International Currency Portfolios

by Michael Kumhof

Discussion by David Backus
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What’s this about?

Questions
- Does intervention affect exchange rate? What does this mean?
- Should private agents hold foreign debt? How much?
- Do public positions in foreign debt substitute for private positions?

Plan
- What we knew already \([\text{this is harder than it looks}]\)
- What we learn from Michael \([\text{how to do it right}]\)
- What’s left for the rest of us
What’s this about?

Questions

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What we knew

Portfolio balance models

Traditional Tobin-Brainard approach

▶ Specify private demand functions for assets
▶ Government changes supplies, moves you move along demand
▶ Recent apps: long/short, private assets, fx reserves

Appealing, but harder than it looks

▶ Demand for assets depends on their characteristics
▶ Hard to know characteristics until you solve the model
▶ Irrelevance highlights extreme cases: changes in supply entirely offset by changes in demand
Irrelevance theorems: Modigliani-Miller

Nature of theorems
- If A is an equilibrium, then B supports same allocation

Equilibrium consists of
- Agents maximize subject to constraints
- Government satisfies budget constraint
- Markets clear

Capital structure of a firm (Modigliani-Miller)
- Key input: equity is residual claim
- Note: demand for equity changes with leverage
- Issues: taxes, bankruptcy, incentives, ...
Irrelevance theorems: government finance

Key issues in any such theorem

- What’s the residual?
  (money, bonds, taxes, spending, ...)
- Is it irrelevant?
  (money neutrality, lump-sum taxes, complete markets, ...)

Government finance

- Money and capital
- Nominal and indexed debt
- **Domestic and foreign-denominated debt**

Bottom line

- Impact depends on policy, economic structure
- Complicated, but not empirical
What we learn

Model: mechanics

Two countries, two goods (one each)

Governments

- Stochastic purchases of home goods
- Stochastic money growth
- Lump-sum taxes
- Liabilities: money, bonds, foreign bonds (residual)

Linear technology: \( y = rK \), \( r \) constant

Representative consumers in each country

- Log utility, Cobb-Douglas aggregator with home bias
- Cash constraint \( \Rightarrow \) inflation tax
- Portfolio choice: domestic capital, domestic and foreign bonds, domestic money \( \Rightarrow \) incomplete markets
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Model: results

- Increase variance of money growth
  \[ \Rightarrow \text{higher exchange rate volatility, lower bond returns} \]

- Increase variance of government purchases
  \[ \Rightarrow \text{higher price volatility, lower bond returns} \]

- Increase ratio of debt to GDP
  \[ \Rightarrow \text{lower price volatility, higher bond returns} \]

- Unanticipated purchase of foreign debt
  \[ \Rightarrow \text{price level falls, valuation effects?} \]
Thoughts for future work

Make it simpler

▶ Is loglinear approximation possible?
▶ Closed economy government finance problems?

Make it more complicated

▶ Vary elasticity of substitution? [Cole-Obstfeld?]
▶ Restrict private agents to domestic bonds? [China]
▶ Short-run liquidity effects?

Exchange rates and intervention

▶ Let reserves respond to exchange rate: does it matter?
Related work

Portfolio balance approach

- Exchange rates: Branson, de Macedo, Kouri, Tobin

Irrelevance in macroeconomics

- Correia, Nicolini, & Teles, JPE, 2008
- Peled, JME, 1985
- Sargent and Smith, AER, 1987
- Wallace, AER, 1981
- Good summary in Sargent’s red book, ch 8

Supply and demand in financial markets

- Duffie, JF, 2010
- Garleanu, Pedersen, & Poteshman, RFS, 2009