[a] *IIES, Sweden*
[b] *CAERP, Spain*
[c] *CEPR, UK*
[d] *NBER, United States*
[e] *University of Virginia, United States*
[f] *CIREQ, Canada*
[g] *Department of Economics, Yale University, 28 Hillhouse Avenue, Room 306, New Haven, CT 06520, United States*

Received 16 September 2009; final version received 26 October 2010; accepted 4 March 2011

Available online 6 April 2011

Abstract

This paper explores asset pricing in economies where there is no direct insurance against idiosyncratic risks but other assets can be used for self-insurance, subject to exogenously-imposed borrowing limits. We analyze an endowment economy, based on Huggett (1993) [11], both with and without aggregate risk. Our main innovation is that we obtain full analytical tractability by studying the case with "maximally tight" borrowing constraints. We illustrate by looking at riskless bonds, equity, and the term structure of interest rates, and we show that the model can reproduce many features of observed asset prices when idiosyncratic risks are quantitatively reasonable.
© 2011 Elsevier Inc. All rights reserved.

JEL classification: E44; G12

Keywords: Incomplete markets; Asset prices; Borrowing constraints; Equity premium

☆ The authors acknowledge helpful comments from participants at the 2008 Midwest Macro Meetings, at the Murray S. Johnson Memorial Conference in honor of Truman F. Bewley, held at the University of Texas at Austin in April 2009, at the "Recent Developments in Macroeconomics" conference at Yonsei University, at Concordia University, as well as from the editor and two anonymous referees. The Technical Appendix for this paper can be found at: http://jet.arts.cornell.edu/Supplementary_Materials.html.

* Corresponding author. Fax: +1 203 436 2626.
E-mail addresses: per.krusell@iies.su.se (P. Krusell), tm5hs@virginia.edu (T. Mukoyama), tony.smith@yale.edu (A.A. Smith, Jr.).

0022-0531/$ – see front matter © 2011 Elsevier Inc. All rights reserved.
doi:10.1016/j.jet.2011.04.003

1. Introduction

Are some of the striking features of asset prices—in particular, the high premium for risk in asset markets and the low return on risk-free assets—a result of market incompleteness and, in particular, of missing markets for consumers' idiosyncratic risks? This possibility was raised in the concluding remarks of the seminal paper by Mehra and Prescott [22], and it was subsequently investigated by many researchers, among them Mankiw [20], Heaton and Lucas [9,10], Huggett [11], Telmer [27], Lucas [18], den Haan [7], Constantinides and Duffie [6], Krusell and Smith [13], Marcet and Singleton [21], Storesletten, Telmer, and Yaron [25]. Some of these analyses suggest that the effects of market incompleteness can be quantitatively important—e.g., the work by Constantinides and Duffie and by Storesletten, Telmer, and Yaron—but the "average view" in this literature is probably closer to concluding that no major aspects of asset prices are overturned if market incompleteness is taken into account. In fact, a recent study by Krueger and Lustig [12] demonstrates that in a range of interesting cases, risk premia will not be affected at all by market incompleteness, even though the risk-free rate might be.

Though it had a different substantive question in focus, the early work of Bewley [3,4] contains the key ingredients that have since become central elements used in studies of asset pricing with incomplete markets. Bewley assumed that consumers face less than fully uninsurable shocks but that there are a large number of consumers of each type across whom these shocks are independent, so that these shocks have no direct aggregate consequences. Thus, each consumer can be studied in a stationary environment. Literatures then developed around this setting, examining not only asset pricing but also a range of other issues. A general challenge here has been that multiperiod equilibrium models are hard to analyze, even with the aid of numerical methods, especially when there is aggregate uncertainty. In the present paper, we show how some simplifying assumptions allow us to study asset pricing with analytical precision. In particular, we study the setting in Huggett [11], which lays out a canonical incomplete-markets asset-pricing model. This setting can be viewed as an extension of the seminal work of Lucas [19] to the case where insurance markets against idiosyncratic risks are missing.

A central element of Huggett's setting is that consumers can borrow as a partial way of insuring. There is a borrowing constraint, and Huggett's numerical results show how the tightness of this constraint affects the degree of de-facto insurance and, thus, the risk-free rate. Our main contribution is to study a special case of the Huggett economy both without and with aggregate risk; Huggett studied the only former and, in addition, looked only at the risk-free rate. The special case is that where the borrowing constraints are "maximally tight," i.e., so tight that they induce autarky. For this case, we obtain closed-form solutions for asset prices. The case is of particular interest, because the tighter is the borrowing constraint, the more "bite" will the market incompleteness have in terms of producing asset prices that are different from those obtaining in the standard representative-agent, Lucas-style model. One could thus view our present setting as one that allows us to examine the *potential* of incomplete-markets settings for explaining asset prices. We demonstrate how the different primitives of the model—the discount rate, the preference curvature, and the endowment process—influence prices. In particular, we show that the model allows a very rich set of asset-price predictions, including large equity premia, a low risk-free rate, and a yield curve that is qualitatively different than in the standard model.

The Huggett economy is the simplest form of endowment economy. In Huggett's [11] paper, only a riskless asset is available to agents, who are thus using this asset for precautionary saving against endowment shocks. There is no aggregate risk: the aggregate endowment is constant over time. Huggett shows, using numerical analysis, that with high curvature in utility and

Download English Version:

https://daneshyari.com/en/article/956964

Download Persian Version:

https://daneshyari.com/article/956964

Daneshyari.com