Lecture Seven

Global Macroeconomic Policies and Imbalance Crisis

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Outline

1. IS-LM-FX Model and Macroeconomic Policies
   - 1.1 IS-LM-FX Model
   - 1.2 Policies in Different Scenarios
   - 1.3 Policies in Practice

2. Global Imbalance Crisis
   - 2.1 Why did World War I Start?
   - 2.2 Trade Imbalance and Currency War in the 1980's
   - 2.3 Global Imbalance and the Financial Crisis in 2008

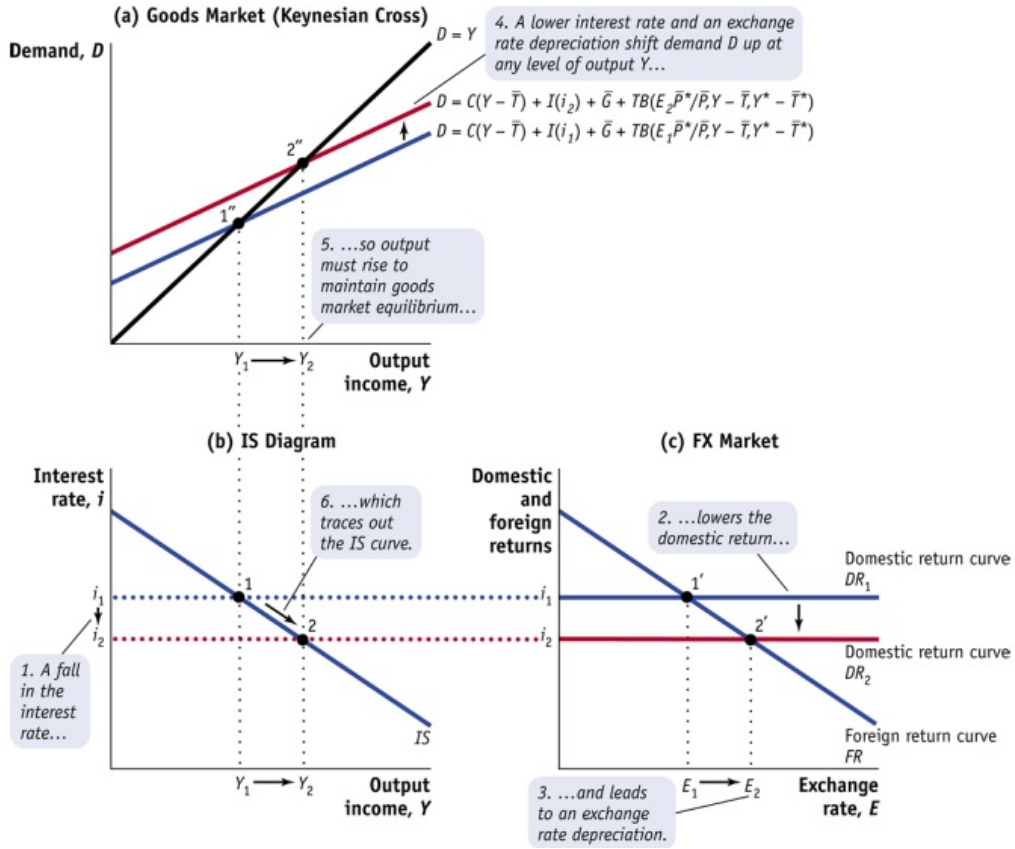
Goods Market Equilibrium and IS Curve

Lower interest rates stimulate output via the investment channel and, through exchange rate depreciation, via the trade balance.

$$Y = C + I(i) + G + TB(E)$$

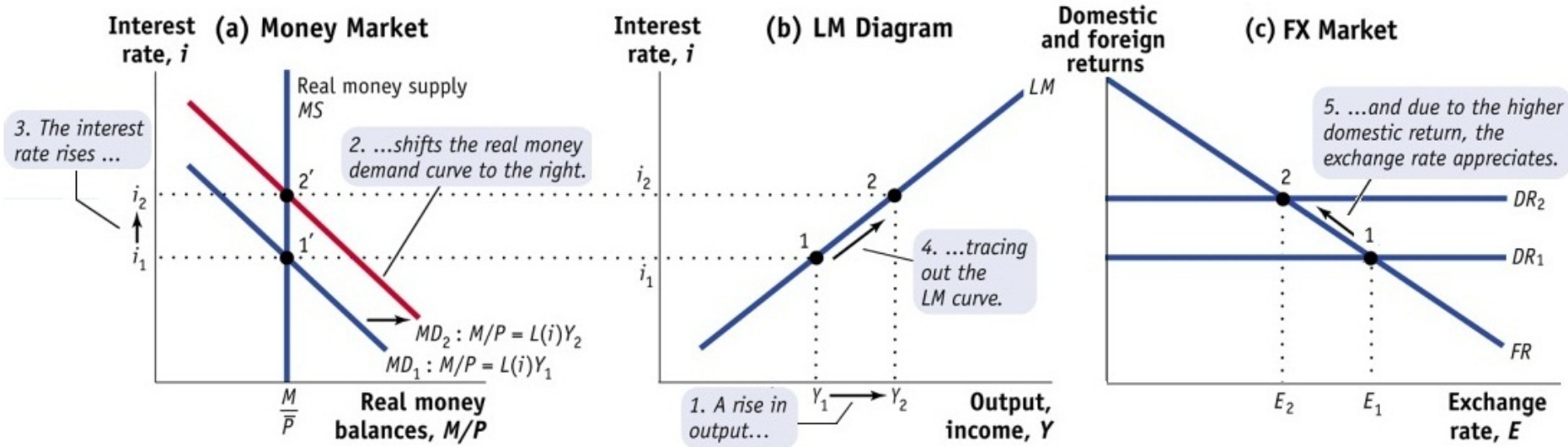
$$\frac{E^e}{E} - 1 = i - i^*$$

$$i \downarrow \Rightarrow \begin{cases} I \downarrow \\ E \uparrow \Rightarrow TB \uparrow \end{cases} \Rightarrow Y \uparrow$$



Money Market Equilibrium and LM Curve

If output rises, real money demand will rise. Given the money supply and price unchanged, the interest rate will increase. In the foreign exchange market, the currency will appreciate accordingly.



Three Curves of the Open Economy

- IS Curve

$$Y = C(Y - T) + I(i) + G + TB(EP^*/P, Y, Y^*)$$

$$\Rightarrow i = IS\left(\underset{-}{Y}; \underset{+}{G}, \underset{-}{T}\right)$$

- LM Curve

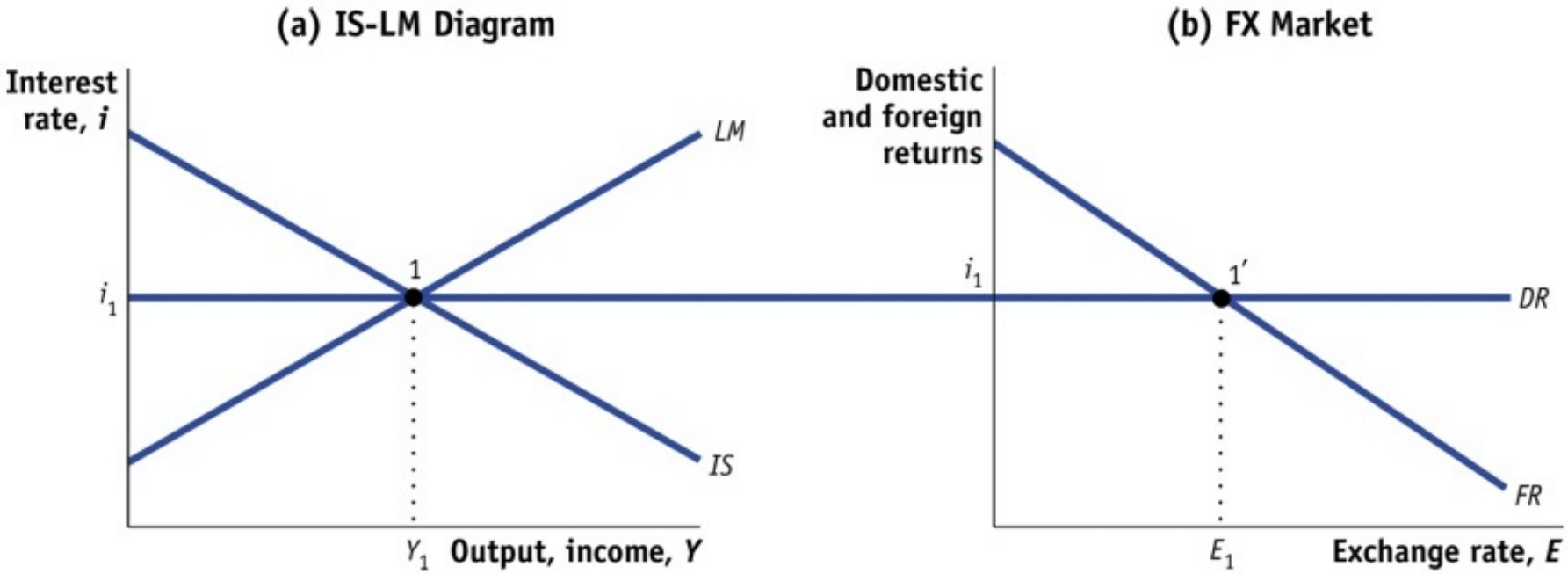
$$\frac{M}{P} = L(i)\,Y, \qquad \frac{E^e}{E} - 1 = i - i^*$$

$$\Rightarrow i = LM\left(\underset{+}{Y}; \underset{-}{M}\right)$$

- FX Curve

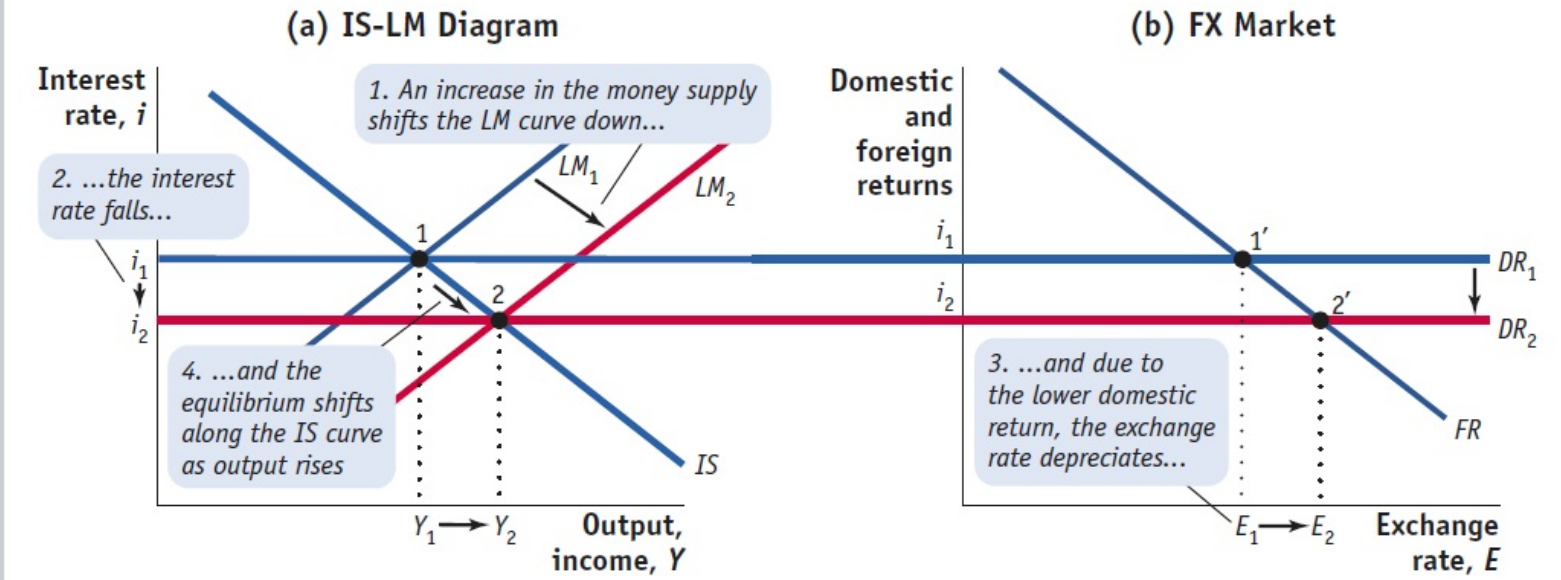
$$\frac{E^e}{E} - 1 = i - i^* \Rightarrow i = FX\left(\underset{-}{E}; \underset{+}{E^e}, \underset{+}{i^*}\right)$$

IS-LM-FX Model



Monetary Policy Under Floating Exchange Rates

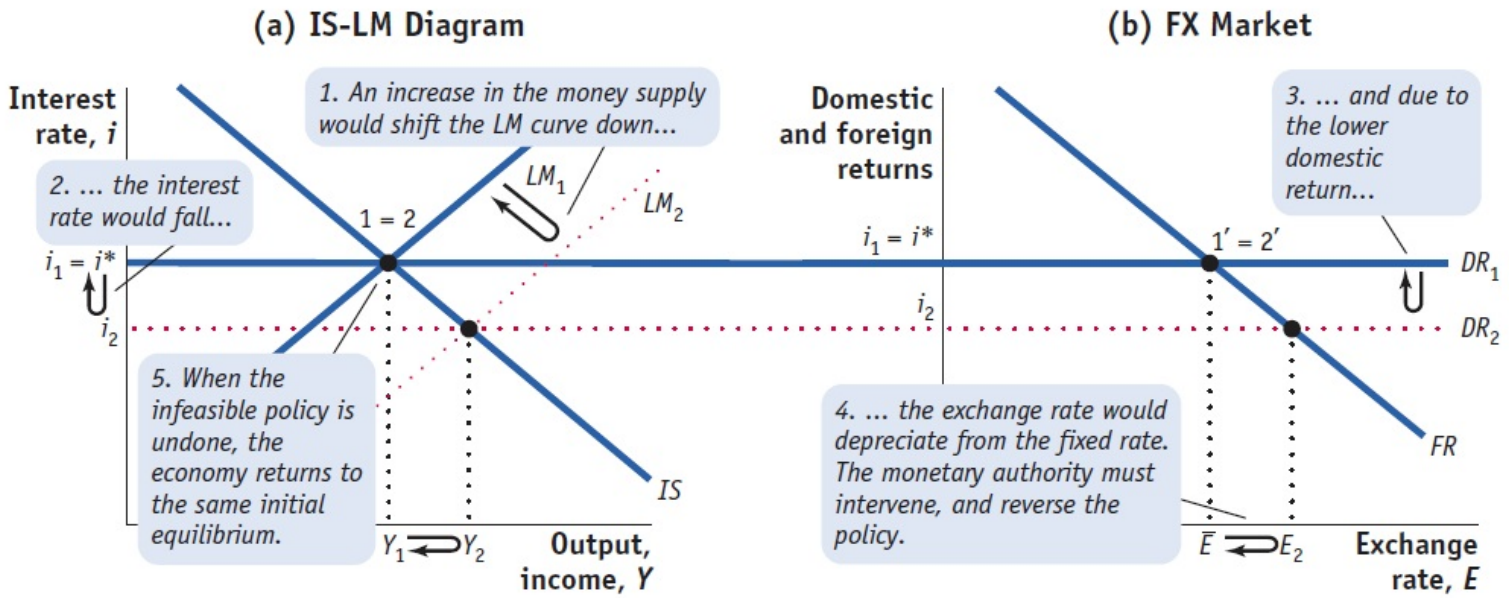
FIGURE 7-13



Monetary Policy Under Floating Exchange Rates In panel (a) in the IS-LM diagram, the goods and money markets are initially in equilibrium at point 1. The interest rate in the money market is also the domestic return, DR_1, that prevails in the forex market. In panel (b), the forex market is initially in equilibrium at point 1′. A temporary monetary expansion that increases the money supply from M_1 to M_2 would shift the LM curve down in panel (a) from LM_1 to LM_2, causing the interest rate to fall from i_1 to i_2. DR falls from DR_1 to DR_2. In panel (b), the lower interest rate implies that the exchange rate must depreciate, rising from E_1 to E_2. As the interest rate falls (increasing investment, I) and the exchange rate depreciates (increasing the trade balance), demand increases, which corresponds to the move down the IS curve from point 1 to point 2. Output expands from Y_1 to Y_2. The new equilibrium corresponds to points 2 and 2′.

Monetary Policy Under Fixed Exchange Rates

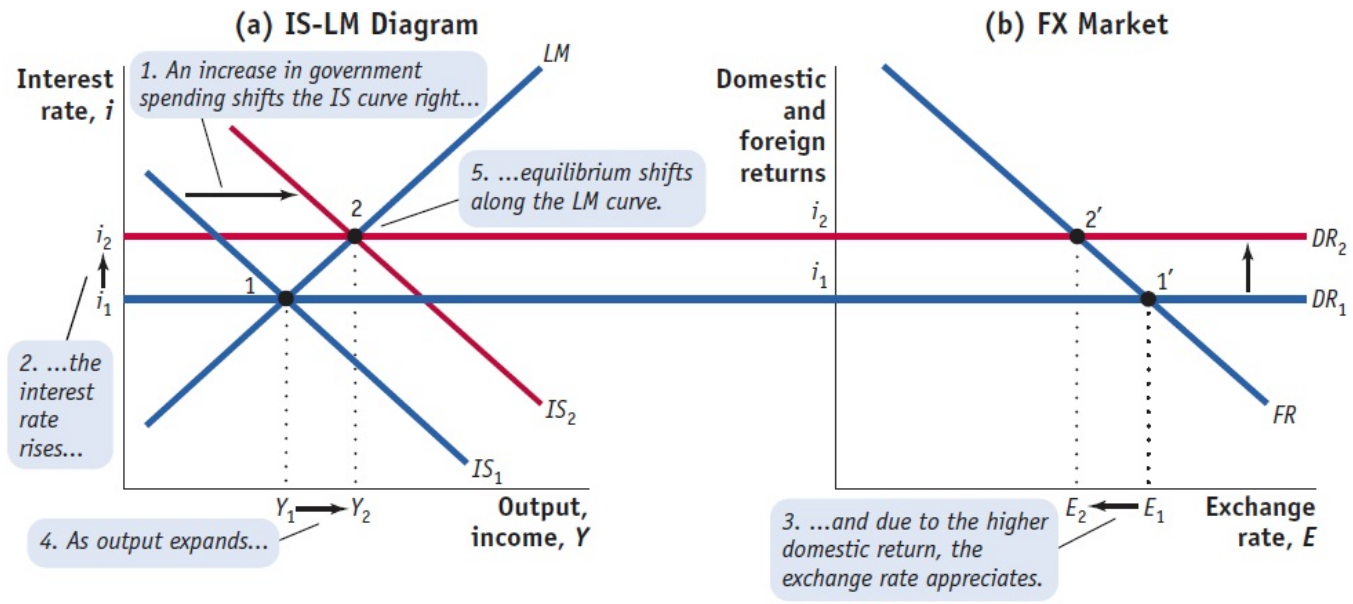
FIGURE 7-14



Monetary Policy Under Fixed Exchange Rates In panel (a) in the IS-LM diagram, the goods and money markets are initially in equilibrium at point 1. In panel (b), the forex market is initially in equilibrium at point 1′. A temporary monetary expansion that increases the money supply from M_1 to M_2 would shift the LM curve down in panel (a). In panel (b), the lower interest rate would imply that the exchange rate must depreciate, rising from $\bar{E}$ to E_2. This depreciation is inconsistent with the pegged exchange rate, so the policy makers cannot move LM in this way. They must leave the money supply equal to M_1. Implication: under a fixed exchange rate, autonomous monetary policy is not an option.

Fiscal Policy Under Floating Exchange Rates

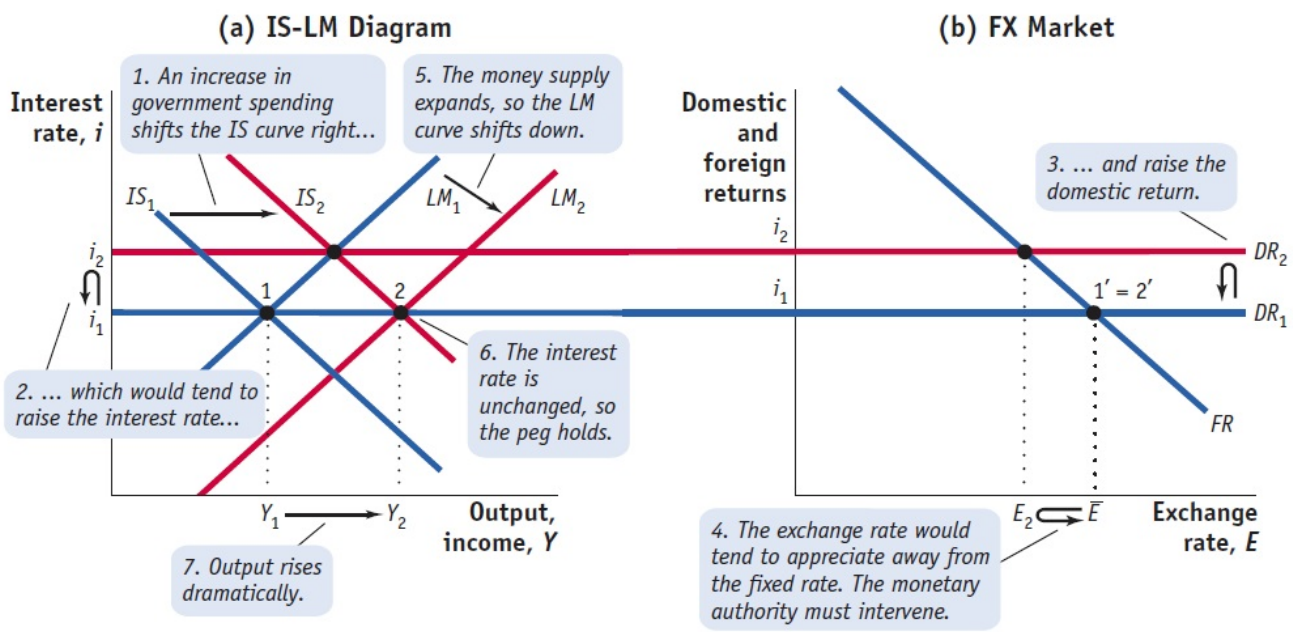
FIGURE 7-15



Fiscal Policy Under Floating Exchange Rates In panel (a) in the IS-LM diagram, the goods and money markets are initially in equilibrium at point 1. The interest rate in the money market is also the domestic return, DR_1, that prevails in the forex market. In panel (b), the forex market is initially in equilibrium at point 1′. A temporary fiscal expansion that increases government spending from $\bar{G}_1$ to $\bar{G}_2$ would shift the IS curve to the right in panel (a) from IS_1 to IS_2, causing the interest rate to rise from i_1 to i_2. The domestic return shifts up from DR_1 to DR_2. In panel (b), the higher interest rate would imply that the exchange rate must appreciate, falling from E_1 to E_2. As the interest rate rises (decreasing investment, I) and the exchange rate appreciates (decreasing the trade balance), demand falls, which corresponds to the move along the LM curve from point 1 to point 2. Output expands from Y_1 to Y_2. The new equilibrium corresponds to points 2 and 2′.

Fiscal Policy Under Fixed Exchange Rates

FIGURE 7-16



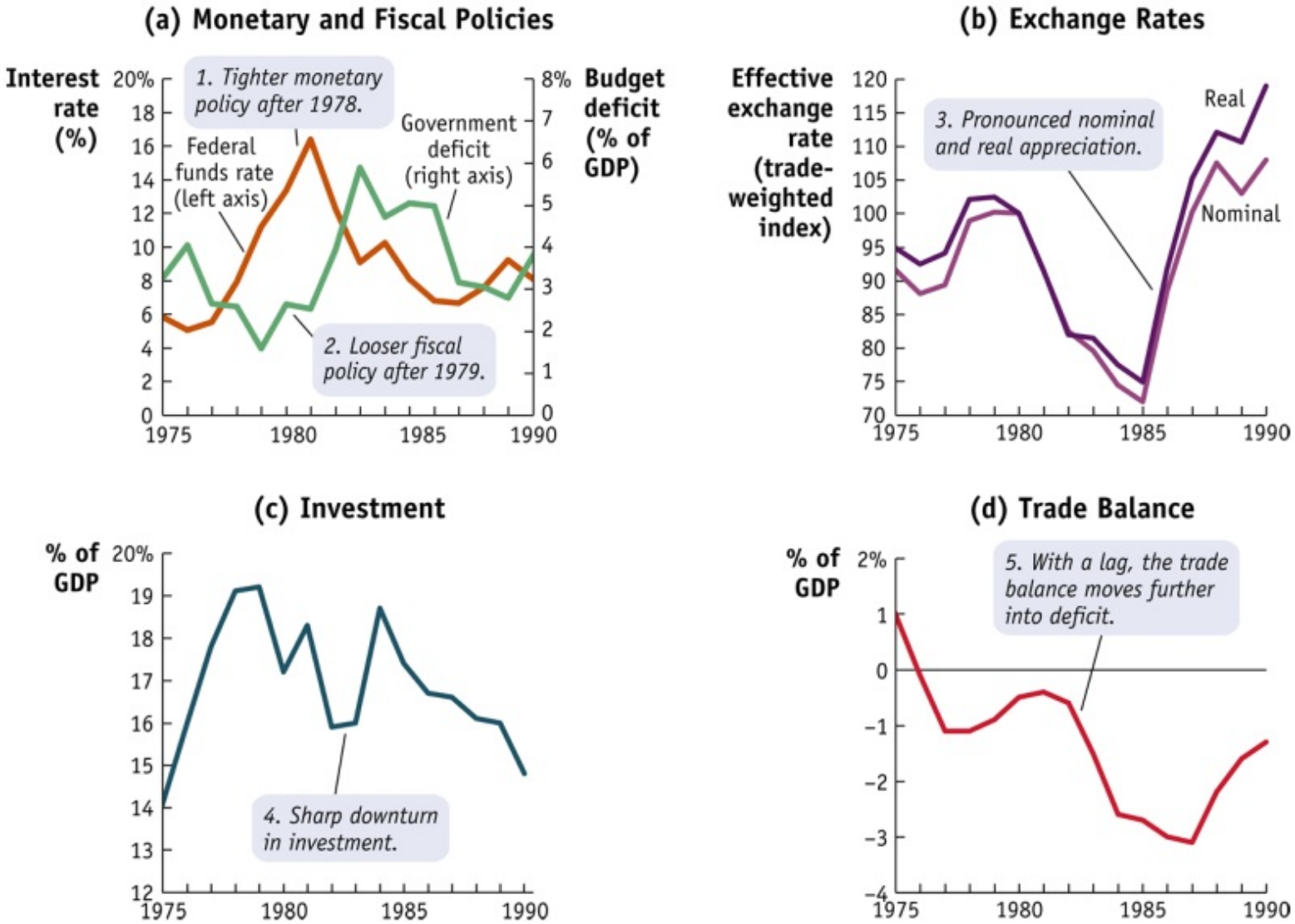
Fiscal Policy Under Fixed Exchange Rates In panel (a) in the IS-LM diagram, the goods and money markets are initially in equilibrium at point 1. The interest rate in the money market is also the domestic return, DR_1, that prevails in the forex market. In panel (b), the forex market is initially in equilibrium at point 1′. A temporary fiscal expansion on its own increases government spending from $\bar{G}_1$ to $\bar{G}_2$ and would shift the IS curve to the right in panel (a) from IS_1 to IS_2, causing the interest rate to rise from i_1 to i_2. The domestic return would then rise from DR_1 to DR_2. In panel (b), the higher interest rate would imply that the exchange rate must appreciate, falling from $\bar{E}$ to E_2. To maintain the peg, the monetary authority must now intervene, shifting the LM curve down, from LM_1 to LM_2. The fiscal expansion thus prompts a monetary expansion. In the end, the interest rate and exchange rate are left unchanged, and output expands *dramatically* from Y_1 to Y_2. The new equilibrium corresponds to points 2 and 2′.

Summary of Policies

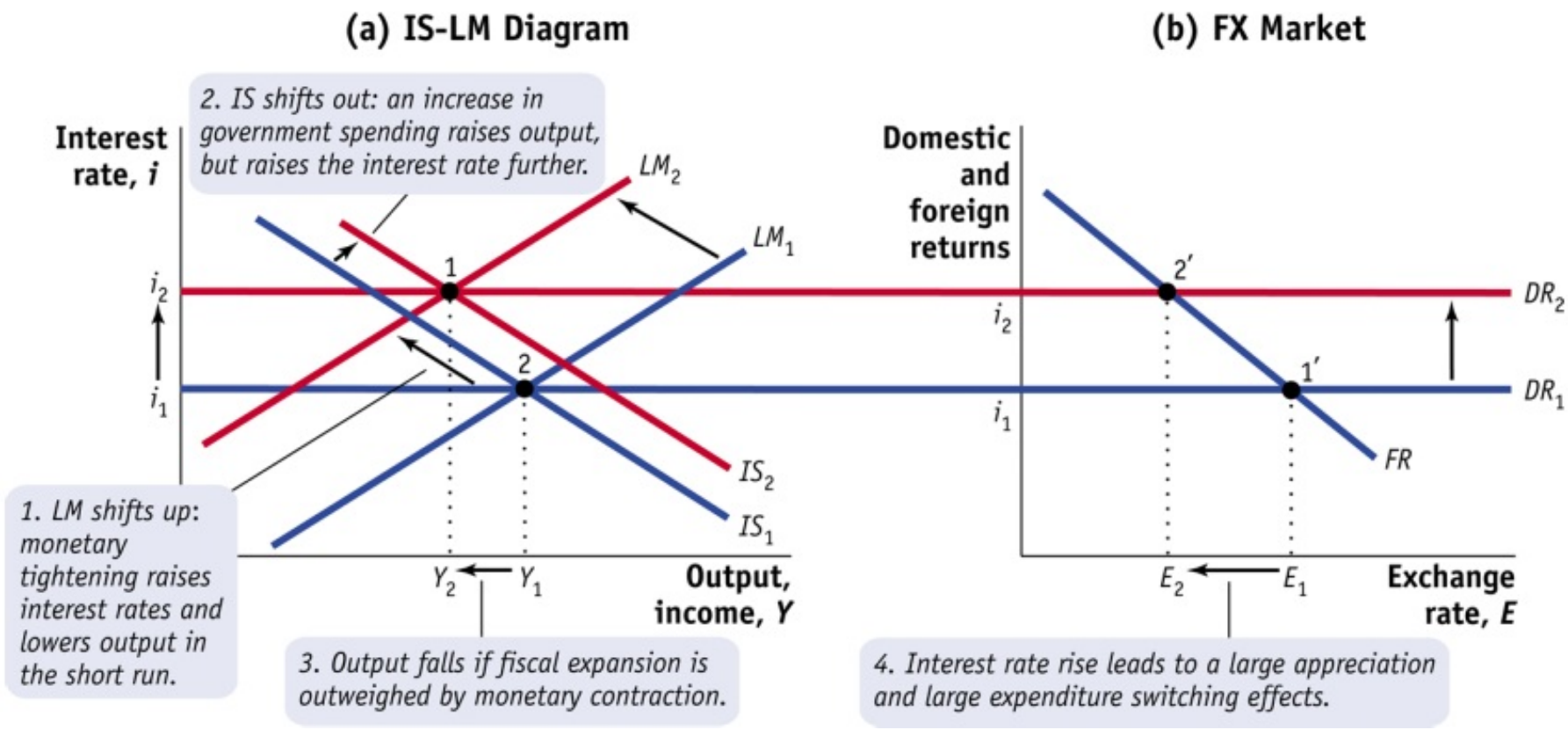
Responses to Policy Shocks in the IS-LM-FX Model

Exchange Rate Regime	Policy	Impact on: i	E	I	TB	Y
Floating	Monetary expansion	↓	↑	↑	↑?	↑
	Fiscal expansion	↑	↓	↓	↓	↑
Fixed	Monetary expansion	0	0	0	0	0
	Fiscal expansion	0	0	0	↓	↑

Case 1: The Policy of the U.S. in the 1980s

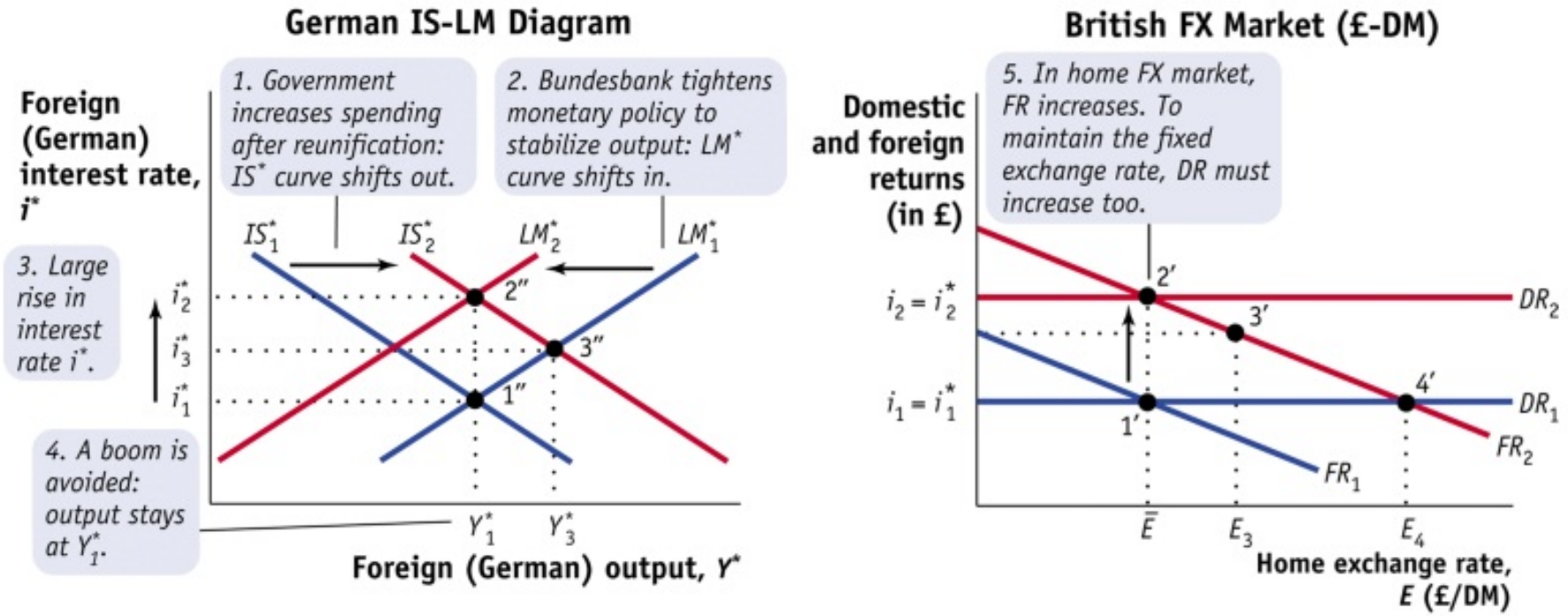


Case 1: IS-LM-FX Model of U.S.



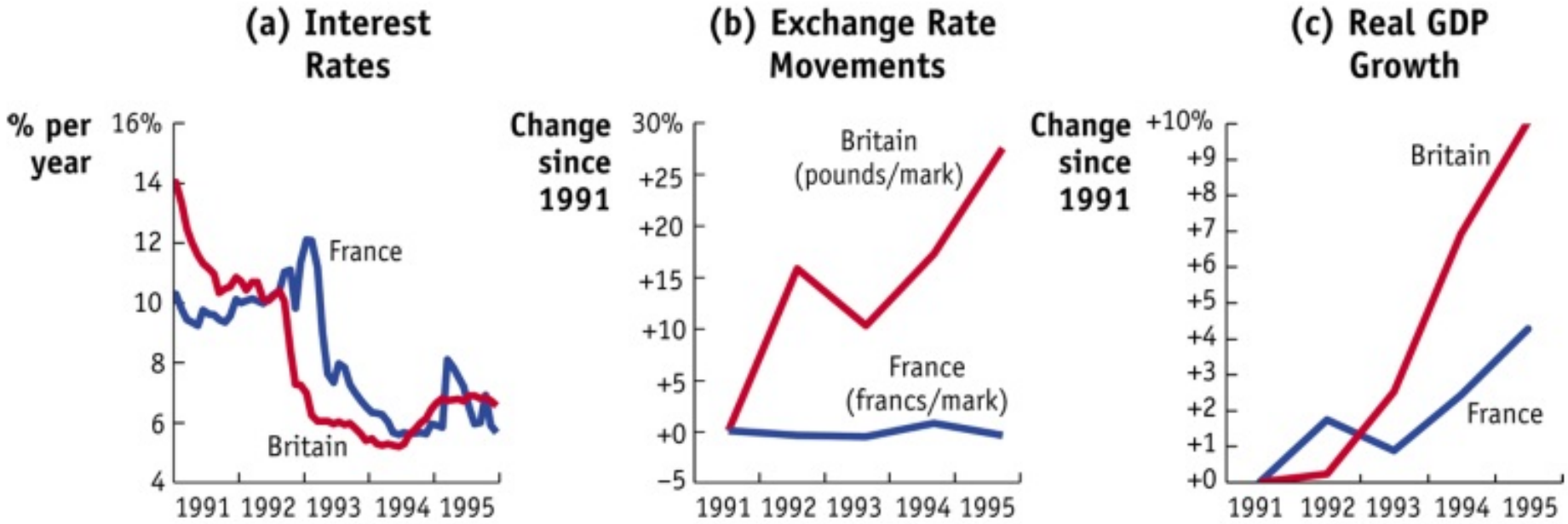
Case 2: IS-LM-FX Model of Germany in 1989

After the fall of the Berlin Wall in 1989, Germany increased the government expenditure for the reconstruction of former East Germany. Meanwhile, the Central Bank increased interest rate to control inflation. As a result, the Mark began to appreciate against the dollar.

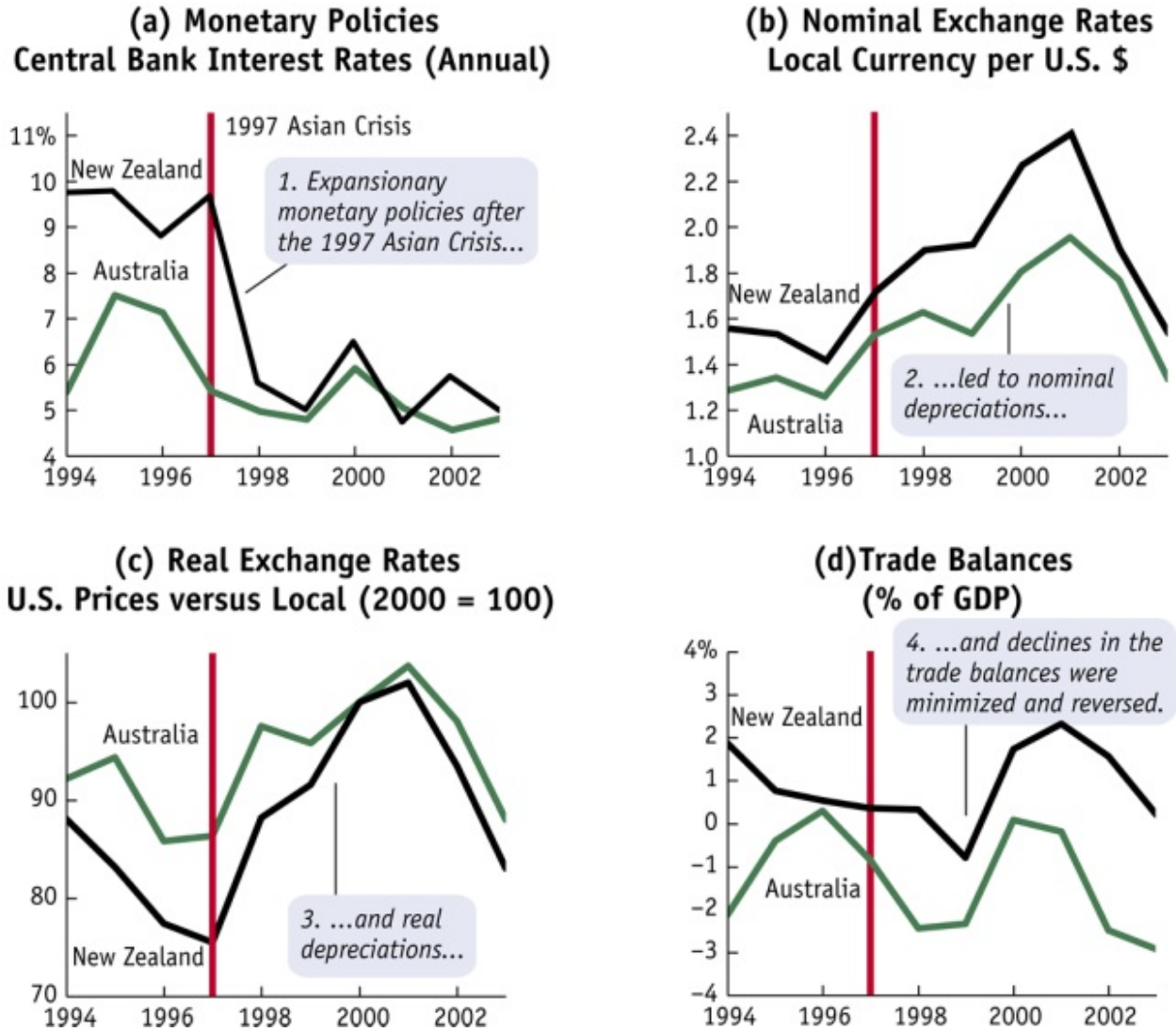


Case 2: Policy of UK and France in 1992

The British economy recovered quickly in the following years. But France and many other countries, who choose to stay in ERM with their currency pegged with Mark, fell into recession after the crisis.

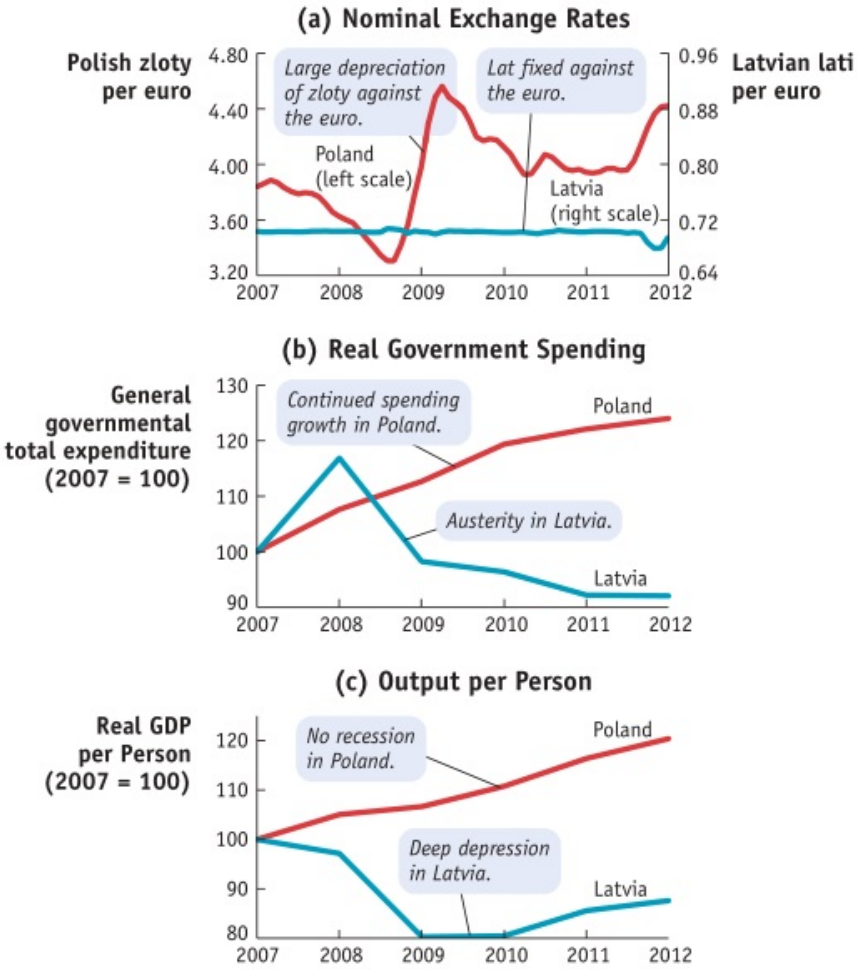


Case 3: Australia and New Zealand after 1997

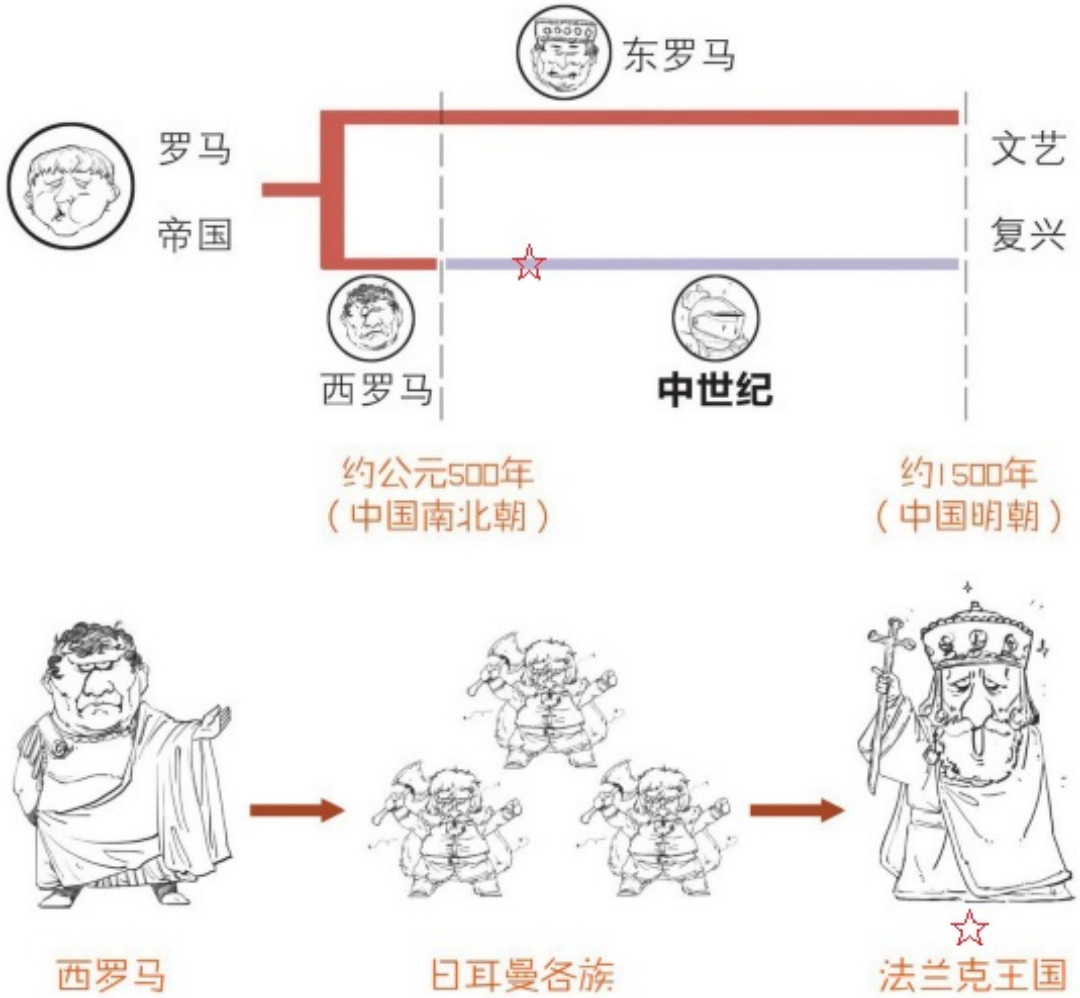


Case 4: Poland and Latvia after 2008

Poland and Latvia reacted differently to adverse demand shocks from outside and inside their economies. Panels (a) and (b) show that Poland pursued expansionary monetary policy, let its currency depreciate against the euro, and kept government spending on a stable growth path. Latvia maintained a fixed exchange rate with the euro and pursued an austerity approach with large government spending cuts from 2009 onward. Panel (c) shows that Poland escaped a recession, with positive growth in all years. In contrast, Latvia fell into a deep depression, and real GDP per capita fell 20% from its 2007 peak.



The Rise of Kingdom of the Franks (481–843)



Note: All the cartoon are from Chen(2018).

Charles the Great (742-814)

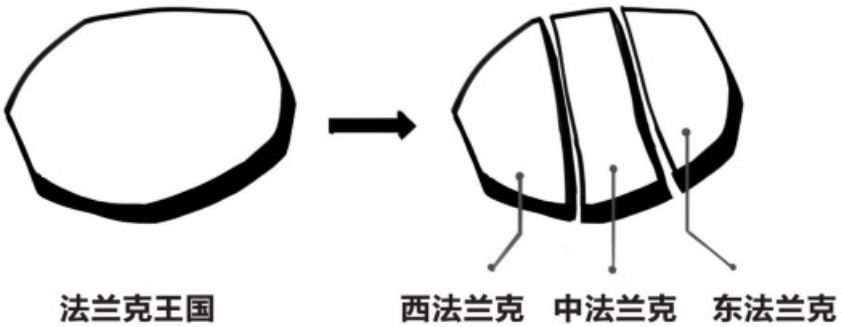
查理曼大帝

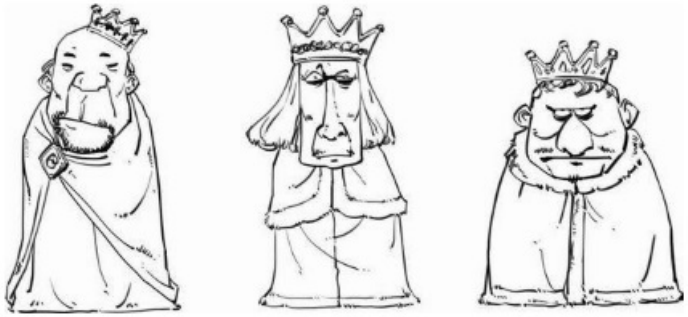
（约公元800年，大致是中国唐朝时期）

CHARLEMAGNE'S EMPIRE: THE PARTITION OF VERDUN (843)

Source: https://www.edmaps.com/charlemagne__empire_verdun_partition_843.jpg.

The Origins of France, Italy, and Germany





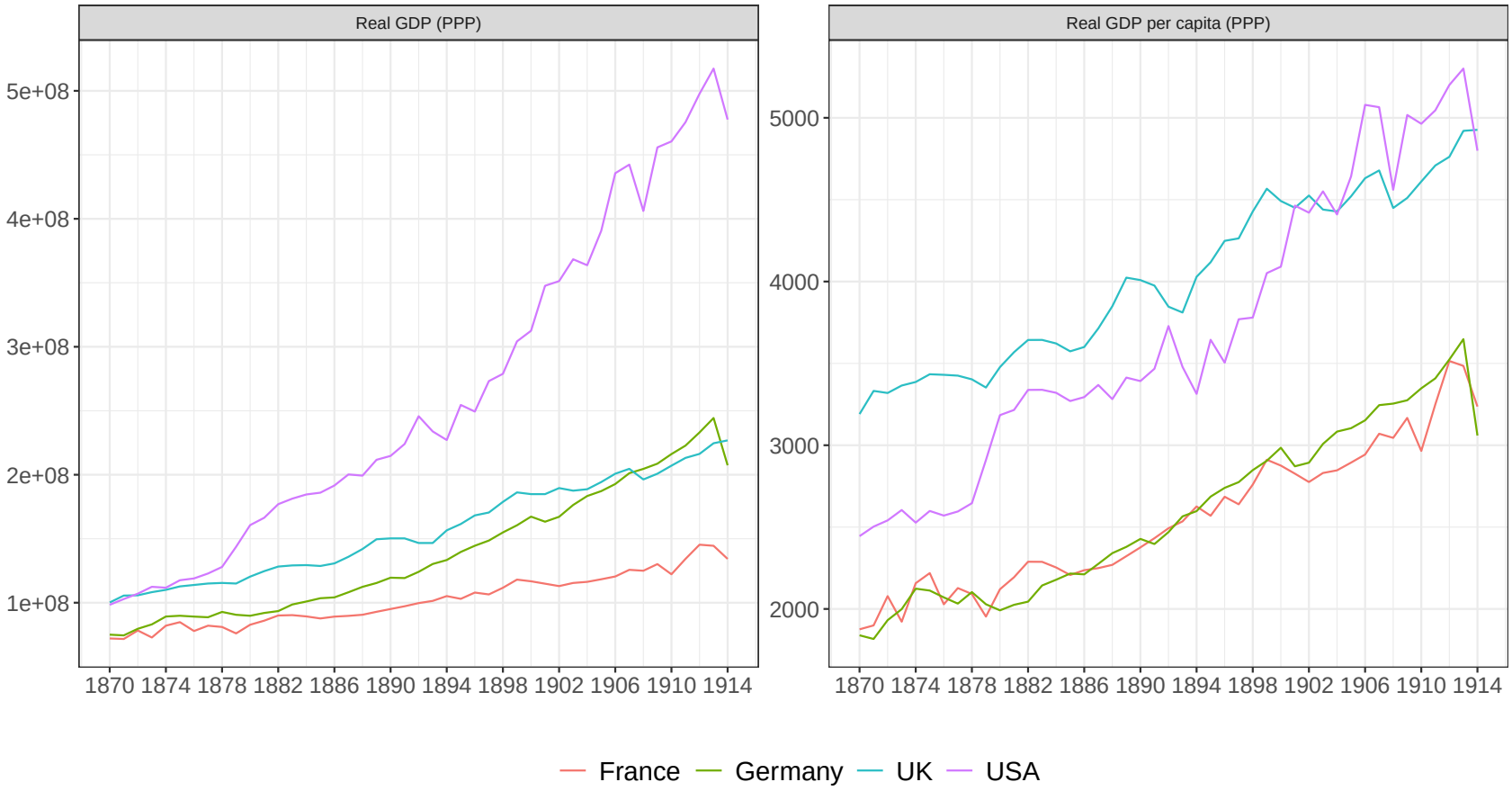
这就是奥托大帝。

（约公元960年，大致是中国北宋初年）

Three German Emperor


Note: From left to right is Otto I (912–973), Wilhelm II (1859–1941), and Adolf Hitler (1889–1945).

The Rise of Imbalance: 1870 $\sim$ 1914



Data Source: Jordá-Schularick-Taylor Macrohistory Database.

Hobsbawm(1989): The Age of Empire 1875–1914

- The redistribution of economic power and initiative, that is to say on Britain's relative decline and the relative – and absolute – advance of the USA and above all Germany. In principle, it is not really surprising that Germany, its population rising from 45 to 65 millions, and the USA, growing from 50 to 92 millions, should have overhauled Britain, both territorially smaller and less populous.
- The developed world was not only an aggregate of 'national economies'. Industrialization and the Depression turned them into a group of rival economies, in which the gains of one seemed to threaten the position of others.

Hobsbawm(1989): Protectionism and Trade War

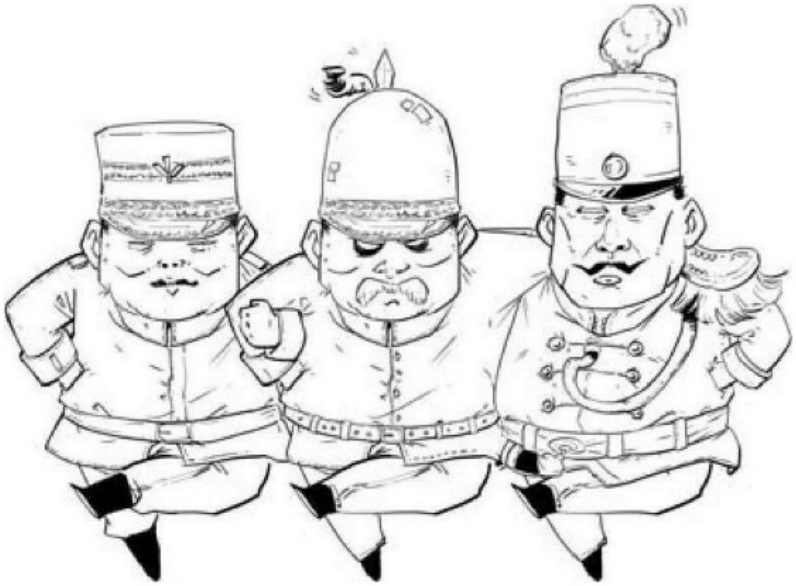
- Protectionism seeks to barricade each nation-state economy against the foreigner behind a set of political fortifications, is harmful to world economic growth.
- Starting with Germany and Italy (textiles) in the late 1870s, protective tariffs became a permanent part of the international economic scene, culminating in the early 1890s in the penal tariffs associated with the names of M閘ine in France (1892) and McKinley in the USA (1890).

	%
United Kingdom	0
Netherlands	4
Switzerland, Belgium	9
Germany	13
Denmark	14
Austria–Hungary, Italy	18
France, Sweden	20
Russia	38
Spain	41
USA (1913)	30[a]

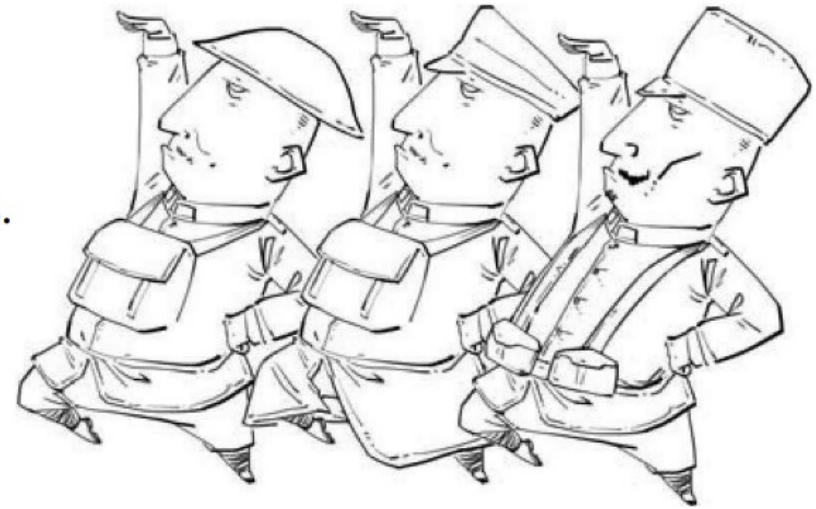
Note: Average level of tariff in Europe, 1914. The data of U.S.A. is lowered from 49.5% (1890), 39.9% (1894), 57% (1897), and 38% (1909). The data is ordinal from Sidney Pollard, Peaceful Conquest: The Industrialization of Europe 1760?1970 (Oxford 1981), p. 259.

The Split and War in Europe

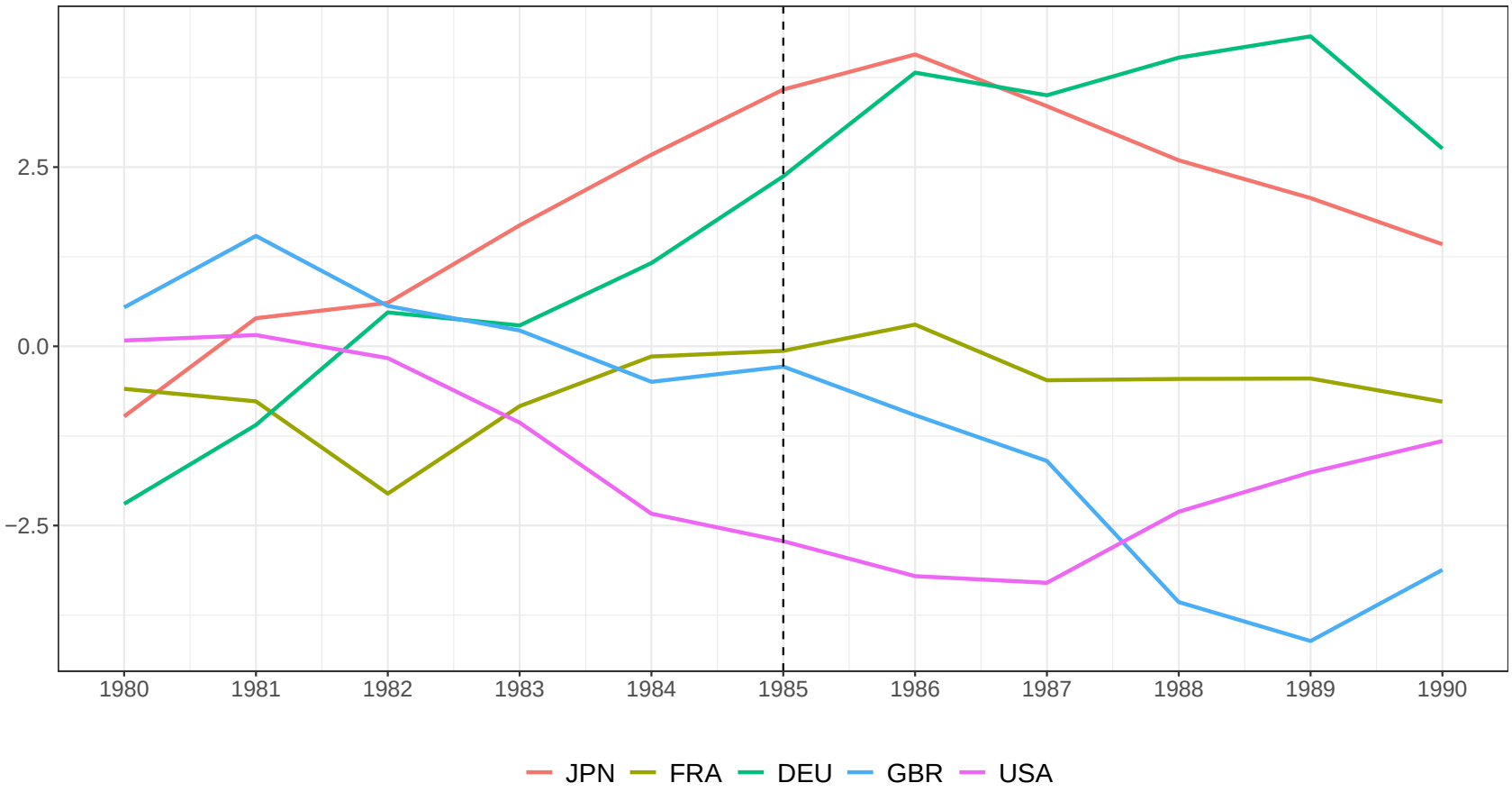
Hobsbawm(1989): 'Territorial expansion', said an official of the US State Department in 1900, 'is but the by-product of the expansion of commerce.'



v.s.

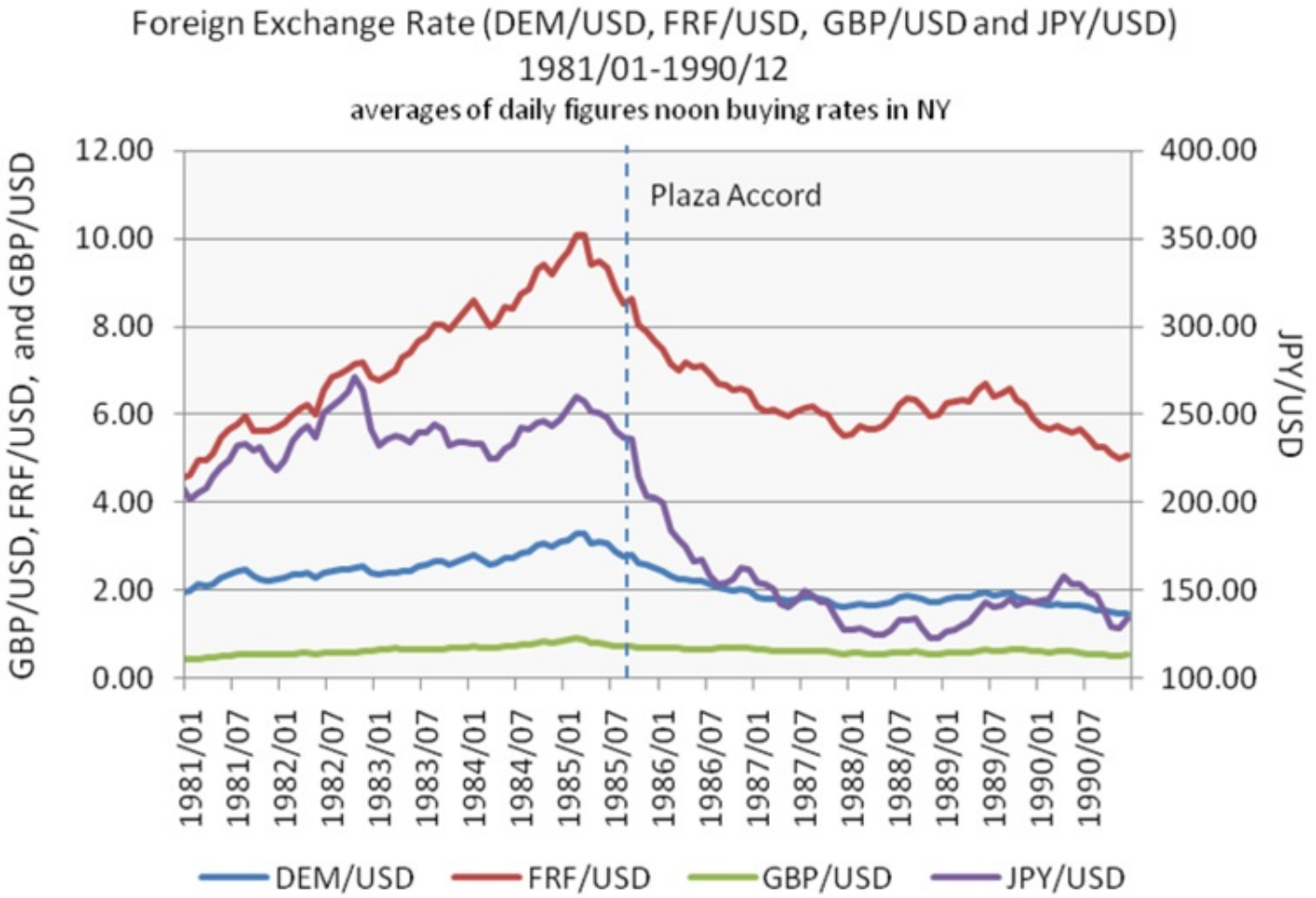


Trade Imbalance in the 1980's



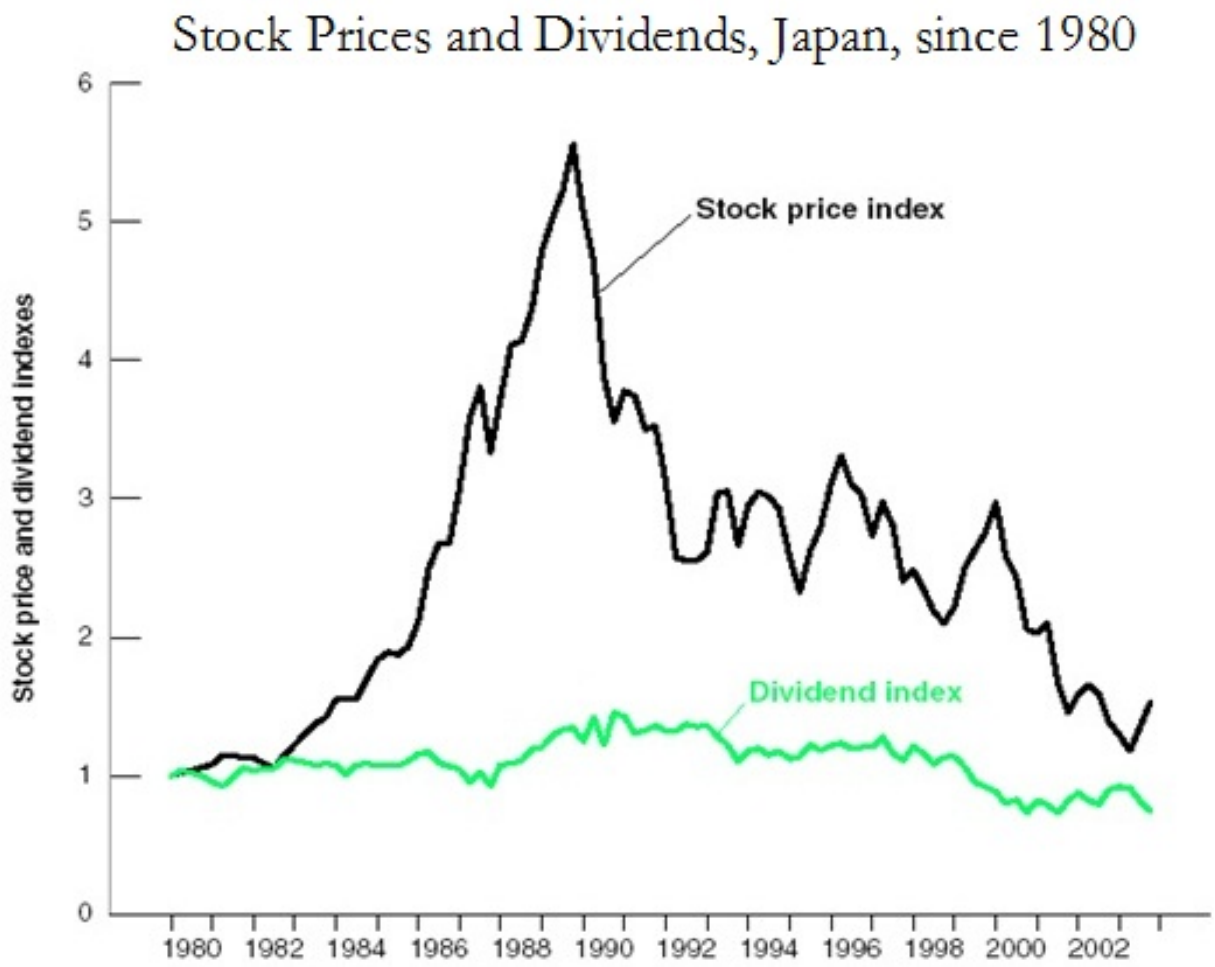
Note: The ratio of current account balance to GDP, download from Quandl.

The Plaza Accord in 1985



Source: http://en.wikipedia.org/wiki/Plaza_Accord

The Bubble Economy in Japan: 1985 $\sim$ 1990

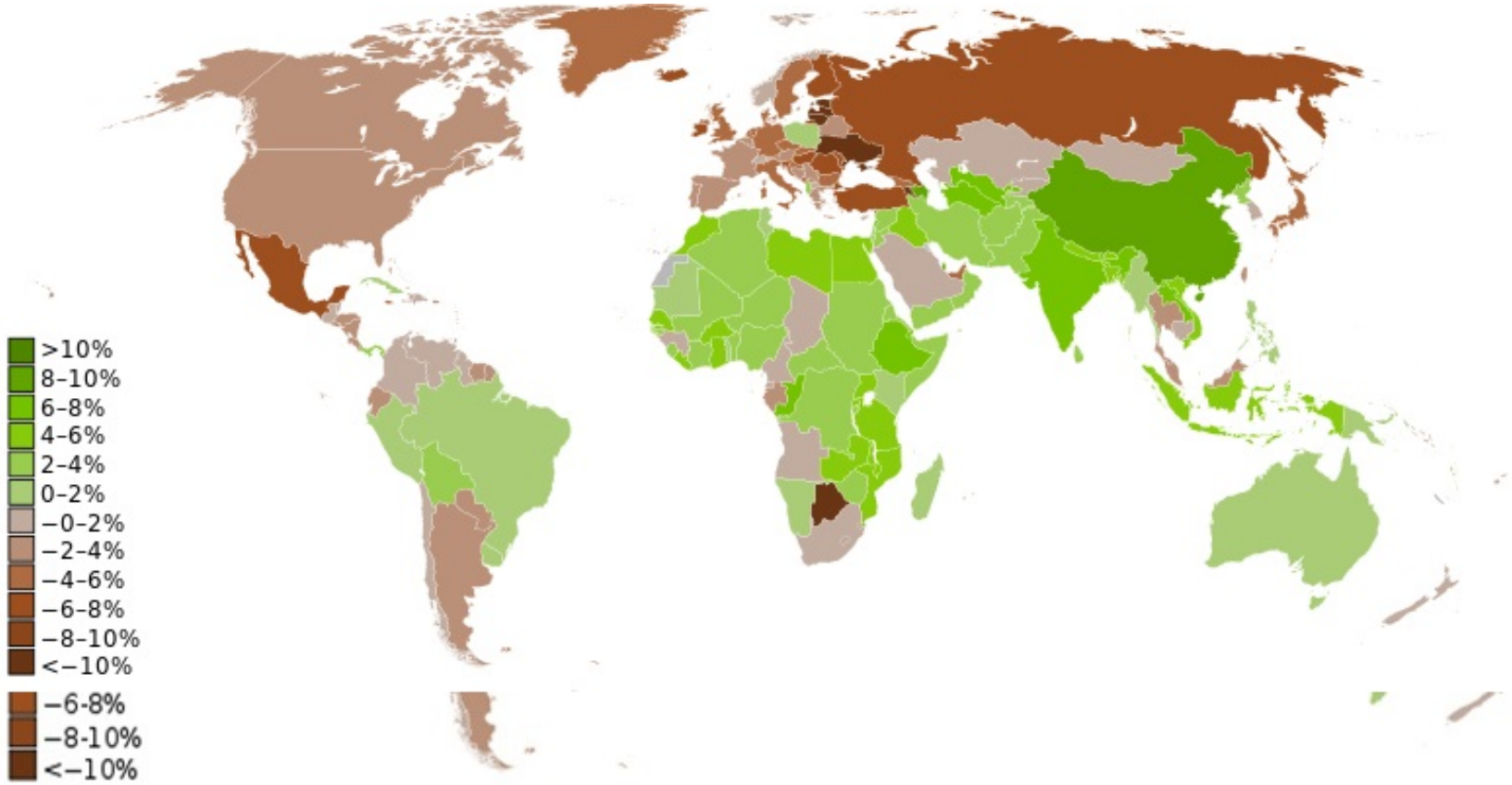


Source: Blanchard(2008), *Macroeconomics(5th ed.)*.

The Lost Three Decades of Japan

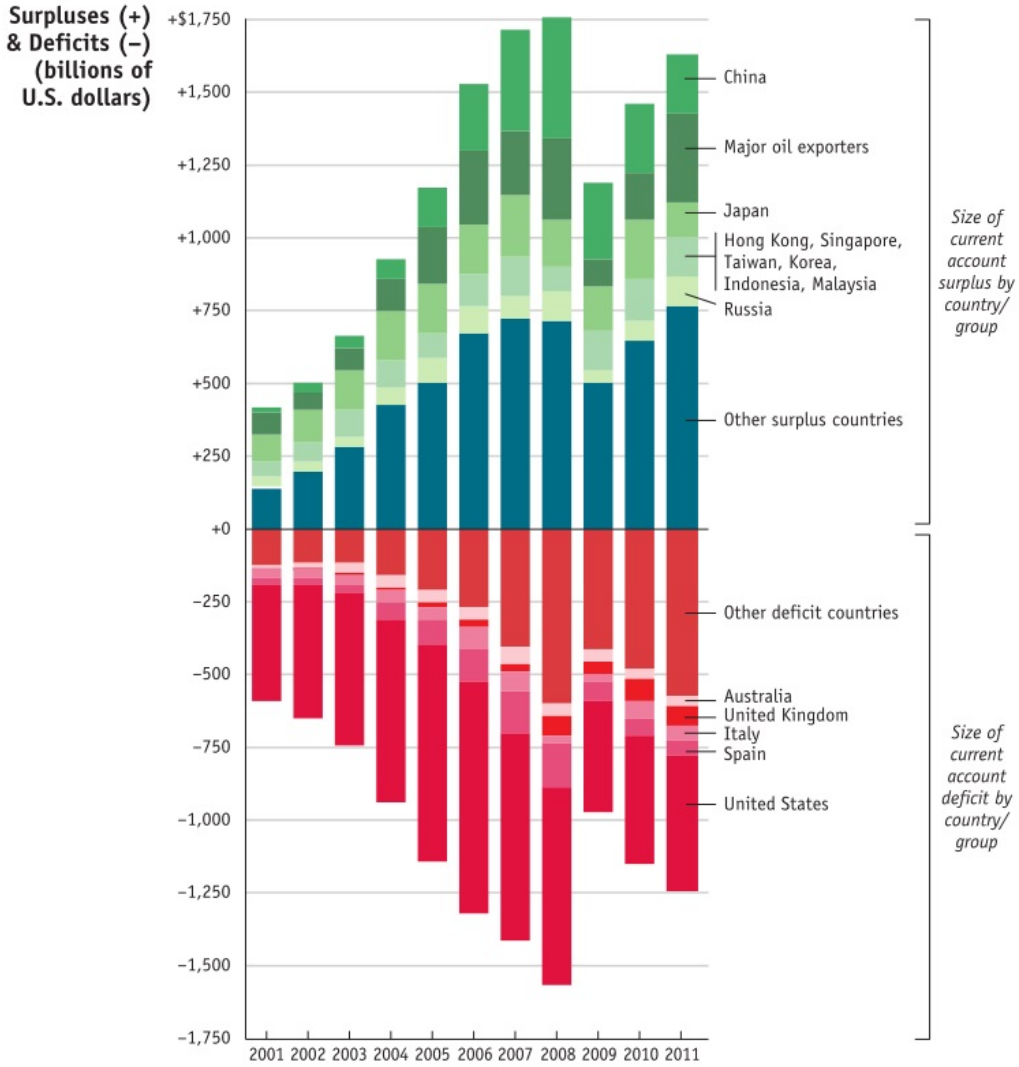
Note: Real GDP growth rate(%). Calculated with the GDP data in "GDP and its breakdown at constant 2010 prices in National currency", download from United Nations.

Global Financial Crisis in 2008

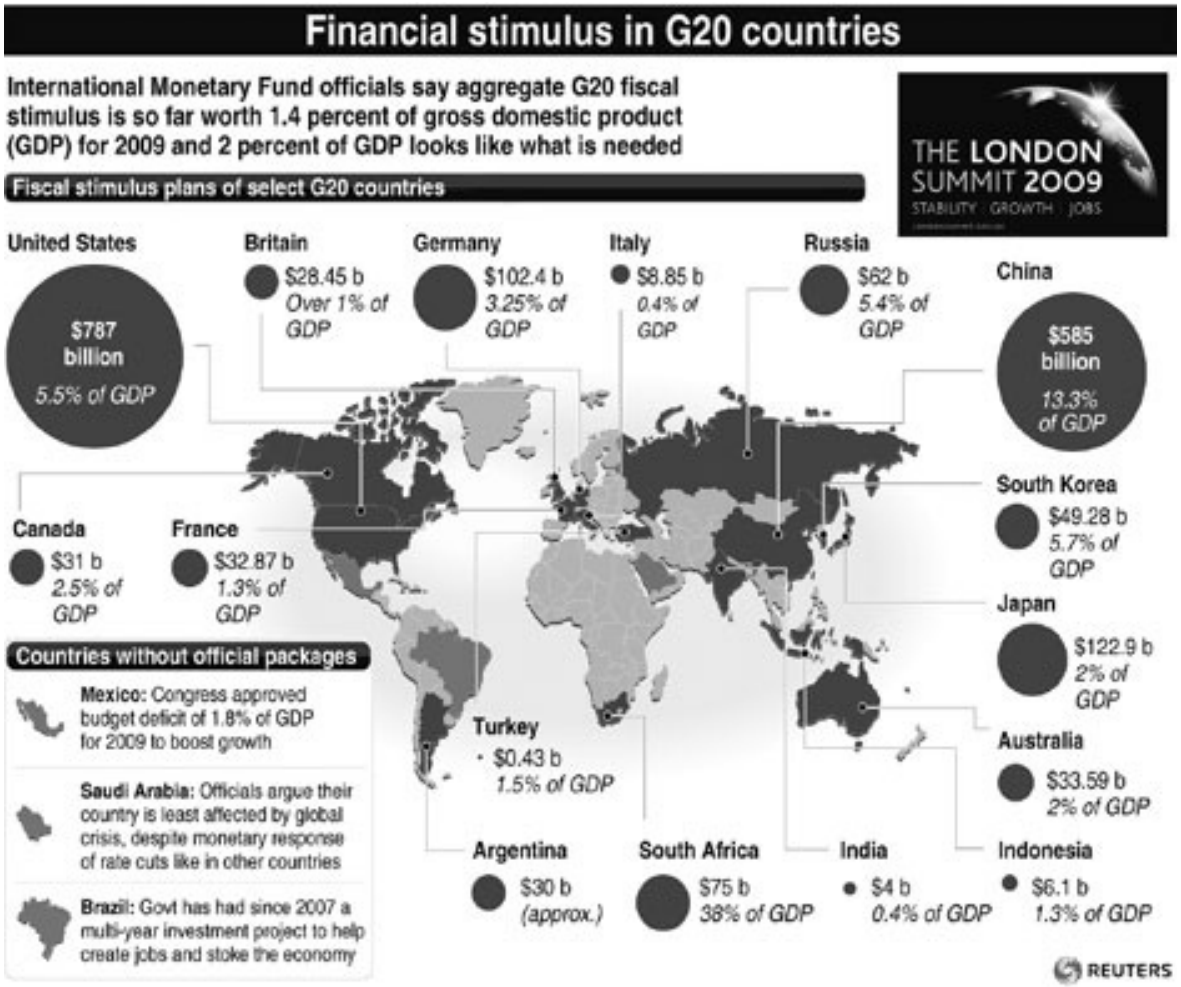


Note: GDP Real Growth Rates for 2009

Global Imbalance Again

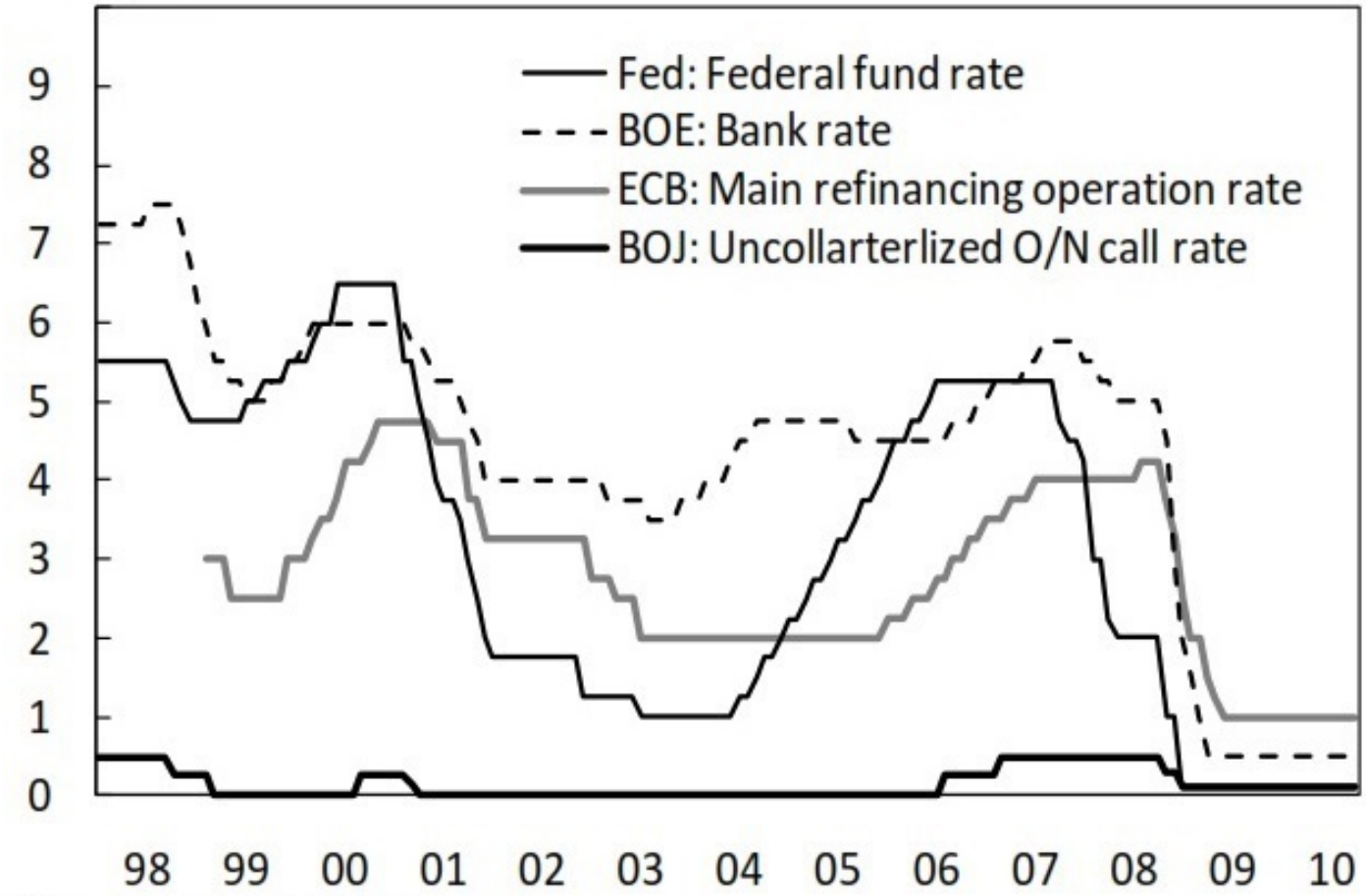


Global Fiscal Stimulus: London G-20



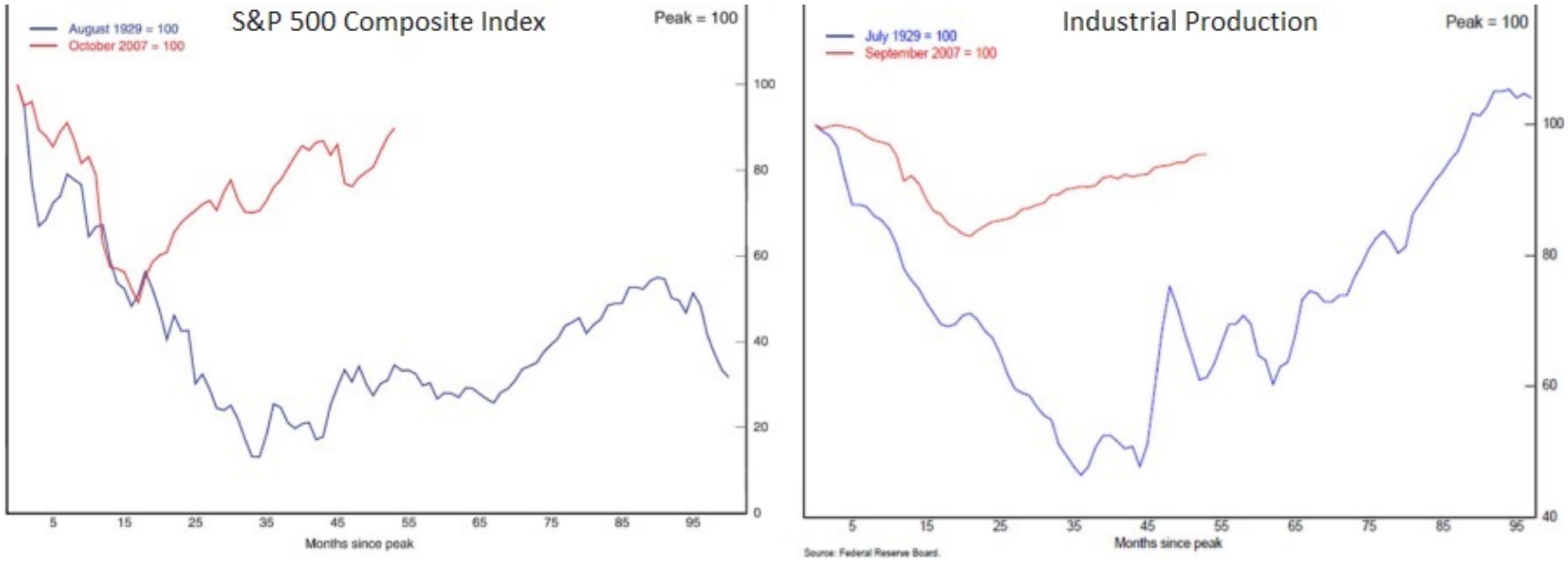
From http://www.chinadaily.com.cn/cndy/2009-03/31/content_7632100.htm

Global Monetary Expansion: Interest Rate



Note: Central bank benchmark interest rate (unit: %), from Takahashi(2013).

Recover of U.S. Economy



Source: Bernanke(2012).

Currency War and Trade War...

- Guerrera,F. 2013: Currency War Has Started, *The Wall Street Journal*

  "Devaluing a currency," one senior Federal Reserve official once told me, "is like peeing in bed. It feels good at first, but pretty soon it becomes a real mess."

- Krugman, P. 2017: Oh! What a Lovely Trade War, *The New York Times*

  It's foolish to imagine that America would "win" such a war. ... Anyway, trade isn't about winning and losing: it generally makes both sides of the deal richer, and a trade war usually hurts all the countries involved.