Global Banks and Systemic Debt Crises by Morelli, Ottonello and Perez

Discussion by Saki Bigio[1]

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Big Picture

General Principles

(i) Asset pricing challenge: **theory of discount factors**

(ii) Crisis: **theory away from consumption-based to intermediation-based**

(iii) Paper: **sovereign debt market no exception**

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(iii) Paper: **sovereign debt market no exception**

Paper

(i) Theory

- ⋆ Arellano economy + interest-rate risk
- ⋆ **Endogenous** interest risk: Gertler-Karadi-He-Krishnamurthy banks

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General Principles

(i) Asset pricing challenge: **theory of discount factors**

(ii) Crisis: **theory away from consumption-based to intermediation-based**

(iii) Paper: **sovereign debt market no exception**

Paper

(i) Theory

- ⋆ Arellano economy + interest-rate risk
- ⋆ **Endogenous** interest risk: Gertler-Karadi-He-Krishnamurthy banks

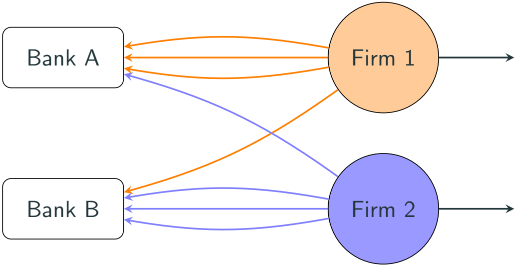
(ii) Evidence

- ⋆ fantastic data: CUSIP - FIID match
- ⋆ Ivashina-Sharfstein-Chodorow-Reich identification

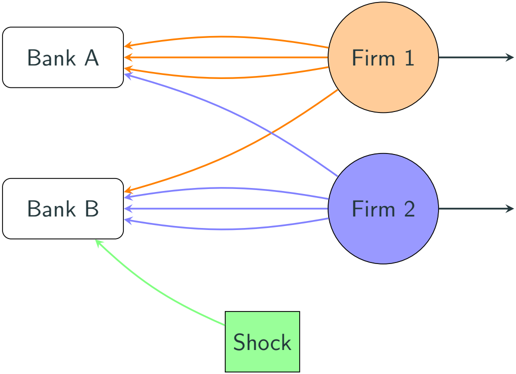
(iii) Headline Decomposition

(⋆) turn of DM shocks and 66% of SB spreads vanishes
(⋆) constant discount factor: 33% reduction in spread

Evidence of Channel - ISCR Approach



Evidence - ISCR Approach



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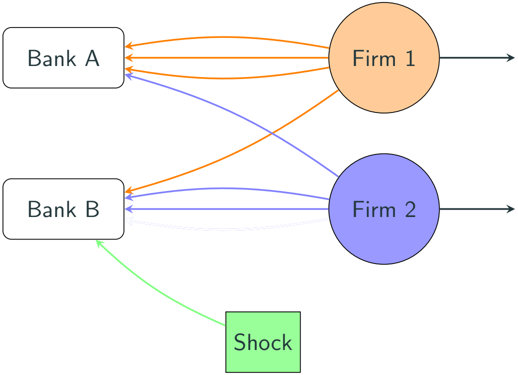
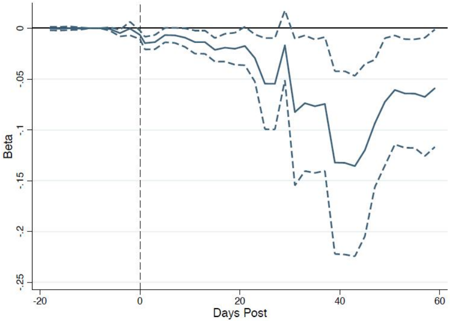


- (⋆) Caution: Firm #2 not shocked deferentially
- (⋆) Concern: Lehman exposure correlated with sovereign exposure

Main Estimate - Evidence of Net Worth Effect

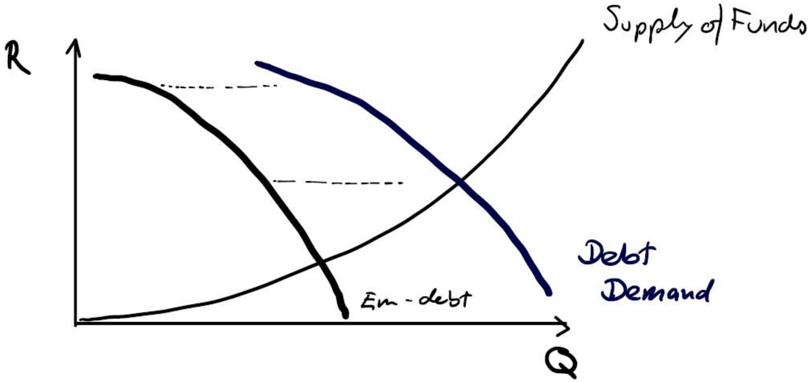
Figure 5. The Effect of Global Financial Intermediaries' Net Worth on EM-Bond Yields



Notes: This figure shows the estimated elasticity of bonds' yields to maturity, β_h, to changes in the holder's net worth at horizon h from estimating the regression 18. Solid lines represent the point estimates of the regression at each horizon, and dotted lines are the 90%-confidence intervals.

(⋆) Subjec to caution, great evidence!

Sketch to Understand Model



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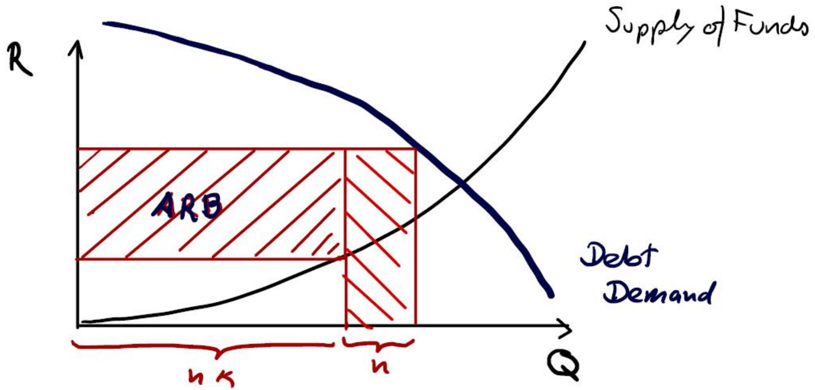
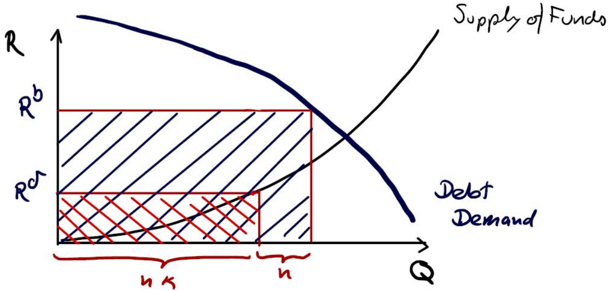


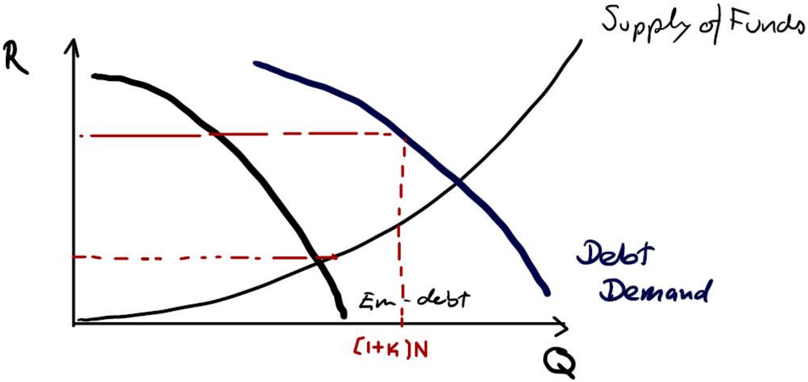
Sketch to Understand Model



$$\boxed{\left(R^b(1+\kappa) - R^d\kappa\right) n = ROE(N)}$$

$$\boxed{ROE(N) = 1/\beta + \phi(1/n)}$$

Spill-Over Effect - reduction in N



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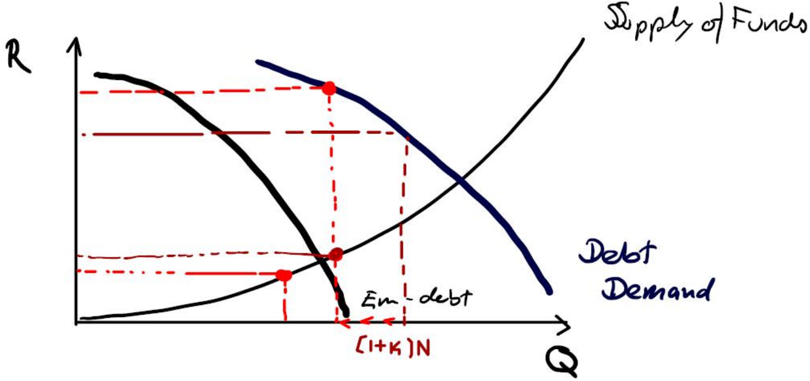
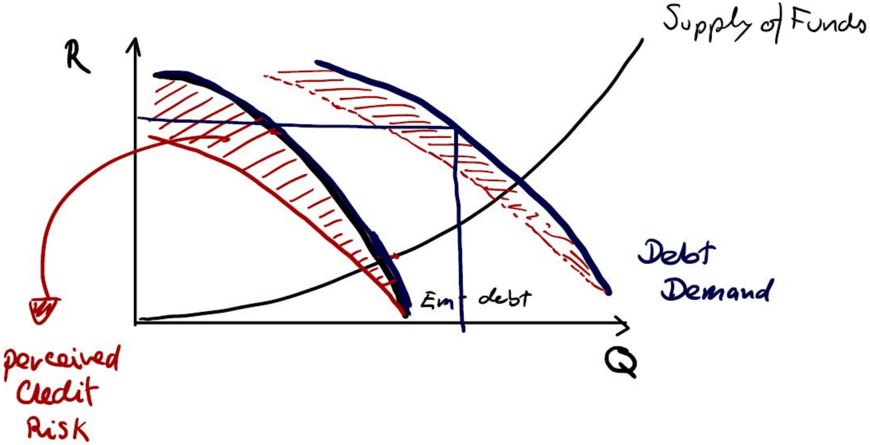
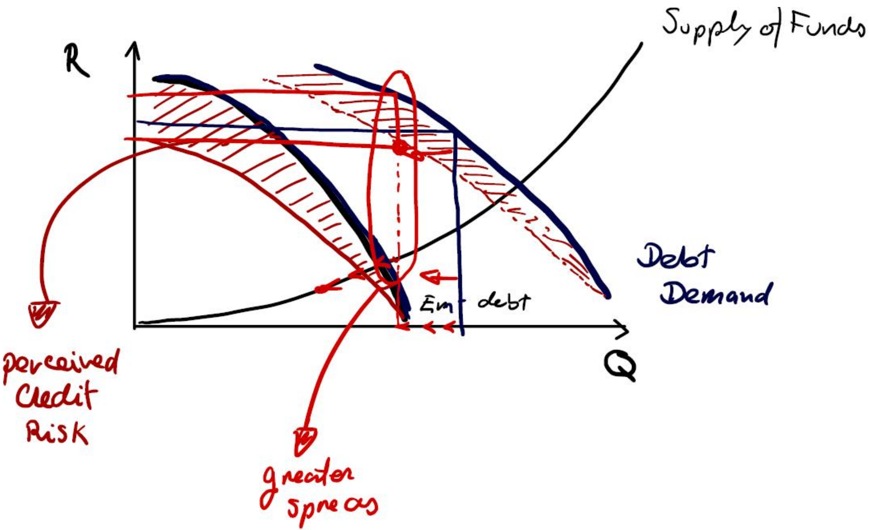


Effect of Credit Risk - akin to "distortionary tax"



SKETCH TO UNDERSTAND MODEL



(HERETIC) COMMENT I - BANKS PROBLEM

<u>Off-Shelf Macro Finance Model</u>

(i) Authors take bank model from literature
  - fine, but I want to make a big picture discussion
  - btw, I write the same type of models

(ii) I contend that models are inconsistent with some basic facts

(iii) Authors should embrace model in Appendix B2 (starts at p. 46!)

C1: STANDARD FORMULATIONS

Banks constraint set:

1. Regulatory constraints (this paper)

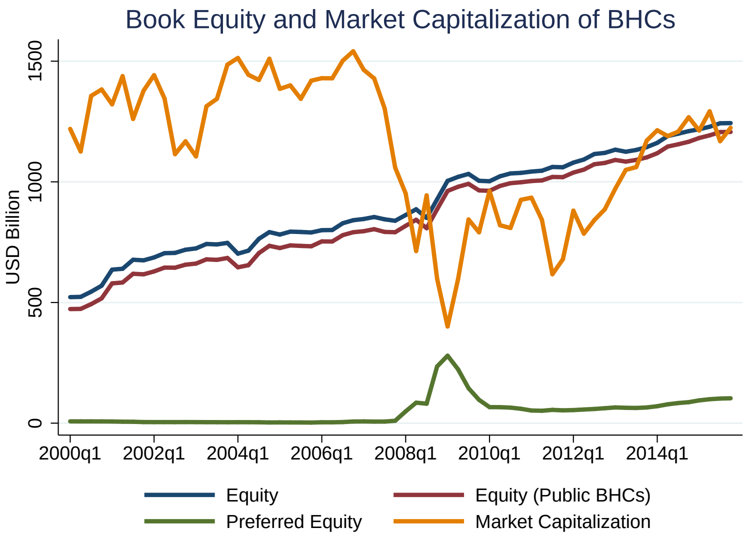
$$\text{Fraction of risk-weighted measure of book assets} \leq \text{Book equity}$$

2. Or...market value constraints

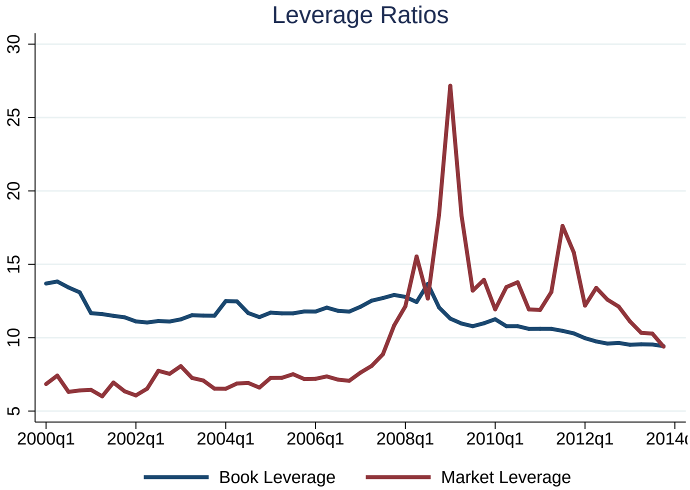
$$\text{Fraction of market value assets} \leq \text{Market equity}$$

- Is this actually in line with data?
  - Some observations from work with Begenau, Majerovitz and Vieyra

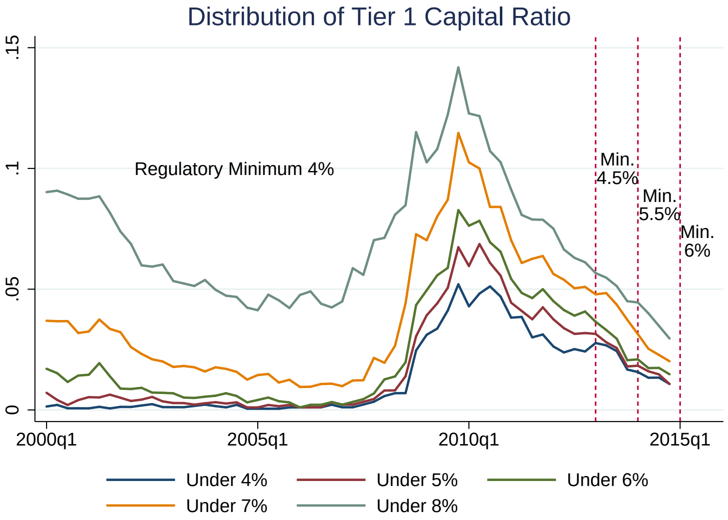
Fact 1: Book vs. Market



FACT 3: MARKET LEVERAGE CONSTRAINTS BINDING?



Fact 3: Regulatory constraints binding?



How do banks react?

- We want to know how banks respond to net worth shocks

$$\Delta \log(y_{i,t}) = \alpha_t + \sum_{h=0}^{20} \left(\beta_h \cdot \varepsilon_{i,t-h} + \gamma_h \cdot Post_t \, \varepsilon_{i,t-h}\right) + \epsilon_{i,t}$$

- But we only observe returns: mixes discount factor and idiosyncratic

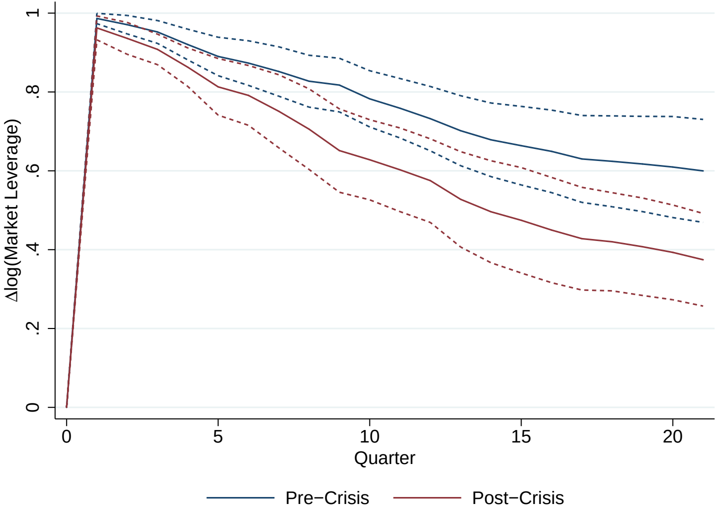
$$\underbrace{r_{it}}_{\text{Raw Return}} - \underbrace{r_t^f}_{\text{Risk-Free Rate}} = \alpha_i + \beta_i \times \underbrace{\left(r_t^m - r_t^f\right)}_{\text{Market Excess Return}} + \underbrace{\varepsilon_{it}}_{\text{Idiosyncratic Component}}$$

- Solution: Estimate Fama-French factor model, and use $\hat{\varepsilon}_{it}$ as instrument
    - Assumption: returns unpredictable *ex-ante* (EMH)

$\Rightarrow$cross-sectional return variation $\approx$ idiosyncratic shocks

Fact 4: Net worth shocks

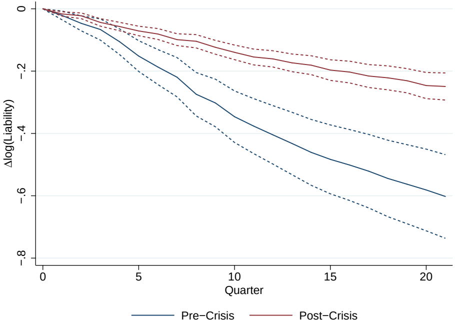
With leverage target IRF return to initial level



- baseline model: leverage flat

Fact 5: balance sheet adjustment

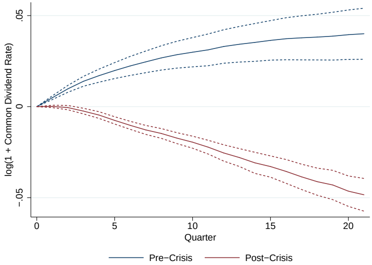
Via balance sheet adjustments pre-crisis

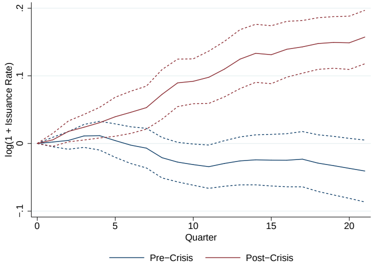


- baseline macro models: liabilities drop and bounce
- post Lehman, liabilities are stickier...

Fact 5: Equity adjustments post-crisis (2/2)

Via issuances and retained earnings post-crisis





- baseline macro models: should have consistent pattern

Back to Heretic Comment

Taking Stock

* Of the shelf model doesn't fit this pattern
* Data suggests strong adjustment costs
* Post Lehman, more difficult to sell assets?
* Amazing data to test if model dynamics of banks after shocks!

- Why? Does that matter

COMMENT II - BONDS ILLIQUIDITY

- Data suggests that bonds stay within asset class holders
  - super puzzling!
  - Koijen-Yogo type of model

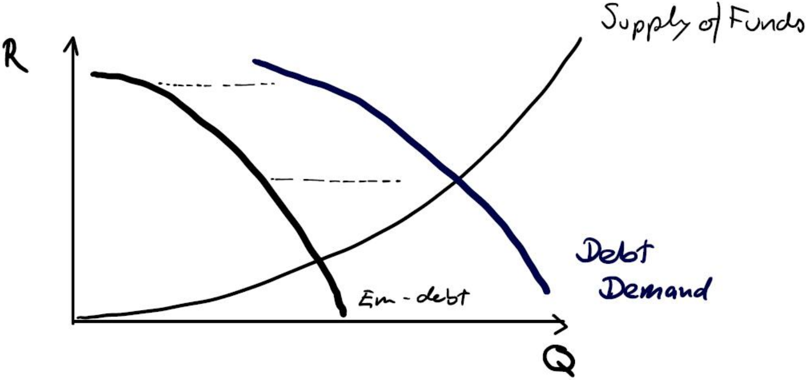
- Does this matter?
  - portfolio illiquidity is form of risk
  - Model in appendix, but no counterfactuals with that version
  - not sure story is that different. Is it?

Comment III - Flight to Quality

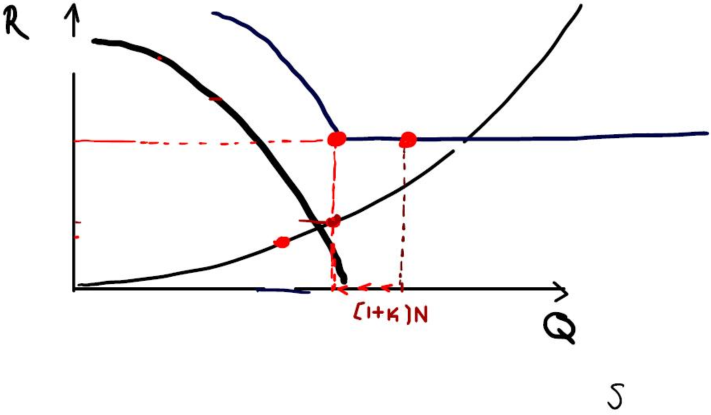
Backbone

- Data: Lehman associated with flight to quality
- Actually suggests not lack of capital, but increased risk aversion!

Back to Supply Demandl

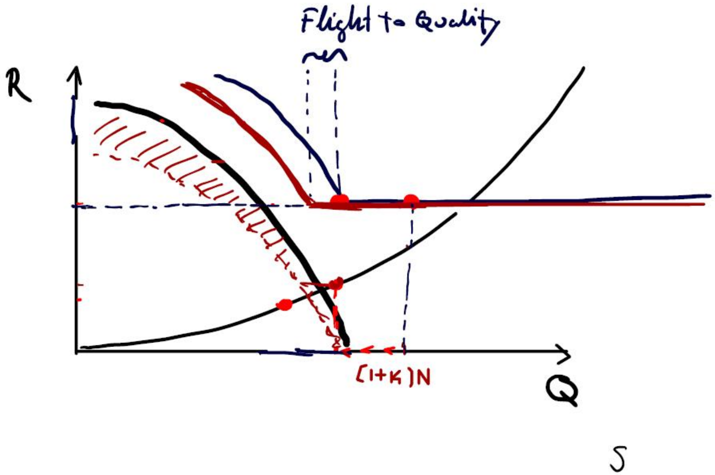


ADD SAFE ASSET SUPPLY - (RESERVES ?)



Reduction in safe asset holdings after equity loss

Flight to Quality - Increase in safe assets



- increase in safe asset holdings after flight to quality episode
- Lehman coincided with flight-to-quality: easy to test for authors!

Summary

- International Finance: important flank of intermediary asset pricing
- Paper: important step to import intermediary pricing to international finance
- Comments: more for the intermediary asset pricing program than for authors