In the following two applications, we use our model of exchange rate determination to understand how speculative attacks in both advanced and emerging market economies lead to foreign exchange crises.

### Application

**The Foreign Exchange Crisis of September 1992**

Prior to 1990, as part of the march toward adoption of a single currency, many countries in the European Economic Community, including the United Kingdom and the Scandinavian countries, fixed the values of their currencies to the German mark under a fixed exchange rate system called the Exchange Rate Mechanism (ERM). In the aftermath of German reunification in October 1990, the German central bank, the Bundesbank, faced rising inflationary pressures, with inflation having accelerated from below 3% in 1990 to near 5% by 1992. To dampen inflation, the Bundesbank raised German interest rates to near double-digit levels. Figure 17A2.1 shows the consequences of these actions by the Bundesbank in the foreign exchange market for British pounds. Note that in the diagram, the pound is the domestic currency and the German mark (deutsche mark, DM) is the foreign currency.

The increase in German interest rates lowered the relative expected return on British pound assets and shifted the demand curve from $D_1$ to $D_2$ in Figure 17A2.1. The intersection of the supply and demand curves at point 2 was below the fixed exchange rate at that time (2.778 marks per pound, denoted $E_{par}$). To increase the value of the pound relative to the mark and to restore the mark/pound exchange rate to within the exchange rate mechanism limits, one of two things had to happen:

1. The Bank of England would have to pursue an autonomous tightening of monetary policy, thereby raising British interest rates sufficiently to shift the demand curve back to $D_1$, so that the equilibrium would remain at point 1, where the exchange rate would remain at $E_{par}$. 
2. The Bundesbank would have to pursue an autonomous easing of monetary policy, thereby lowering German interest rates. Lower German interest rates would raise the relative expected return on British assets and shift the demand curve back to $D_1$ so that the exchange rate would be at $E_{par}$.

The catch was that the Bundesbank, whose primary goal was fighting inflation, was unwilling to pursue an autonomous easing of monetary policy, and the British, who were facing their worst recession in the postwar period, were unwilling to pursue an autonomous tightening of monetary policy to prop up the pound. This impasse became clear when, on September 14, in response to great pressure from other members of the ERM, the Bundesbank was willing to lower its lending rates by only a token amount after a speculative attack was mounted on the currencies of the Scandinavian countries. So, at some point in the near future, the value of the pound would have to decline to point 2. Speculators now knew that the depreciation of the pound was imminent. As a result, the relative expected return on the pound fell sharply, decreasing demand and shifting the demand curve left to $D_3$ in the figure.

As a result of the large decrease in demand, there was now a huge excess supply of pound assets at the par exchange rate $E_{par}$, which caused a massive sell-off of pounds (and purchases of marks) by speculators. The need for the British central bank to intervene to raise the value of the pound now became much greater and required a huge rise in British interest rates. A major intervention effort on the part of the Bank of England included a rise in its lending rate from 10% to 15%, but it still wasn’t enough. The British were finally forced to give up on September 16: they pulled out of the ERM indefinitely and allowed the pound to depreciate by 10% against the mark.
Speculative attacks on other currencies at the same time forced devaluation of the Spanish peseta by 5% and of the Italian lira by 15%. To defend its currency, the Swedish central bank was forced to raise its daily lending rate to the astronomical level of 500%! By the time the crisis was over, the British, French, Italian, Spanish, and Swedish central banks had intervened to the tune of $100 billion; the Bundesbank alone had laid out $50 billion for foreign exchange intervention.

The attempt to prop up the European Monetary System was costly for these central banks, with estimates indicating that they lost $4 to $6 billion as a result of exchange rate intervention during the crisis. What the central banks lost, the speculators gained. A speculative fund run by George Soros ran up $1 billion of profits during the crisis, and Citibank traders reportedly made $200 million. When an exchange rate crisis occurs, life can certainly be sweet for exchange rate speculators.

Application


Major currency crises in emerging market countries have been a common occurrence in recent years. We can use the same Figure 17A2.1 that was used to discuss the September 1992 foreign exchange crisis to analyze the currency crises in Mexico in 1994, East Asia in 1997, Brazil in 1999, and Argentina in 2002. To do so, we just need to recognize that dollars are the foreign currency and the domestic currency is Mexican pesos, Thai baht, Korean won, Brazilian reals, or Argentine pesos.¹

In Mexico, in March 1994, political instability (including the assassination of the ruling party’s presidential candidate) sparked investors’ concerns that the government might devalue the peso. As a result, the relative expected return on peso assets fell, thus decreasing demand and shifting the demand curve leftward from \( D_1 \) to \( D_2 \) in Figure 17A2.1. In the case of Thailand in May 1997, the large current account deficit and the weakness of the Thai financial system raised similar concerns about the devaluation of the domestic currency, with the same effect on the demand curve. In Brazil in late 1998 and Argentina in 2001, concerns about fiscal situations that could lead to the printing of money to finance budget deficits, and thereby raise inflation, also meant that a devaluation was more likely to occur. The concerns thus lowered the relative expected return on domestic assets and decreased demand. In all of these cases, the result was that the intersection of the supply and demand curves was below the pegged value of the domestic currency at \( E_{\text{par}} \).

To keep their domestic currencies from falling below \( E_{\text{par}} \), these countries’ central banks needed to buy the domestic currency and sell dollars to raise interest rates and increase demand, while in the process losing international reserves. At first, the central banks were successful in containing this speculative attack. However, when more bad news broke, speculators became even more confident that these countries could not defend their currencies. (The bad news was everywhere: in Mexico, there was an uprising in Chiapas and revelations about problems in the banking system; in Thailand, there was a major failure of

¹Note that the exchange rate label on the vertical axis would be in terms of dollars/domestic currency and that the label on the horizontal axis would be the quantity of domestic currency—say, pesos—assets.
a financial institution; in Brazil, there was a worsening fiscal situation, along with a threat by a governor to default on his state’s debt; and in Argentina, a full-scale bank panic and an actual default on the government debt occurred.) As a result, the relative expected returns on domestic assets fell further, the demand curve shifted further leftward to $D_3$ in Figure 17A2.1, and the central banks lost even more international reserves. Given the stress on the economy from rising interest rates and the loss of reserves, eventually the monetary authorities could no longer continue to defend the currencies and were forced to give up and let their currencies depreciate. This scenario happened in Mexico in December 1994, in Thailand in July 1997, in Brazil in January 1999, and in Argentina in January 2002.

Concerns about similar problems in other countries then triggered speculative attacks against them as well. This contagion occurred in the aftermath of the Mexican crisis (jauntily referred to as the “Tequila effect”) with speculative attacks on other Latin American currencies, but there were no further currency collapses. In the East Asian crisis, however, fears of devaluation spread throughout the region, leading to a scenario akin to that depicted in Figure 17A2.1. Consequently, one by one, Indonesia, Malaysia, South Korea, and the Philippines were forced to devalue sharply. Even Hong Kong, Singapore, and Taiwan were subjected to speculative attacks, but because these countries had healthy financial systems, they successfully averted the attacks.

The foreign exchange crisis that shocked the European Monetary System in September 1992 cost central banks a lot of money, but the public in European countries was not seriously affected. This was not the case for the public in Mexico, Argentina, and the crisis countries of East Asia: the collapse of these currencies triggered by speculative attacks led to financial crises, producing severe depressions that caused hardship and political unrest.²

²How these depreciations led to full-scale financial crises is discussed in the Web chapter, “Financial Crises in Emerging Market Economies,” found at the Companion Website, www.pearsonglobaleditions.com/mishkin.
SUMMARY

1. Speculative attacks on currencies occur when speculators believe that a government will no longer keep intervening in the foreign exchange market to keep its currency at the fixed exchange rate of \( E_{par} \). With the decline in value of the currency imminent, the relative expected return on the currency falls dramatically, and the demand curve shifts to the left, which requires an even larger exchange rate intervention. At this point, the government usually gives up, and a devaluation occurs in which the value of the currency falls sharply.

REVIEW QUESTIONS AND PROBLEMS

1. What can cause speculators to attack a currency?
2. Why did the exchange-rate peg lead to difficulties for the countries in the ERM when German reunification occurred, and how did this lead to a currency crisis?
3. What role can fiscal policy play in promoting a currency crisis?
4. How can problems in the banking sector trigger a currency crisis?

5. Suppose the following graph represents the situation of an overvalued domestic currency of a country that is participating in a fixed exchange rate regime.
   a) Which actions should the central bank of this country undertake in order to correct this situation?
   b) Assume now that the central bank of this country does not have enough international reserves to buy its own currency. Which set of events will most probably occur?