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FOREIGN CURRENCY SWAPS

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Recorder: RANDALL LEE BOUSHEK

- o With the globalization of the capital markets and more active entry of U.S. insurance companies into the international insurance market, this instrument may become more widely used.
 - What is it?
 - Past uses and results
 - Future potential uses

MR. RANDALL LEE BOUSHEK: This is the panel discussion on foreign currency swaps. My name is Randy Boushek and I will be the moderator for this session. I am what you might call a nontraditional actuary, involved in asset management at Lutheran Brotherhood, a \$7 billion fraternal benefit society headquartered in Minneapolis. Within our operation I am responsible for directing investment in all derivative securities markets, including mortgage-backed securities, asset-backed securities, options, futures, swaps, index-linked notes and other esoteric securities.

At Lutheran Brotherhood we, like many in the industry, have for some time been researching the currency swap and nondollar bond markets for investment opportunity. The reasons for this are twofold. First, on the asset side, nondollar denominated debt and equity securities now constitute the first and third largest securities markets in the world and cannot be ignored in the asset allocation decision. Second, on the liability side, the opening of international insurance markets and the potential for growth in nondollar insurance liabilities represents both a significant opportunity and a significant risk for the domestic insurance industry. As evidence of this potential, at present the U.S. consumer accounts for approximately 40% of the premiums collected in the world. At the same time, foreign business represents less than 2% of the revenues of the average U.S. life insurer.

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- *** Ms. Owens, not a member of the sponsoring organizations, is Senior Vice President of Equitable Capital Management Corporation in New York, New York.

PANEL DISCUSSION

After monitoring the swap market for some time, we decided last spring to enter into our first currency-hedged foreign security transaction, participating in an Australian dollar-denominated private placement involving the Canadian subsidiary of a United States corporation. Armed with this experience, we have since been actively seeking similar opportunities in the swap market.

I am looking forward along with you to the comments from our distinguished panel of speakers, each of whom comes from outside the actuarial profession. Our first speaker will be Joseph Lau. Joe is a Vice President in the Hedge Management Department of Salomon Brothers in New York. In his current role he specializes in the creation, marketing and trading of synthetic, or "engineered," securities, both dollar and nondollar denominated. In addition, he has previously utilized his talents at Salomon as a salesman and trader on the swap desk. Joe is a graduate of Columbia University and holds both a Masters Degree in Engineering, the nonfinancial kind, and an MBA in Finance from the University of Pennsylvania, the latter from that university's Wharton School of Business. Joe will lead off our discussion with an introduction to the terminology and operation of the currency swap market and an overview of market participants and the growth in the market.

MR. JOSEPH C. LAU: The currency swap is probably one of the most misunderstood tools in the financial world. I, myself, have to refresh every year to be sure I understand the product. Currency swaps, like interest rate swaps, are used very much today in the capital markets. I intend to demystify the concept of a currency swap. I'm going to begin by going through some of the definitions and mechanics of a currency swap. Second, I want to give you some market statistics, market parameters and information about the depth and breadth of the market. Finally, I want to give you some general examples of various uses of currency swaps.

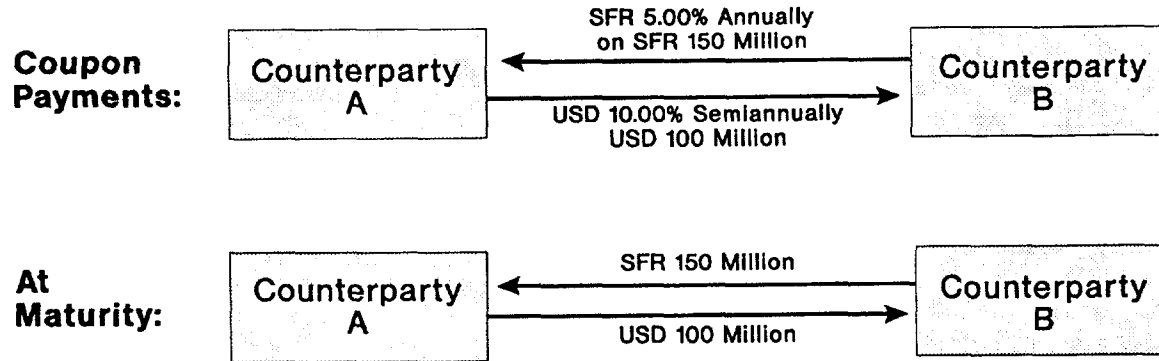
What is a currency swap? Well, a currency swap is a mutual contract between two parties to exchange cash flows in two different currencies. Chart 1 presents the anatomy of a five-year currency swap. Counterparty A is exchanging coupons with counterparty B. A is paying 10% interest to B on principal of \$100 million U.S. dollars, while B is paying 5% interest to A on principal of 150 million Swiss francs. At maturity, A pays \$100 million to B, and B pays SFR 150 million to A. The implicit exchange rate here, Swiss francs to dollars, is 1.5-1 which is very close to the current exchange rate or "spot" rate. I will go into why the re-exchange at maturity is very important for a currency swap. In an interest rate swap there is no exchange of principal.

Chart 2 is a depiction of the cash flows over time. At 10% interest on \$100 million, counterparty A will pay \$5 million every six months. Why every six months? Because in the dollar market the payment convention follows bond conventions, so interest is paid semiannually. On the other hand, B pays SFR 7.5 million annually (5% on SFR 150 million), since the convention here is that of the Eurobond market, which is generally annual pay. Note that at maturity there is the re-exchange of principal plus coupon.

What are some of the basic parameters of a currency swap? Of course, the counterparties have to be identified and have to be mutually acceptable to each other. You have to specify what the relevant currencies are. Coupon rates and frequencies, together

Anatomy of a Five-Year Currency Swap

(With No Initial Exchange of Principal)



PANEL DISCUSSION

CHART 2

Currency Swap Cash Flows

<u>Year</u>	<u>A Pays Dollars to B</u>	<u>B Pays Swiss Francs to A</u>
0.0	--	--
0.5	USD 5 MM	--
1.0	USD 5 MM	SFR 7.5 MM
1.5	USD 5 MM	--
2.0	USD 5 MM	SFR 7.5 MM
2.5	USD 5 MM	--
3.0	USD 5 MM	SFR 7.5 MM
3.5	USD 5 MM	--
4.0	USD 5 MM	SFR 7.5 MM
4.5	USD 5 MM	--
5.0	USD 105 MM	SFR 157.5 MM

FOREIGN CURRENCY SWAPS

with the principal amount, determine the amount to be paid each period and imply the spot exchange rate being used. And, of course, there is the maturity date. There are a couple of other parameters that are equally important, such as the effective date of your swap. When do you want that exchange of coupon payments to start? You can have a forward start currency swap or one that starts immediately. Day count convention is also very important. So are governing laws. Generally, currency swaps are done against New York laws, because many of the banks that arrange these swaps are located in New York. And finally, documentation -- terms and covenants -- is very important.

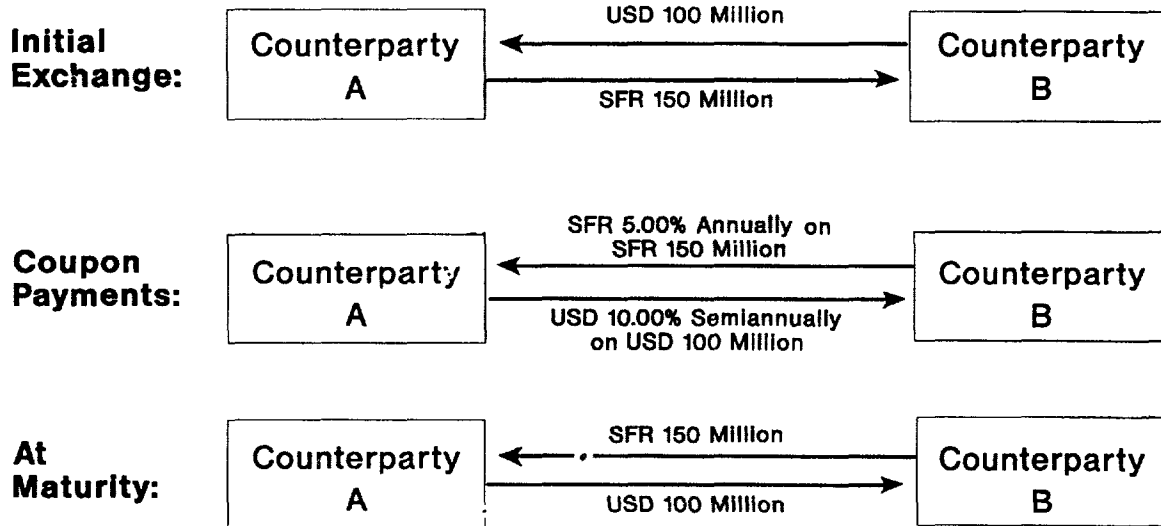
Now, I spoke about the currency swap where there is no initial exchange of principal. There is another class of currency swaps where there is an initial exchange of principal. For instance, if you buy a bond that's denominated in Swiss francs, you have to come up with the Swiss francs at settlement. You acquire the Swiss francs by paying dollars, which creates an initial exchange of principal. Chart 3 shows an initial exchange of \$100 million for SFR 150 million. In effect, counterparty B has borrowed Swiss francs from counterparty A and has lent out dollars. B uses the Swiss franc coupons it receives from its bond purchase to pay interest to A, and A in return pays U.S. dollar interest to B. At maturity there is again a re-exchange of principal (Chart 4).

I think it may be useful to contrast an interest rate swap against a currency swap. In an interest rate swap there is only one currency, either dollars, Swiss francs or deutsche marks, and no initial or final exchange of principal. Typically, counterparty B pays LIBOR (the London Interbank Offered Rate), a floating rate index, to counterparty A on some notional principal balance, while A pays B a fixed rate on that same balance. It is important to note that a currency swap may be structured to include an interest rate swap. In fact, the general convention today for quoting the currency swap market is fixed foreign currency against dollar LIBOR. Swaps of this nature can easily be converted to fixed foreign against fixed dollar by way of a separate U.S. dollar interest rate swap.

Currency swap values are extremely sensitive to exchange rates. There is, of course, no currency risk if a swap is held until maturity. However, if you were to close out a swap prior to maturity, the market value of that swap would be a function of the then prevailing exchange rates.

I'd like to give you a background of the market and what really motivated the currency swap market (Chart 5). Back in 1978, a U.S. corporation wanted to issue dollar-denominated bonds. However, it had been issuing a lot of dollar bonds, and the market was somewhat saturated with its paper. It had never tapped the Swiss market, and as a first time issuer it was likely to get a very good reception in the Swiss market, since the Swiss were anxious to own that credit in their currency. At the same time, the World Bank had been a regular Swiss franc issuer but had not been issuing in the dollar market. There was a similar advantage for it to raise funds in the dollar market instead of going to the Swiss market. The bank, wanting Swiss franc liabilities, could issue five-year Swiss franc bonds at 6% or could raise dollars attractively at 10.5%. The U.S. corporation, wanting dollar liabilities, could issue dollar bonds at 11% or could raise Swiss francs attractively at 5.75%. So what to do? Well, why not have the World Bank issue in dollars to raise funds at 10.5%, have the U.S. corporation issue in Swiss francs at

Anatomy of a Five-Year Currency Swap (With an Initial Exchange of Principal)



PANEL DISCUSSION
CHART 3

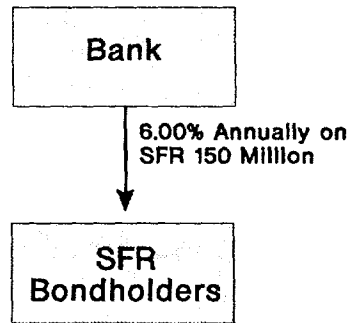
FOREIGN CURRENCY SWAPS

CHART 4

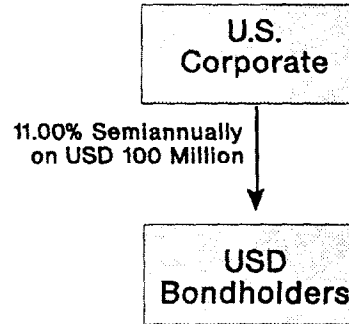
Currency Swap Cash Flows

<u>Year</u>	<u>A Pays Dollars to B</u>	<u>B Pays Swiss Francs to A</u>
0.0	(USD 100 MM)	(SFR 150 MM)
0.5	USD 5 MM	--
1.0	USD 5 MM	SFR 7.5 MM
1.5	USD 5 MM	--
2.0	USD 5 MM	SFR 7.5 MM
2.5	USD 5 MM	--
3.0	USD 5 MM	SFR 7.5 MM
3.5	USD 5 MM	--
4.0	USD 5 MM	SFR 7.5 MM
4.5	USD 5 MM	--
5.0	USD 105 MM	SFR 157.5 MM

A Motivation for the Currency Swap Transaction



- Needs SFR Financing
- Regular SFR Issuer
- Can Raise Five-Year SFR Money at 6.00% Annually



- Needs USD Financing
- Regular USD Issuer
- Can Raise Five-Year USD Money at 11.00% semiannually

FOREIGN CURRENCY SWAPS

5.75%, and have them exchange the cash flows (Chart 6). This is a classical capital markets arbitrage, bringing together two counterparties that have relative advantages in different debt markets and enabling them to leverage each other's access.

In this transaction, Salomon Brothers brought the two parties together as agent. Of course, in a case such as this, both parties have to accept each other's credit. In this particular case both parties were AAA credits, and there was no problem. However, suppose counterparty A has a problem with counterparty B's credit, and the two are not able to come together. In this case, an investment bank or commercial bank can become a credit intermediary (Chart 7). Using the same rates as in the example above, A could transact a currency swap with a bank intermediary to receive 10.5% on dollars for payment to its bondholders and pay 5.875% on Swiss francs, which is still better than the 6% funds it could raise otherwise. B could transact with the intermediary to receive 5.75% on Swiss francs for payment to its bondholders and pay 10.625% on dollars, which is still better than the 11% funds it could raise otherwise. The bank intermediary essentially has stepped in and taken out a fee of about .25, but with everyone basically winning by taking advantage of their respective capital market's arbitrage.

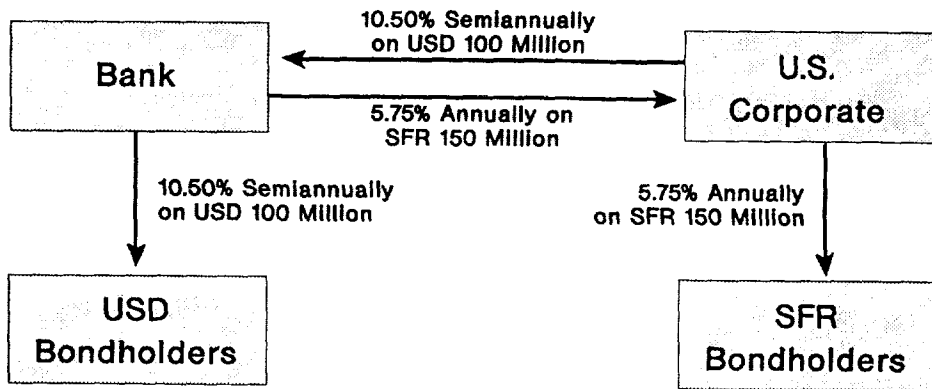
In the intermediation role the concept of warehousing is very important. If an intermediary is willing to position swaps, you don't have to have parties lined up at the same time to be in the markets that they want to be in. This is a very important point, because warehousing is what gives the market a lot more liquidity and depth. Banks and dealers began positioning swaps as warehouses in 1984-85, and since then the volume of activity in the currency swap market has really taken off. Chart 8 shows the growth in currency swap-driven primary debt issuance since 1981. In the last three years, such issuance has exceeded \$40 billion per year.

How big is the swap market? The currency swap market currently is about \$300 billion in size, with annual volume for the last two years of about \$150 billion per year. That makes this a very deep market, even relative to the interest rate swap market, which is about \$1 trillion in size with annual volume of about \$500 billion. Currency swaps are actively traded. There are many dealers involved, providing good liquidity. You generally have very sophisticated players in the swap market.

Chart 9 gives you an idea of the relative market depth, the average maturity of a transaction, and the liquidity for various currencies in the swap market. For instance, in the major currencies -- Japanese yen, British pound, German deutsche mark, and Swiss franc -- you can do trades up to \$100 million without upsetting the market, with maturities out to 10 years. Very few banks have gone beyond 10 years, although you can do it. The judge of liquidity is the bid/offer spread, the cost of getting in and out. This spread has been about 20 or 30 basis points, which is not unreasonable given the complexity of the market. Depth, maturity and liquidity vary for other currencies. As more issuers come into the market in these particular currencies, this creates better liquidity and helps the efficiency in the market.

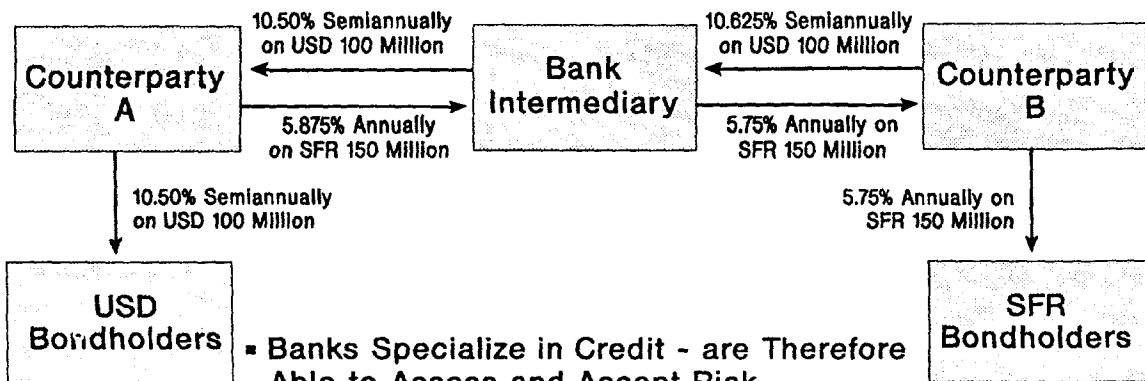
There are many commercial and investment banks involved in the currency swap market. Among commercial banks, Citibank and Bankers Trust run probably the largest swap

Salomon Brothers' Solution



PANEL DISCUSSION
CHART 6

Initial Response to Credit Problem



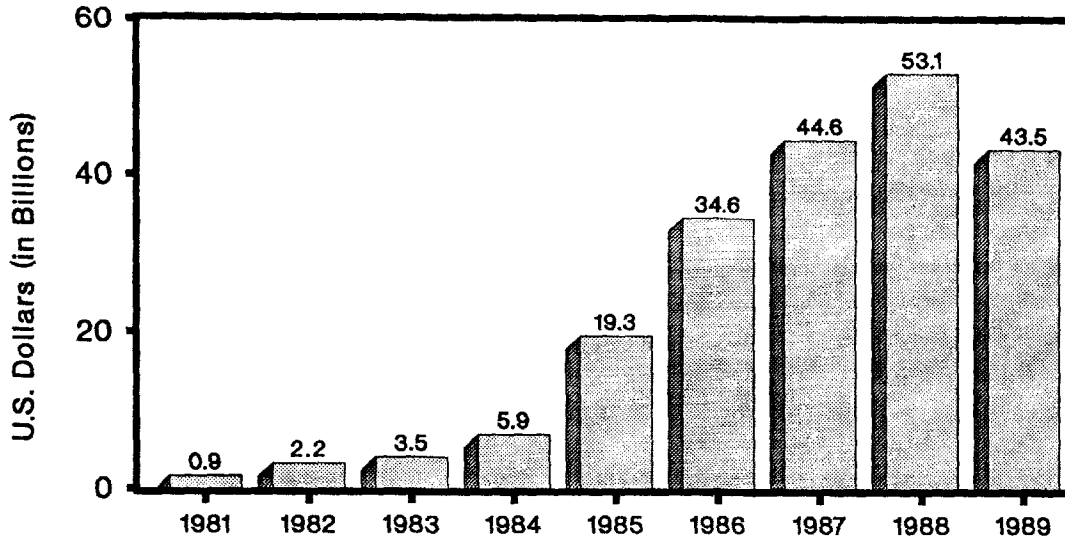
- Banks Specialize in Credit - are Therefore Able to Assess and Accept Risk
- Led to Opening of Market to Many Players
- Banks Could Hedge Positions - Simultaneous Debt Issues Were Therefore Not Necessary

CHART 7

FOREIGN CURRENCY SWAPS

Currency Swap-Driven Primary Issuance

1981 - 1989*



*To 8/11/89
Source: Salomon Brothers Inc

PANEL DISCUSSION
CHART 8

Estimated Current Swap Market Liquidity

	<u>Size (USD MM)</u>	<u>Maturity</u>	<u>Secondary Liquidity</u>
Japanese Yen	100	10 Yrs.	Fair
British Pound	100	10 Yrs.	Fair
Deutschemark	100	10 Yrs.	Fair
Swiss Franc	100	10 Yrs.	Fair
Canadian Dollar	75	10 Yrs.	Fair
Dutch Guilder	Depends on Availability of Counterparties		
Australian Dollar	30-50	3-5 Yrs.	Fair
French Franc	Depends on Availability of Counterparties		
ECU	75	10 Yrs.	Fair
Italian Lira	Depends on Availability of Counterparties		
New Zealand Dollar	25-50	3 Yrs.	Fair

PANEL DISCUSSION

books. Other major players include Morgan, Paribas, Chase, Security Pacific and UBS, to name just a few. Among investment banks, Salomon is very active. I believe both Goldman Sachs and Morgan Stanley have been active in arranging swaps, but they do not run large currency swap books.

Now I'm going to go into four or five general uses of currency swaps. Mike and Patty will go into some of the uses that pertain to the insurance industry a little later. Let's say you want to use a currency swap to change the liability mix of your bonds outstanding. Chart 10 is an example of a U.K. company that wants to expand into Switzerland to take advantage of unification on the continent. It does not need funds. It wants to buy a Swiss factory, say a Swiss cheese manufacturing company. Let's say it buys the Swiss company, giving it a Swiss asset. It would be wise for the U.K. company to hedge that asset with a Swiss liability, because if the currency were to move against the Sterling, losses on the asset could be offset by gains on the liability. The solution would be to enter into an unfunded currency swap where there is no initial exchange of principal. In this example the swap creates a synthetic Swiss franc liability out of one of the U.K. company's outstanding Sterling bond issues.

Chart 11 shows an example similar to the first, namely hedging overseas assets. In this case, a U.S. company has a subsidiary in Germany, which it expects to sell in three years. Now let's say in this case that the asset is expected to generate profits of 6 million deutsche marks per annum, the expected final value is DM 100 million, and the current spot rate is 1.8 deutsche marks per dollar. Basically you've got some economic exposures here. The sale value in dollars of the subsidiary, of course, would depend on the exchange rate at the time when you sell the subsidiary. Also, the annual profits, if you were to repatriate them, would be subject to the prevailing spot rate when you repatriate your earnings. The solution again is to enter into a currency swap where, in this case, the principal is 100 million deutsche marks, which matches your ending value, and the coupon is 6%, which produces coupons that match your annual profits. Essentially you've converted your deutsche mark revenues into dollars, locking in a three-year annual return of 10% on \$55 million (DM 100 million divided by 1.8, which is the current exchange rate).

For another example (Chart 12), let's say you are a Japanese company that expects to have a smooth stream of deutsche mark revenues. Of course, you would much rather have yen revenues. You can enter into a series of exchanges of deutsche mark for yen. This is what we call an annuity swap. Basically, you have entered into a series of forward contracts which produces a series of smooth yen cash flows that are not affected by volatile exchange rates.

The last example I want to show you, and I will go through it very briefly because Mike will also be talking about this, is fully hedging some bonds that you've bought in a different currency. A fully hedged asset swap usually takes the form of a nondollar bond converted through a currency swap into a dollar bond, either fixed or floating, or a dollar denominated bond converted into a Swiss franc bond. Chart 13 shows a recent Salomon currency swap that was designed to convert a Westinghouse Euro-yen fixed rate bond into either a fixed dollar or LIBOR dollar bond. LIBOR is particularly attractive to banks that fund on a floating rate basis. To the extent that they can earn a spread over

Liability Management

Altering the Currency Mix of the Liability Portfolio

Situation:

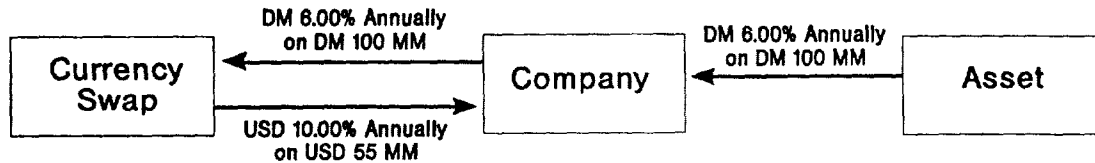
- Company Does Not Need Funds
- Has an Outstanding GBP Bond (11% SA Due in Five Years)
- Wants to Create a Swiss Franc Liability to Hedge Recent European Expansion

Solution:

- Unfunded Currency Swap
- No Exchange of Principal
- Creates a Synthetic Swiss Franc Liability
- May Easily Rehedge



Hedging Overseas Assets



Solution:

- Three-Year Currency Swap to Pay DM 6.00% Annually on DM 100 MM
- Matched DM Cash Flows Eliminate Economic Exposure
- Balance Sheet Exposure Eliminated by Marking the Currency Swap Hedge to Market

Hedging Foreign Currency Receivables

Situation:

- Japanese Company Generates Revenues in Deutschemarks
- DM 5 Million Expected over Each of the Next Five Years
- Fearing that the Yen May Strengthen, Company Wishes to Hedge these DM Cash Flows

Solution:

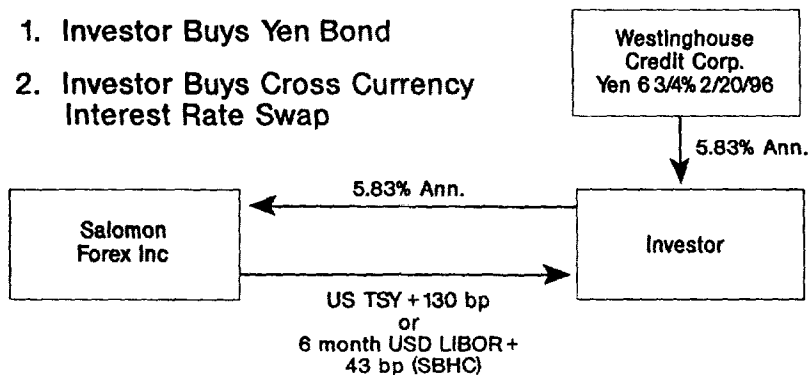
- Annuity Swap - Exchange a DM Cash-Flow Stream for a Yen Cash-Flow Stream
- No Bullet Payments at Maturity
- Creates a Synthetic Yen Cash-Flow Stream



Currency Swaps

Swapping a Euro-Yen Issue into U.S. Dollars

1. Investor Buys Yen Bond
2. Investor Buys Cross Currency Interest Rate Swap



PANEL DISCUSSION
CHART 13

FOREIGN CURRENCY SWAPS

LIBOR with LIBOR as their funding cost, they can lock in a spread with this synthetic security.

I've gone over some of the uses of currency swaps. Of course, there are many, many uses. To summarize, some of the most important uses are in facilitating primary capital markets issuance, assisting in liability management, hedging assets, hedging receivables and, finally, converting a bond from one currency to another.

MR. BOUSHEK: Our second speaker is Patty Owens. Patty is a Senior Vice President in the Bond Management Department of Equitable Capital Management. She is responsible for interest rate and currency risk management at the Equitable, directing the use of futures, options, interest rate and currency swaps, forward contracts and other hedging vehicles. In addition, she is also the Manager of Short-Term Investment Operations at the Equitable. Patty is the principal architect of many of the current regulatory provisions that allow for the expanded use of hedging vehicles in the insurance industry. Patty is a graduate of the University of Detroit and holds an MBA in Finance from Adelphi University. She also has one of the more interesting backgrounds of the many interesting people that I have met thus far in the securities business. In my own operation I have working either for me or with me a former CPA, a former military officer, a former auditor and a former petroleum engineer, and have bought securities from a former teacher, a former Peace Corps volunteer and a former tax accountant. However, Patty's background is even more unique. She holds an undergraduate degree in physical education, and in her previous life worked as a recreational therapist in a psychiatric hospital before entering the securities business. Now, that provides all kinds of interesting opportunities for a lead in, all of which I'm going to resist the temptation to use. Patty's comments will focus on the decision-making process surrounding the use of currency swaps in life insurance companies.

MS. PATRICIA OWENS: I see my role on the panel as being one of introducing an element of practical experience into this theoretical good news that my colleagues are talking about. I agree with Randy's earlier comments that it's getting harder and harder to ignore the nondollar market, as globalization is speeding up and the communist barriers are falling down and Germany is moving towards a unified state. As all of these things are occurring, the dollar's role in the world economy is shrinking. At the same time, at home our environment in the insurance industry is getting more and more competitive, and it's getting harder and harder to find investments that achieve the rates of return that we need to maintain margins and to build surplus, all of which are very important issues to insurance companies. I'm going to spend some time talking about currency swaps, but I'd also like to talk a little bit more about some of the practical issues surrounding movement into the international market.

There are lots of situations where foreign currency risk can be taken or can exist in a company. One reason is to capitalize or repatriate funds from overseas operations. Another source of risk is in protecting not so much foreign assets supporting foreign liabilities, but the spread between them -- the part that may become part of surplus or ultimately is sent back home as profit. An important use of these instruments in these markets, in my opinion, is one which allows you to diversify the source of your assets. And this is particularly true for currency swaps. You can take foreign bonds and convert

PANEL DISCUSSION

them, whether they're publicly or privately offered, into dollar investments. You can take foreign money market instruments and convert them into dollar money market instruments. You can look at foreign equity markets, foreign real estate markets, and foreign LBOs (leveraged buyouts) or venture capital markets. The last three are interesting but tricky. Converting them is a nontrivial problem -- it's very complicated. But even given that, it makes sense to consider them as alternative sources of investments. The LBO market, for example, in Europe is much less well-developed than it is here in the United States. As a less well-developed market, it's less efficient. You can expect higher returns because of the fact that it's less efficient. Also, another advantage to going into the European LBO market is that investors there are less tolerant of high levels of risk, and so those companies tend to be less leveraged than they might be here in the United States. Thus you can earn an equivalent rate of return with a slightly less risky investment.

Ultimately, in using the foreign market, you're going to end up in one of two situations. You're either going to be looking at hedging investments that you own, or you're going to be looking to these markets to create a synthetic investment. The end result is the same. The strategy looks the same. The positions that you take look the same. The difference is in motivation. Hedging will come about when you have a currency risk out there that you want to deal with and you're setting it aside, taking out the currency risk. A synthetic investment is where you're purposely going out and looking for an investment with currency risk in it and then eliminating it. Now, just one caveat. If, in theory, all these markets are efficient, then when you take a nondollar investment and convert it back to dollars, you should take out all the arbitrage, as they like to say on Wall Street. But in reality it doesn't always work that way. Interest rate parity is out there, but because of the basic arbitrage that Joe mentioned at the outset, there are still opportunities to get incremental dollar returns on nondollar investments.

I want to talk to you about the decision-making process as you look at foreign investments. I think the most important and most basic thing to keep in mind is that you have to separate the investment risk from the currency risk. The investment has to stand alone, disregarding the currency risk. It has to be an investment that makes sense by itself. After you've determined that, then you can decide what you're going to do about the currency risk. Notably, the right decision isn't always to hedge. In the first place, it is very expensive to always be fully hedged, whether against interest rate risk or currency risk. In addition, there are regulatory considerations. In New York State, which has the insurance rules that I am the most familiar with, there are basket limitations on how much you can put into foreign investments. The old basket was a 1% limitation on foreign investments, with a 2% spillover which captured foreign investments as well as other things. In 1989 a new basket was adopted, in addition to the old one, which allows you to have another 3% of assets in foreign issuers. However, those issues have to be either dollar denominated or fully hedged. Of course, "fully hedged" is not clearly defined in that law, and no rules have been promulgated to clarify it, so there is some question as to what that means. But it does have to be a dollar asset. In the original basket, the concern was the credit risk as opposed to the currency risk. The new basket doesn't care about credit, but it cares a lot about currency.

FOREIGN CURRENCY SWAPS

A third consideration in hedging is the impact that being hedged or not being hedged has on your earnings. One of the things that I have heard time and again from the people who manage our various business segments is, yes, they are interested in looking at these other markets, but they don't want to see any volatility in their earnings or on their books coming from currency risk. There is a whole series of things that you have to consider for impact on the books with respect to currencies, and part of that is how much volatility you can tolerate. Sometimes a business can't tolerate any volatility in earnings, but maybe sometimes it can.

Now, there are more than currency swaps available in hedging currency risks. Probably the biggest and deepest and most liquid market for hedging currencies is the interbank market. This market is most efficient in shorter-dated maturities. Once you get beyond three or four years, however, you probably are better off looking to the swap market. There are also exchange-traded currency futures and currency options. There is not much difference between foreign currency futures and the interbank forward market. The instruments themselves are and do exactly the same thing. The real difference comes in the credit exposure that you have. In the forward markets, you are dealing directly with a counterparty and are clearly exposed to that counterparty's credit risk. In the futures market, you are dealing with an exchange as the counterparty that you look to for delivery on the contract. There are a lot of safety features built into the structure of an exchange to minimize your credit risk, so there is less of a credit issue in futures. However, the futures market is very predetermined, and there is no flexibility. Futures are what they are; you meet the expiration dates, and that's all there is to it. In the forward market, you can pinpoint an exact date and get an exact amount of money involved. There is a lot more flexibility in terms of customizing a hedging transaction in the forward market.

In determining what instrument makes the most sense for you to use in a particular situation, you need to consider how much flexibility you have. How much do you know about the situation you're hedging? If you know a lot about it, you know that there is a settlement date and a specific coupon payment date, you know exactly the amount that's going to be received on those days, and you know the final maturity. That lends itself very well to the currency swap market. You know a lot about the cash flow, and the swap addresses that. The less you know, the more flexibility you need, and that would lead you to use those instruments where you have flexibility, like forwards and futures. The LBO example that I mentioned at the beginning is one where the swap market is not particularly conducive to being used. Why? Well, I know that I've committed a total amount at the outset, but do I know when it's going to be called? No. Do I know how much is going to be called when it's called? No. Do I know when I'm going to start to harvest my investments? No. Do I know what the expected return is? Well, we have a hope that it's going to be very high, but we don't know for sure. The idea of being able to go out and do a currency swap because you expect this investment to pay off in the sixth year at x rate just doesn't work. A more rational approach to that is probably some kind of a rolling hedge strategy using forwards or futures, depending upon how much liquidity you need.

Liquidity is definitely an important issue. If you don't know much about the situation you are hedging, you need more liquidity. You need an instrument that you can go in

PANEL DISCUSSION

and get out of without taking a big spread between the bid and the ask. With respect to interest rate contracts I would say that the futures market has better liquidity than the over-the-counter forward market. In the currency market that's not really true. The forward market is really a very liquid market. You have the ability to go in and offset open contracts much more readily than you would in the interest rate forward market. So, you're probably going to lean towards that market. One of the other problems with the futures market is that futures contracts don't exist on every currency. I should note, however, that one of the little things we've stumbled across is that the IRS has an interesting view of what constitutes hedging when you're using forward contracts. Typically, futures contracts are called Section 1256 contracts, and there are certain hedging rules that apply to 1256 contracts. You would think that if you didn't use the currency futures, you could avoid all of those 1256 issues. However, the IRS has taken the position that, if you use a forward currency contract on which there is also a futures contract, the forward is also to be considered as a 1256 contract.

Another thing you need to consider in choosing a hedge is what the cost is going to be of the various hedging instruments. Generally speaking, there is no up-front cost for a forward or future or currency swap. Options, of course, do have up-front costs. My experience in working with our various business managers has been that even though the option may give you a nice risk/reward pattern, the cost of it up-front eats enough into margin so that it's not always the first choice. We tend to look more towards the forwards, futures and swaps. When you use those instruments, you are locking in today's level. The cost in this case is opportunity cost. If the currency moves in your favor, you are not going to benefit from that. In addition, in posting variation margins on these contracts you have to tie up cash that will not be available for other corporate uses.

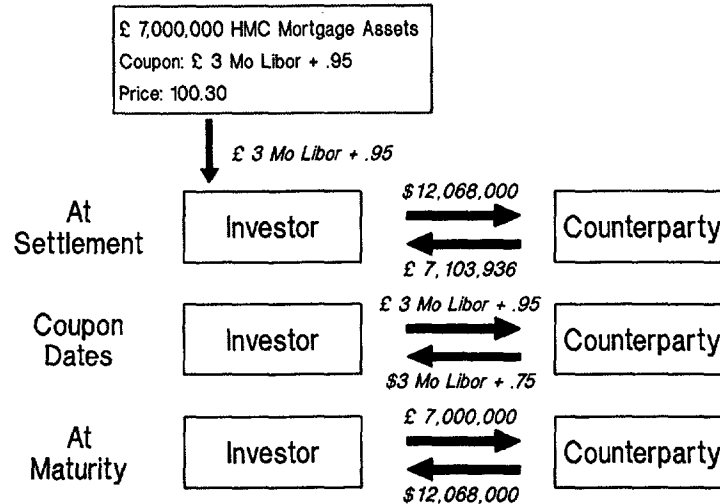
The final factor to consider is how much protection you want. Do you want full protection, partial protection, or disaster insurance? This too must be considered in your analysis, along with flexibility, liquidity, and cost considerations.

I have three examples of swaps that we have done for our various insurance company clients. I don't want to spend a lot of time on them, particularly since you'll see variations of this from Mike, but these are actual transactions that we've done. The first one was the creation of a synthetic floating rate note from HMC Mortgage Corporation, which is a building society in the U.K. It issued a mortgaged-backed security that is a floating rate instrument paying Sterling LIBOR plus 95 basis points. There is no amortization on this investment for four or five years. We entered into a currency swap with the counterparty in which there was an initial exchange of principal. In Chart 14 you can see that the dollar amount involved in this transaction was about \$12 million, which was the equivalent of about 7 million in Sterling. At each quarterly coupon date we exchanged three-month Sterling LIBOR plus 95 for three-month dollar LIBOR plus 75. At the end of the contract we exchanged principal back again. One thing that I wanted to mention about this trade is that we initially thought we wanted a floating rate instrument, so we exchanged Sterling LIBOR for dollar LIBOR. However, a few days after this trade was put in place the portfolio manager came to me and said that his company would really like to use the investment in the fixed rate portfolio instead. So, several days later, we went to a different counterparty, did an interest rate swap on it, and created a fixed rate dollar investment. Both the currency swap and the interest rate

U.S. Dollar Synthetic Floating Rate Bond

An investor desiring floating rate U.S. Dollar investments cannot find suitable investments among traditional U.S. dollar assets.

Solution: Purchase a foreign denominated floater and enter a currency swap to pay floating foreign currency and receive floating U.S. \$.



Effective Floating Rate Coupon = \$ 3 Mo Libor + .75

PANEL DISCUSSION

swap have the same end date, which was the date on which the investment begins to amortize.

The second example was the creation of a synthetic fixed rate bond (Chart 15). In this case the issuer was the Student Loan Marketing Association (Sallie Mae), and the bond was yen-denominated, paying a 7.5% coupon. We purchased this bond at a discount. Once again we had an exchange of principal at the settlement date, an exchange of coupons, and an exchange of principal at maturity. One thing that I would point out as a problem in currency swaps, and it's not one that should prevent you from being involved, is that almost invariably the bond you're buying is either at a premium or discount. You'll notice that in both of these examples. If both sides are at par, you can easily imply an exchange rate which allows you to create a synthetic dollar bond that most accounting systems can accommodate. But when you have a discount on part of the swap and a premium on the other, that translation does not happen easily. It took us several weeks to figure out how we were going to put the HMC swap in our system. We literally kept track of it by hand until we could figure out a way to do it. Our solution was to treat the swap as three separate items -- a long position in the Sterling investment issued by HMC, a short position in an offsetting Sterling investment issued to the counterparty, and a long position in a dollar investment issued by the counterparty.

The last example (Chart 16) is hedging a foreign denominated liability which needs to be turned back into dollars. The insurer here has issued a GIC in deutsche marks but desires cash flow in dollars. In this case there was an initial exchange of deutsche marks for dollars, a periodic exchange of coupons, and a final re-exchange of dollars for deutsche marks at maturity.

I've already mentioned some of the practical problems I wanted to talk about, one of them being the par/nonpar problem. Another thing that we have encountered is that some nondollar investments have tax withheld from them, sometimes correctly and sometimes not. Mike is going to talk about an Italian lira example, which I think is a very interesting example of a synthetic asset. In the lira market, the Italian government issues bonds which are very attractively priced. However, there is a withholding tax on the coupons, which you recover in the form of a tax credit at the end of the year. The problem that we've encountered in looking at these bonds, and one that has kept us from buying them, is that for internal accounting purposes the year-end tax credit is applied across our whole enterprise, not just to segments owning the bond. Any segments buying the bonds thus receive only the withholding-reduced yield and a partial recovery of the offsetting tax credit.

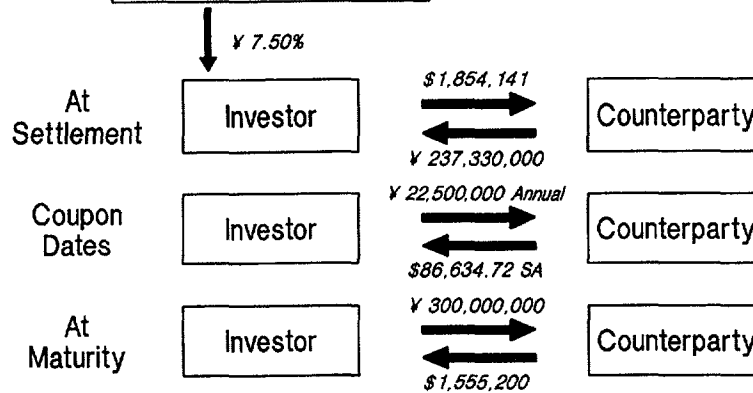
The last problem I want to mention, and one that I don't know has a solution, comes about in situations where there's a forward commitment on an investment. The day you make the commitment you've incurred economic risk emerging from currencies. Unfortunately, the commitment does not show up anywhere on the books. If you were to hedge the commitment to lock in the cost of your currency, it looks like a speculative position on the books because the hedge position shows up while the commitment doesn't. This can really introduce volatility into book earnings. I don't know how to solve this one, but we're working on it.

U.S. Dollar Synthetic Fixed Rate Bond

An investor desiring fixed rate U.S. Dollar investments cannot find suitable investments among traditional U.S. dollar assets.

Solution: Purchase a foreign denominated fixed rate asset and enter a currency swap to pay the foreign currency and receive fixed U.S. \$.

¥ 300,000,000 S.L.M.A.
 Coupon: ¥ 7.50 %
 Price: 79.11

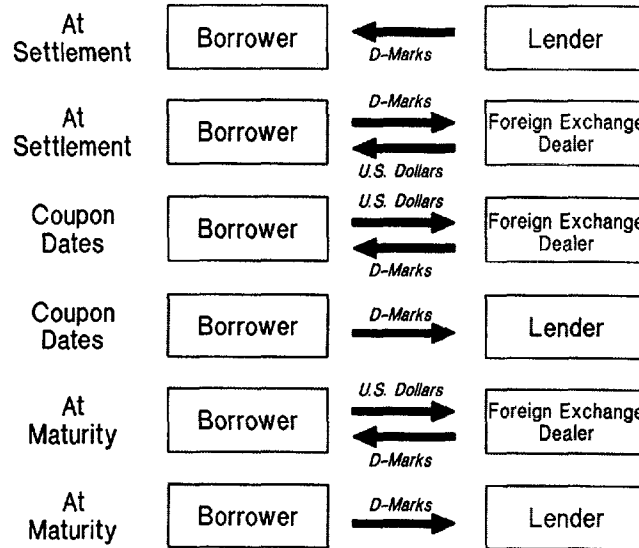


Internal Rate of Return = 9.345%

Hedging a Foreign Denominated Liability

A U.S. based borrower wishes to borrow overseas since it can do so more cheaply than it can domestically. However, the firm wishes to lock in the cost of the liability in U.S. Dollars

Solution: Enter a currency swap to pay U.S. \$ and receive the foreign currency.



FOREIGN CURRENCY SWAPS

MR. BOUSHEK: Our final speaker is Michael Murdoch. Mike is a Vice President in the Worldwide Insurance Division of Chase Manhattan Bank in New York. In that role, he is responsible for identifying and developing asset liability management strategies for insurance clients, specializing in the use of interest rate and currency derivative products. Mike is a graduate of Stanford University and has received an MBA in Finance from the University of Chicago. His comments will focus on case study applications, applying currency swaps to the insurance industry.

MR. MICHAEL B. MURDOCH: What I'd like to do is share with you some examples of the work that I have been involved in with Chase's insurance clients. My role in these relationships is to identify interest rate, currency and derivative product strategies that will meet a whole range of insurance company needs.

The first question that you might ask is, why are so many insurance companies doing currency swaps right now? Also, who's doing them within insurance companies? What I've found through my experience is that there are three different groups within an insurance company that are looking at currency swap transactions: investment management, finance, and asset/liability management. Typically one of these areas will be more dominant. Investment managers are looking to pick up yield for their portfolios by creating synthetic assets, and also to diversify their credit risk globally. Treasurers are looking at swap-driven primary issuance to raise funds at the lowest possible cost and to take advantage of tax arbitrage. And actuaries are looking at foreign investments and foreign operations and wanting to make sure that foreign currency denominated assets are funded with foreign currency denominated liabilities.

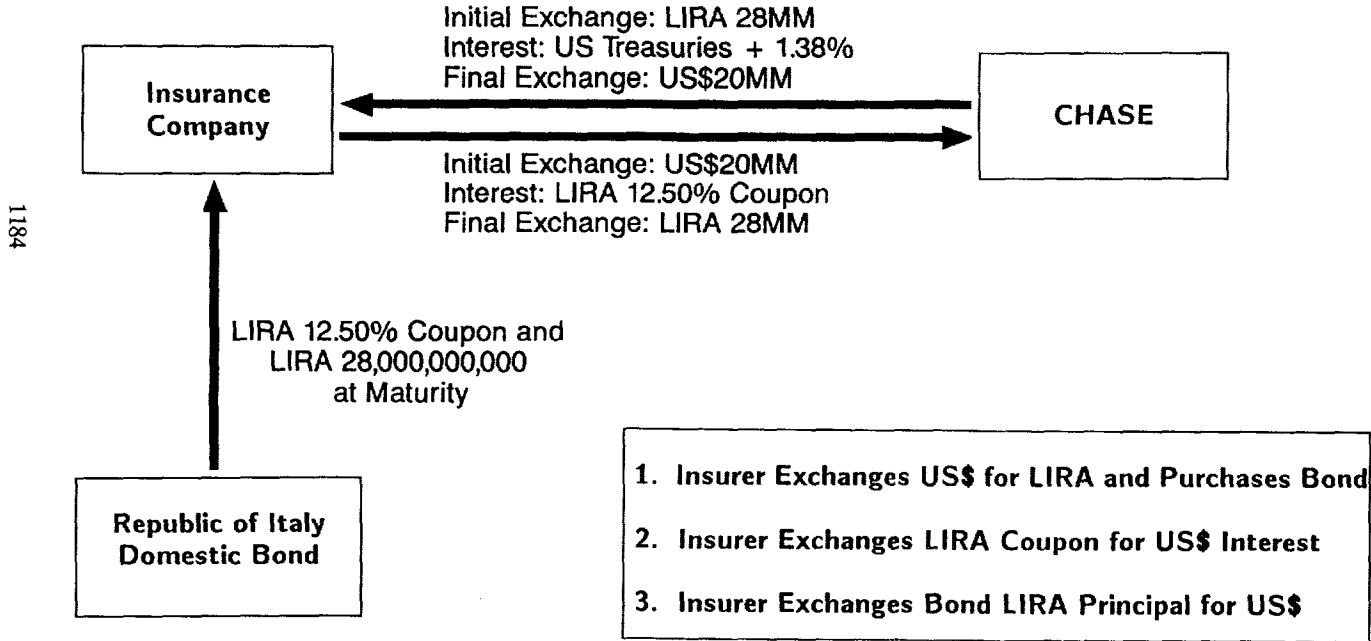
I've always thought that the best way to learn about currency swaps, or any sort of transaction, is to look at some case studies. I have reviewed several of the transactions that we've done at Chase for insurance company clients and have selected at least one from each of the three different categories: two that are driven by the investment area, one that was driven by the finance unit, and one that was driven by asset/liability management concerns.

Case study 1 is illustrated in Chart 17. This is an example of investment yield enhancement. The company in this case was a large mutual life insurance company that had built its reputation in the group pension business. It is totally domestic and has only U.S. dollar denominated liabilities. Its portfolio is overwhelmingly fixed income, and it has consistently ranked in the top quartile of investment yield comparisons without reliance on junk bonds or mortgage derivatives. The company came to us looking for ways to enhance its investment yield in order to keep generating above industry average returns. What we recommended was the purchase of the Republic of Italy bond that Patty mentioned, together with a lira/dollar currency swap. In this transaction our client was able to earn 103 basis points over comparable minimal risk U.S. dollar investments -- the Republic of Italy is AAA -- by taking advantage of its tax position.

To understand the tax arbitrage, it has been explained to me that Italians basically do not like to pay taxes. The Italian government, in order to raise revenue, has instituted a withholding tax on its own treasury bonds. However, the Italians have told their government through the capital markets that it can withhold as much tax as it would

Investment Yield Enhancement

\$20 Million Cross Currency Swap



FOREIGN CURRENCY SWAPS

like, provided it makes up the difference in excess yield. Now, I don't know if this means that, since Italians have a 12.5% withholding tax, the bonds necessarily have to pay a 12.5% higher yield, but clearly this creates an anomaly in the market that presents opportunity for a U.S. investor able to capture both the net yield and the year-end tax credit on these bonds. One thing I do need to point out in this example is that, while the coupon that the insurance company receives from the Republic of Italy is net of withholding, the terms of the swap require that the insurance company forward to Chase the full gross coupon.

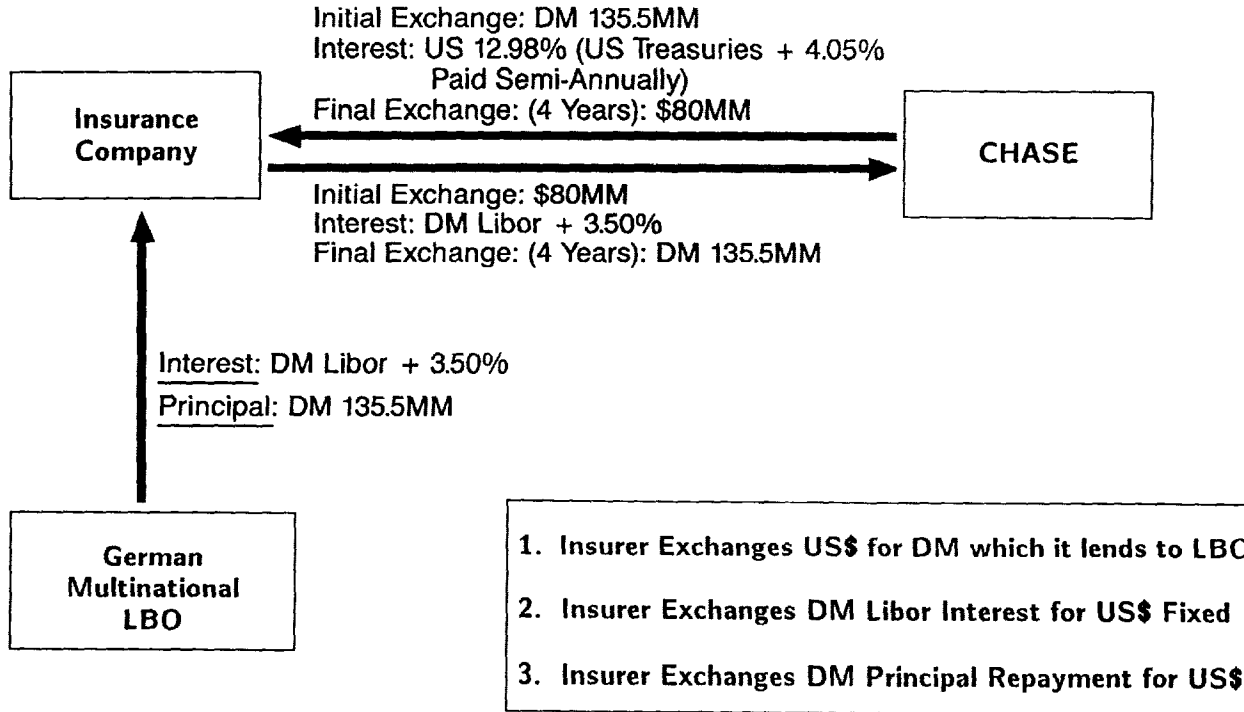
Case study 2 (Chart 18) is also an investment-driven transaction, based on diversification of investment opportunities. The company in this case is again a large domestic life insurance company, with particular expertise in private placements and experience in the LBO market. As Patty mentioned, the LBO market in Europe isn't as developed as it is here, and this company believes that it can identify opportunities to leverage its structuring and contract expertise in the European market. The company is also interested in achieving global risk diversification in its portfolio. Through its overseas offices the company had identified an opportunity to fund a deutsche mark private placement for a German multinational. Lacking a deutsche mark liability, the company in this case did not want to add the investment to its general account on an unhedged basis. The solution we developed was a deutsche mark/dollar currency swap, which produced a customized foreign security investment with a fixed U.S. dollar return. The initial, periodic and final cash flows for this swap are illustrated in Chart 18. One interesting thing about this swap is that the LBO market in Germany, at least for this particular sector, was floating rate deutsche marks. This currency swap transaction thus incorporated an interest rate swap as well.

Now I'm going to change gears and put aside the investment side of the house. Case study 3 is illustrated in Chart 19. This transaction involved a large stockholder-owned property/casualty company. It had recently emerged from a downturn in the underwriting cycle and business was really picking up. Premium growth was accelerating, and the company soon realized that it didn't have enough surplus in the insurance company to write the business that it wanted to write. It decided to issue debt to raise capital and sought to determine where the holding company could issue debt at the most competitive rate. The company determined that the low coupon Swiss franc market looked attractive, believing as it did that the dollar had depreciated as far as it was going to for awhile against the Swiss franc. The company issued the bonds -- unhedged -- in early 1988, and then watched as the dollar strengthened steadily through several quarters, giving incredible boosts to quarterly earnings. We started talking to the company at this point, and in the fall of 1989 it decided to hedge its appreciated position with a currency swap having no initial exchange of principal. With this swap, it was effectively able to lock in debt financing at Treasuries minus 16 basis points.

My final case study is illustrated in Chart 20. I think this transaction involved almost every area of the insurance company that we were working with, but it serves as an example of an asset/liability management application. The company in this case was a U.S. property/casualty insurer with an opportunity, if it moved quickly, to significantly increase its investment in a U.K. insurance company. It knew that it would have to raise some additional debt at the holding company level in order to pay for this transaction. It

Diversification of Investment Opportunities

\$80MM Deutsch Mark Currency Swap

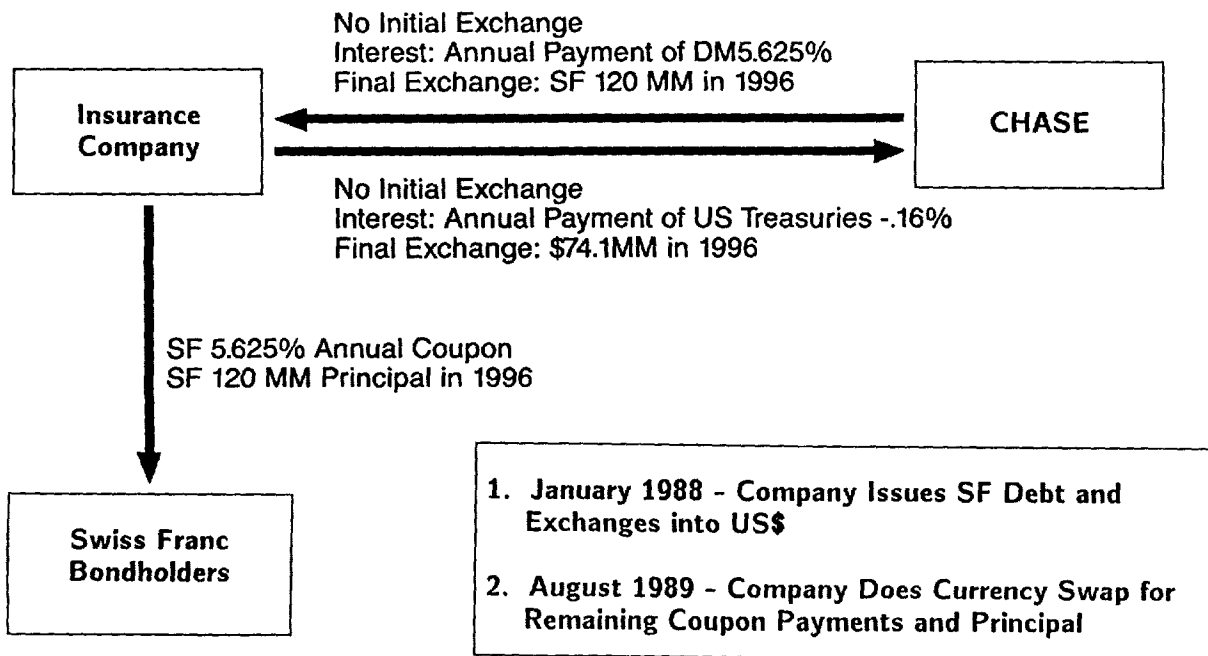


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PANEL DISCUSSION
CHART 18

Application: Surplus Management

\$74MM Swiss Franc Currency Swap

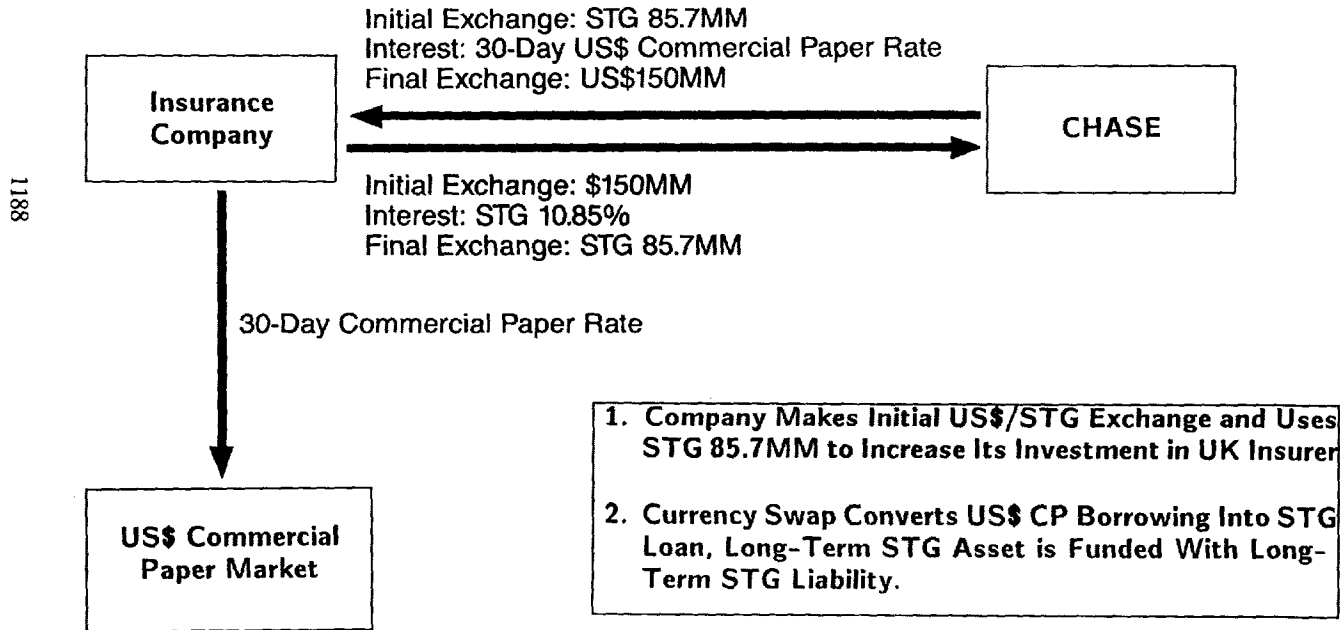


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FOREIGN CURRENCY SWAPS
CHART 19

Application: Asset/Liability Management

\$150MM Pound Sterling (STG) Currency Swap



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PANEL DISCUSSION
CHART 20

FOREIGN CURRENCY SWAPS

also was concerned about the impact that currency fluctuations would have on earnings as a result of its increased exposure to U.K. Sterling. Ideally, we would have liked to recommend that the company issue a pound Sterling bond or Eurobond or arrange a pound Sterling private placement to raise the necessary capital. However, the company had no recognition in the Euromarkets or with British investors and had very little time to act. One thing it did have was a U.S. dollar commercial paper program that it had set up three or four years earlier. The program had not been heavily utilized, and the company was an attractive name in the U.S. market. Our solution in this case was to utilize the company's commercial paper program in concert with a currency swap to convert its U.S. dollar obligation into a pound Sterling floater. Bottom line, the company was able to raise capital for the acquisition in its market of relative advantage and still match off its currency risk on the asset through a currency swap on the liability.

MR. BOUSHEK: That concludes the formal remarks from our panelists. I would like to open up the floor for any questions, beginning with one that I would like to ask. We've talked about the mechanics of currency swaps, how they can be used, and who uses them. I wonder if the panelists could address what they see as the risks in currency swaps.

MS. OWENS: As opposed to an interest rate swap where no principal is exchanged, the currency swap clearly has principal risk in it. There's a lot more money flowing back and forth, which implies that the credit exposure that you have in a currency swap is much greater than it is in an interest rate swap. I think it's imperative when doing currency swaps that you consider the credit of the counterparty as well as the credit of the transaction itself.

MR. LAU: Just to add to that point, let's take a look at the fully hedged asset swap. Suppose you bought a fully-hedged Swiss franc bond, and the credit quality began to deteriorate. If you wanted to reduce your exposure to the credit by selling the bond and closing out the swap early, your terminal values are obviously a function of the then current spot exchange rates. There are also close-out costs to consider. The bid/offer spread for currency swaps tends to be around 20 basis points on average.

MR. MURDOCH: I think the greatest risk with currency swaps arises when you enter into a transaction where the cash flows that you're trying to hedge are hard to define with certainty. The risk here is underhedging or overhedging a currency exposure, and creating an exposure as a result.

MR. IQBAL A. PASHA: I'd like to ask a question relating to the cost of hedging, in particular the cost of rolling hedges. In the insurance industry we tend to think of hedging as a kind of insurance that we take out. And when you're talking of insurance, we think of premiums, the cost that's incurred in taking out the insurance. When we are hedging currency risks with options, the up-front cost is clear-cut. With other hedging vehicles, we'd like to have some kind of indication of how the cost would be evaluated, particularly for rolling forwards. There are two kinds of cost: opportunity cost and cost of closing out the contract. Opportunity cost applies generally to all investments. But how do we evaluate the cost which arises when we close out the forward contracts?

PANEL DISCUSSION

From your experience, do you have a figure in mind that you could use as indicative of long-term cost?

MS. OWENS: I wish that were a simpler question. There are going to be two factors which affect the mark-to-market on a rolling hedge, whether you're using forwards or futures. One is going to be the change in the relative level of the currency. The other cost, if you will, is the interest rate differential for the forward drop. If, for example, you do a pound Sterling investment, U.K. interest rates are much higher than ours, so the forward rate is lower. And because the U.K. also has an inverted yield curve, that cost is very steep. If you were to take a long-term hedge, let's say for a year, or two years, or five years, whatever the shape of that yield curve is to date is built into your hedge. By taking short, smaller bites of time, it may be very steep today and the steepest part of the yield curve may be from spot to three months, but you're only doing it for three months. And if during that three-month period the interest rate differential decreases or the yield curve becomes less steep, then the next three-month segment could be more costly. There's no way to predict either one of those changes. You can't predict what interest rates are, or what currencies are going to do relative to each other, and you can't really predict what interest rates in different countries are going to do. To put a rule of thumb around what we can expect that to be is unrealistic. Also, since the gains or losses on your forward contracts or your hedging instrument are being offset by similar changes in the value of your assets, the true cost gets to be how well those two things are operating together. If you have certainty and you go to maturity, I think that that's an accessible cost. You can figure out exactly what that interest rate differential is going to cost you over the horizon. It's when you have to liquidate before your expected horizon date that you're subject to interest rate changes, relative interest rate changes and currency changes.

MR. LAU: If you really want to get a handle on the true cost in an accounting sense, it would go back again to the bid/offer spread in the forward market, the cost of turning over those forward contracts if you're doing it on a rolling forward basis. How much does it cost you to enter into those series of transactions?

MR. RICHARD E. SWAGER: Let's take one of Mike's examples where the company effected a transaction that added 103 basis points to a yield that had a relatively similar credit quality here in the U.S. Patty opened the reading by saying there were different motivations for some of these transactions, although they have similar structural patterns. If I tell you I'm earning 8% on my money, you don't know whether that's good or bad unless everybody else is earning 6 or 12%. In the example, I assume that transaction was motivated by somebody who wanted to enhance his yield and had cash to invest. How would the economics of that transaction change if it were bigger or smaller, or if the motivation came from the other side of the ocean?

MR. MURDOCH: To address the first part of your question, any constraint that you have is probably on the side of bigger rather than smaller. For a currency swap in lira, you probably couldn't do a transaction of \$100 million at one time without having some impact on the market. By the time you get to this size, however, the practical constraint is probably going to be more on the credit exposure between those counterparties than on the size of the swap.

FOREIGN CURRENCY SWAPS

MR. SWAGER: If that transaction had gone to Patty, to Joe and to you on the same day, would the potential spread for that client range from 80 basis points to 100 basis points?

MR. MURDOCH: No, it wouldn't. The deal would be decided by perhaps a one or two basis point difference.

MR. LAU: The range depends on the liquidity of the bond. The asset that Mike described was Republic of Italy, a well-known issuer. It is a bond that is very liquid. In terms of the pricing of the bond there's not much leeway as to where you buy or sell it, so the bid/offer on the bond is pretty tight. Unless a dealer is trying to get long or short on this particular bond, there is not likely to be significant differences in the offering levels you can obtain from various dealers. It is likewise in the currency swap market. For most major currencies there is pretty efficient pricing from one dealer to the next. If one dealer has a long or short position that he wants to unwind, say he needs to add an exposure to lira to cancel a short position on his books, then he would be probably much more aggressive in bidding for that swap than another dealer who doesn't have an appetite to receive lira. However, for the most part the comparable offering levels for various currency swaps are very tight. As to whether there would be a difference if the funding were to come from an overseas investor, no there would not. The question would be whether 103 basis points is enough for a foreign investor in a different tax situation.

MR. PASHA: I have a much simpler question this time. When purchasing foreign assets that are held outside in custody, for example in Euroclear, does this create any kind of problems with the regulatory authorities in any of the states?

MS. OWENS: No, we haven't encountered any. As far as I know, they're fine. We hold most of our securities in Cedel and Euroclear, but we also have foreign custody away from that for physical delivery as well. I don't think it's a problem.

MR. BOUSHEK: I would offer one comment here. Apart from regulatory considerations, there are costs in the warehousing of these securities that can offset part of their basis point advantage.

MS. OWENS: That's true. Global custody is more expensive than domestic custody.

