

Confronting our FEERs: a Bayesian model
selection based robustness analysis
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Fundamental Equilibrium Exchange Rates

- Goal: Use two reduced-form econometric models on a panel of developed and developing countries to obtain a measure of the real exchange rate that would result in external and internal balances
 - all countries at potential output
- CA model
- Elasticities model
- Estimate of required real exchange rate change

(1) Current Account model

- Reduced form regressions of CA/GDP on a variety of real factors
 - relative GDP measures
 - relative output gaps
 - relative demographic factors
 - relative gov't deficits
 - relative energy dependency
 - etc.

(1) Current account model

- Problems:
 - very noisy measures
 - variety of theories to explain links
 - problems with long-run stationarity
 - great deal of cross-country heterogeneity
- However, do have prior beliefs about signs of coefficients in most cases (from theory or other studies), at least in long run

(1) Current account model

- Examine 58 countries over 1995-2007
- Uses a Bayesian model averaging technique to account for great deal of specification uncertainty (across variables, countries, etc)
- Non-informative priors on coefficients (centered at zero)
- Stronger prior belief in smaller models

(1) CA model

- Use the model to obtain two measure of the CA
- Current account norm (CA^*): estimated medium-long-run “equilibrium” current account
- Underlying current account (UCA): CA /GDP forecast over the short-medium term, once recent exchange rate changes and other (hopefully transitory) effects have been accounted for
- Find a large amount of uncertainty in long-run measures

(2) Elasticity model

- How do import and export volumes respond to changing trade prices?
- AR models for changes in M and X volumes
- Functions of past changes in M and X prices
- Can construct a long-run price elasticity from sum of estimated short-run coefficients
- Similar method for exchange-rate pass through measures
- Also find great deal of uncertainty in these measures

(3) FEER estimate

$$d\text{REER} = \frac{1}{\sigma} (CA^* - UCA)$$

- Results are not encouraging for the FEER model
- Long-run uncertainty is huge
- Requires much more imposition of theory

Comments

1. Need to focus on capital account dynamics as well
2. Need to impose more long-run information in Bayesian approach
3. Need for longer data sample to get good estimates of risk and expected return

(1) Current Account Norm (CA*)

- “Equilibrium” CA/GDP
 - sustainable level over medium term based on “macroeconomic factors”
 - sustainable level of NFL / GDP
- Given (i) the large amount of trade in financial assets (relative to goods) and (ii) the large amount of net foreign assets (liabilities), this is a capital account issue for many countries
 - a financial markets question: depends on degree of international asset substitutability; i.e. demand for assets produced by country

(1) Current Account Norm (CA*)

- In recent times the demand for financial assets has been driven in large part by non-market decisions
 - e.g., large increase in FX reserves to maintain fixed exchange rates
 - composition is another problem (what do FX reserve managers buy?)
 - demand for AAA collateral for repo, etc.

(1) Current Account Norm (CA*)

- Will need to be resolved (in part) via market solutions
 - somebody must hold lower than AAA rated assets, sovereign risk, credit risk, etc.
 - trade off between risk and expected return in a heterogeneous agents setting
 - model of how private sector agents will respond to current global imbalances, demand for AAA and lower-rated assets, etc.
- Need a “Capital account norm” as well

(2) Bayesian approach

- Do NOT be a “timid” Bayesian!
- We have a lot of non-sample information
- Use it in the estimation
- Focus on long-run aspects of model

(3) Sample period

- Data: Why use such a short sample when there is such inherent difficulties in estimating mean reversion parameters (e.g., in AR models)?
 - Why not use a smaller group of countries, annual data over longer periods, etc?

Suggestions

- Greatly reduce number of countries to areas (e.g. Euro, oil exporting, etc.)
- Focus on “capital account norm”: risk vs. expected return
 - behaviour of non-market agents (e.g. central banks)
 - private sector behaviour
- Increase amount of calendar time in estimation to get good estimates of expected returns
- Impose long-run priors