

Derivatives

their importance for limiting currency and interest rate risks
and their impact on mortgage bonds

6th Central European Mortgage Bond Conference
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Derivatives and Structured Products

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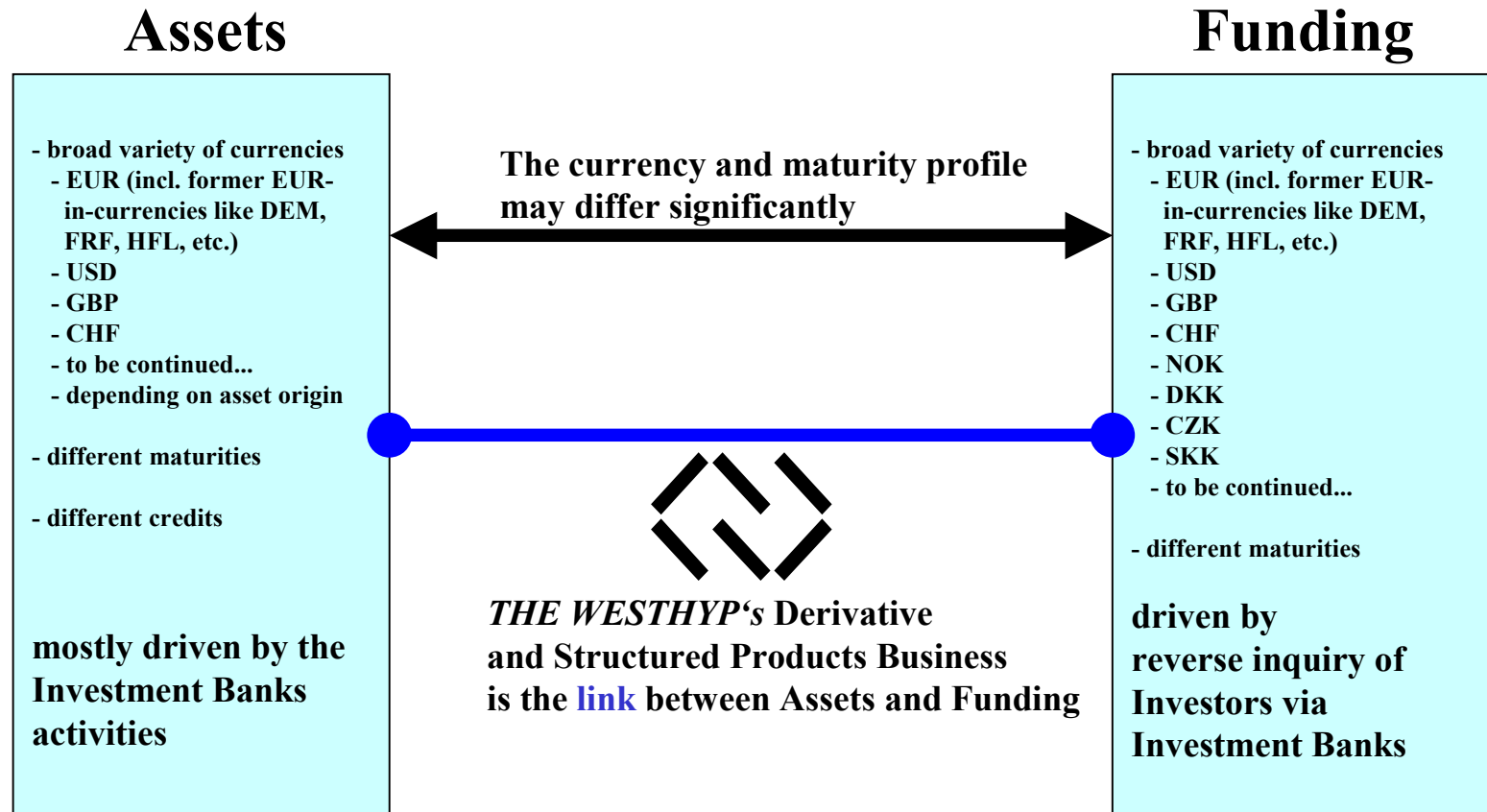
Capital Markets

Westfaelische Hypothekenbank AG, Dortmund



Derivatives and Structured Products

Why?



Derivatives are used

- to harmonize the cash-flows between the *WESTHYP's* assets and its funding
- to create a remoteness of funding products (especially Pfandbriefe) from

- currency
- interest-rate and
- credit risks



Safety of THE WESTHYP's Products



Derivatives and Structured Products

Agenda

1. Interest Rate Derivatives (Swaps and Swaptions)
 - Definitions
 - Examples
2. Structured Products
 - Examples
3. Cross Currency Swaps
 - Definitions
 - Examples
4. Credit Derivatives (Credit Default Swaps, Total Return Swaps, CLN)
 - Definitions
 - Examples
5. Legal aspects / Pfandbrief Collateral



1. Interest Rate Derivatives



Interest Rate Swap

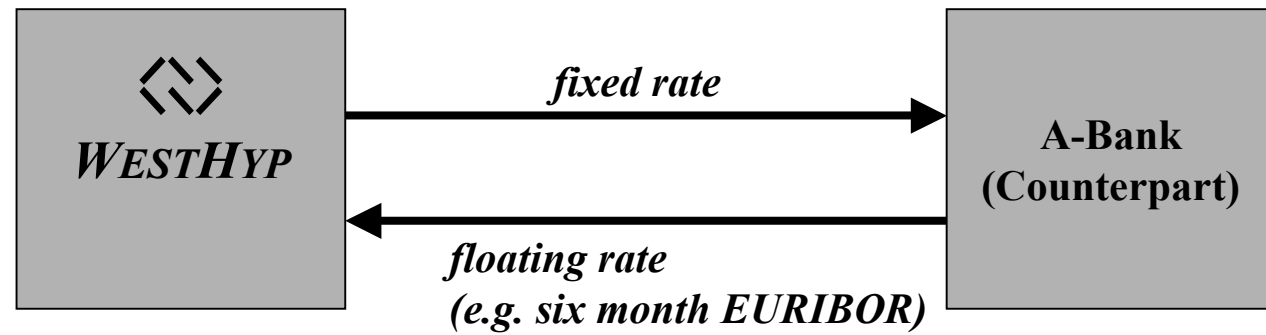
An interest rate swap is a contract between two counterparts which agree to exchange periodic payments for an agreed period of time on an underlying notional principal amount. The principal amount is not exchanged. Interest payments are exchanged in regular intervals, usually on a quarterly, semi-annual or annual basis. The most common interest rate swap structure is the following:

party A pays a fixed rate of interest and receives a floating rate from its counterpart B.

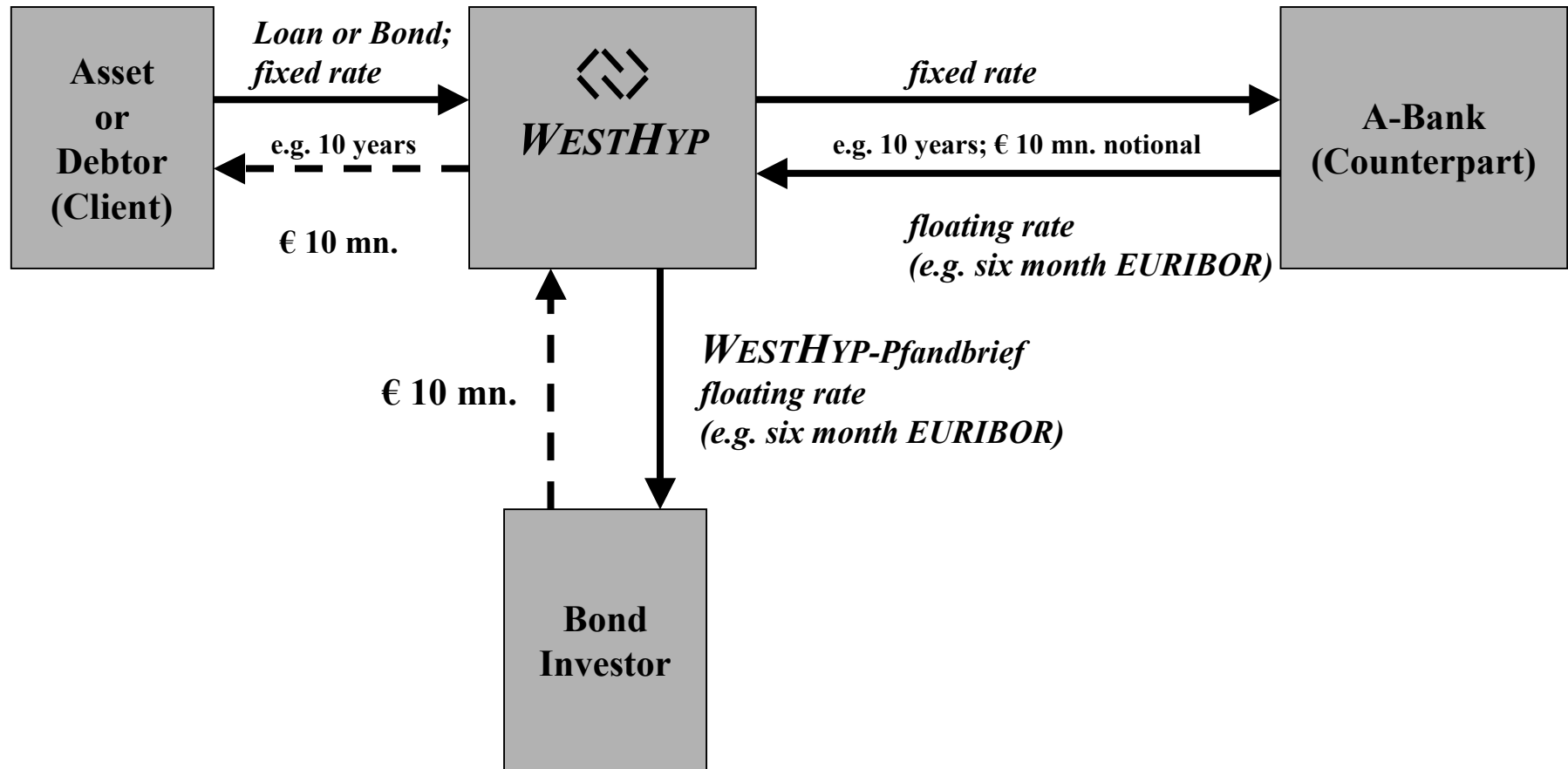
Floating rate payments are at a rate of interest that is periodically reset, such as EURIBOR, LIBOR, WIBOR, etc.



Interest Rate Swap



Interest Rate Swap



Swaption

A swaption is an option to enter into a swap contract on pre-set terms at a future date. A payer swaption is the right to be a fixed rate payer, a receiver swaption the right to be a fixed rate receiver. The counterparts agree a specific swap rate (strike), the expiration date, the exercise style (American, Bermudan or European) and the style of settlement/delivery (cash or swap).

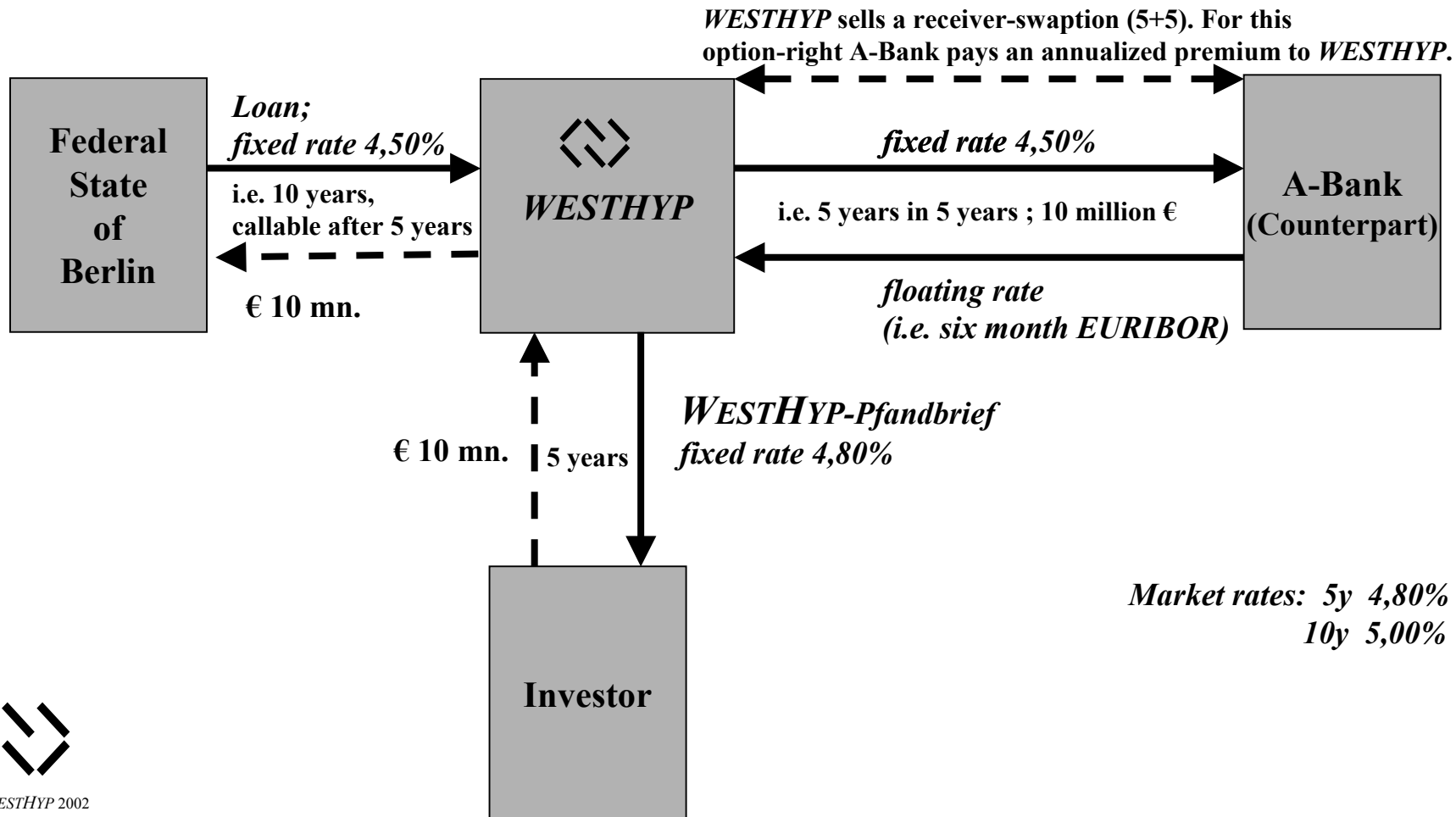


2. Structured Products



Structured Products

Callable Schuldscheindarlehen (SSD / loan) of Berlin



Structured Products

Calculation (WESTHYP's perspective):

1. Years 1-5: **Coupon: 4,50% p.a.**
 Amortized-Swaption-Premium: 0,50% p.a.
 IRR: 5% p.a.
 Market-rate: 4,80%
 Margin: 0,20% p.a.
2. Years 6-10: **Coupon: 4,50%**
 a) In the case that interest rates for 5 years in 5 years are higher than the strike price in the SSD (i.e. 6% vs. 4,50%), WESTHYP would call the SSD. The Swaption-Counterpart will not enter in a Swap-Transaction. The whole Transaction would finish.
 b) In the case that interest rates are lower than the strike price (i.e. 3,50% vs. 4,50%) the WESTHYP will not call the SSD. The holder of the swaption will exercise the right to receive 4,50% for the years 6-10. The margin for WESTHYP is 0,00% for the last 5 years.

Calculation (Federal State of Berlin's perspective):

1. Scenario for a maturity of 5 years: Berlin's lending costs are 30 bp below market rate (4,50% vs. 4,80% for 5 years)
2. Scenario for a maturity of 10 years: Berlin's lending costs are 50 bp below market rate (4,50% vs. 5% for 10 years)



3. Cross-Currency Swap



Cross Currency Swap

A Cross Currency Swap is a contract between two counterparts which agree to exchange periodic payments for an agreed period of time.

Each leg of the swap is denominated in a different currency.

A cross currency swap therefore has two principal amounts, one for each currency. It is essential that the parties agree to exchange the principal amounts at maturity (*final exchange*), the exchange at the start is optional (*initial exchange*). The possible structures are:

- (1) CC-Fixed-Floating-Swap
- (2) CC-Fixed-Fixed-Swap
- (3) CC-Floating-Floating-Swap (“Basis”-Swap)

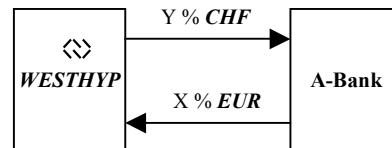


Different Structures

Currency Swap

(Fixed to Fixed)

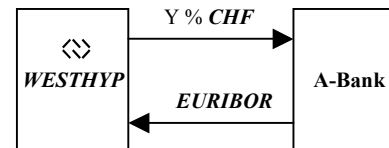
Exchange of fixed rate of interests in different currencies.



Cross Currency Swap

(Fixed to Floating)

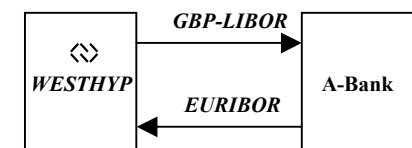
Exchange of fixed against floating rate of interest in different currencies.



„Basis“-Swap

(Floating to Floating)

Exchange of floating rate of interests in different currencies.

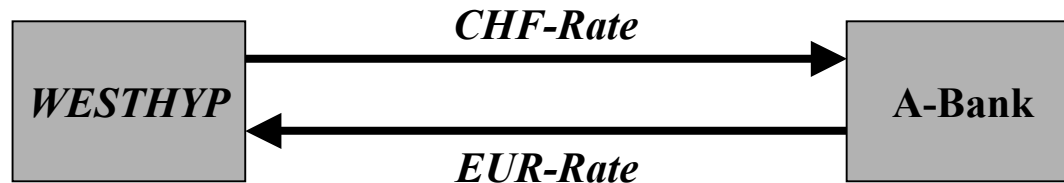


Initial Exchange (optional) - periodic Interest Rate Payments - Final Exchange

At the start of the transaction the two counterparts (optionally) exchange the principal. Normally the spot rate is used. While the initial exchange is optional, it is necessary that the parties agree the FX rate for the exchange of principal amounts at maturity.



For an agreed period of time the interest payments calculated on the different principle amounts are exchanged.



At maturity the principal amounts of the different currencies are exchanged on the FX rate as agreed at the start date.



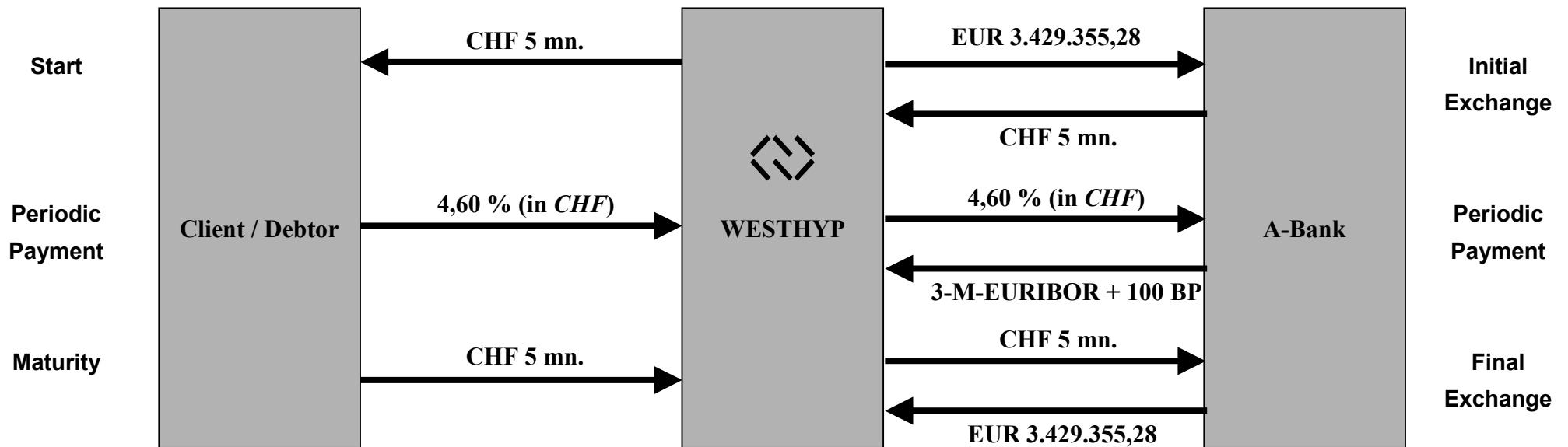
Example

CHF-Loan and CHF-Swap

Loan: CHF 5 mn.
 Interest rate: 4,60 % p.a. in CHF
 Margin: 100 bp (1,0 %)
 FX rate: 1 Euro = 1,4580 CHF

Loan:

Swap:

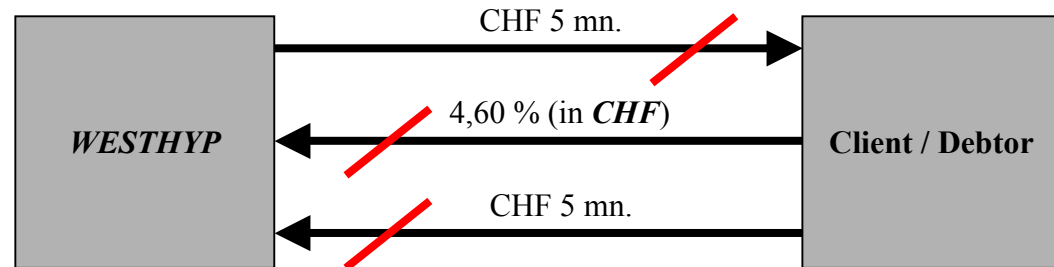


Example

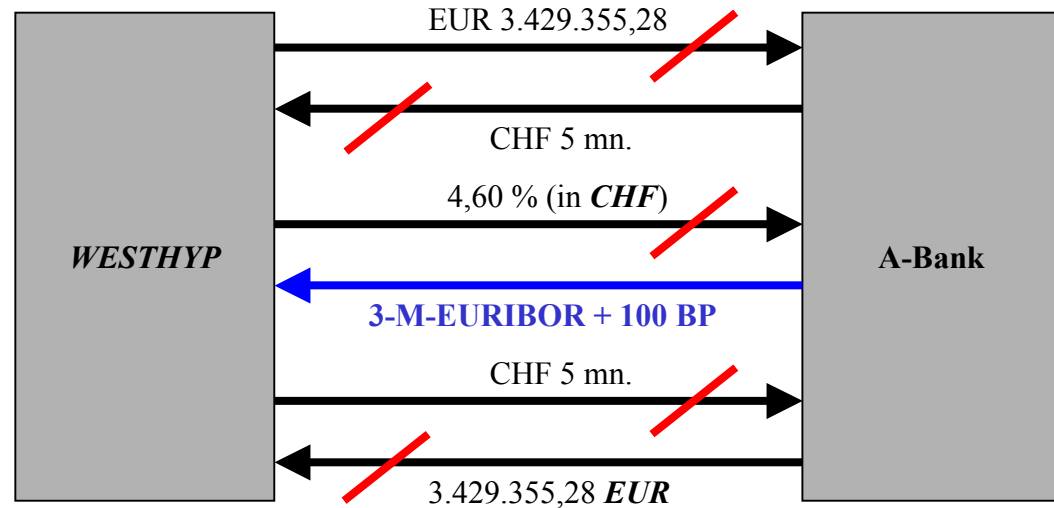
Overview: Cash-flows

Margin: 100 bp in EUR.

Loan:



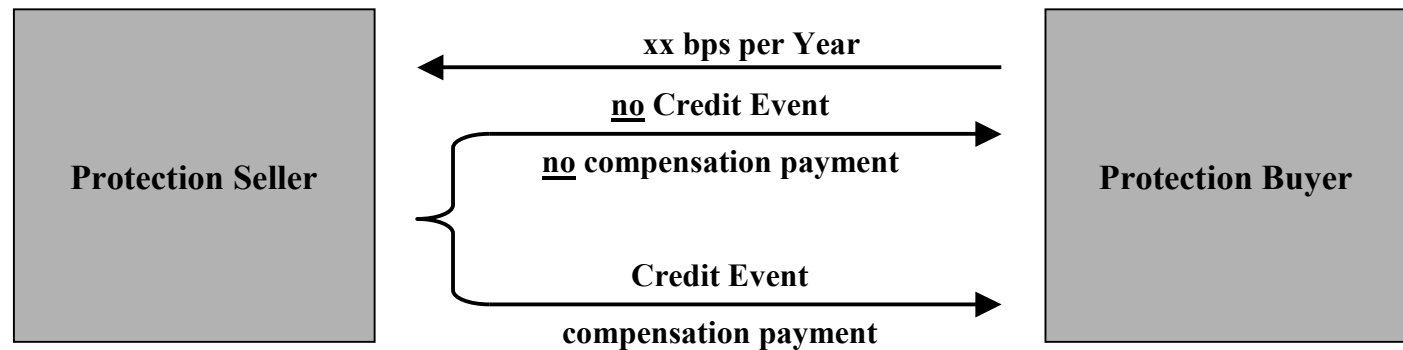
Swap:



4. Credit Derivatives



Credit Default Swap



Intention:

Creating a synthetic structure allows

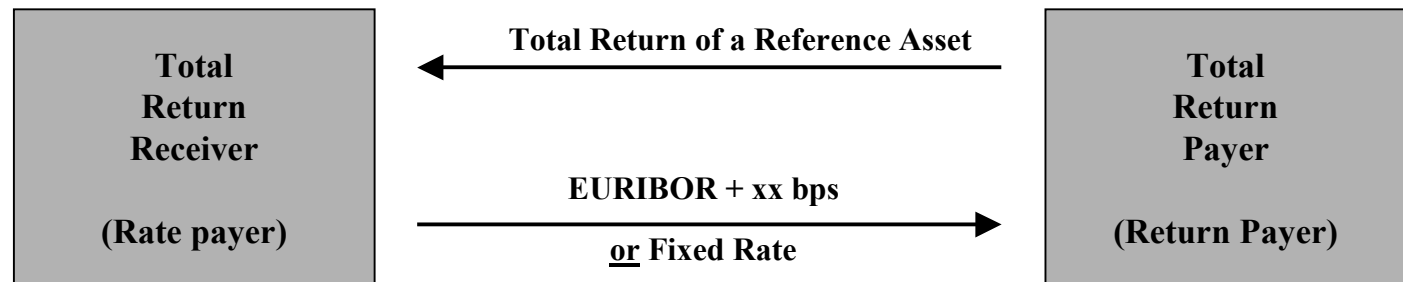
- to strip off default risk and
- to trade it separately.

Application:

The protection buyer pays a premium to the protection seller at an amount of xx basis points on a quarterly, semi annual or annual basis. At the time of a defined credit event the protection seller has to pay a compensation payment to the protection buyer.



Total Return Swap



Intention:

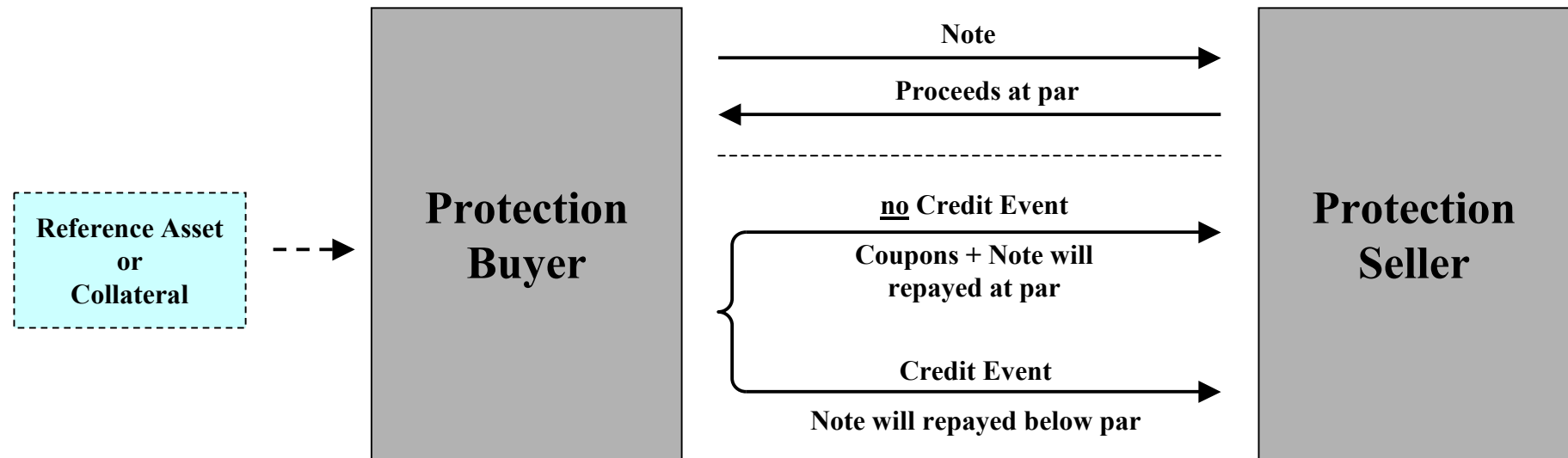
Providing a synthetic method to gain access to balance sheet assets (without incurring an ownership) and managing portfolio risk efficiently. This derivative instrument allows investors to exchange the total return of an asset for fixed or floating interest rate payments.

Application:

The total return payer swaps the return of an asset or a pool of assets into a fixed or floating payment.



Credit Linked Note



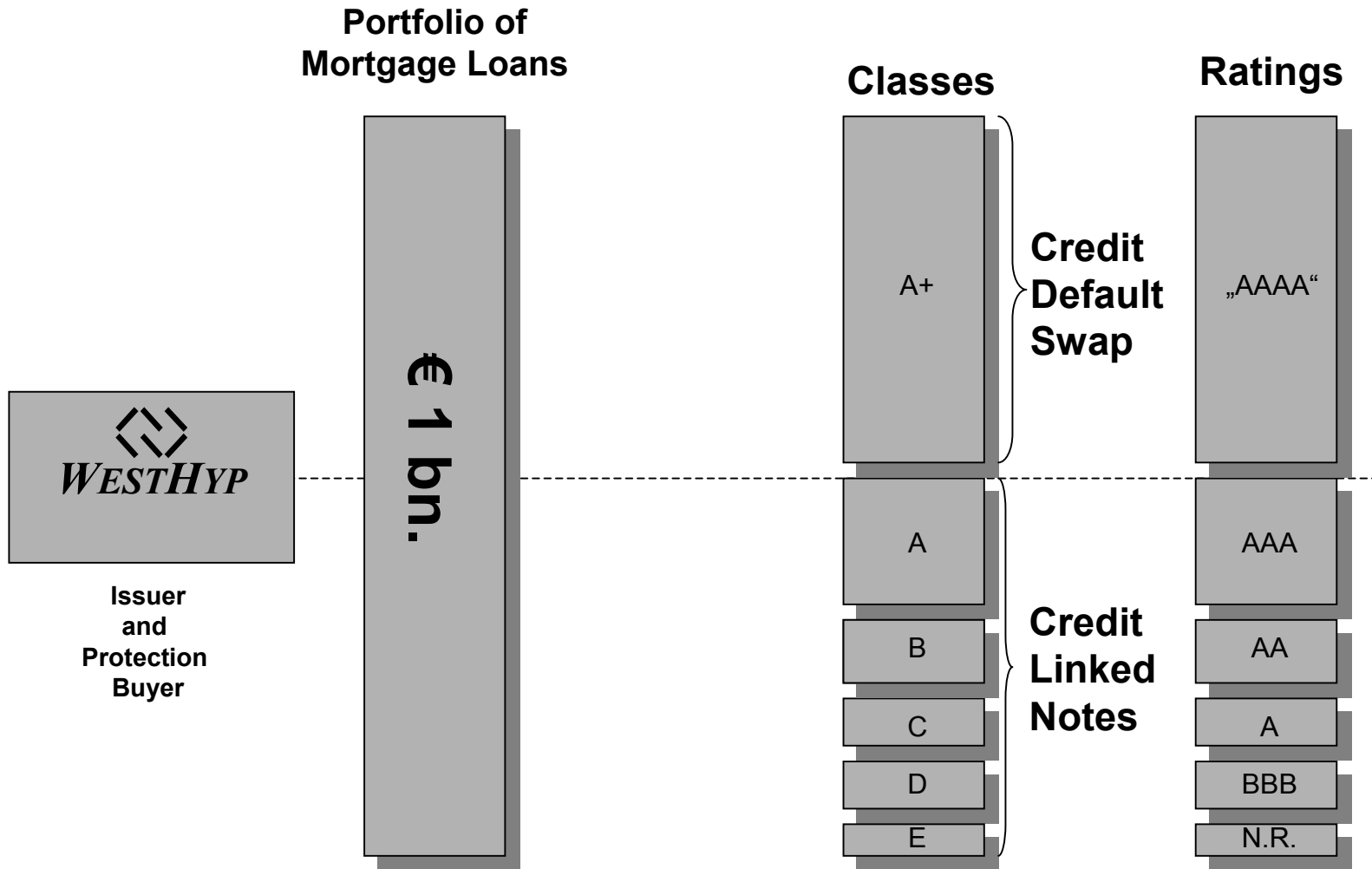
Application:

The protection buyer issues a note at par. If a defined credit event occurs, the principle amount of the note is reduced. If no credit event occurs during the life of the note, the note is redeemed at par.



Synthetic MBS-Structure

Credit Default Swap and Credit Linked Notes



Credit Derivatives are used to remove assets and their possible implied risks from the balance sheet (repackaging of assets).



5. Legal aspects / Pfandbrief Collateral



Derivatives and Structured Products

Legal aspects / Pfandbrief Collateral

The German Mortgage Bank Act



The Mortgage Bank Act defines derivatives as „auxiliary business“. The use of derivatives is limited to hedging risks (interest rate, currency, credit).

(1) §3 Bank supervision

(2) §5 Additional business and auxiliary business (business „beyond“ core operations as defined in §1)
- „investing in suitable credit institutions“

(3) §6 Cover of Pfandbriefe

(1) „The total volume of Mortgage Pfandbriefe („Hypothekendarlehen“) outstanding must at all times be covered at their nominal value by mortgages of at least the same amount and with at least the same yield (ordinary cover). In addition, the cover for the Mortgage Pfandbriefe must be ensured at all times according to the net-present-value“

The „ordinary cover“ (according to the former rule) was always interpreted like this: Pfandbriefe issued by a mortgage bank may only diverge from the currency of the assets used to cover them if any exchange risk is precluded by appropriate measures.

=> Use of Derivatives

Since the amendment of the Mortgage Bank Act (July 2002) the present value of derivatives can (theoretically) be used as collateral for Pfandbriefe.

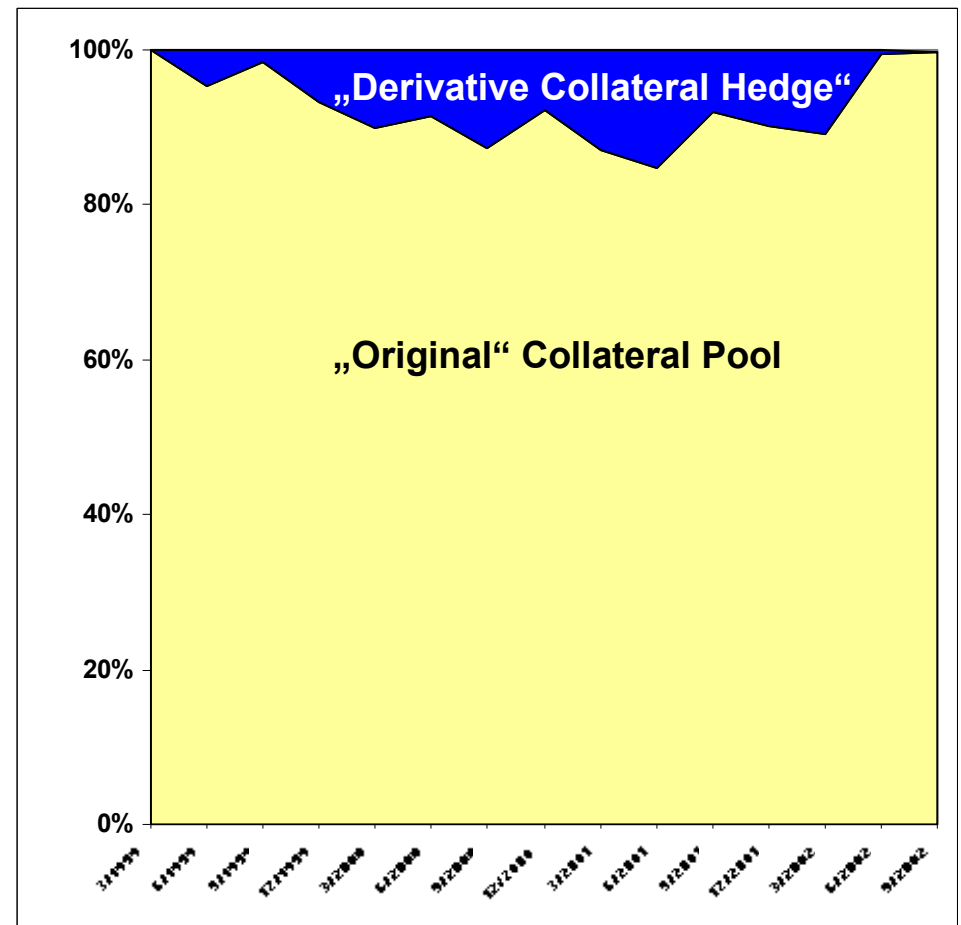
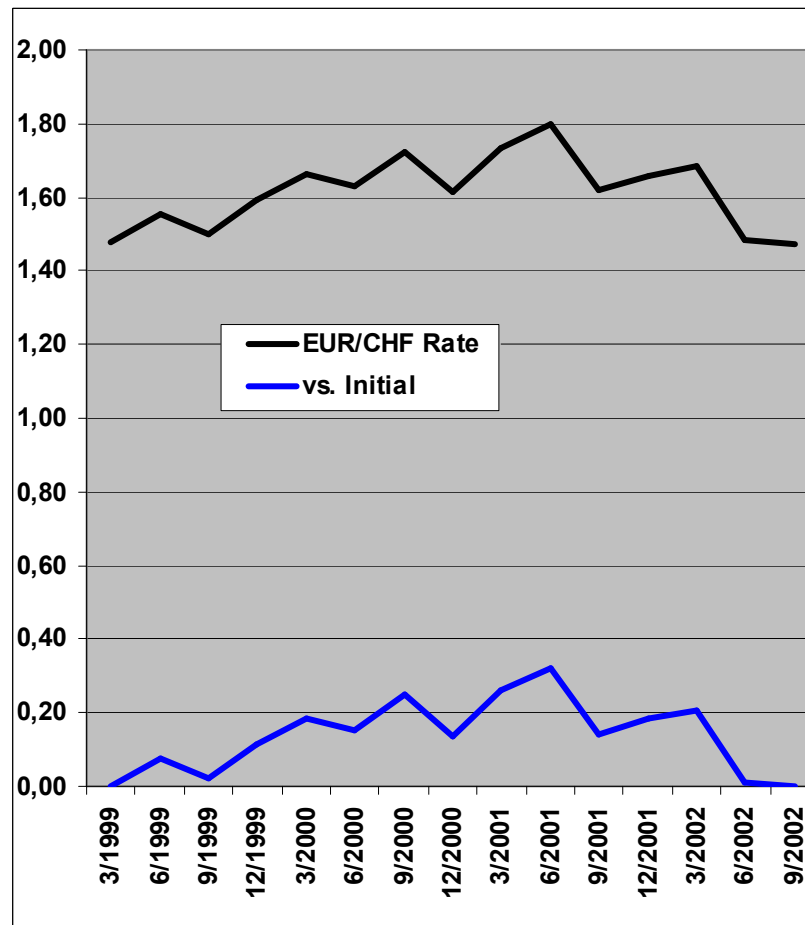


Derivatives and Structured Products

Legal aspects / Pfandbrief Collateral

Example: Issuing of a CHF-Pfandbrief and its Collateral

	3/1999	6/1999	9/1999	12/1999	3/2000	6/2000	9/2000	12/2000	3/2001	6/2001	9/2001	12/2001	3/2002	6/2002	9/2002
EUR/CHF Rate	1,4772	1,5552	1,4990	1,5900	1,6628	1,6310	1,7247	1,6149	1,7354	1,7973	1,6200	1,6597	1,6825	1,4858	1,4752
vs. Initial	--	0,0780	0,0218	0,1128	0,1856	0,1538	0,2475	0,1377	0,2582	0,3201	0,1428	0,1825	0,2053	0,0086	-0,0020



Derivatives and Structured Products

Legal aspects / Pfandbrief Collateral

The German Mortgage Bank Act



(3) §6 Cover of Pfandbriefe

(6) A mortgage bank may use interest and currency swaps as ordinary cover.

- These derivatives have to be remote from the mortgage bank's (possible) insolvency.
- The claims of the mortgage bank's counterparties must be covered.
- The „collateral derivatives“ must not exceed 12% of outstanding Pfandbriefe

=> 2 problems / challenges:

1. To create an insolvency-remoteness of the „collateral derivatives“, every mortgage bank has to enter into 3 different Swap-agreements with every single counterparty:

- one for the derivatives linked to the Mortgage Pfandbrief and its asset pool respectively
- one for the derivatives linked to the Public Pfandbrief and its asset pool
- one for the bank-related derivatives (...and this is where possible risks could be...!)

These 3 agreements are inevitable, because only 1 agreement under the framework of the existing netting and collateral agreements would lead to a mixture of risk of all 3 existing asset pools.

=> This is not what the Mortgage Bank Act intended to create,

because its main target is the insolvency-remoteness of Pfandbriefe!

The process of developing the (additional) standard swap-agreements is on its way...

2. The second challenge is the matching of cash-flows, especially currencies. As mortgage banks are investor-driven (reverse inquiry of investors by investment banks) in their funding business and as they are permanently searching for spread-pick-up in their asset acquisition, funding and assets will only match (currency/maturity-wise) „by chance“.

Consequently it is inevitable to create the asset-liability-match them by switching into short-term-home-currency (Index). For *WESTHYP* this is EURIBOR.

