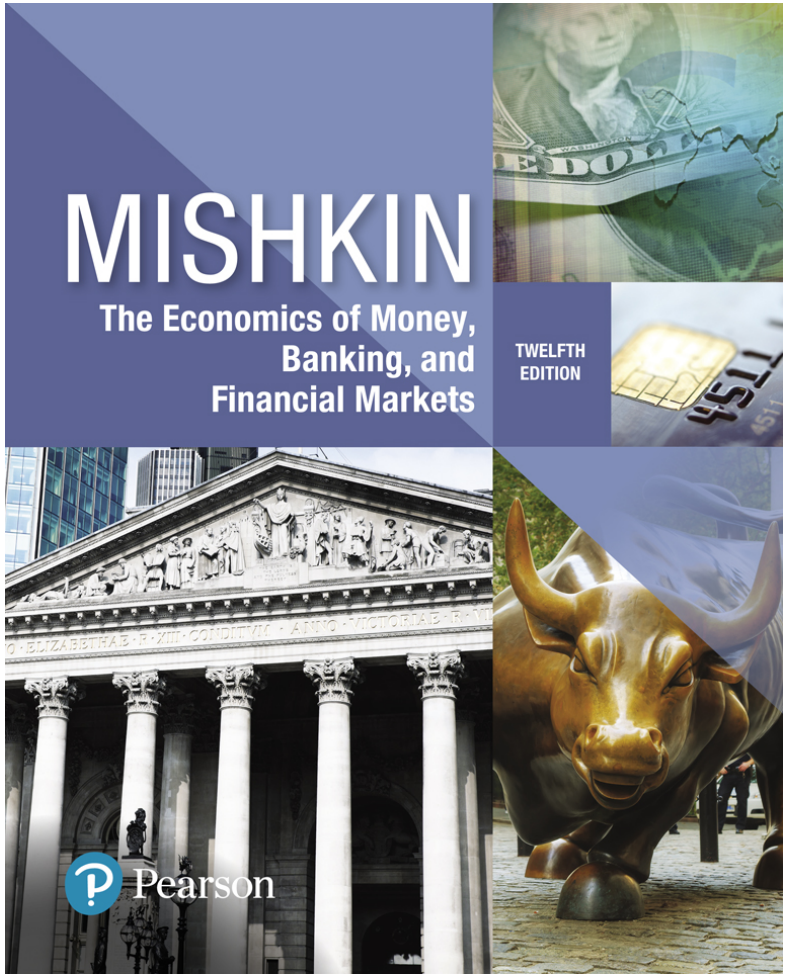
The Economics of Money, Banking, and Financial Markets

Twelfth Edition



Chapter 17

The Foreign Exchange Market

Preview

- This chapter outlines how the foreign exchange market functions and how the value of different currencies is determined.

Learning Objectives

- Explain how the foreign exchange market works and why exchange rates are importance.
- Identify the main factors that affect exchange rates in the long run.
- Draw the demand and supply curves for foreign exchange market and interpret the equilibrium in the market for foreign exchange.
- List and illustrate the factors that affect the exchange rates in the short run.

Foreign Exchange Market (1 of 2)

- **Exchange rate**: price of one currency in terms of another
- **Foreign exchange market**: the financial market where exchange rates are determined
- **Spot transaction**: immediate (two-day) exchange of bank deposits
  - Spot exchange rate
- **Forward transaction**: the exchange of bank deposits at some specified future date
  - Forward exchange rate

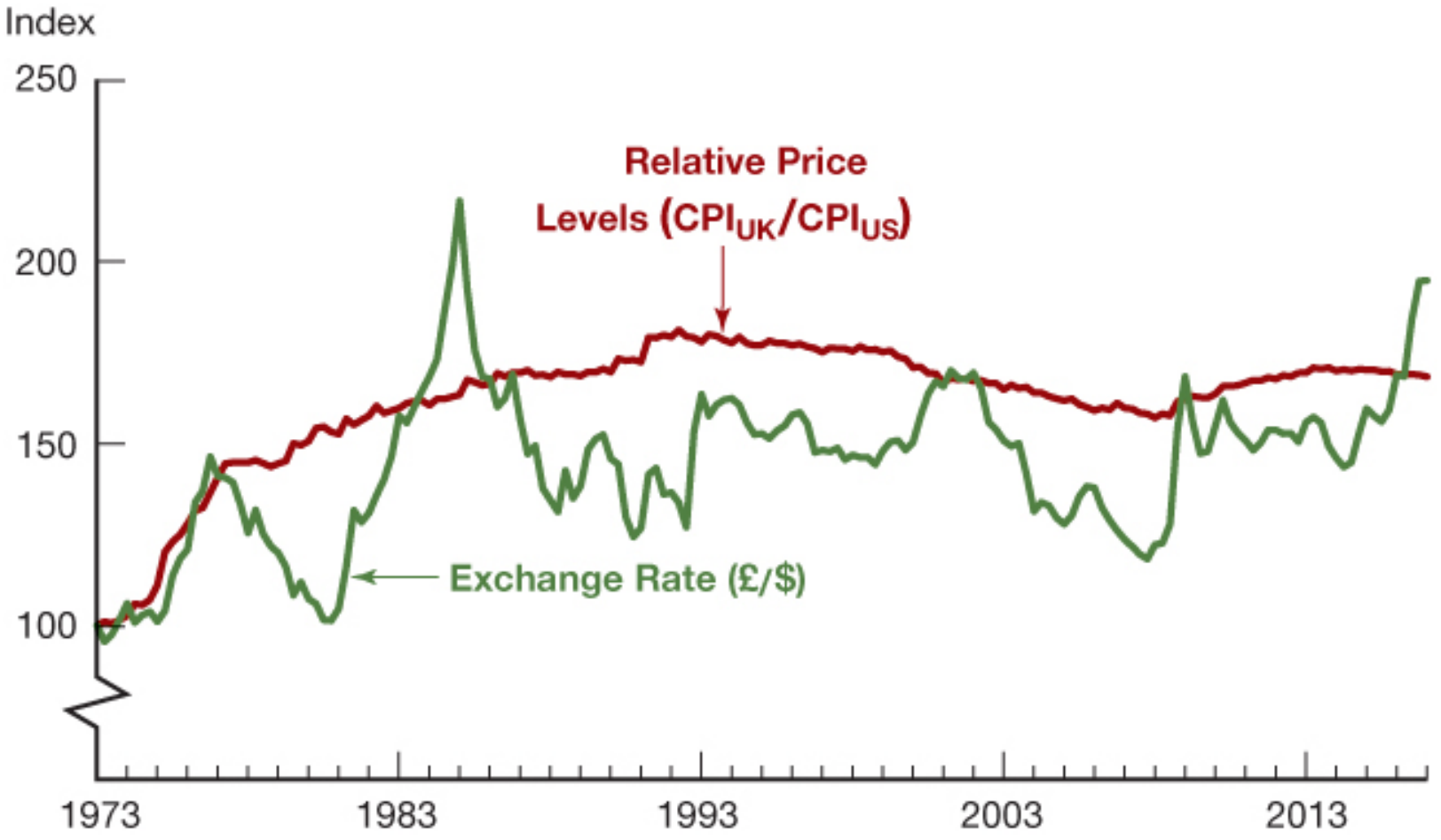
Foreign Exchange Market (2 of 2)

- **Appreciation**: a currency rises in value relative to another currency
- **Depreciation**: a currency falls in value relative to another currency
- When a country's currency appreciates, the country's goods become more expensive to foreigners and foreign goods in that country become less expensive to domestic economic agents.
- Over-the-counter market mainly banks

Exchange Rates in the Long Run

- Law of one price
- Theory of Purchasing Power Parity assumptions:
  - All goods are identical in both countries
  - Trade barriers and transportation costs are low
  - Many goods and services are not traded across borders

Figure 1 Purchasing Power Parity, United States/United Kingdom, 1973–2017 (Index: March 1973 = 100.)



Source: Federal Reserve Bank of St. Louis FRED database: https://fred.stlouisfed.org/series/GBRCPIALLMINMEIT; https://fred.stlouisfed.org/series/CPIAUCNS; https://fred.stlouisfed.org/series/EXUSUK.

Factors That Affect Exchange Rates in the Long Run

- Relative price levels
- Trade barriers
- Preferences for domestic versus foreign goods
- Productivity

Application: Burgernomics: Big Macs and PPP

- Since 1986, The Economist magazine has published the Big Mac index as a “light- hearted guide to whether currencies are at their ‘correct’ level based on the theory of purchasing power parity.” Big Macs are sold by McDonald’s all around the world and are supposed to taste the same wherever they are sold. The Economist collects prices (in the local currency) of Big Macs sold in 56 different regions and countries, then uses these prices to compare the exchange rate implied by PPP and the Big Mac index.

Summary Table 1 Factors That Affect Exchange Rates in the Long Run

Factor	Change in Factor	Response of the Exchange Rate, *E**
Domestic price level†	↑	↓
Trade barriers†	↑	↑
Import demand	↑	↓
Export demand	↑	↑
Productivity†	↑	↑

*Units of foreign currency per dollar: ↑ indicates domestic currency appreciation; ↓, depreciation.

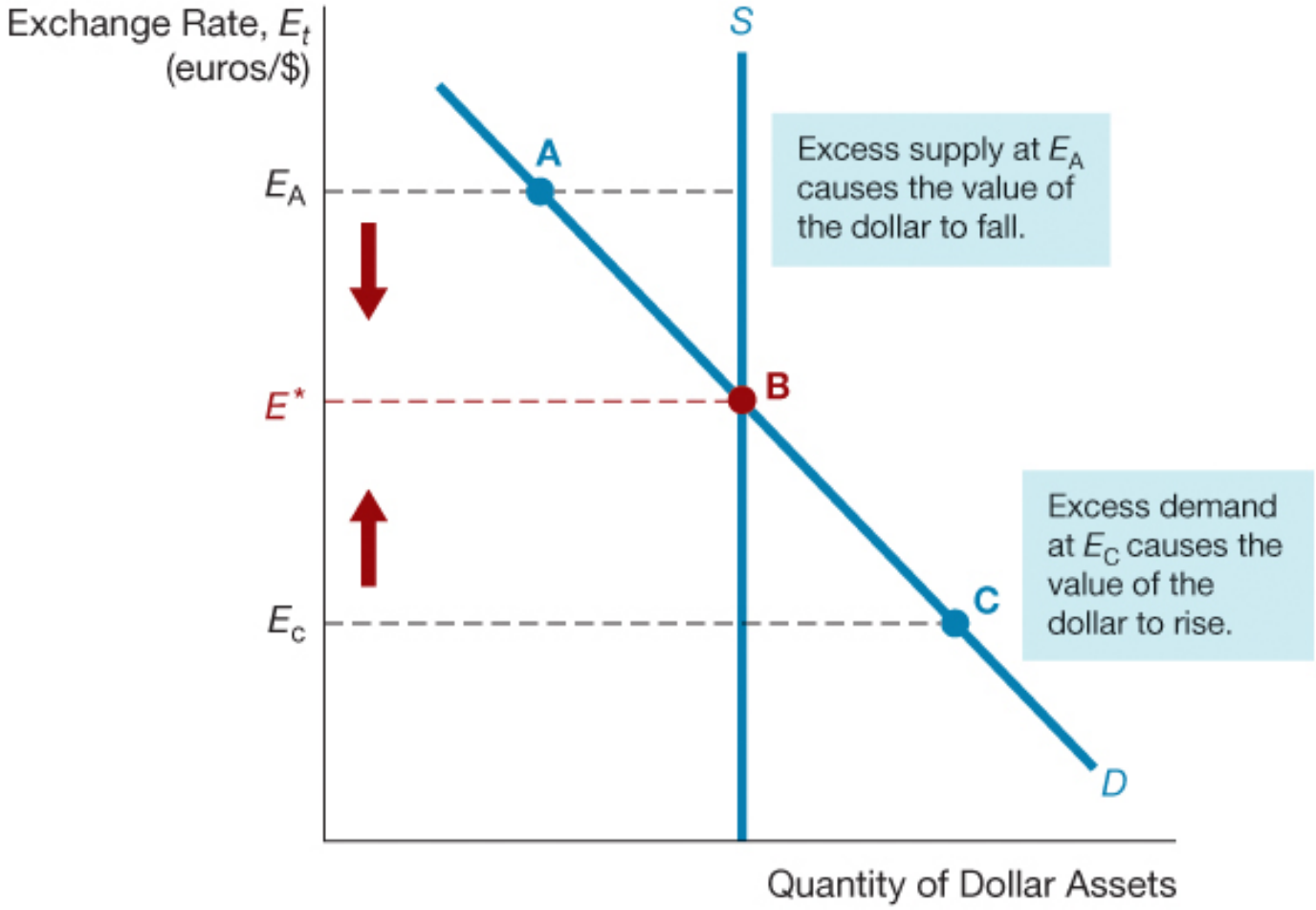
†Relative to other countries.

Note: Only increases (↑) in the factors are shown; the effects of decreases in the variables on the exchange rate are the opposite of those indicated in the "Response" column.

Exchange Rates in the Short Run: A Supply and Demand Analysis

- An exchange rate is the price of domestic assets in terms of foreign assets
- Supply curve for domestic assets
  - Assume amount of domestic assets is fixed (supply curve is vertical)
- Demand curve for domestic assets
  - Most important determinant is the relative expected return of domestic assets
  - At lower current values of the dollar (everything else equal), the quantity demanded of dollar assets is higher

Figure 2 Equilibrium in the Foreign Exchange Market



Explaining Changes in Exchange Rates

- Shifts in the demand for domestic assets
  - Domestic interest rate
  - Foreign interest rate
  - Expected future exchange rate

Figure 3 Response to an Increase in the Domestic Interest Rate, i^D

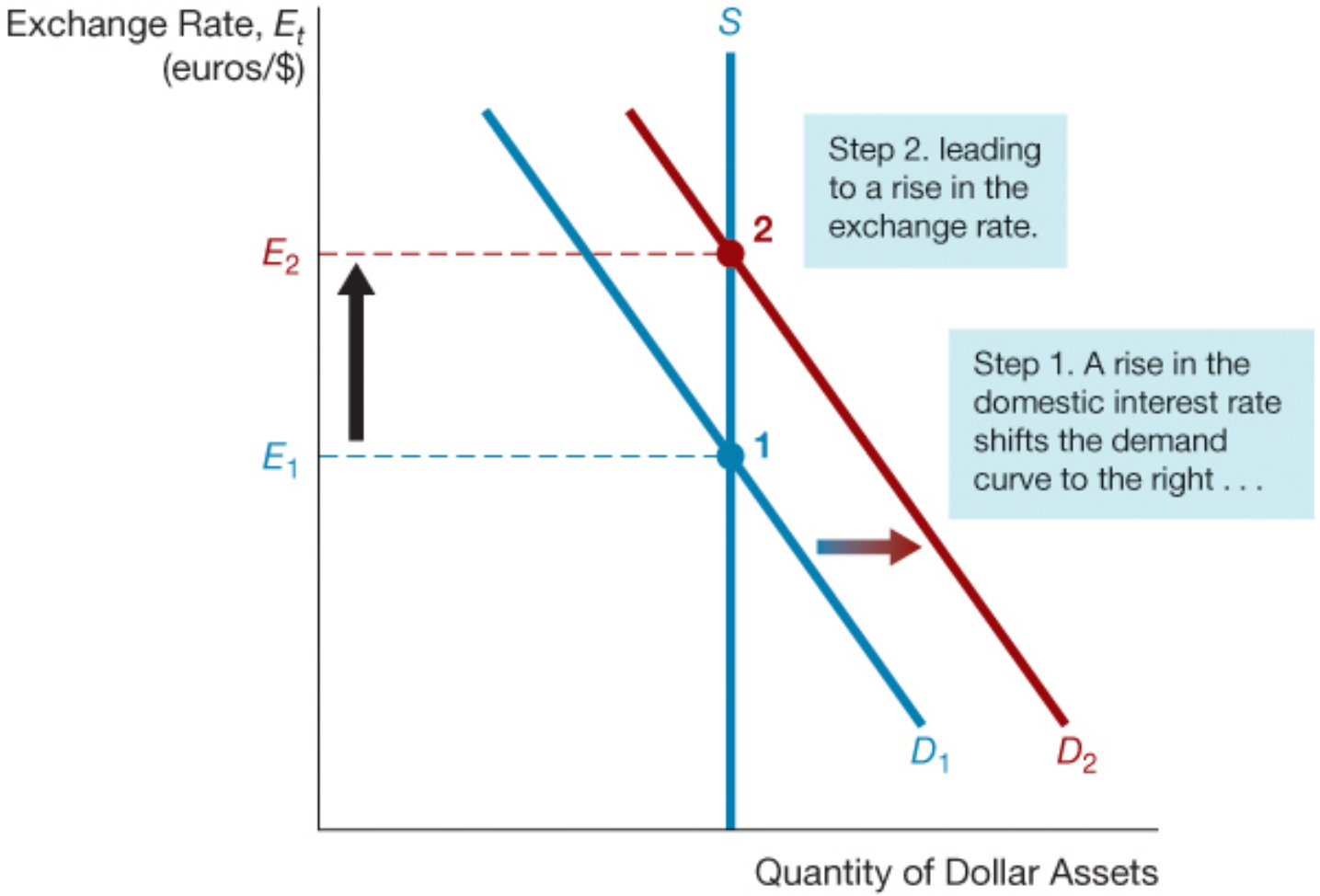


Figure 4 Response to an Increase in the Foreign Interest Rate, i^F

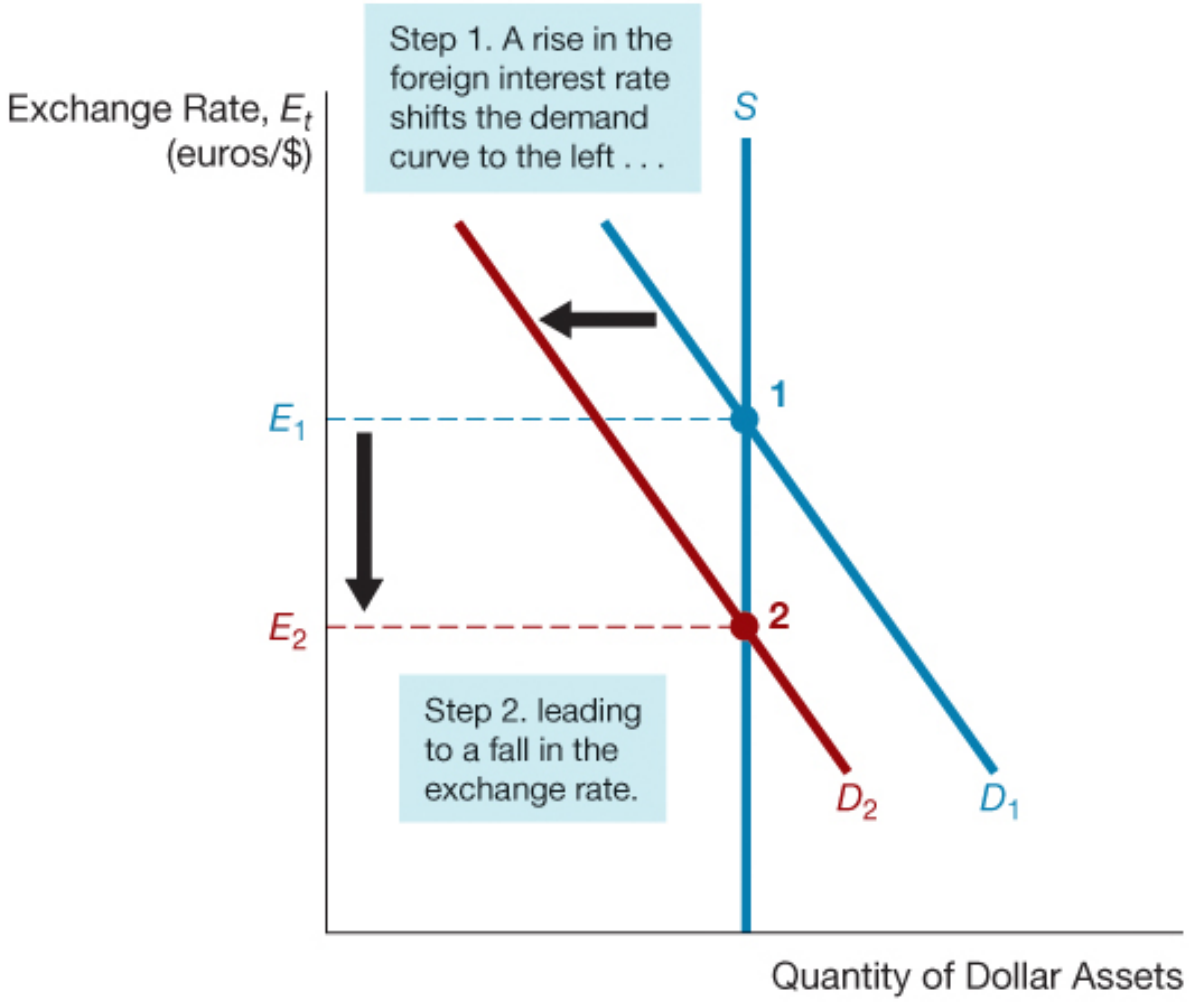
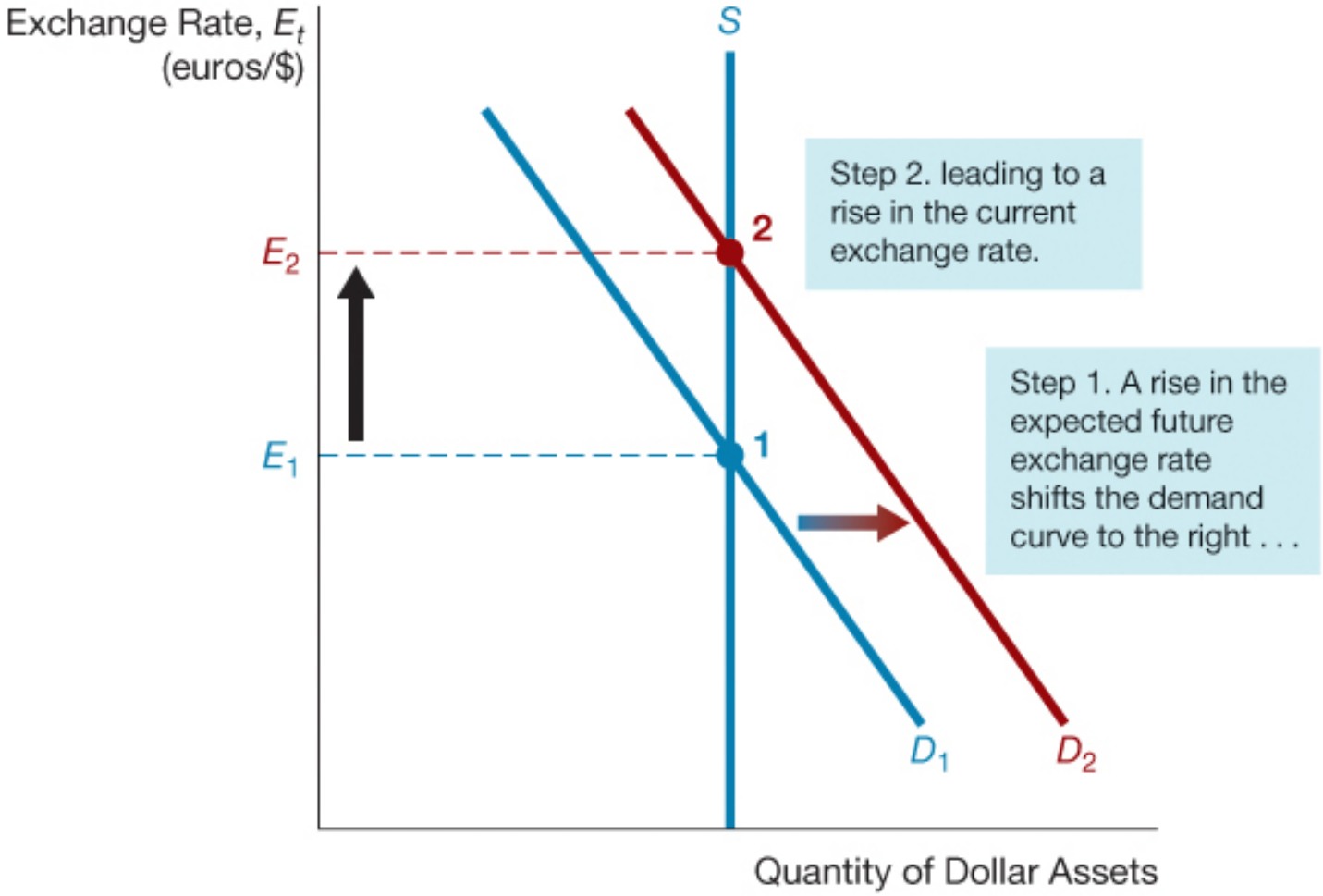
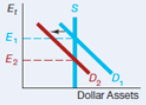
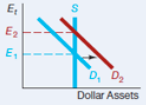
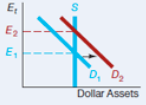


Figure 5 Response to an Increase in the Expected Future Exchange Rate, E^e_{t+1}



Summary Table 2 Factors That Shift the Demand Curve for Domestic Assets and Affect the Exchange Rate

Factors That Shift the Demand Curve for Domestic Assets and Affect the Exchange Rate

Factor	Change in Factor	Change in Quantity Demanded of Domestic Assets at Each Exchange Rate	Response of Exchange Rate, E_t	
Domestic interest rate, i^D	↑	↑	↑	
Foreign interest rate, i^F	↑	↓	↓	
Expected domestic price level*	↑	↓	↓	
Expected trade barriers*	↑	↑	↑	
Expected import demand	↑	↓	↓	
Expected export demand	↑	↑	↑	
Expected productivity*	↑	↑	↑	

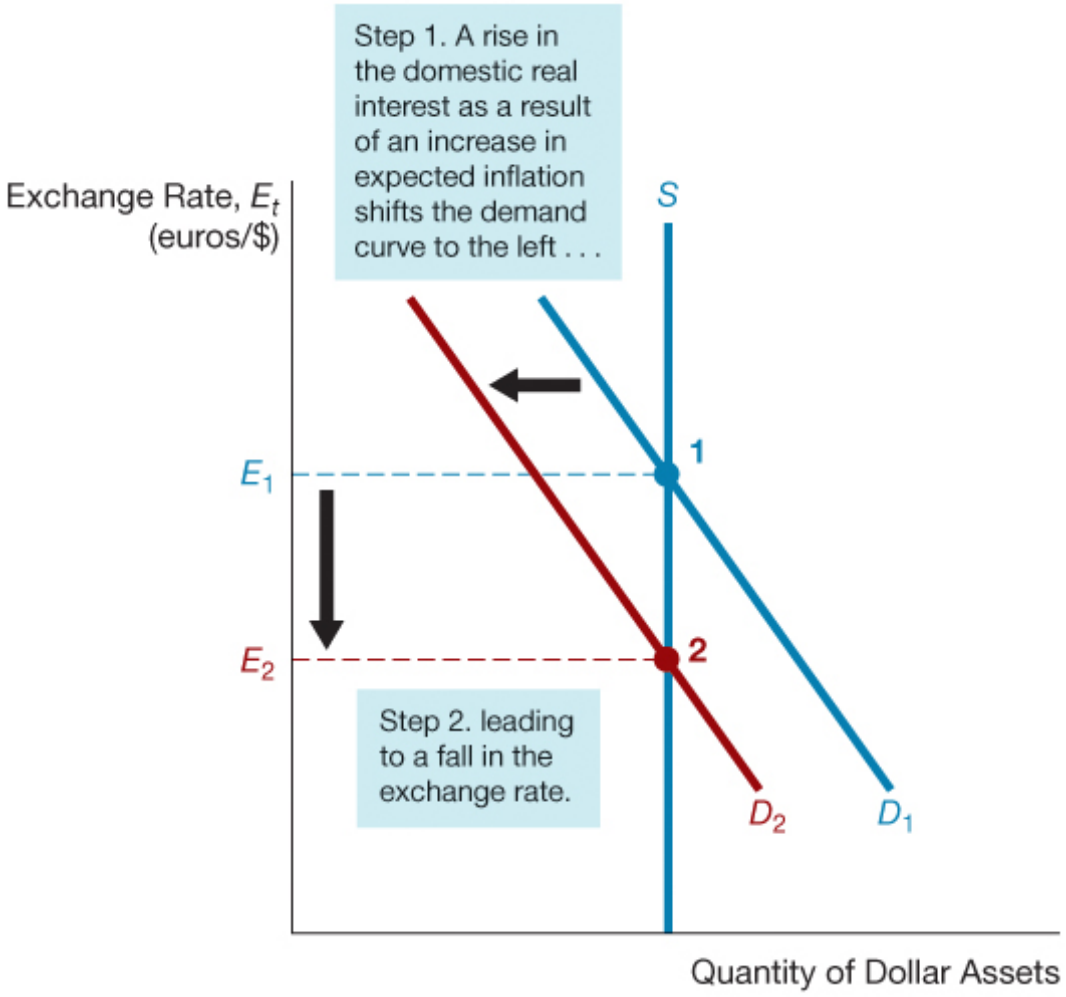
*Relative to other countries.

Note: Only increases (↑) in the factors are shown; the effects of decreases in the variables on the exchange rate are the opposite of those indicated in the "Response" column.

Application: Effects of Changes in Interest Rates on the Equilibrium Exchange Rate

- Changes in Interest Rates
  - When domestic real interest rates raise, the domestic currency appreciates.
  - When domestic interest rates rise due to an expected increase in inflation, the domestic currency depreciates.
- Changes in the Money Supply
  - A higher domestic money supply causes the domestic currency to depreciate.

Figure 6 Effect of a Rise in the Domestic Interest Rate as a Result of an Increase in Expected Inflation



Application: The Global Financial Crisis and the Dollar

- With the start of the global financial crisis in August 2007, the dollar began an accelerated decline in value, falling by 9% against the euro until mid-July of 2008. After hitting an all-time low against the euro on July 11, the value of the dollar suddenly shot upward, by over 20% against the euro by the end of October. What is the relationship between the global financial crisis and these large swings in the value of the dollar?

Application: Brexit and the British Pound

- As noted in the introduction, the Brexit vote in the United Kingdom on June 23, 2016, led to nearly a 10% depreciation in the British pound, from $1.48 to the pound on June 23, just before the vote, to $1.36 per pound on June 24. What explains the large one-day decline in the exchange rate for the pound?

Appendix: The Interest Parity Condition
(1 of 3)

- Comparing Expected Returns on Domestic and Foreign Assets
  - Since the vast majority of real-world transactions in currency markets involve economic agents buying and selling currencies based on their value as assets, one must develop an understanding of how these assets are valued.
- From the perspective of an American economic agent, the expected return on dollar-denominated assets is equal to the domestic rate of interest.

Appendix: The Interest Parity Condition
(2 of 3)

- For a foreign economic agent, Francois the Foreigner, the expected return on dollar-denominated assets is equal to the rate of interest associated with those same assets, adjusted for an expected appreciation or depreciation in the value of the U.S. dollar relative to the Euro.
- If foreign and American bank deposits can be considered perfect substitutes for one another and capital mobility exists, then parity should exist between the interest rate on dollar-denominated bank deposits and the interest rate on Euro-denominated bank deposits.

Appendix: The Interest Parity Condition
(3 of 3)

- This notion is summarized in the following equation.

$$i^D = i^F - \frac{E^e_{t+1} - E_t}{E_t}$$

- This equation is known as the interest parity condition.

Copyright