

The International Financial System

Notes on Mishkin, Chapter 21

Leigh Tesfatsion

Economics Department

Iowa State University, Ames IA

Last Revised: 27 April 2011

Key In-Class Discussion Questions

Mishkin, Chapter 21

- Why Worry About International Accounts?
- National Income Accounting (Open Economies)
- ROW Savings in Relation to the HC
- What are “Balance of Payments” Accounts?
- Balance of Payments (BOP) Conditions:
Accounting Identity vs. Equilibrium Condition
- BOP and the International Monetary Fund (IMF)

Important Note

- U.S. accounting conventions for balance of payments changed significantly in 1999
- The pre-1999 category “Capital Account” was re-labeled as the “Financial Account”
- A new category “Capital Account” was introduced encompassing unilateral transfers of assets between countries
- These notes adhere to post-1999 conventions
- Our Mishkin textbook [Business School Edition (2010)] does not yet incorporate these changes.

Overview:

Why Worry About International Accounts?

- **U.S. Balance of Payments Accounts** measure U.S. transactions with ROW
- Since 1980s, U.S. has maintained a substantial **trade deficit** with ROW (**Imports > Exports**)
- Trade deficit seen as arising from two sources:
 - Anti-competitive ROW trade practices (bad for U.S.)
 - USD's central role in global exchange and investment (good and bad for U.S.)

Overview... Continued

- As long as ROW willingly holds USDs and invests them in U.S. assets, U.S. can continue to borrow from ROW to finance its trade deficit.
- Responsibility for U.S. BOP policy lies with the U.S. Treasury Department and the U.S. Federal Reserve System.
- Many policy makers are troubled by increasing U.S. indebtedness to ROW, but some are not.

Differing Views Regarding the U.S. Trade Deficit

BAD: Renders U.S. vulnerable to shocks leading to ROW loss of confidence in USD and a drop in ROW willingness to continue financing.

BAD: Indicates U.S. is living beyond its means and should cut back.

BAD: U.S.'s high interest costs from ROW borrowing are a drag on U.S. GDP growth.

GOOD: High inflow of ROW capital reflects relative productivity of U.S. investment and helps U.S. achieve higher future economic growth.

U.S. National Income Accounts (Mishkin 1)

Q = Real GDP = Total **physical volume** of all final goods and services produced **within the borders** of the U.S. in some given time period T

(Nominal) GDP = Total **dollar value** of Q

EX = U.S. **exports** (ROW spending in period T on U.S. final goods & services)

IM = U.S. **imports** (U.S. spending in period T on ROW final goods and services)

C = U.S. **consumption** spending (includes imports)

I = U.S. **investment** spending (includes imports)

G = U.S. **government** spending (includes imports)

U.S. National Income Accounts...Continued

National Income Accounting Identity:

$$\text{GDP} = C + I + G + [\text{EX} - \text{IM}]$$

total \$
value
of Q

Note for Later Purposes: $G = G_c + G_I$

G_c = Gov't consumption, G_I = Gov't investment

Sources of Saving Used by U.S.

Savings is always defined as

Income minus Consumption

U.S. Private Savings S_P

$$= [\text{U.S. Private Income}] - C$$

U.S. Government Savings S_G

$$= [\text{U.S. Government Income}] - G_C$$

ROW Saving S_R in Relation to U.S.

Net Factor Payments (NFP) = Payments received by U.S.-owned factors of production in ROW MINUS payments received by ROW-owned factors of production in the U.S.

Transfers (TR_R) = Net Transfer payments received by the U.S. from ROW

PayOut (from U.S. to ROW) = $- [NFP + TR_R]$

ROW Savings S_R = ROW Income - ROW Cons
= $[IM + PayOut] - EX$

ROW Saving in Relation to U.S. ...Cont'd

U.S. Total Investment: $ITot$

$$ITot = \begin{array}{c} I \\ \text{(Private)} \end{array} + \begin{array}{c} G_I \\ \text{(Government)} \end{array}$$

The National Income Accounting Identity

$$GDP = C + I + G + [EX-IM]$$

is equivalent* to

$$[S_P + S_G] + S_R = ITot$$

U.S. National Savings + ROW Sav. = U.S. Total Invest.

(* See on-line html notes for detailed explanation.)

ROW Saving in Relation to U.S. ... Cont'd

$$[S_P + S_G] + S_R = I_{Tot}$$

U.S. National Sav. + Row Sav. = U.S. Total Invest.

reveals the importance of ROW Savings S_R for the financing of U.S investment.

If domestically generated savings $[S_P+S_G]$ are **deficient** for financing I_{Tot} , the U.S. has to rely on ROW savings S_R (**borrowing** from ROW)!

It will later be shown $[-S_R] = \text{Current Account}$

Balance of Payments Accounts

- **Balance of Payments:** Bookkeeping system for recording all receipts and payments affecting **currency movements between HC and ROW**
- **Current Account:** Covers payment transfers between HC and ROW, plus trades between HC and ROW in final goods and services
- **Capital and Financial Account:** Covers unilateral asset transfers, financial asset trades, and secondary physical asset trades between HC and ROW

Simplifying Assumption

International Reserves = Central bank holdings of assets denominated in foreign currency held for international payments.

□ **Assumption (for expositional simplicity):**

All international reserves take the form of ROW and/or HC currency reserves held by the HC central bank

HC Current Account CA

- $CA = \text{Net Exports} + \text{NFP}$
+ Net Transfer Inflows to HC
= Net inflow of payments to HC from ROW arising from trade, factor payments, and transfers
- Recalling that $S_R = \text{ROW Savings}$,
 $CA = -1 \times [S_R]$
= $-1 \times [\text{IM} + \text{PayOut} - \text{EX}]$
= Net Exports - PayOut
= Trade Balance - PayOut

Current Account CA...Continued

- HC National Saving S_N
= HC private saving + HC government saving
= S_P + S_G

- National Income Accounting Identity

$$S_N + S_R = ITot \quad (\text{Total HC Investment})$$

- Using $CA = -S_R$,

$$CA = S_N - ITot$$

Current Account CA...Continued

- **CA Deficit: $CA < 0$**

$\Rightarrow S_N < ITot$

\Rightarrow HC national saving S_N is **not enough**
to finance HC total investment $ITot$

\Rightarrow **HC is borrowing from ROW to cover
its financing of $ITot$**

Current Account CA...Continued

- **CA Surplus: $CA > 0$**

$\Rightarrow S_N > ITot$

\Rightarrow HC national saving S_N is **more than enough** to finance HC total investment $ITot$

\Rightarrow **HC is lending its residual national savings to ROW**

Capital Account KA (post-1999)

- KA records net HC inflow of assets arising from *unilateral* asset transfers between ROW and HC

Example: Assets of migrants coming to HC from ROW

- KA is a newly defined category introduced into U.S. balance of payments accounting in 1999 by the U.S. Chamber of Commerce.
- This change was adopted to bring U.S. into closer conformity with international accounting guidelines recommended by the International Monetary Fund

Financial Account FA (Post-1999)

- **FA** = Net change in ROW ownership of HC assets resulting from financial asset sales & secondary physical asset sales

MINUS

Net change in the HC central bank holdings of ROW currency reserves

Financial Account FA...Continued

- **FA = Non-Official Financial Account NFA**
(Net change in ROW ownership of HC assets resulting from financial and secondary physical asset transactions between HC and ROW investors)

MINUS

Balance of Payments BOP
(“Official Reserve Transactions Balance”)

(Net change in the HC central bank holdings of ROW currency reserves)

Balance of Payments: Accounting Identity vs. Equilibrium

- **Identity:** An equation that **always holds** by definition of the terms that appear in it.

Examples: $2+2 = 4$; $S_N + S_R = ITot$

- **Equilibrium Condition:** A condition describing a “rest point” of a system that *might or might not hold* for the system

Example: Bond Demand = Bond Supply

Balance of Payments Accounting Identity

If you buy something, you have to
pay for it!

Expenditures = Payments

BP Accounting Identity... Continued

- **Expenditures (HC purchases from ROW)**
 - HC imports
 - HC purchases of ROW factor services in HC
- **Payments (sources of ROW currency)**
 - HC exports
 - ROW purchases of HC factor services in ROW
 - Net payment and asset transfers from ROW to HC
 - Net ROW lending to HC
 - ROW currency reserves

BP Accounting Identity... Continued

- **Must have**

Expenditures (HC purchases from ROW)

= **Payments** (sources of ROW currency)

- The online html “Notes on Mishkin 21” show in detail **the above identity is equivalent to the following identity:**

$$0 = [CA + KA + FA]$$

or (recalling $FA = NFA - BOP$)

$$BOP = CA + KA + NFA$$

Important Observations About Identity $BOP = CA + KA + NFA$

- BOP can be positive, 0, or negative
- $BOP = \text{ROW currency inflow to HC}$
 - ROW currency **outflow** from HC(other than HC central bank transactions)

BOP = Net change in ROW currency reserves held by HC central bank needed to cover any inflow/outflow difference

Balance of Payments Equilibrium

$$\text{BOP} = \begin{array}{c} \text{Row} \\ \text{Currency} \\ \text{INFLOW} \end{array} - \begin{array}{c} \text{Row} \\ \text{Currency} \\ \text{OUTFLOW} \end{array}$$

$\text{Supply of Row Currency} \qquad \text{Demand for Row Currency}$

$$\text{BOP} = 0 \iff \text{Supply} = \text{Demand}$$

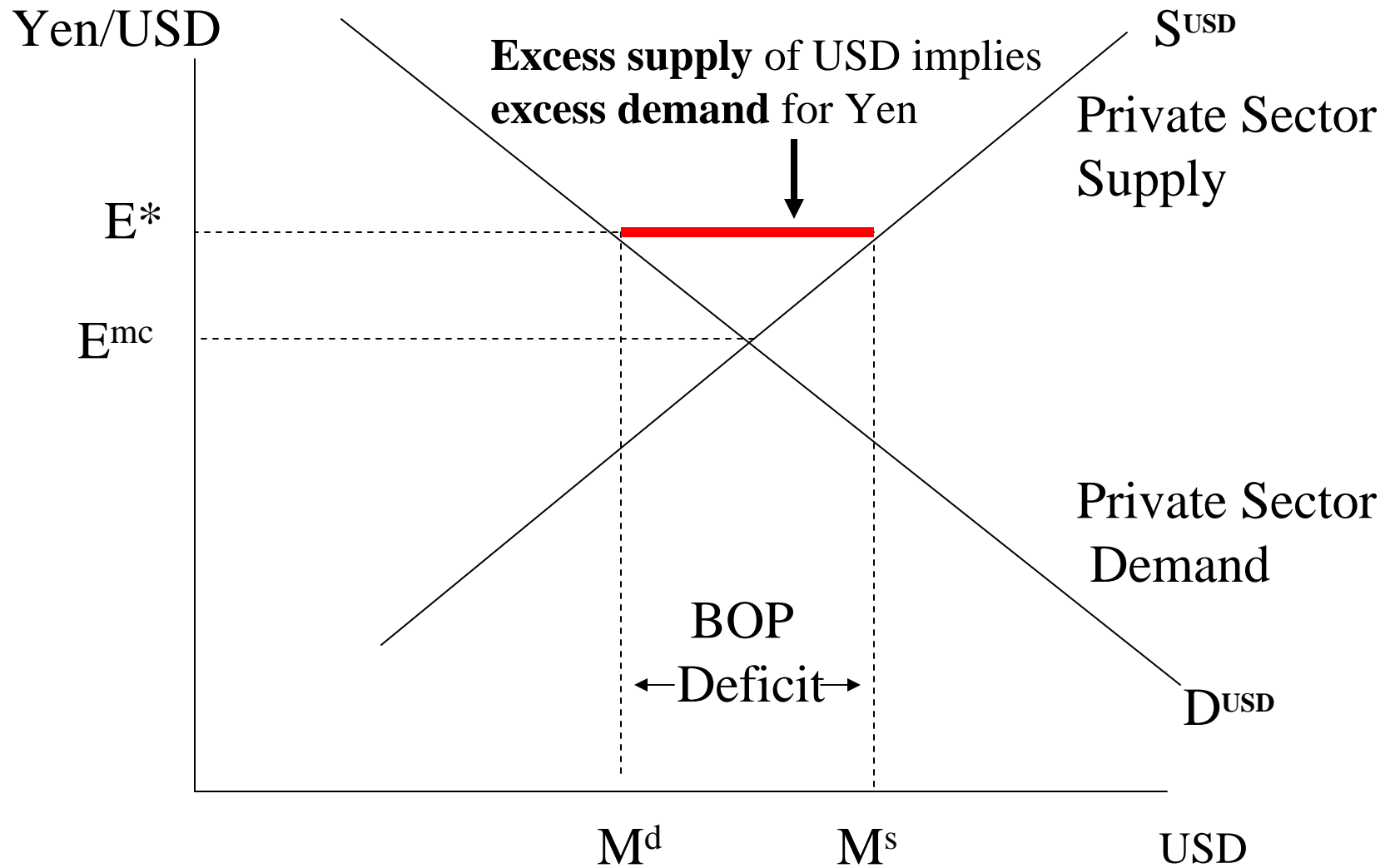
Balance of Payments Equilibrium

- **Key Definition:** The foreign exchange market for currency is in **BOP Equilibrium** (or “external balance) if and only if **BOP=0**.
- **Meaning:** The transaction plans of HC and ROW investors can be carried out *without* any need for the HC central bank to intervene in the foreign exchange market to provide additional ROW or HC currency to private traders by increasing or decreasing the bank’s ROW currency reserves.

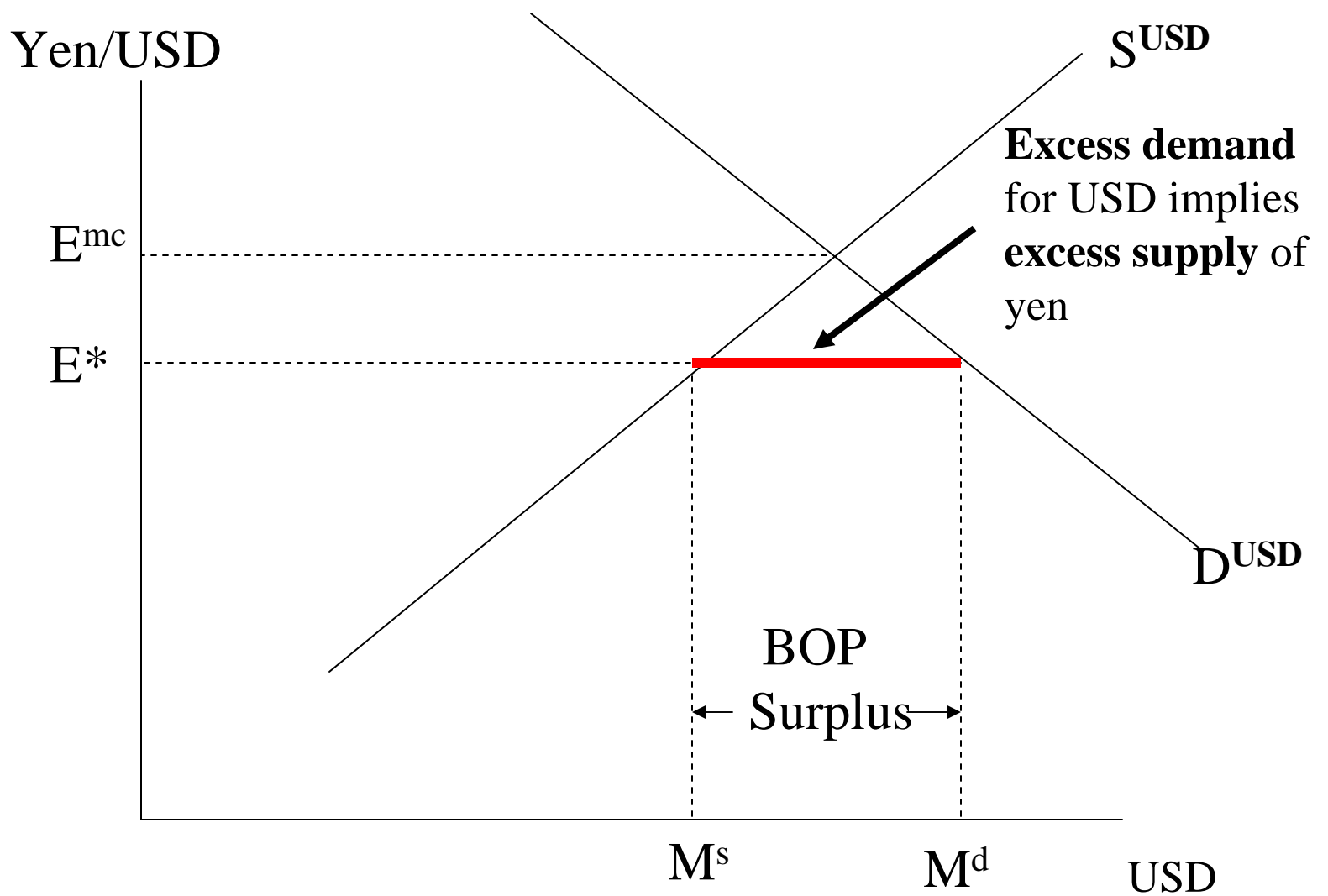
Balance of Payments Crisis

- **Definition:** The HC is in a **balance of payments crisis** if $BOP < 0$ has persisted for a long time.
- $BOP < 0$ (supply less than demand for ROW currency) means the HC central bank is **losing** ROW currency reserves, which eventually must run out.
- Resulting speculation **against** HC currency (expected **fall** in E , **rise** in $1/E$) can amplify run on ROW currency reserves by inducing more selling of HC currency (i.e., shifts to the **right** in the supply curve for HC currency).

Example 1: Overvalued U.S. Exchange Rate $E = \text{Yen/USD}$ Leading to Balance of Payments Deficit ($\text{BOP} < 0$)



Example 2: Undervalued U.S. Exchange Rate $E = \text{Yen/USD}$ Leading to Balance of Payments Surplus ($\text{BOP} > 0$)



Recent Balance of Payments Crises (Also Known as “Currency Crises”)

- Europe 1992, Mexico 1994, East Asia 1997-8, Brazil 1999, Argentina 2001-2, Pakistan (2008), Iceland (2008), Hungary (2008), Ukraine (2008), Greece (2010), Ireland (2010)
- We will take a closer look at some of these crises when we cover Mishkin Chpts 8-9.

Two Problems with BOP Equilibrium as a Policy Goal

- Setting interest rates to ensure $BOP=0$ might mean the loss of ability to set interest rates for domestic policy purposes.
- Since $BOP = CA + KA + NFA$, setting $BOP=0$ only ensures current account satisfies

$$CA = -KA - NFA$$

so could still have a CA deficit ($CA < 0$) or a CA surplus ($CA > 0$)

Fixed Exchange Rates

- Suppose HC keeps E fixed, and let HC money supply be measured by $M1 \approx$ (HC currency in public circulation plus HC checkable deposits)
- If overvalued – E too high relative to demand and supply forces – persistent BOP deficit
($BOP < 0$, ROW currency reserves \downarrow , $M1 \downarrow$)
- If undervalued – E too low relative to demand and supply forces – persistent BOP surplus
($BOP > 0$, ROW currency reserves \uparrow , $M1 \uparrow$)

Flexible Exchange Rates

- Suppose the HC exchange rate E is fully flexible (able to move freely in response to demand/supply pressures)
- Then $1/E$ (the price of ROW currency) should continuously adjust to equate the demand and supply for ROW currency **without** any need for HC central bank intervention.
- In short, in theory, **natural** movements in E in response to demand/supply pressures should ensure continuous BOP equilibrium ($BOP=0$).

Balance of Payments and the International Monetary Fund (IMF)

- Does the world need an **international** agency to cope with balance of payments crises?
- If yes, is the IMF successfully filling this role?
- Or, is the IMF as currently structured causing more harm than good?

Origins of the IMF

- Before WWI, world was on a gold standard (currencies *directly* convertible into gold).
- WWI (1914-1918) and Great Depression (1929-1939) led to collapse of gold standard.
- **Bretton Woods Agreement (NH,1944)**
 - Established fixed exchange rates;
 - **Created IMF** to promote world trade by helping countries maintain fixed exchange rates and avoid balance of payments crises

Breakdown of Bretton Woods Agreement (1971)

- Under agreement, exchange rates were only supposed to change in dire circumstances.
- IMF supposed to loan international reserves to member countries to help maintain fixed rates or undertake orderly changes in these rates.
- **Problem:** IMF could exert control over BOP deficit countries (loan withholding) but not over BOP surplus countries to force their $E \uparrow$.
- After 1973, “flexible exchange rate” system.

In Fact, a “Managed Float” System

- Flexible exchange rates work well in theory.
- In practice, flexible exchange rate systems can be “gamed” by speculators.
- Speculators can “run up” a currency by sudden surge of demand for the currency (demand curve **shifts right** in foreign exchange market).
- Speculators can then dump the currency at the resulting higher E price and make millions.
- To protect against this, central banks intervene by offsetting international reserve transactions.

Continuation of the IMF

- After 1973 (Bretton Woods Agreement breakdown), IMF is *no longer* charged with maintaining *fixed* exchange rates.
- **However, IMF still functions as a**
 - *Collector* of international economic data;
 - *Advisor* to countries with BP problems;
 - *Lender of last resort* (international reserves).

Organization of the IMF

- IMF membership is **voluntary**, open to every independent country willing to adhere to IMF charter of rights and obligations.
- Membership in 2011 = 187 countries.
- Each member country initially contributes sum of money (“**quota subscription**”)
- This sum of money determines
 - IMF’s pool of **loanable funds**
 - **borrowing rights** of contributing country
 - **voting power** of contributing country.

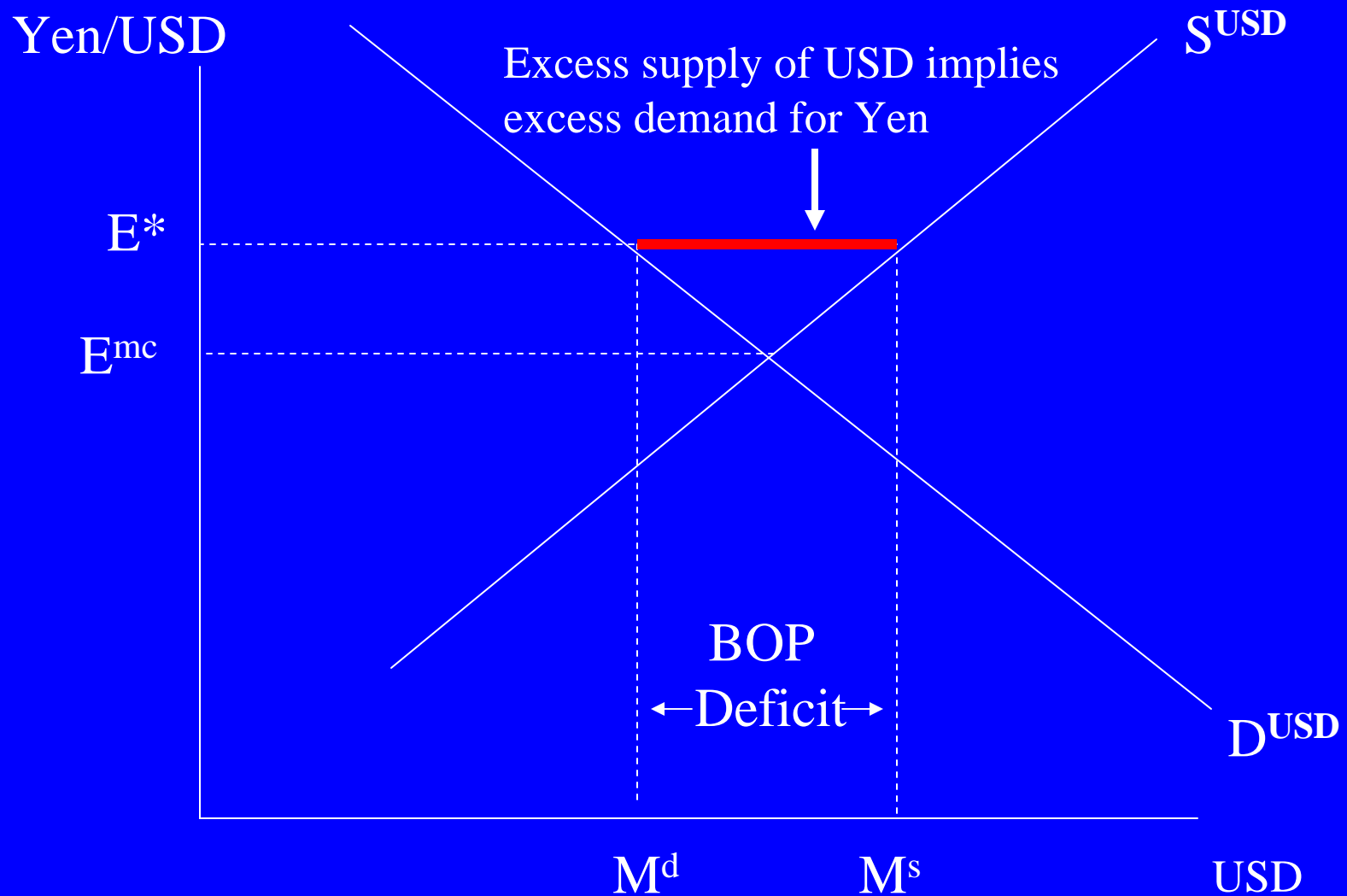
IMF Organization... Continued

- IMF loans international reserves to **member** countries experiencing BOP crises.
- **Loans are conditional** on a country taking “appropriate economic reforms” for their own good and good of entire IMF membership.
- IMF cannot **force** a country to adopt any particular reform (**but it can withhold loans**).

IMF Functions (More Detail)

- IMF loans currency reserves to **IMF member countries** experiencing BOP crises.
- **Rational for IMF as “lender of last resort”**:
 - Permits an HC to **support its current E value** by obtaining ROW currency loans from the IMF;
 - **Calms investor fears** (reduces panic HC currency selling (shift of supply curve for HC currency to the right) that would worsen BOP crisis);
 - **Prevents spread of financial panics from one country to another** (successful speculative attacks encouraging more attempts at speculative attack).

Example: Overvalued U.S. Exchange Rate $E = \text{Yen/USD}$ Leading to Balance of Payments Deficit ($\text{BOP} < 0$)



Recent BOP Crises

- * Third World Debt Crisis (1980s) -- major debt defaults leading to massive capital flight
- European Monetary System (1992)
- * Russia (1990s)
- * Mexican Financial Crisis (1994-1995)
- * East Asian Crisis (1997-1998) – Thailand, S. Korea, etc.
- * Brazil (1999)
- * Argentina (2001-2002)
- * Pakistan, Iceland, Hungary, Ukraine (2008)
- * Greece and Ireland (2010)

* = IMF Interventions

Why is the IMF's Role in Global Financial Markets So Controversial?

- **Potential inflation problems?** (injecting money into poorly managed economies)
- **Moral hazard problems?** (protecting central banks from consequences of risky activities)
- **Appropriateness of advice?** (“one size fits all”?)
- **“Economic imperialism”?** (intervening in the domestic affairs of sovereign nations)
- **Timeliness of actions?** (oversight vs. speed)

Currency (“Capital”) Controls Instead?

Should governments simply put restrictions on HC \leftrightarrow ROW currency flows to stop BOP crises?

- **Currency Outflow Controls: Bad idea?**

Easy to evade; Further weaken confidence in government; Can lead to corruption (bribery...)

- **Currency Inflow Controls: Mixed Evidence**

SR Upside: Might stop speculative attacks;

LR Downside: Might limit productive lending.

What to Do (if Anything) About the IMF

- **Option 1:**
 - *Leave it alone.* Everything is fine as is.
- **Option 2:**
 - *Restructure the IMF.* Change the way it functions.
- **Option 3:**
 - *Abolish the IMF.* Let individual countries take care of their own BOP crises, e.g., through capital controls.