

International Economics: Lecture 21

Monetary approach to exchange rate determination

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Money, prices, and exchange rate in the long-run

PPP asserts that in the long run
exchange rate is determined
by the ratio of price levels in two countries.

Absolute PPP

$$S_{\text{AMD/RUB}} = \frac{P_{\text{ARM}}}{P_{\text{RUS}}}$$

Exchange
rate

Ratio of
price levels

But how are the price levels themselves determined?

Money demand and supply

Money performs 3 basic functions:

1. Store of value.
2. Unit of account (in principle cucumbers may function as a unit of account, but they will be a poor store of value).
3. Medium of exchange (money is the most liquid asset of all).

MONEY SUPPLY is determined by the Central Bank.

By “money” we mean the stock of liquid assets that are normally used to finance transactions (basically that is the currency in circulation plus demand deposits).

MONEY DEMAND

- ✓ *We do not ask - “How much money do you want?”*
- ✓ *Instead we ask - “Which part of your financial assets do you want to keep in the form of money?”*

Money demand and supply

MONEY DEMAND

- There is a benefit from holding money (you may conduct your transactions).
- There is a cost to holding money (you lose the interest rate of interest bearing assets).

$$M^d = L(r)^{-} \times P^{+} \times Y^{+}$$

Money demand
Nominal income

Therefore:

- A rise in national nominal income will increase transactions and aggregate demand for money.
 - *More income, more transactions, more demand for money*
- A rise in nominal interest rate will decrease the aggregate demand for money.
 - *Higher interest rate, higher foregone interest income, lower demand for money*

Long-run equilibrium in the money market

$$\frac{M^s}{P} = L(r)Y$$

Money demand
 $M^d = L(r)PY$
 Real money demand
 $M^d/P = L(r)Y$

Real money supply is determined by the Central Bank

Real money demand is determined by the *nominal interest rate* and *real income*

In the long-run prices are

- flexible and
- adjust to ensure money market equilibrium.

But how nominal interest rates are determined in the long-run?

r – interest rate
 π – inflation rate

Relative PPP

$$\% \Delta S_{AMD/RUB}^e = \pi_{ARM}^e - \pi_{RUS}^e$$

Expected exchange
rate depreciation

Expected inflation
differential

UIP

$$\% \Delta S_{AMD/RUB}^e = r_{ARM} - r_{RUS}$$

Expected exchange
rate depreciation

Interest rate
differential

Traders are indifferent to higher dram interest rate only if it is offset by an expected dram depreciation

Fisher effect

$$r_{\text{ARM}} - r_{\text{RUS}} = \pi_{\text{ARM}}^e - \pi_{\text{RUS}}^e$$

r – interest
 π – inflation
 i – real interest

Rearrange

$$r_{\text{ARM}} - \pi_{\text{ARM}}^e = r_{\text{RUS}} - \pi_{\text{RUS}}^e$$

Nominal interest rate – Inflation = Real interest rate

$$i_{\text{ARM}}^e = i_{\text{RUS}}^e$$

If PPP and UIP hold, then expected real interest rates are equalized across countries.

Arbitrage in goods and financial markets alone is sufficient, in the long run, to cause the equalization of real interest rates across ALL countries.

$$r_{\text{ARM}} = i^* + \pi_{\text{ARM}}^e \qquad r_{\text{RUS}} = i^* + \pi_{\text{RUS}}^e$$

*Long-run expected nominal interest rate =
 long-run world real interest rate
 PLUS country's expected long-run inflation rate*

Fundamental equation of the monetary approach

Long-run equilibrium
in the money market

$$\frac{M^s}{P} = L(r)Y$$

Real money
supply

Real money
demand

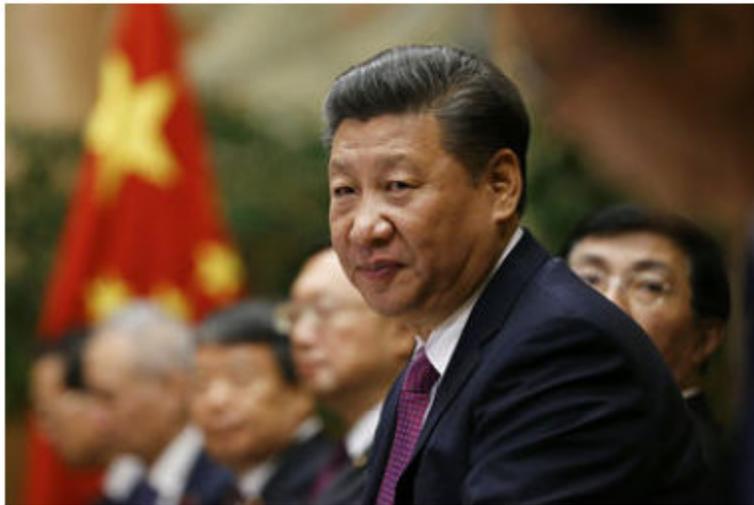
$$P = \frac{M^s}{L(r)Y}$$

$$S_{AMD/RUB} = \frac{P_{ARM}}{P_{RUS}} = \frac{\frac{M^s_{ARM}}{L(r)_{ARM} Y_{ARM}}}{\frac{M^s_{RUS}}{L(r)_{RUS} Y_{RUS}}} = \frac{\frac{M^s_{ARM}}{M^s_{RUS}}}{\frac{L(r)_{ARM} Y_{ARM}}{L(r)_{RUS} Y_{RUS}}}$$

PPP

Relative nominal money supplies

Relative real money demands



China's Gamble: How a Crusade to Prop Up the Yuan Imperils Other Pressing Mandates

Defending the currency is the central bank's top priority as it aims to stem capital flight and offer a defense against Trump's trade rhetoric, but the shift threatens to shortchange the bank's tasks of safeguarding economic growth.

Trump Says Dollar Is Getting

Forecasters Trim U.S. Growth Outlook as Hopes for Quick Stimulus Fade

More forecasters are reconsidering their bullish outlooks for the U.S. economy as doubts grow over the extent to which President Donald Trump will be able to implement his agenda, the latest WSJ economic survey found.



- WSJ Survey: Most Economists Expect Fed to Start Shrinking Balance Sheet This Year
- IMF Hails Global Momentum

White House Budget Director Says 'Shutdown Is Not a Strategy' As Funding Deadline Looms

White House budget director Mick Mulvaney said Wednesday the Trump administration is looking to avoid a partial government shutdown in two weeks but that the White House would insist on securing concessions from Congress on security funding and immigration policy.



In Ex-Im Bank Impasse, Trump Sides With Business Establishment



U.S. Budget Gap Reaches \$176.2 Billion in March: Treasury



Fundamental equation of the monetary approach

$$S_{AMD/RUB} = \frac{P_{ARM}}{P_{RUS}} = \frac{\frac{M_{ARM}^s}{L(r)_{ARM} Y_{ARM}}}{\frac{M_{RUS}^s}{L(r)_{RUS} Y_{RUS}}} = \frac{\frac{M_{ARM}^s / M_{RUS}^s}{L(r)_{ARM} Y_{ARM} / L(r)_{RUS} Y_{RUS}}}{\frac{M_{ARM}^s / M_{RUS}^s}{L(r)_{ARM} Y_{ARM} / L(r)_{RUS} Y_{RUS}}}$$

Relative nominal money supplies

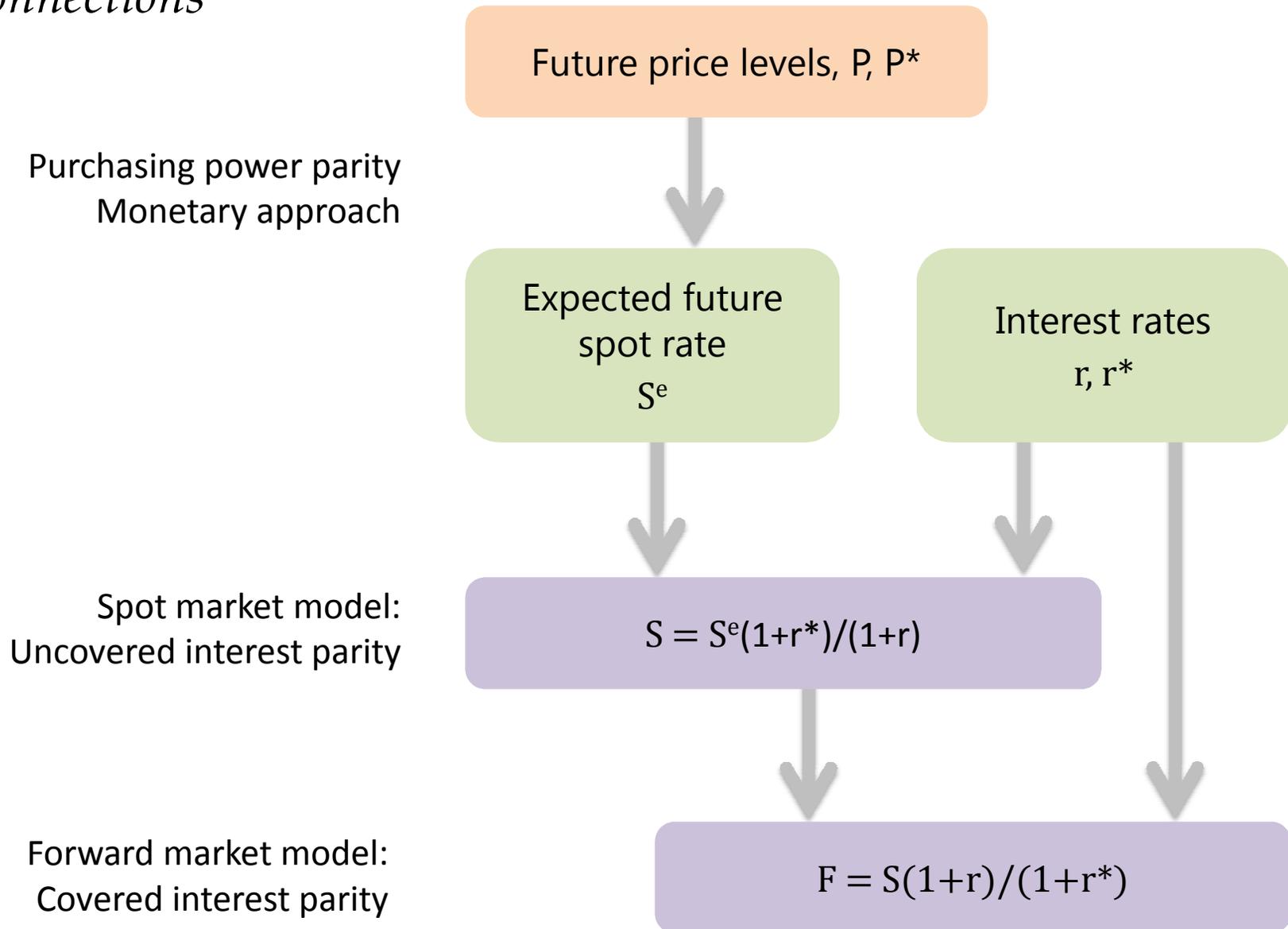
Relative real money demands

In the long-run, ceteris paribus:

if Armenian money supply \uparrow , price level \uparrow , dram depreciates,

if Armenian real income \uparrow , real demand for money \uparrow , price level \downarrow , dram appreciates.

Connections



Thank you and take care,

but remember

People think of education as
something they can finish.

Isaac Asimov