Chapter 4

Exchange Rate Determination

Lecture Outline

Measuring Exchange Rate Movements

Exchange Rate Equilibrium
  Demand for a Currency
  Supply of a Currency for Sale
  Equilibrium

Factors that Influence Exchange Rates
  Relative Inflation Rates
  Relative Interest Rates
  Relative Income Levels
  Government Controls
  Expectations
  Interaction of Factors

Speculating on Anticipated Exchange Rates

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**Chapter Theme**

This chapter provides an overview of the foreign exchange market. It is designed to illustrate (1) why a market exists, and (2) why exchange rates change over time.

**Topics to Stimulate Class Discussion**

1. Why are MNCs affected by exchange rate movements?

2. Why did exchange rates change recently?

3. Show the class a current exchange rate table from a periodical—identify spot and forward quotations. Then show the class an exchange rate table from a date a month ago, or three months ago. The comparison of tables will illustrate how exchange rates change, and how forward rates of the earlier date will differ from the spot rate of the future date for a given currency.

4. Make up several scenarios and ask the class how each scenario would, other things equal, affect the demand for a currency, the supply of a currency for sale, and the equilibrium exchange rate. Then integrate several scenarios together to illustrate that in reality other things are not held constant, which makes the assessment of exchange rate movements more difficult.

**POINT/COUNTER-POINT:**

**How Can Persistently Weak Currencies Be Stabilized?**

**POINT:** The currencies of some Latin American countries depreciate against the U.S. dollar on a consistent basis. The governments of these countries need to attract more capital flows by raising interest rates and making their currencies more attractive. They also need to insure bank deposits so that foreign investors who invest in large bank deposits do not need to worry about default risk. In addition, they could impose capital restrictions on local investors to prevent capital outflows.

**COUNTER-POINT:** Some Latin American countries have had high inflation, which encourages local firms and consumers to purchase products from the U.S. instead. Thus, these countries could relieve the downward pressure on their local currencies by reducing inflation. To reduce inflation, a country may have to reduce economic growth temporarily. These countries should not raise their interest rates in order to attract foreign investment, because they will still not attract funds if investors fear that there will be large capital outflows upon the first threat of continued depreciation.

**WHO IS CORRECT?** Use the Internet to learn more about this issue. Which argument do you support? Offer your own opinion on this issue.

**ANSWER:** There is no perfect solution, but recognize the tradeoffs. The proposal to raise interest rates is not a good solution in the long run, because it will cause higher loan rates, and may slow down the economies in the long run. Effective anti-inflationary policies are needed to prevent further depreciation. However, the elimination of inflation that is caused by a wage-price spiral may cause some pain among the workers in the country, as some form of wage controls may be needed. The government has various means of reducing inflation, but all of them can have adverse effects on the economy in the short run.
Answers to End of Chapter Questions

1. **Factors Affecting Exchange Rates.** What factors affect the future movements in the value of the euro against the dollar?

   **ANSWER:** The euro’s value could change because of the balance of trade, which reflects more U.S. demand for European goods than the European demand for U.S. goods. The capital flows between the U.S. and Europe will also affect the U.S. demand for euros and the supply of euros for sale (to be exchanged for dollars).

2. **Impact of September 11.** The terrorist attacks on the U.S. on September 11, 2001 were expected to weaken U.S. economic conditions, and reduce U.S. interest rates. How do you think the weaker U.S. economic conditions would affect trade flows? How would this have affected the value of the dollar (holding other factors constant)? How do you think the lower U.S. interest rates would have affected the value of the U.S. dollar (holding other factors constant)?

   **ANSWER:** The weak U.S. economy would result in a reduced demand for foreign products, which results in a decline in the demand for foreign currencies, and therefore places downward pressure on currencies relative to the dollar (upward pressure on the dollar’s value). The lower U.S. interest rates should reduce the capital flows to the U.S., which place downward pressure on the value of the dollar.

3. **Speculative Effects on Exchange Rates.** Explain why a public forecast by a respected economist about future interest rates could affect the value of the dollar today. Why do some forecasts by well-respected economists have no impact on today’s value of the dollar?

   **ANSWER:** Interest rate movements affect exchange rates. Speculators can use anticipated interest rate movements to forecast exchange rate movements. They may decide to purchase securities in particular countries because of their expectations about currency movements, since their yield will be affected by changes in a currency’s value. These purchases of securities require an exchange of currencies, which can immediately affect the equilibrium value of exchange rates.

   If a forecast of interest rates by a respected economist was already anticipated by market participants or is not different from investors’ original expectations, an announced forecast does not provide new information. Thus, there would be no reaction by investors to such an announcement, and exchange rates would not be affected.

4. **Impact of Crises.** Why do you think most crises in countries (such as the Asian crisis) cause the local currency to weaken abruptly? Is it because of trade or capital flows?

   **ANSWER:** Capital flows have a larger influence. In general, crises tend to cause investors to expect that there will be less investment in the country in the future and also cause concern that any existing investments will generate poor returns (because of defaults on loans or reduced valuations of stocks). Thus, as investors liquidate their investments and convert the local currency into other currencies to invest elsewhere, downward pressure is placed on the local currency.

5. **Effects of Real Interest Rates.** What is the expected relationship between the relative real interest rates of two countries and the exchange rate of their currencies?
ANSWER: The higher the real interest rate of a country relative to another country, the stronger will be its home currency, other things equal.

6. Factors Affecting Exchange Rates. If the Asian countries experience a decline in economic growth (and experience a decline in inflation and interest rates as a result), how will their currency values (relative to the U.S. dollar) be affected?

ANSWER: A relative decline in Asian economic growth will reduce Asian demand for U.S. products, which places upward pressure on Asian currencies. However, given the change in interest rates, Asian corporations with excess cash may now invest in the U.S. or other countries, thereby increasing the demand for U.S. dollars. Thus, a decline in Asian interest rates will place downward pressure on the value of the Asian currencies. The overall impact depends on the magnitude of the forces just described.

7. Trade Restriction Effects on Exchange Rates. Assume that the Japanese government relaxes its controls on imports by Japanese companies. Other things being equal, how should this affect the (a) U.S. demand for Japanese yen, (b) supply of yen for sale, and (c) equilibrium value of the yen?

ANSWER: Demand for yen should not be affected, supply of yen for sale should increase, and the value of yen should decrease.

8. National Income Effects. Analysts commonly attribute the appreciation of a currency to expectations that economic conditions will strengthen. Yet, this chapter suggests that when other factors are held constant, increased national income could increase imports and cause the local currency to weaken. In reality, other factors are not constant. What other factor is likely to be affected by increased economic growth and could place upward pressure on the value of the local currency?

ANSWER: Interest rates tend to rise in response to a stronger economy, and higher interest rates can place upward pressure on the local currency (as long as there is not offsetting pressure by higher expected inflation).

9. Income Effects on Exchange Rates. Assume that the U.S. income level rises at a much higher rate than does the Canadian income level. Other things being equal, how should this affect the (a) U.S. demand for Canadian dollars, (b) supply of Canadian dollars for sale, and (c) equilibrium value of the Canadian dollar?

ANSWER: Assuming no effect on U.S. interest rates, demand for dollars should increase, supply of dollars for sale may not be affected, and the dollar’s value should increase.

10. Factors Affecting Exchange Rates. In the 1990s, Russia was attempting to import more goods but had little to offer other countries in terms of potential exports. In addition, Russia’s inflation rate was high. Explain the type of pressure that these factors placed on the Russian currency.

ANSWER: The large amount of Russian imports and lack of Russian exports placed downward pressure on the Russian currency. The high inflation rate in Russia also placed downward pressure on the Russian currency.
11. **Interest Rate Effects on Exchange Rates.** Assume U.S. interest rates fall relative to British interest rates. Other things being equal, how should this affect the (a) U.S. demand for British pounds, (b) supply of pounds for sale, and (c) equilibrium value of the pound?

**ANSWER:** Demand for pounds should increase, supply of pounds for sale should decrease, and the pound’s value should increase.

12. **Comovements of Exchange Rates.** Explain why the value of the British pound against the dollar will not always move in tandem with the value of the euro against the dollar.

**ANSWER:** The euro’s value changes in response to the flow of funds between the U.S. and the countries using the euro or their currency. The pound’s value changes in response to the flow of funds between the U.S. and the U.K. [Answer is based on intuition, is not directly from the text.]

13. **Inflation Effects on Exchange Rates.** Assume that the U.S. inflation rate becomes high relative to Canadian inflation. Other things being equal, how should this affect the (a) U.S. demand for Canadian dollars, (b) supply of Canadian dollars for sale, and (c) equilibrium value of the Canadian dollar?

**ANSWER:** Demand for Canadian dollars should increase, supply of Canadian dollars for sale should decrease, and the Canadian dollar’s value should increase.

14. **Trade Deficit Effects on Exchange Rates.** Every month, the U.S. trade deficit figures are announced. Foreign exchange traders often react to this announcement and even attempt to forecast the figures before they are announced.

   a. Why do you think the trade deficit announcement sometimes has such an impact on foreign exchange trading?

   **ANSWER:** The trade deficit announcement may provide a reasonable forecast of future trade deficits and therefore has implications about supply and demand conditions in the foreign exchange market. For example, if the trade deficit was larger than anticipated, and is expected to continue, this implies that the U.S. demand for foreign currencies may be larger than initially anticipated. Thus, the dollar would be expected to weaken. Some speculators may take a position in foreign currencies immediately and could cause an immediate decline in the dollar.

   b. In some periods, foreign exchange traders do not respond to a trade deficit announcement, even when the announced deficit is very large. Offer an explanation for such a lack of response.

   **ANSWER:** If the market correctly anticipated the trade deficit figure, then any news contained in the announcement has already been accounted for in the market. The market should only respond to an announcement about the trade deficit if the announcement contains new information.

15. **Percentage Depreciation.** Assume the spot rate of the British pound is $1.73. The expected spot rate one year from now is assumed to be $1.66. What percentage depreciation does this reflect?

   **ANSWER:** 
   
   \[
   \frac{(1.66 - 1.73)}{1.73} = -4.05% 
   \]

   Expected depreciation of 4.05% percent
16. **Interaction of Exchange Rates.** Assume that there are substantial capital flows among Canada, the U.S., and Japan. If interest rates in Canada decline to a level below the U.S. interest rate, and inflationary expectations remain unchanged, how could this affect the value of the Canadian dollar against the U.S. dollar? How might this decline in Canada’s interest rates possibly affect the value of the Canadian dollar against the Japanese yen?

ANSWER: If interest rates in Canada decline, there may be an increase in capital flows from Canada to the U.S. In addition, U.S. investors may attempt to capitalize on higher U.S. interest rates, while U.S. investors reduce their investments in Canada’s securities. This places downward pressure on the Canadian dollar’s value.

Japanese investors that previously invested in Canada may shift to the U.S. Thus, the reduced flow of funds from Japan would place downward pressure on the Canadian dollar against the Japanese yen.

**Advanced Questions**

17. **Weighing Factors That Affect Exchange Rates.** Assume that the level of capital flows between the U.S. and the country of Zeus is negligible (close to zero) and will continue to be negligible. There is a substantial amount of trade between the U.S. and the country of Zeus. The main import by the U.S. is basic clothing purchased by U.S. retail stores from Zeus, while the main import by Zeus is special computer chips that are only made in the U.S. and are needed by many manufacturers in Zeus. Suddenly, the U.S. government decides to impose a 20% tax on the clothing imports. The Zeus government immediately retaliates by imposing a 20% tax on the computer chip imports. Second, the Zeus government immediately imposes a 60% tax on any interest income that would be earned by Zeus investors if they buy U.S. securities. Third, the Zeus central bank raises its local interest rates so that they are now higher than interest rates in the U.S. Do you think the currency of Zeus (called the zee) will appreciate or depreciate against the dollar as a result of all the government actions described above? Explain.

ANSWER: The zee should depreciate, because Zeus imports of U.S. computer chips will continue, while the U.S. imports of Zeus clothing will decrease. The Zeus tax on capital flows and the central bank actions will not have an effect because the Zeus investors do not buy U.S. securities anyway.

18. **Speculation.** Blue Demon Bank expects that the Mexican peso will depreciate against the dollar from its spot rate of $.15 to $.14 in 10 days. The following interbank lending and borrowing rates exist:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Lending Rate</th>
<th>Borrowing Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. dollar</td>
<td>8.0%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Mexican peso</td>
<td>8.5%</td>
<td>8.7%</td>
</tr>
</tbody>
</table>

Assume that Blue Demon Bank has a borrowing capacity of either $10 million or 70 million pesos in the interbank market, depending on which currency it wants to borrow.

a. How could Blue Demon Bank attempt to capitalize on its expectations without using deposited funds? Estimate the profits that could be generated from this strategy.
ANSWER: Blue Demon Bank can capitalize on its expectations about pesos (MXP) as follows:

1. Borrow MXP70 million

2. Convert the MXP70 million to dollars:

\[
\text{MXP70,000,000} \times 0.15 = \$10,500,000
\]

3. Lend the dollars through the interbank market at 8.0% annualized over a 10-day period. The amount accumulated in 10 days is:

\[
\$10,500,000 \times [1 + (0.08 \times \frac{10}{360})] = \$10,500,000 \times 1.002222 = \$10,523,333
\]

4. Repay the peso loan. The repayment amount on the peso loan is:

\[
\text{MXP70,000,000} \times [1 + (0.087 \times \frac{10}{360})] = 70,000,000 \times 1.002417 = \text{MXP70,169,167}
\]

5. Based on the expected spot rate of 0.14, the amount of dollars needed to repay the peso loan is:

\[
\text{MXP70,169,167} \times 0.14 = \$9,823,683
\]

6. After repaying the loan, Blue Demon Bank will have a speculative profit (if its forecasted exchange rate is accurate) of:

\[
\$10,523,333 - \$9,823,683 = \$699,650
\]

b. Assume all the preceding information with this exception: Blue Demon Bank expects the peso to appreciate from its present spot rate of 0.15 to 0.17 in 30 days. How could it attempt to capitalize on its expectations without using deposited funds? Estimate the profits that could be generated from this strategy.

ANSWER: Blue Demon Bank can capitalize on its expectations as follows:

1. Borrow $10 million

2. Convert the $10 million to pesos (MXP):

\[
\$10,000,000/0.15 = \text{MXP66,666,667}
\]

3. Lend the pesos through the interbank market at 8.5% annualized over a 30-day period. The amount accumulated in 30 days is:

\[
\text{MXP66,666,667} \times [1 + (0.085 \times \frac{30}{360})] = 66,666,667 \times 1.007083 = \text{MXP67,138,889}
\]

4. Repay the dollar loan. The repayment amount on the dollar loan is:

\[
\$10,000,000 \times [1 + (0.083 \times \frac{30}{360})] = \$10,000,000 \times 1.006917 = \$10,069,170
\]
5. Convert the pesos to dollars to repay the loan. The amount of dollars to be received in 30 days (based on the expected spot rate of $0.17) is:

\[ \text{MXP}67,138,889 \times 0.17 = \$11,413,611 \]

6. The profits are determined by estimating the dollars available after repaying the loan:

\[ \$11,413,611 - \$10,069,170 = \$1,344,441 \]

19. Assessing the Euro’s Potential Movements. You reside in the U.S. and are planning to make a one-year investment in Germany during the next year. Since the investment is denominated in euros, you want to forecast how the euro’s value may change against the dollar over the one-year period. You expect that Germany will experience an inflation rate of 1% during the next year, while all other European countries will experience an inflation rate of 8% over the next year. You expect that the U.S. will experience an annual inflation rate of 2% during the next year. You believe that the primary factor that affects any exchange rate is the inflation rate. Based on the information provided in this question, will the euro appreciate, depreciate, or stay at about the same level against the dollar over the next year? Explain.

ANSWER: The euro should depreciate because most countries in the Eurozone are presumed to have high inflation.

20. Aggregate Effects on Exchange Rates. Assume that the United States invests heavily in government and corporate securities of Country K. In addition, residents of Country K invest heavily in the United States. Approximately $10 billion worth of investment transactions occur between these two countries each year. The total dollar value of trade transactions per year is about $8 million. This information is expected to also hold in the future.

Because your firm exports goods to Country K, your job as international cash manager requires you to forecast the value of Country K’s currency (the “krank”) with respect to the dollar. Explain how each of the following conditions will affect the value of the krank, holding other things equal. Then, aggregate all of these impacts to develop an overall forecast of the krank’s movement against the dollar.

a. U.S. inflation has suddenly increased substantially, while Country K’s inflation remains low.

ANSWER: Increased U.S. demand for the krank. Decreased supply of kranks for sale. Upward pressure in the krank’s value.

b. U.S. interest rates have increased substantially, while Country K’s interest rates remain low. Investors of both countries are attracted to high interest rates.

ANSWER: Decreased U.S. demand for the krank. Increased supply of kranks for sale. Downward pressure on the krank’s value.

c. The U.S. income level increased substantially, while Country K’s income level has remained unchanged.

ANSWER: Increased U.S. demand for the krank. Upward pressure on the krank’s value.
d. The U.S. is expected to impose a small tariff on goods imported from Country K.

ANSWER: The tariff will cause a decrease in the United States’ desire for Country K’s goods, and will therefore reduce the demand for kranks for sale. Downward pressure on the krank’s value.

e. Combine all expected impacts to develop an overall forecast.

ANSWER: Two of the scenarios described above place upward pressure on the value of the krank. However, these scenarios are related to trade, and trade flows are relatively minor between the U.S. and Country K. The interest rate scenario places downward pressure on the krank’s value. Since the interest rates affect capital flows and capital flows dominate trade flows between the U.S. and Country K, the interest rate scenario should overwhelm all other scenarios. Thus, when considering the importance of implications of all scenarios, the krank is expected to depreciate.

21. Relative Importance of Factors Affecting Exchange Rate Risk. Assume that the level of capital flows between the U.S. and the country of Krendo is negligible (close to zero) and will continue to be negligible. There is a substantial amount of trade between the U.S. and the country of Krendo and no capital flows. How will high inflation and high interest rates affect the value of the kren (Krendo’s currency)? Explain.

ANSWER: The inflation effect will be stronger than the interest rate effect because inflation affects trade flows. The high inflation should cause downward pressure on the kren.

22. Factors Affecting Exchange Rates. Mexico tends to have much higher inflation than the United States and also much higher interest rates than the United States. Inflation and interest rates are much more volatile in Mexico than in industrialized countries. The value of the Mexican peso is typically more volatile than the currencies of industrialized countries from a U.S. perspective; it has typically depreciated from one year to the next, but the degree of depreciation has varied substantially. The bid/ask spread tends to be wider for the peso than for currencies of industrialized countries.

a. Identify the most obvious economic reason for the persistent depreciation of the peso.

ANSWER: The high inflation in Mexico places continual downward pressure on the value of the peso.

b. High interest rates are commonly expected to strengthen a country’s currency because they can encourage foreign investment in securities in that country, which results in the exchange of other currencies for that currency. Yet, the peso’s value has declined against the dollar over most years even though Mexican interest rates are typically much higher than U.S. interest rates. Thus, it appears that the high Mexican interest rates do not attract substantial U.S. investment in Mexico’s securities. Why do you think U.S. investors do not try to capitalize on the high interest rates in Mexico?

ANSWER: The high interest rates in Mexico result from expectations of high inflation. That is, the real interest rate in Mexico may not be any higher than the U.S. real interest rate. Given the high inflationary expectations, U.S. investors recognize the potential weakness of the peso, which could more than offset the high interest rate (when they convert the pesos back to dollars at the end of the investment period). Therefore, the high Mexican interest rates do not encourage U.S. investment in Mexican securities, and do not help to strengthen the value of the peso.
c. Why do you think the bid/ask spread is higher for pesos than for currencies of industrialized countries? How does this affect a U.S. firm that does substantial business in Mexico?

ANSWER: The bid/ask spread is wider because the banks that provide foreign exchange services are subject to more risk when they maintain currencies such as the peso that could decline abruptly at any time. A wider bid/ask spread adversely affects the U.S. firm that does business in Mexico because it increases the transactions costs associated with conversion of dollars to pesos, or pesos to dollars.

23. Speculation. Diamond Bank expects that the Singapore dollar will depreciate against the dollar from its spot rate of $.43 to $.42 in 60 days. The following interbank lending and borrowing rates exist:

<table>
<thead>
<tr>
<th>Lending Rate</th>
<th>Borrowing Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. dollar</td>
<td>7.0%</td>
</tr>
<tr>
<td>Singapore dollar</td>
<td>22.0%</td>
</tr>
</tbody>
</table>

Diamond Bank considers borrowing 10 million Singapore dollars in the interbank market and investing the funds in dollars for 60 days. Estimate the profits (or losses) that could be earned from this strategy. Should Diamond Bank pursue this strategy?

ANSWER:
Borrow S$10,000,000 and convert to U.S. $:
S$10,000,000 × $.43 = $4,300,000

Invest funds for 60 days. The rate earned in the U.S. for 60 days is:
7% × (60/360) = 1.17%

Total amount accumulated in 60 days:
$4,300,000 × (1 + .0117) = $4,350,310

Convert U.S. $ back to S$ in 60 days:
$4,350,310/$.42 = S$10,357,881

The rate to be paid on loan is:
.24 × (60/360) = .04

Amount owed on S$ loan is:
S$10,000,000 × (1 + .04) = S$10,400,000

This strategy results in a loss:
S$10,357,881 – S$10,400,000 = –S$42,119

Diamond Bank should not pursue this strategy.

24. Measuring Effects on Exchange Rates. Tarheel Co. plans to determine how changes in U.S. and Mexican real interest rates will affect the value of the U.S. dollar. (See Appendix C.)

a. Describe a regression model that could be used to achieve this purpose. Also explain the expected sign of the regression coefficient.
ANSWER: Various models are possible. One model would be:

\[
\% \text{ Change} = a_0 + a_1 (r_{\text{U.S.}} - r_{M}) + u
\]

in peso

Where

\( r_{\text{U.S.}} \) = real interest rate in the U.S.
\( r_{M} \) = real interest rate in Mexico
\( a_0 \) = intercept
\( a_1 \) = regression coefficient measuring the relationship between the real interest rate differential and the percentage change in the peso’s value
\( u \) = error term

Based on the model above, the regression coefficient is expected to have a negative sign. A relatively high real interest rate differential would likely cause a weaker peso value, other things being equal. An appropriate model would also include other independent variables that may influence the percentage change in the peso’s value.

b. If Tarheel Co. thinks that the existence of a quota in particular historical periods may have affected exchange rates, how might this be accounted for in the regression model?

ANSWER: A dummy variable could be included in the model, assigned a value of one for periods when a quota existed and a value of zero when it did not exist. This answer requires some creative thinking, as it is not drawn directly from the text.

**Solution to Continuing Case Problem: Blades, Inc.**

1. How are percentage changes in a currency’s value measured? Illustrate your answer numerically by assuming a change in the Thai baht’s value from a value of $0.022 to $0.026.

ANSWER: The percentage change in a currency’s value is measured as follows:

\[
\% \Delta = \frac{S - S_{t-1}}{S_{t-1}}
\]

where \( S \) denotes the spot rate, and \( S_{t-1} \) denotes the spot rate as of the earlier date. A positive percentage change represents appreciation of the foreign currency, while a negative percentage change represents depreciation.

In the example provided, the percentage change in the Thai baht would be:
\[
\% \Delta = \frac{S - S_{t-1}}{S_{t-1}} = \frac{0.026 - 0.022}{0.022} = 18.18\%
\]

That is, the baht would be expected to appreciate by 18.18%.

2. What are the basic factors that determine the value of a currency? In equilibrium, what is the relationship between these factors?

**ANSWER:** The basic factors that determine the value of a currency are the supply of the currency for sale and the demand for the currency. A high level of supply of a currency generally decreases the currency’s value, while a high level of demand for a currency increases its value. In equilibrium, the supply of the currency equals the demand for the currency.

3. How might the relatively high levels of inflation and interest rates affect the baht’s value? (Assume a constant level of U.S. inflation and interest rates.)

**ANSWER:** The baht would be affected both by inflation levels and interest rates in Thailand relative to levels of these variables in the U.S. A high level of inflation tends to result in currency depreciation, as it would increase the Thai demand for U.S. goods, causing an increase in the Thai demand for dollars. Furthermore, a relatively high level of Thai inflation would reduce the U.S. demand for Thai goods, causing an increase in the supply of baht for sale.

Conversely, the high level of interest rates in Thailand may cause appreciation of the baht relative to the dollar. A relatively high level of interest rates in Thailand would have rendered investments there more attractive for U.S. investors, causing an increase in the demand for baht. Furthermore, U.S. securities would have been less attractive to Thai investors, causing an increase in the supply of dollars for sale. However, investors might be unwilling to invest in baht-denominated securities if they are concerned about the potential depreciation of the baht that could result from Thailand’s inflation.

4. How do you think the loss of confidence in the Thai baht, evidenced by the withdrawal of funds from Thailand, will affect the baht’s value? Would Blades be affected by the change in value, given the primary Thai customer’s commitment?

**ANSWER:** In general, depreciation in the foreign currency results when investors liquidate their investments in the foreign currency, increasing the supply of its currency for sale. Blades would probably be affected by the change in value, as the sales are denominated in baht. Thus, the depreciation in the baht would have caused a conversion of the baht revenue into fewer U.S. dollars.

5. Assume that Thailand’s central bank wishes to prevent a withdrawal of funds from its country in order to prevent further changes in the currency’s value. How could it accomplish this objective using interest rates?

**ANSWER:** If Thailand’s central bank wishes to prevent further depreciation in the baht’s value, it would attempt to increase the level of interest rates in Thailand. In turn, this would increase the demand for Thai baht by U.S. investors, as Thai securities would now seem more attractive. This would place upward pressure on the currency’s value. However, the high interest rates could reduce local borrowing and spending.
6. Construct a spreadsheet illustrating the steps Blades’ treasurer would need to follow in order to speculate on expected movements in the baht’s value over the next 30 days. Also show the speculative profit (in dollars) resulting from each scenario. Use both of Ben Holt’s examples to illustrate possible speculation. Assume that Blades can borrow either $10 million or the baht equivalent of this amount. Furthermore, assume that the following short-term interest rates (annualized) are available to Blades:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Lending Rate</th>
<th>Borrowing Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dollars</td>
<td>8.10%</td>
<td>8.20%</td>
</tr>
<tr>
<td>Thai baht</td>
<td>14.80%</td>
<td>15.40%</td>
</tr>
</tbody>
</table>

**ANSWER:** (See spreadsheet attached.)

**Depreciation of the Baht from $0.022 to $0.020**

1. Borrow Thai baht ($10,000,000/0.022). 454,545,454.50
2. Convert the Thai baht to dollars ($454,545,454.50 million × $0.022). 10,000,000.00
3. Lend the dollars at 8.10% annualized, which represents a 0.68% return over the 30-day period [computed as 8.10% × (30/360)]. After 30 days, Blades would receive ($10,000,000 × (1 + .0068)). 10,068,000.00
4. Use the proceeds of the dollar loan repayment (on Day 30) to repay the baht borrowed. The annual interest on the baht borrowed is 15.40%, or 1.28% over the 30-day period [computed as 15.40% × (30/360)]. The total baht amount necessary to repay the loan is therefore (454,545,454.50 × (1 + .0128)). 460,363,636.40
5. Number of dollars necessary to repay baht loan ($THB460,363,636.40 × $0.02). 9,207,272.73
6. Speculative profit ($10,068,000 – $9,207,272.73). 860,727.27

**Appreciation of the Baht from $0.022 to $0.025**

1. Borrow dollars. 10,000,000.00
2. Convert the dollars to Thai baht ($10 million/$0.022). 454,545,454.50
3. Lend the baht at 14.80% annualized, which represents a 1.23% return over the 30-day period [computed as 14.80% × (30/360)]. After 30 days, Blades would receive (THB454,545,454.50 × (1 + .0123)). 460,136,363.60
4. Use the proceeds of the baht loan repayment (on Day 30) to repay the dollars borrowed. The annual interest on the dollars borrowed is 8.20%, or 0.68% over the 30-day period [computed as 8.20% × (30/360)]. The total dollar amount necessary to repay the loan is therefore ($10,000,000 × (1 + .0068)). 10,068,000.00
5. Number of baht necessary to repay dollar loan ($10,068,000.00/$0.025). 402,720,000.00
6. Speculative profit (THB460,136,363.60 – THB402,720,000.00). 57,416,363.60

7. Dollar equivalent of speculative profit (THB57,416,363.60 × $0.025). 1,435,409.09

**Solution to Supplemental Case: Bruin Aircraft, Inc.**

Some of the more commonly cited factors are listed as follows. This exercise forces students to recognize how factors influence the value of each currency.

<table>
<thead>
<tr>
<th>Factors that Can Affect the Value of the Pound</th>
<th>Check (X) Here if the Factor Influences the U.S. Demand for Pounds</th>
<th>Check (X) Here if the Factor Influences the Supply of Pounds for Sale</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i_{U.S.} - i_{U.K.})</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>(\text{INF}<em>{U.S.} - \text{INF}</em>{U.K.})</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Income Growth Differential</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>New U.S. Quotas on Imports from U.K.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>U.S. Tariffs on Imports from U.K.</td>
<td>X</td>
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</tr>
<tr>
<td>Government Intervention to Purchase $ with Pounds</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Government Intervention to Purchase Pounds with $</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Government Tax to be Imposed on Interest Income Earned by U.K. Investors from Future U.S. Investments</td>
<td></td>
<td>X</td>
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<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Small Business Dilemma

Assessment by the Sports Exports Company of Factors That Affect the British Pound’s Value

1. Given Jim’s expectations, forecast whether the pound will appreciate or depreciate against the dollar over time.

   ANSWER: The pound should depreciate because the British inflation is expected to be higher than the U.S. inflation. This could cause a shift in trade flows that would place downward pressure on the pound’s value. The interest rate movements of both countries are expected to be similar for both countries. Therefore, there should not be any adjustment in the capital flows between the two countries.

2. Given Jim’s expectations, will the Sports Exports Company be favorably or unfavorably affected by the future changes in the value of the pound?

   ANSWER: The Sports Exports Company will be unfavorably affected, because depreciation in the British pound will cause the pound receivables to convert into fewer dollars.