Discussion of

Why Are Exchange Rates So Smooth? A Segmented Asset Markets Explanation

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motivation

- basic exchange rate determination, "Backus-Smith condition"

$$\ln \frac{e_{t+1}}{e_t} = \ln m^*_{t+1} - \ln m_{t+1}$$

where m_{t+1}, m^*_{t+1} are home and foreign SDF's

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- decompose exchange rate volatility

$$\text{var}\left(\ln {}^{e_{t+1}}/_{e_t}\right) = \text{var}\left(\ln m^*_{t+1}\right) + \text{var}\left(\ln m_{t+1}\right) - 2 \times \text{cov}(\ln m^*_{t+1}, \ln m_{t+1})$$

some numbers

$$\rho(\ln m^*_{t+1}, \ln m_{t+1}) = \frac{1}{2}\left[\frac{\sigma^2\left(\ln m^*_{t+1}\right) + \sigma^2\left(\ln m_{t+1}\right) - \sigma^2\left(\ln {}^{e_{t+1}}/_{e_t}\right)}{\sigma\left(\ln m^*_{t+1}\right)\sigma\left(\ln m_{t+1}\right)}\right]$$

- exchange rate volatility $\sigma({}^{e_{t+1}}/_{e_t}) \sim 10\% - 15\%$ per year
- $\sigma(m) \geq 50\%$ per year. (Hansen-Jagannathan bounds)
- $\rho(\ln m^*_{t+1}, \ln m_{t+1}) = 0.98$ Very high degree of risk sharing
    - usually $\log m_{t+1} = \log\beta - \gamma\log\Delta c_{t+1}$

some numbers - flip-side

- empirically low correlation between consumption growth across countries.
- suppose $\rho(\ln m^*_{t+1}, \ln m_{t+1}) = 0$.
  - $\sigma(e_{t+1}/e_t) = 71\%$: Exchange rates too smooth empirically

Either too much exchange rate volatility or too much international risk sharing.

some fixes

- Change preferences or environments in representative agent models
  - E-Z + correlated long run risk: Colacito and Croce (2012)
  - E-Z + correlated disaster risk: Farhi and Gabaix (2008)
  - Habit-persistence: Stathapolous (2012)
- market segmentation: wedge between price ratio and average MRS
  - possible if many agents "off their euler equations"

this paper

- heterogeneity in trading technologies across population
  - "mertonian traders" : buy all asset classes - trade equities. hold bulk of aggregate risk. agents who price exchange rates.
  - "non-mertonian traders" : limited ability to hedge against risk. hold restricted assets - low risk and home biased.

Story:

- few mertonians in both countries share risk across countries - price exchange rates. their sdf's are highly correlated.
- majority (non-mertonians) can't respond as optimally to changing mkt price of risk.
- international risk sharing in the aggregate is weak.

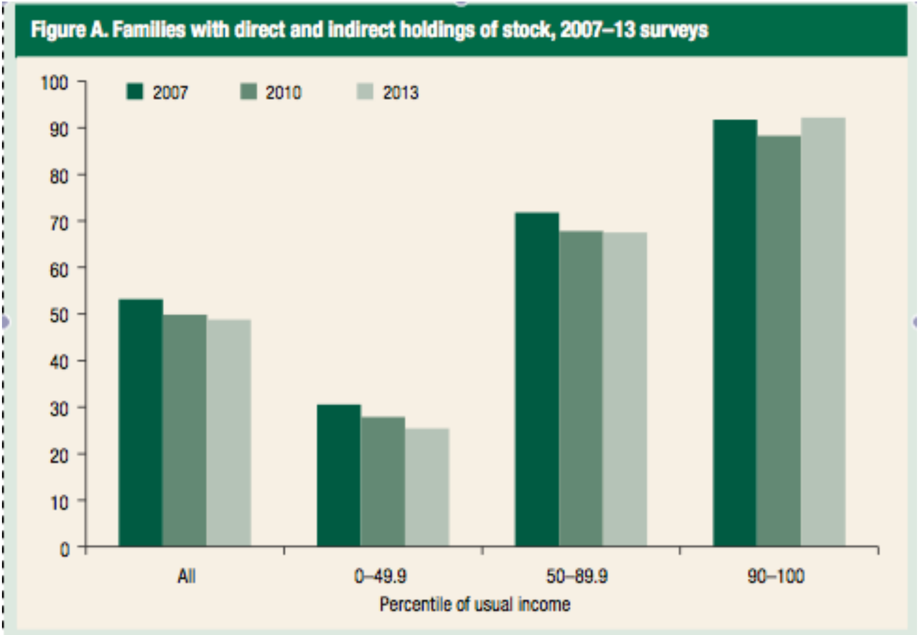
Figure A. Families with direct and indirect holdings of stock, 2007–13 surveys
2007
2010
2013
100
90
80
70
60
50
40
30
20
10
0
All
0–49.9
50–89.9
90–100
Percentile of usual income

smell test

- authors: look at household finance
  - Roughly 50% of U.S. investors do not hold stocks (SCF)
  - Chien et al. (2011) use same insight to solve domestic asset pricing puzzles
- more generally: wealthier and more educated people are more likely to invest in risky assets
  - US: Campbell (2006)
  - Europe: Carrol(2002), Guiso et. al. (2003)
- seems more ‘real’/reasonable(?) than long-run risk based stories in representative agent models.

key model feature

- mertonian traders: trade equities - foreign and domestic : hedge funds/investment banks
- non-mertonian 1: hold indices : mutual funds
- non-mertonian 2: only risk free debt : conservative pension funds

quantitative exercise: highlights

aim: generate volatile enough + correlated enough sdf's with low correlation in aggregate consumption growth

- 2 symmetric economies
  - country 1: USA
  - country 2: hybrid: Germany + UK + Japan + France
- Share of different traders
  - mertonians: 5 %
  - "index-fund" non-mertonian: 45 % (25-75: equity-debt)
  - "risk-free" non-mertonian: 50 %

results

	Benchmark	Data
$\sigma(\log m) = \sigma(\log m^*)$	0.423	> 0.4
$\sigma(\log \frac{e_{t+1}}{e_t})$	9.4%	13%
$\rho(\log m, \log m^*)$	0.975	> 0.947
$\rho(\Delta \ln C, \Delta \ln C^*)$	0.169	0.171
$\rho(\Delta \ln c, \Delta \ln C)_{Mertonian}$	0.725	low
$\rho(\Delta \ln c, \Delta \ln C)_{Non-Mertonian}$	0.975	high
$\frac{\sigma(\Delta \ln c)_{Mertonian}}{\sigma(\Delta \ln c)_{Non-Mertonian}}$	3.970	4.5

GREAT!

some quibbles

since this is a quantitative exercise and ...

- since heterogeneity is key: why assume identical distribution of traders across countries
  - maybe it helps here to think of heterogeneity as share of various financial institutions
- ToT movements and risk sharing
  - using unit-trade elasticities is not innocuous.
  - ToT movements may exacerbate/ameliorate the effects of restrictions on financial mkt. transactions

conclusion

- nice paper! clear and novel idea
- can the model still deliver on all dimensions with a more serious calibration exercise?