

# Chapter 8

## Managing Transaction Risks

# Managing Transaction Risks

- Sales Contract's Currency of Quote
- The System of Currency Exchange Rates
- Theories of Exchange Rate Determinations
- Exchange Rate Forecasting
- Managing Transaction Exposure
- International Banking Institutions
- Currency of Payment as a Marketing Tool

# Sales Contract Elements

- Terms of Trade

Incoterms® rules determine the costs the exporter should pay, the costs the importer should pay, and the point at which the responsibility for the cargo shifts from one to the other.

- Terms of Sale

The terms of sale determine the method of payment and the intermediaries involved in the payment and the handling of the documents from the importer to the exporter.

- Currency

The currency in which the transaction is undertaken: it can be the exporter's country's currency, the importer's country's currency, or a third country's currency.

# Sales Contract's Currency

Two factors should be considered when choosing a currency for the sales contract:

- Risk of Currency Fluctuation

A speculative risk: the risk could result in positive or negative outcomes, depending on which way the exchange rate fluctuates.

- Risk of Currency Convertibility

A pure risk: a payment received in a foreign currency cannot be converted into the exporter's currency.

# Currency Convertibility

Hard  
Currency

- A currency that can easily be converted to another currency

Convertible  
Currency

- A currency that can be converted to another currency

Soft Currency

- A currency that cannot be easily converted into another currency

Inconvertible  
Currency

- A currency that cannot be converted into another currency

# Sales Currency Choices

An exporter and an importer can agree on three possible alternatives when choosing the currency in which a sales contract will be paid:

- The exporter's country's currency
- The importer's country's currency
- A third country's currency

# Exporter's Currency

The exporter and the importer agree that the currency of the transaction will be the currency of the exporter's country.

The exchange rate risk is nil for the exporter; all of the risks are borne by the importer, and it has to determine how it will handle its transaction risks.

In addition, the possible convertibility problems of the currency are to be resolved by the importer.

# Importer's Currency

The exporter and the importer agree that the currency of the transaction will be the currency of the importer's country.

The exchange rate risk is nil for the importer; all of the risks are borne by the exporter, and it has to determine how it will handle its transaction risks.

In addition, the possible convertibility problems of the currency are to be resolved by the exporter.

# Third Country's Currency

The exporter and the importer can agree that the currency of the transaction will be a third country's currency.

The exporter and the importer each bear the risks of currency fluctuation of their respective country's currency against the currency of the transaction.

In some cases, the exporter and the importer choose an artificial currency (a non-circulating currency) for the transaction, the Special Drawing Rights (SDRs) of the International Monetary Fund. International liability conventions are expressed in SDRs.

# The Special Status of the Euro

The euro was first created as an artificial currency.

In January 2002, it became a circulating currency. When new countries join the euro zone, their legacy currency's value is translated using a fixed currency exchange rate with the euro.

The stated goal of the European Union is to eventually transform the euro into a challenger to the U.S. dollar as the preferred third-country currency.

Other currencies used as a third-country's currency are the Japanese yen, the Swiss Franc, and the British pound.



The European Currency since 2001, the Euro  
Source: Billion Photos



The euro/US dollar exchange rate since 2001 (the value of one euro in US dollars)

Source: Federal Reserve System

# Exchange Rate Quotations

- Direct Quotation

The value of the foreign currency expressed in units of the domestic currency.

For example, the direct quotation for the euro in U.S. dollar terms was \$1.1844/€, on August 14, 2020. This is the preferred way of quoting the euro, the British pound, and the Australian dollar.

- Indirect Quotation

The value of the domestic currency expressed in units of foreign currency.

For example, the indirect quotation for the yen against the U.S. dollar was ¥106.60/\$ on August 14, 2020. Most currencies are expressed as indirect quotations: the Canadian dollar, the Swiss franc, and the Japanese yen, for example.

# Exchange Rate Quotations

There is an inverse relationship between the two methods of quoting a currency exchange rate between two currencies:

$$\textit{Indirect Quotation} = \frac{1}{\textit{Direct Quotation}}$$

# Types of Exchange Rates

The exchange rate between two currencies can be quoted in a number of ways:

- Spot Exchange Rate
- Forward Exchange Rate
- Currency Futures
- Currency Options

# Spot Exchange Rate

The spot exchange rate is the exchange rate for a foreign currency for immediate delivery.

This “immediate delivery” is somewhat subject to interpretations that vary from country to country and, within one country, from one currency to another; however, it is (roughly) the price of a foreign currency to be delivered within 48 hours.

This is the most-commonly used exchange rate, and it can be found in just about any periodical (*The Wall Street Journal*, *The New York Times*, *Financial Times*) or financial website.

# Forward Exchange Rate

The forward exchange rate is the exchange rate for a foreign currency to be delivered any number of days in the future.

The party entering into a forward currency contract with a bank is committing to purchasing one currency with another at a certain price on a certain date.

The published forward exchange rate quotes are for 30 days, 90 days, 180 days, or one year in the future.

Forward rates are only published in financial newspapers like *The Wall Street Journal* or *Financial Times*.

# Currency Futures

Currencies are also traded as commodities, in the futures' market.

Futures are contracts between a seller (called the "short") and a buyer (called the "long").

In the United States, currency futures are limited to fixed quantities (100,000 Australian dollars, 62,500 British pounds, 100,000 Canadian dollars, 125,000 euros, 5,000,000 Japanese yen, and 500,000 Mexican pesos) and to fixed settlement dates (the third Wednesday of the months of March, June, September, and December).

Because of the limits placed on amounts and dates, futures are rarely used in international trade transactions.

# Currency Options

Currency options is a method used to protect against fluctuations in the value of a currency in the future.

A firm can purchase options to buy, or options to sell, a particular currency at a particular price on a given date. Unlike in the futures market, options can be for any amount, and at any date.

An option is the right to buy (or sell) a currency, at a pre-determined price (called the strike price), but it is not the obligation to buy or sell at that price. The owner of the option is the one who decides whether to exercise that option.

# Call Options

A call option is an option with which a firm agrees to buy a particular currency at a particular price on a given date.

Suppose a U.S. firm purchases an option to buy euros for \$1.35/€ on 01/01/202\_. It pays U.S. \$5,000 for that option. Two scenarios can take place on 01/01/202\_:

- If the spot exchange rate is lower than \$1.35/€, the firm will purchase the euros on the spot market, and forgo the option.
- If the spot exchange rate is higher than \$1.35/€, the firm will exercise the option, and pay \$1.35/€ for the euros.

# Put Options

A put option is an option with which a firm agrees to sell a particular currency at a particular price on a given date.

Suppose a U.S. firm purchases an option to sell British pounds for \$1.25/£ on 03/01/202\_. It pays U.S. \$2,000 for that option. Two scenarios can take place on 03/01/202\_:

- If the spot exchange rate is higher than \$1.25/£, the firm will sell the pounds on the spot market, and forgo the option.
- If the spot exchange rate is lower than \$1.25/£, the firm will exercise the option, and obtain \$1.25/£ for its pounds.

# Types of Currencies (I)

- Floating Currency

A currency whose value is determined by market forces. The exchange rate of a floating currency varies frequently.

- Pegged Currency

A currency whose value is determined by a fixed exchange rate with another, more widely traded currency. For example, the value of the

- Artificial Currency

A currency that is not in circulation. As of 2021, there is only one artificial currency, the Special Drawing Rights of the International Monetary Fund.

# Types of Currencies (II)

- Currency Bloc

A group of currencies whose values fluctuate in parallel fashion. The currencies within the group have a fixed exchange rate, but their exchange rates with currencies outside of the group float.

Before the introduction of the euro, the European currencies traded as a currency bloc. Several currencies in Europe are pegged to the euro and act as a currency bloc.

- Dollarization

A phenomenon where other countries decide to adopt the U.S. dollar as their circulating currencies. Panama and Ecuador utilize the dollar as their domestic currency.

# Exchange Rate Determination

The exchange rate between two currencies fluctuates due to a number of different relationships:

- Purchasing Power Parity
- Fisher Effect
- International Fisher Effect
- Interest Rate Parity
- Forward Exchange Rate

# Purchasing Power Parity

Purchasing Power Parity is an economic theory that holds that exchange rates should reflect the price differences of each and every product between countries.

The idea is that exchange rates should fluctuate in such a way as to “equalize” the price differences of similar products between countries, so that a set amount of currency would purchase the same goods in any country of the world.

# The Big Mac Index

Country	Local Currency	U.S. \$ Equivalent	Percentage of U.S. price
United States	USD 5.71	\$5.71	100%
Brazil	BRL 20.90	\$3.91	69%
Great Britain	GBP 3.39	\$4.28	75%
Euro Area	EUR 4.21	\$4.79	84%
Japan	JPY 390	\$3.64	64%
Mexico	MXN 50.00	\$2.23	39%
Philippines	PHP 142	\$2.87	50%
Russia	RUB 135	\$1.91	33%
South Africa	ZAR 31.00	\$1.86	33%
Sweden	SEK 52.60	\$5.76	101%
Switzerland	CHF 6.50	\$6.91	121%
Ukraine	UAH 59.00	\$2.17	38%

The Big Max Index (July 2020).

Source: The Economist

# Fisher Effect

The Fisher effect is an economic theory that holds that the interest rates that businesses and individuals pay to borrow money should be uniform throughout the world and that the nominal interest rates that they actually pay in a given country are composed of this common (“real”) interest rate and the inflation rate of that country.

Therefore, if a country has a higher inflation rate than others, its nominal interest rates will also be higher:

$$\text{Nominal interest rate} = \text{real interest rate} + \text{inflation rate}$$

# International Fisher Effect

The International Fisher effect is an economic theory that holds that the spot exchange rates between two countries' currencies should change in function of the differences between these two countries' nominal interest rates.

If a country has a higher nominal interest rate, it means (based on the Fisher effect), that it has a higher inflation rate.

Therefore, if a country has a higher nominal interest rate than other countries, the value of that country's currency will decrease over time.

# Interest Rate Parity

Interest Rate Parity is an economic theory that holds that the forward exchange rate between two currencies should reflect the differences in the interest rates in those two countries.

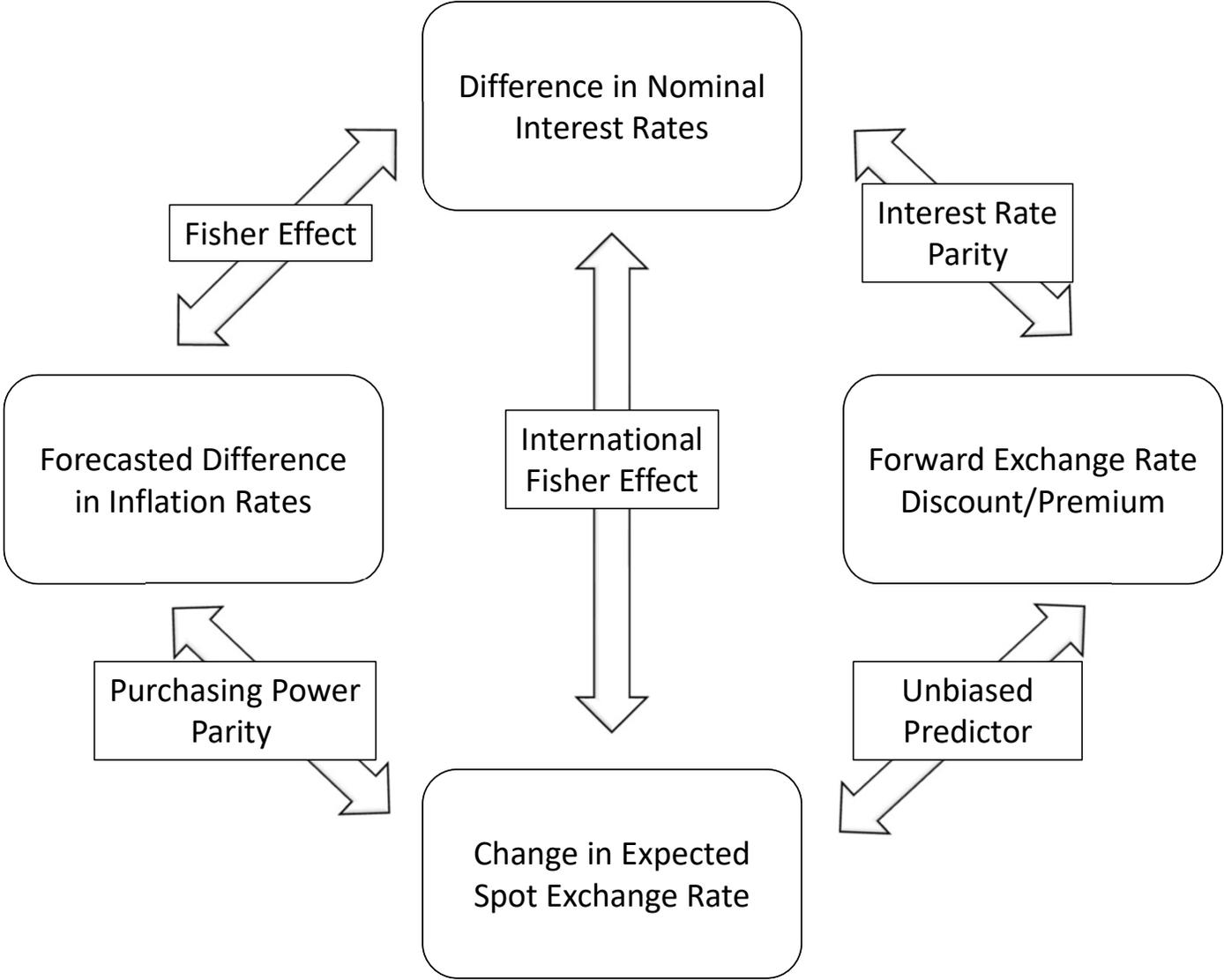
If a country has a higher interest rate than others, speculators would borrow in other countries and invest these funds in the high-interest country. Since this would create a demand for the high-interest country's currency, the value of that country's currency would go up, quickly negating the higher interest rate.

# Forward Exchange Rates

Forward exchange rates theory is an economic theory that holds that forward exchange rates for currencies are good predictors of the future spot exchange rates of that currency.

It is self-evident that speculators forecast, from all of the information available on interest rates, inflation rates and other economic factors, what the future value of a currency will be. These forecasts are reflected in the forward exchange rates for that currency.

In essence, the forward exchange rate of a currency reflects the collective consensus of currency forecasters and speculators.



# Exchange Rate Forecasting (I)

- Technical Forecasting

A method of forecasting exchange rates based upon time-series analysis. Future movements in the value of a currency are “mathematically” linked to its past movements.

- Fundamental Forecasting

A mathematical model that uses the exchange rate of a specific currency as the dependent variable and the expected inflation rates, nominal interest rates, forward interest rates, and real interest rates as the independent variables.

# Exchange Rate Forecasting (II)

- Market-based Forecasting

A method of forecasting based on the premise that “the market knows best” and that, therefore, the forward exchange rate of a given currency is the best unbiased predictor of the future spot rate of a particular currency.

# Managing Transaction Exposure

Transaction exposure is the risk represented by the fluctuation in exchange rates between the time at which two companies enter in an international contract and the time at which that contract is paid.

These risks can be retained by the firm or be “hedged.”

Hedging is a term used to represent several techniques designed to reduce the uncertainty of exchange rate fluctuations.

By hedging, a firm does not eliminate its transaction exposure, it only manages it.

# Risk Retention

Risk retention strategy is a risk management strategy in which a company elects to retain a certain type of risk and decides not to insure that risk.

Three types of companies typically choose this option:

- Very large traders
- Exporters or importers that have little exposure
- Firms that do not evaluate the international currency transaction risks clearly; they have no policy, or have a management that is not well versed in the intricacies of international trade.

# Hedging Strategy

There are two possible strategies for a firm with transaction exposures:

- Determine what its decision should be on an invoice-by-invoice basis, depending on the currency at stake, the amount of the invoice, and its forecast of currency's exchange rate.
- Set a policy that the firm follows for all of its foreign currency receivables and payables.

# Hedging Techniques

- Forward-Market Hedging  
A technique that utilizes the forward market for currencies to manage a firm's transaction exposure.
- Money-Market Hedging  
A technique that utilizes the banking system in the foreign country to manage a firm's transaction exposure.
- Options-Market Hedging  
A technique that utilizes the options market for currencies to manage a firm's transaction exposure.

# Forward Market Hedging (for an Exporter)

A U.S. company is selling a product to an Italian firm on March 1, 202<sub>1</sub>; the invoice is payable in euros on June 2, 202<sub>1</sub> (90-day credit). The amount that the firm would like to collect is \$200,000.

If it used the spot exchange rate on March 1, 202<sub>1</sub> (U.S. \$1.2661/€), the firm would bill the customer for € 157,965.00.

However, as of March 1, 202<sub>1</sub>, the 90-day forward exchange rate for the euro is U.S. \$1.2530/€ indicating that the market is expecting a decrease in the value of the euro against the U.S. dollar.

The firm therefore decides to invoice its customer for:

$$\$200,000/1.2530 = \text{€ } 159,617.00.$$

# Forward Market Hedging (for an Exporter)

A forward market hedge, in this case, would consist of the U.S. firm entering a forward contract with a bank, in which it would promise to sell € 159,617.00 to the bank on June 2, 202\_, at the predetermined (forward) exchange rate of U.S. \$1.2530/€.

On that date, the U.S. company presents €159,617.00 to the bank and collects the U.S. \$200,000 it wanted to collect.

The U.S. firm is unconcerned about the spot exchange rate of the euro on June 2, 202\_.

# Forward Market Hedging (for an Importer)

A German firm is purchasing a machine from a British firm for £250,000.00. The machine is delivered on April 4, 202<sub>1</sub>, and payment is expected (in pounds) on July 6, 202<sub>1</sub>.

On April 4, 202<sub>1</sub>, this amount was equivalent to € 272,200.00 because the spot exchange rate between the U.K. pound and the euro was € 1.1008/£.

However, on April 4, 202<sub>1</sub>, the pound was expected to rise in value, and the 90-day forward exchange rate with the euro was € 1.1220/£.

# Forward Market Hedging (for an Importer)

A forward market hedge in this case would consist of the German firm entering into a contract with a bank from which it promises to purchase £250,000 on July 6, 202<sub>1</sub>, at a predetermined (forward) exchange rate of € 1.1220/£.

On that date, the German firm hands € 280,500.00 to the bank and obtains in exchange the £250,000 that it needs to pay its British supplier.

The German firm could determine on April 4, 202<sub>1</sub>, exactly how much it had to pay for the machine and is unconcerned about the spot exchange rate of the British pound on July 6, 202<sub>1</sub>.

# Money Market Hedging (for an Exporter)

A firm located in Switzerland sells a piece of machinery to a firm located in Japan for the equivalent of SwF 150,000.00. It bills the customer in Japanese yen.

The transaction takes place on January 16, 202\_, with a payment date of March 15, 202\_. The transaction amount is ¥12,115,545.00, because the exchange rate on January 16, 202\_, is ¥80.7703/SwF.

The Swiss firm can use a money market hedge, by borrowing from a Japanese bank the present value (as of January 16, 202\_) of ¥12,115,545.00 on March 15, 202\_.

# Money Market Hedging (for an Exporter)

If the commercial lending rate in Japan is 3 percent per annum (about 0.5 percent for two months), the amount the Swiss firm borrows is

$$¥(1-0.005) \times 12,115,545.00 = 12,054,967.28.$$

On March 15, 202\_, the Swiss firm pays the bank back, using the payment of ¥12,115,545.00 made by its customer.

# Money Market Hedging (for an Exporter)

On January 16, 202\_, the Swiss firm would exchange the proceeds from the loan (¥12,054,967.28) for SwF 149,250.00 (the exchange rate on January 16, 202\_ is ¥80.7703/SwF).

This amount is roughly equal to the payment of SwF 150,000.00 it had expected, decreased by the cost of getting the money two months earlier.

The Swiss firm is unconcerned about the spot exchange rate of the yen on March 15, 202\_.

# Money Market Hedging (for an Importer)

On May 2, 202<sub>1</sub>, a firm located in Denmark purchases raw materials from a firm located in Australia, which asks to be paid in Australian dollars. The amount of the invoice is A\$20,000,000, payable on November 1, 202<sub>1</sub>.

The Danish firm can eliminate its exposure to exchange rate fluctuations by using a money market hedge.

It can invest a sum in an Australian bank that will mature to A\$20,000,000 on November 1, 202<sub>1</sub>.

# Money Market Hedging (for an Importer)

Assuming an annual interest rate of 4 percent paid on deposits in Australia (or 2 percent for six months), the Danish firm would have to invest  $A\$20,000,000 / (1 + 0.02) = 19,607,845$  krone to have enough to cover its obligation on November 1, 202<sub>1</sub>.

On May 2, 202<sub>1</sub>, the Danish firm then converts DKr 80,288,498.36 into Australian dollars (the exchange rate is A\$0.2444/DKr on May 2, 202<sub>1</sub>).

The Danish firm is unconcerned about the spot exchange rate of the Australian dollar on November 1, 202<sub>1</sub>.

# Options Market Hedging (for an Exporter)

A company located in the United States sells a large piece of equipment to a firm located in the United Kingdom and agrees to be paid in pounds. The invoice, for £1,000,000, is issued on December 10, 202<sub>1</sub>, but is not payable until March 10, 202<sub>2</sub>.

The exporting firm can minimize its currency fluctuation risk by using an option hedge; on December 10, 202<sub>1</sub>, it purchases a put option—the right to sell £1,000,000 on March 10, 202<sub>2</sub>—at an agreed-upon exchange rate of U.S. \$1.3615/£.

# Options Market Hedging (for an Exporter)

If the spot exchange rate on March 10, 202\_, is lower than U.S. \$1.3615/£, then the American firm will exercise its option and sell the currency at that price.

If the spot rate is higher than U.S. \$1.3615/£, the firm will let its option lapse and will sell the currency it received at the spot market rate.

# Options Market Hedging (for an Exporter)

Because the exchange rate on March 10, 202\_, is U.S. \$1.3842/£, the firm sells its pounds without using its option.

The firm still incurs the cost of the option, which is approximately 1.25 percent of the contract amount, or about U.S. \$17,018.75; however, this cost is offset by the fact that it sells its British pounds for U.S. \$22,700 more than it had anticipated.

The net profits on this financial transaction are U.S. \$5,681.25.

# Options Market Hedging (for an Importer)

A company located in Spain purchases a plant located in Canada. The contract is signed on June 28, 202<sub>1</sub>, and the firm has agreed to make three installment payments of Can\$1,000,000 each on December 28, 202<sub>1</sub>, March 28, 202<sub>2</sub>, and June 28, 202<sub>2</sub> (6 months, 9 months, and 12 months after purchase).

In order to minimize its currency risks, the Spanish firm can use an option hedge by purchasing call options—the right to buy Can\$1,000,000—at exchange rates of:

- Can\$1.6522/ € for December 28, 202<sub>1</sub>
- Can\$1.7081/ € for March 28, 202<sub>2</sub>, and
- Can\$1.7452/ € for June 28, 202<sub>2</sub>.

# Options Market Hedging (for an Importer)

Because the spot exchange rate for the Canadian dollar was Can\$1.7316/ € on December 28, 202\_, the Spanish firm did not exercise its option, purchased the Canadian dollars on the spot market, and sent them to the Canadian supplier.

On March 28, 202\_, the spot market was Can\$1.6488/ €, and therefore the Spanish firm exercised its option and purchased the Canadian dollars at Can\$1.7081/ € (the strike price of its option), because it was a more favorable exchange rate than the spot market.

# Options Market Hedging (for an Importer)

As for its future June 28, 202\_ payment, the firm still has the possibility of saving money if the spot rate is more favorable than its option rate; if not, it will exercise its option.

The cost of these successive options for the Spanish firm was approximately 1.25 percent, 1.5 percent, and 2 percent of the contract amounts for December, March, and June, respectively, for a total of approximately € 29,000.00.

However, the costs were reduced by the fact that the firm saved €27,753.00 in December by not having to spend as many euros as it had anticipated.

# International Banking Institutions

- Central National Banks

Every country in the world has a Central Bank, or some institution that acts as one. They are responsible for the creation and control of the monetary supply, and they function as a check clearinghouse.

- International Monetary Fund

The IMF was created to oversee the fixed exchange rate system created by the Bretton-Woods Conference. Today it helps countries manage their balance of payments and lends them money when they experience difficulties with their balance of payments.

# International Banking Institutions

- Bank for International Settlements

The BIS was created after World War I to manage Germany's war reparation payments. Since then, it has evolved into a major international institution, providing support to Central Banks, and acting as a clearinghouse between central banks.

- World Bank

Created to help countries rebuild their infrastructure after World War II, it has slowly changed to become the bank in charge of financing large infrastructure projects. The government borrowing the funds must be a member of the IMF.

# International Banking Institutions

- Export-Import Bank (Ex-Im Bank)

A United States federal agency whose purpose is to provide assistance to U.S. exporters in the form of loans, loan guarantees, and political risk insurance policies.

- SWIFT

The Society for Worldwide Interbank Financial Telecommunication is a corporation supporting an Electronic Data Interchange network that was created by banks to obtain a secure and reliable means of transferring financial information internationally.

It allows the communication of Letters of Credit and miscellaneous fund transfers.

# Sales Contract Currency as a Marketing Tool

There are four approaches that an exporter can pursue:

- Elect to quote in the exporter's currency.
- Elect to quote in the importer's currency and minimize the risk of exchange rate fluctuation with a forward market hedge.
- Elect to quote in the importer's currency and minimize the risk of exchange rate fluctuation with a money market hedge.
- Elect to quote in the importer's currency and minimize the risk of exchange rate fluctuation with an options market hedge.