Managing Exchange Rate Risk In the Trade

Between the Czech and Russian Companies

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Abstract

In the last years the trade between the Czech and Russian companies has been significantly rising. Since the contracts are usually placed in euros, US dollars or other world's currencies, the value of cash transactions for both partners can be substantially affected by exchange rate fluctuations. The transaction exposure is, however, very often undervalued or totally ignored in these countries. Nonetheless, the financial managers are gradually realizing the importance of exchange rate risk management. Consequently the banks are offering more and more products for hedging transaction exposure.

Unsurprisingly, the forward contracts are the most often used techniques for hedging future payables and receivables. However, the currency option market is step-by-step getting more and more important as well. Apart from basic option positions the banks also offer more complex option strategies for hedging transaction exposure.

The presented article describes and compares the use of forward contracts, single option positions and option strategies to manage exchange rate risk in the trade between the Czech and Russian Companies.

Forward contracts

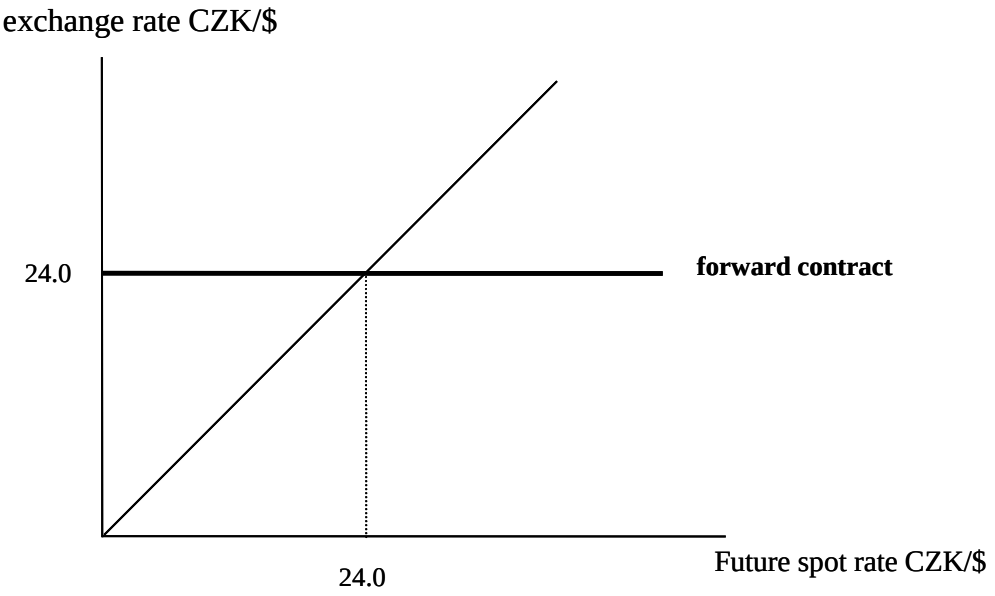
Forward contract specifies the amount of particular currency that will be purchased or sold at a predetermined point in the future (Cited from Madura, 2006, p. 62). Thus, if the aim is to hedge the long position (receivables in foreign currency exceed the payables in that currency) the corporation may close the position by selling the specific amount of foreign currency on the forward market.

Assume the Czech company has sold and invoiced the products for $1,000,000 to the Russian company. The maturity of a claim is 30 days. The future value of the receivable in the Czech crowns depends on the future exchange rate. If the crown depreciates against the US dollar within the period, the value of the receivable is rising and vice versa. Well, the future cash flows in crowns are uncertain. However if the Czech company sells $1,000,000 on the one-

moth forward market the exchange rate at which the corporation will effectively sell $1,000,000 in the future is locked and equals the forward bid rate.

Assume the forward bid rate is CZK 24.000 per one US dollar. Then, when using the forward market the effective exchange rate at which the corporation will sell $1,000,000, equals CZK 24.000 per one US dollar no matter what the future exchange rate is. Contingency graph below illustrates the effective exchange rate at which the corporation will sell $1,000,000 when using the described forward contract.

Graph 1 – Effective exchange rate for receivable hedged by forward contract



Single option positions[1]

The Czech corporation may also close the position by buying a put option, which gives the right to sell $1,000,000 at predetermined strike price. Since the option gives only the right and not the obligation to sell $1,000,000 at predetermined strike price the company has to pay the option premium to the bank.

Assume the strike price is CZK 24.000 per one US dollar and the option premium required by the bank equals CZK 0.200 per one US dollar. Well, if the future spot rate at the expiration day lies above CZK 24.000 per one US dollar, the corporation will let the option expire and

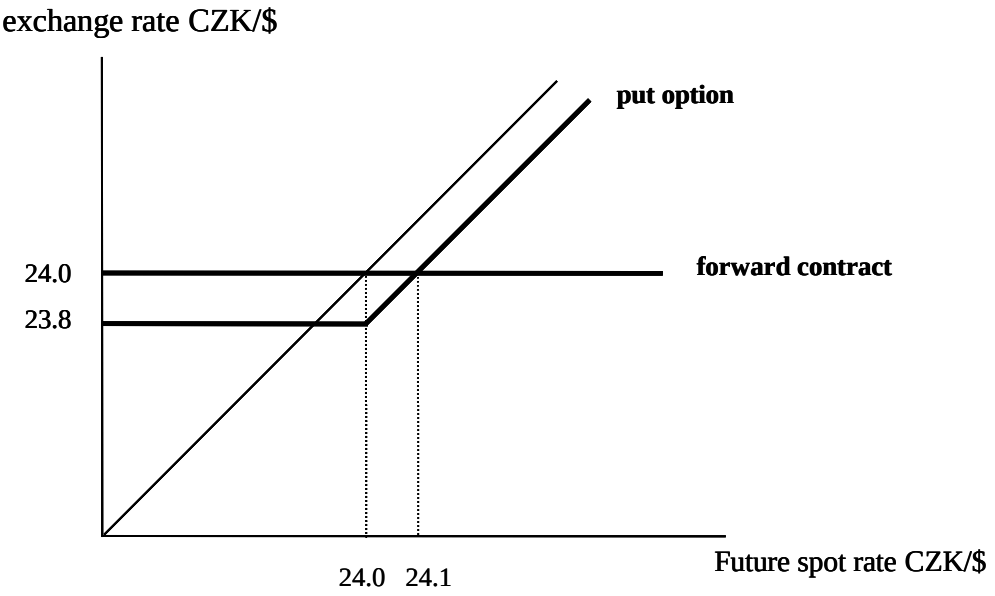
[1] Almost all options used for hedging the transaction exposure in the Czech Republic are written as "European Style Options", which means that they can be exercised only upon expiration. Thus, all options mentioned in this article will be the "European Style Options".

sell $1,000,000 at the prevailing spot rate. However, since the corporation has already paid the option premium, it will effectively sell $1,000,000 by CZK 0.200 per one US cheaper in comparison with the future spot market conditions. Nonetheless, the maximum amount to be received for $1,000,000 is theoretically unlimited.

On the other hand, if the future spot rate at the expiration day is less than CZK 24.000 per one US dollar, the corporation will exercise the option and sell $1,000,000 for CZK 24,000,000. Then, we shall deduct the paid option premium that is CZK 200,000. Thus, the corporation will sell $1,000,000 at the effective exchange rate CZK 23.800 per one US dollar. It is also the worst possible effective exchange rate for the Czech company.

Contingency graph below compares the effective exchange rates at which the corporation will sell $1,000,000 when using the put option or alternatively the forward contract.

Graph 2 – Comparing single put option strategy and forward contract



If the future spot rates lies above CZK 24.100 per one US dollar, put option strategy will be more favorable, because the firm will effectively sell $1,000,000 for more than CZK 24,000,000. However, if the future spot rate is less than CZK 24.100 per one US dollar, the forward contract will be more profitable.

Thus, the forward contract allows the hedging at better exchange rate since the firm doesn't have to pay anything at the beginning. But on the other hand, the strategy doesn't provide the possibility of participating on positive exchange rate fluctuations (in this case depreciation of domestic currency).

Option strategies

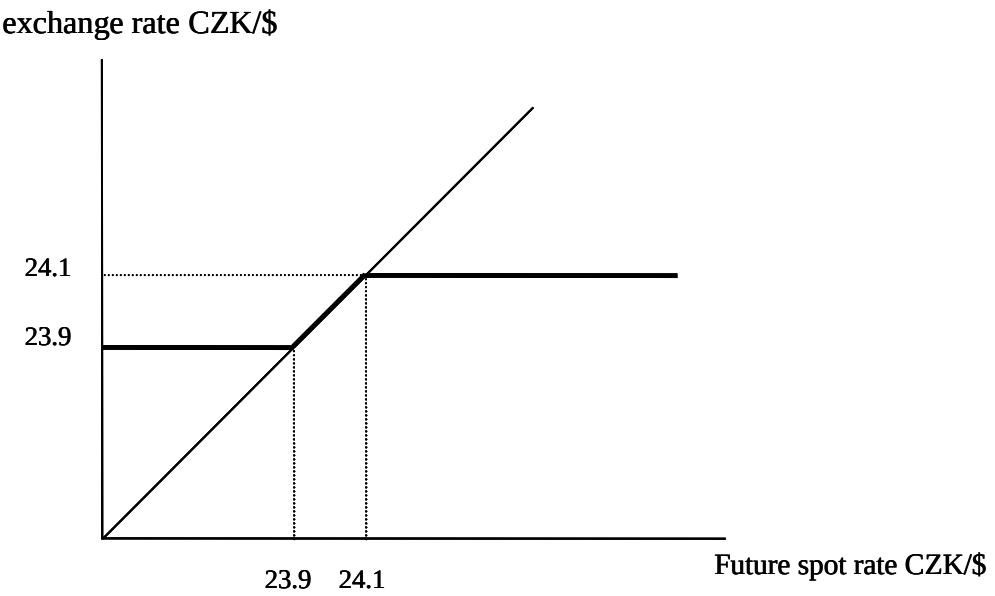
Option strategies generally represent a mixture of different option positions. The most popular ones are so called “zero costs strategies” that represent mix of two or more option positions with the same amount of paid and received option premiums.

As an example we can use so called “Risk Reversal” option strategy that consists of two basic option positions. If the aim is to hedge the long position the corporation buys one put option, which gives the right to sell a specific currency at a predetermined strike price within a specific period of time, and simultaneously it sells a call option, which grants a right to the bank to buy the same amount of foreign currency within the same period of time. Both options have different strikes but the same option premiums. The corporation sets a strike price of the put option and the bank calculates the strike price of the call option both option premiums being equal.

Let’s move back to our example and assume that the Czech corporation sets the strike price of put option that is for example CZK 23.900 per one US dollar. It is the worst acceptable exchange rate for the firm. The bank calculates the strike of call option that is for example CZK 24.100 per one US dollar. The option premiums are the same. Thus, the company doesn’t have to pay anything at the beginning.

Well, if the future spot rate at the expiration day is above CZK 24.100 per one US dollar, the bank will exercise the currency call option and the company will let the put option expire. Thus, the corporation will effectively sell $1,000,000 for CZK 24,100,000. If the future spot rate at the expiration day lies between CZK 23.900 and CZK 24.100 per one US dollar, the bank and the corporation will let the options expire and the company will sell $1,000,000 at the prevailing spot rate. Finally, if the future spot rate at the expiration day is less than CZK 23.900 per one US dollar, the bank will let the currency call option expire and the company will exercise the put option, which means that the corporation will effectively sell $1,000,000 for CZK 23,900,000. Summing up, the company will effectively sell $1,000,000 for CZK 23,900,000 at the worst-case scenario and for CZK 24,100,000 at the best-case scenario. Contingency graph below illustrates the effective exchange rate at which the corporation will sell $1,000,000.

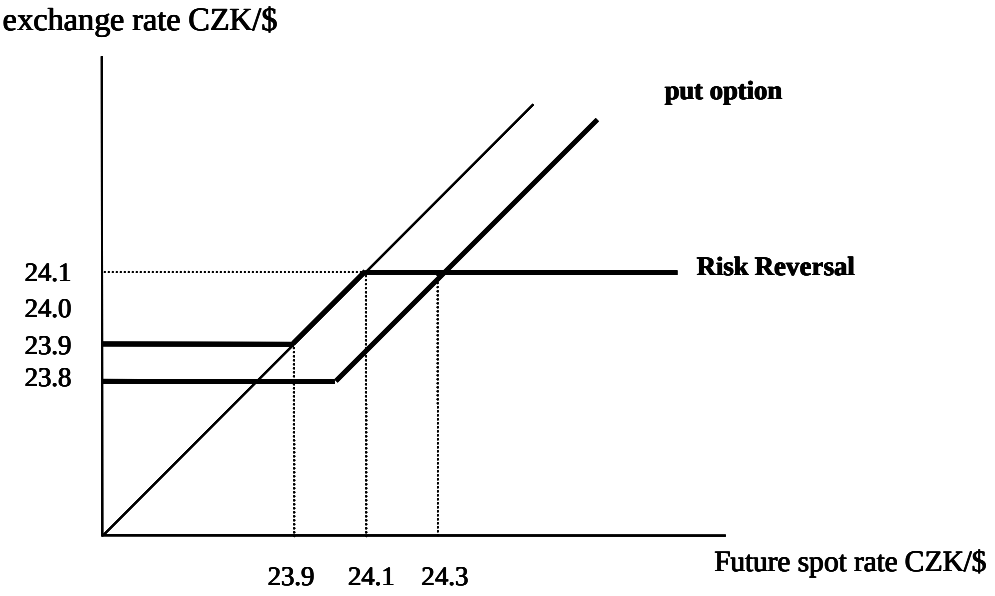
Graph 3 – Effective exchange rate for receivable hedged by "Risk Reversal" strategy



When using the Risk Reversal option strategy the minimum amount to be received for $1,000,000 is CZK 23,900,000 in this case. The maximum sum is, however, also limited, which is a great difference to single strategy consisting of only one put option.

Contingency graph below compares the effective exchange rates at which the corporation will sell $1,000,000 when using the Risk Reversal option strategy or alternatively the single put option with the characteristics described in the paragraph focusing on single option positions.

Graph 4 – Comparing Risk Reversal option strategy and single put option strategy

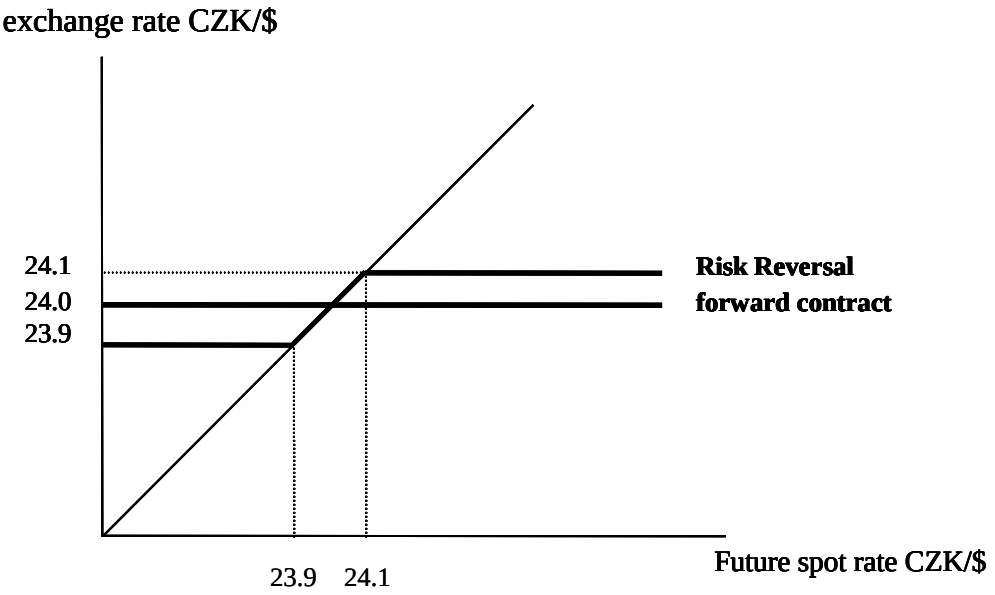


If the future spot rate is less than CZK 24.300 per one US dollar, Risk Reversal option strategy will be more favorable. However, if the future spot rate lies above CZK 24.300 per one US dollar, the single call option strategy will be more profitable.

Thus, the Risk Reversal option strategy allows the hedging at better exchange rate and the firm doesn't have to pay anything at the beginning. But on the other hand, the strategy doesn't provide the possibility of participating on positive exchange rate fluctuations to the same extent as the single put option strategy does.

Last but not least, the financial managers compare the strategy with simple forward contract. Assume the forward bid rate is CZK 24.000 per one US dollar. Then, when using the forward market the effective exchange rate, at which the corporation will sell $1,000,000, equals CZK 24.000 per one US dollar. Thus, if the future spot rate is less than CZK 24.000 per one US dollar, the forward contract will be more favorable, whereas if the future spot rate lies above CZK 24.000 per one US dollar the Risk Reversal option strategy will provide better financial results.

Graph 5 – Comparing Risk Reversal option strategy and forward contract



When using the Risk Reversal option strategy, the amount to be paid for $1,000,000 can be less but also more than CZK 24,000,000. It is quite natural trade off. The Risk Reversal strategy consists of two options, whereas the corporation sets a strike price of the put option and the bank calculates the strike price of the call option both option premiums being equal. The bank calculates the higher strike price of the call option the lower strike price of the put

option is set by the corporation (other things being equal). Thus, if the company accepts relatively lower minimum amount to be received for $1,000,000, it simultaneously creates the opportunity to receive significantly more if the market conditions are positive.

Conclusion

Presented article deals with three basic strategies to hedge exchange rate exposures in the trade between the Czech and Russian companies. The strategies have some advantages and also disadvantages in comparison with each other.

Forward contracts are the most popular instruments to hedge the exchange rate risk. The company doesn't have to pay any option premium and the effective exchange rate is locked at the beginning no mater what the future exchange rate is.

Single option strategies enable to participate on positive future exchange rate fluctuations being hedged against the negative future exchange rate fluctuations. Of course, the single option strategies provide the hedging at worse exchange rate in comparison with forward contracts because the firm has to pay the option premium.

Option strategies represent a combination of two or more option positions with the same amount of paid and received option premiums. Thus, the corporation doesn't have to pay anything at the beginning. We have discussed the Risk Reversal option strategy as an example. This strategy allows the hedging at better exchange rate in comparison with single option position, but on the other hand, the strategy doesn't provide the possibility of participating on positive exchange rate fluctuations to the same extent as the single put option strategy does.

Well, there is always some trade off between the advantages and disadvantages of the particular strategies. The financial managers shall, therefore, consider both all aspects of the strategies and their expectations, before they make final decision which instrument to use.

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