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# Asset Prices in Affine Real Business Cycle Models

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**Abstract**

I describe a tractable way to study macroeconomic quantities and asset prices in a large class of dynamic stochastic general equilibrium models. The proposed approximate solution is analytical, log-linear, and adjusted for risk. Therefore, it is well suited to investigate economic mechanisms, describe the time series properties or estimate the model, and deal with stochastic volatility. I explain the pitfalls encountered by previous attempts to use simple approximation techniques, in particular with models featuring recursive preferences. Finally, I show the theoretical relationship between my solution and higher-order perturbation methods.

*Keywords:* approximation methods, asset prices, stochastic volatility.
*JEL:* C63, G12, E32.



## 1. Introduction

Recursive preferences and time variation in means and volatilities have become important features of consumption-based asset pricing literature. Introducing these features in the real business cycle framework allowed researchers to study the joint behavior of real and financial variables along the business cycle. Because the analysis of asset prices requires computing risk adjustments, simple log-linearization is inadequate. Furthermore, numerical methods such as the value-function iteration are computationally expensive and ill-suited for problems with a large number of state variables.