

Termination of transaction in the case of the IRS facility of the MNB¹

As regards the termination of the IRS the „Notice on the terms and conditions” lays down the following:

„Interest rate swaps cannot be terminated at the Counterparty’s initiative prior to the 52nd week following payment. Past the 52nd week following payment. the MNB allows the termination of swaps at the Counterparty’s initiative prior to maturity. In this scenario. Counterparties can terminate the swap subject to providing at least one week in advance a notice given to the MNB through any of the transaction channels defined for bidding in these terms and conditions of tender. The MNB defines the closing value of the transaction on the second value date preceding the termination (T-2) which is then settled among the parties in forint on the value date. By determining the closing value of transaction, the MNB defines the fixed interest rate for the remaining term at a value exceeding the mid interest rate swap rate prevailing on the market at the time of start of the transaction by 2 basis points. The resulting net present value of the corrected cash flows at termination of transaction is determined based on the mid interest rate swap rate prevailing on the market at the time of the termination. The MNB can provide an indicative valuation at the Counterparty’s request prior to the initiation of termination.”

This all means that the the IRS transaction of the Central Bank can be terminated with the MNB taking account of the following:

- at least 52 days should pass between the value date and the termination date
- the closing value of the transaction is calculated by the MNB
- the closing value is the modified present value of the transaction, this will be settled among the parties at the time of the termination
- when computing the modified present value the MNB calculates the present values of such a hypothetical transaction for the termination date (that is for the then remaining term) which is identical with the original contract in all its parameters except for the fixed interest rate
- when computing the modified present value the fixed interest rate applied for the remaining term will be different from the fixed rate on the transaction date and will be announced in the field „Interest rate applicable upon the termination of transaction” in the call for tender
- the interest rate applicable upon the termination of transaction announced in the call for tender is the market rate on the transaction date+2 basis points
- when calculating the modified present value discounting is carried out by the MNB always on the basis of the actual swap yield curve

A stylised example for termination

Hypothetical transaction:

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| <ul style="list-style-type: none">- maturity: 3 years- transaction date: 26 June 2014- value date: 2 July 2014- fixed interest rate: 2.27 per cent- interest rate applicable for the remaining term in case of termination of transaction: 2.77 per cent- nominal value: 5 billion HUF |
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Termination of the hypothetical transaction:

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| <ul style="list-style-type: none">- announcement of request to terminate: 25 July 2015- date of termination: 2 July 2015- calculation of closing value: 30 June 2015 |
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¹ The present document serves as a technical guidance in relation to the IRS facility of the Central Bank of Hungary which does not substitute or overwrite the former. It simply illustrates the rules for the termination of transaction through an example.

	0. auction date	1. year	2. year	3. year
	market mid IRS rate: 2.75% fixed rate at the auction: 2.27%	Termination is not possible		
		Transfer entitled	Transfer not entitled	
Fixed rate paid to MNB		2.27%		
Fixed rate used for valuating the transaction			2.77%	2.77%
Difference between the transactions of the market and that with the conditions set by MNB		48 bp	-2 bp	-2 bp
Yield curve used for determining the closing present value of cash flows			The actual mid swap yield curve prevailing	

Termination

The formula used for computing the termination value is the following:

$$NPV_t = \frac{NPV_{fixed\ leg}}{c_{auction}} * c_{term.} + NPV_{variable\ leg}$$

where:

NPV_t the termination value of IRS,

$NPV_{fixed\ leg}$ the present value of the fixed leg of the IRS,

$c_{auction}$ the interest rate of the fixed leg developing in the IRS auction in basis points,

$c_{term.}$ the interest rate applicable upon termination announced at the IRS auction,

$NPV_{variable\ leg}$ the present value of the variable leg of the IRS.

We conducted a simulation on the transaction in the above example which brought the following results (source: Bloomberg).

1. The present value of the hypothetical transaction at start

At the time of contracting the transaction the present value of the transaction is positive *from the point of view of the Counterparty* as a result of the fixed interest rate below the market rate. Numerically, the opening present value calculated on the basis of the 06/30/2014 yield curve stood at a value of the order of 58 million forints.

1. leg: Pay fixed effective: 02. 07. 2014 maturity: 25. 04. 2018 payment frequency: annual coupon rate: 2.270000% day count: actual/365 market value: 408,418,632.87 premium: -8.17 accrued interest: 0	2. leg: Receive float effective: 02. 07. 2014 maturity: 25. 04. 2018 payment frequency: semiannual index: 6-month BUBOR (latest rate: 2.34272%) day count: actual/360 market value: 466,707,476.69 premium: 9.33 accrued interest: 0
market value: 58,288,843,82 (par yield: 2.593971)	

2. The present value of the hypothetical transaction after 52 weeks

The expected present values of the transaction per leg after one year in different scenarios – this is the present value of the original transaction, and not the termination value (the latter will be presented in the next point).

market shift time shift SWAP curve: HUF: 0.325	no change 1 year: 30. 06. 2015 unchanged	customised 1 year: 30. 06. 2015 -50.00 bp	customised 1 year: 30. 06. 2015 +50.00 bp	no change 30. 06. 2014 unchanged
Results				
PV (1. leg)	-324,806,203.91	-328,201,731.73	-321,463,062.19	-408,418,632.87
PV (2. leg)	380,421,255.79	290,919,635.70	468,410,705.22	466,707,476.69
NPV	55,615,051.88	-37,282,096.03	146,947,643.03	58,288,843.82

The present value of the transaction is 55,6 millió forint presuming a yield formation corresponding to the forward yield curve of 06/30/ 2014 after 52 weeks. Presuming a parallel shift in the yield curve, of course the present value of both the fixed and the variable leg changes – the present value of the fixed leg because of the modification of the discount factor, whereas that of the variable leg because of the change in both the cash flows and the discount factor. In our example a 50 basis points reduction is the second column, a 50 basis points parallel gradual and steady upward shift is the third column. As the table illustrates, a rise in interest rates is favourable for the Counterparty, while a decline in the same is unfavourable.

3. The termination value of the hypothetical transaction

Termination happens at the starting market rate + 2 basis points. In the case of closing the transaction the level of the fixed interest rate applicable for the remaining term is 2.77% in this case (as contained in the call for tender). The one-year expected net present value is therefore the following:

market shift time shift SWAP curve: HUF: 0.325	no change 1 year: 30. 06. 2015 absolute: +0.00	customised 1 year: 30. 06. 2015 absolute: -50.00	customised 1 year: 30. 06. 2015 absolute: +50.00	no change 30. 06. 2014 absolute: +0.00
Results				
PV (1. leg)	-396,349,420.64	-400,492,862.07	-392,269,904.08	-498,378,684.16
PV (2. leg)	380,421,255.79	290,919,635.70	468,410,705.22	466,707,476.69
NPV	-15,928,164.84	-109,573,226.37	76,140,801.14	-31,671,207.47

Presuming no change in the yield curve, after 52 weeks in the case of closing the 3-year IRS facility of the Central Bank the then prevailing termination value from the point of view of the Counterparty of the MNB is -15.9 million forints. In the case of a +/- 50 basis points parallel gradual shift in the yield curve, the termination value changes as well, to -109.6 million forints and 76.1 million forints respectively. Thus, although the fixed rate applicable for the remaining term is defined, the development of yields still affects the value of the IRS.

It is well observable that the termination value is less than the present value for the same date without termination – this is the result of the termination interest rate (2.77 per cent) being higher than the original fixed interest rate of the transaction (2.27 per cent).

The change in yields at the same time necessarily influences the value of the transaction (the termination value) as in the previous case: a rise in yields ceteris paribus increases the value of the transaction from the point of view of the Counterparty, whereas a reduction decreases the same.

The one-year expected present values of the fixed and variable legs of the transaction were denoted by letters

A

and

B

The net present value of the fixed leg of the transaction valid at the time of the termination was denoted by

C

The closing value (termination value, the modified present value of the transaction) was denoted by

D

The termination value according to the scenario presuming unchanged yield curve in 52 weeks:

The net present value of the fixed leg (2.27% coupon yield): -324,806,203.91 **(A)**

* 2.77/2.27 -396,349,420.63 **(C)**

The net present value of the fixed leg: 380,421,255.79 **(B)**

Total: -15,928,164.84 **(D)**