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Fixed Versus Floating: International Monetary Experience

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Introduction

- Why do some countries choose to fix and others to float?
- Why do they change their minds at different times?

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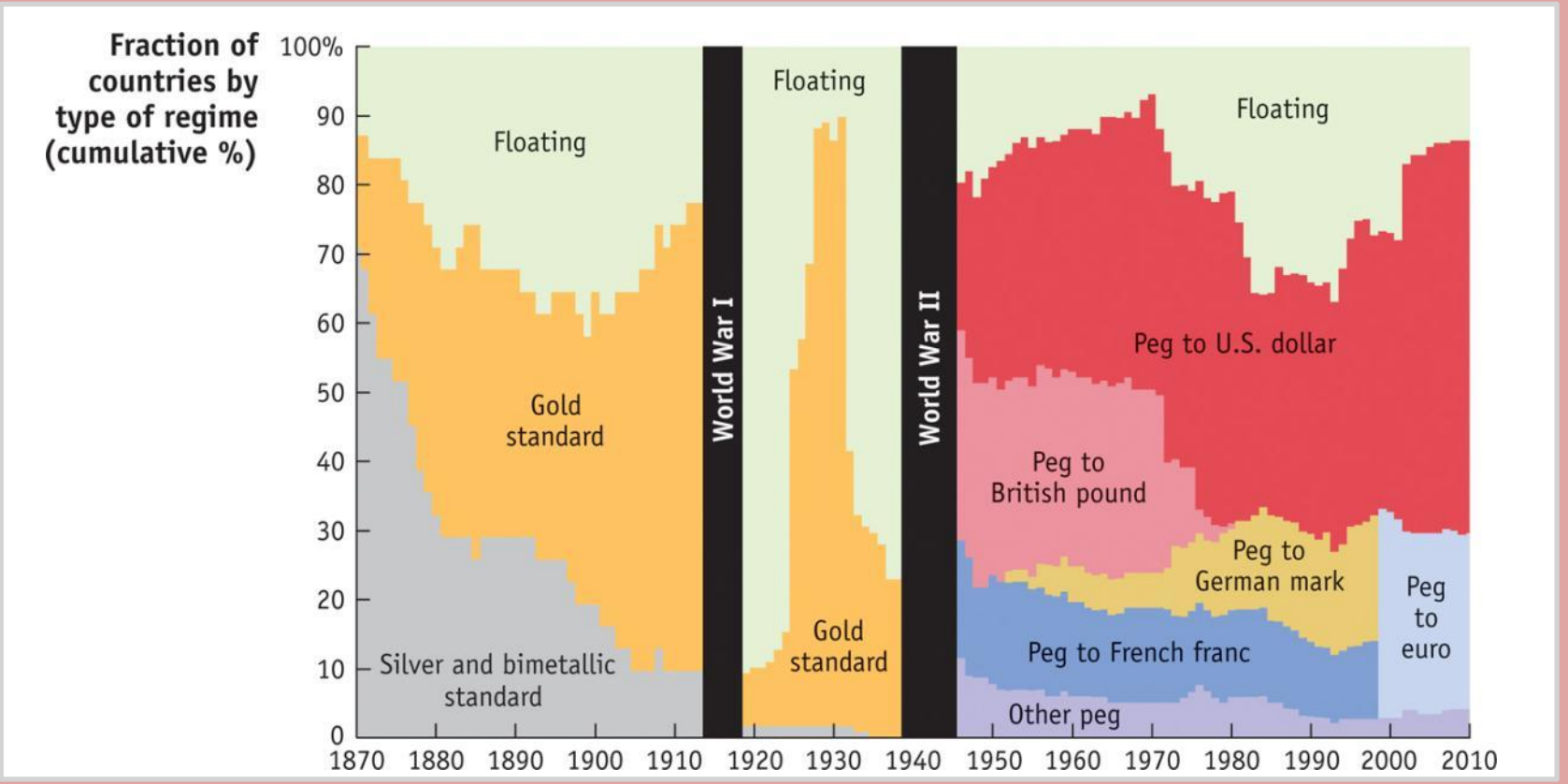
- These are the main questions we confront in this chapter.
- They are also among the most enduring and controversial questions in international macroeconomics.
- In this chapter, we examine the pros and cons of different exchange rate regimes.

Introduction

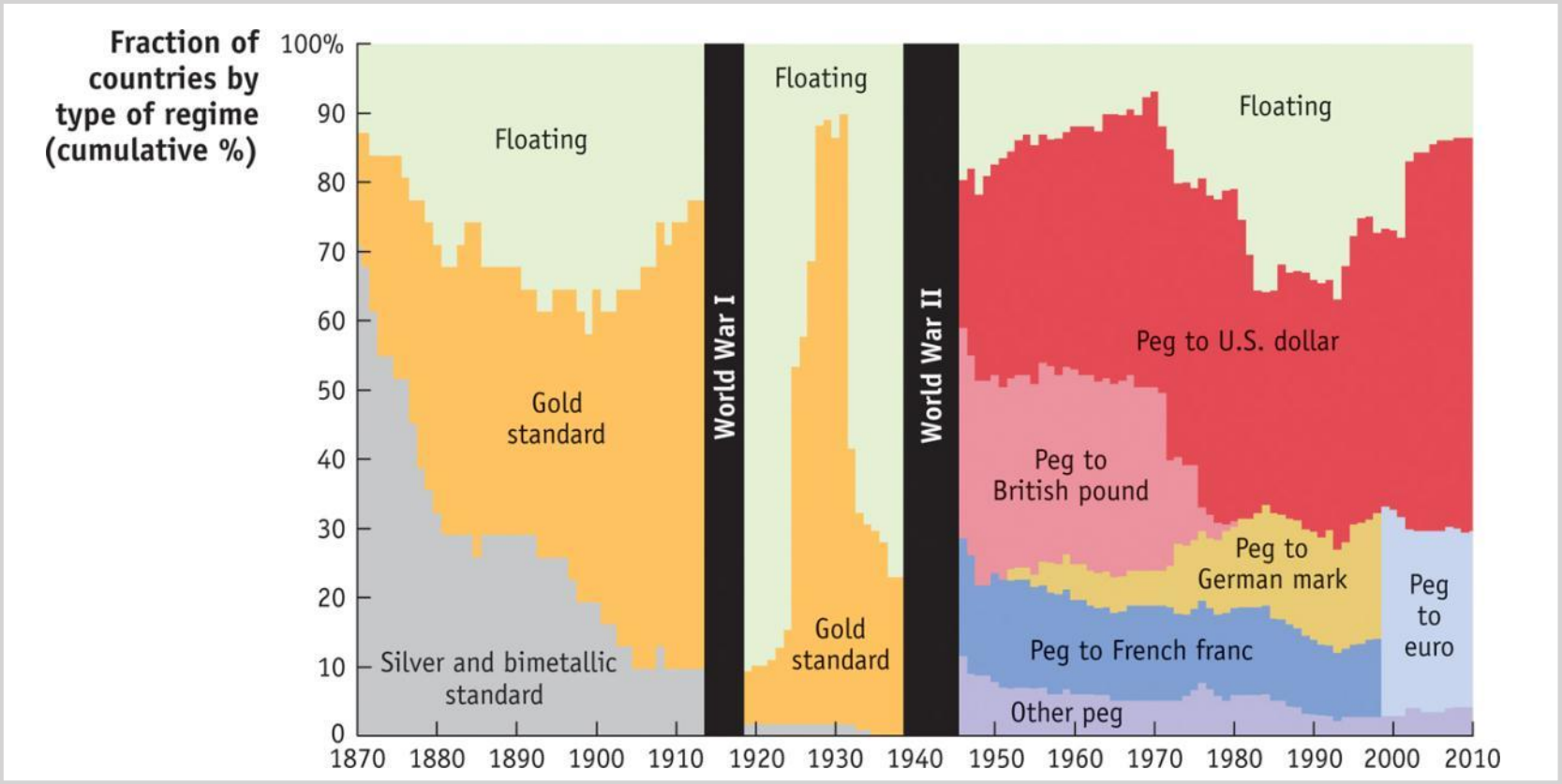
FIGURE 8-1 (1 of 2) Exchange Rates Regimes of the World, 1870–2010



The shaded regions show the fraction of countries on each type of regime by year, and they add up to 100%. From 1870 to 1913, the **gold standard** became the dominant regime. During World War I (1914–1918), most countries suspended the gold standard, and resumptions in the late 1920s were brief.

Introduction

FIGURE 8-1 (2 of 2) Exchange Rates Regimes of the World, 1870–2010 (continued)



After further suspensions in World War II, most countries were fixed against the U.S. dollar (the pound, franc, and mark blocs were indirectly pegged to the dollar). Starting in the 1970s, more countries opted to float. In 1999 the euro replaced the franc and the mark as the **base currency** for many pegs.

1 Exchange Rate Regime Choice: Key Issues

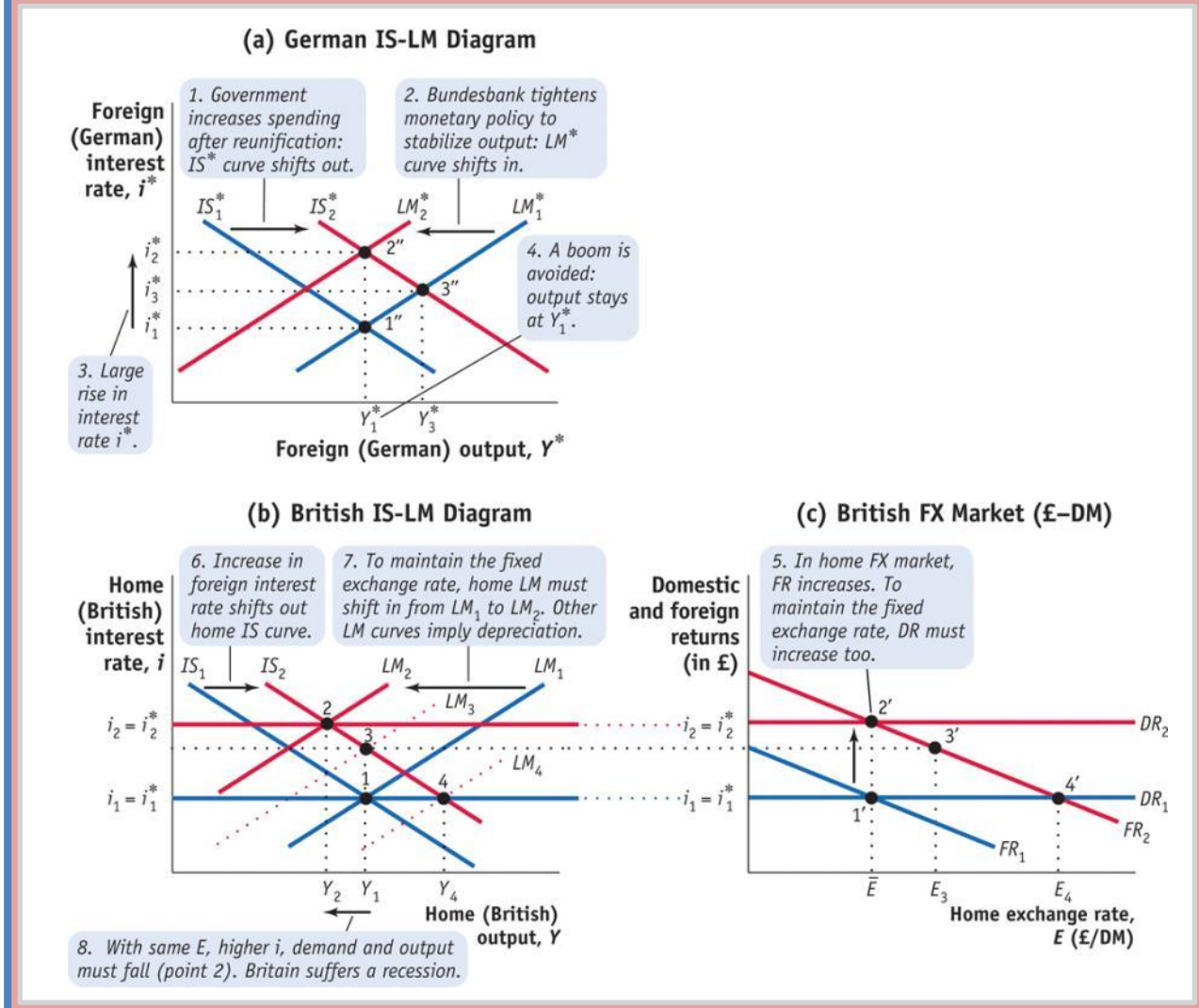
- What is the best exchange rate regime choice for a given country at a given time?
- In this section, we explore the pros and cons of fixed and floating exchange rates by combining the models we have developed with additional theory and evidence.
- We begin with an application about Germany and Britain in the early 1990s.
- This story highlights the choices policymakers face as they choose between fixed exchange rates (pegs) and floating exchange rates (floats).

Britain and Europe: The Big Issues

- In this case study, we look behind the British decision to switch from an exchange rate peg to floating in September 1992.
- The push for a common currency in European Union (EU) countries was part of a larger program to create a single market across Europe.
- An important stepping-stone along the way to the euro was a **fixed exchange rate system** created in 1979 called the Exchange Rate Mechanism (ERM).
- The German mark or deutsche mark (DM) was the base currency or **center currency** (or Germany was the *base country* or *center country*) in the fixed exchange rate system.

1 Exchange Rate Regime Choice: Key Issues

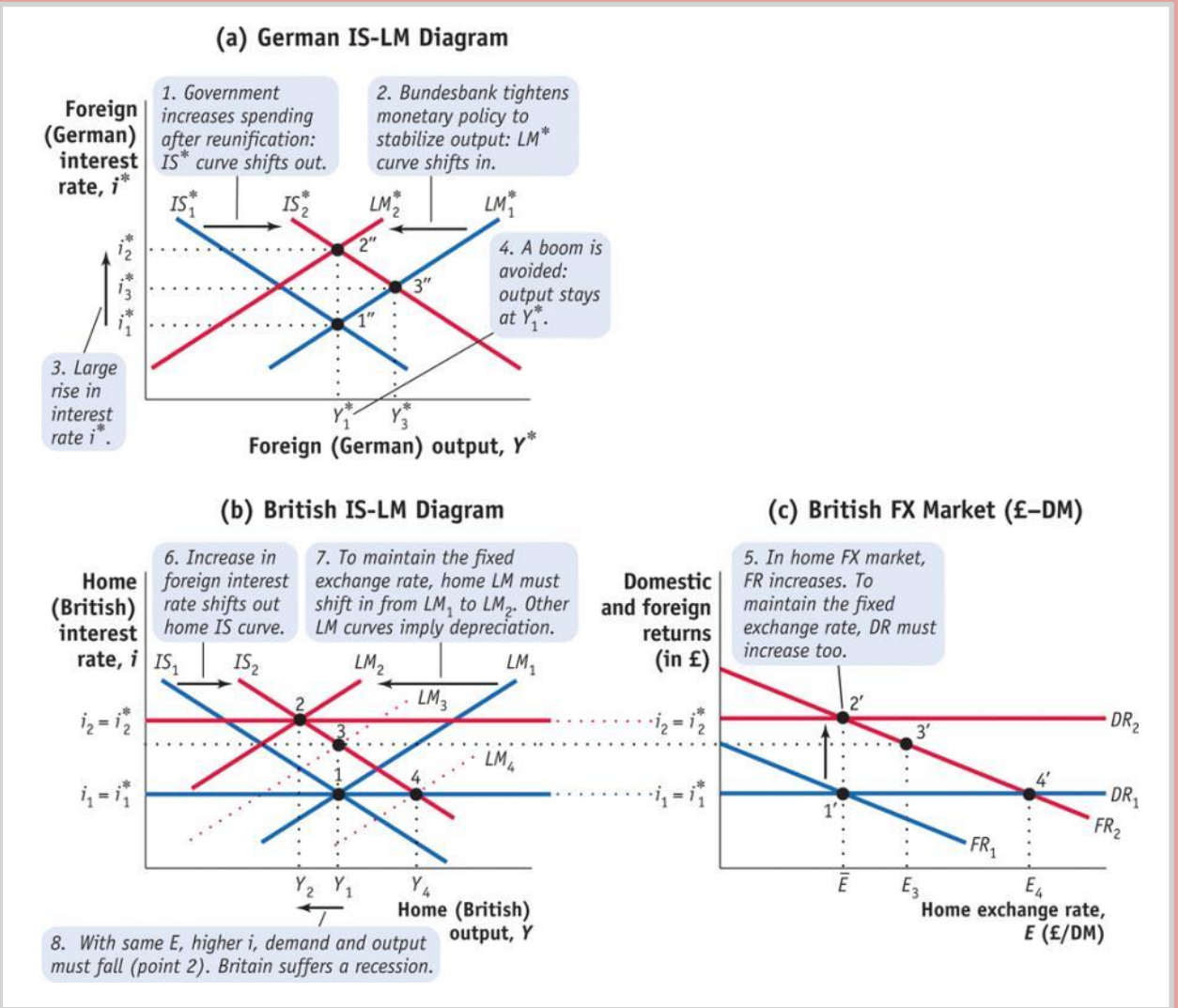
FIGURE 8-2 (1 of 3) Off the Mark: Britain's Departure from the ERM in 1992



In panel (a), German reunification raises German government spending and shifts IS^* out. The German central bank contracts monetary policy, LM^* shifts up, and German output stabilizes at Y^*_1. Equilibrium shifts from point 1″ to point 2″, and the German interest rate rises from i^*_1 to i^*_2.

Panels (b) and (c) show that in Britain, under a peg, foreign returns FR rise and so the British domestic return DR must rise to $i_2 = i^*_2$.

FIGURE 8-2 (2 of 3) Off the Mark: Britain's Departure from the ERM in 1992 (continued)



The German interest rate rise also shifts out Britain's IS curve slightly from IS_1 to IS_2.

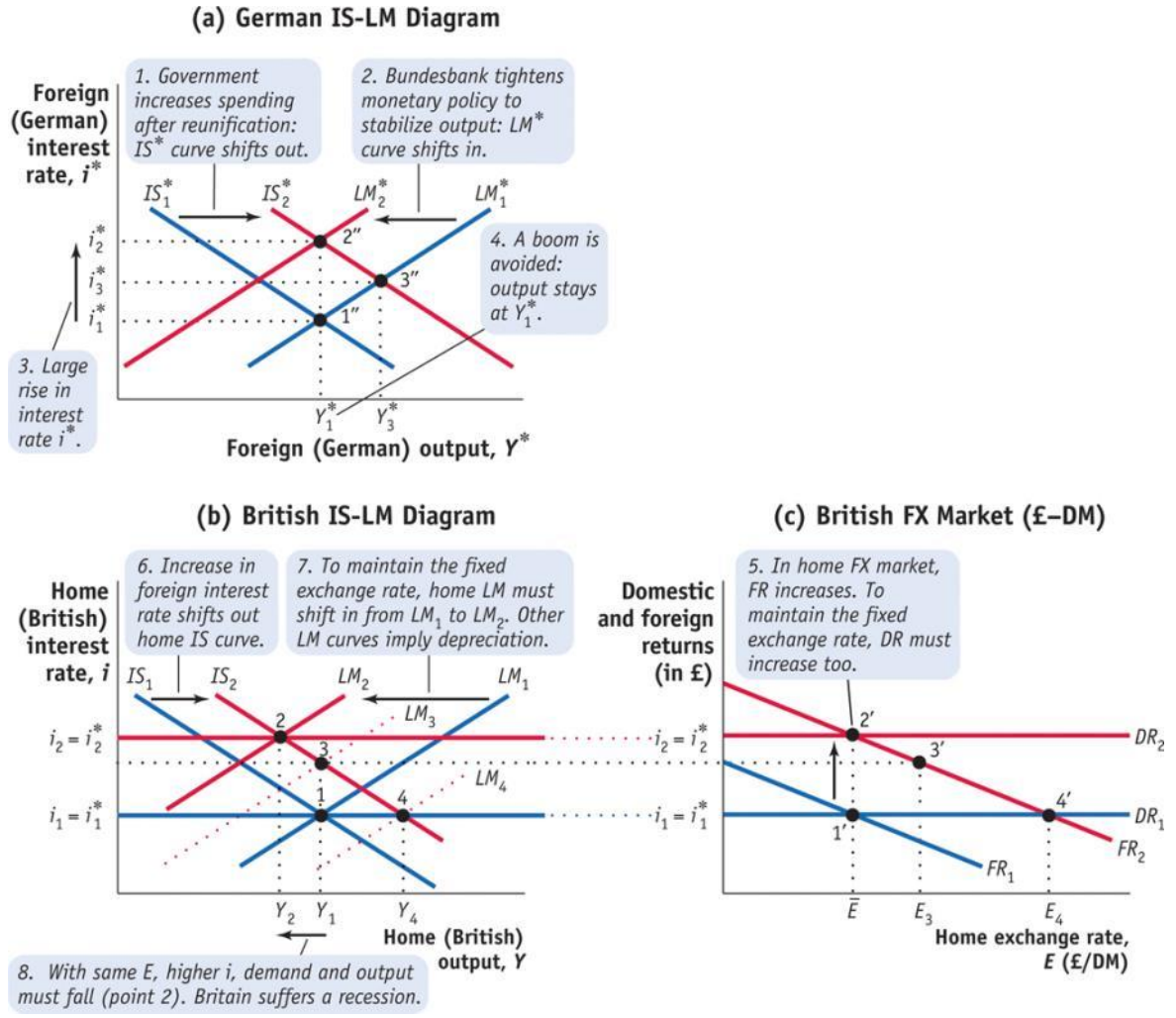
To maintain the peg, Britain's LM curve shifts up from LM_1 to LM_2.

At the same exchange rate and a higher interest rate, demand falls and output drops from Y_1 to Y_2.

Equilibrium moves from point 1 to point 2.

1 Exchange Rate Regime Choice: Key Issues

FIGURE 8-2 (3 of 3) Off the Mark: Britain's Departure from the ERM in 1992



If the British were to float, they could put the LM curve wherever they wanted.

For example, at LM_4 the British interest rates holds at i_1 and output booms, but the forex market ends up at point 4′ and there is a depreciation of the pound to E_4.

The British could also select LM_3, stabilize output at the initial level Y_1, but the peg still has to break with E rising to E_3.

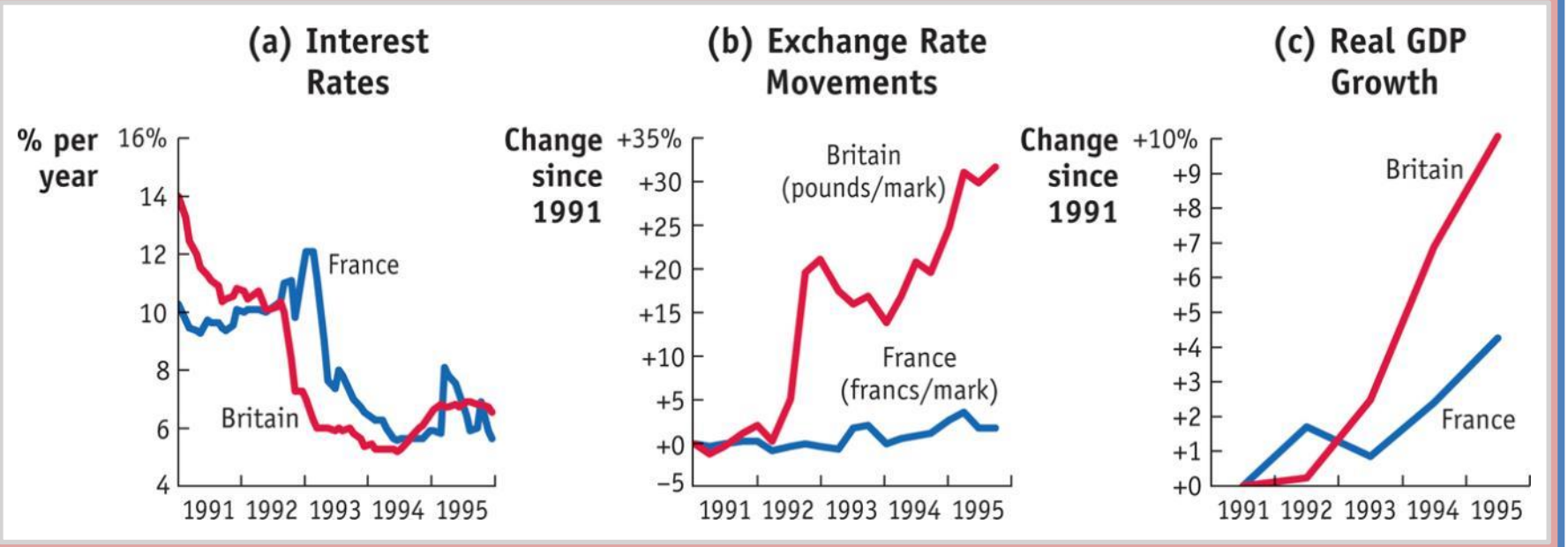
Britain and Europe: The Big Issues

What Happened Next?

- Following an economic slowdown, in September 1992 the British Conservative government came to the conclusion that the benefits of being in ERM and the euro project were smaller than costs suffered due to a German interest rate hike that was a reaction to Germany-specific events.
- Two years after joining the ERM, Britain opted out.
- Did Britain make the right choice? In Figure 8-3, we compare the economic performance of Britain with that of France, a large EU economy that maintained its ERM peg.

Britain and Europe: The Big Issues

FIGURE 8-3



Floating Away: Britain Versus France after 1992 Britain's decision to exit the ERM allowed for more expansionary British monetary policy after September 1992. In other ERM countries that remained pegged to the mark, such as France, monetary policy had to be kept tighter to maintain the peg. Consistent with the model, the data show lower interest rates, a more depreciated currency, and faster output growth in Britain compared with France after 1992.

Key Factors in Exchange Rate Regime Choice: Integration and Similarity

- The fundamental source of this divergence, between what Britain wanted and what Germany wanted, was that each country faced different shocks.
- The fiscal shock that Germany experienced after reunification was not felt in Britain or any other ERM country.
- The issues at the heart of this decision are:
  - **Economic integration,** measured by trade and other transactions
  - **Economic similarity**, measured by similarity of shocks

Economic Integration and the Gains in Efficiency

- The term "economic integration" refers to the growth of market linkages in goods, capital, and labor markets among regions and countries.
- We have argued that by lowering transaction costs, a fixed exchange rate might promote integration and hence increase economic efficiency.
    - The lesson: *The greater the degree of economic integration between markets in two countries, the greater will be the volume of transactions between the two, and the greater will be the benefits the home country gains from fixing its exchange rate with the base country. As integration rises, the efficiency benefits of a fixed exchange rate increase.*

Economic Similarity and the Costs of Asymmetric Shocks

- A fixed exchange rate can be costly when there is a country-specific shock that is not shared by the other country: The shocks were dissimilar.
- In our example, German policymakers wanted to tighten monetary policy to offset a boom, while British policymakers did not want to implement the same policy because they had not experienced the same shock.
- The general lesson we can draw is that for a home country that unilaterally pegs to a foreign country, **asymmetric shocks** impose costs in terms of lost output.

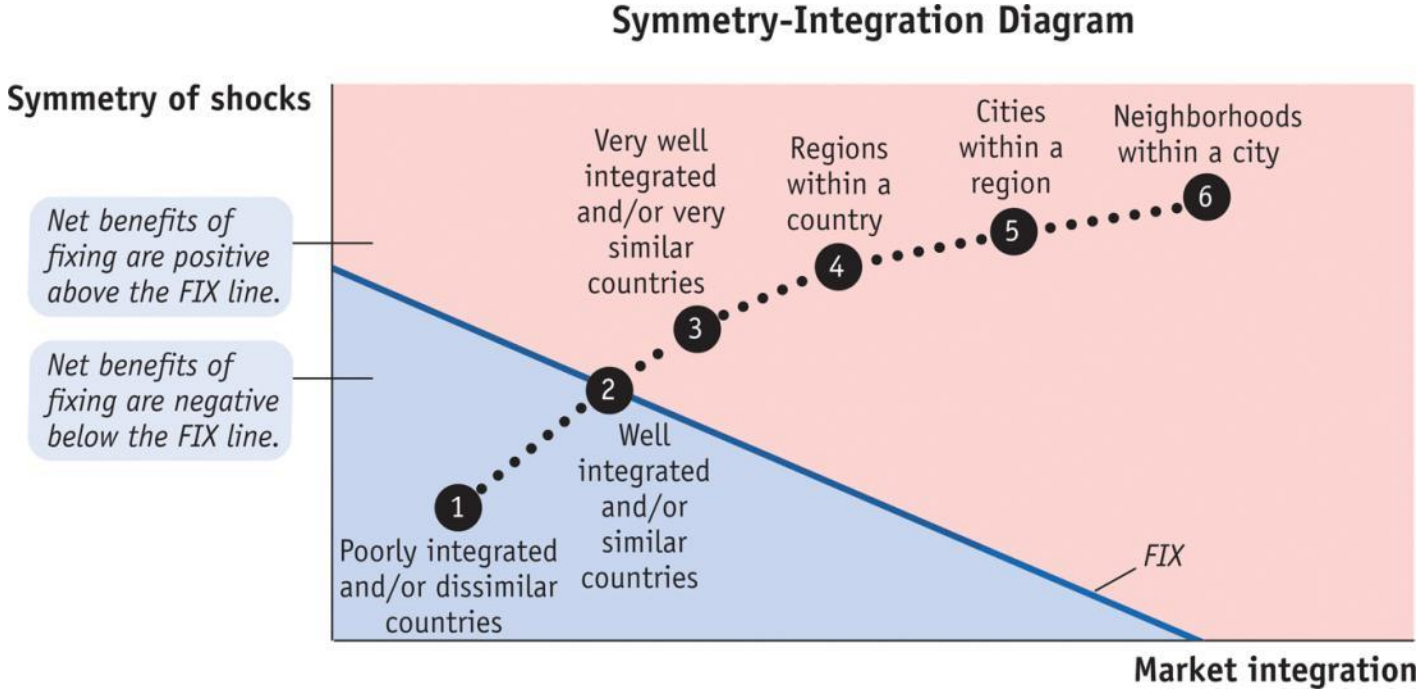
Economic Similarity and the Costs of Asymmetric Shocks

- The lesson: *If there is a greater degree of economic similarity between the home country and the base country, meaning that the countries face more symmetric shocks and fewer asymmetric shocks, then the economic stabilization costs to home of fixing its exchange rate to the base become smaller. As economic similarity rises, the stability costs of fixed exchange rate decrease.*

Simple Criteria for a Fixed Exchange Rate

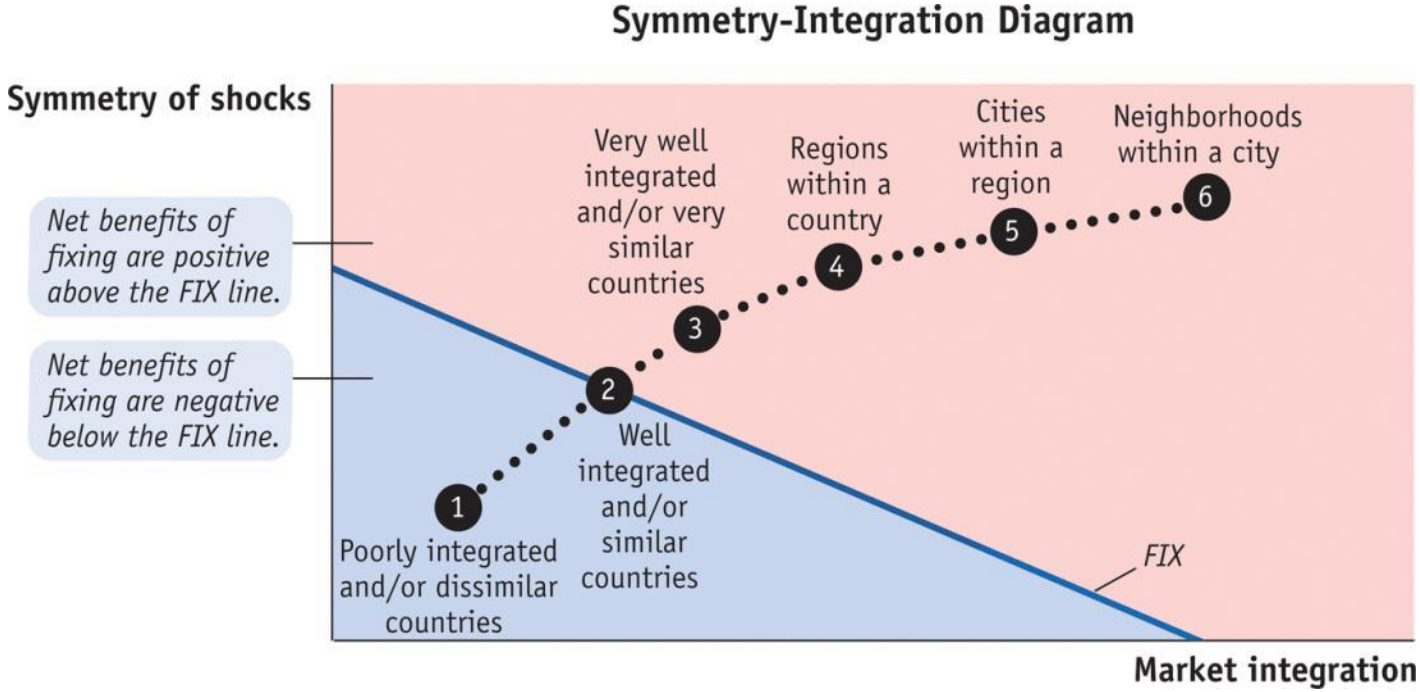
- Our discussions about integration and similarity yield the following:
  - *As integration rises, the efficiency benefits of a fixed exchange rate increase.*
  - *As symmetry rises, the stability costs of a fixed exchange rate decrease.*
- The key prediction of our theory is this: *Pairs of countries above the FIX line (more integrated, more similar shocks) will gain economically from adopting a fixed exchange rate. Those below the FIX line (less integrated, less similar shocks) will not.*

FIGURE 8-4 (1 of 2) A Theory of Fixed Exchange Rates



Points 1–6 in the figure represent a pair of locations. Suppose one location is considering pegging its exchange rate to its partner. If their markets become more integrated (a move to the right along the horizontal axis) or if the economic shocks they experience become more symmetric (a move up on the vertical axis), the net economic benefits of fixing increase.

FIGURE 8-4 (2 of 2) A Theory of Fixed Exchange Rates (continued)



If the pair moves far enough up or to the right, then the benefits of fixing exceed costs (net benefits are positive), and the pair will cross the fixing threshold shown by the FIX line. Below the line, it is optimal for the region to float. Above the line, it is optimal for the region to fix.

APPLICATION

Do Fixed Exchange Rates Promote Trade?

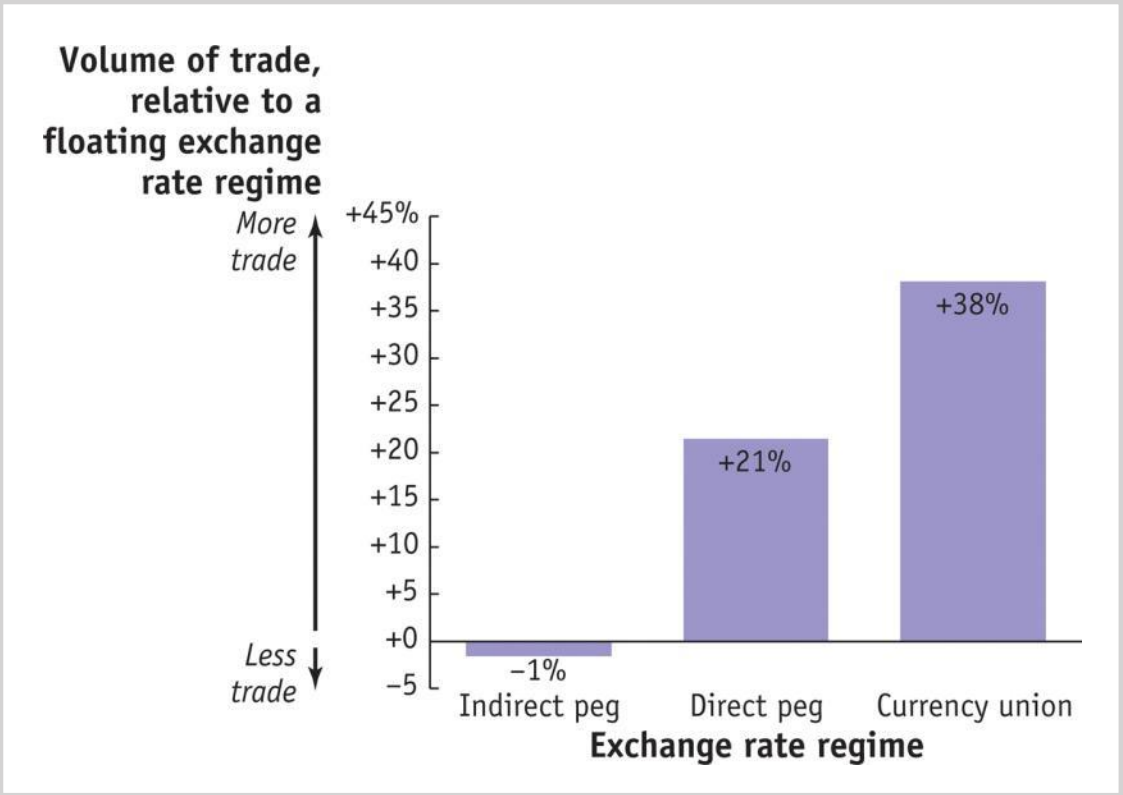
Probably the single most powerful argument for a fixed exchange rate is that it might boost trade by eliminating trade-hindering frictions.

Benefits Measured by Trade Levels

- All else equal, a pair of countries adopting the gold standard had bilateral trade levels 30% to 100% higher than comparable pairs of countries that were off the gold standard.
- Thus, it appears that the gold standard *did* promote trade.
- What about fixed exchange rates today? Do they promote trade? Economists have exhaustively tested this hypothesis.

Do Fixed Exchange Rates Promote Trade?

FIGURE 8-5



Do Fixed Exchange Rates Promote Trade?

The chart shows one study's estimates of the impact on trade volumes of various types of fixed exchange rate regimes, relative to a floating exchange rate regime.

Indirect pegs were found to have a small but statistically insignificant impact on trade, but trade increased under a direct peg by 21%, and under a currency union by 38%, as compared to floating.

Do Fixed Exchange Rates Promote Trade?

Benefits Measured by Price Convergence

- Studies that examine the relationship between exchange rate regimes and price convergence use the law of one price (LOOP) and purchasing power parity (PPP) as benchmark criteria for an integrated market.
- If fixed exchange rates promote trade, then we would expect to find that differences between prices (measured in a common currency) ought to be smaller among countries with pegged rates than among countries with floating rates.
- In other words, under a fixed exchange rate, we should find that LOOP and PPP are more likely to hold than under a floating regime.

Do Fixed Exchange Rates Diminish Monetary Autonomy and Stability?

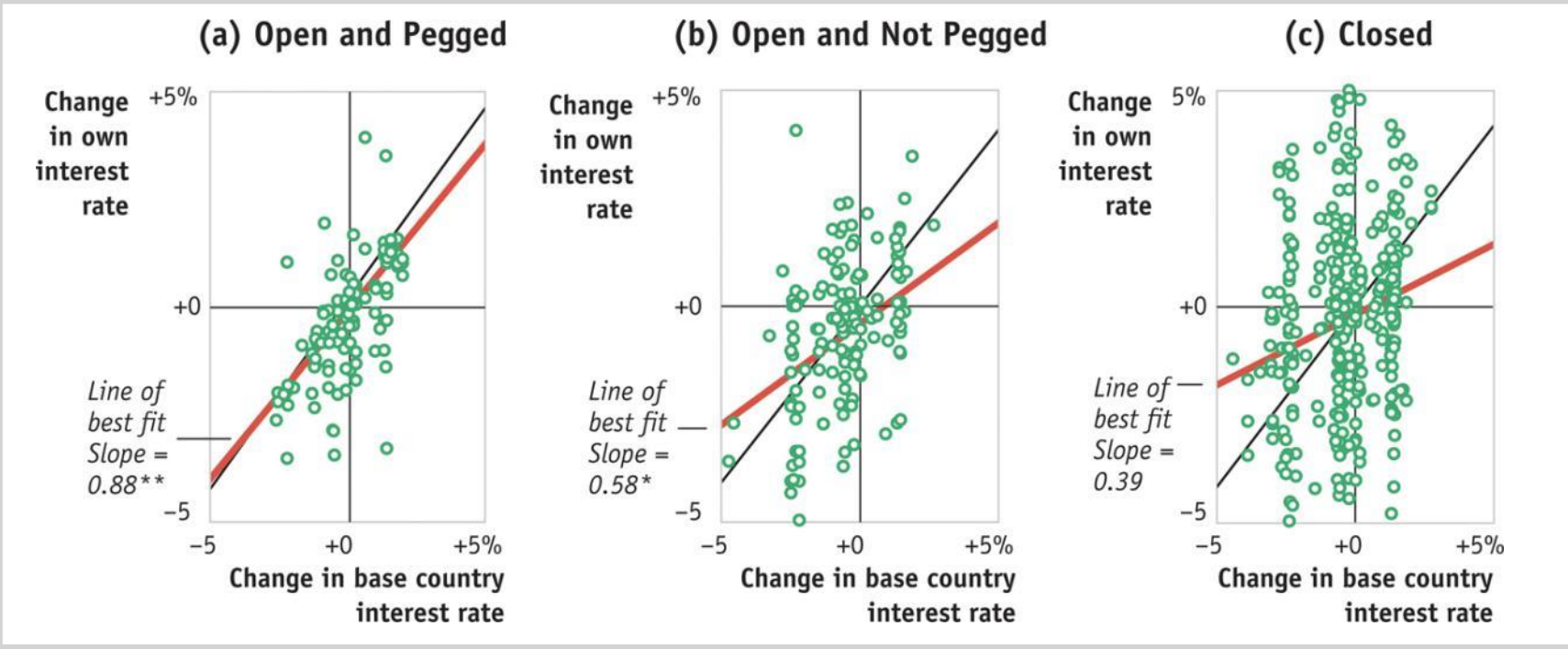
When a country pegs, it relinquishes its independent monetary policy: It has to adjust the money supply M at all times to ensure that the home interest rate i equals the foreign rate i^* (plus any risk premium).

The Trilemma, Policy Constraints, and Interest Rate Correlations

To solve the trilemma, a country can do the following:

1. Opt for open capital markets, with fixed exchange rates (an "open peg")
2. Opt to open its capital market but allow the currency to float (an "open nonpeg")
3. Opt to close its capital markets ("closed")

FIGURE 8-6



The Trilemma in Action The trilemma says that if the home country is an open peg, it sacrifices monetary policy autonomy because changes in its own interest rate must match changes in the interest rate of the base country. Panel (a) shows that this is the case. The trilemma also says that there are two ways to get that autonomy back: switch to a floating exchange rate or impose capital controls. Panels (b) and (c) show that either of these two policies permits home interest rates to move more independently of the base country.

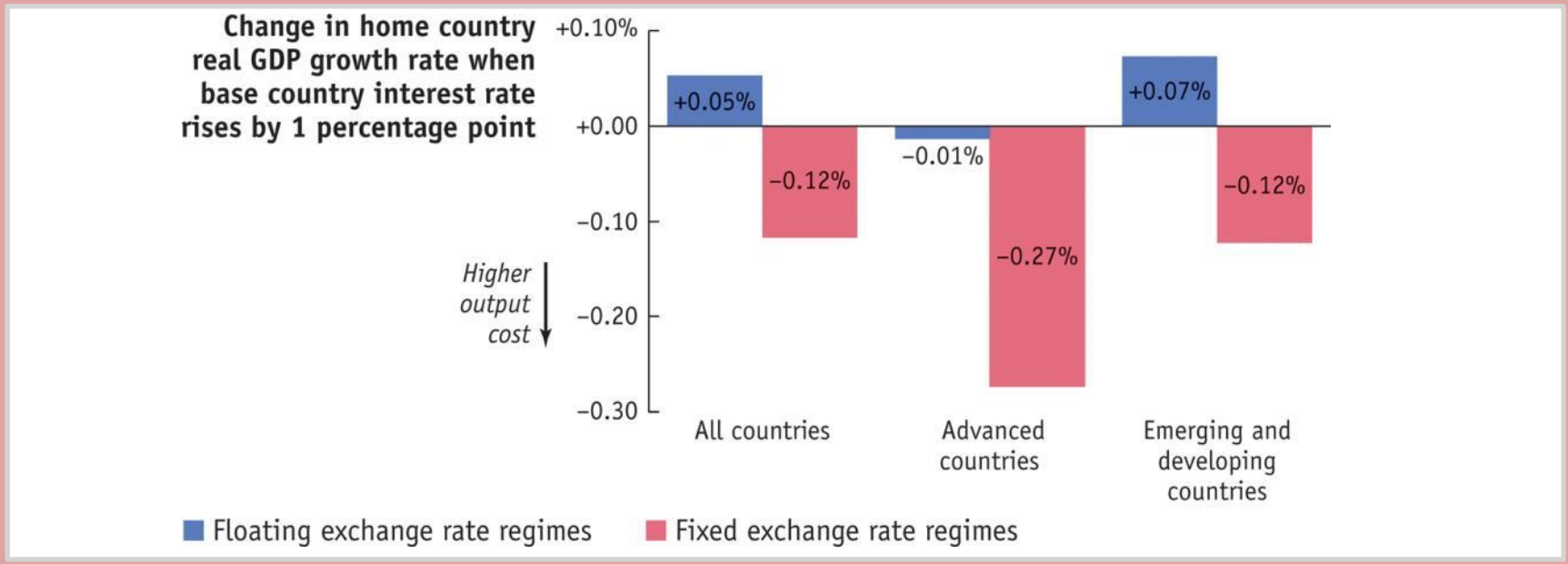
Do Fixed Exchange Rates Diminish Monetary Autonomy and Stability?

Costs of Fixing Measured by Output Volatility

- All else equal, an increase in the base-country interest rate should lead output to fall in a country that fixes its exchange rate to the base country.
- In contrast, countries that float do not have to follow the base country's rate increase and can use their monetary policy autonomy to stabilize.
- One cost of a fixed exchange rate regime is a more volatile level of output.

Costs of Fixing Measured by Output Volatility

FIGURE 8-7



Output Costs of Fixed Exchange Rates Recent empirical work finds that shocks which raise base country interest rates are associated with large output losses in countries that fix their currencies to the base, but not in countries that float. For example, as seen here, when a base country raises its interest rate by one percentage point, a country that floats experiences an average increase in its real GDP growth rate of 0.05% (not statistically significantly different from zero), whereas a country that fixes sees its real GDP growth rate slow on average by a significant 0.12%.

Fiscal Discipline, Seigniorage, and Inflation

- One common argument in favor of fixed exchange rate regimes in developing countries is that an exchange rate peg prevents the government from printing money to finance government expenditure.
- Under such a scheme, the central bank is called upon to *monetize* the government's deficit (i.e., give money to the government in exchange for debt). This process increases the money supply and leads to high inflation.
- The source of the government's revenue is an inflation tax (called *seigniorage*) levied on the members of the public who hold money.

The Inflation Tax

- At any instant, money grows at a rate $\Delta M/M = \Delta P/P = \pi$.
- If a household holds M/P in real money balances, then a moment later when prices have increased by π, a fraction π of the real value of the original M/P is lost to inflation. The cost of the inflation tax to the household is $\pi \times M/P$.
- The amount that the inflation tax transfers from household to the government is called seigniorage, which can be written as:

$$\underbrace{\text{Seigniorage}}_{\text{Inflation tax}} = \underbrace{\pi}_{\text{Tax rate}} \times \underbrace{\frac{M}{P}}_{\text{Tax base}} = \pi \times L(r^* + \pi)Y$$

Fiscal Discipline, Seigniorage, and Inflation

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Fiscal Discipline, Seigniorage, and Inflation

- If a country's currency floats, its central bank can print a lot or a little money, with very different inflation outcomes.
- If a country's currency is pegged, the central bank might run the peg well, with fairly stable prices, or run the peg so badly that a crisis occurs, the exchange rate ends up in free fall, and inflation erupts.
- Nominal anchors—whether money targets, exchange rate targets, or inflation targets—imply a "promise" by the government to ensure certain monetary policy outcomes in the long run.
- However, these promises do not guarantee that the country will achieve these outcomes.

Fiscal Discipline, Seigniorage, and Inflation

TABLE 8-1

Inflation Performance and the Exchange Rate Regime Cross-country annual data from the period 1970–1999 can be used to explore the relationship, if any, between the exchange rate regime and the inflation performance of an economy. Floating is associated with slightly lower inflation in the world as a whole (9.9%) and in the advanced countries (3.5%) (columns 1 and 2). In emerging markets and developing countries, a fixed regime eventually delivers lower inflation outcomes, but not right away (columns 3 and 4).

	Annual Inflation Rate (%)			
Regime Type	(1) World	(2) Advanced Countries	(3) Emerging Markets and Developing Countries	(4) Emerging Markets and Developing Countries (Excluding the Year after a Regime Change)
Fixed	17.4%	4.8%	19.6%	8.8%
Limited flexibility	11.1	8.3	12.4	10.8
Managed floating	14.0	7.8	15.1	14.7
Freely floating	9.9	3.5	21.2	15.8
Freely falling	387.8	47.9	396.1	482.9

Fiscal Discipline, Seigniorage, and Inflation

- The lesson: *It appears that fixed exchange rates are neither necessary nor sufficient to ensure good inflation performance in many countries. The main exception appears to be in developing countries beset by high inflation, where an exchange rate peg may be the only credible anchor.*

Liability Dollarization, National Wealth, and Contractionary Depreciations

- The Home country's total external wealth is the sum total of assets minus liabilities expressed in local currency:

$$W = \underbrace{(A_H + EA_F)}_{\text{Assets}} - \underbrace{(L_H + EL_F)}_{\text{Liabilities}}$$

- A small change ΔE in the exchange rate, all else equal, affects the values of EA_F and EL_F expressed in local currency. We can express the resulting change in national wealth as:

$$\Delta W = \underbrace{\Delta E}_{\substack{\text{Change in} \\ \text{exchange rate}}} \times \underbrace{[A_F - L_F]}_{\substack{\text{Net international} \\ \text{credit(+) or debit(−)} \\ \text{position in dollar assets}}} \qquad (8\text{-}1)$$

Destabilizing Wealth Shocks

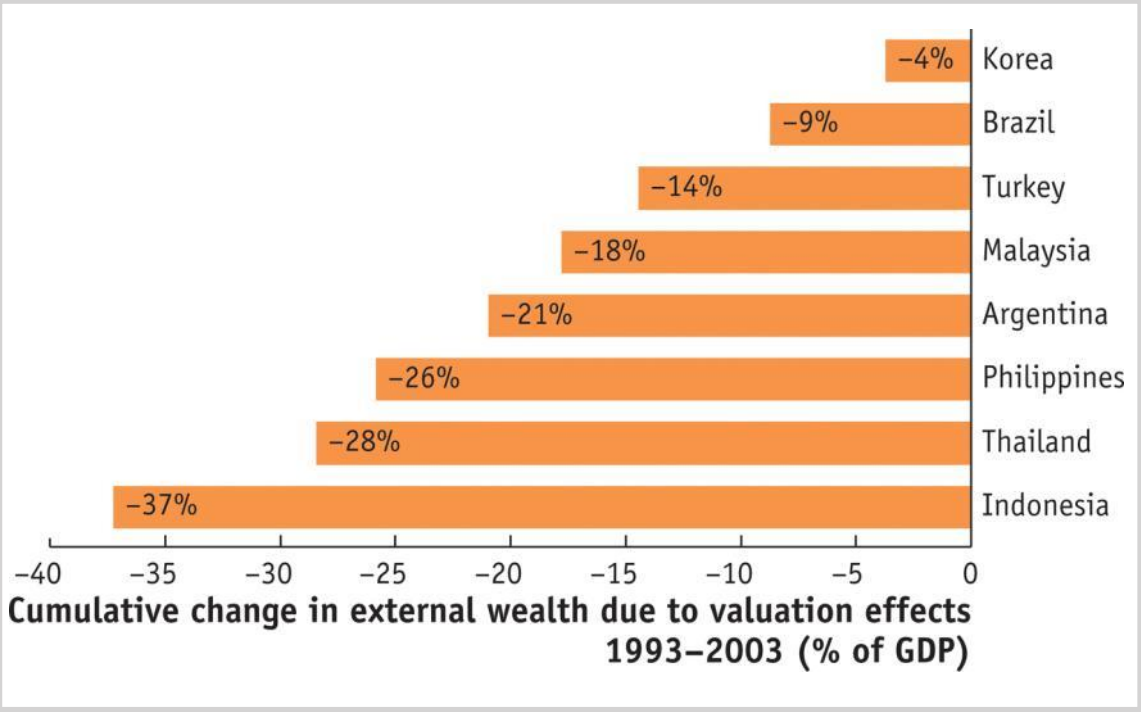
- It is easy to imagine more complex short-run models of the economy in which wealth affects the demand for goods. For example:
  - Consumers might spend more when they have more wealth. In this case, the consumption function would become $C(Y - T,$ Total wealth).
  - Firms might find it easier to borrow if their wealth increases. The investment function would then become $I(i,$ Total wealth).

Destabilizing Wealth Shocks

- If foreign currency external assets do not equal foreign currency external liabilities, the country is said to have a *currency mismatch*, and exchange rate changes will affect national wealth.
  - If foreign currency assets exceed foreign currency liabilities, the country experiences an increase in wealth when the exchange rate depreciates.
  - If foreign currency liabilities exceed foreign currency assets, the country experiences a *decrease* in wealth when the exchange rate depreciates.
- In principle, if the valuation effects are large enough, the overall effect of a depreciation can be contractionary!

Evidence Based on Changes in Wealth

FIGURE 8-8



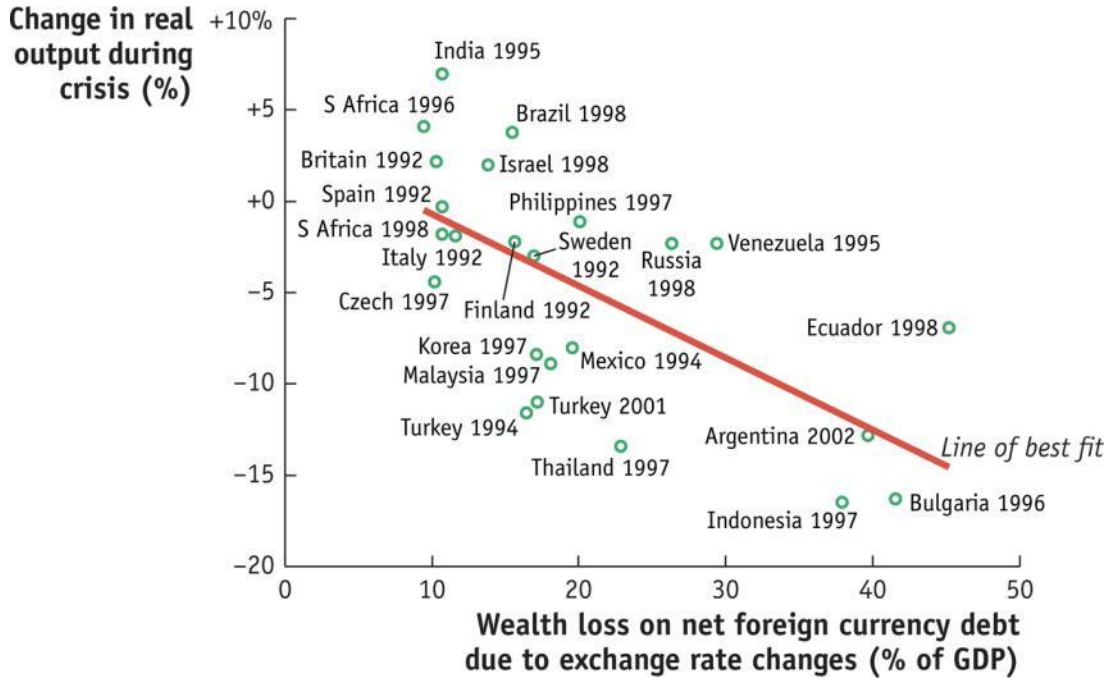
Exchange Rate Depreciations and Changes in Wealth

The countries experienced crises and large depreciations of between 50% and 75% against the U.S. dollar and other major currencies from 1993 to 2003.

Because large fractions of their external debt were denominated in foreign currencies, all suffered negative valuation effects causing their external wealth to fall, in some cases (such as Indonesia) quite dramatically.

Evidence Based on Output Contractions

FIGURE 8-9 (1 of 2) Foreign Currency Denominated Debt and the Costs of Crises

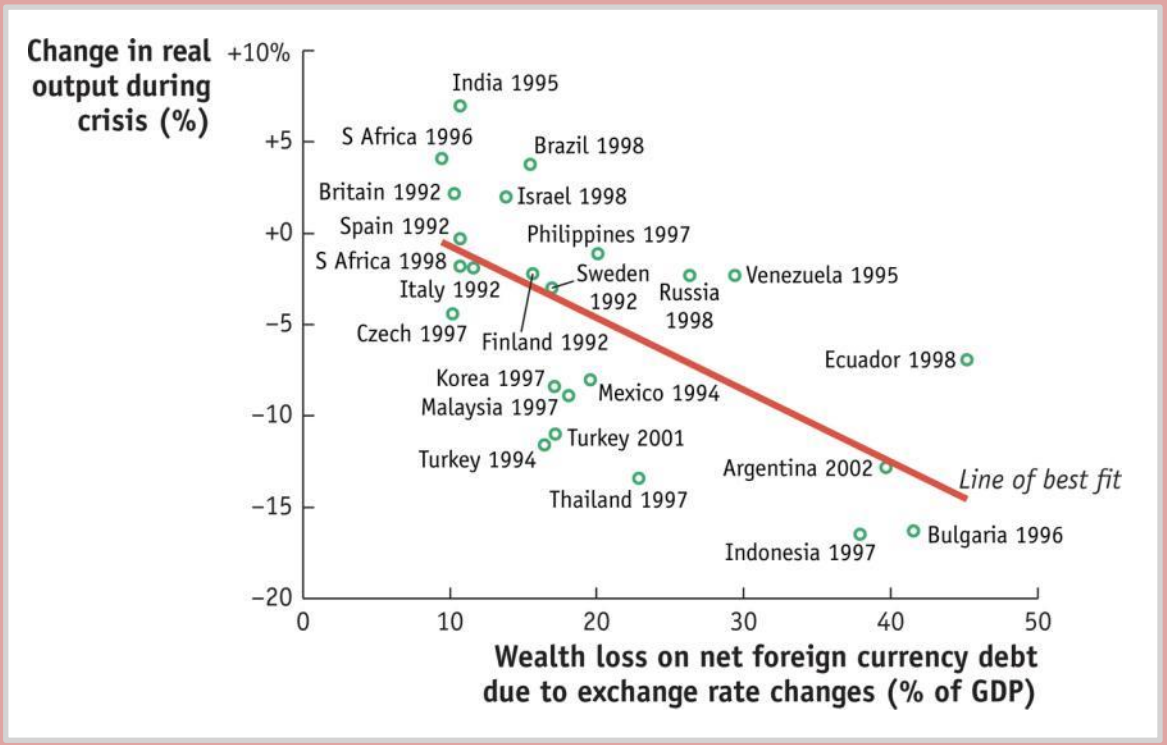


This chart shows the correlation between a measure of the negative wealth impact of a real depreciation and the real output costs after an exchange rate crisis (a large depreciation).

On the horizontal axis, the wealth impact is estimated by multiplying net debt denominated in foreign currency (as a fraction of GDP) by the size of the real depreciation.

Evidence Based on Output Contractions

FIGURE 8-9 (2 of 2) Foreign Currency Denominated Debt and the Costs of Crises (continued)



The negative correlation shows that larger losses on foreign currency debt due to exchange rate changes are associated with larger real output losses.

Original Sin

- In the long history of international investment, one constant feature has been the inability of most countries—especially poor countries—to borrow from abroad in their own currencies.
- The term "original sin" refers to a country's inability to borrow in its own currency.
- Domestic currency debts were frequently diluted in real value by periods of high inflation. Creditors were then unwilling to hold such debt, obstructing the development of a domestic currency bond market. Creditors were then willing to lend only in foreign currency, that is, to hold debt that promised a more stable long-term value.

Original Sin

TABLE 8-2

Measures of "Original Sin" Only a few developed countries can issue external liabilities denominated in their own currency. In the financial centers and the Eurozone, the fraction of external liabilities denominated in foreign currency is less than 10%. In the remaining developed countries, it averages about 70%. In developing countries, external liabilities denominated in foreign currency are close to 100% on average.

	External Liabilities Denominated in Foreign Currency (average, %)
Financial centers (United States, United Kingdom, Switzerland, Japan)	8%
Eurozone countries	9
Other developed countries	72
Eastern European countries	84
Middle East and African countries	90
Developing countries	93
Asia/Pacific countries	94
Latin American and Caribbean countries	100

Original Sin

- Habitual "sinners" such as Mexico, Brazil, Colombia, and Uruguay have recently been able to issue some debt in their own currency.

- A more feasible—and perhaps the only—alternative is for developing countries to minimize or eliminate valuation effects by limiting the movement of the exchange rate.

  - The lesson: *In countries that cannot borrow in their own currency, floating exchange rates are less useful as a stabilization tool and may be destabilizing. This outcome applies particularly to developing countries, and these countries will prefer fixed exchange rates to floating exchange rates, all else equal.*

Summary

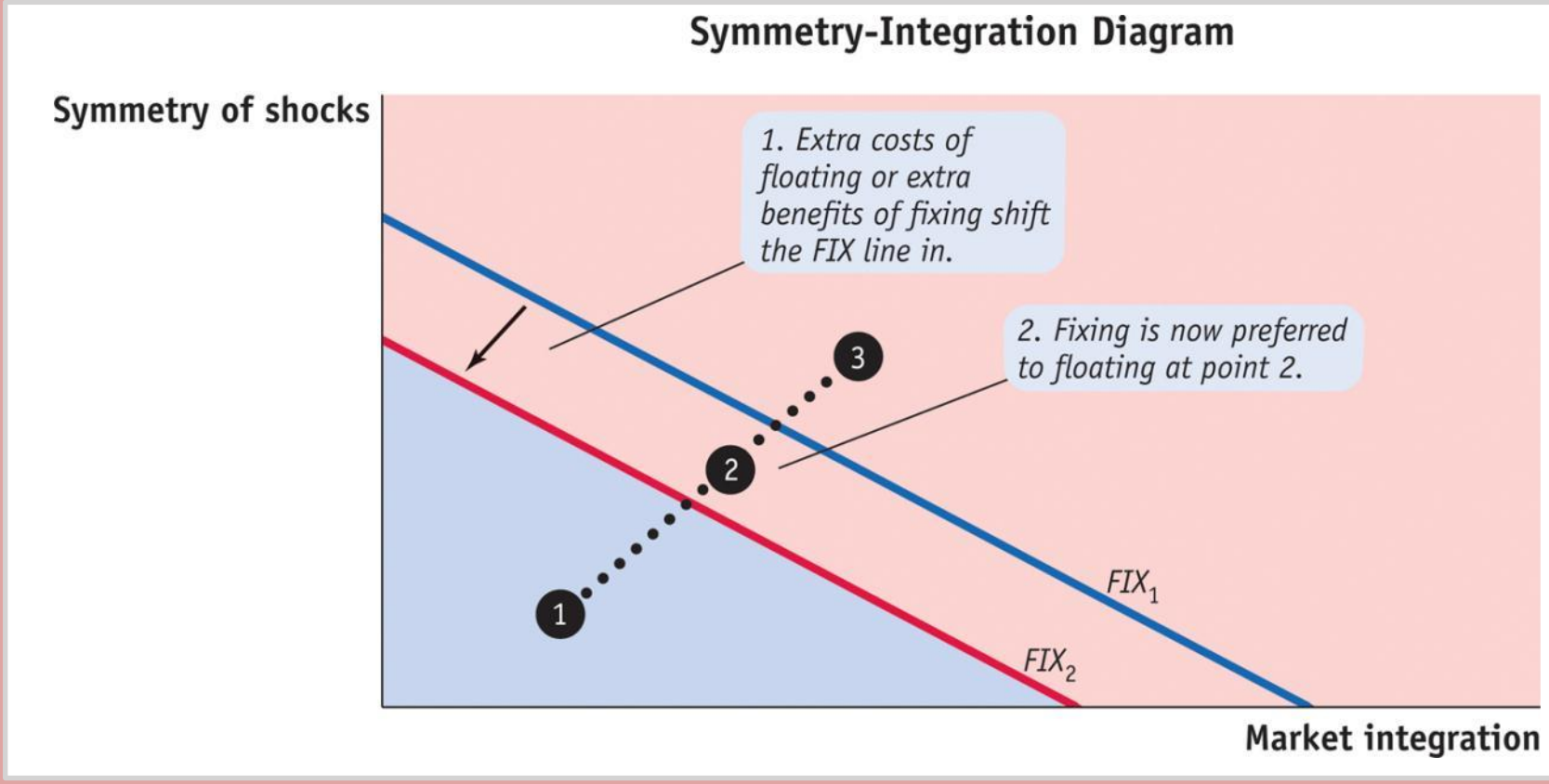
- A fixed exchange rate may be the only transparent and credible way to attain and maintain a nominal anchor—which may be particularly important in developing countries with weak institutions and poor reputations for monetary stability.

- A fixed exchange rate may also be the only way to avoid large fluctuations in external wealth, which can be a problem in countries with high levels of liability dollarization.

- Such countries may be less willing to allow their exchange rates to float—a situation that some economists describe as a **fear of floating**.

2 Other Benefits of Fixing

FIGURE 8-10



A Shift in the FIX Line Additional benefits of fixing or higher costs of floating will lower the threshold for choosing a fixed exchange rate. The FIX line moves down. Choosing a fixed rate now makes sense, even at lower levels of symmetry or integration (e.g., at point 2).

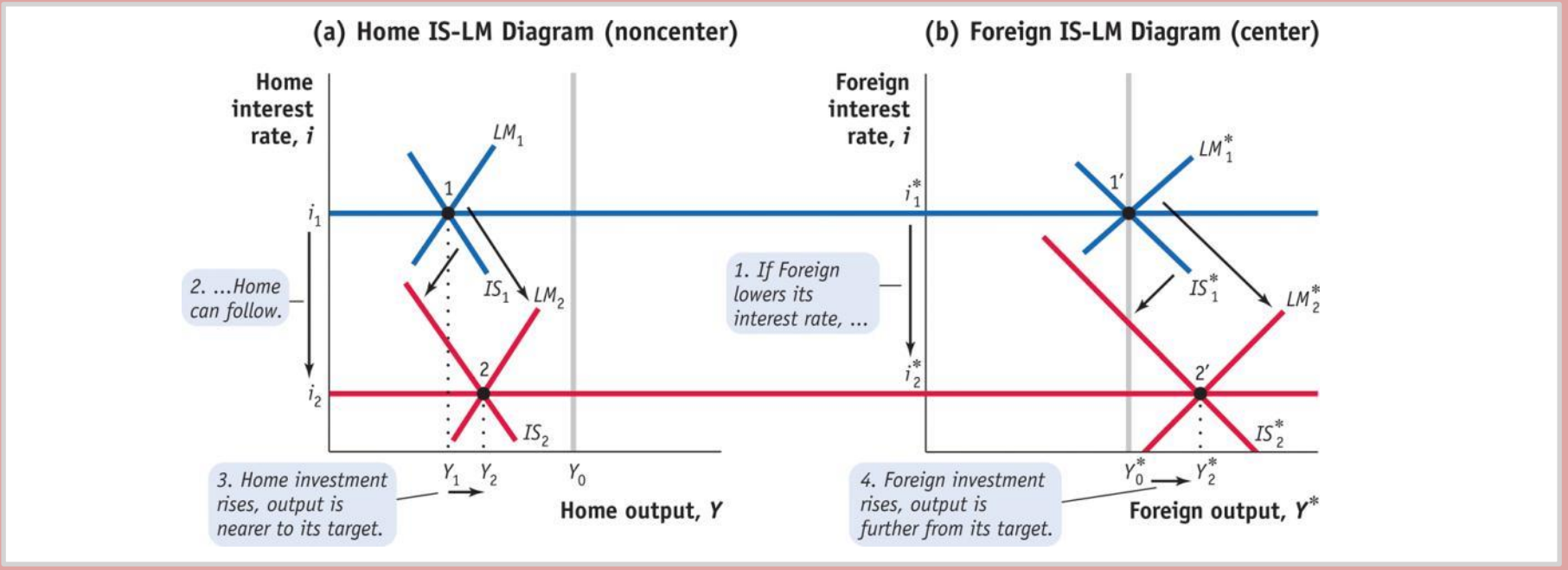
3 Fixed Exchange Rate Systems

- Fixed exchange rate systems involve multiple countries.
- Examples include the global *Bretton Woods system* in the 1950s and 1960s and the European *Exchange Rate Mechanism* (ERM) through which all potential euro members must pass.
- These systems were based on a **reserve currency system** in which there are N countries (1, 2, . . . , N) participating.
- One of the countries, the center country (the Nth country), provides the reserve currency, which is the base or center currency to which all the other countries peg.

- When the center country has monetary policy autonomy it can set its own interest rate i^* as it pleases.
- The other noncenter country, which is pegging, then has to adjust its own interest rate so that i equals i^* in order to maintain the peg.
- The noncenter country loses its ability to conduct stabilization policy, but the center country keeps that power.
- The asymmetry can be a recipe for political conflict and is known as the N^{th} *currency problem*.
- **Cooperative arrangements** can be worked out to try to avoid this problem.

Cooperative and Noncooperative Adjustments to Interest Rates

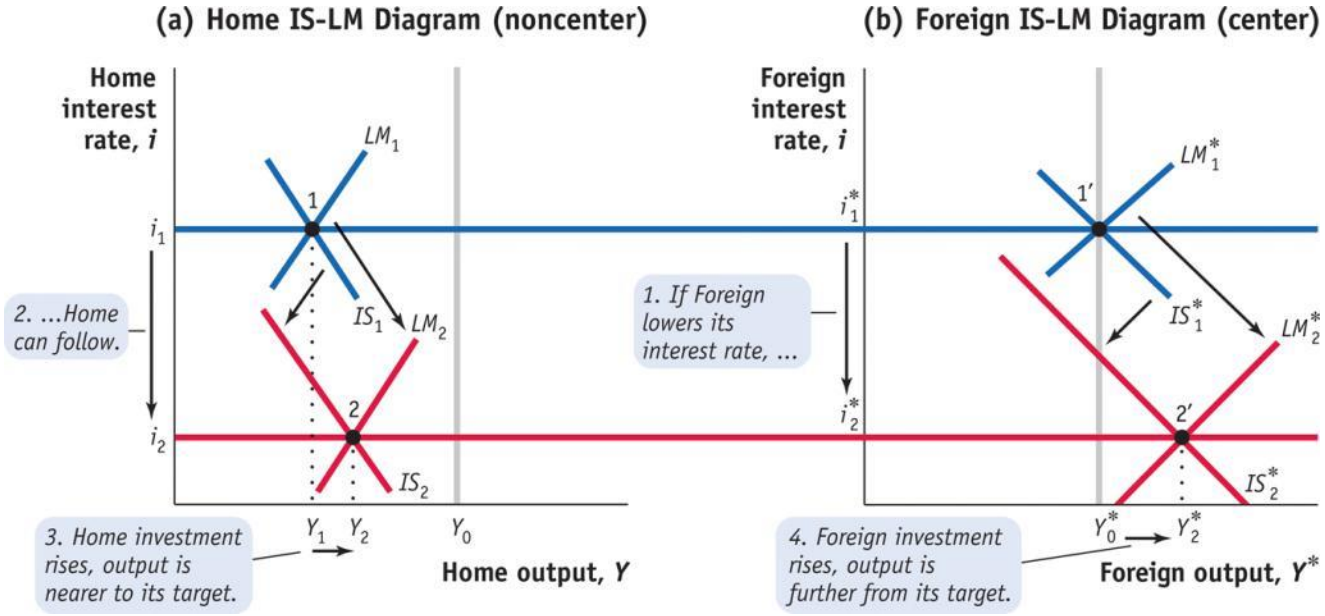
FIGURE 8-11 (1 of 3) Cooperative and Noncooperative Interest Rate Policies by the Center Country



In panel (a), the noncenter home country is initially in equilibrium at point 1 with output at Y_1, which is lower than desired output Y_0. In panel (b), the center foreign country is in equilibrium at its desired output level Y^*_0 at point 1′. Home and Foreign interest rates are equal, $i_1 = i^*_1$, and Home is unilaterally pegged to Foreign. Foreign has monetary policy autonomy. If the center country makes no policy concession, this is the noncooperative outcome.

Cooperative and Noncooperative Adjustments to Interest Rates

FIGURE 8-11 (2 of 3) Cooperative and Noncooperative Interest Rate Policies by the Center Country (continued)

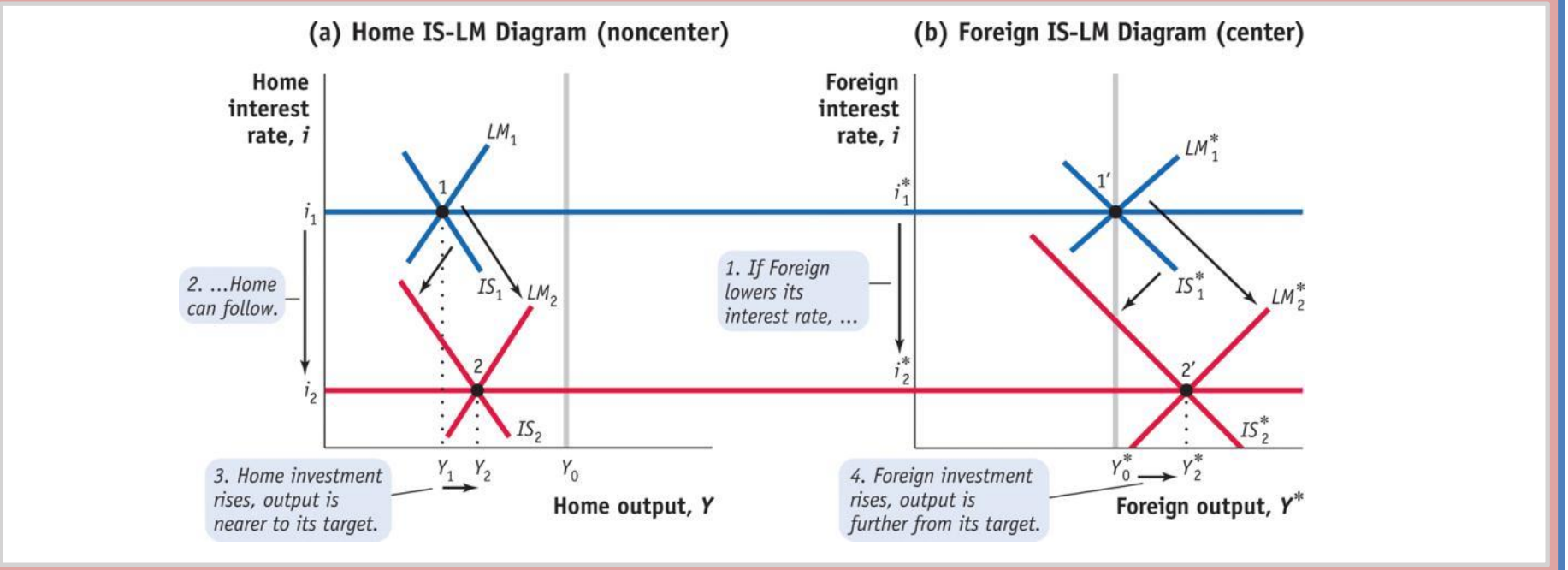


With cooperation, the foreign country can make a policy concession and lower its interest rate and home can do the same and maintain the peg.

Lower interest rates in the other country shift each country's IS curve in, but the easing of monetary policy in both countries shifts each country's LM curve down. The net effect is to boost output in both countries.

Cooperative and Noncooperative Adjustments to Interest Rates

FIGURE 8-11 (3 of 3) Cooperative and Noncooperative Interest Rate Policies by the Center Country (continued)



The new equilibria at points 2 and 2′ lie to the right of points 1 and 1′. Under this cooperative outcome, the foreign center country accepts a rise in output away from its desired level, from Y^*_0 to Y^*_2. Meanwhile, Home output gets closer to its desired level, rising from Y_1 to Y_2.

Cooperative and Noncooperative Adjustments to Interest Rates

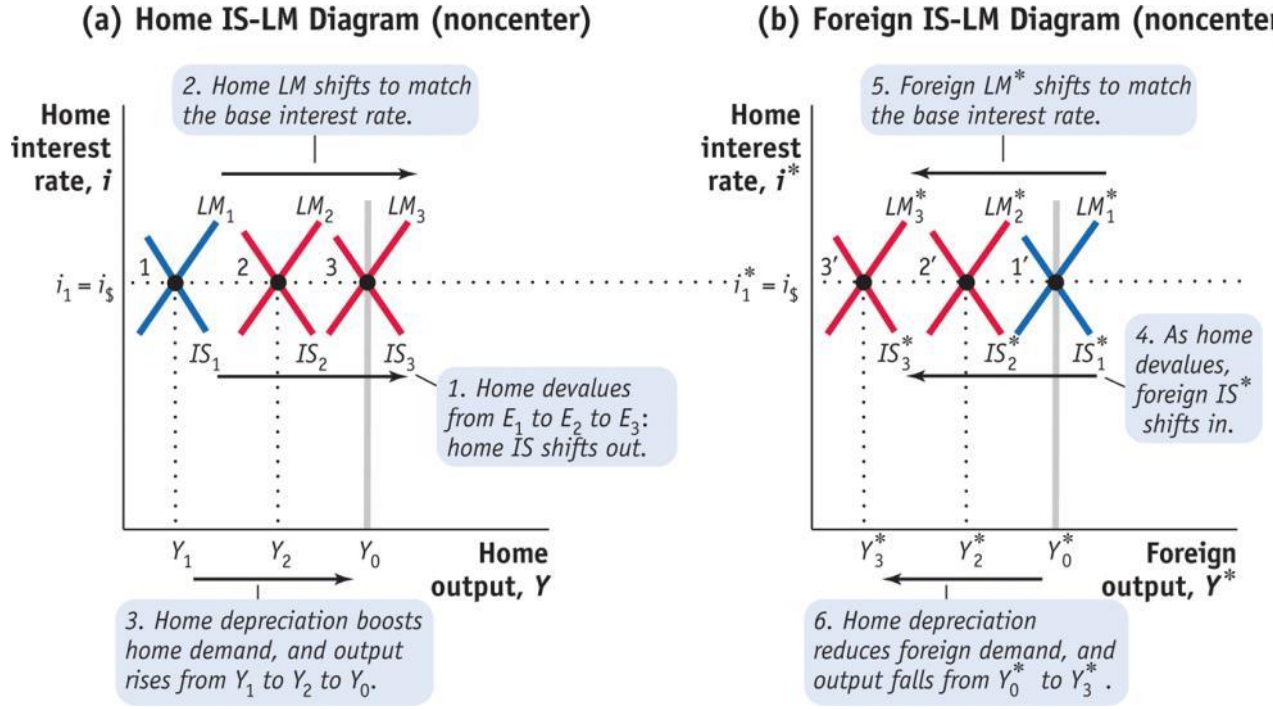
Caveats

- A unilateral peg gives the benefits of fixing to both countries but imposes a stability cost on the noncenter country alone.
- The historical record casts doubt on the ability of countries to even get as far as announcing cooperation on fixed rates, let alone actually backing that up with truly cooperative behavior.
- A major problem is that, at any given time, the shocks that hit a group of economies are typically asymmetric.
- The center country in a reserve currency system has tremendous autonomy, which it may be unwilling to give up, thus making cooperative outcomes hard to achieve consistently.

Cooperative and Noncooperative Adjustments to Exchange Rates

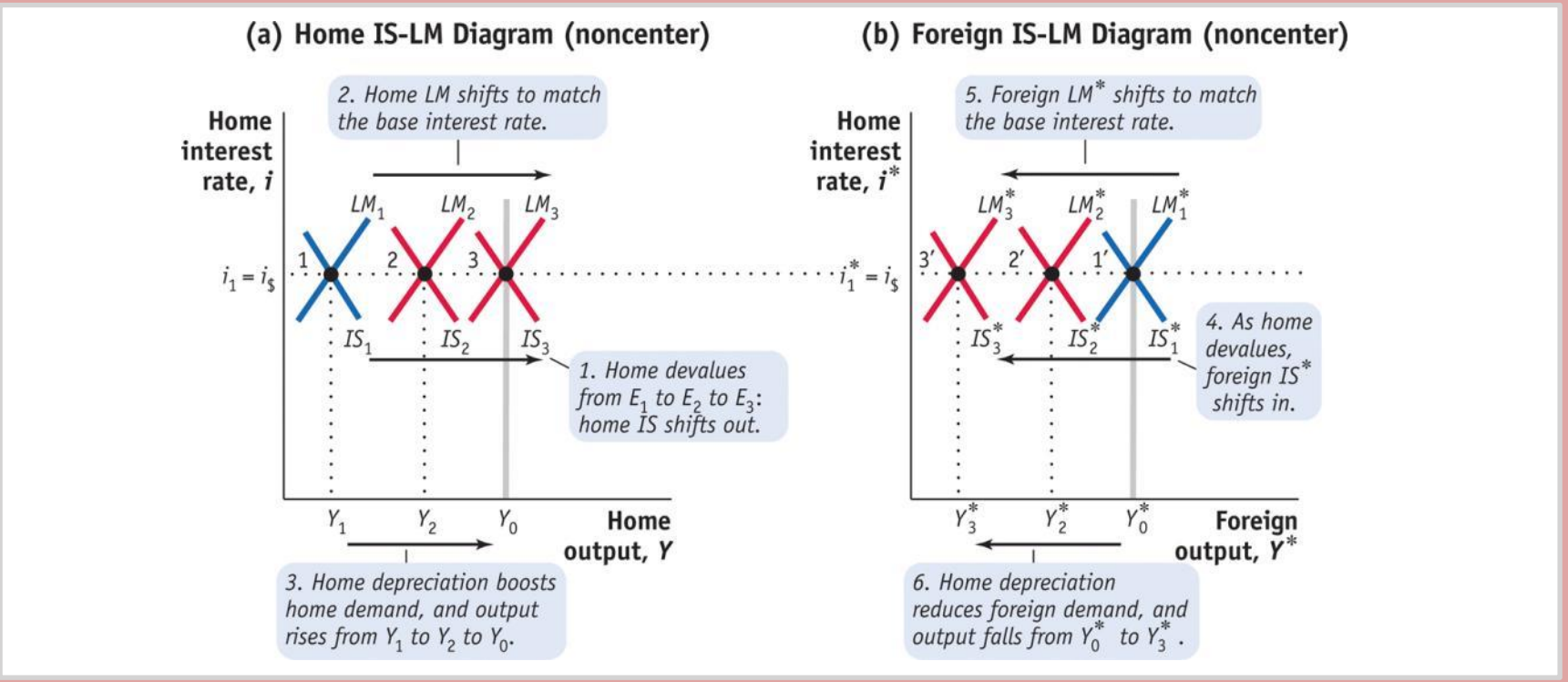
- Suppose a country that was previously pegging at a rate $\bar{E}_1$ announces that it will henceforth peg at a different rate, $\bar{E}_2 \neq \bar{E}_1$.
- By definition, if $\bar{E}_2 > \bar{E}_1$, there is a **devaluation** of the home currency; if $\bar{E}_2 < \bar{E}_1$, there is a **revaluation** of the home currency.
- We assume that the center (the United States) is a large country with monetary policy autonomy that has set its interest rate at $i_{\$}$.
- Home is pegged to the U.S. dollar at $\bar{E}_{\text{home/\$}}$ and Foreign is pegged at $\bar{E}^*_{\text{foreign/\$}}$.

FIGURE 8-12 (1 of 4) Cooperative and Noncooperative Exchange Rate Adjustments by Noncenter Countries



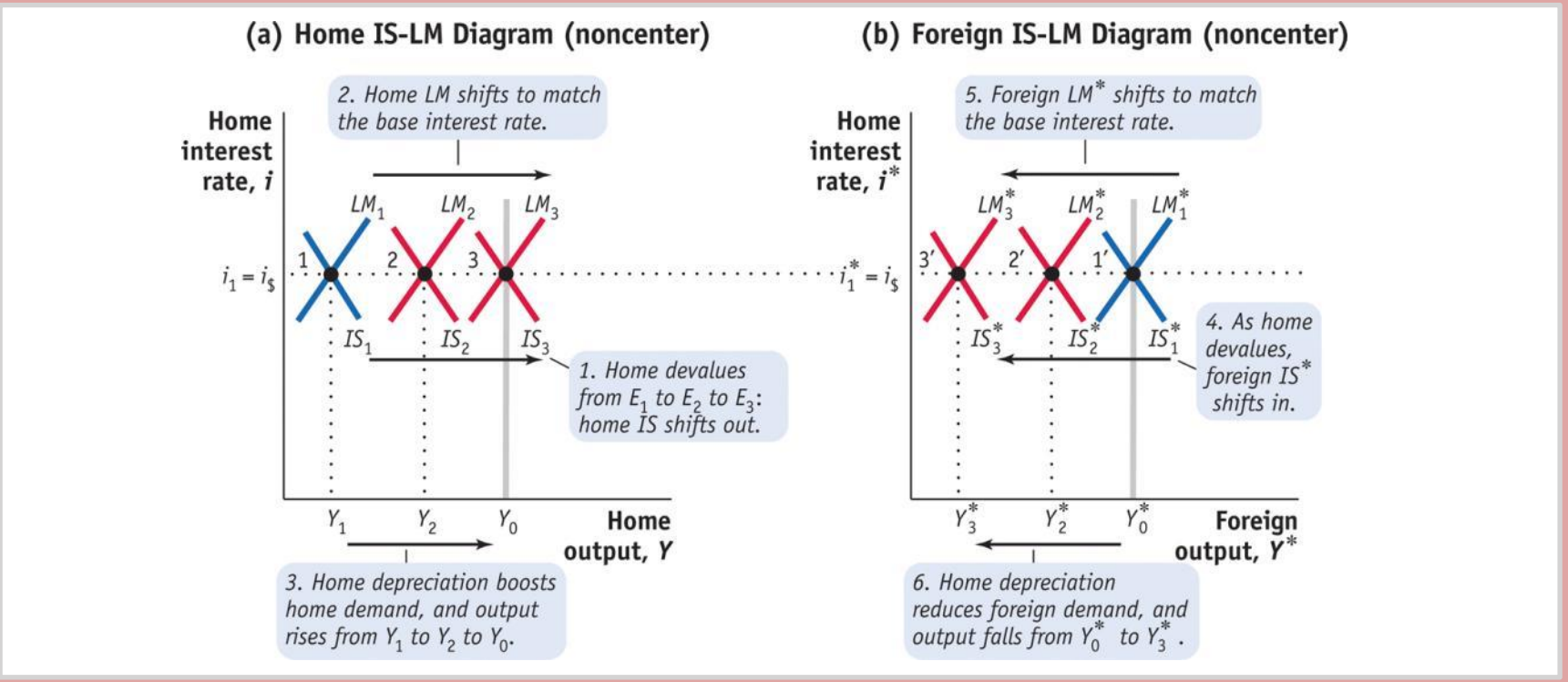
In panel (a), the noncenter home country is initially in equilibrium at point 1 with output at Y_1, which is lower than desired output Y_0. In panel (b), the noncenter foreign country is in equilibrium at its desired output level Y^*_0 at point 1′. Home and Foreign interest rates are equal to the base (dollar) interest rate and to each other, $i_1 = i^*_1 = i^*_\$$, and Home and Foreign are unilaterally pegged to the base.

FIGURE 8-12 (2 of 4) Cooperative and Noncooperative Exchange Rate Adjustments by Noncenter Countries (continued)



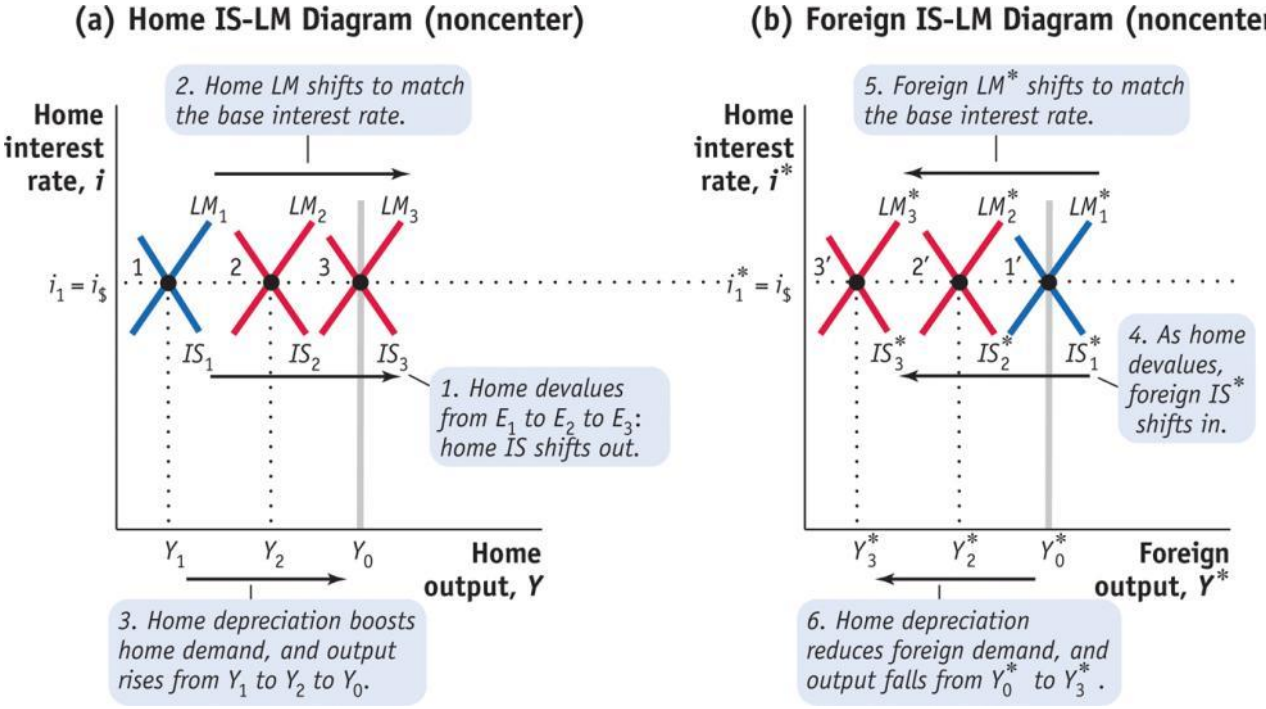
With cooperation, Home devalues slightly against the dollar (and against Foreign) and maintains a peg at a higher exchange rate. The Home interest and Foreign interest rates remain the same. But the Home real depreciation causes Home demand to increase: IS shifts out to IS_2. This is also a Foreign real appreciation, so Foreign demand decreases: IS^*_1 shifts in to IS^*_2.

FIGURE 8-12 (3 of 4) Cooperative and Noncooperative Exchange Rate Adjustments by Noncenter Countries (continued)



Under this cooperative outcome at points 2 and 2′, Foreign accepts a fall in output away from its desired level, from Y^*_0 to Y^*_2. Meanwhile, Home output gets closer to its desired level, rising from Y_1 to Y_2.

FIGURE 8-12 (4 of 4) Cooperative and Noncooperative Exchange Rate Adjustments by Noncenter Countries (continued)



With noncooperation, Home devalues more aggressively against the dollar. After a large Home real depreciation, IS shifts out to IS_3 and IS* shifts in to IS^*_3. Under this noncooperative outcome at points 3 and 3′, Home gets its desired output Y_0 by "exporting" the recession to Foreign, where output falls all the way to Y^*_3.

Cooperative and Noncooperative Adjustments to Exchange Rates

Caveats

- We can now see that adjusting the peg is a policy that may be cooperative or noncooperative in nature.
- If noncooperative, it is usually referred to as a **beggar-thy-neighbor policy**: Home can improve its position at the expense of foreign and without Foreign's agreement.
- If Home engages in such a policy, it is possible for Foreign to respond with a devaluation of its own in a tit-for-tat way.
- Cooperation may be most needed to sustain a fixed exchange rate system with adjustable pegs, so as to restrain beggar-thy-neighbor devaluations.

The Gold Standard

- Historically, the only true symmetric systems have been those in which countries fixed the value of their currency relative to some commodity.
- The most famous and important of all these systems was the **gold standard**.
- The gold standard had no center country because countries did not peg the exchange rate, $\bar{E}$, the local currency price of some base currency.
- Instead each country pegged a different price, $\bar{P}_g$, the local currency price of gold.

The Gold Standard

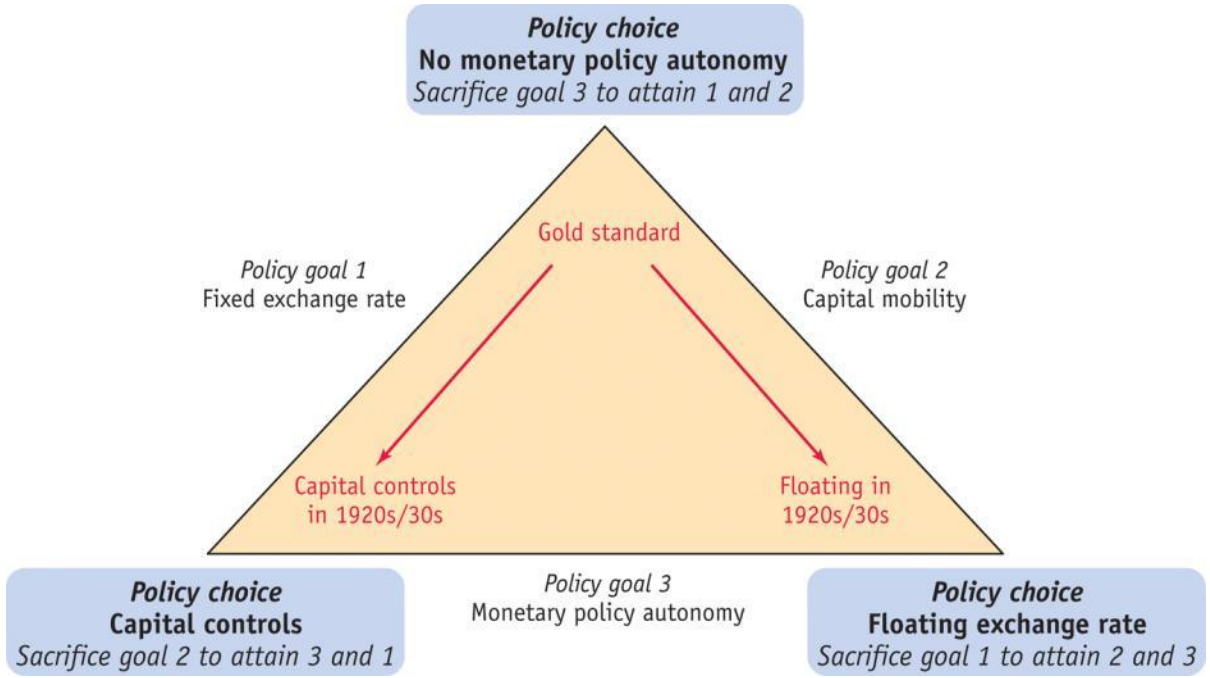
- For example, consider two countries, Britain pegging to gold at $\bar{P}_g$ (pounds per ounce of gold) and France pegging to gold at $\bar{P}^*_g$ (francs per ounce of gold).
- Under this system, one pound cost $1/\bar{P}_g$ ounces of gold, and each ounce of gold cost $\bar{P}_g$ francs, according to the fixed gold prices set by the central banks in each country.
- One pound cost $\bar{E}_{\text{par}} = \bar{P}^*_g / \bar{P}_g$ francs, and this ratio defined the *par* exchange rate implied by the gold prices in each country.
- The gold standard rested on the principle of free convertibility. Central banks in both countries stood ready to buy and sell gold in exchange for paper money at these mint prices, and the export and import of gold were unrestricted.

The Rise and Fall of the Gold Standard

- Our model suggests that as the volume of trade and other economic transactions between nations increases, there will be more to gain from adopting a fixed exchange rate.
- In the nineteenth century it is likely that more countries crossed the FIX line and met the economic criteria for fixing.
- There were other forces at work encouraging a switch to the gold peg before 1914.
- But the benefits were often less palpable than the costs, particularly in times of deflation or in recessions.
- By the 1930s, world trade had fallen to close to half of its 1914 level and the rationale for fixing based on gains from trade was being weakened.

The Rise and Fall of the Gold Standard

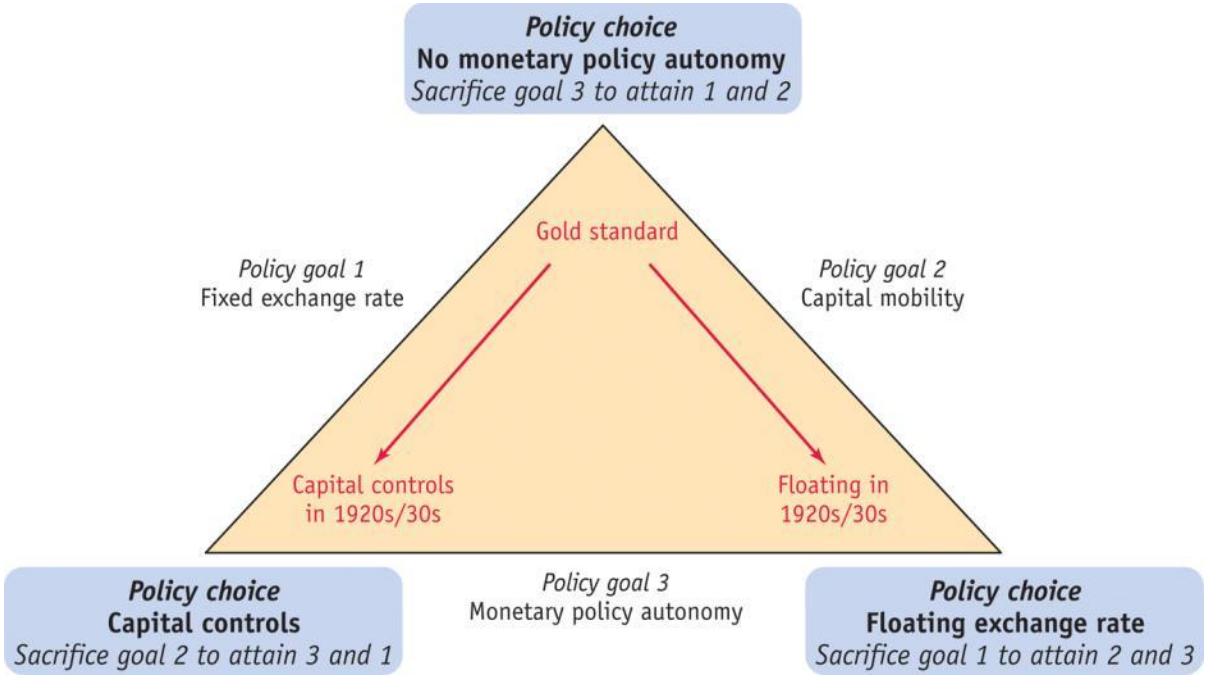
FIGURE 8-13 (1 of 2) Solutions to the Trilemma Before and After World War I



Each corner of the triangle represents a viable policy choice. The labels on the two adjacent edges of the triangle are the goals that can be attained; the label on the opposite edge is the goal that has to be sacrificed. Trade gains and an absence of (or political indifference to) stability costs help explain how the gold standard came into being before 1914 (top corner).

The Rise and Fall of the Gold Standard

FIGURE 8-13 (2 of 2) Solutions to the Trilemma Before and After World War I (continued)



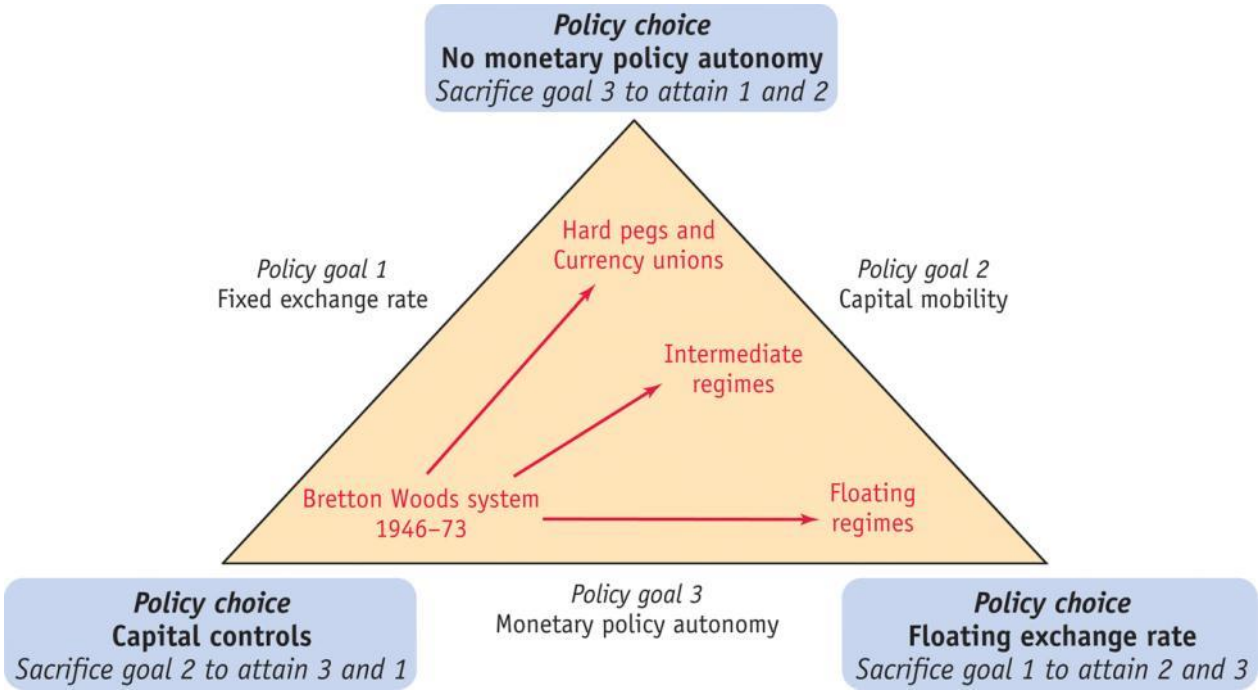
Subsequently, reduced trade gains and higher actual (or politically relevant) stability costs help explain the ultimate demise of the gold standard in the 1920s and 1930s. Countries sought new solutions to the trilemma to achieve policy autonomy, either by floating (bottom right corner) or by adopting capital controls (bottom left corner).

Bretton Woods to the Present

- The architects of the postwar order, notably Harry Dexter White and John Maynard Keynes, constructed a system that preserved one key tenet of the gold standard regime—by keeping fixed rates—but discarded the other by imposing capital controls.
- The trilemma was resolved in favor of exchange rate stability to encourage the rebuilding of trade in the postwar period.
- Countries would peg to the U.S. dollar; this made the U.S. dollar the center currency and the United States the center country.
- The U.S. dollar was, in turn, pegged to gold at a fixed price, a last vestige of the gold standard.

The Rise and Fall of the Gold Standard

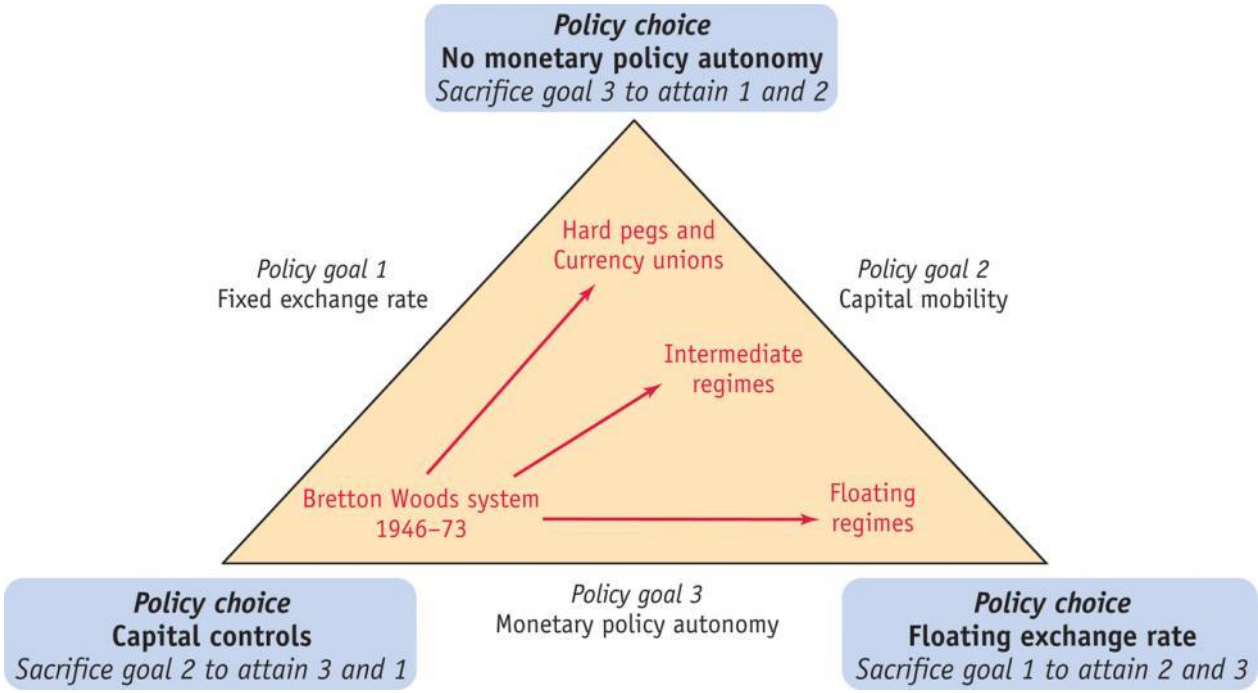
FIGURE 8-14 (1 of 3) Solutions to the Trilemma Since World War II



In the 1960s, the Bretton Woods system became unsustainable because capital mobility could not be contained. Thus, countries could no longer have fixed rates and monetary autonomy (bottom left corner).

The Rise and Fall of the Gold Standard

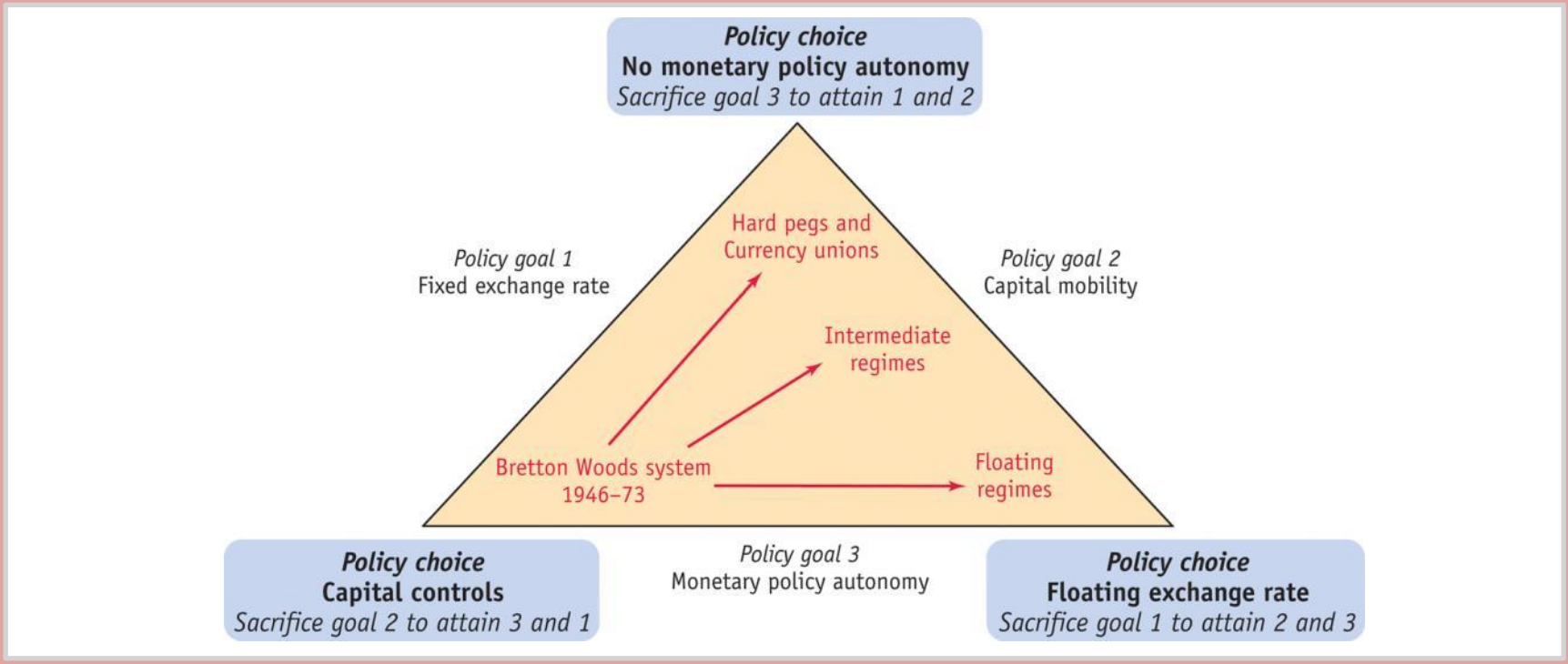
FIGURE 8-14 (2 of 3) Solutions to the Trilemma Since World War II (continued)



In the advanced countries, the trilemma was resolved by a shift to floating rates, which preserved autonomy and allowed for the present era of capital mobility (bottom right corner).

The Rise and Fall of the Gold Standard

FIGURE 8-14 (3 of 3) Solutions to the Trilemma Since World War II (continued)



The main exception was the currency union of the Eurozone. In developing countries and emerging markets, the "fear of floating" was stronger; when capital markets were opened, monetary policy autonomy was more often sacrificed and fixed exchange rates were maintained (top corner).

Bretton Woods to the Present

- As capital mobility grew and controls failed to hold, the trilemma tells us that countries pegged to the dollar stood to lose their monetary policy autonomy.
- The devaluation option came to be seen as the most important way of achieving policy compromise in a "fixed but adjustable" system. But increasingly frequent devaluations (and some revaluations) undermined the notion of a truly fixed rate system, and made it more unstable.
- It was also believed that this inflation would eventually conflict with the goal of fixing the dollar price of gold and that the United States would eventually abandon its commitment to convert dollars into gold, which happened in August 1971.

Bretton Woods to the Present

- How did the world react to the collapse of the Bretton Woods system?
  - Most advanced countries have opted to float and preserve monetary policy autonomy.
  - A group of European countries instead decided to try to preserve a fixed exchange rate system among themselves.
  - Some developing countries have maintained capital controls, but many of them (especially the emerging markets) have opened their capital markets.

Bretton Woods to the Present

- How did the world react to the collapse of the Bretton Woods system?
  - Some countries, both developed and developing, have camped in the middle ground: They have attempted to maintain intermediate regimes, such as "dirty floats" or pegs with "limited flexibility."
  - Finally, some countries still impose some capital controls rather than embrace globalization.

KEY POINTS

1. A wide variety of exchange rate regimes have been in operation throughout history to the present.

KEY POINTS

2. The benefits for the home country from a fixed exchange rate include lower transaction costs and increased trade, investment, and migration with the base or center country.

KEY POINTS

3. The costs to the home country from a fixed exchange rate arise primarily when the two countries experience different economic shocks and home would want to pursue monetary policies different from those of the base or center country.

KEY POINTS

4. The costs and benefits of fixing can be summed up on a **symmetry-integration diagram**. At high levels of symmetry and/or integration, above the FIX line, it makes sense to fix. At low levels of symmetry and/or integration, below the FIX line, it makes sense to float.

KEY POINTS

5. A fixed rate may confer extra benefits if it is the only viable nominal anchor in a high-inflation country and if it prevents adverse wealth shocks caused by depreciation in countries suffering from a currency mismatch.

KEY POINTS

6. Using these tools and the trilemma, we can better understand exchange rate regime choices in the past and in the present. Before 1914 it appears the gold standard did promote integration, and political concern for the loss of stabilization policies was limited. In the 1920s and 1930s, increased isolationism, economic instability, and political realignments undermined the gold standard. After 1945 and up to the late 1960s, the Bretton Woods system of fixed dollar exchange rates was feasible, with strict controls on capital mobility, and was attractive as long as U.S. policies were not at odds with the rest of the world. Since 1973 different countries and groups of countries have gone their own way, and exchange rate regimes reflect the sovereign choice of each country.

KEY TERMS

gold standard

base currency

center currency

asymmetric shock

economic integration

symmetry-integration diagram

fear of floating

fixed exchange rate systems

reserve currency system

cooperative arrangements

devaluation

revaluation

beggar-thy-neighbor policy

Thank You for your attention!