Preview of International Economics II/Int'l Finance

1 Exchange rate determination

The exchange rate is the key price in international finance.

Economists have developed theories that help:

<u>Understand</u> the behavior of exchange rates

- Particular cases (ambitious): Explain particular movements in exchange rates. For instance, why did the US $ appreciate so much in the early 80s and then collapsed? Why has it strengthened lately?

- General patterns (less ambitious): Match broadly the empirical facts (stylized facts) pertaining to exchange rates. For instance, the fact that the volatility of the exchange rate is much greater than the volatility of prices, that changes in real exchange rates are very persistent …

<u>Forecast</u> future behavior over various forecasting <u>horizons</u> (short-long)

Forecast the level, direction of change (turning points), volatility, persistence, …

Understanding and forecasting may be independent of one another. It is possible to understand without being able to forecast or to forecast without understanding (technical analysis).

Starting point:

Fundamental principle in economics for determining any price:

$$p: \qquad D(p) = S(p)$$

The exchange rate is the price of foreign exchange, FE. It is determined by:

Demand for foreign currency = Supply of foreign currency

What are the determinants of the demand and supply of foreign currency?

Are they the same in the short and the long term?

Different theories emphasize different sets of determinants:

(1) Trade based

Demand and supply of FE derive from the current demand for and supply of imports and exports.

Emphasis on trade elasticities and the real exchange rate, q (terms of trade)

(2) Money based

Demand and supply of FE derive from the demand for and supply of domestic vs foreign money.

Emphasis on the total demand for money.

(3) Asset based

Demand for and supply of FE derive from the demand for and supply of domestic vs foreign assets

Emphasis on international portfolios

(4) Theories combining (1) + (3)

(5) More general versions of (1)

The Balassa- Samulson theory (cross country, cross industry differences in productivity) determine the real exchange rate

(6) Microstructure of foreign exchange markets based

Emphasis on the behavior of the individual participants (dealers) in the FE market

(7) Animal spirits, speculative bubbles

Emphasis on arbitrary -perhaps self-fulfilling- expectations of market participants

A broad distinction: Fundamentals vs non-fundamentals

(1) – (5) focus on macroeconomic fundamentals (inflation, output growth, trade balance…)

 (6) focuses on microeconomic behavioral fundamentals (strategic interactions between traders, informational asymmetries, heterogeneous beliefs…) but may also allow for arbitrary expectations

(7) focuses on perceptions that are unrelated to economic fundamentals

The key relationships

Theory 1: trade elasticities

$$D(q, Y, s) = S(q, Y^* , s^*)$$

D, S =demand and supply of imports

s, s* preferences parameters

Key prediction:

- An acceleration of economic growth in Switzerland will depreciate the SF and improve the international competitiveness of Swiss products. Sustained trade deficits lead eventually to a currency depreciation.

$$Y \quad \rightarrow \quad TB$$
$$\downarrow$$
$$e$$

Theory 2: monetary theory

It is based on two key –macroeconomic- relationships of special interest:

- Prices (inflation) and the nominal exchange rate – Purchasing Power Parity (PPP)

$$\widehat{p}_t = \widehat{e}_t + \widehat{p}_t^*$$

Assumption: International competition brings about the equalization of national prices

Implication: Cross country inflation differentials ought to predict well the nominal exchange rate: Higher inflation translates into a weaker currency

- Nominal interest rates and the nominal exchange rate - Interest Rate Parity (IRP)

$$\frac{1+i_t}{1+i_t^*} = E_t \frac{e_{t+1}}{e_t}$$

Assumption: Domestic and foreign goods are perfect substitutes. Arbitrage

Implication: Cross country nominal interest rate differentials predict well the change in the nominal exchange rate. High interest rates are associated with an expected currency depreciation (?)

Empirical evidence:

- PPP does not hold in the short and medium run

- PPP **may** hold in the long run

- IRP does not hold. Countries with high interest rates tend to experience a currency appreciation

How can this be accounted for?

And what does this imply for the efficiency of foreign exchange markets (predictable excess profits)?

Theory 3: portfolio balance theory

$$D(e, i, i^*, W, W^*) = S$$

S, D : demand and supply for assets denominated in a particular currency

Key prediction: Changes in non-money asset supplies will affect the exchange rate (for instance, a sterilized open market operation)

Theory 5: Balassa-Samuelson

Differences in cross country, cross industry productivity growth affect the exchange rate. High productivity growth countries experience a real appreciation

Productivity growth also explains the fact that rich countries have higher absolute price levels than poor countries.

Main (overall) empirical finding

None of the theories above can either explain or forecast short-medium term movements in the exchange rates.

We know very little about the determinants of the exchange rates in the short to medium run. We know a little more about their long term determinants and may feel more confident about predicting the long term swings in the exchange rates.

2 Foreign exchange market (FOREX)

It is among the most active markets among the various financial markets

Question: Is it possible to systematically enjoy excessive profit opportunities in the FE markets?

- Covered interest rate parity holds well:

$$\textbf{CIRP} \quad i(t) - i*(t) = f(t) - e(t)$$

  There is no possibility of making risk free profits

- Tests of market efficiency center on *uncovered interest rate parity*

  Estimate

$$e(t+1) - e(t) = a + b[i(t) - i*(t)] + u(t)$$

  or

$$e(t+1) - e(t) = a + b[f(t) - et)] + u(t)$$

  Test hypothesis: a = 0; b = 1

  Many estimates of b exist in the literature. The average value across these studies: b = -0.88 (!)

  Enjoy –on average- higher interest rates and get capital gains too! Why should one bother to hold currencies like the SF or the Yen which bear such low interests?

  Answer: Foolishness or risk…

3 International capital markets

Financial instruments in FE markets

- Forward contracts

- Futures

- Options

- Swaps (FX; Currency; Currency coupon; Interest rate)

Used for hedging

Relative advantages of individual assets

Asset pricing and portfolio diversification

Key observation: Investors seem to strongly favor domestic (local) assets in selecting their portfolios (*Home bias*): Americans favor American assets (stocks and bonds), Germans favor German assets …..

Question: What are the reasons for home bias? Can international portfolio theory explain it? That is, do these portfolios represent the best possible menu of investments?

Review of basic portfolio theory

Objective: How to get the best return at the lowest possible risk

Findings:

- Investors can achieve more favorable risk-return combinations by diversifying internationally.

- Differences in consumption baskets across countries can justify some home bias. However, the theory predicts too much international diversification relative to what we observe in the real world

International capital mobility

Is there enough capital mobility? Does international capital do its job?

Reasons for international asset trade: Consumption smoothing

- Over time (borrowing-lending)

- Across states of nature (risk sharing)

Implications of global markets

- *Law of one price* (people in different countries face the same asset prices)

- Consumption smoothing (people in different countries can pool national consumption risks)

- The efficient international allocation of investment (new savings, regardless of where it originates, is allocated to the country with the most productive investment opportunities)

The international debt problem

Large capital inflows into the LDCs in the seventies.

Reason:

- Demand side (borrow to finance growth)

- Supply side (petrodollars)

Result: Inability to pay. Partial default (forgiveness). Bail outs

What went wrong?

- Bad shocks (domestic and world)

- Bad use of the funds

- Type of investment (loans vs equity)

What have we learned concerning investment in LDCs?

What is the optimal size of international investment? How are funds priced?

Key insight: Moral hazard in the presence of sovereignity

4. The determination of the trade balance (TB) and the current account (CA)

The traditional approach

TB = Exports – Imports = EX(q, y*) – IM(q, y)

Key prediction

Strong economic activity at home relative to abroad and a strong domestic currency worsen the trade balance

An alternative approach

$$CA_t = T_t - G_t + S_t - I_t$$

Key prediction:

High investment-low savings contribute to a **weak** CA.

Interesting questions

1. Are large, sustained trade deficits bad?

The answer depends on the reason for the debt and on how the borrowed funds are used (investment vs consumption).

2. Can a country run large trade deficits indefinitely?

No. A borrower must in the end pay back.

How will the trade deficit problem of the US be solved? Implications for the $

5. Economic Policy

The effects of monetary and fiscal policy under perfect capital mobility

6. Exchange rate regimes and macroeconomic performance

We make the distinction between:
- Flexible

- Managed float

- Fixed:

    - perfectly fixed vs target zone

    - unilateral vs multilateral

Empirical record

Short term effects of policy under alternative exchange rate regimes

The international transmission of business cycles

The fixed exchange rate system

7. Theories of currency crises

Observation:

Few countries have been able to maintain a fixed regime (typically small and/or dependent)

A fixed regime usually collapses as a result of a speculative attack despite the fact that from a technical point of view, further defense is feasible

Two theories:

- Fundamentals: Governments are to blame for failure

- Arbitrary self-fullfilling speculative attacks with multiple equilibria. In the absence of an attack the fixed regime is viable. But it may fail if it is attacked either because of vulnerabilities or because it is too costly to support a fixed parity in the face of a huge attack The speculators cause the collapse

Factors that play a role in self-fulfilling attacks

Herding

Private information and trading

Fund manager incentives

International contagion

Key question: What is the relative contribution of fundamentals vs that of self-fulfilling speculation?

Policy measures: How to cope with currency crises

- Capital controls:

- Improvement of fundamentals

- Float

The Mexican, South Asian and Russian crises:

Wrong fundamentals? Overvalued currencies? Arbitrary attacks?

•The Asian currency crises were not caused by large current deficits, common in the Latin American currency crises.

•The root of the Asian currency crises (as well as the Mexican one) may have been expectations of government induced higher inflation in order to **bail out the troubled banking system.**

Key fact: Financial intermediaries engaged in excessive risky lending and did not hedge their currency. The former led to asset overpricing (an asset price bubble). When asset prices collapsed and the currency was devalued many intermediaries became insolvent.