

Parameter Learning in Production Economies

Mykola Babiak ^{a,*}

Roman Kozhan ^{b,**}

^a CERGE-EI

^b Warwick Business School

April 2019

Abstract

We examine how parameter learning amplifies the impact of macroeconomic shocks on equity prices and quantities in a standard production economy where a representative agent has Epstein-Zin preferences. An investor observes technology shocks that follow a regime-switching process, but does not know the underlying model parameters governing the short-term and long-run perspectives of economic growth. We show that rational parameter learning endogenously generates long-run productivity and consumption risks that help explain a wide array of dynamic pricing phenomena. The asset pricing implications of subjective long-run risks crucially depend on the introduction of a procyclical dividend process consistent with the data.

Keywords: Parameter Learning, Equity Premium, Business Cycles, Markov Switching

JEL: D83, E13, E32, G12

[☆]We would like to thank Andrea Gamba, Michal Kejak, Ian Khrashchevskiy, Ctirad Slavik, Sergey Slobodyan and conference/seminar participants at the 2018 Lancaster-Warwick (LaWa) Workshop on Financial Econometrics and Asset Pricing, Warwick Business School, CERGE-EI and Università Ca' Foscari Venezia for their discussions and comments. We also thank the Centre for Scientific Computing at the University of Warwick for support with the supercomputing clusters. Mykola Babiak received financial support from the Charles University Grant Agency - GAUK (grant number 744218).

^{*}CERGE-EI, a joint workplace of Charles University and the Economics Institute of the Czech Academy of Sciences, Politických vězňů 7, 111 21 Prague, Czech Republic.

^{**}Warwick Business School, University of Warwick, Scarman Road, Coventry, CV4 7AL, UK.

Email addresses: mykola.babiak@cerge-ei.cz (Mykola Babiak), roman.kozhan@wbs.ac.uk (Roman Kozhan).