Research on International Financial Markets

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Complete vs Incomplete Markets

Complete Market Hypothesis: A set of securities is available for every state of the world.

- Allows you to invest when Marginal Product of capital is high: 'Make Hay while the Sun Shines'
- In other words, invest when $MPK \geq r^*$ where r^* is the world interest rate.

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Incomplete Market Hypothesis: No insurance for some states of the world.

- Implies precautionary savings: 'Save for the rainy days'
- In other words, invest when you have funds available.

Complete vs Incomplete Markets

$\Rightarrow$ These two hypothesis lead to radically different conclusions as far as it concerns international financial markets.

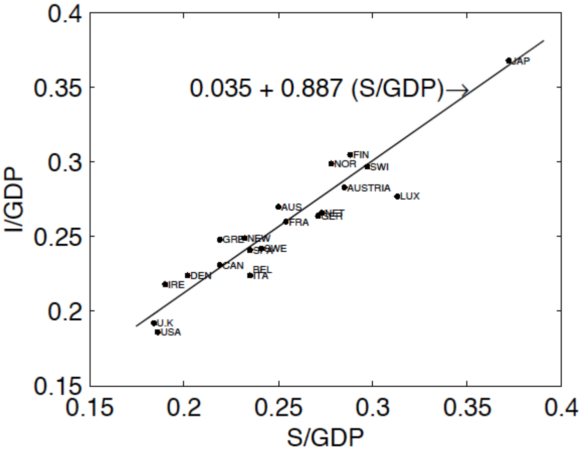
- With incomplete markets investment is based on availability of funds from savings. Savings and investment positively correlated
- With complete markets you invest *whenever* investment returns are high. Savings and investment are uncorrelated

Feldstein Horioka (1980, Economic Journal)

In 1980, Feldstein and Horioka showed that changes in countries' rates of national savings were closely related to the countries' rates of investment.

- Examined 16 industrial countries over 1960-74.
  - Savings to GDP, Investment to GDP ratios

Feldstein Horioka (1980, Economic Journal)



Source: M. Feldstein and C. Horioka, "Domestic Saving and International Capital Flows," *Economic Journal* 90, June 1980, 314-29.

Feldstein Horioka (1980, Economic Journal)

Running a simple regression of investment to GDP on Savings to GDP on the cross-section of many countries, they obtained

$$\left(\frac{I}{Y}\right)_i = .035 + .887\left(\frac{S}{Y}\right)_i + \nu^2 \text{ with } R^2 = .91$$

- The finding is evidence for incomplete financial markets (e.g., imperfect capital mobility etc).
- Not well integrated with the world capital markets; it implies $corr\,(S, I) > 0$.

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Bai & Zhang (2010, Econometrica) show that the standard model with complete financial markets implies a regression coefficient on $\left(\frac{S}{Y}\right)_i$ close to zero ($corr\left(S, I\right) \approx 0$)

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Different regression coefficient on 'true' data and 'complete markets' model generated data.

- The standard model cannot replicate the findings. We call this a "puzzle".

Solving the Feldstein-Horioka Puzzle

Bai and Zhang (2010, Econometrica) resolve this puzzle using incomplete markets.
Postulate financial constraints:

- They postulate a model where countries have restrictions on borrowing (a bond-enforcement model)
- This specification implies a restriction on capital flow mobility
  - $\rightarrow$ Capital flows decline compared to the standard model; less risk-sharing.

Bai Zhang Results

The Bond-Enforcement Model

$$(I/Y)_i = \gamma_0 + \gamma_1 (S/Y)_i$$

	Model	Data
Mean of γ_1	0.52	0.52
Mean of standard deviation of γ_1	0.05	
Standard deviation of mean	0.104	
Standard deviation of standard deviation	0.009	

Figure: Simulations of the Incomplete Markets- Bond Enforcement Model. Source: Bai and Zhang (2010).