

# ACCOUNTING OF INTEREST RATE DERIVATIVES

## FORWARD RATE AGREEMENT (FRA), INTEREST RATE SWAP (IRS)

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### Forward Rate Agreement (FRA)

A Forward Rate Agreement is a trade where the counterparties agree on an interest rate, the trade dates and the underlying asset. With the aid of an FRA it is possible to hedge against the risk ensuing from a floating rate on an interest-bearing receivable (a deposit made or credit provided), or on a liability (credit accepted or deposit accepted) which is to be realised at a future date. An FRA may be concluded even without the existence of the underlying transaction.

The buyer in an FRA trade is that contracting party trying to protect itself against an increase in interest rates in the future. The seller in an FRA trade is that contracting party trying to protect itself against an decrease in interest rates in the future.

The contracting parties agree for the respective future term a fixed interest rate (the FRA rate, fixed rate). This rate is compared prior to the start of the term on the reference date with the interest rate of the underlying transaction (the reference rate). If the reference rate is higher than the FRA rate, the buyer will receive a compensation payment from the seller in the amount of the interest rate difference between the rates. If the reference rate is lower, the compensation payment shall be settled by the FRA buyer.

The basic data necessary in accounting for an FRA are:

- the underlying asset, from which the compensation payment is calculated;
- the FRA interest rate and the reference rate, which for transactions in SKK is the BRIBOR rate, in CZK the PRIBOR rate, in EUR the EURIBOR rate and in other currencies the LIBOR rate. From this data is calculated the compensation payment, payable at the beginning of the period for which the FRA is provided;

– the term of the commencement and termination of the trade, i.e. the period of fixing the variable interest rate. A 3-month or 6-month term is most commonly used.

In principle it is not possible to cancel an FRA trade prior to maturity, ending with the reference date on the basis of the market valuation of the trade (“market to market”).

### Accounting example of an FRA in banks

Transaction type:	FRA 1-month
Contracting parties:	Bank in London – sale – fixed interest rate Bank in Bratislava – purchase floating rate
Underlying asset:	SKK 500 000 000
Trade date:	8.12.2003
Reference date:	6.1.2004
Maturity date:	8.1.2004
FRA rate:	5.35%
Reference rate (BRIBOR):	5.80%

*Calculation of the compensation payment:*

FRA rate – reference rate . (duration of the FRA/360 days) . underlying asset / [1 + (duration of the FRA/360 days) . 0.058] / 100

which in our example means:

$5.35\% - 5.80\% \cdot (31/360) \cdot 500\,000\,000 / [1 + (31/360) \cdot 0.058] / 100 = \text{SKK } 192\,787.14$

Values of the daily revaluation:

6. 1. 2004	157 876,00 Sk
7. 1. 2004	174 987,00 Sk
8. 1. 2004	192 787,14 Sk

*Accounting entries:*

### 1. Accounting in the case of the buyer – 1st method of accounting the revaluation by cancellation

Accounting date	Accounting entry	DR / CR	Accounts group	Account name	Value
6.1.2004	Off-balance sheet receivable	DR	95	Receivables from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
		CR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
	Off-balance sheet liability	DR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
		CR	95	Liabilities from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
	First revaluation in the balance sheet	DR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 157 876.00

		CR	71	Income from derivative transactions – positive FRA differences	SKK 157 876.00
7.1.2004	Cancellation of the revaluation of the preceding day	DR	71	Income from derivative transactions – positive FRA differences	SKK 157 876.00
		CR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 157 876.00
	Posting of the new revaluation in the balance-sheet	DR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 174 987.00
		CR	71	Income from derivative transactions – positive FRA differences	SKK 174 987.00
8.1.2004	Cancellation of the revaluation of the preceding day	DR	71	Income from derivative transactions – positive FRA differences	SKK 174 987.00
		CR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 174 987.00
	Posting of the new revaluation in the balance-sheet	DR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 192 787.14
		CR	71	Income from derivative transactions – positive FRA differences	SKK 192 787.14
	Debiting of the off-balance sheet receivable	DR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
		CR	95	Receivables from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
	Debiting of the off-balance sheet liability	DR	95	Liabilities from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
		CR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
	Compensation payment received	DR	13	Current accounts of other banks – loro in SKK	SKK 192 787.14
		CR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 192 787.14

**2. Accounting in the case of the buyer – 2nd method of accounting the revaluation by the accrual method**

Accounting date	Accounting entry	DR / CR	Accounts group	Account name	Value
6.1.2004	Off-balance sheet receivable	DR	95	Receivables from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
		CR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
	Off-balance sheet liabilities	DR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
		CR	95	Liabilities from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
	First revaluation in the balance sheet	DR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 157 876.00
		CR	71	Income from derivative transactions – positive FRA differences	SKK 157 876.00
7.1.2004	Posting the difference from the new revaluation in the balance sheet	DR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 17 111.00
		CR	71	Income from derivative transactions – positive FRA differences	SKK 17 111.00
8.1.2004	Posting the difference from the new revaluation in the balance sheet	DR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 17 800.14
		CR	71	Income from derivative transactions – positive FRA differences	SKK 17 800.14
	Debiting of the off-balance sheet receivable	DR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
		CR	95	Receivables from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
	Debiting of the off-balance sheet liability	DR	95	Liabilities from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
		CR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
	Compensation payment received	DR	13	Current accounts of other banks – loro in SKK	SKK 192 787.14
		CR	31	Fixed term transactions with interest rate instruments – positive FRA differences	SKK 192 787.14

### 3. Accounting in the case of the seller – 1st method of accounting the revaluation by cancellation

Accounting date	Accounting entry	DR / CR	Accounts group	Account name	Value
6.1.2004	Off-balance sheet liability	DR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
		CR	95	Liabilities from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
	Off-balance sheet receivable	DR	95	Receivables from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
		CR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
	First revaluation in the balance sheet	DR	61	Expenses of derivative transactions – negative FRA differences	SKK 157 876.00
		CR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 157 876.00
7.1.2004	Cancellation of the revaluation of the preceding day	DR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 157 876.00
		CR	61	Expenses of derivative transactions – negative FRA differences	SKK 157 876.00
	Posting of the new revaluation in the balance-sheet	DR	61	Expenses of derivative transactions – negative FRA differences	SKK 174 987.00
		CR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 174 987.00
8.1.2004	Cancellation of the revaluation of the preceding day	DR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 174 987.00
		CR	61	Expenses of derivative transactions – negative FRA differences	SKK 174 987.00
	Posting of the new revaluation in the balance-sheet	DR	61	Expenses of derivative transactions – negative FRA differences	SKK 192 787.14
		CR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 192 787.14
	Debiting of the off-balance sheet liability	DR	95	Liabilities from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
		CR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
	Debiting of the off-balance sheet receivable	DR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
		CR	95	Receivables from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
	Compensation payment paid	DR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 192 787.14
		CR	13	Current accounts of other banks – loro in SKK	SKK 192 787.14

### 4. Accounting in the case of the seller – 2nd method of accounting the revaluation by the accrual method

Accounting date	Accounting entry	DR / CR	Accounts group	Account name	Value
6.1.2004	Off-balance sheet liability	DR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
		CR	95	Liabilities from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
	Off-balance sheet receivable	DR	95	Receivables from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
		CR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
	First revaluation in the balance sheet	DR	61	Expenses of derivative transactions – negative FRA differences	SKK 157 876.00
		CR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 157 876.00
7.1.2004	Posting the difference from the new revaluation in the balance sheet	DR	61	Expenses of derivative transactions – negative FRA differences	SKK 17 111.00

		CR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 17 111.00
8.1.2004	Posting the difference from the new revaluation in the balance sheet	DR	61	Expenses of derivative transactions – negative FRA differences	SKK 17 800.14
		CR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 17 800.14
	Debiting of the off-balance sheet liability	DR	95	Liabilities from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
		CR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
	Debiting of the off-balance sheet receivable	DR	99	Suspense account for transactions with FRA interest rate instruments	SKK 500 000 000
		CR	95	Receivables from fixed term transactions with FRA interest rate instruments	SKK 500 000 000
	Compensation payment paid	DR	31	Fixed term transactions with interest rate instruments – negative FRA differences	SKK 192 787.14
		CR	13	Current accounts of other banks – loro in SKK	SKK 192 787.14

### Interest Rate Swap (IRS)

An Interest Rate Swap (IRS) is an agreement between two contracting parties, where one party undertakes to pay a variable (floating) rate or a fixed rate agreed in advance on an amount of funds agreed in advance and for a predetermined period of time; the other party simultaneously undertakes to pay a fixed, or floating, interest rate agreed beforehand on the same amount of funds and for the same time period.

In the case of interest rate swaps the two individual payments are not made on the set dates of the transaction, rather the fixed and variable interest rates are compared and one of the contracting parties then pays to the other party the difference by means of a compensation payment.

An interest rate swap serves to hedge against the interest risk from the original trade, e.g. from a long-term loan or from the purchase of bonds.

The most frequently concluded type of interest rate swap is a “coupon swap”. In the case of such a swap a fixed interest rate is exchanged for a variable interest rate, which is linked to a reference rate, for example BRIBOR.

The basic information for accounting for an IRS is:

- the underlying asset, from which the fixed and variable interest rate are calculated. This notional amount may remain unchanged, but according to the agreement may also be variously changed and adapted.

We differentiate the notional amount according to the change:

- amortising swap – the notional amount is gradually reduced by instalments of equal size,
- annuity swap – the notional amount is gradually reduced by instalments in an annuity,
- step-up swap – the notional amount is gradually increased (the opposite of an amortising swap),
- callable swap – in this type of swap one party has the

right to prematurely terminate the swap without a claim for a compensation payment,

- extendible swap – in this type of swap one party has the right to extend the swap at maturity under conditions agreed in advance;
- the fixed and floating interest rate and the reference rate, which for transactions in SKK is the BRIBOR rate, in CZK the PRIBOR rate, in EUR the EURIBOR rate and in other currencies the LIBOR rate;
- the commencement and termination date of the trade, i.e. the period during which the floating interest rate is hedged against.

An interest rate swap may be terminated in various ways:

- through the elapsing of the duration of the trade,
- through termination – in the case that the right to premature termination of the swap has been agreed in advance,
- through cancellation – both parties have the option of prematurely cancelling the trade and a compensation payment is made on the basis of a market valuation of the swap.

The price of an IRS is determined as the level at which the present value of the fixed interest rate equals the present value of the flow of the floating rates, meaning that it is completely dependent on precisely set future rates.

### Accounting example of an IRS in banks

A commercial bank accepted a long-term loan with an interest rate on the 3-month BRIBOR basis, having half-yearly interest instalments. Since it expects interest rates to rise in the future, it protects itself against this risk of a rise in interest expenses. It concludes with another commercial bank an interest rate swap in which it will pay at three-month terms a fixed interest rate of 4.045% and will receive from the counterparty at three-month terms the BRIBOR floating rate.

Transaction type:	IRS	Maturity date:	9.10.2004
Contracting parties:	Bank A in Bratislava – fixed payment (buyer)	IRS deal rate:	4.045%
	Bank B in Bratislava – floating payment (seller)	Revaluation (as at comparison dates of floating / fixed rate):	9.10.2003 SKK 820 000.10 10.1.2004 SKK 533 949.09 10.4.2004 SKK – 266 416.55 10.7.2004 SKK – 27 842.16
Underlying asset:	EUR 7 500 000		
Trade date:	9.10.2003		

Comparison payment date	Floating rate	Floating payment	Fixed payment (4,045 %)	Difference	EUR exchange rate	Payment in SKK
9. 1. 2004	3.139%	60 164.17 EUR	77 529.17 EUR	17 365.00 EUR	42.266	733 949.09
9. 4. 2004	4.253%	80 629.79 EUR	76 686.46 EUR	-3 943.33 EUR	42.202	-166 416.55
9. 7. 2004	3.825%	72 515.63 EUR	76 686.46 EUR	4 170.83 EUR	40.102	167 258.76
9. 10. 2004	4.010 %	76 858.33 EUR	77 529.17 EUR	-670.84 EUR	39.860	-26 739.68

### 1. Accounting in the case of the buyer

Accounting date	Accounting entry	DR / CR	Accounts group	Account name	Value
9.10.2003	Off-balance sheet receivable	DR	95	Receivables from fixed term transactions with IRS interest rate instruments	EUR 7 500 000.00
		CR	99	Suspense account for transactions with IRS interest rate instruments	EUR 7 500 000.00
	Off-balance sheet liability	DR	99	Suspense account for transactions with IRS interest rate instruments	EUR 7 500 000.00
		CR	95	Liabilities from fixed term transactions with IRS interest rate instruments	EUR 7 500 000.00
	First revaluation in the balance sheet	DR	61	Expenses of derivative transactions – negative IRS differences	SKK 820 000.10
		CR	31	Fixed term transactions with interest rate instruments – negative IRS differences	SKK 820 000.10
9.1.2004	Net payment following comparison of the floating and fixed rate	DR	31	Fixed term transactions with interest rate instruments – negative IRS differences	SKK 733 949.09
		CR	35	Suspense account for exchange rate differences	SKK 733 949.09
		DR	35	Suspense account for exchange rate differences	EUR 17 365.00
		CR	13	Current accounts at other banks – nostro in EUR	EUR 17 365.00
	Accounts settlement of the revaluation	DR	31	Fixed term transactions with interest rate instruments – negative IRS differences	SKK 86 051.01
		CR	61	Expenses of derivative transactions – negative IRS differences	SKK 86 051.01
10.1.2004	New revaluation	DR	61	Expenses of derivative transactions – negative IRS differences	SKK 533 949.09
		CR	31	Fixed term transactions with interest rate instruments – negative IRS differences	SKK 533 949.09
9.4.2004	Net payment following comparison of the floating and fixed rate	DR	13	Current accounts at other banks – nostro in EUR	EUR 3 943.33
		CR	35	Suspense account for exchange rate differences	EUR 3 943.33
		DR	35	Suspense account for exchange rate differences	SKK 166 416.55
		CR	71	Income from derivative transactions – positive IRS differences	SKK 166 416.55
	Accounts settlement of the revaluation – cancellation of the negative revaluation	DR	31	Fixed term transactions with interest rate instruments – negative IRS differences	SKK 533 949.09
		CR	61	Expenses of derivative transactions – negative IRS differences	SKK 533 949.09
10.4.2004	New revaluation	DR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 266 416.55

		CR	71	Income from derivative transactions – positive IRS differences	SKK 266 416.55
9.7.2004	Net payment following comparison of the floating and fixed rate	DR	13	Current accounts at other banks – nostro in EUR	EUR 4 170.83
		CR	35	Suspense account for exchange rate differences	EUR 4 170.83
		DR	35	Suspense account for exchange rate differences	SKK 167 258.62
		CR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 167 258.62
	Accounts settlement of the revaluation	DR	71	Income from derivative transactions – positive IRS differences	SKK 99 157.93
		CR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 99 157.93
10.7.2004	New revaluation	DR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 27 842.16
		CR	71	Income from derivative transactions – positive IRS differences	SKK 27 842.16
9.10.2004	Net payment following comparison of the floating and fixed rate	DR	13	Current accounts at other banks – nostro in EUR	EUR 670.84
		CR	35	Suspense account for exchange rate differences	EUR 670.84
		DR	35	Suspense account for exchange rate differences	SKK 26 739.68
		CR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 26 739.68
	Accounts settlement of the revaluation	DR	71	Income from derivative transactions – positive IRS differences	SKK 1 102.48
		CR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 1 102.48
	Debiting of the off-balance sheet receivable	DR	99	Suspense account for transactions with IRS interest rate instruments	EUR 7 500 000.00
		CR	95	Receivables from fixed term transactions with IRS interest rate instruments	EUR 7 500 000.00
	Debiting of the off-balance sheet liability	DR	95	Liabilities from fixed term transactions with IRS interest rate instruments	EUR 7 500 000.00
		CR	99	Suspense account for transactions with IRS interest rate instruments	EUR 7 500 000.00

## 2. Accounting in the case of the seller

Accounting date	Accounting entry	DR / CR	Accounts group	Account name	Value
9.10.2003	Off-balance sheet receivable	DR	99	Suspense account for transactions with IRS interest rate instruments	EUR 7 500 000.00
		CR	95	Liabilities from fixed term transactions with IRS interest rate instruments	EUR 7 500 000.00
	Off-balance sheet liability	DR	95	Receivables from fixed term transactions with IRS interest rate instruments	EUR 7 500 000.00
		CR	99	Suspense account for transactions with IRS interest rate instruments	EUR 7 500 000.00
	First revaluation in the balance sheet	DR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 820 000.10
		CR	71	Income from derivative transactions – positive IRS	SKK 820 000.10
9.1.2004	Net payment following comparison of the floating and fixed rate	DR	13	Current accounts at other banks – nostro in EUR	EUR 17 365.00
		CR	35	Suspense account for exchange rate differences	EUR 17 365.00
		DR	35	Suspense account for exchange rate differences	SKK 733 949.09
		CR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 733 949.09
	Accounts settlement of the revaluation	DR	71	Income from derivative transactions – positive IRS	SKK 86 051.01
		CR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 86 051.01





10.1.2004	New revaluation	DR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 533 949.09
		CR	71	Income from derivative transactions – positive IRS	SKK 533 949.09
9.4.2004	Net payment following comparison of the floating and fixed rate	DR	35	Suspense account for exchange rate differences	EUR 3 943.33
		CR	13	Current accounts at other banks – nostro in EUR	EUR 3 943.33
		DR	61	Expenses of derivative transactions – negative IRS differences	SKK 166 416.55
		CR	35	Suspense account for exchange rate differences	SKK 166 416.55
	Accounts settlement of the revaluation – cancellation of the positive revaluation	DR	71	Income from derivative transactions – positive IRS differences	SKK 533 949.09
		CR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 533 949.09
10.4.2004	New revaluation	DR	61	Expenses of derivative transactions – negative IRS differences	SKK 266 416.55
		CR	31	Fixed term transactions with interest rate instruments – negative IRS differences	SKK 266 416.55
9.7.2004	Net payment following comparison of the floating and fixed rate	DR	35	Suspense account for exchange rate differences	EUR 4 170.83
		CR	13	Current accounts at other banks – nostro in EUR	EUR 4 170.83
		DR	31	Fixed term transactions with interest rate instruments – negative IRS differences	SKK 167 258.62
		CR	35	Suspense account for exchange rate differences	SKK 167 258.62
	Accounts settlement of the revaluation	DR	31	Fixed term transactions with interest rate instruments – negative IRS differences	SKK 99 157.93
		CR	61	Expenses of derivative transactions – negative IRS differences	SKK 99 157.93
10.7.2004	New revaluation	DR	61	Expenses of derivative transactions – negative IRS differences	SKK 27 842.16
		CR	31	Fixed term transactions with interest rate instruments – negative IRS differences	SKK 27 842.16
9.10.2004	Net payment following comparison of the floating and fixed rate	DR	35	Suspense account for exchange rate differences	EUR 670.84
		CR	13	Current accounts at other banks – nostro in EUR	EUR 670.84
		DR	31	Fixed term transactions with interest rate instruments – positive IRS differences	SKK 26 739.68
		CR	35	Suspense account for exchange rate differences	SKK 26 739.68
	Accounts settlement of the revaluation	DR	31	Income from derivative transactions – negative IRS differences	SKK 1 102.48
		CR	61	Expenses of derivative transactions – negative IRS differences	SKK 1 102.48
	Debiting of the off-balance sheet receivable	DR	95	Liabilities from fixed term transactions with IRS interest rate instruments	EUR 7 500 000.00
		CR	99	Suspense account for transactions with IRS interest rate instruments	EUR 7 500 000.00
	Debiting of the off-balance sheet liability	DR	99	Suspense account for transactions with IRS interest rate instruments	EUR 7 500 000.00
		CR	95	Receivables from fixed term transactions with IRS interest rate instruments	EUR 7 500 000.00

In conclusion it is necessary to mention that the accounting of a revaluation should be on a daily basis and the specific procedure of accounting is influenced also by the bank or financial institution's software performing the banking accountancy. It is therefore possible to adjust the frequency and summarisation of the accounting of derivatives' revaluations for individual trades. It is

important to adhere to the principle of settling balances on the accounts in the accounts group 31 – Fixed term transactions following the maturity of a derivatives trade and the balances on the incomes and expenses accounts in the accounts group 61 – Expenses of derivative transactions and 71 – Income from derivative transactions must state in the net amount the result of the trade.