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SWAPS

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ÖZET : Swap, bir aracı finansal kuruluş yardımıyla iki şirketin borçlarını veya borçlarının faiz ödemelerini değiştirmek amacıyla uygulanan özel bir finans yöntemidir.

Swaplar faiz swapı ve para swapı olmak üzere iki ana gruba ayrılmaktadır. Faiz swapında sabit ve değişken faiz oranları, para swapında ise borçların ana paraları belirli bir süre için birbirleriyle değiştirilmektedir.

Swaplar faiz oranlarındaki veya döviz kurlarındaki dalgalanmalar ve taraflardan birinin ödeme gücüne düşmesi nedeniyle bazı riskler taşımakla birlikte, aracı finansal kurumun riskleri üstlenmesi sonucunda 1980'li yıllardan itibaren büyük bir gelişme göstererek, hacmi çok yüksek tutarlara ulaşan uluslararası bir pazar niteliğini kazanmıştır.

I-INTRODUCTION

A major development in international capital markets in the 1980's was the emergence of the swaps markets. The first swap contracts were negotiated in 1981. Since then, the market has grown very rapidly. Hundreds of billions of dollars of contracts are currently negotiated each year.

Swaps are private agreements between two companies to exchange cash flows in the future according to a prearranged formula. The main types of swap are interest rate swaps, and currency swaps. All of these swaps work on the principle that different institutions have different comparative advantages, and that, as a result, there can be gains from any two institutions trading with each other.

In this essay, swaps will be discussed, how they are used, what their risks are and why companies can use them effectively.

II-INTEREST RATE SWAP

Interest rate swaps are the most important type of swap in terms of volume of transactions. An interest rate swap is an agreement between two counterparties to exchange fixed interest rate payments for floating interest rate payments in the same currency calculated with reference to an agreed notional amount of principal. The

principal amount, which is equivalent to the value of the underlying assets or liabilities that are "swapped" is never physically exchanged but is used merely to calculate interest payments. The purpose of the swap is to transform a fixed-rate liability into a floating-rate liability and vice versa[1;227].

Usually, two counterparties do not get in touch with each other directly to arrange a swap[2;299]. An intermediary-often a commercial or investment bank-makes the arrangement. Sometimes the intermediary, will assume the obligation of one of the counterparties, but usually this assumption is only temporary until an outside counterparty can be found. Typically, floating-rate payments are tied to the London interbank offer-rate (LIBOR), though this does not need to be the case, LIBOR is the rate for top-quality Eurodollar borrowings by banks[3;632].

An example has been given below, which shows how an interest-rate swap might arise in practice[4;147]. In this example, there are two companies, A and B, which both wish to borrow \$ 10 million for five years and have been offered the following rates:

	<u>Fixed-rate</u>	<u>Floating-rate</u>
Company A	10.00 %	6 Month LIBOR+0.30 %
Company B	11.20 %	6 Month LIBOR+1.00 %

It has been assumed that company B wants to borrow at a fixed rate of interest, while company A wants to borrow floating funds at a rate linked to six-month LIBOR. Company B clearly has a lower credit rating than company A since it pays a higher rate of interest than company A in both fixed and floating markets. Company B pays 1.20 percent more than company A in fixed rate markets and only 0.70 percent more than company A in floating-rate markets.

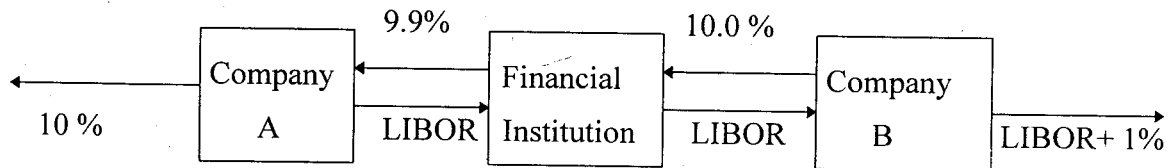
Company B has a comparative advantage in floating-rate markets, while company A has a comparative advantage in fixed-rate markets. It is this apparent anomaly that allows profitable swap to be negotiated. Company A borrows fixed-rate funds at 10

percent per annum. Company B borrows floating-rate funds at LIBOR+1.00 percent per annum. Then, they enter into a swap agreement to ensure that A ends up with floating-rate funds and B ends up with fixed-rate funds.

The counterparties deal with a financial intermediary. This means that the total potential gain has

to be split three ways between A, B, and the financial intermediary.

When the financial institution and the external borrowings of A and B are taken into account the situation can be shown in the figure which is given below.



Şekil - 1

Company A has three sets of interest-rate cash flows:

1-It pays 10.00 percent per annum to outside lenders.

2-It receives 9.9 percent per annum from the financial institution.

3-It pays LIBOR to the financial institution.

The net effect of these three cash flows is that company A pays LIBOR + 0, 10 percent per annum. This is 0.20 percent per annum less than it would pay if it went directly to floating-rate markets. Since it would pay LIBOR + 0.30 percent per annum in floating-rate markets.

Company B also has three sets of interest-rate cash flows:

1-It pays LIBOR +1.00 percent per annum to outside lenders.

2-It receives LIBOR from the financial institution.

3-It pays 10.0 percent per annum to the financial institution.

The net effect of these three cash flows is that company B pays 11.0 percent per annum, which is a 0.20 percent per annum improvement over the rate it could get by going directly to fixed rate markets. Since it would pay 11.20 percent per annum in fixed-rate markets.

The financial institution's net gain is 0.10 percent per annum. The floating rate it receives is the same as the floating rate it pays, but the fixed rate it receives is 0.10 percent higher than the fixed rate it pays. The total gain to all parties is as before 0.50 percent per annum.

The perceived benefit of such an interest rate swap is that it allows the borrower to tap the market where it can raise funds most easily and cheaply, but then to pass the liability to another borrower and obtain the interest rate structure it prefers. Cheaper funding can arise if each counterparty has special access to certain markets, or has a higher credit rating (better credit risk) in certain markets which is unavailable to the other counterparty. The main advantages of interest rate swaps are that they open a much wider range of global financing possibilities to companies and countries and they offer a flexible means to alter exposures to interest rate risks[5;334].

III-CURRENCY SWAP

A currency swap is the exchange of two currencies at the current exchange rate with an agreement to reverse the trade-at the same exchange rate-at some set date in the future. One of the parties will pay the other annual interest payments. The interest payments are usually agreed to on the basis of the interest parity, relation[6;349].

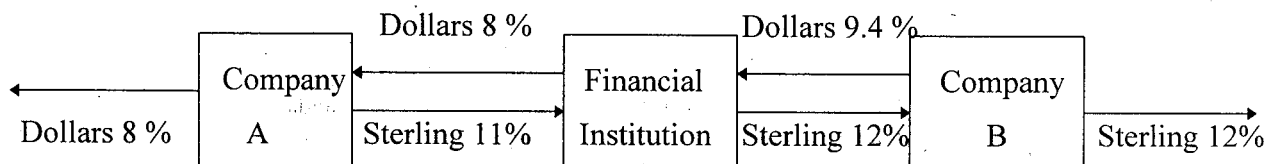
Like interest-rate swaps, currency swaps can be motivated by comparative advantage. Suppose that company A and company B are offered the following fixed rates of interest in U.S. dollars and sterling[4;159].

	Dollars	Sterling
Company A	8.0 %	11.6 %
Company B	10.0 %	12.0 %

This table shows that sterling interest rates are generally higher than U.S. interest rates. Company A is clearly more creditworthy than company B, since it is offered a more favorable rate of interest in both currencies. However, the differences between the rates offered to A and B in the two markets are not the same. Company B pays 2.0 percent more than company A in the

U.S. dollar market and only 0.4 percent more than company A in the sterling markets.

Company A has a comparative advantage in the U.S. dollar market, while company B has a comparative advantage in the sterling market. It was supposed that A wants to borrow sterling while B wants to borrow dollars. This creates a perfect situation for a currency swap. Company A and B each borrow in the market where they have a comparative advantage; that is, company A borrows dollars while company B borrows sterling. Then, they use a currency swap to transform A's loan into a sterling loan and B's loan into a dollar loan. The figure, which is given below, shows one possible arrangement.



Sekil - 2

The effect of the swap is to provide company A with a sterling interest rate of 11.0 percent per annum and company B with a 9.4 percent per annum dollar interest rate. This makes each company 0.6 percent better off than it would be if it went directly to the market it wants to borrow in. The financial intermediary gains 1.4 percent per annum on its dollar cash flows and loses 1.0 percent per annum on its sterling cash flows. Ignoring the difference between the two currencies, it makes a net gain of 0.4 percent per annum. The total gain to all parties is 1.6 (0.6 + 0.6 + 0.4) percent per annum.

A currency swap agreement requires the principal to be specified in each of the two currencies. The principal amounts are exchanged at the beginning and at the end of the life of the swap. They are chosen so that they are approximately equal at the exchange rate at the beginning of the swap's life. In the example the principal amounts might be \$ 15 million and £ 10 million. Initially, the principal amounts flow in the opposite direction to the arrows in the above figure. The interest payments during the life of the swap and the final principal payment flow in the same direction as the arrows. Thus, at the outset of the swap, company A pays \$15 million and receives £ 10 million. Each year during the life of the swap contract, company A receives \$ 1.20 million (=8 percent of \$ 15

million) and pays £1.10 million (=11 percent of £ 10 million). At the end of the life of the swap, it pays a principal of £ 10 million and receives a principal of \$ 15 million.

Suppose that the swap is unsatisfactory because the financial institution is exposed to foreign exchange risk. Each year, it makes a gain of \$ 210.000 (= 1,4 percent of \$ 15 million) and a loss of £ 100.000 (= 1 percent of £ 10 million). However, the financial institution can avoid this risk by buying £ 100.000 per annum in the forward market for each year of the life of the swap.

Indeed, a company might opt to do a currency swap for any of several reasons: to mitigate exchange control regulations, to unlock a blocked currency balance, to lower its cost of borrowing a foreign currency, or to obtain financing in a currency that is unable to borrow long term[7;925].

IV-RISKS IN SWAPS

It is necessary to examine the risks in executing swaps. There are two main types of risk facing the counterparties, credit risk and market risk. Credit risk is

the risk that the other counterparty will default on his obligations. Market risk is the risk that market interest rates or exchange rates will diverge from the rates agreed in the swap, leading to a position loss for one counterparty [1;232].

If interest rates fall, the fixed-rate payer incurs a loss as the value of his liability rises. The fixed-rate payer becomes a credit risk to the floating-rate payer. If interest rates rise, the fixed-rate payer has a capital gain as the value of the liability falls. The fixed side gains by having the ability to pay at the same fixed rate even though market rates have risen. The fixed-rate payer in that case faces credit risk from the floating-rate payer. So from the financial intermediary's perspective[6;364]:

Falling interest rates → counterparties paying fixed interest rates to the financial intermediary, become sources of credit risk.

Rising interest rates → counterparties paying floating interest rates to the financial intermediary, become sources of credit risk.

Credit risk therefore hinges first on the volatility of interest rates, because the probability interest rates will rise or fall corresponds to the probability swap values will become positive or negative.

In order to eliminate interest-rate or exchange-rate risks, a financial institution would like to enter into offsetting swap agreements with two counterparties at the same time[4;168]. As a matter of fact, it is highly unlikely for the intermediary to find two parties at the same time. In reality, the intermediary provides the essential function of bringing a pool of fixed-rate payers and floating-rate payers together. If there happens to be a shortage on either side at any time, the intermediary will close the gap itself by temporarily playing the role of the fixed-rate payer or the floating-rate payer. The shortage may be the result of an unequal demand and supply, or it can occur due to the default of one counterparty[2;300].

Typically the counterparties in a swap are not equal in credit risk. Default risk does not apply to principal, each party is responsible for whatever principal obligation it has incurred in direct borrowings. However, there is default risk with respect to the differential in interest payments. In the beginning default risk was borne by the two counterparties in most swaps. However, intermediaries increasingly interposed themselves

between the parties in such a way as to assume the default risk[3;634].

Probably the most direct way to assume anything about the default risk on any fixed income instrument is to divide the expected cost of default into two parts. The expected loss or cost is determined both by the probability of default and by the expected loss, given that default occurs. That is[8;202]:

$$\begin{array}{lcl} \text{Expected loss} & = & \text{Probability of default} \times \\ \text{from default} & & \text{Expected loss, Given default} \end{array}$$

In a traditional loan, the expected loss, if default occurs, depends on how much of the loan amount can be recovered. This, in turn, depends on the quality of the borrower's assets or its viability as a going concern. But in a swap, the expected loss, given that a default occurs, is not really an issue regarding the quality of the counterparty's assets or its business at all. Instead, this conditional expected loss is entirely a matter of interest rate risk, that is, in what direction and how far the swap price has moved away from the price of the existing swap. These kind of events can trigger financial distress for a borrower or counterparty and therefore create a situation where a default might occur, are the same for both a regular loan and for a swap. But that is as far as the similarity can be carried. Hence the risk of default on a swap is very different from the default risk in traditional loan.

The assessment of credit risk of the counterparty is considerably more important in the case of currency swaps than in that of interest-rate swaps. In the currency swap, obligations to pay interest and principal in two different currencies are swapped, and exchange rate fluctuations could impose loss on counterparties and financial intermediary[9;4].

V-SUMMARY AND CONCLUSION

The two most common types of swaps are interest-rate swaps and currency swaps. In an interest-rate swap, one party agrees to pay the other party interest at a fixed rate on a notional principal for a number of years. In return, it receives interest at a floating rate on the same notional principal for the same period of time. In a currency swap, one party agrees to pay interest one a principal amount in one currency. In return, it receives interest on a principal amount in another currency.

Principal amounts are not exchanged in an interest- rate swap. In a currency swap, principal amounts are exchanged at both the beginning and the end of the life of the swap. For a party paying interest in the foreign currency the foreign principal is received and the domestic principal is paid at the beginning of the life of the swap. At the end of the life of the swap, the foreign principal is paid and the domestic principal is received.

When a financial institution enters into a pair of offsetting swaps with different counterparties, it is exposed to market and credit risk. If one of the counterparties defaults when the financial institution has positive value in its swap with that counterparty, the financial institution loses money since it still has to honor its swap agreement with the other counterparty.

There appear to be three basic reasons for the growth of the swap market. Firstly, the fact that the swaps market has grown so large is due to the efficiency of the intermediaries in the swaps market as risk managers. Secondly, the swaps create a link between distinct markets or companies with differential access to fund sources. Thirdly, the swaps provide a way to reduce the total funding cost for debt and minimize the cost of regulations and tax laws.

As a result of these reasons swaps have become the most important growth businesses in the financial markets. In recent years, they grew from virtually zero to an estimated volume of trillions worldwide. It is difficult to provide a precise estimate of the total outstanding volume of swaps because there is no centralized reporting agency that collects accurate data. But there is no doubt that swaps have experienced tremendous growth. Swaps

are now integrated with all sorts of other more traditional financial arrangements. No company can seriously look at its financing today without considering whether it should utilize a swap as a part of its financial structure.

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