

Dissertation Proposal

Steven Baker

Wednesday, November 7, 2012

10 AM

324 GSIA (West Wing)

Modeling Financial Markets with Heterogeneous Agents

The Financialization of Storable Commodities

I construct a dynamic equilibrium model of storable commodities populated by producers, dealers, and households. When financial innovation allows households to trade in futures markets, they choose a long position that leads to lower equilibrium excess returns on futures, a more frequently upward-sloping futures curve, and higher volatility in futures and spot markets. However the effect on spot price levels is modest, and extremely high spot prices only occur in conjunction with low inventories and poor productivity. Therefore the "financialization" of commodities may explain several recently observed changes in spot and futures market dynamics, but it cannot directly account for a large increase in spot prices.

The Price of Oil Risk (with Bryan Routledge)

We solve a Pareto risk-sharing problem with heterogeneous agents with recursive utility over multiple goods. We use this optimal consumption allocation to derive a pricing kernel and the price of oil and related futures contracts. This gives us insight into the dynamics of risk premia in commodity markets for oil. As an example, in a calibrated version of our model we show how rising oil prices and falling oil risk premium are an outcome of the dynamic properties of the optimal risk sharing solution. We also compute portfolios that implement the optimal consumption policies and demonstrate that large and variable open interest is a property of optimal risk sharing.

Disagreement, Financial Markets, and the Real Economy

I study consumption, asset prices, and portfolios in a production economy with two agents who disagree regarding expected stock returns. The economy is characterized by continual overconsumption by individuals, and periodic "consumption booms" at the aggregate level. An optimistic investor believes stocks offer high excess returns, whereas a pessimist perceives low or negative excess returns. Each investor is able to construct a portfolio that seems to offer higher returns than he could achieve without the presence of his "misinformed" counterpart. As a result, each believes that his portfolio can support a higher level of consumption. When the wealth distribution tilts toward the optimist, aggregate consumption rises to a level not seen in either agent's homogeneous economy: a consumption boom. In a multi-sector version of the economy, controversy regarding one small firm is sufficient to cause significant movements in the price of a larger firm.