



C o n t e n t s



Purpose of this Booklet	2
Introduction	3
IBRD Hedging Products	4
Benefits	5
Eligibility	6
IBRD as Market Intermediary	8
Fees	10
Interest Rate Hedges	11
Interest Rate Swaps	11
Interest Rate Caps and Collars	16
Currency Hedges	19
Currency Swaps	20
Commodity Hedges	26
Legal Considerations	29
Payment Netting	30
Accounting Considerations	31
Terms and Conditions of IBRD Hedging Products	32
Useful Terms	38
How to Proceed with Hedging Products	39
Contact Information	40

P

urpose of this Booklet

This booklet was written for information purposes only, as an introduction to IBRD Hedging Products for IBRD borrowers. The booklet does not intend to provide a complete overview of financial risk management or hedging tools. Borrowers may wish to consult their financial advisors when considering whether and how to use IBRD Hedging Products in implementing their asset-liability management (ALM) strategies.

May 2001

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ntroduction

In response to borrower demand, the International Bank for Reconstruction and Development (IBRD) is offering a new range of financial risk management products. They are designed to address the changing needs of borrowers during the life of their IBRD loans.¹ Using standard market techniques, IBRD Hedging Products can transform the risk characteristics of a borrower's IBRD obligations even though the negotiated terms of the particular loan agreements themselves may be fixed. These products allow borrowers improved risk management capability in the context of projects, lending programs, and sovereign asset-liability management. IBRD Hedging Products include interest rate swaps, interest rate caps and collars, currency swaps and, on a case-by-case basis, commodity swaps.

1/ IBRD financial products include loans, hedging products and guarantees. IBRD loan products include Fixed-Spread Loans (FSLs), Variable-Spread Loans (VSLs), Fixed-Rate Single Currency Loans (FSCLs), Currency Pool Loans (CPLs) and Single Currency Pool Loans (SCPs). For more information on FSLs and VSLs, see *Major Terms and Conditions of IBRD Loans* (February 2001) and *IBRD Financial Products: the Fixed-Spread Loan*. IBRD withdrew its offer of FSCLs and CPLs as choices for new loan commitments on December 1, 1999 and March 1, 2001, respectively. For information on Guarantees, see *The World Bank Guarantee: Catalysts for Private Capital Flows (1998)* or contact IBRD's Project Finance & Guarantees Group (website: <http://www.worldbank.org/html/fpd/guarantees/>).

I

IBRD Hedging Products

IBRD INTEREST RATE HEDGES

Interest Rate Swaps

Interest rate swaps are individually negotiated transactions that may be used to transform the interest rate basis of a borrower's underlying loan obligation from a fixed to floating rate or vice versa. As counterparties to an interest rate swap, IBRD and the borrower agree to exchange, at certain future dates, two sets of cash flows denominated in the same currency. The cash flows paid by one counterparty reflect a fixed rate of interest while those of the other counterparty reflect a floating rate of interest. No exchanges of principal amounts are involved.

Interest Rate Caps and Collars

Interest rate caps and collars provide protection against rising interest rates to users of floating-rate loan products. Interest rate caps are individually negotiated transactions which set an upper limit on the interest a borrower would pay on a floating rate loan against payment of an up-front premium. Interest rate collars are individually negotiated transactions which set an upper and a lower limit (a collar) on the interest a borrower would pay on an floating rate loan against payment of an up-front premium.

IBRD CURRENCY HEDGES

Currency Swaps

Currency swaps are individually negotiated transactions that may be used to transform the currency denomination of a borrower's net loan obligation. As counterparties to a currency swap, IBRD and the borrower agree to exchange two sets of cash flows, denominated in different currencies, at certain dates in the future. The cash flows reflect payments of interest on these currencies which may be fixed or floating, as well as exchanges of principal amounts.

IBRD COMMODITY HEDGES

Commodity Swaps

Commodity swaps are individually negotiated transactions to exchange two sets of cash flows at certain dates in the future, where one set of cash flows is linked to the market price of a commodity or index and the other is a pre-agreed fixed cash flow or a cash flow based on a floating or fixed rate of interest. This product is offered by IBRD on a case-by-case basis.

Benefits

IBRD Hedging Products offer borrowers the following benefits:

FLEXIBILITY ADDED TO EXISTING IBRD LOANS

Loan term choices made by borrowers at the inception of a loan may not be suitable later in the life of the loan. A borrower's risk management needs may change as its access to funding from other sources changes or expands. Using IBRD Hedging Products, borrowers are able to respond to changing currency and interest rate risk profiles over the remaining life of their outstanding IBRD loans.

ACCESS TO RISK MANAGEMENT TOOLS

IBRD Hedging Products provide a step forward for many IBRD borrowing countries having no direct access to risk management instruments through financial markets. Other IBRD borrowers which have market access can accomplish their objectives using IBRD Hedging Products while preserving their limited credit lines with financial market intermediaries.

PRICING BENEFITS

Through IBRD financial market intermediation, borrowers benefit from IBRD's AAA credit rating and its experience gained from a long-standing presence in the derivatives markets. The IBRD's AAA credit rating allows it to have access to these instruments in larger volumes, longer maturities and lower costs than its clients could secure on their own.

PORTFOLIO RISK MANAGEMENT CAPABILITY

Hedging Products can be used in implementing a country's asset-liability management strategy to reduce financial risks at the portfolio level.

EXPERIENCE

Borrowers can use these tools to build upon their knowledge of risk management techniques and institutional capacity for using derivative instruments. IBRD will support countries' efforts by offering workshops on the use of IBRD Financial Products as well as on sovereign asset-liability management.²

2/ For more information, contact the Financial Products and Services Department, Sovereign Debt Management Advisory Group.

BOX 1: IBRD Hedging Products are available—

- for purposes of reducing risks. Borrowers will be asked to provide a rationale for the intended use of IBRD Hedging Products when initiating a hedge request. IBRD reserves the right to decline a request which does not meet the conditions for IBRD Hedging Products or, in IBRD's opinion, does not seem to be suitable for project or debt management needs;
- for use with disbursed and outstanding balances of specific IBRD loans, or with a group of such loans;
- in CHF, EUR, GBP, JPY, USD, and potentially other currencies supported by liquid derivatives markets, to be considered on a case-by-case basis;
- in maturities no longer than the remaining maturity on the loan or portion which is being hedged. Maximum maturities for hedges may further be limited to those readily available to IBRD in the relevant financial markets; and
- at any time during the life of a loan. A borrower may choose to use IBRD Hedging Products to effectively transform its loan obligation, on one or more occasions, whether to fix, unfix, or re-fix the interest rate, to establish caps or collars on the variable rate, or to change the currency of obligation.

BOX 2: Applicability of IBRD Hedging Products to IBRD Loans*

(available on disbursed and outstanding loan amounts)

	Interest Rate Swaps	Caps and Collars	Currency Swaps	Commodity Swaps**
Fixed-Spread Loans (FSLs)	✓	✓	✓	
Variable-Spread Loans (VSLs)	✓	✓	✓	
Fixed-Rate SCLs (FSCLs)	✓		✓	
Currency Pool Loans (CPLs)			✓	
Single Currency Pool Loans (SCPs)			✓	

* Hedges against CPLs, SCPs and VSLs will be only approximate hedges.

** Offered on a case-by-case basis.

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BRD as Market Intermediary

In providing IBRD Hedging Products to its borrowers, IBRD will be acting as a financial market intermediary. As depicted in Diagram 1 on page 9, IBRD will stand between market institutions and the borrower, having separate financial contracts with each of them. Borrowers will benefit in many ways from IBRD's role as market intermediary, beyond gaining access to IBRD Hedging Products themselves.

One important benefit is in transaction pricing. In most cases, pricing on transactions between IBRD and a borrower will be based directly on the terms IBRD achieves in its offsetting transaction with the market counterparty. In these cases, IBRD's market counterparty will not know the identity of the borrower requesting a hedge from IBRD. As such, pricing on these hedges would reflect the terms achieved by IBRD based on its own superior credit standing. In other cases, pricing on transactions between IBRD and a borrower may be based on widely-available, pre-specified screen quotes.

Borrowers will benefit from IBRD's transaction execution experience, knowledge of derivatives pricing methods, as well as its numerous relationships with major financial institutions from which it can solicit transaction bids.

Using IBRD as an intermediary may save borrowers valuable credit lines with private sector institutions.

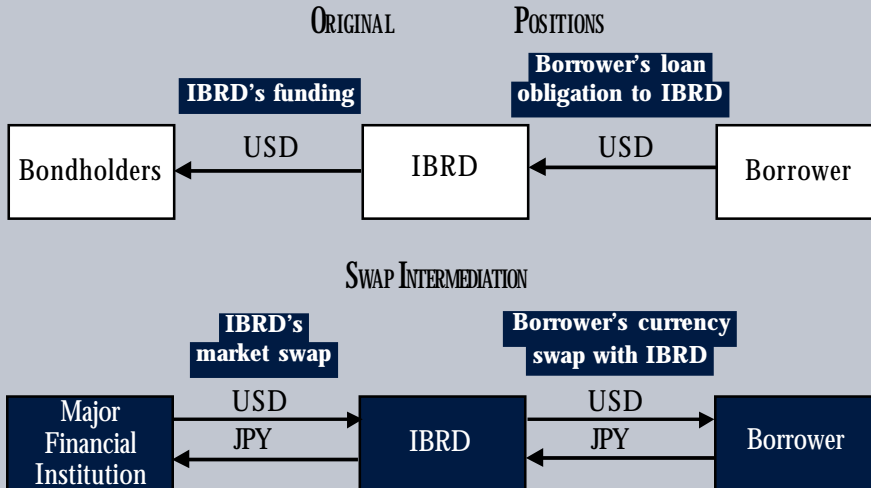
Execution of a hedge with IBRD would not adversely affect the volume of future IBRD loans to the borrower, as long as the hedges are related and limited to existing IBRD obligations. Borrowers would be effectively transforming the characteristics of their existing IBRD obligations rather than creating new ones.

Because IBRD will generally be offsetting hedges executed with borrowers through market transactions, it will be able to offer only those terms readily available in the financial markets. This could limit the maximum maturity or other terms available on hedges to those in the particular markets.

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BRD as Market Intermediary

DIAGRAM 1: Example of IBRD as Intermediary



In this example, originally, the borrower had a USD loan from IBRD. IBRD financed this by borrowing USD in the bond markets. Later, the borrower has requested that the loan's currency be transformed from USD into JPY. Leaving the funding and loan intact, IBRD arranges simultaneously a USD/JPY currency swap with the borrower, and a JPY/USD currency swap with an institution in the financial markets. The terms obtained in the market transaction are passed on to the borrower in its swap with IBRD.

Diagram 1 shows the position of each entity after execution of a currency swap. The borrower is obligated under two transactions, the original IBRD loan plus a currency swap with IBRD.

In addition to its transactions with the borrower, IBRD has two other transactions, its original bond market funding and a currency swap with a market institution. It has hedged itself against additional risks from the borrower's choice to transform its original loan currency.

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ees

Table 1 lists the schedule of fees in effect for IBRD Hedging Products. Fees are billed at the time of transaction execution, and are payable within 60 days. IBRD's policy regarding eligibility for loan interest waivers based on timely debt service will also apply to timely payment of fees.

IBRD may revise the fee schedule from time to time. In such cases, revised fees would apply only to hedge requests submitted after the new schedule is in effect. Revised fee schedules will be posted on www.worldbank.org/fps.

**TABLE 1: IBRD Hedging Products
Transaction Fee Schedule**

(expressed as a percentage of principal amount hedged)

TRANSACTION TYPE	TRANSACTION FEE*
Interest Rate Swaps	1/8%
Interest Rate Caps and Collars	1/8%
Currency Swaps	1/4%
Commodity Swaps	3/8%

* All fees are payable within 60 days after execution.

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nterest Rate Hedges

IBRD borrowers may choose to reduce interest rate risk arising from their IBRD fixed-rate single currency loans, variable-spread loans and fixed-spread loans by entering into interest rate swaps or interest rate caps or collars. Interest rate risk is the uncertainty of financial outcome which arises, for example, when the interest rate characteristics of a borrower's loan obligations differ from those of its earnings. Interest rate risk can result in gains or losses depending on changes in interest rates, as illustrated in Box 3.

INTEREST RATE SWAPS

Any time a borrower wishes to transform its net interest rate obligation under an IBRD loan, it could enter into a separate interest rate swap transaction with IBRD. The cash flows of the swap, together with those of the loan, would effectively change the interest rate characteristics of the borrower's net obligation to IBRD.

The interest rate swap would specify the terms of two streams of future cash flows, one stream to be paid by the borrower—swap pay leg—and the other to be received by the borrower—swap receipt leg—with IBRD as its counterparty.

BOX 3: Example of Interest Rate Risk

Consider what would happen in different interest rate environments if an entity borrowed USD 100 million at a variable interest rate, and on-lent the USD 100 million at a fixed rate of 7%. Assume that the borrowing cost in the first year was 6%. Assume that in the second year borrowing cost rises to 8%. What is the effect on net income?

	Earnings (USD mn.)	Cost of Borrowing	Debt Service (USD mn.)	Net Income (USD mn.)
Year 1	7	6%	6	1
Year 2	7	8%	8	(1)

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nterest Rate Hedges

The terms of the borrower's swap receipt leg would be designed to cancel out, to the extent possible, the interest rate terms of the related loan.

In exchange, on its swap pay leg the borrower would owe IBRD new terms based on its choice of either a floating rate (typically LIBOR plus a fixed spread), or a fixed interest rate (the fixed rate equivalent of LIBOR plus a spread). In reality, only one net payment is made under an interest rate swap because the swap pay leg and the swap receipt leg (being payable in the same currency) are netted out to reduce operational risk.

The level of the fixed interest rate or the appropriate spread to LIBOR payable by the borrower would normally be based on that which is obtained by IBRD in its offsetting swap with a financial market institution. On occasion, such as when combining the execution of several transactions or when IBRD does not undertake an offsetting market transaction, the level of the fixed rate or spread to LIBOR payable by the borrower would be calculated using current market quotes obtained from pre-specified, widely available broker screens.

Whether using the market transaction approach or screen-based rates, the appropriate fixed rate or spread to LIBOR passed on to the borrower would be that which produces cash flows on the swap pay leg, which when calculated in present value terms, would equate with cash flows on the swap receipt leg in present value

terms, using current market rates. It follows that, if a borrower enters into an interest rate swap to effectively transform the interest rate basis on its loan which carries either a fixed rate or spread to LIBOR that is higher than prevailing market levels, (i.e., the borrower's swap receipt leg cash flows would be above-market), then the borrower should expect that the rate or spread achieved on its swap pay leg would be similarly above market.⁴

INTEREST RATE SWAPS FOR VARIABLE-SPREAD LOANS

The spread to LIBOR in the lending rate for VSLs is variable and depends upon IBRD's cost of related funding. Because the variable spread is not replicable using standard market instruments, only an approximate hedge is possible. For interest rate swaps against this loan product, IBRD would set the borrower's swap receipt leg at LIBOR "flat" (without a spread). The result is that after executing a floating-to-fixed interest rate swap, the borrower would have been able to fix the LIBOR portion of its variable rate, but the variable spread would not be hedged and could still change. See example in Table 2.

4/ IBRD has available on its website, referenced at the end of this booklet, tools which borrowers can use to estimate indicative costs of currency swaps and interest rate swaps, caps and collars.

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nterest Rate Hedges

BOX 4: How might borrowers use interest rate swaps?

- A borrower may have previously selected a VSL to finance a project which now generates stable revenues. If the borrower would prefer to have more stable interest payments on its loan, interest rate swaps could be used to effectively fix the LIBOR portion of the loan rate on the disbursed and outstanding amounts.
- A borrower managing risk at the loan portfolio level can alter the interest rate sensitivity of its portfolio by transforming the interest rate basis of one or more existing IBRD loans. For example, a borrower may wish to reduce the ratio of floating rate debt as a percentage of total debt obtained from various sources. The borrower may decide to fix the rates on all of its IBRD obligations.

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nterest Rate Hedges

BOX 5: Example of an Interest Rate Swap

Suppose a borrower wants to transform its USD 200 million VSL to a fixed-rate basis. Assume that the loan originally had a five-year grace period, level repayments of principal, a 15-year final maturity, and is in the 13th year of its life. The borrower would enter into an interest rate swap agreement with IBRD having the following characteristics.

Borrower's Swap Receipts. In the swap, the borrower receives floating rate payments from IBRD at each payment date based on a percentage rate of LIBOR “flat” (i.e., with no spread) calculated against the outstanding loan balance as of each payment date. These payments are intended to effectively offset the borrower's obligation on the LIBOR portion of the loan's floating interest rate. The borrower would continue to have an obligation to pay the loan's variable spread over LIBOR.

Borrower's Swap Payments. As part of the swap, the borrower agrees to pay a fixed rate of interest on the outstanding principal amount as of each payment date. The determination of the applicable fixed interest rate is usually based on that achieved by IBRD in its offsetting financial market transaction.

Borrower's Net Obligation. Assuming that the payment dates of the underlying loan and swap are fully synchronized, the loan billing would net the amounts payable by and due to the borrower as of each date on the loan and the swap. The borrower's net obligation in this example would result in an interest amount based on the swap's fixed rate plus the interest amount related to the loan's variable spread, and any principal repayments due on the loan, as demonstrated in the cash flows in Table 2.

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nterest Rate Hedges

TABLE 2: Payment Flows on the Swap Example in BOX 5

USD 200 million Variable-Rate SCL in 13th Year

Loan Semester	Remaining Principal Outstanding (USD million)	Interest Rate Payable (% of Remaining Principal)	Loan Principal Payable (USD million)
25	USD 60	USD LIBOR + variable spread	USD 10
26	USD 50	USD LIBOR + variable spread	USD 10
27	USD 40	USD LIBOR + variable spread	USD 10
28	USD 30	USD LIBOR + variable spread	USD 10
29	USD 20	USD LIBOR + variable spread	USD 10
30	USD 10	USD LIBOR + variable spread	USD 10

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Hypothetical Floating-to-Fixed Interest Rate Swap

Loan Semester	Remaining Principal Outstanding (USD million)	Borrower Interest Rate Receivable (% of Remaining Principal)	Borrower Interest Rate Payable* (% of Remaining Principal)
25	USD 60	USD LIBOR	6.00%
26	USD 50	USD LIBOR	6.00%
27	USD 40	USD LIBOR	6.00%
28	USD 30	USD LIBOR	6.00%
29	USD 20	USD LIBOR	6.00%
30	USD 10	USD LIBOR	6.00%

* Fixed rate based on IBRD market transaction.

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Borrower's Obligation—Net of Loan and Swap

Loan Semester	Remaining Principal Outstanding (USD million)	Borrower Net Interest Rate Payable (% of Remaining Principal)	Principal Due (USD million)
25	USD 60	6.00% + variable spread on loan	USD 10
26	USD 50	6.00% + variable spread on loan	USD 10
27	USD 40	6.00% + variable spread on loan	USD 10
28	USD 30	6.00% + variable spread on loan	USD 10
29	USD 20	6.00% + variable spread on loan	USD 10
30	USD 10	6.00% + variable spread on loan	USD 10

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nterest Rate Hedges

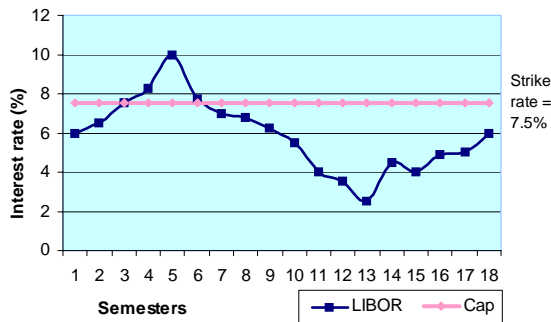
A borrower may prefer a loan with a variable rate of interest, but may require assurance that the interest rate will not rise above a maximum level. An interest rate cap or collar would achieve this objective.

INTEREST RATE CAPS

A cap sets an upper limit on the effective interest rate a borrower would pay on a floating rate loan, against payment of an up-front premium. If a borrower buys an interest rate cap from the IBRD and, at any rate reset date, the loan's floating rate index (typically LIBOR) is reset at a rate above the borrower's "strike" rate on the cap, the borrower would pay the prevailing interest rate but would receive payments from IBRD under the cap agreement equal to the difference between the floating rate index and the strike rate.

It should be noted that for VSLs the cap terms will be based on the floating rate index (such as LIBOR), and would not include the loan's spread above the index. In choosing the appropriate strike rate, borrowers should factor the effect of the spread over the floating rate index into their estimates of the maximum interest they will effectively pay. Diagram 2 illustrates how an interest rate cap operates.

DIAGRAM 2:
Example of an Interest Rate Cap



In the above illustration of a cap if, on any reset date, LIBOR is reset at a rate above the 7.50% strike rate, the borrower would pay 7.50% plus the loan's spread over LIBOR. Any time the LIBOR rate is reset below the strike, the borrower would pay the LIBOR rate prevailing on the reset date plus the loan's spread over LIBOR.

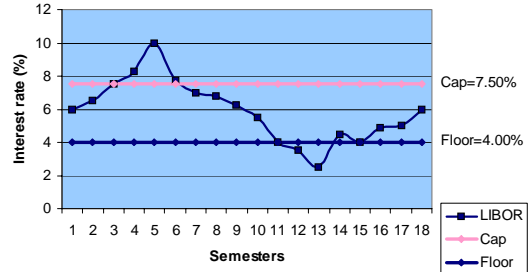
I nterest Rate Hedges

INTEREST RATE COLLARS

A collar sets an upper (“cap”) and a lower (“floor”) limit on the effective interest rate a borrower would pay on a floating rate loan. In a collar, the inclusion of a floor serves to effectively offset the premium payable by the borrower on the cap. Similarly to a cap, a collar is purchased against payment of an up-front premium. Borrowers can purchase from the IBRD a “zero cost” collar where the premium due on the cap is exactly offset by the premium to be received on the floor.^{5/}

If a borrower buys an interest rate collar from the IBRD and, at any rate reset date, the loan’s floating rate index (typically LIBOR) is reset at a rate above the borrower’s “strike” rate in the cap, the borrower would pay the prevailing interest rate but would receive payments from IBRD under the collar agreement equal to the difference between the floating rate index and the strike rate. Conversely, if at any rate reset date the loan’s floating rate index is reset at a rate below the borrower’s “strike” rate on the floor, the borrower would pay the prevailing interest rate and would also owe payments to IBRD under the collar agreement equal to the difference between the strike rate and the floating rate index.

DIAGRAM 3:
Example of an Interest Rate Collar



It should be noted that the strike rates in an interest rate collar for a VSL would not include the loan’s spread over LIBOR. Borrowers should take such spread into account when determining appropriate cap and floor strike rates. Diagram 3 illustrates how an interest rate collar works. In the illustration, the borrower’s effective LIBOR would always be at least 4.00% but never above 7.50%. The effective loan rate would be the effective LIBOR rate, as capped or floored, plus the loan’s spread.

5/ IBRD offers only floors which are part of collar transactions. Premia on floors cannot exceed those of associated caps.

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nterest Rate Hedges

PREMIA ON CAPS AND COLLARS

Premia on caps and collars will be billed at hedge execution and are due within 60 days after execution.

The level of the premia charged by IBRD for caps and collars will be determined by the market. When IBRD agrees to provide a cap or collar to a borrower, it will generally execute an offsetting transaction in the financial market, and will use the pricing achieved as the basis for its premium to the borrower.

The determinants of the pricing of interest rate options are, most importantly, the volatility of interest rates, as well as the strike or cap/floor rate selected, time

to maturity of the cap or collar, the level of market interest rates, and the risk-free rate interest in the currency of denomination.

Borrowers ought to be aware of several general principles which would affect the premia and should consider these in selecting the terms of their caps or collars. Typically, premia will be higher when rates are volatile since the probability of rates reaching the cap or floor strike is greater. Premia are higher for longer maturities for the same reason.

BOX 6: How might borrowers use interest rate caps and collars?

- A borrower may face budgetary constraints on the amount of funds available for debt service. A cap would ensure that the floating rate of interest would never exceed the contractual level, and thus would limit the maximum interest due.
- A borrower with a floating rate loan may want to purchase insurance against a sharp rise in interest rates. It would be willing to trade off the opportunity for interest savings in low rate environments in exchange for a lower premium on the purchase of a cap resulting from selling a floor. The borrower could purchase an interest rate collar from IBRD.

Currency Hedges

IBRD borrowers may choose to reduce currency risk arising from their IBRD fixed-rate single currency loans, variable-spread loans, currency pool loans, single currency pool loans and fixed-spread loans by entering into currency swaps. In contracting an IBRD loan, borrowers commit to a liability that will be part of their balance sheet for perhaps up to 25 years. The choice of loan currency is a fundamental decision which borrowers should carefully consider during loan preparation, since currency risk affects both principal and interest payments. However, a borrower's debt management risks and needs can change over time. Currency swaps can be used as a tool for reducing borrowers' currency risk.

Currency risk in a transaction is the uncertainty of

financial outcome related to exchange rate movements. It arises, for example, when the currency owed by a borrower is different from the currency of its earnings. Depending on exchange rate movements between the two currencies, unpredictable gains or losses are incurred. As demonstrated in the example in Box 7, if the currency owed on a loan appreciates relative to the currency of the borrower's revenues, the borrower would experience a financial loss. Likewise, a gain would result if the reverse were true.

BOX 7: Example of Currency Risk

Consider the effect of exchange rate movements on a borrower's net income if its export earnings are in USD while its debt is in EUR. Assume in year 1 that the exchange rate is USD 1.03/EUR and the EUR appreciates to USD 1.12/EUR by the second year. What is the effect on net income?

	Earnings (USD)	Debt Service (EUR)	Exchange Rate (USD/EUR)	Debt Service (USD eq.)	Net Income (USD eq.)
Year 1	100	95	1.03	97.85	2.15
Year 2	100	95	1.12	106.40	(6.40)

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urrency Hedges

CURRENCY SWAPS

BOX 8: How might borrowers use currency swaps?

- A borrower managing risk at the loan portfolio level with a strategy of maintaining the currency composition of its debt at 60% USD and 40% EUR may have acquired increased access to EUR funding from various sources. The borrower could decide to hedge a larger proportion of its IBRD EUR debt into USD in order to maintain the desired currency ratios.
- A project's export markets may have developed differently than originally anticipated. The currency of the loan does not correspond to the currency of the project's earnings. The borrower may decide to enter into a currency swap to change the obligation into the same currency as the revenue stream.

A borrower wishing to transform the currency of obligation on an existing IBRD loan could enter into a separate currency swap transaction with IBRD. The swap transaction would specify the terms of two streams of future swap cash flows, one stream to be paid by the borrower—swap pay leg—and the other to be received by the borrower—swap receipt leg—with IBRD as its counterparty.

The borrower's swap receipt leg would be designed to cancel out, to the extent possible, its currency obligations on the IBRD loan when the cash flows of the swap and the loan are netted together. This would be

achieved by having IBRD owe the borrower principal and interest amounts matching those due by the borrower on the loan at each payment date, to the extent possible.

In exchange, the borrower would pay on its swap pay leg principal and interest amounts at each payment date in its preferred currency and interest rate basis (fixed or floating interest rate).

Currencies available for payments on the target currency leg of the swap are CHF, EUR, GBP, JPY, and USD. Other currencies may be available on a case-by-case

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urrency Hedges

basis. A market exchange rate (typically, the spot rate as of the effective date of the swap) is used to convert the principal amounts of the vehicle currency into the target currency. The same exchange rate is used for all principal exchanges during the life of the swap.

Currency swaps on CPLs and SCPs will be for principal only. For currency swaps linked to VSLs, FSCLs and FSLs, borrowers have a choice of a fixed or floating (typically LIBOR) base rate in the new currency. The level of the fixed rate or spread to LIBOR would be determined by the market. In most cases, IBRD would execute an offsetting transaction in the market with financial institutions and would use the pricing achieved as the basis for pricing its transaction with the borrower.

The fixed interest rate or the appropriate spread to LIBOR payable by the borrower would be that rate or spread which would equate, in present value terms, the pay leg of the swap with the receipt leg, using current market rates in the relevant currencies.

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urrency Hedges

BOX 9: Example of a Currency Swap

In the example shown in Table 3, suppose a borrower decided to convert a USD 60 million tranche of a FSCL into fixed-rate EUR during the 13th semester of the loan's life. The loan's cash flows are shown in the first section of the table. The borrower would continue to repay the loan as originally agreed. In addition, it would enter into a currency swap with IBRD having the following characteristics.

Borrower's Swap Receipts. In the swap, the borrower would receive payments from IBRD at each future payment date of USD interest and principal amounts to offset those due on the loan.

Borrower's Swap Payments. The borrower would be required to pay to IBRD interest and principal amounts in EUR which are based on the interest rate and exchange rate terms achieved by IBRD in its offsetting financial market transaction. Note that in the swap all future principal amounts due by the borrower in EUR are calculated using the same exchange rate determined at the inception of the swap.

Borrower's Net Obligation. As the payment dates of the underlying loan and swap are fully synchronized, at the time of billing, amounts payable by and due to the borrower would be netted as of each payment date. In the example, the borrower's net obligation as of each payment date is a fixed interest rate of 6.00% on the outstanding EUR principal amount, plus repayment of principal of EUR 4.31 million on each payment date.

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urrency Hedges

TABLE 3: Payment Flows on the Currency swap Example in Box 9

USD 60 million Tranche of a FSCL with 9 Years of Repayment Term including 3 Years of Grace Period at the 7th Year

Loan Semester	Remaining Principal Outstanding (USD million)	Loan Interest Rate Payable (% of Remaining Principal)	Loan Principal Payable (USD million)
13	USD 30	7.125%	USD 5
14	USD 25	7.125%	USD 5
15	USD 20	7.125%	USD 5
16	USD 15	7.125%	USD 5
17	USD 10	7.125%	USD 5
18	USD 5	7.125%	USD 5

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Hypothetical Currency Swap from USD into EUR

Swap Exchange Rate=
USD 1.16/EUR

Loan Semester	Remaining Principal Outstanding (USD mn.)	Borrower Swap Rate Receivable (% of Rem. Prin.)	Borrower Principal Receivable (USD mn.)	Remaining Principal Outstanding (EUR mn.)	Borrower Swap Rate Payable* (% of Rem. Prin.)	Borrower Principal Payable (EUR mn.)
13	USD 30	7.125%	USD 5	EUR 25.86	6.00%	EUR 4.31
14	USD 25	7.125%	USD 5	EUR 21.55	6.00%	EUR 4.31
15	USD 20	7.125%	USD 5	EUR 17.24	6.00%	EUR 4.31
16	USD 15	7.125%	USD 5	EUR 12.93	6.00%	EUR 4.31
17	USD 10	7.125%	USD 5	EUR 8.62	6.00%	EUR 4.31
18	USD 5	7.125%	USD 5	EUR 4.31	6.00%	EUR 4.31

* Fixed rate based on IBRD market transaction.

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Borrower's Net Obligation—Net of Loan and Swap

Loan Semester	Remaining Net Principal Outstanding (EUR million)	Borrower Net Interest Rate Payable (% of Remaining Principal)	Net Principal Payable (EUR million)
13	EUR 25.86	6.00%	EUR 4.31
14	EUR 21.55	6.00%	EUR 4.31
15	EUR 17.24	6.00%	EUR 4.31
16	EUR 12.93	6.00%	EUR 4.31
17	EUR 8.62	6.00%	EUR 4.31
18	EUR 4.31	6.00%	EUR 4.31

C

urrency Hedges

CURRENCY SWAPS FOR CPLs, SCPs & VSCLs

For swaps related to Currency Pool Loans (CPLs) and Single Currency Pools (SCPs) borrowers will be able to achieve only approximate hedges of their loan obligations since the currency and interest rate terms of these loan products are related to the nature of the loan pools themselves and to the debt funding them rather than to market-based indices.

An approximate hedge of a CPL or SCP can be achieved by assuming that the currency mix of the pool at the time of executing the currency swap would be held constant through the remaining life of the hedge. Separate currency swaps could be executed to convert each of the undesired currency amounts to the preferred currency. To the extent of the actual changes in the currency composition of the underlying pool during the life of the hedge, the borrower could have residual obligations in the original loan currency(ies).

Currency swaps on CPLs and SCPs will be for the principal only and must be for the full maturity of the loan. The borrower will continue to owe the CPL or SCP interest rate in the loan currency. A borrower can swap one, two or three of the primary CPL component currencies (USD, JPY and EUR) of CPLs into one single currency.

Swaps related to VSLs will also be approximate. The loan's variable spread over LIBOR cannot be offset using standard market indices. Therefore, the LIBOR portion of the interest rate will be swapped, but the spread will remain in the original currency.

PARTIAL MATURITY CURRENCY SWAPS

Currency swaps having a final maturity shorter than that of the underlying loan would present additional considerations for borrowers. The terms of such a currency swap would require a final exchange of principal equal to the remaining principal loan balance at the maturity of the swap and its equivalent in the target currency using the exchange rate agreed at inception of the swap (see Table 4 for example). As exchange rates may have changed, this would create cash flow and currency exposure implications for borrowers which should be understood and provided for. Unless borrowers have a specific objective in mind, it is not recommended that such transactions be executed. IBRD will make every attempt to provide currency swaps for the full remaining maturity of the loan being hedged.

C

urrency Hedges

TABLE 4: Illustrative Example of Partial Maturity Currency Swap

(Only Principal Exchanges Shown)

Outstanding Loan Balance (USD millions)	Semester	Loan Amortization (USD million)	Borrower Swap Receipts (USD million)	Borrower Swap Payments (EUR million)
USD 90	1	USD 10	USD 10	EUR 9
USD 80	2	USD 10	USD 10	EUR 9
USD 70	3	USD 10	USD 10	EUR 9
USD 60	4	USD 10	USD 60	EUR 54
USD 50	5	USD 10		
USD 40	6	USD 10		
USD 30	7	USD 10		
USD 20	8	USD 10		
USD 10	9	USD 10		

In the above example, the borrower has a USD loan with level repayments of principal due in each of the nine semesters remaining. It has agreed to a currency swap for the following four semesters from USD into EUR. The borrower would continue to repay the loan obligation as originally agreed, plus it stands to receive and pay amounts on the currency swap as illustrated above. At the final maturity of the swap in semester 4, the final exchange of principal will be billed and settled on a net basis, i.e., the amounts owed by each party will be converted into the currency owed by the borrower under the related loan at the then prevailing exchange rate. In this example, if the USD/EUR exchange rate at the end of the swap is USD 0.8/EUR, the borrower would owe a net amount of USD 17.5 million on the loan plus the swap (USD 10 million plus EUR 54 million minus USD 60 million).

C

ommodity Hedges

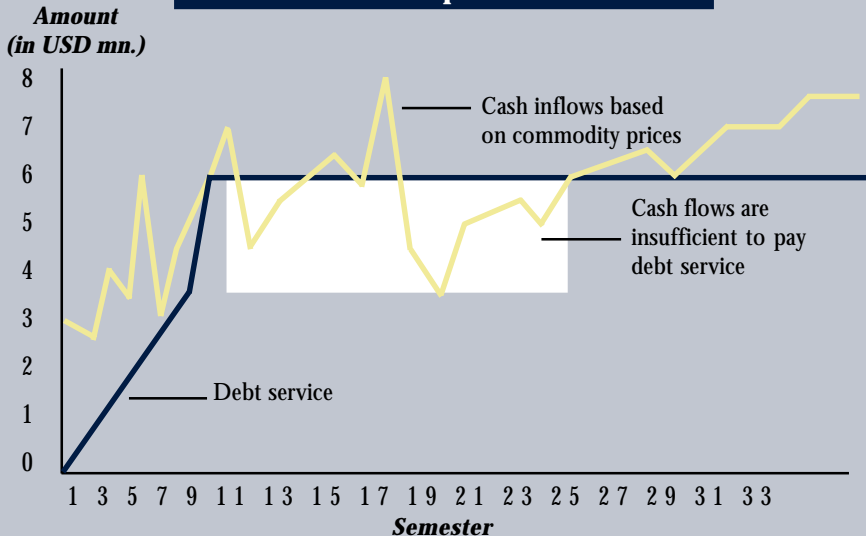
CASH FLOW RISK

Cash flow risk is the risk that arises when differences in the timing of earnings and debt service leave cash balances at levels which are insufficient to meet debt service obligations. (Also called liquidity risk.) Cash flow risk could arise, for example, if earnings fluctuate while debt service remains constant from one period to the next or fluctuates against a different index. For example, some countries' export earnings may be heavily dependent on the price of a commodity.

COMMODITY SWAPS

Managing the risks associated with commodity prices is a major challenge for many developing countries. Most commodity-dependent countries have inadequate access to risk-hedging instruments. IBRD has begun its efforts to address this need by offering commodity swaps on a case-by-case basis to borrowers with a demonstrated need to reduce exposure to commodity price changes.

DIAGRAM 4: Example of cash flow risk



Cash flow risk can arise when cash inflows and debt service obligations are not matched in time.

C

ommodity Hedges

BOX 10: How might borrowers use commodity swaps?

- A borrower country which is an exporter of copper might decide to enter into a commodity swap which would link its interest payments to the price of copper. In the swap it will pay higher interest rates when copper prices are higher and the borrower has more revenue capacity to pay. On the other hand, if copper prices fall, and the borrower would be earning lower revenue, it would benefit from paying a lower interest rate on its debt obligation.
- An oil importing country may wish to inversely link its debt service obligations to the price of oil such that, as oil prices rise and the borrower is burdened with higher fuel costs, it would have lower payments due on its debt. The opposite would also be true, that when oil prices decline and the country is in a better position to repay, the terms of the commodity swap would require higher debt service.

A borrower aiming to reduce financial risks to a project or sovereign balance sheet from changes in commodity prices could enter into a separate commodity swap transaction linked to an outstanding loan. The swap transaction would specify the terms of two streams of future swap cash flows, one stream to be paid—swap pay leg—and the other to be received by the borrower—swap receipt leg—with IBRD as its counterparty. Similar to interest rate and currency swaps, the borrower's swap receipt leg would be designed to cancel out, to the extent possible, the terms of the related loan when the cash flows of the swap and loan are netted together. This would be achieved by having IBRD owe the bor-

rower on its swap receipt leg amounts matching those due by the borrower on the loan at each future payment date, to the extent possible. In exchange, the borrower would pay on its swap pay leg floating rate cash flows which are linked to the market price of a commodity or index.

Analysis would be required to determine the best index for hedging the particular commodity risk, since the movements of index prices on varying grades or varieties of a commodity may behave differently. It may not be possible to hedge the commodity risk entirely, and borrowers may experience residual “basis” risk

C

ommodity Hedges

resulting from the difference in price movement of the chosen index as compared with the actual financial risk in the project or sovereign balance sheet.

IBRD, acting as intermediary, would execute an equal and offsetting transaction in the market with a financial institution. The pricing achieved on IBRD's market transaction would be passed directly to the borrower through the terms of the commodity swap.

Commodity swaps will be available to borrowers only on a case-by-case basis, and will be constrained by the availability to IBRD of offsetting financial market transactions.

L

Legal Considerations

Borrowers that wish to use IBRD Hedging Products would enter into a market-based master derivatives agreement (MDA) with IBRD. This agreement provides the contractual framework between the borrower and IBRD. Once this agreement is in place, each hedge transaction executed by the borrower and IBRD would be documented by a legal confirmation, which would form part of the master agreement.

It is expected that in most cases the ISDA Master Agreement (Multicurrency-Cross Border) published by the International Swaps and Derivatives Association (ISDA) in 1992 will be used as the basis for the MDA between IBRD and the borrower.

In special circumstances, IBRD may consider entering into an individual (stand alone) forward exchange or interest exchange agreement to document a hedge transaction.

Before entering into any of the above derivatives agreements, the borrower and IBRD must review whether the borrower has the power and is authorized to enter into derivatives transactions, and otherwise is in a position to enter into derivatives transactions such as IBRD's Hedging Products.

P

ayment Netting

Hedge transactions are “free-standing” and do not entail conversion of the associated loan. The loan in its original form together with the hedge transaction will produce net obligations designed to achieve the desired results for the borrower.^{6/}

For hedges with payment dates synchronized with the loan payment dates, the loan bill, to the extent practicable, will net the loan and swap payments in respect of each payment date.

Borrowers should be aware that given the discretionary nature of the IBRD’s loan interest waivers, these are not taken into account in determining the cash flows of any hedge transaction, which will reflect the contractual lending rate as opposed to a post-waiver rate. This means that, in practice, a borrower will not achieve a perfect hedge to the extent an interest waiver applies to the related loan during all or part of the term of a hedge transaction. In the case of currency swap transactions, loan waivers will be billed in the original loan currency.

6/ This is in contrast to executing hedges under the terms offered on IBRD’s Fixed-Spread Loan (FSL) product, in which interest rate and currency conversions features, as well as caps and collars, are included as provision of the loan itself.

A

ccounting Considerations

Accounting standards for derivative transactions vary from one country to the next. Before utilizing IBRD Hedging Products, borrowers should consider the accounting and reporting implications of entering into such transactions. Among others, considerations may include financial statement disclosure and volatility of income due to mark-to-market gains and losses.

T

erms and Conditions of Hedging Products

IBRD Loans Eligible for Hedging

Currencies Available

Maximum/ Minimum Transaction Amount

Maximum Maturity

Pricing Determination

INTEREST RATE SWAPS

Disbursed and outstanding IBRD loans denominated in a single currency: FSLs, VSLs, and FSCLs.

CHF, EUR, GBP, JPY, USD and potentially others, to match the underlying obligation.

USDeq. 500 million equivalent maximum volume (larger volumes considered case-by-case); must be linked to an equal volume of eligible loans; subject to minimum volume to be specified in guidelines.

Subject to market terms available to IBRD. Depending upon the currency, swaps can be offered for at least 10 to 12 years or longer, if available, but not to exceed the maturity of underlying loan(s).

Market terms—usually based on execution terms achieved by IBRD in an offsetting swap with financial intermediaries, or in some cases on terms which are calculated using pre-specified, widely available screen quotes.

INTEREST RATE CAPS/COLLARS

Disbursed and outstanding IBRD loans denominated in single currency with variable rates: FSLs and VSLs.

CHF, EUR, GBP, JPY, USD and potentially others, to match the underlying obligation.

USDeq. 500 million equivalent maximum volume (larger volumes considered case-by-case); must be linked to an equal volume of eligible loans; subject to minimum volume to be specified in guidelines.

Subject to market terms available to IBRD. Depending upon the currency, caps/collars can be offered for at least 10 to 12 years or longer, if available, but not to exceed the maturity of underlying loan(s).

Market terms—based on execution terms achieved by IBRD in an offsetting transaction with financial intermediaries, or in some cases on terms which are calculated using pre-specified, widely available screen quotes.

T

erms and Conditions of Hedging Products

IBRD Loans Eligible for Hedging

Currencies Available

Maximum/Minimum Transaction Amount

Maximum Maturity

Pricing Determination

CURRENCY SWAPS

Disbursed and outstanding IBRD loans including FSLs, VSLs, FSCLs, CPLs and SCPs.

CHF, EUR, GBP, JPY, USD and potentially others on a case-by-case basis, are available as choices for the currency of the swap pay leg. The currency of the swap receipt leg would match the underlying obligations being hedged.

USDeq. 300 million equivalent maximum volume (larger volumes considered case-by-case); must be linked to an equal volume of eligible loans; subject to minimum volume to be specified in guidelines.

Subject to market terms available to IBRD. Depending upon the currencies in the transaction, swaps can be offered for at least 10 to 12 years or longer, if available, but not to exceed the maturity of underlying loan(s). If the swap matures earlier than the loan, the borrower should be aware of the final exchange of principal at maturity of the swap. IBRD recommends and will attempt to provide currency swaps for full remaining maturity of loan.

Market terms—based on execution terms achieved by IBRD in an offsetting swap with financial intermediaries, or in some cases on terms which are calculated using pre-specified, widely available screen quotes.

COMMODITY SWAPS

Disbursed and outstanding IBRD loans of all types will be considered on a case-by-case basis. Given complexity of pool-based loans, commodity swaps on these are expected to be approximate and executed infrequently.

The currency of the swap receipt leg would match the underlying obligations being hedged. Currency of swap pay leg subject to availability of offsetting market transactions.

Subject to terms available to IBRD in its offsetting market transaction.

Subject to terms available to IBRD in its offsetting market transaction.

Market terms—based on execution terms achieved by IBRD in an offsetting swap with financial intermediaries.

T

erms and Conditions of Hedging Products

Effective dates

Effective date to coincide with interest payment date.

Effective date to coincide with interest payment date.

Payment Netting

Payment dates of the swap are matched to those of the underlying loan. At each payment date, amounts IBRD or the borrower owe in the swap would be netted against amounts the borrower owes to IBRD on the underlying loan. Any residual loan amounts owed by the borrower are payable together with payments due to IBRD in the swap.

Payment dates of the cap or collar are matched to those of the underlying loan. At each payment date, if the floating index exceeds the maximum rate agreed in the cap or collar, amounts IBRD owes to the borrower would be netted against amounts the borrower owes to IBRD on the underlying loan or hedge. In the case of a collar, if the floating index is below the floor rate on the collar, the borrower owes related payments to IBRD.

Interest Rate Basis of Borrower's Swap Receipts

The fixed rate or floating index would be selected to correspond to that of the underlying loan net obligations: for FSLs, LIBOR + spread, (or if the interest rate on the loan had been fixed, the applicable fixed rate); for VSLs, LIBOR flat; for FSCLs, the fixed rate for the associated tranche.

N/A

Interest Rate Basis of Borrower's Swap Payments

Borrower's choice of either a fixed rate or a floating rate based on LIBOR (or other appropriate index as specified by IBRD) plus a spread.

N/A

Transaction Fees effective as of May 1, 2001; subject to change at any time for new transactions

1/8% of principal amount hedged, payable 60 days after execution.

1/8% of principal amount hedged, payable 60 days after execution.

T

erms and Conditions of Hedging Products

Effective dates

Effective date to coincide with interest payment date.

Effective date to coincide with interest payment date.

Payment Netting

Payment dates of the swap are matched to those of the underlying loan. At each payment date, amounts IBRD or the borrower owe in the swap would be netted against amounts the borrower owes to IBRD on the underlying loan. Any residual loan amounts owed by the borrower are payable together with payments due to IBRD in the swap.

Payment dates of the swap are matched to those of the underlying loan. At each payment date, amounts IBRD or the borrower owe in the swap would be netted against amounts the borrower owes to IBRD on the underlying loan. Any residual loan amounts owed by the borrower are payable together with payments due to IBRD in the swap.

Interest Rate Basis of Borrower's Swap Receipts

The fixed rate or floating index would be selected to correspond to that of the underlying net obligations: for FSLs, LIBOR + spread or the fixed rate achieved if the interest rate on the loan had been fixed; for VSLs, LIBOR flat; for FSCLs, the fixed rate for the associated tranche. Currency swaps on CPLs and SCPs are for principal only.

The fixed rate or floating index would be selected to correspond to that of the underlying obligation.

Interest Rate Basis of Borrower's Swap Payments

Borrower's choice of either a fixed rate or a floating rate based on LIBOR in the target currency (or other appropriate index as specified by IBRD), plus a spread.

A floating rate linked to a commodity price or index.

Transaction Fees effective as of May 1, 2001; subject to change at any time for new transactions

1/4% of principal amount hedged, payable 60 days after execution.

3/8% of principal amount hedged, payable 60 days after execution.

T

Terms and Conditions of Hedging Products

Premium

N/A

Early Termination/ Loan Prepayment

Borrower may at any time elect to terminate the swap. An Early Termination Fee of 1/8% of terminated principal amount will be charged, in addition to settlement of the mark-to-market value of the terminated swap. All or a portion of the swap will be terminated if all or a portion of the related portion of the underlying loan is prepaid.

General

Limit orders, as defined on page 38, are accepted for transactions of USDeq. 25 million or larger.

INTEREST RATE CAPS/COLLARS

A premium based on the cost of the off-setting cap/collar executed by IBRD is determined on trade date and payable 60 days after execution.

Borrower may at any time elect to terminate the cap/collar. The cap/collar, or relevant portion, may be terminated if all or a portion of the related loan is prepaid. A transaction fee of 1/8% of principal amount terminated will be charged in addition to settlement of mark-to-market value. If underlying loan is swapped to another currency, the cap/collar will be automatically terminated. In this case, no transaction fee will be charged, but settlement of the mark-to-market value of the terminated cap/collar is required.

Limit orders, as defined on page 38, are accepted for transactions of USDeq. 25 million or larger.

T

Terms and Conditions of Hedging Products

Premium

N/A

N/A

Early Termination/ Loan Prepayment

Borrower may at any time elect to terminate the swap. An Early Termination Fee of 1/4% of terminated principal amount will be charged, in addition to settlement of the mark-to-market value of the terminated swap. All or a portion of the swap will be terminated if all or a portion of the related portion of the underlying loan is prepaid.

Borrower may at any time elect to terminate the swap. An Early Termination Fee of 3/8% of terminated principal amount will be charged, in addition to settlement of the mark-to-market value of the terminated swap. All or a portion of the swap will be terminated if all or a portion of the related portion of the underlying loan is prepaid.

General

No initial exchange of principal. A final exchange of principal amounts is required for each principal amortization amount on the amortization date, and for any hedge amounts which remain unamortized at the termination date of the swap. Limit orders, as defined on page 38, are accepted for transactions of USDeq. 25 million or larger.

Offered on a case-by-case basis.

U

seful Terms

Amortizing swap—A swap whose notional principal amount amortizes (decreases) over time. Because IBRD's loans normally have principal repayments due at each payment date after the grace period, a swap hedging such a loan would likely have an amortization schedule which matches that of the repayments on the loan being hedged.

Annuity amortization—A method of principal amortization on a loan where the principal is repaid in installments over time, and the sum of the principal and interest of each installment (using a discount rate determined at the time of loan negotiation) is the same, assuming interest rates do not change over the life of the loan.

Basis point (b.p.)—One one-hundredth of a percent. For example, the difference between 6.00% and 6.01%.

Basis risk—The risk which arises when the change in value of a hedge does not correspond in magnitude or direction to changes in the instrument being hedged, leading to gains or losses.

Bullet maturity—A method of principal amortization where the principal is repaid in one installment at the final repayment date.

Derivative instrument—Financial transaction whose value is derived from other instruments. Futures, swaps, and options are derivative instruments.

EURIBOR (Euro Interbank Offered Rate)—The rate at which euro interbank term deposits within the euro zone are offered by one prime bank to another prime bank.

Forward swap—A swap in which the terms and conditions of the transaction are agreed now, but the swap itself does not come into effect until a future date.

ISDA—International Swaps and Derivatives Association.

Leg—In a swap contract, legs represent streams of future cash flows which are the obligations of each of the parties to the agreement. Swaps usually have a payment leg and a receipt leg.

Level repayment of principal—A method of principal amortization on a loan where the principal is repaid in equal installments over time, and the sum of principal and interest for each installment declines over time after the grace period.

LIBOR (London Interbank Offered Rate)—The interest rate at which banks lend to each other in the interbank market in London. Floating rate instruments often use LIBOR as the interest rate index.

Limit order—Conditions placed upon the timing and price of the execution of a hedge request—for example, an order for execution of a hedge provided it can be executed at or better than a specified price.

Mark-to-market—The process of valuing an outstanding derivative transaction using current market interest rates and exchange rates. Changes in the market rates compared to when the derivative transaction was executed result in “mark-to-market” gains or losses, for the counterparties to the transaction.

Reset rate—The interest rate which is determined to be the applicable rate on a floating rate instrument for the relevant payment period.

Tenor—Term to maturity of a swap.

H

ow to Proceed with Hedging Products

1. Negotiate and enter into master derivatives agreement with IBRD (see “Legal Considerations”, page 29).
2. Provide to IBRD (and keep up-to-date) a list of signatures of officers authorized to enter into IBRD Hedging Products.
3. Submit, in original form, Hedge Request Forms. Request must include rationale for use of IBRD Hedging Products, hedge terms being requested, and specific IBRD loan(s) to be hedged. Forms can be downloaded from <http://www.worldbank.org/fps>.
4. IBRD will endeavor to execute hedges within 15 business days from receipt of the borrower's request. During approval process, borrower may be contacted for more information or clarification. IBRD reserves the right to reject a request for a hedge transaction.
5. Final terms of hedge will be sent to borrower promptly following execution. Borrower will be billed for up-front hedge transaction fee, payable within 60 days of execution.
6. A legal confirmation containing the terms of the hedge will be submitted to the borrower for signature.
7. To the extent possible, loans will be billed net of all hedge obligations due on the same payment date.

C

ontact Information

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