Global Imbalances, Risk and the Great Recession

Martin D.D. Evans

Discussant: P-O Gourinchas

Bank of Thailand - IMF
‘Monetary Policy in an Interconnected Global Economy’, November 2013, Bangkok
Understanding External Adjustment

- the paper proposes a quantitative framework to evaluate various channels (trade and financial) of external adjustment

- more general than Gourinchas & Rey (2007), by allowing trends

- but relies on a more stringent set of assumptions (global pricing kernel)

- concludes that
Understanding External Adjustment

Start with an accounting relationship:

\[ NA_{t+1} = NX_{t+1} + R_{t+1}NA_t \]
\[ = NA_t + [NX_{t+1} + I_{t+1}] + [(R_{t+1} - 1) NA_t - I_{t+1}] \]
\[ = NA_t + CA_{t+1} + VA_{t+1} \]

- with increased financial globalization, valuation effects have become increasingly important (cf. Table 2)
- but do they contribute systematically to the external adjustment?

\[ NA_t = E_t \sum_{s=1}^{\infty} (CA_{t+s} + VA_{t+s}) + \lim_{s \rightarrow \infty} E_t NA_{t+s} \]

requires predictable asset returns.
Asset Returns Predictability

The paper starts from fundamental asset pricing equation:

\[ E_t \left[ K_{t,t+1} R_{t+1}^i \right] = 1 \]

- \( K_{t,t+1} \) is the pricing Kernel. Assets offer a low expected return when they provide a good hedge.
- If markets are integrated, this pricing kernel is global.
- Predictable asset returns arise from global time-varying price and quantity of risk.

\[ E_t \left[ K_{t,t+1} NA_{t+1} \right] = E_t \left[ K_{t,t+1} NX_{t+1} \right] + NA_t \]

\[ NA_t = \sum_{s=1}^{\infty} E_t \left[ K_{t,t+s} NX_{t+s} \right] + \lim_{s \to \infty} E_t \left[ K_{t,t+s} NA_{t+s} \right] \]
Interpretation

\[ E_t [NA_{t+1}] = NA_t + E_t NX_{t+1} + (\bar{R}_t - 1) NA_t \]

\[ -\bar{R}_t \text{cov}_t (K_{t,t+1}, NA_{t+1} - NX_{t+1}) \]

- \( NA \) equals PDV of future trade surpluses, evaluated at the global pricing kernel.
- valuation term arises from the time-varying risk premium.
- country has a positive valuation effect when external position \( NA_{t+1} - NX_{t+1} \) covaries negatively with pricing kernel: global insurer
- Few global insurers (e.g. United States). cf. Gourinchas, Rey and Truempler JIE 2012.
A Heatmap of valuation gains and losses during the crisis

From: Gourinchas, Rey & Truempler (2012).

The figure reports total valuation gains/losses. **Dark red**: losses in excess of $600bn. **Light red**: losses smaller than $600bn. **Light green**: gains smaller than $400bn. **Dark green**: gains in excess of $400bn.
Implementation

requires estimating the global pricing kernel $K_{t,t+1}$.

- not an easy task
- constructs pricing kernel as a combination of returns (a mutual fund)
- by construction captures unconditional asset returns
- but could use different approach. e.g. affine yield models, or macro variables?
- overall model fails to reproduce fluctuations in NA. Where is it coming from?
Cyclical external imbalance and components

From: Gourinchas & Rey (2007).
Implementation

requires estimating the global pricing kernel $K_{t,t+1}$.

- not an easy task
- constructs pricing kernel as a combination of returns (a mutual fund)
- by construction captures unconditional asset returns
- but could use different approach. e.g. affine yield models, or macro variables?
- overall model fails to reproduce fluctuations in $NA$. Where is it coming from?
- Estimated pricing kernel does not look at all like the VIX factor.
Estimated pricing kernel vs VIX

Notes: The figure plots two estimates of the world SDF, \( \hat{K}_i^t \) and \( \hat{K}_{ii}^t \), with \( t \) determined in (17); and the inverse of the real return on U.S. T-bills, \( \frac{1}{R_{tb}^t} \). Used in computing the present value terms in the NXA equation (23). Recall that \( g \) is the unconditional growth rate for exports and imports, estimated to be 0.064 from the pooled average of import and export growth across countries. My estimate of \( \hat{K}_{ii}^t \) is approximately -0.59. Together, these estimates imply a discount rate of 0.586. This is the value I use below when constructing the NXA measures of each country's external position and computing the present value expressions in the NXA equations.

Forecasting Trade and the SDF

According to the analytic framework developed in Section 3, forecasts of future trade flows are embedded in each country's external position. In particular, equation (23) showed how the NXA position of a country was related to the present value of the import-export growth differential, \( PV(m_{n,t}^x_{n,t}) \), and trade growth, \( PV(n_{t}^g) \). Evidence concerning the time series properties of trade growth is presented in Figure 6.
Conclusion

- I enjoyed it

- An important empirical and policy question

- A very natural extension of the Gourinchas & Rey framework

- But it is unclear that the pricing kernel is really capturing the main forces in global asset markets.