Sovereign Default Risk, Risk Averse Investors and Financial Contagion

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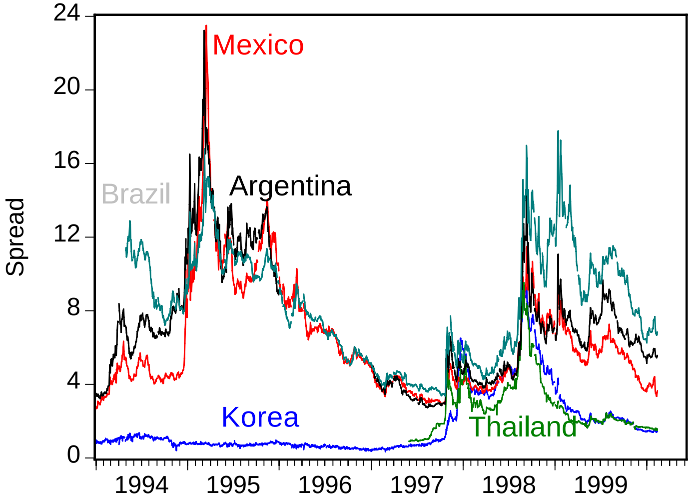
The contribution

- Develop a quantitative model of financial contagion, i.e. a interest rate spike in one emerging market with some problems (Mexico) to another without apparent problems (Argentina)

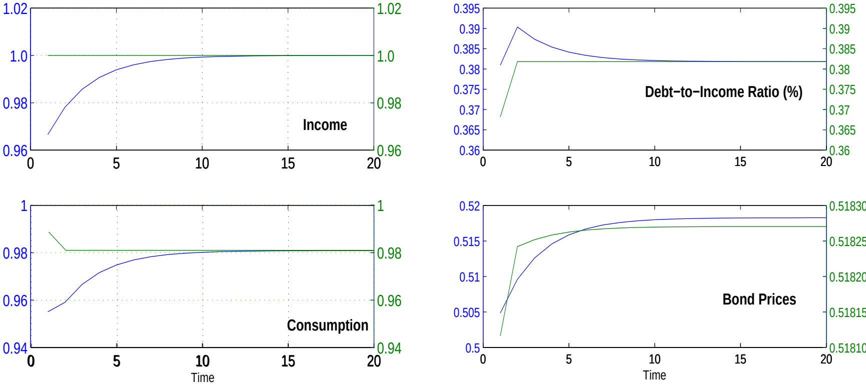
EMBI Spreads in Emerging countries in the 1990s



The story

- Mexico faces a bad productivity shock
- Mexico defaults on its coupon payment, interest rate in Mexico increase.
- US risk averse investors face a wealth loss
- US investors adjust their supply of credit on other markets
- Equilibrium interest rates faced by Argentina (whose fundamentals are unaffected) increase, borrowing in Argentina contracts. Correlated interest rate spikes, sudden stops.

Contagion


Income
Debt−to−Income Ratio (%)
Consumption
Bond Prices
Time
Time

Auxiliary elements

- Business cycle in the emerging markets: All exogenous (no labor, no investment), lacks feedback from interest rate to business cycle.
- Default decision: not essential to the start the mechanism, but potentially an interesting amplifying channel

The key element

- The equilibrium effect on interest rates through wealth effect
- The story seems reasonable and has (mostly Latin American) supporters (Cabellero, Calvo)

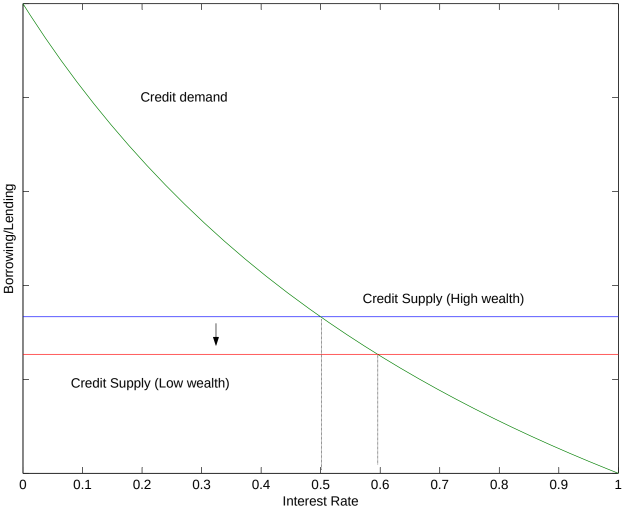
Issues and extensions

- Is it theoretically robust?
- Is it quantitatively relevant?

A two periods trivial economy

- US (Lender), A (wealth) in first period and 0 in the second
- $u'_L(A - b) = Ru'_L(Rb)$
- Emerging Economy (Borrower) 0 in the first period and e (income) in the second
- $u'_B(b) = Ru'_B(e - Rb)$
- Because of crisis in some other emerging market US faces a wealth loss (A falls)

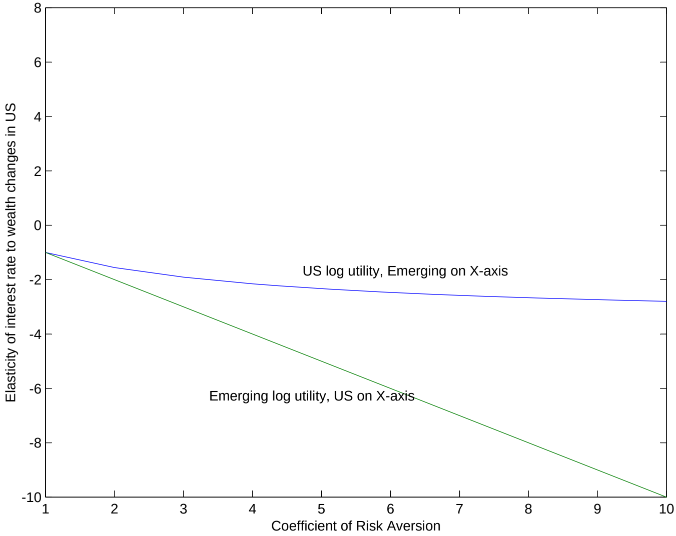
A special case: $u_B(.) = u_L(.) = \log$



A more general case

- *CRRA* with different risk aversion parameters
- Can derive local elasticity of equilibrium interest rates to US wealth shocks
- $$\hat{R} = \frac{\sigma_L \frac{\bar{A}}{\bar{A}-\bar{b}}}{\sigma_L - 1 + \left(\frac{\bar{b}}{\bar{A}-\bar{b}} + \sigma_L\right)\phi}$$
  $$\phi = -\frac{\frac{1}{\sigma_B} + \frac{\bar{R}\bar{b}}{e-\bar{R}\bar{b}}}{1 + \frac{\bar{R}\bar{b}}{e-\bar{R}\bar{b}}}$$
- In general elasticity depends on state of the economy, and can change quite a bit

How equilibrium interest rate respond to US wealth shocks



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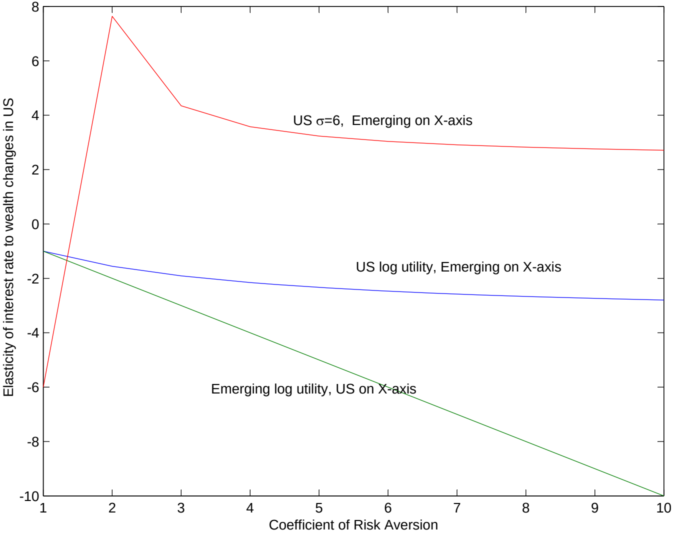

Bottom line

- Even with trivial model can get fairly exotic responses to simple wealth shocks.
- It is worth paying more attention to how these shocks work in a a model which can be easily understood.

What type of wealth shocks?

If drop in US aggregate wealth matter for emerging mkts then:

- It is hard to think that, for example, the Mexican default reduced US wealth by more than 0.1% , so contagion unlikely unless very high elasticities
- Episodes like stock market/housing market crashes should have a very strong effect on emerging markets (not sure what is the evidence)

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- Episodes like stock market/housing market crashes should have a very strong effect on emerging markets (not sure what is the evidence)
- Maybe want to think of segmented mkts story, where it is the wealth of specialists that matter