

Interest rate cap

Situation

On February 15, a treasury manager knows that he will need to borrow funds on the short-term markets on March 14.

Objective

He wishes to protect himself against a rise in interest rates while maintaining the potential benefits of falling rates. He can achieve this with an interest rate cap created by purchasing the required number of OBX put contracts. Three possible scenarios will be considered:

- An increase in short-term interest rates
- A decrease in short-term interest rates
- Short-term interest rates remain the same

Strategy

INITIAL DATA

Date :	February 15
Three-month bankers' acceptances rate:	3.65 %
BAX, March contract:	96.25
96.25 OBX March put:	0.11 or \$275 per contract (0.11 x 100 basis points per contract x \$25 per basis point)

The contracts are held until expiry, March 14.

SHORT-TERM INTEREST RATES HAVE RISEN TO 4.65%

Three-month bankers' acceptances rate:	4.65 %
BAX, March contract:	95.35
096.25 OBX March put:	0.90 or \$2,250 per contract (0.90 x 100 basis points per contract x \$25 per basis point)

As feared, short-term rates are higher, hence a profit is made on the put contracts. The funds can still be borrowed at an effective rate of 3.86%, because the proceeds are used to reduce the interest cost of the loan.

PROFIT	EFFECTIVE RATE
= Put premium at expiration – Initial put premium	= Three-month bankers' acceptances rate – Put premium at expiration + Initial premium
= 0.90 – 0.11	= 4.65 – 0.90 + 0.11
= 0.79 or \$1,975 per contract (0.79 x 100 basis points per contract x \$25 per basis point)	= 3.86%

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SHORT-TERM INTEREST RATES HAVE FALLEN TO 2.65%

Three-month bankers' acceptances rate:	2.65%
BAX, March contract:	97.35
96.25 OBX March put:	0.00

Since short-term rates have fallen below 3.65%, the puts expire out-of-the money and are worthless. The resulting effective rate becomes 2.76% when the cost of the initial put premium is added. It is important to understand that the funds will be borrowed at a rate of 2.65% but the loss on the put contracts creates an added interest charge, thus increasing the effective borrowing rate to 2.76%.

LOSS

= Initial put premium
= 0.11 or \$275 per contract

EFFECTIVE RATE

= Three-month bankers' acceptances rate – Put premium at expiration + Initial Put premium
= 2.65 – 0.00 + 0.11
= 2.76%

SHORT-TERM INTEREST RATES REMAIN UNCHANGED AT 3.65%

Three-month bankers' acceptances rate:	3.65%
BAX, March contract:	96.35
96.25 OBX March put:	0.00

In this case, the puts expire almost at-the-money. Once again, the puts expire worthless and the initial premium becomes an added interest cost, increasing the borrowing rate. The effective borrowing rate is now 3.76%

LOSS

= Initial put premium
= 0.11 or \$275 per contract

EFFECTIVE RATE

= Three-month bankers' acceptances rate – Put premium at expiration + Initial put premium
= 3.65 – 0.00 + 0.11
= 3.76%
