Exchange Rate Regimes

Chapter 10

Exchange Rate Regimes:

- Fully flexible
- Dirty floating
- Fixed
- Currency board (Dollarization)

Exchange Rate Regimes:

- Dirty floating
  - Central banks occasionally intervene in foreign exchange markets that otherwise fluctuate freely
- Fixed
  - Central bank determines either the value of the local currency or an interval within which it is traded
- Currency board (Dollarization)
  - Countries abandon their ability to print their own currency and use foreign money as legal tender
  - In this regime the country abandons the power to issue local currency in favor of the greenback.

Free Floating Regime

- No market intervention
- Supply and demand in the currency market determine the exchange rate
- The current account deficit or surplus approximates the capital and financial account surplus or deficit
- The exchange rate reflects the purchasing power of the residents versus non–residents

Free Floating Regime

Central banks have to CONSTANTLY intervene to keep exchange rate stable

- In China, the free floating regime is accompanied by capital controls to improve the ability of the monetary authority to maintain the peg to other currencies.

Overvalued fixed exchange rates

vs.

Undervalued fixed exchange rates

Latin America in the 1990s

Mexico and Argentina experienced hyperinflation. To climb out, they used an overvalued peg to make imports cheaper and jumpstarts a disinflation process.

China in the early 2000s

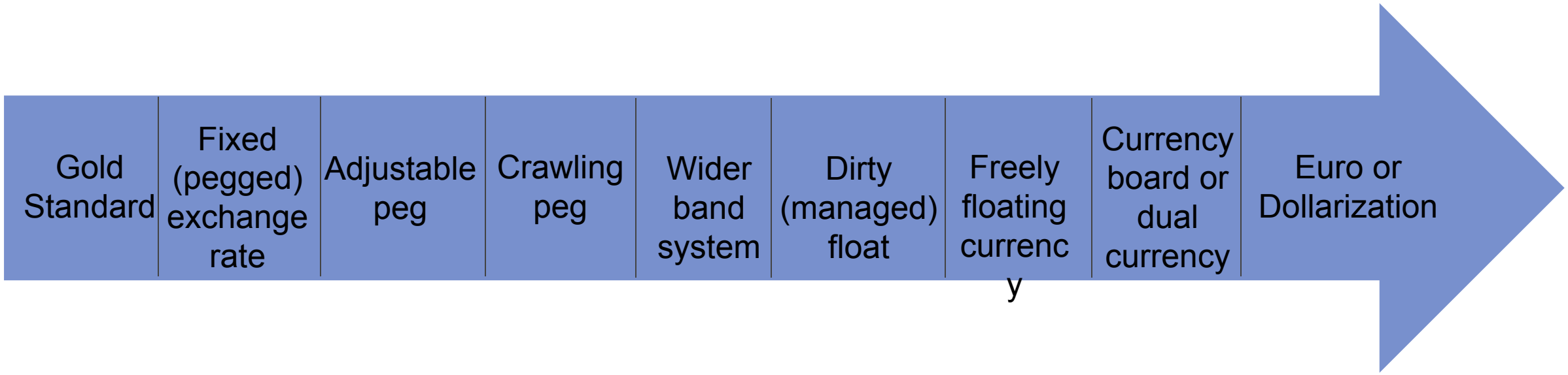
Promote exports and stimulate aggregate demand, with the risk of higher inflation.

CURRENCY UNION

Eurozone

European Central Bank is the central monetary authority and acts as the lender of last resort in the European financial system.

Exchange rate systems in which the monetary authority has the most autonomy to the least



Chapter 10.1

Free Capital Flows

Exchange Rate Interventions

Countries can either control capital movement or allow its free flow

Last few centuries:

- most countries had strict limits on money flowing in and out of national economies.

In the 20th century:

- most countries first abandoned the gold standard for the dollar standard and now many allow for some measure of capital movements.

Central banks that wish to limit capital flows establish rules as to which kinds of capital are allowed to enter or leave the country

China example:

- Most citizens can only send $50,000 per year outside of the country
  - Limits in net transfers in BoP
- Foreign companies cannot freely invest in China without a local partner
- Since 2014 wholly foreign owned enterprises (WFOE) have been allowed in China
  - Foreign direct investment is not completely free, and the restrictions keep both the inflow and the outflow at a lower level than they would be if there were no capital controls
- Most foreigners cannot invest in the local stock or bond markets
  - The financial and capital account shows less movement than it would otherwise

- ★ **Ross Levine** favors capital account liberalization as a precursor to long–term development.
- ★ **Joseph Stiglitz** argues that countries should have some measure of capital control.

"Capital liberalization remains one of the most controversial and least understood policies of our day. One reason is that different theoretical perspectives have very different implications for the desirability of liberalizing capital flows. Another is that empirical analysis has failed to yield conclusive results." –Eichengreen

Once countries become rich, they eschew restrictions on the movement of funds

Developed countries mostly do not have capital controls.

- US, European Union, UK and Japan.

Large **emerging countries** have liberalized their capital accounts in the 1990s

- Mexico, Turkey, Russia.

Most of the **emerging world** has capital controls.

Capital controls have one important consequence:

If countries establish them, there is a tradeoff in terms of the ability to intervene in the foreign exchange market and the amount of foreign capital flowing in and out of the country.

1

If countries want to maximize the amount of foreign direct investment to foster development, then **liberalized capital account** is the correct path.

2

If their choice is the ability to influence the price and the volatility of the local currency, then they are better off choosing some measures of **capital restrictions**.

Chapter 10.2

The Mechanics of Fixed Exchange Rate Regimes

Assume that the government determines that the local currency should be strong

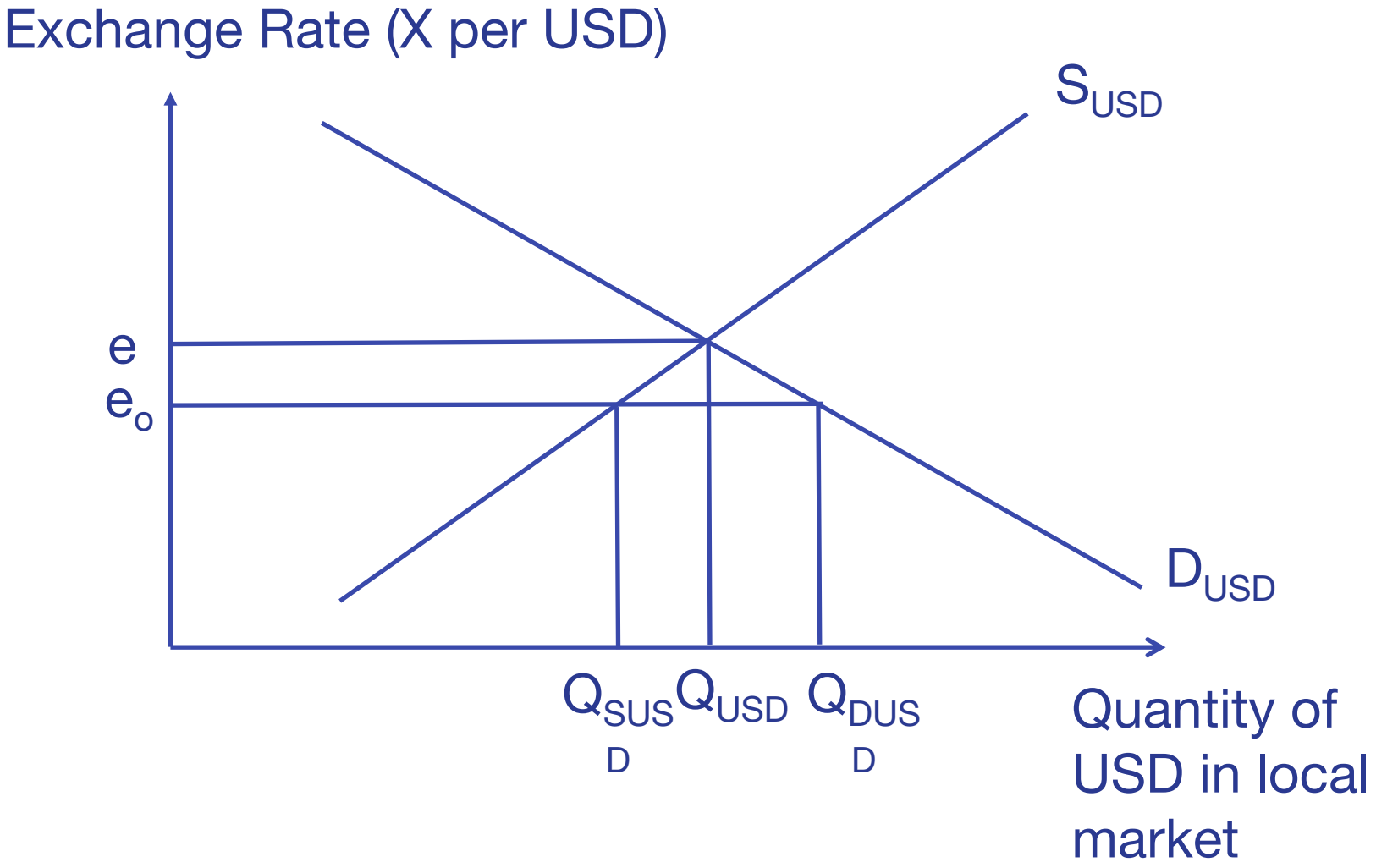
- Price ceiling lower than the market equilibrium
- Excess demand

Monetary authority needs to:

intervene through the supply of extra foreign currency

OR

have capital controls that repudiate capital outflows

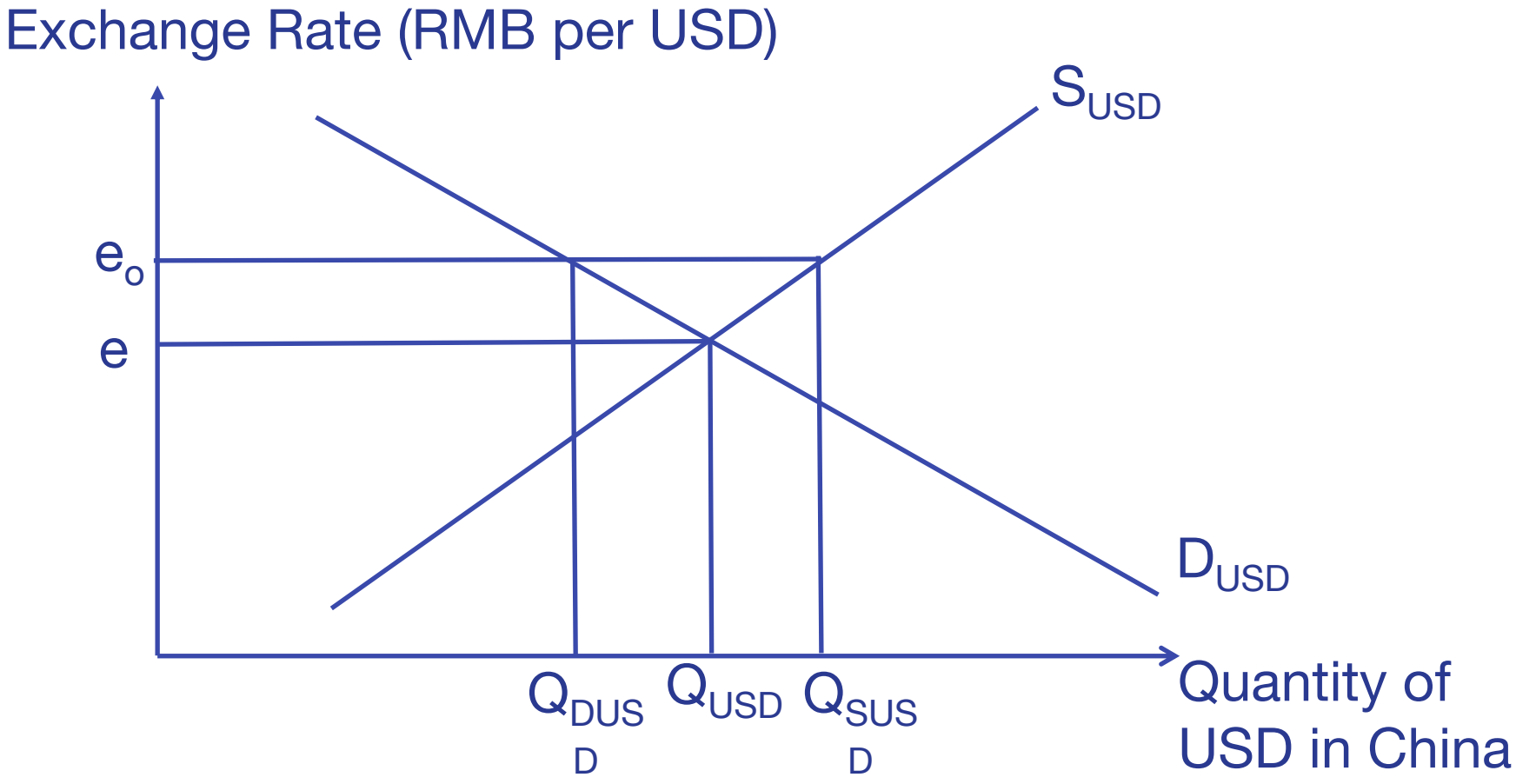


Latin America Capital Controls in 1980s

- Companies had to get government approval to procure foreign currency to pay for their imports.
- There were caps on the amount of foreign currency that residents could take while traveling abroad.
- There were limits on the repatriation of profits for.

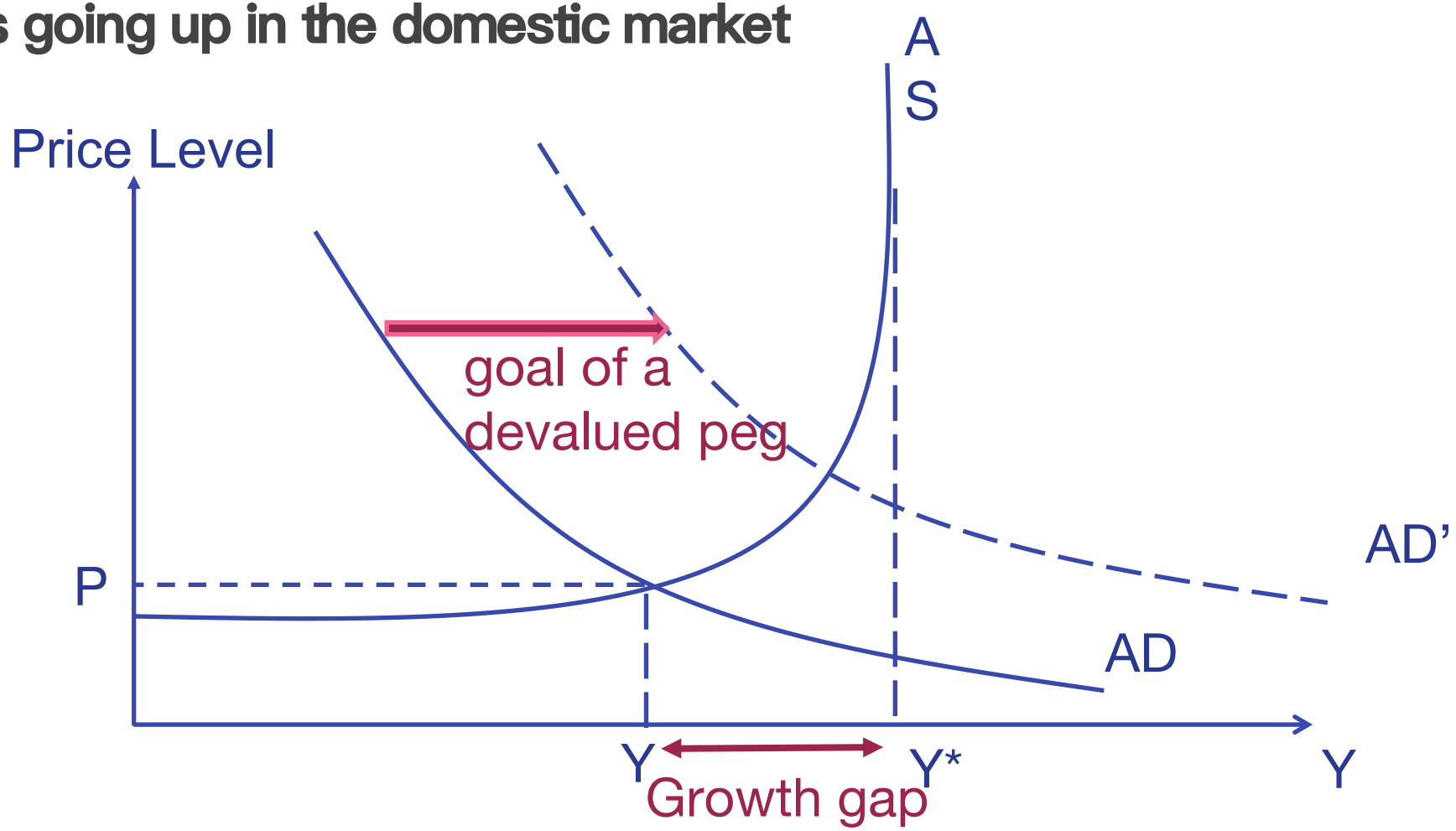
UNDERVALUED PEG

Chinese RMB in 2000s



UNDERVALUED PEG

- **Stimulate aggregate demand through net exports, at the risk of price levels going up in the domestic market**

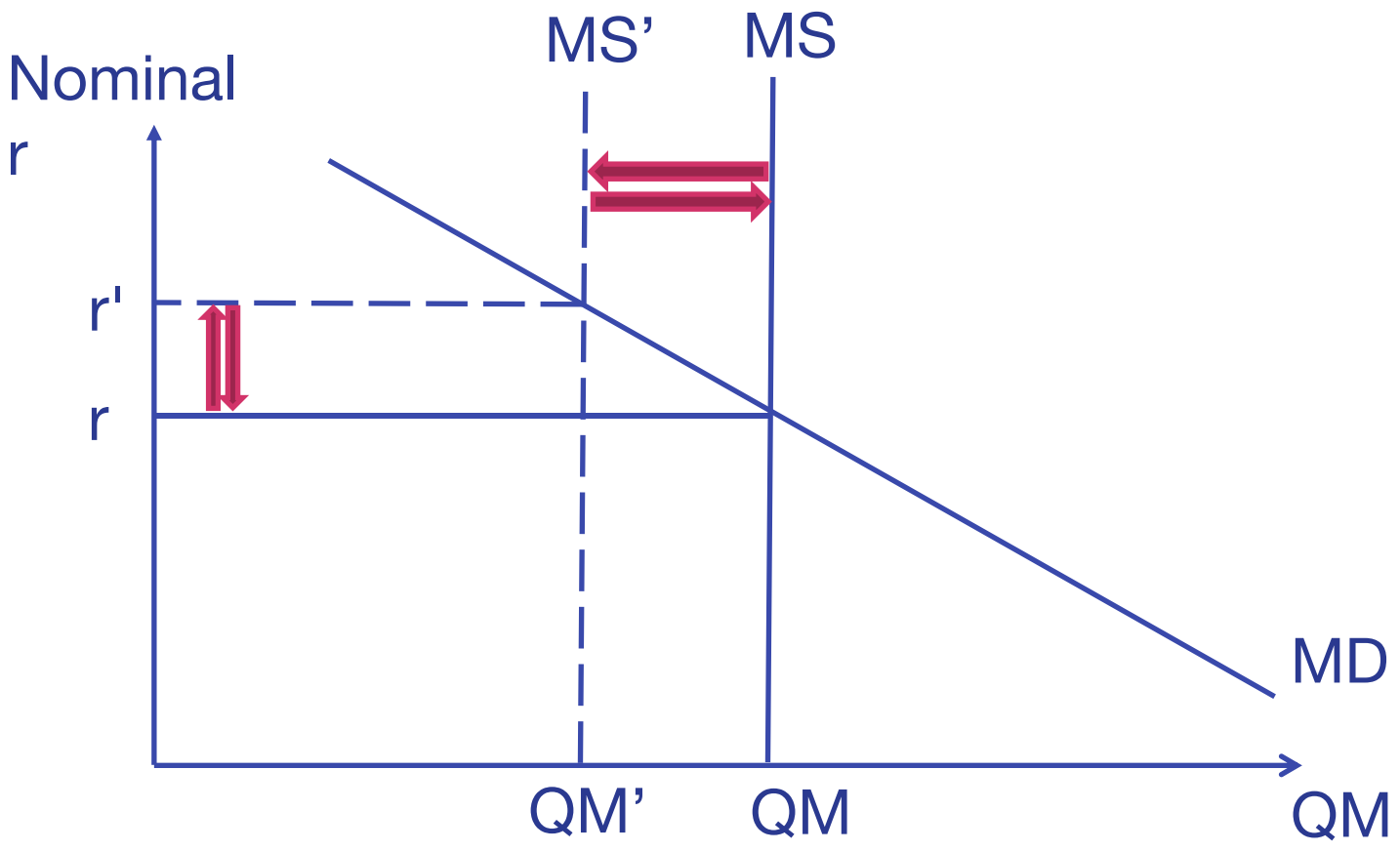


Sterilization of Foreign Currency Inflows

Two steps:

1. Central bank sells government bonds in its possession (not already in the monetary base), which decreases money supply.

2. It uses the proceeds from the sale of the bonds to purchase the excess foreign currency, which increases money supply.



Sterilization results:

1 —Reserves in foreign currency go up

2 —The stock of public debt rises.

The cost for the sterilization policy is the difference between the local and international interest rates.

The annual **social fiscal nominal cost** of a **sterilization** policy:

$$(r - r_{US}) * (\textit{Reserve Assets})$$

r – local interest rate

r_{US} – American rate

Reserve Assets – total amount of foreign reserves held by the central bank

BRAZIL EXAMPLE:

Foreign reserves in 2015 = $370 billion

Average interest rate in 2015 = 13%

Average interest income for the reserves = 1%

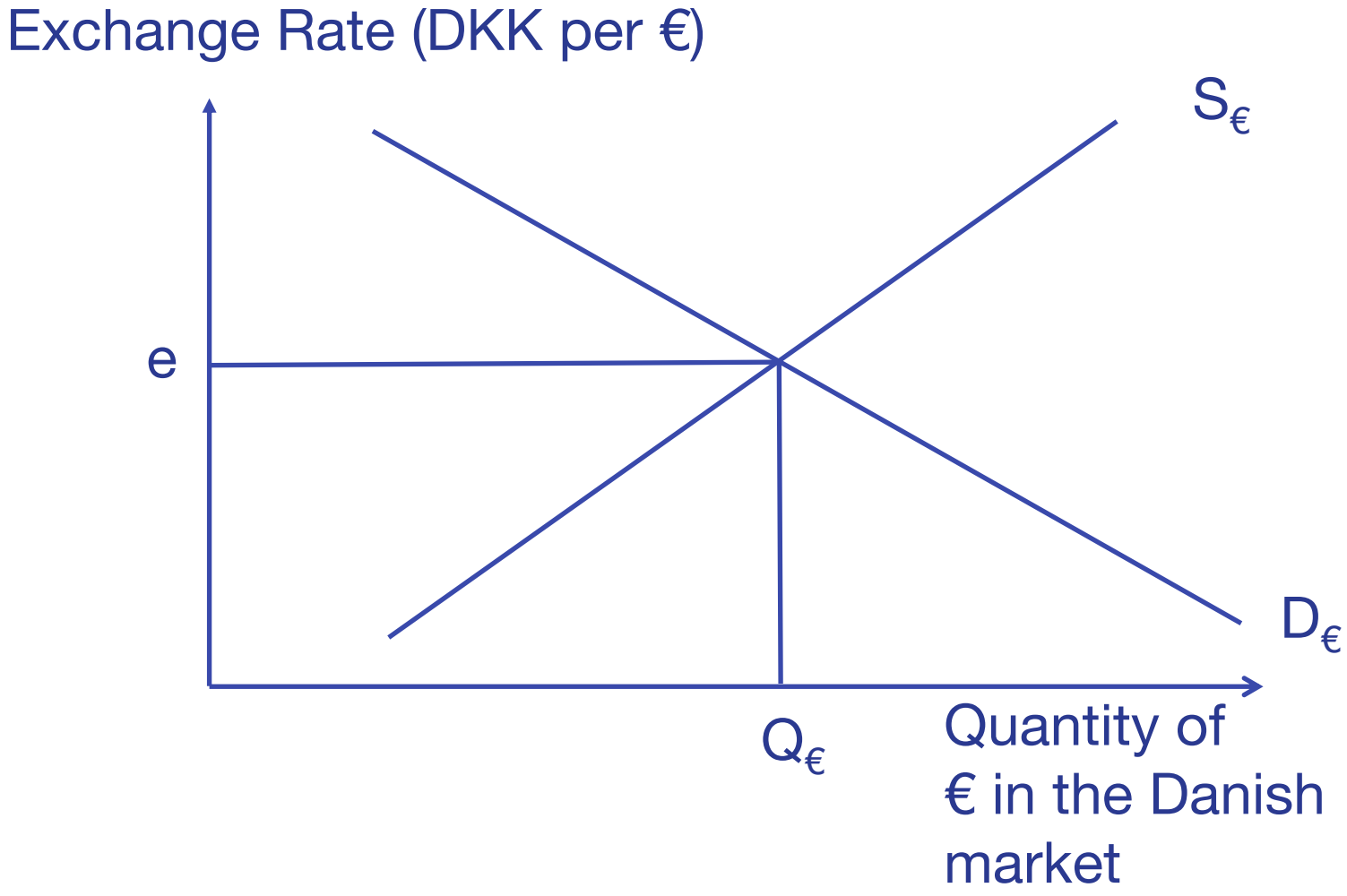
Fiscal nominal cost of $44.4 billion

~2% of GDP

Denmark, Switzerland, and capital controls in developed countries.

- Denmark has a fixed exchange rate regime.
- DKK is tied to the euro.

→ Assume that after the crisis the Danish peg to the euro is in equilibrium

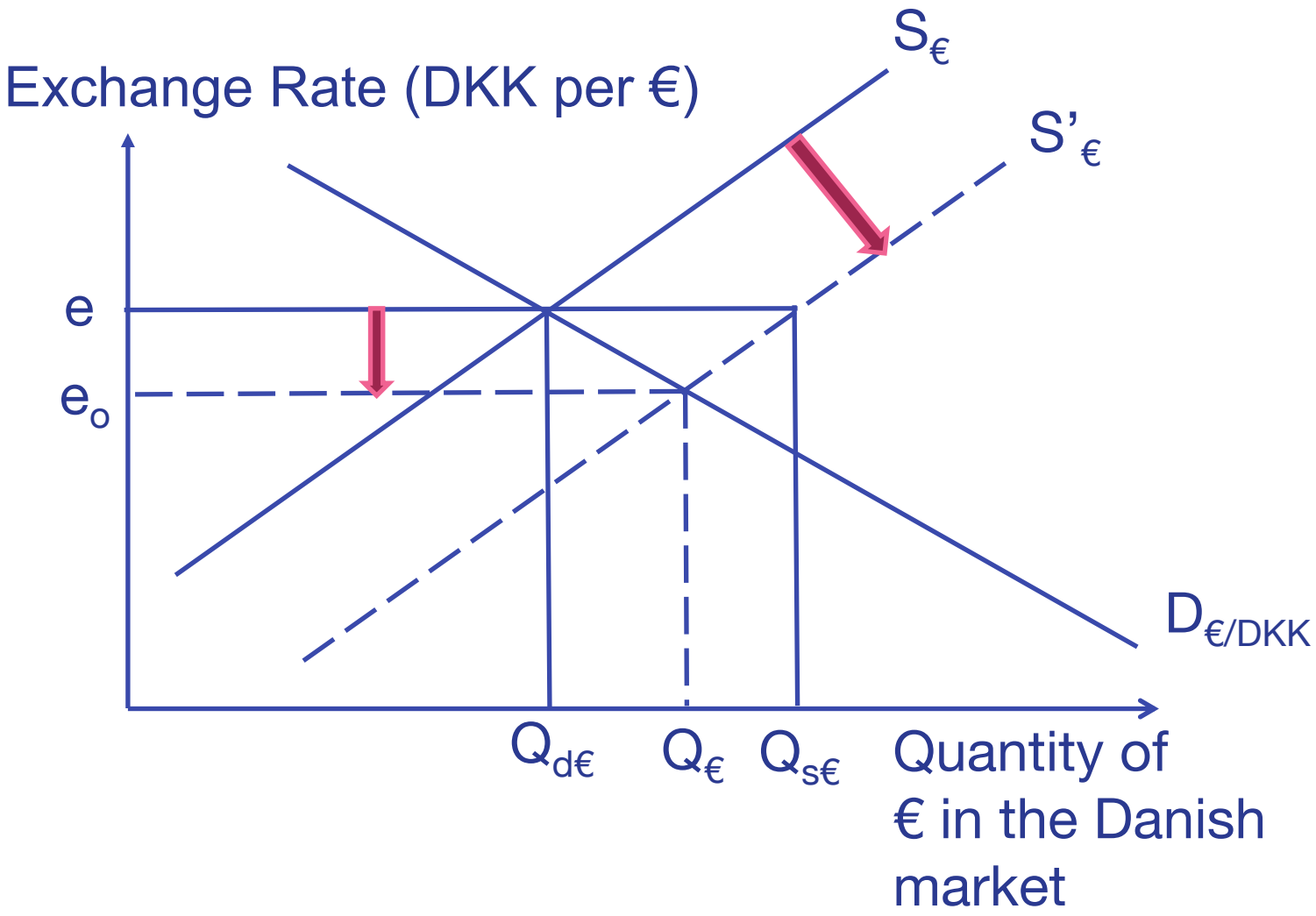


Internationals investors flocked to the Danish market

Increase in the supply of foreign currency.

Equilibrium exchange should fall from e_0 to e.

But it **cannot** because of the **peg**.



Danish authorities have 4 choices:

- Decrease the interest rate to incentivize capital outflows.
- Sterilize the entry of foreign currency and form reserves in euro, thus increasing the public debt in DKK.
- Introduce capital controls.
- Abandon the fixed exchange rate regime, allowing the crown to fluctuate, either freely or in a dirty floating system.

First Danish policymakers used (1) and (2).
In 2015 they introduced option (3).

Switzerland Case:

1. Decrease the interest rate
2. Sterilize the entry of foreign currency
3. Introduce capital controls
4. Abandon the fixed exchange rate regime

Swiss policymakers first dabbled with negative interest rates (1), then they turned to sterilization (2). In 2015, the Swiss National Bank allowed the franc to float (4).

Denmark vs. Switzerland

- **Capital controls**
- Part of the European Exchange Rate Mechanism
  - requires peg to the euro (with an interval band of 2.25%).

- **Free Float**
- Not an EU member
  - Had a voluntary peg to keep import and export decisions predictable.

Emerging markets and exchange rate regimes: the case of India

	Purchase	Sale	Net	Outstanding net forward sales/purchase
1995-96	3.6	3.9	-0.3	-
1996-97	11.2	3.4	7.8	-
1997-98	15.1	11.2	3.8	-1.8
1998-99	28.7	26.9	1.8	-0.8
1999-00	24.1	20.8	3.2	-0.7
2000-01	28.2	25.8	2.4	-1.3
2001-02	22.8	15.8	7.1	-0.4
2002-03	30.6	14.9	15.7	2.4
2003-04	55.4	24.9	30.5	1.4
2004-05	31.4	10.6	20.8	0
2005-06	15.2	7.1	8.1	0
2006-07	26.8	0.0	26.8	0
2007-08	79.7	1.5	78.2	14.7
2008-09	36.6	61.5	24.9	2.0

Reserve Bank's Intervention in the Foreign Exchange Market (US$ billion)

Rupee pegged to gold

↓

Rupee pegged to British pound

↓

Rupee pegged to a broader basket of currencies

↓

Liberalized exchange rate

↓

Dirty floating system

Chapter 10.3

Industrialization by Import Substitution vs. Export Oriented Growth

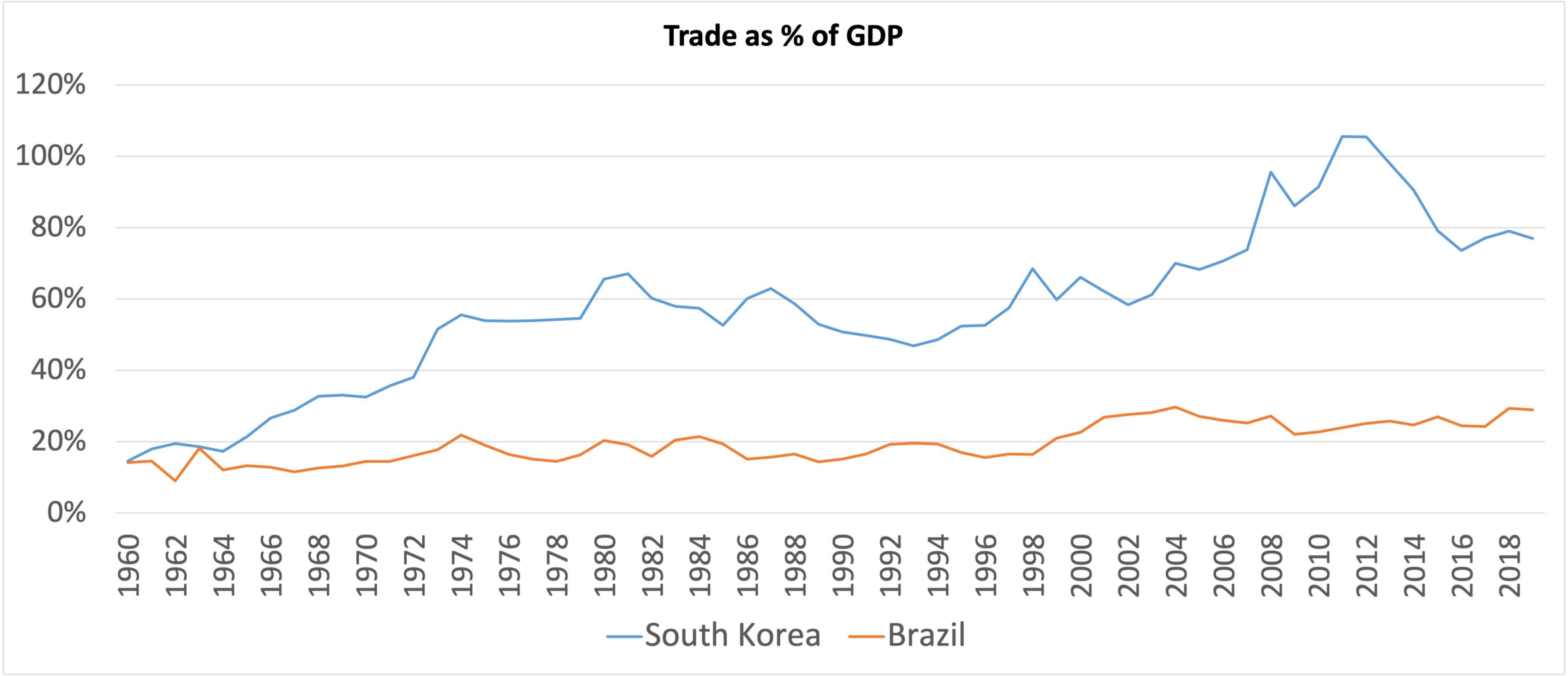
Industrialization

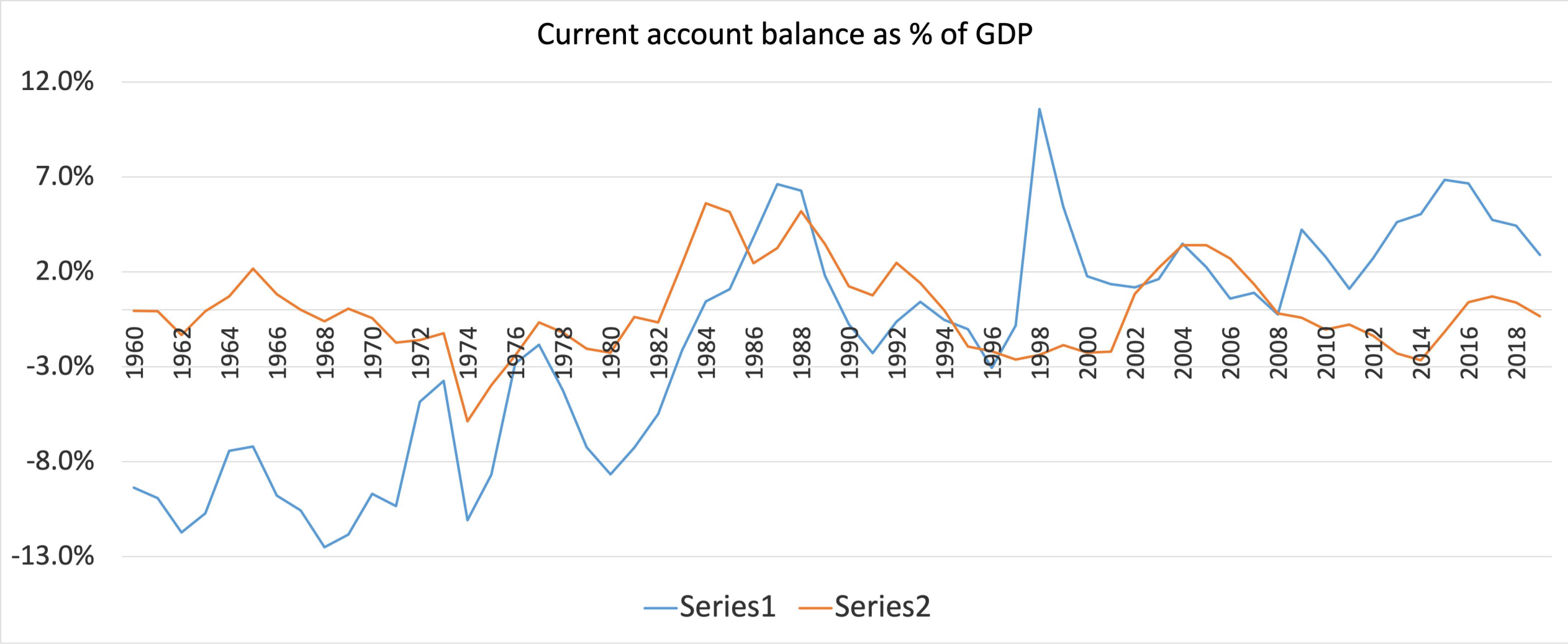
Second half of the 20th century:

- ➔ **Asia** established policies targeting trade surplus
- ➔ **Latin American** countries developed industrialization strategies based imports substitution

BOTH established industrial policies to foster the growth of national companies

Industrialization strategies effects seen in trade intensity data:





- Cyclical patterns in Brazil
- Deficit turned into surplus in South Korea

Chapter 10.4

The Mechanics of Foreign Reserves

Accumulation of foreign reserves

Accumulation of foreign reserves can be:

- **active**
  - countries with flexible or dirty floating regimes

- **passive**
  - countries with flexible exchange rates

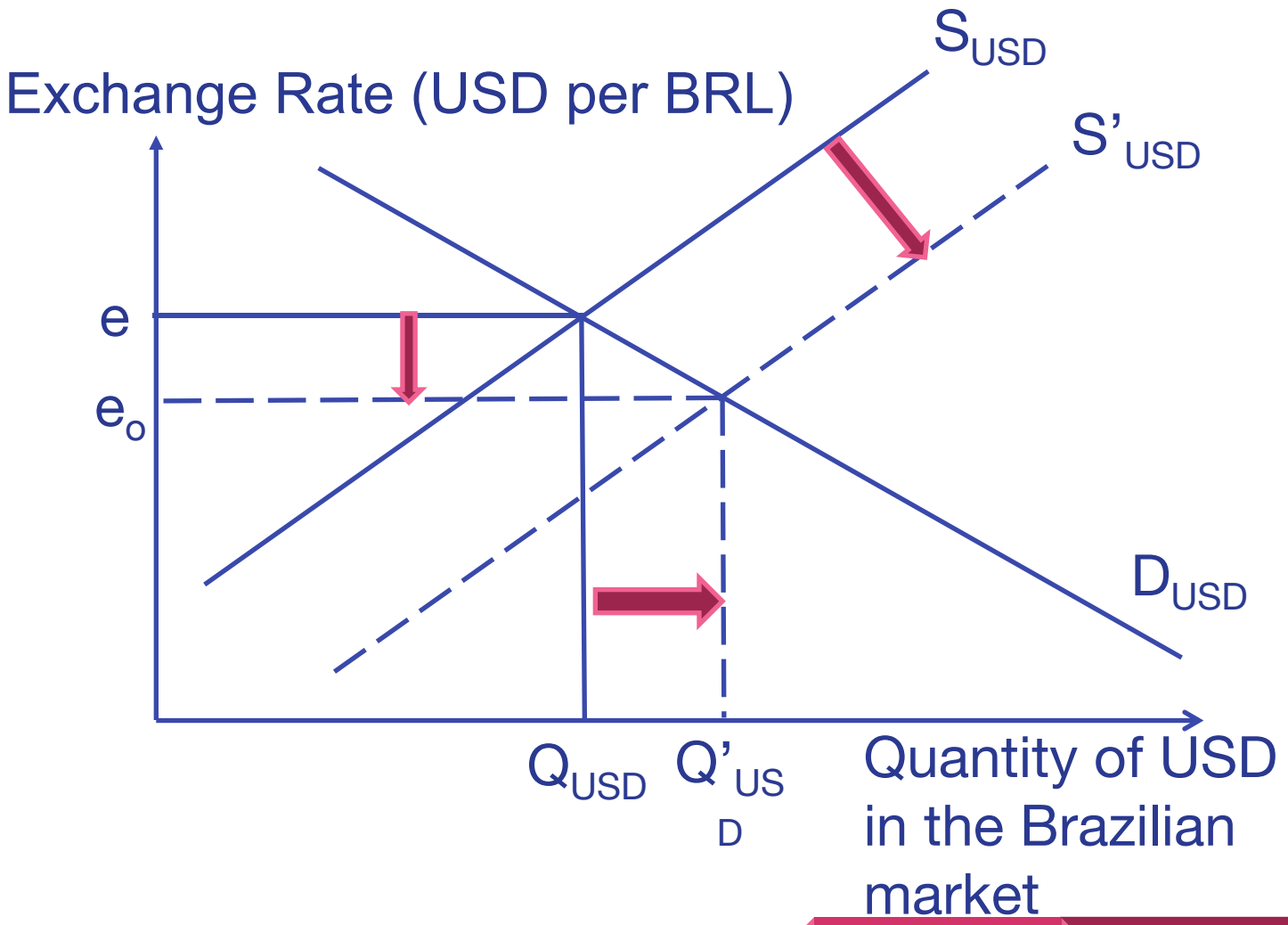
Active reserves can be accumulated with an undervalued fixed exchange rate regime there is a tendency of a currency surplus that can be sterilized and turned into holdings of foreign debt.

Brazil Case

In mid-2000s the country experienced a boom in international demand for its products.

Immense pressure on the appreciation of the Brazilian currency.

The currency continuously fell from 3.99 Reais per USD in 2002 to 1.54 in 2008



The Brazilian Central Bank intervenes by buying foreign currency and reducing the supply of USD

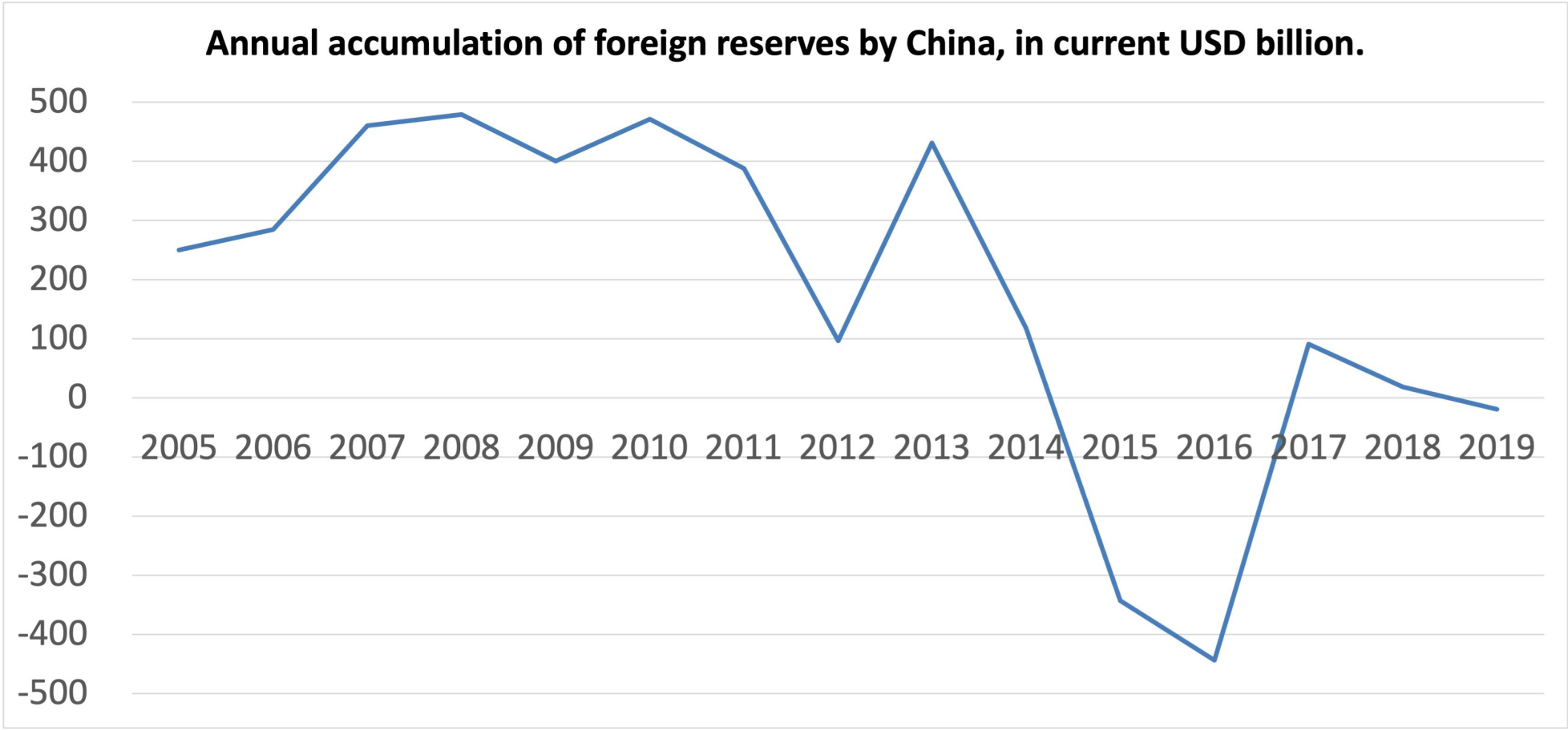
Balance of payments – Brazil, 2005-2012, US$million.

	2005	2006	2007	2008	2009	2010	2011	2012
Current account	13,547	13,030	408	-30,640	-26,261	-75,824	-77,032	-74,218
Financial and Capital Account	-9,041	17,719	87,326	33,762	73,149	125,167	135,925	93,326
Reserve Assets	-4,319	-30,569	-87,484	-2,969	-46,651	-49,101	-58,637	-18,900

Total of reserve assets, 2005-2012: USD 298,630

CHINA RESERVES

China had an undervalued exchange rate regime for most of its post-reform history. To achieve that, it had to **sterilize capital inflows**, accumulating large foreign reserves.



Chapter 10.5

BoP Equilibrium in the US

IMF survey:

Exchange rate regime	Number of countries
No separate legal tender	13
Currency Board	12
Conventional peg*	66
Crawling peg**	17
Other managed arrangements	18
Floating	36
Free Floating	29

➔ 29 countries had freely floating currencies.

➔ Somalia, Mexico, Chile and Poland were not intervening in the foreign currency market.

In free floating regimes, the **current account balance** should be equal to the **capital and financial account balance**, notwithstanding statistical discrepancies and reserve assets.

BUT

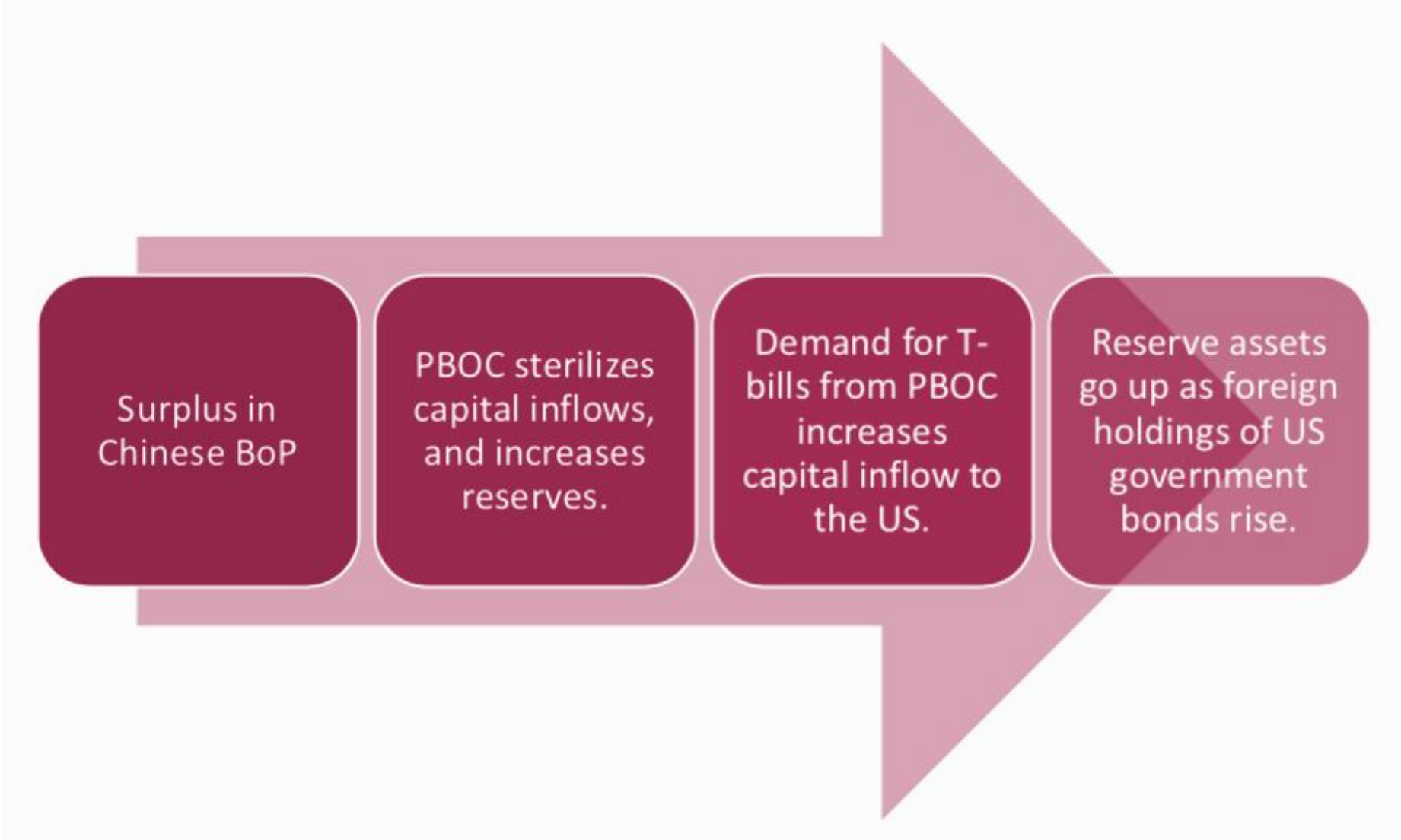
The American dollar is also the world's currency in terms of trade and financial transactions.

+

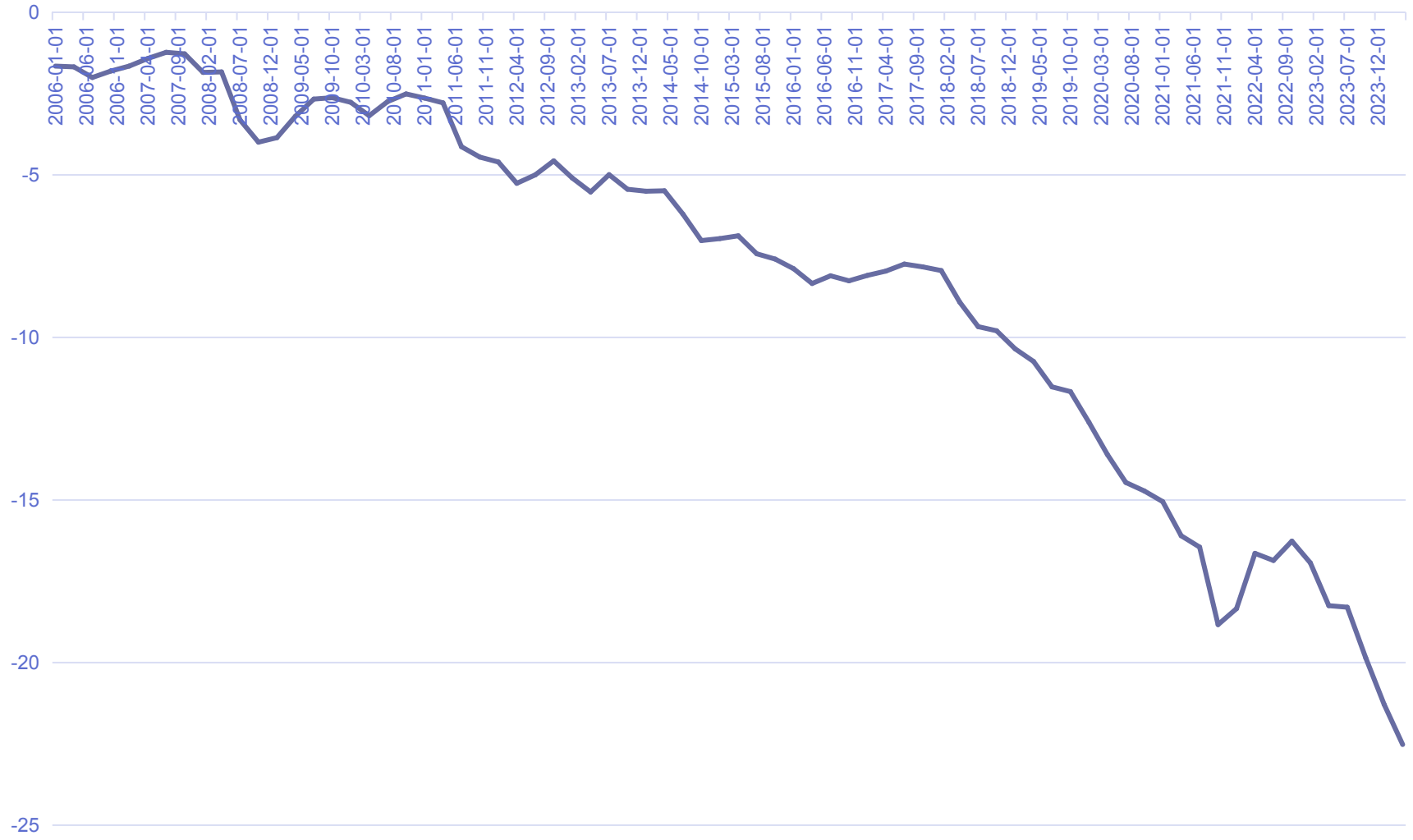
The American financial system is considered a safe haven for financial assets.

The reserve assets of the United States, unlike most countries, are not a representation of the government's reserves of foreign currency, but the holding of US financial assets, mostly Treasury bills, by non–residents.

China Case

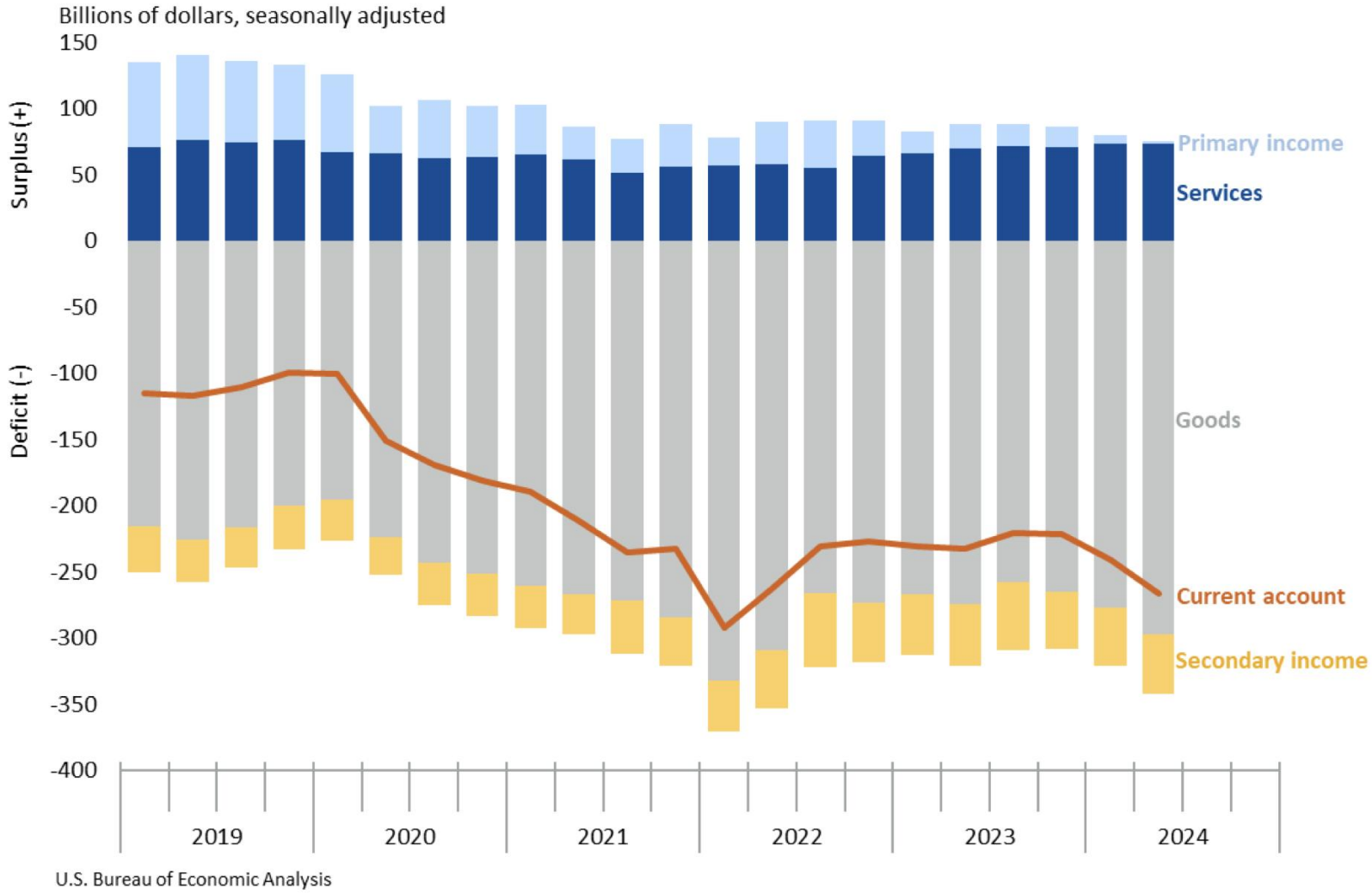

Surplus in Chinese BoP
PBOC sterilizes capital inflows, and increases reserves.
Demand for T-bills from PBOC increases capital inflow to the US.
Reserve assets go up as foreign holdings of US government bonds rise.

US net international investment position, USD million, not seasonally adjusted.



- The American current account is structurally in deficit and capital inflows from increased international holdings of American assets help keep the dollar relatively strong.

US current-account and component balances.



Source: BEA

– The world is not financing the American current account deficit, but the strength of the dollar.