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MANAGING CURRENCY RISKS

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- Safety of investment vehicles and evaluation of offshore investment quality
- Regulations concerning investments
- Repatriation of profits/home-office expenses
- Asset/liability matching
- Tools for managing currency fluctuations CPA

MR. CAMILO J. SALAZAR: Steve Lindo is a vice president in First Chicago's financial markets credit department, and is responsible for approving and managing the bank's credit exposure to customers in emerging market countries, principally Latin America, as well as some countries in Africa, the Middle East, Asia, and Eastern Europe. Mr. Lindo joined First Chicago in London in 1985 as a relationship manager in the bank's U.K. corporate banking group. In 1987 he moved to the bank's Madrid branch to become credit officer for Spain and Portugal. Prior to joining First Chicago, Mr. Lindo was an officer with Lloyd's Bank for 11 years, where he held a variety of banking positions in Latin America and the U.K.

Rick Long has been with The Principal Financial Group for more than eight years, he earned an undergraduate degree from Cornell College in 1982 in business and economics and a master's degree in finance from the University of Iowa. He has worked at The Principal for many years, as I just mentioned, focusing on interest rate and currency-risk management and on foreign-country risk analysis.

MR. STEVE R. LINDO: As my part of presentation, I thought I would give you a broader view of the business risks that companies take when they decide to undertake activities overseas. One of those risks is the principal risk of foreign exchange. After my presentation, Rick will be able to give you some useful information about that particular type of risk. In the first case, I thought it would be helpful to give you some idea about the risk-management philosophy of First Chicago. And in particular, I want to describe three principal factors that underpin the basis of the risk-management activities that we undertake at First Chicago.

In the first instance, our primary goal is to understand the risks that we are getting into. When we do business overseas, and that involves a large number of countries, unless we understand the risks, then really there's not much chance that we can effectively manage the risks.

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In the second case, it's important for us to have a defined-risk appetite within our institution. We need to know the types of risks our institution is comfortable with taking, the types of risks it wants to actively pursue in its attempt to make profits, and the types of risks it wants to avoid at all costs.

And then, in the third case, having identified the types of risks that we are looking at, and what our institution's risk appetite is, we then put policies and procedures in place that will correctly match those two together. In the field, in the day-to-day business, we then know the types of risks to avoid and what to do to avoid them.

I'd like to give an overview of the general topics that concern us when looking at business risk in foreign countries. The first thing seems almost too obvious to state, but the minute that you contemplate doing business overseas, you're entering into risks that are additional to the ones that usually involve your business activity. And unless you take some steps to understand those additional risks, you're going to be vulnerable to unexpected events that might end up being adverse. Some of these risks are well known, and quite frankly, there are tools available to measure those risks. These types of risks would be, for example, foreign exchange, changes in interest rates, and changes in underlying economic activity in any particular country. These topics are often well reported in terms of specialist publications, or even in the general press. It's possible to know a lot about what's going on in a country in any of those areas before you even begin to undertake any type of business activity.

Other types of risks are not as easily understood from afar, and these include the nuances of the political climate in a country, the situation of commercial competition, and whether there are any invisible trade barriers or other types of barriers to competition that might affect foreign companies trying to do business in that country. Other risks that you may have to deal with are the efficiency of the economy in terms of whether services and the infrastructure work, whether the people have a good work ethic, and whether their education is up to the standard of the business activity that you hope to undertake. And what is the type of business morality that is common in the country? What is the code of business ethics? Is it the same as that in your own country? Or is it very different, possibly superior, or in many cases, not as good? These types of risks cannot be measured by any physical standards, and most have to be identified by traveling to the country and getting to know the business climate there. Those types of risks are hard to assess for companies that are interested in investing in a foreign country or doing business there but don't have any physical presence.

I'd like to give you some examples of these types of risks that may help to flesh out a little of what I'm trying to describe. For example, in some countries it's possible that a foreign business unit can be performing very satisfactorily in terms of volume of business, in terms of the profit margins that it's getting on that business, and it can be showing, relative to other foreign companies or other domestic competitors, a very satisfactory performance. But the fact is, for a global company that's doing business in this country, none of that matters if for some reason, for circumstances beyond the control of the company, there is a very significant change in foreign exchange rates. For example, if there is a devaluation of 20%, 30%, or even 50%, suddenly all of the equity of a company and all of the profits being made by its foreign subsidiary in that country can be wiped out. Or the parent company's balance sheet can be turned

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from what looked like a solid, valuable investment into something that is incurring a tremendous loss. So it's important to remember that being successful in business in a foreign country doesn't necessarily translate into a business success, when that result is translated back into the accounts of the parent company.

Another example that's worth mentioning is that the monetary policy in different countries can often very significantly affect the nature of the activity that foreign business units undertake. In countries with high inflation, from time to time the monetary policy adopted by the government may significantly favor those who are investors versus those who are borrowers. And at other times, the reverse may be true. So for example, at a time when, let's say the cost of capital is very low, a company may borrow very significantly and use those funds to increase its business volume and thereby earn tremendous profits. At other times, the cost of capital may be very high, it may be two or three times the rate of inflation, in which case the cost of borrowing may be so great that it completely annihilates the profit margin on the business activity. And in those cases, it makes better sense to minimize day-to-day business activity and simply invest any capital that's available in that country in monetary instruments, which would be yielding a very high premium above inflation. So changes like that can significantly change the way that a company acts in different countries. If the appropriate strategy is not adopted, it can seriously affect the business performance as it is viewed from the global headquarters.

Another example that I would like to mention is how foreign investors are often very vulnerable to the practices in local capital markets in foreign countries. Foreign investors look at ratios, they look at summarized information about either company stocks or government bonds, and compared with what they're seeing in their own countries, they may find the yields or the potential yields to be very attractive. But many financial markets in foreign countries are not nearly as transparent or well regulated as the financial markets in countries such as the U.S. or any of the countries of the European union. The result is that local market practitioners can indulge in a variety of practices that benefit them at the expense of unknowing institutional investors, such as trading on inside information or wrapping up stock prices as a result of being able to corner significant amounts of shares. These types of practices may well escape unnoticed in the local market or may even, in fact, be historically acceptable by the standards of that country. But for foreign investors coming in, these are practices they would not tolerate in their home markets, because in effect, their investment profits are reduced to benefit the profits of local trading entities.

Now I'd like to move on to more specific types of risk and talk a little about different categories of risk. I'm going to leave the topic of foreign-exchange risk for Rick to comment on in his presentation. But I would like to walk through the various other ones and give some comments on them, one by one.

TRANSFER RISK

This is the risk of any investor who has invested some kinds of funds, either in monetary assets or in fixed assets for business purposes in a foreign country, not being able, essentially, to sell those assets and to repatriate his or her investment funds back to the home country. Many countries have exchange-control restrictions of one kind or another, and investors are wary of investing in countries where those

exchange controls are very rigid. But the fact is that the rules can change rapidly and adversely for foreign investors after the investment has been made. In this case, the restriction on the repatriation of capital can happen in a very abrupt manner. And this risk is hard to prepare for. But it can very seriously damage the investors, the quality of the foreign business investment in a foreign country, and its potential for future development.

LIQUIDITY RISK

Liquidity risk affects a foreign business unit in being able to obtain the working capital that it needs to conduct its business in a foreign country. Foreign markets are obviously subject to the changes in local market conditions, which may not always be predictable in less-developed countries. And a company that relies on a certain amount of working capital to undertake its business can suddenly find its source of financing for that working capital dry up, either through market changes or through changes in regulation, which also pose a serious business risk to a foreign business unit.

LABOR RISK

This is something that we're all acquainted with in one way or another, but for foreign business units in foreign countries, legal risk is hard to determine on a day-to-day basis. It's something that clearly needs to be looked at with a fair amount of care, because the usual assumptions for the commercial business law applicable in a company's home country may not be applicable in the foreign country, and there may be some unforeseen risks associated with day-to-day business practices that can seriously damage the financial performance of a foreign business unit.

Regulatory risk is something that also can have a very negative effect, if the government of a foreign country introduces new regulations, such as tax or import controls, which change the whole nature of a market or change the nature of a foreign business unit, or even simply change the ability to generate profits because of the addition of higher taxes on its activity.

Infrastructure risk is something that is very pervasive in all countries, and it needs to be looked at in a very broad perspective. Fundamentally, you're dealing with the basic services that we all take for granted in most industrial countries, such as electric power, water, and basic telecommunications. Transportation, another form of communication, is important from the point of view of assessing infrastructure risk.

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Labor risk is involved in terms of the quality of the labor force, whether it can deliver the kind of quality of labor that is necessary for any type of business to be conducted, and whether any laws exist that may be harmful to the business because they are favorable to labor versus business interests.

EXPROPRIATION RISK

This is even bigger than transfer risk, because if it happens, it's just about the end of the game. If a foreign government decides to expropriate private interests, whether they be private interests of citizens of that country or foreign interests, then that's the end of the road for any type of foreign business activity, at least until those laws change.

STRIFE RISK

Again, this is much the end of the game, too. In any country where there is a serious risk or occurrence of international war-type conditions or civil war, then basically the business climate and any expectation of doing profitable business is eliminated. The investment of a foreign business unit can practically be written down to zero because of the uncertainty attached with destruction of property and the suspension of normal business practice.

I'd like to give you some examples of those types of risks to give you a better feel for what it is that I'm describing. In the case of infrastructure, the Philippines has undergone some fairly significant financial and political improvements during the last few years, with change of government, better economic policies, and renegotiation of foreign debt. The Philippines is a country that is poised for fairly significant economic development. However, it has a critical shortage of electrical energy. And as a result, power outages are very common, on a daily basis, in the Philippines. That is a serious hindrance to the economic improvement that the political and economic situation of the country would otherwise seem poised to produce.

I'd like to talk a bit about some examples of regulatory risk, particularly in the areas of regulations that may affect the cost of borrowing. For example, the imposition of taxes on credit operations or withholding taxes imposed on loans from foreign countries could change the cost of borrowing in a particular country by a factor of 20% or 50% overnight. This may critically affect the financial performance of a foreign business unit that is dependent on a certain amount of borrowing.

Another type of regulatory risk that can be critical is that affecting imports. Many businesses in foreign countries are heavily dependent on importing either physical goods or services from foreign countries to distribute them in the local market. And the imposition of any kind of import tax or import controls can critically damage the business strategy of a foreign unit in such a country.

Another example I'd like to give is that of liquidity risk. If, for example, the government imposes credit controls or its monetary policies cause the amount of capital available in local markets to shrink, or if it prevents foreign capital from coming into the country for the purposes of lending, a foreign business unit may find itself critically short of the working capital necessary to undertake its business. It may even be in risk of default on loans that have already been contracted to repay. In those circumstances, there is essentially a risk to the parent company. If it doesn't immediately send in more capital to support the business in a foreign country, it may be jeopardizing the whole business activity in that country. And that decision, whether to send additional capital, is a tough one because in doing so, and in situations in which the transfer risk in a particular country is relatively high, the parent company may find itself sending more capital into a foreign country with a high transfer risk, just at the time that transfer risk may in fact be closer to happening, causing the capital it has in that foreign country to lose a significant amount of its value. And those kinds of situations, essentially where there is no good choice to be made—either send in more capital or watch the business possibly fail—is exactly the kind of situation that companies want to avoid being forced to deal with.

I'd like to talk a bit about labor risk. In many countries, the labor laws are favorable to labor at the expense of business because employment is a high political priority. The cost of separation, in the event that a company wishes to downsize or improve the quality of its workforce by recruiting better educated and more efficient employees, can be punitive. And if a foreign business unit is not prepared for those types of situations, it can find itself with very heavy financial costs as a result of wanting to undertake what would normally be accepted as intelligent workforce management.

Although the risk of expropriation is a very dramatic one, and fortunately, in most cases, not a frequently occurring one, it's not always terminal. I can cite the case of certain banking interests in Mexico. For example, Citibank had a subsidiary in Mexico, and in 1973 the Mexican government nationalized all of the commercial banks. As a result of some serious negotiations, and no doubt, some political pressure on behalf of Citibank, it was allowed to retain ownership of its banking interests in Mexico. It was the only foreign bank that succeeded in doing so. So it is possible to succeed in the face of expropriation risk, but nonetheless, the stakes are very high, and it's not a risk that most companies want to face.

In terms of strife risk, it's worth just dwelling for a moment on examples in recent history to look back with hindsight on how, perhaps, we might have felt about opening offices, for example, in Lebanon in the 1960s when that was the financial hub of the Middle East, only to see that business was effectively destroyed by civil war in the following decade. Or how we might have been interested in starting up business in Yugoslavia in the 1980s, when that country seemed to be booming and enjoying relatively good financial and economic activity, in spite of being part of the Eastern Block, only to see all business interests in Yugoslavia practically collapse as a result of civil war during the 1990s.

During the last part of my presentation, I'd like to talk about some risk-management techniques. Going back to what I said earlier, it is important to recognize that all of the risks that I've described do exist in some form or other in foreign countries. They're not totally absent in industrial Organization for Economic Cooperation and Development (OECD)-type countries. But in most of those cases, they are inherently such a low risk that businesses generally don't need to take special precautions. One of the reasons why these risks are absent, or generally absent in investment-grade countries, is that the business rules and practices have improved over time and have stood the test of time in terms of their fairness and practicality. And in modern times, they don't change very drastically or frequently, thus enabling local and foreign businesses to plan and depend on a stable business environment and to conduct business profitably. Also in industrial countries, the business conventions don't typically discriminate against foreign-versus-domestic businesses.

In developing countries, many of the business rules are archaic and old-fashioned, and they're not equipped to deal with modern business practices. Modern business practices are then sometimes in a legal or regulatory vacuum, which makes foreign businesses vulnerable to adverse interpretation by either the authorities or the competing businesses in foreign countries.

In talking about hedging risks, it's important to realize that hedging is the nearest thing to a perfect risk-management tool, but it is not universally available. In fact, it is far

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from it. Tools for hedging only exist in recognized markets. For recognized markets to exist, there needs to be a steady demand for the type of financial product, a steady supply of people wanting to be counterparties for the same type of financial product, and some credible intermediaries who are offering these products to both sides of the market and quoting prices and making sure that the hedging types of instruments are liquid. Not many hedging tools conform to that description. And when Rick talks about foreign exchange, you will have an example of an effective hedging market.

But there are many other risks and there is no recognized market for being able to find a way to purchase protection from those risks. Generally speaking, many of the intangible risks that I've mentioned can be at least minimized by adopting generally sound business practices. And such business practices can be summarized in fairly simple terms. For example, it's important not to relax in terms of paying attention to these risks. If business is going fine, and if a particular country's economy is booming, that is not the time to close the book on risk-management and say it isn't needed anymore. Companies need to continue to be vigilant, because different risks will ebb and flow in terms of their potential effect on a company's business. And if one risk is temporarily at a low level, other risks may be in transition to a higher level.

It's also important to adopt ethical business practices in foreign countries, where local business practices may not, in fact, be as ethical. It's important that foreign businesses continue to strive for the same basic business standards that they represent, that their parent companies adopt in their home countries, and not become heavily involved in local business practices that may be questionable by international standards but are commonplace in the local market. It's also important to be very attentive to detail. Foreigners operating in domestic economic situations are frequently not aware that many small news items or subtle economic or political changes may have far-reaching consequences. It's very important, therefore, to be well informed about political and economic events and to think carefully about the impact of those events. Pay attention to macroeconomic details and pay attention to details within your company, as far as making sure that proper controls are in place and that proper procedures are being adhered to.

It's also important to have access to good professional advice. That means from bankers, such as me, lawyers, accountants, and economists. These individuals or consultants should be drawn from both local and international sources, so that the foreign business can have a good perspective of the environment that it's operating in, in terms of an outside, perhaps more dispassionate view, versus an inside, more up-to-date and possibly more well-informed view about important local changes. Another important tenet that I believe should be adopted by foreign businesses is that, in a situation in which events are adverse, it's important to cut losses quickly. People will often hear recommendations that things can't get any worse or that in this country, things have always gotten better in the end. These are not recommended practices for foreign businesses, in my view. Foreign businesses are not well equipped to tell whether things will get better. I believe that they should adopt strategies that are relevant to the moment, and if a situation has arisen in which a loss or potential loss exists, it's important to cut the losses, I would hope at a tolerable point, and move on and not be subjected to any further risks of that kind.

Finally, I would like to give some practical examples of these types of risk-management as an illustration of what I've been talking about. For example, it's not always true that risks are lower in investment-grade or industrial countries. Legal risk in the U.S. is relatively high, particularly in the field of product liability, and risk may well be lower in foreign countries. Take, for example, the tobacco industry. In the U.S. it is on the defensive, and the same industry is highly aggressive in developing countries. Another type of risk that exists in some industrial countries is that of invisible trade barriers. Many of us are acquainted with this, at least by reference to published information. The case of Japan springs to mind. Notwithstanding the fact it is a very highly developed business environment, there are invisible trade barriers for many businesses wanting to expand in Japan.

Another example that I'd like to bring to mind is the recent events in Mexico. For many who may be involved in investing in Mexico or who may have considered it in recent times, the investment trend was extremely optimistic at the end of the year as a result of successful passage of the North American Free Trade Agreement and expectations that the ruling party would continue in government after the elections later in 1994. Most of us now know that there has been a dramatic reversal in terms of those expectations because of some outbreaks of violence and political uncertainty, particularly with the assassination of the presidential candidate in Mexico. This is a good example of how quickly the business environment and the investment characteristics of a particular country can be turned around and can obviously have a significant, adverse effect on anybody who happened to be holding financial assets in Mexico or looking at the long-term economic development in Mexico as a basis for doing business in that country. One other piece of professional advice, which you would do well to avoid, is salutary for anybody involved in the banking industry. In the 1970s it was a well-accepted convention that governments didn't go bankrupt. And as a result, many international banks, First Chicago was among them, lent very heavily to foreign governments. The banks discovered that those governments did not go bankrupt but that didn't stop them from not paying. And so it's important to recognize that sometimes conventional wisdom may not be accurate. Look at the risks very diligently from an intellectual standpoint and do not simply rely on the recommendations of others.

I'd like to conclude by pulling together all of this into an example. Having listened to what I've had to say about managing business risks in foreign countries, and with what you know about this business, how well prepared would any of you be for making a business investment in Russia, given a very high degree of all of these risks? Ask yourselves, if not for business reasons, at least for the intellectual interest in wondering about the risks that you might have to face in doing that, what steps you would take to protect your interests if you decided to invest in some way in business in Russia? Or alternatively, if the company that you represent has a business philosophy that is at the more conservative end of the risk spectrum, given the types of risk that I've described, would you be able to recommend to the directors of your company to undertake any business activity in Russia?

MR. RICHARD D. LONG, JR.: I would like to start where Steve left off and talk about currency risk and different ways that we can hedge currency risks. And I'm going to do this really from an insurance company and an investment philosophy. We'll talk about some direct investing, but I'll also talk about financial instruments that

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you can buy in foreign countries and different ways that you can manage currency risk. This is really important, because it is not well established in the research literature that currency risk is rewarded in the long run. In other words, it hasn't really been proven that if you take currency risk, you're adequately rewarded for it over time. I'd like to cover three main topics. First I'm going to discuss different instruments that can be used to manage or hedge currency risk, and I'll show some examples of how these instruments are used. Second, I'm going to talk about some of the risks that you incur when you actually enter into hedging transactions. And then, I'd like to talk about some additional factors that you need to examine when you're going to manage currency risks.

There are four different instruments that you can use to offset currency-related risks: *foreign-exchange forward contracts*, *foreign-exchange futures contracts*, *currency swaps*, and *foreign-exchange options*. These are straightforward ways to hedge, and I'm not going to really get into derivative-structured products. I will talk about straightforward hedging instruments for reducing risk. The easiest way to do this is to go through an example and talk about some of these risks.

Let's assume that an insurance company in the U.S. has decided to buy a small insurance company in Germany. And let's say that they have both agreed to a price of 17 million deutsche marks for the company. By using a current exchange rate of about 1.7 deutsche marks to the dollar, that would be about a \$10 million purchase in U.S. dollars. Let's also assume that, for legal and business reasons, the seller wants to lock in the price, but it doesn't want to actually settle the transaction until six months in the future.

So in other words, it wants to set the price, but it doesn't want the buyer to pay it until six months in the future. So the buyer must ask, what risk do I have with that transaction? The risk is that it really doesn't know what the price is going to be in dollar terms. And so, there are different alternatives. First, it could just go out and buy an equivalent amount of deutsche marks to make the transaction six months down the road. The risk of doing that, though, is that the deutsche mark may actually decrease during the six months, and the buyer may actually pay more now than if he or she waited until six months later. It could benefit if the deutsche mark, in fact, increases in value compared to the dollar. It would pay less than if it waited until six months down the road. So things can go both ways. But the other alternative would be to wait and buy the deutsche mark in six months. The risk in that case is that the deutsche mark may increase, and it may pay too much for the deutsche mark. Conversely, the deutsche mark may decrease, and then there would be a gain.

But let's assume that the insurance company has done an analysis of the currency, and it thinks that the deutsche mark is going to increase during the next six months. It could just buy the deutsche marks, but let's assume it doesn't want to spend \$10 million for something that will occur six months later. It doesn't want to tie up its money for six months. It would rather just lock in the exchange rate. There is a way to do that, which is the first example, the foreign-exchange forward contract. The company could agree to buy a deutsche mark to be delivered six months in the future. It would lock in a rate, and then it would settle in six months. Let's talk a little bit about how that's going to be priced, because the buyer would not really get

the exchange rate we assumed (1.7 deutsche marks per dollar). Now, if it locked in a forward price, it would not get the current spot price. By convention, the forward price is going to be equal to the spot price, which is the rate of 1.7, plus some cost of carry. There would be some cost of carrying that currency forward for six months. In the currency markets, the cost of carry is just really the interest rate differential between the two countries. If the buyer were going for six months, there would be a differential between the deutsche mark rate and the dollar rate. This theory is called interest rate parity. Interest rate parity says that the market must set the forward rate to absorb any interest rate spread between the two currencies; in essence, it has to eliminate any risk-free arbitrage that's in the market. So the forward price is going to be set so that the buyer really is indifferent between investing in dollars or investing in deutsche marks for six months forward. Let me just put some numbers on this, and I think it'll make more sense.

Assume that you have 10 million U.S. dollars and interest rates are 4%. Take \$10 million times 1.04. At the end of six months, you will have \$10 million. Alternatively, you could take the \$10 million and convert that into deutsche marks. That would be equivalent to 17 million deutsche mark.

Let's assume that deutsche mark rates are slightly higher than U.S. rates. I'm just kind of picking these numbers out for the example. Let's say that deutsche mark short-term rates are 4.4%. That's going to equate to approximately 17,750,000 deutsche marks. By convention, the interest rate parity theory says that those two examples should really give the same amount in dollars. You shouldn't be able to go between those markets and make a risk-free arbitrage. What exchange rate is going to set those two flows equal? Just take the deutsche marks, the 17,750,000 and divide by the dollar amount, the 10,400,000. That's going to give the forward rate, which is going to be equal to 1.7067. It's slightly different than the 1.7 deutsche mark to U.S. dollar rate. If we put it in the formula, we know the forward price is going to equal the spot price, which is 1.7, plus the cost of carry, which is 0.0067, which is in this case what we call the forward points. So if you go in the forward market, the forward points would be recorded as 67 forward points. What you get, because the deutsche mark has a higher rate of interest, is a slight discount to the dollar, and that always happens with interest rate parity.

If the deutsche mark does actually increase in value (an increase in value means that the deutsche mark is going to be lower than 1.7 at the end of six months), you're going to make money on your forward hedge. If you buy a forward contract, it's going to be worth more money in dollars at the end of six months. If the deutsche mark conversely decreases in value, you're going to lose money on your hedge because the deutsche mark is going to be worth less dollars. So we have what we call a two-sided hedge, because you've protected your downside. If the deutsche mark goes the way that you think, if the deutsche mark increases, you're going to make money on your hedge, so you have protected your downside. But conversely, if the deutsche mark decreases, you've lost money on your hedge. You've basically locked in a rate of whatever the forward rate is. You've protected your downside, but you've really given up your upside. So forward contracts are what I call a two-sided hedge. That would also be true with futures contracts. And we'll talk a little bit more about futures and forwards.

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Let's talk first about forward contracts. A forward contract, again, is an obligation to buy or sell a set amount of currency at a set foreign-exchange rate after a set period of time. There are many sets, but it is the obligation to buy or sell currencies. In our example, we talked about buying currency forward. You can also sell currency forward, if you want to protect the risks going the opposite way. Forward contracts are traded on the over-the-counter market. There's a large market, it's hard to estimate exactly the size of the forward market, but I've heard estimates being as high as \$1 trillion, or it's equivalent, that are traded in the forward market daily. So it's a huge market in many currencies, and we'll talk about that. The maturity range is variable; most forward contracts are from one month to two years. The highest concentration would be from one month to six months, although you can get good prices after two years. And there also is a long-dated forward market that really goes from two years to seven years. So it's possible to go further out with forward contracts, although you'd probably pay a little bit more in commission because there's more risk. We'll talk about risk later. When you buy a forward contract, you'll receive a confirmation from the broker. You either buy it through an investment banker or a bank. Then you just wait. Nothing is paid out, and you wait until the end of the contract, or you can actually take delivery of the currency. Or you can close it off before that by just taking the opposite trade and what we call a pair-off. You can just pair-off the trade. And if it is a net gain to you, you get paid. If it's a net loss, you pay the other side.

One million dollars is about the smallest amount you can do in forward contracts. The maximum dollar size is variable. It really depends on the liquidity of the currency. The more liquid the currency is, the larger you can trade. With deutsche marks, yen, or other things that are very liquid, it's easy to do a large trade. It's also limited somewhat by the risk of the counterparts, because you're taking your risk to the person or the entity you're doing the trade with. We'll talk about that in a little bit also. The cost of a forward contract would just be taken out as a bid-ask spread. The typical costs, depending on the liquidity of the currency, would be about 2-5 basis points. That can vary, again, depending on what currency you're using. All the major currencies are available for forward contracts; that would include the U.K., Germany, France, the yen, the Canadian dollar, the Australian dollar, the Swiss franc, the Italian lira, and the Scandinavian currencies—major currencies. Most of the minor currencies, such as the Singapore dollar and the Hong Kong dollar, also have a forward market. And even the currencies in some of the exotic countries are starting to develop markets. There is now a foreign market for the currencies of Saudi Arabia, Malaysia, and South Africa. But those markets are not traded very heavily, and you're going to pay a high commission or a high bid-ask spread to do it. But as Steve mentioned, there are some countries where you can't buy forward contracts. But as more and more businesses are going into those countries, it is becoming easier to buy forward contracts. And they're actually becoming market makers that will allow you to buy or sell forward contracts.

Financial institutions, banks, and insurance companies use forward contracts for their direct investment. If you invest directly in a country, you can lock in the currency risk on your equity position. You can also lock in the price to take the currency risk out of repatriating profits. Or if you have other investments, such as stocks, bonds, whatever, you can take the currency risk out of those. Also, corporations that have

foreign operations are big players in the forward market. Mutual fund managers are another user.

Let's talk a little more now about futures contracts. Futures are very similar to forward contracts. Futures, again, are an obligation to buy or sell a set amount of currency at a set foreign-exchange rate. When you buy futures, it's called taking a long position. When you sell futures, it's called taking a short position. Futures are different from forwards in that they're traded on an exchange. Most of the currency futures are traded on the Mercantile Exchange in Chicago, and the typical maturity would be three to twelve months. There are March, June, September, and December contracts. And depending on when it is, the two most liquid contracts are always the first and the second. The third and fourth contracts are not as liquid in the markets. And the dollar size varies by currency. One futures contract is typically equivalent to about \$75,000. Now that varies, again, depending on the currency. But a minimum size may be a \$1 million, and the maximum, again, depends on the currency and on the liquidity in that particular futures market. Futures are priced very much like forwards, using interest rate parity. It's the same thing as the forward-pricing concept that futures will use, although futures are generally quoted in dollars. So if you look in *The Wall Street Journal* at a futures price for currency, the number you see may be something different than what you're used to; for example, the deutsche mark may not be 1.7. It's the reciprocal of that because it's quoted in dollar terms. And so it may look funny in the paper, but it's just because everything's quoted in dollars.

The currencies available are more limited for futures than forwards. Included are the major currencies: the deutsche mark, the yen, the pound, the Swiss frank, the French franc, the Canadian dollar, and the Australian dollar. It's interesting because futures and forwards really give you much of the same thing. One of the things that I didn't mention about futures contracts is that they settle every day. In other words, if you buy a futures contract, instead of waiting until the end to actually settle, you mark your position to market every day. And so, if there's a gain during the day, you're going to receive money. If there's a loss, you're actually paying money out. And so there's more accounting that goes on in the back office, but there's less credit risk because you're shoring up your position every day. And so it's really one of the main differences between futures and forwards.

In comparison, forwards are a much more liquid market. They have less accounting back office effort; they offer more currencies; and they're less expensive because forward contracts only have a bid-ask spread. Futures contracts have a bid-ask spread plus a commission. The commission would be anywhere from \$10 to \$30 per contract, depending on how much you're trading, who you're dealing with, and what sort of services the broker's going to offer you. Put that all together and you'd ask why anybody would use a futures contract.

Who's buying futures contracts? The typical buyer of futures contracts would be foreign-exchange desks at banks or investment banks. They're hedging their forward position. If they're issuing, or buying, or selling a forward contract from somebody else, they may offset their risk in the futures market by buying or selling a futures contract. They're also used by hedge funds and investment bankers to create derivative products, such as structured notes.

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Let's talk a little bit about options contracts, currency options. Some people may have wondered, when we were talking about the acquisition example, if there's a way to protect against the deutsche mark rising and also allow the insurance company to benefit if the deutsche mark actually decreased. Is there a way to get the best of both worlds? Can I protect my risk on the downside and be able to keep my upside, or some of my upside? Actually, options are a way to do that. Options are really what we call a one-sided hedge. They offer you one protection from the downside, but they also allow you to keep some of your upside. It's almost like buying insurance. You have protection against the currency going the way you don't want it to go, but to do that, you have to pay a premium, you have to actually buy the option. And so there's an additional cost in an option. You're probably familiar with option pricing, but the things that are going to determine that option premium are primarily the volatility of the currency. If the currency is volatile, and it's moving around a lot, the option's going to cost you more. Also, the length of the option must be considered. The longer the option, the more it's going to cost you, because there's more chance that the option may go in or out of the money during the time period. The strike price is also a big determiner to the premium. The strike price is where your protection starts. If you buy an at-the-money option, you have full protection from any change in the currency. If you buy an out-of-the-money option, it means that you pay less, but you don't get full protection. You may take a 5% or 10% haircut. So, it sort of depends on how you want to protect yourself. But options give you a way to get a one-sided hedge.

As far as the mechanics, currency options are traded either on an exchange or over the counter. The exchange-traded options are options on the currencies, and they are actually options on the futures contracts or options on the currency futures. Those are traded similarly to how futures contracts are traded, the maturity would be 3–12 months, and the size would be about the same. The over-the-counter options would allow you to go a little bit longer. They can be one month, and all the way out to 10 years. And these can be more customized, and they can be more expensive. They're generally less liquid, because you're making a market with one person instead of with an exchange. So, you tend to have some liquidity risk. As far as cost, there's also a bid-ask spread involved with currency options.

I'd like to go through an example. I'm not going to go through many numbers, but let's just talk about different ways to use options or forwards. Let's say that you own a diversified stock portfolio. I'm going to make it simplistic; let's say that you own a European stock portfolio. It's a \$90 million portfolio, and it's split up in thirds. One-third is in the U.K., one-third is in Germany, and one-third is in the Netherlands. You believe that the U.K. currency is fairly valued, but the Germany and Netherlands currencies are about 15–20% overvalued. So you're worried about a devaluation. How can you protect yourself against that decreasing currency valuation? You first have to determine the kind of hedge you're going to do. Are you going to do a long hedge or a short hedge? In this case, you want to protect yourself against decreasing currency valuations, so you are going to sell something. You are going to sell a futures contract, a forward contract, or you are going to buy a foreign-exchange put option, which is going to give protection against the currency rates falling.

Then you also need to decide how much of your portfolio you will hedge? Are you going to hedge all of it, 10% or 50%, and over what time period will you hedge that

portfolio? You really have to make those decisions on your own. Many papers are written about the correct amount to hedge, but it really depends on how much risk you want to protect and how much you're willing to spend.

Let's assume, for this case, that you will hedge 100% of the deutsche mark and the guilder. The next decision that you need to make is how to hedge those currencies. You could buy a currency, or sell a forward position on the guilder and the deutsche mark, or, because the guilder and the deutsche mark tend to move very much with each other in relation to the U.S. dollar, you could sell deutsche mark futures and do what I call a cross hedge (hedging guilders with deutsche marks against the U.S. dollar). That can be cheaper, and the deutsche mark is a more liquid currency, so you are more able to get in and out of the market.

You decide to hedge both positions, the guilder and the deutsche mark, by selling deutsche marks. How are you going to do this? Are you going to use a future, a forward, or an option? Well, in this case, forwards will be much easier. If you're going to do it for six months, it's fairly easy to do a forward in the deutsche mark. So let's say your choices really have come down to forward contracts versus options. If you sell the currency forward, we said that your forward price was 1.7067. If you're going to sell forward, you're going to pay a little bit for that, because you're going to have the 67 points as a cost. The cost to hedge a \$60 million portfolio is going to be about \$200,000. So it's really not very expensive. The alternative would be to use a currency option. If you buy an at-the-money option on the deutsche mark for six months, the option premium is going to be approximately \$1.7 million. This is a quote I received, but it's going to be about 2.8%. The forward is going to cost you about 40 basis points. Those 40 basis points are the difference in the short-term interest rates, the 4.4% compared with the 4%. So on the forward, you're just paying the interest rate differential.

The advantage that you get from the option is that you get downside protection; unlike the forward contract which is going to lock you into a price. You have to decide how much you're willing to pay to protect yourself. This example could apply to many different things. This is a diversified stock portfolio. If you're investing equity in a foreign company, you could hedge that equity position. You can determine whether you're going to use forwards or futures or options. Also, if you're going to expatriate, or if you're going to take capital or profits out of the company, you have to decide how to hedge that. These instruments are very useful for different things that happen to your portfolio. Futures, forwards, and options are fairly short term. You can buy ones that are dated longer, but they typically are more short term than some alternatives.

I'm going to talk about one more kind of hedge, and then we'll wrap it up. The next example is a currency swap. Let's assume, in this case, that we purchased a five-year bond that's been denominated in deutsche marks. If you do that, if you receive the principal and interest payments in deutsche marks, you're taking the risk that the deutsche mark may actually decrease in value over the time that you own this instrument. Let's assume an insurance company is buying the bond. Its liabilities are denominated in dollars, and so there's a risk there. If it has the liabilities that are denominated in dollars, it may want to try to bring the investment back to dollars

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also. You can convert principal and interest payments into U.S. dollars by using your currency swap.

Let's assume that the insurance company is receiving deutsche marks on principal and interest payments, and it wants to turn this into dollars somehow. Let's assume that an insurance company in Germany is receiving a five-year bond loan that's denominated in U.S. dollars. Everything matches up as far as the terms and the maturity. Both of these companies would like to convert their cash flows to their home currency.

So they might both go to an investment banker, or an intermediary—let's just say this is an investment banker—and say they want to convert the bond that's in a foreign currency back into the home currency. For a cost, the investment banker would be willing to swap these payments. The banker would take the deutsche marks from the U.S. company and pass them on to the German company. He or she would take the U.S. dollars from the German company and pass them on to the U.S. insurance company. In the middle, the banker would extract some sort of cost. The banker will take a bid-ask spread out of both sides and will make something in the middle. So the U.S. company now has a U.S. dollar loan, and the German company has a deutsche-mark-denominated loan. This is a simplistic example, but the currency swap market is a huge market in which you can buy bonds or buy other transactions denominated in a foreign currency. Through an intermediary, you can turn them into dollars, or deutsche marks, or whatever currency you want to. It is also very similar to an interest-rate swap. In our example, the U.S. company could have bought floating-rate deutsche mark and wanted fixed-rate dollars. It's possible to switch between floating rate and fixed rate in different currencies.

I'm not going to get into how these swaps are priced, but the counterparty is really going to determine the discount rate that is going to set the present value of both sets of cash flows equal to each other. And so, if you buy a deutsche mark bond that is at 8.5% after you go through the swap, the swap rate is going to be something less than that, maybe 8%. But you're going to get a swap rate that's going to be determined by the intermediary.

As far as the mechanics of the swap market, the minimum size for a swap is about \$5 million. That's because there's a lot of work in the middle by the counterparty. The maturity is typically one to five years, and the currencies are really anything that the investment banker is able to put together as long as there are two sides to the transaction. You can do it in any major currency. There are minor currencies that you can do swaps on, as long as the counterparty is willing to take the risk. One of the things I should mention about swaps is that the liquidity is very low. And so if you're going to enter into an interest rate or a currency swap, you should probably plan on holding your position until maturity. You can go to the counterparty and you can offset it, but there's a good chance that you're not going to get a very good price because it's not a very liquid market. Depending on how the investment banker has offset the risk, it may be hard for him or her to close out the other side. You should expect low liquidity, and these really should be held to maturity.

I'm going to briefly talk about the risk of hedging and then some other factors. One of the main risks of hedging would be counterparty risk. That is particularly true with

over-the-counter instruments that you're buying, such as forwards or swaps or over-the-counter options. Counterparty risk is just the risk that the counterparty can't pay at settlement; when it comes time to pay you, and they can't actually pay you. There are different ways that you can offset this risk.

One way would be to just limit the counterparts to only highly-rated entities. You could have a policy where you will only do business with counterparts who are AA or above. And you may do some active credit analysis on the counterparty to make sure that you understand if it is going to stay highly rated. And that's becoming a hot issue in derivatives. Just really make sure that you understand how your counterparty's doing, because there is a lot of risk that you're taking, especially when you have a longer instrument.

Another way to get around counterparty risk is to have some sort of collateral or a margining condition. For example, you could say that if the exposure to either counterparty gets above a certain amount, then that counterparty has to actually deposit money in a third-party institution to pay for the exposure. Or you could have some sort of margining requirements in which every quarter or every six months you just settle up. You are only taking a credit risk for a short period of time, rather than the entire length of the transaction.

The second risk is called basis risk. This is the risk that the value of the hedging instrument changes differently than the value of the position being hedged. In our example we hedged guilders with deutsche marks. That's a basis for us there, because a guilder may change differently relative to the dollar than the deutsche mark does. If you're hedging the risk of the guilder with the deutsche mark, you're taking a risk that it may not be a perfect hedge. You also have a basis risk when you buy futures, because the futures contract may not change exactly like the currency because of liquidity and supply and demand in the future market.

The last risk is really a broad risk, called price risk. I'm including liquidity risk, any sort of event risk, and then what I call complexity risk. An example of liquidity risk would be if you're going to go into an over-the-counter instrument, there may be a risk that if you try to get out before the maturity, there's not enough liquidity so you're going to pay an extra price to get out. In other words, you may not get a true market price when you try to close out your position. And if it's really a complex instrument, you may not get a true market price when you go into it. So you have to know exactly what you're buying and how liquid that contract is. Event risk would just be, for example, a currency collapse, such as a European currency collapse or some external event that is going to affect the price of all hedging instruments. The more complex a transaction is, or the more complex an over-the-counter trade is, the more you're paying for it and the greater chance that you're not going to get a market price. And I guess the rule of thumb is just to know what you're buying, and make sure you know how much you're paying for it. Because when these derivative products are put together, sometimes you can be paying more than you should for specific hedges.

I will just briefly cover some other factors that you need to consider when you're doing currency hedging. Steve talked about some of these, but really the factors that you would look at would be regulatory concerns (there may be some regulations for insurance companies or whatever kind of company you are with), limiting you to

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specific hedges or specific amounts. Typically these regulations are just set in place to decrease speculation. Especially for insurance companies, there are many regulations against doing certain things so that you're not speculating in the derivatives market.

Another would be your tax-accounting issues. I'm by no means an expert on that, but you just make sure the treatment of the hedge gains and losses are handled correctly, and you want to make sure that the hedge is treated as a hedge and not as some sort of speculation. When you're doing this sort of derivative instrument, make sure that you review it with your tax and accounting people to make sure that they understand what they're going to have to do as far as accounting. For insurance company statutory accounting, you have to fill out different schedules if you use options or futures. And if you just decide to buy these instruments without talking to your accounting people, they may not be too happy with you.

The other risk would be legal issues. It's good to review hedging strategies with your legal staff, as suggested in the example of forward contracts. The only documentation that you get when you buy or sell a forward contract is a confirmation sheet that tells you how much you have bought or sold, when it's due, and who you did it with. And if you show it to your legal staff, they're often not too happy about that, because they want a thick document that tells you exactly what you have. So you should be sure that you review that with your legal staff before you enter into a forward contract, so that everybody knows what they're getting into. Swaps, on the other hand, have extensive documentation. There is standard documentation by the International Swap Dealers Association that delineates the different risks, and it's really a standardized agreement.

The last thing I want to talk about is internal control issues. This is very important for derivatives. I'm sure everybody has been reading in the paper about all the things that are going on. It seems like there are some major companies with derivative strategies blowing up about once or twice a week. And it's important, when using hedging strategies, to have policies. You want a sufficient set of policies to prevent any sort of improper trading or any sort of speculation. You need to set up what your strategies are, what instruments you can use, how you approve your counterparts, if you have trading limits, who can trade, how much they can trade, and just get a general approval process for hedging. What we're trying to do with hedging is reduce risk. And so you want to make sure that what you're doing, in the long run, ends up being a risk-reducing strategy, because that's really what you're trying to do.

