International Portfolios with Supply, Demand and Redistributive Shocks

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Summary

- Very interesting paper.

- Three stylized facts of international portfolios for industrial economies:
  a. Portfolios are biased toward local equity.
  b. They are long in foreign currency, short in domestic currency.
  c. Valuation effects are such that exchange rate depreciation induces a positive transfer of wealth.

- How do we construct an international portfolio model that jointly reproduces these facts?

- CKM’s answer: home bias in consumption, a realistic menu of assets (bonds and equities), and multiple shocks (productivity, preference, income distribution).
  - In the process of obtaining this result, CKM illustrate a number of properties of international portfolios under complete and incomplete markets.
    - Market (in)completeness depends on the number of shocks relative to the number of assets.
Multiple *Structural* Shocks?

- The nature and number of exogenous shocks are crucial for CKM’s results.

- I will focus on the interpretation of two of these shocks (preference and income distribution) and its potential implications for further research in this area.
Income Distribution Shocks

• CKM assume that a portion $k \in (0, 1)$ of each country’s endowment is distributed to (domestic and foreign) equity holders, while the fraction $1 - k$ is distributed to domestic households as “labor” income.

• The fraction $k$ is subject to shocks.

• But do we really want to treat income distribution as exogenous and its fluctuations as structural shocks?

• In a model with monopolistic competition, fixed number of producers, labor as the only factor of production, and flexible prices, income distribution is determined by the elasticity of substitution between products ($\theta > 1$):

  \[
  \text{labor income } = w_t L_t = \left( \frac{\theta - 1}{\theta} \right) Y_t = \frac{1}{\mu} Y_t, \quad \text{dividend income } = d_t = \frac{1}{\theta} Y_t = \left( 1 - \frac{1}{\mu} \right) Y_t,
  \]

  where $\mu > 1$ is the markup of price over marginal cost.

• Changes in income distribution would be induced by shocks to $\theta$. 
Income Distribution Shocks, Continued

• But I am not sure we want to go in that direction.

• Price stickiness is a natural alternative.

• With quadratic costs of price adjustment (Rotemberg, 1982):

\[ d_t = \left( 1 - \frac{1}{\mu_t} - \frac{\kappa}{2} \pi_t^2 \right) Y_t, \]

where \( \pi_t \) is product price inflation, \( \kappa \geq 0 \) measures price rigidity, and

\[ \mu_t = \frac{\theta}{(\theta - 1) \left( 1 - \frac{\kappa}{2} \pi_t^2 \right) + \kappa \left\{ (1 + \pi_t) \pi_t - \beta \hat{E}_t \left[ \frac{Y_{t+1}}{Y_t} (1 + \pi_{t+1}) \pi_{t+1} \right] \right\}}. \]

• In log-linear form:

\[ \hat{\mu}_t = -\frac{\kappa}{\theta - 1} \left( \hat{\pi}_t - \beta \hat{E}_t \pi_{t+1} \right). \quad \Rightarrow \quad \text{New Keynesian Phillips Curve} \]

• Movements in \( \pi_t \) induce movements in the markup and affect the distribution of income.
Income Distribution Shocks, Continued

• With sticky prices, monetary policy shocks will induce fluctuations in dividend versus labor income.

• With endogenous monetary policy, the same will be true of shocks – such as productivity – that induce fluctuations in the variables to which the central bank responds.

• Don’t like sticky prices?

• There can be sources of cyclical markup variation under flexible prices.
Income Distribution Shocks and Producer Entry

- Suppose flexible prices, non-C.E.S. preferences of translog form, and allow for variation in the number of products (let’s start thinking about “new product shocks”):
  - The elasticity of substitution between products increases with the number of products available to consumers: \( 1 + \sigma N_t \), where \( \sigma > 0 \), and \( N_t \equiv N_{D,t} + N_{X,t}^* \) is the number of products available (domestically produced, \( N_{D,t} \), and imported, \( N_{X,t}^* \)).
  - Without trade costs or other sources of PPP deviations, total dividend income generated by domestic producers is:
    \[
    N_{D,t} d_t = \left(1 - \frac{1}{\mu_t}\right) C^W_t, \quad \mu_t = 1 + \frac{1}{\sigma N_t},
    \]
    where \( C^W_t \) is world consumption demand.

- Changes in the number of available products induce fluctuations in the markup and affect income distribution.
  - Bilbiie, Ghironi, and Melitz (2005): Productivity-driven fluctuations in \( N_t \) (subject to sunk entry costs) reproduce the cyclicality of U.S. markups remarkably well.
• Translog preferences can be combined with sticky prices:

\[ \hat{\mu}_t = -\frac{\kappa}{\theta - 1} \left[ \hat{\pi}_t - \beta (1 - \delta) \hat{E}_t \pi_{t+1} \right] - \frac{1}{\theta} \hat{N}_t, \]

where \( \sigma \) was chosen so that \( \theta = 1 + \sigma N \), and \( \delta \in (0, 1) \) is an exogenous rate of firm “death.”

• In sum, if we dig a little deeper, productivity shocks can be a likely source of fluctuations in income distribution (abstracting from monetary shocks).
iPod Shocks

- CKM consider also shocks that shift demand between home and foreign goods in the consumption basket.

- Their preferred interpretation of these shocks is “iPod” shocks associated to new product introduction.

- I am not sure that is the best way to think of these shocks.

- New product introduction is an endogenous response to economic conditions – including productivity developments.

- In turn, as shown above, new product introduction can affect income distribution.

- Empirical/quantitative issue: The endogeneity of income distribution and product creation poses questions for measurement/calibration.
New Products and the Terms of Trade

• Additionally, new product introduction can affect terms of trade movements and the associated risk sharing:
  
  – In standard models with fixed number of producers, a productivity improvement causes the terms of trade to deteriorate.
  
  – But endogenous producer entry in a more attractive business environment can cause the terms of trade to improve following positive productivity shocks.

• Once we think deeper about producer entry, this effect on the terms of trade will interact with the properties of different asset portfolios.
Conclusion

• This is a very nice paper, from which I learned a lot.

• How to model the stylized facts of international portfolios?

• Bonds, equities, and (important) enough shocks to ensure market incompleteness.

• However, it seems to me that two of the three shocks considered (income distribution and iPod) can be explained in terms of the third (productivity) if we think about them more structurally.

• In turn, this will have implications for the measurement of shocks, the risk sharing properties of different asset menus, and their ability to replicate stylized facts.
  – Market incompleteness may be motivated by causes other than the number of shocks relative to assets (financial and/or informational frictions).

• I see this as a very interesting area for future work in models that incorporate realistic asset menus (including nominal bonds) and make it possible to explore international portfolio determination in conjunction with a role for policy (Benigno, 2006; Devereux and Sutherland, 2006).