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SCIENTIFIC REVIEW

Interest Rate Swaps

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ABSTRACT *– Interest rates changes have a huge impact on the business performance. Therefore, it is of great importance for the market participants to identify and adequately manage this risk. Financial derivatives are a relatively simple way of protection from adverse changes in interest rates. Interest rate swaps are particularly popular because they reduce interest rate risk to a minimum with a relatively low initial cost and without great risk, but also because of the fact that there are many modifications of the standard swap created to better satisfy the different needs of market players.*

KEY WORDS: *interest rate risk, standard interest rate swap, non-standard interest rate swaps*

Introduction

Due to the large impact that interest rates changes have on the business performance, it is very important appropriately to manage this type of risk. Financial derivatives (futures, options and swaps) are a very simple way to minimize interest rate risk, which is why they are extremely popular, and their use in the world is increasing drastically year by year. According to the Bank for International Settlements, from all financial derivatives traded on the OTC market, interest rate derivatives have recorded the largest market value, primarily interest rate swaps. However, this is not the case in Serbia. In Serbia, the interest rate derivatives market does not exist. Thus, this paper aims to highlight the possibilities offered by this type of derivatives when it comes to protection against interest rate risk.

In the paper first will be explained basic concepts related to the interest rate swaps. After that it will be explained, with an example, how standard interest rate swap can be used as a tool for protection against interest rate risk. After that, some non-standard variants of interest rate swaps, created to better satisfy different needs of market participants, will be briefly discussed. Finally, at the end of the paper attention will be drawn to the advantages and disadvantages of the interest rate swaps.

Interest rate swap

Interest rate swaps appeared in the U.S. in the eighties because of the increased need for financial instruments that could be used to eliminate the interest rate risk. Interest rate swap is an agreement between two parties in which they agree to exchange sequence of interest payments (Peterson Drake, Fabozzi, 2010, p. 378). Interest is calculated on the notional

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principal that is never exchanged. On agreed dates, one party has an obligation to make payments calculated at a variable rate and the other side has to make payments at a fixed / variable rate. Thus, one set of payments must always be at a variable rate linked to a reference interest rate (usually Libor). If the dates on which the parties have to make payments coincide, usually is paid only the difference in interest. Set of payments calculated at a fixed rate is the fixed leg of the swap, and the set of payment calculated at a variable rate is the variable (floating) leg of the swap.

The party which pays at fixed rate and receive at variable rate is the buyer of the swap (long position) while the swap seller (short position) is considered to be the party that pays at a variable rate and receive at a fixed interest rate.

Swap rate – by contracting the interest rate swap parties agree to exchange set of interest payments on agreed future dates, where, as noted above, one set of payment is calculated at a fixed, and the other at a variable rate. The variable rate is linked to a reference rate, while fixed-rate is set in the way that present value of future payments that parties would exchange are equal in the time of swap initiation. Hence, swap rate is fixed rate at which one set of interest payments is calculated and which provides equality of present values of future payments at the time of concluding the swap agreement (Cvitanić, Zapatero, 2004, p. 302).

Obligations of the party that will pay a fixed rate are known in advance. However, this is not the case for the party that pays at a variable rate, because variable rate changes depending on the change of reference rate to which it is bound. The value of futures for the period is usually taken as an estimation for the variable rate and in that way obligations are calculated.

The value of the swap – in the moment when it is signed value of the swap is equal or close to zero, i.e. the present values of cash flows that counterparties will exchange are equal. However, over the time the value of the swap changes depending on the interest rates movements in the market, because interest rate shifts change the present value of the cash flows that parties pay or receive. The value of the swap is equal to the difference between the present value of cash flow that party receives and the present value of the cash flow that the party pays (Fabozzi, 2000, p. 578).

Swap spread - In the swap market, the convention is to set the floating leg at LIBOR and quote only the fixed rate (Reilly,Brown,2003, p. 1018). In the table below, the first column represents swap maturity, the next two are offer and bid quotes for each maturity, and the last one is the bid spread over the benchmark T-bond (government bond with the same maturity). For example, the bank is quoting for 5-years swap 5.25% and 5.19%, which means that the bank is willing to pay a fixed rate of 5.19% and receive Libor, and to pay Libor and receive a fixed rate of 5.25%. The bid-offer spread is therefore 6 basis points. The bid-offer spread is not the same as swap spread.

Say the 5-year T-bond (benchmark bond) is trading at a yield of 4.88%. The 5-year swap bid and offer rates in the example are 31 basis points (the difference between 5.19% and 4.88%) and 37 basis points (the difference between 5.25% and 4.88%) above the yield on T-bond, so the bank could quote the swap rates also as a swap spread (spread over the T-bond yield): '37–31'. This means that the bank is willing to pay 31 basis points above the T-bond yield and receive Libor or to receive 37 basis points above the T-bond yield curve and to pay Libor (Choudhry, 2005, p. 110).

Table 4. Swap spread

	Swap quotes		Spread
1	4,50	4,45	+17
2	4,69	4,62	+25
3	4,88	4,80	+23
4	5,15	5,05	+29
5	5,25	5,19	+31
10	5,50	5,40	+35

Source: Eales and Choudhry ,2003, p. 77.

Thus, swap spread is the spread over the T-bond yield curve. Swap spread is a function of conditions on swaps and bonds markets, as well as of the credit risk of counterparties.

Swap Yield Curve - A large number of swap contracts led to the formation of the yield curve for different maturity swap contracts. Swap yield curve is created based on swap rates for different maturities (Fabozzi, 2007, p. 96).

Swap termination - There are four ways in which parties can get out of the swap (Chance, 1998, p. 583). These are: 1) close out - party coming out of the swap pays / charges present value of the swap to the counterparty. 2) sale - transferring the swap to a third party after which this party takes over all obligations from the swap agreement by the end of the contract period. The party that is getting out of swap transfers the swap to a third party by paying / charging the present value of the swap. 3) neutralization of the existing swap by entering into a new swap with the same conditions (same fixed and variable interest rate and payment period), but on the opposite position (cash flows are opposite compared to the first swap). 4) using a previously bought option to terminate the swap.

Standard interest rate swap

The most common and simplest type of interest rate swap is a standard (plain vanilla or generic) swap. It involves the exchange of a set of periodic interest payments calculated at a fixed rate for a set of periodic payments calculated at a variable rate in the agreed period of time. Both sets of interest payments are calculated on the notional principal that is never exchanged. The variable interest rate is linked to a reference interest rate (Libor rate and the T-bill).

Interest rate swaps are used to neutralize the interest rate risk related to the difference in sensitivity of assets and liabilities to interest rate movements. It can be used to transform the interest rate sensitive assets into interest rate-insensitive, and vice versa, and to transform the interest sensitive liabilities into interest rate insensitive and vice versa (Hull, 2003, p. 127).

Transforming liabilities - Suppose an investor tend to borrow $ 1 million at a floating rate. However, additional debt at the variable rate will undermine compliance between interest rate sensitive assets and liabilities. In the event of rising interest rates in the market, the increase in the liabilities will be greater than the increase in income, as interest-sensitive liabilities exceed by one million dollar the interest-bearing assets. The result would be, therefore, decline in the net interest margin and investors profitability. To avoid this risk, the investor will want to convert $ 1 million of liabilities with variable interest rates in the $ 1

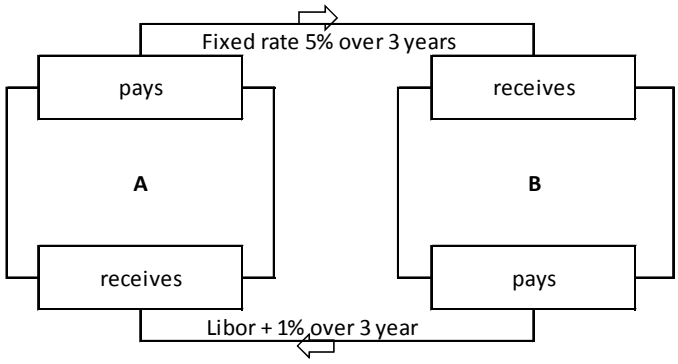
million liability insensitive to interest rates movements, tiding interest-sensitive assets to interest-sensitive liabilities. Entering into interest rate swap will enable him this. Therefore, the investor will contract interest rate swap under which he will be required to pay at fixed rate and receives at variable rate. Variable income from the swap will be equal to the losses from the additional variable debt, and the net result will be a fixed obligation from swap.

Transforming assets - Interest rate swaps can be used to transform variable income into fixed income and vice versa.

Suppose that investor B issued bonds in the amount of million dollars, and the funds invest at a variable rate. This will disturb the balance between interest sensitive assets and liabilities, as interest sensitive assets will be for $ 1 million bigger than the interest-sensitive liabilities. Therefore, he will enter the swap, same as investor A, but in the opposite position. If interest rates fall, the fall in income on the active side will be greater than the costs fall on the passive side, and the result will be a drop in profits. By entering into interest rate swap, the investor B eliminate this interest rate risk by converting $ 1 million of assets with variable income to $ 1 million of income with fixed income. In this case, if interest rates fell, the decline in interest sensitive income would be equal to drop in costs and profitability would remain unchanged. Therefore, investor B will enter into interest rate swap in which he will have to pay at variable rate, and receive at fix. Profit/loss in swap would neutralize variable income from investments, and the net result will be a fixed income from the swap.

Between investor A and investor B, for example, could be contracted interest rate swaps as follows: Investor A pays to investor B a fixed interest rate of 5% per annum on the $ 1 million (notional principal) for the next 3 years, and the investor B pays to investor A 6M Libor plus 1% on $ 1 million in the same period, with the half year payments. 6M Libor at the time is 3.2%.

Figure 1. Interest rate swap



Source: author

The first exchange of payments will be six months from the time of the swap contract. The investor A has to pay 5% per year on a million dollars, so in six months he will have to pay $ 25,000 (5% * 0.5 * $ 1,000,000). Investor B will be required to pay interest equal to the value of 6M Libor at the time of swap contracting plus 1% on a million dollars for six months, i.e. he will have to pay $ 21,000 ((3.2% +1%) * 0.5 * 1.000. 000 dollars). The second set of payments will be for another six months, or one year from the swap contract. For investor

A amount to be paid is the same, $ 25,000. However, investor B will have to pay the interest rate equal to the value of 6M Libor at the time of the first exchange of payments plus 1% on a million dollars for six months. If 6M Libor was then, for example, 3.8%, investor B will have to pay $ 24,000 ((3.8% +1%) * 0.5 * 1,000,000).

Until the end of the swap, investors would exchange payments four more times every six months as set out in Table 2.

Table 5. Interest rate swap, an example

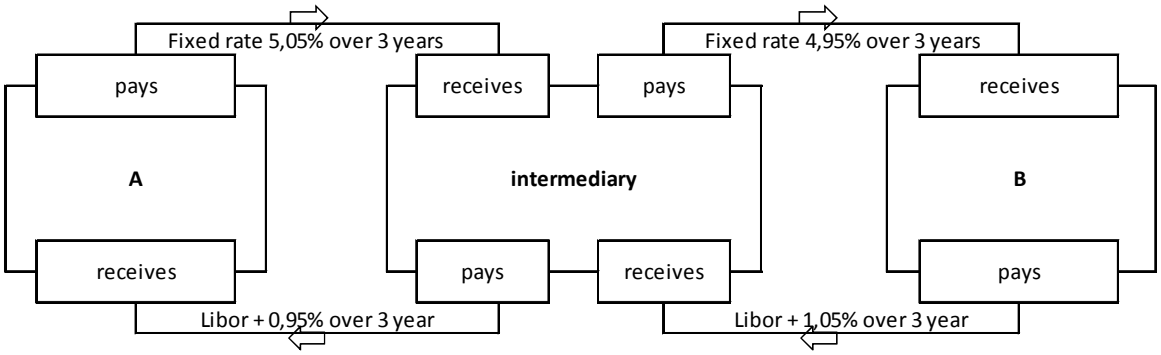
	6M Libor	Cash flow at float. rate	Cash flow at fixed rate	Net cash flow for fixed rate payer	Net cash flow for fixed rate receiver
0	3,2				
1	3,8	21.000	25.000	-4.000	+4.000
2	4,3	24.000	25.000	-1.000	+1.000
3	4,5	26.500	25.000	+1.500	-1.500
4	4,6	27.500	25.000	+2.500	-2.500
5	4,9	28.000	25.000	+3.000	-3.000
6	5,4	29.500	25.000	+4.500	-4.500
Total				+6.500	-6.500

Source: author

Like forwards, each side in the swap must have a lot of information about the other side to be sure that the contract will be fulfilled. The need for information on one side, and the problem with low liquidity of swap market may limit the use of swaps. However, hiring intermediaries, such as investment banks and especially large commercial banks, solve these problems. They have the ability to collect information about the creditworthiness and reliability of the parties at low cost, and are able to match them in swap. Because of these, investors rarely enter in a swap directly and bank mostly occurs as intermediaries. In this case, investors do not enter into a swap with each other, but with the bank.

Swap between investor A and investor B will probably look as shown on graph below, where a bank or other intermediary will appear between investors.

Figure 2. Interest rate swap with intermediary



Source: author

Investor A agrees to exchange with the bank a fixed interest payment of 5.05% for an variable interest payment of 6M LIBOR plus 0.95%. On the other hand, the bank enter into a swap agreement with investor B, in which it have to exchange a fixed interest payments of 4.95% for variable payments at the rate of 6M LIBOR plus 1.05%. Notional principal is $ 1 million, and the contract period is 3 years, with the exchange of payments every six months. On the one hand, the bank makes a profit on the difference between 5.05%, received from investors A, and 4.95% that pays to investor B, and on the other hand on the difference between 6M Libor plus 1.05%, which receive from investor B, and 6M Libor plus 0.95%, that pays to investor A. So in this case the bank earns a total of $ 2,000 (0.2% * $ 1,000,000) as a mediator in the interest rate swap.

Investor A and Investor B voluntarily give up profits entering into swap (they receive 0.05% less and pay a 0.05% more), because this agreement brings two significant benefits. First, the bank is able to match the two sides, which probably would not have been possible without her help. Second, in this way investors avoid the risks associated with the creditworthiness of the counterparty. These advantages of doing business with a bank as intermediary are reason why both investors will likely be ready to engage her, although that costs.

Non-standard interest rate swap

Interest rate swaps are traded OTC. These are not standardized contracts and can fully adapt to the different market needs, and in time, a large number of basic swap contract modifications appeared. In the literature usually the following types of interest swaps could be found (Hull,2003; Fabozzi,2007)

Basis swap - the interest rate swap in which both sets of payments are calculated at different variable interest rates (Chance, 1998, p. 636). If the investor took a loan, for example, of one million pounds on which he pays 1M LIBOR and at the same time invest funds at interest rate 1M Tibor plus 30 basis points, the difference between these two rates will determine the investors profit. If the current 1M Tibor equal 1M Libor plus 10 basis points, it means that the investors will be earning 40 basis points. However, market rates do not change always in the same direction and intensity so that if there is a change in the relationship between two rates and interest rate spread will be changed. If investor wants to capture the initial interest rate spread he can enter into interest rate swap.

Cancelable swap - the interest rate swap in which one party has a right to terminate the swap on one or more agreed dates (Hull, 2003, p. 603). Terminating the swap is the same as entering in the opposite swap. If the swap is cancelable on a single date, then this swap is to the party who has the right to cancel it the same as the standard swap plus a long position in an option to enter into the opposite swap. To the other side it is the same as the standard swap and a short position in the option to entry into the opposite swap. For example, a ten-year swap with the right to cancel it after 6 years is the same as the standard ten-year swap and option to enter an opposite four-year swap. If there are a number of possible cancellation dates, then this swap to the party who has the right to cancel it is the same as a standard swap plus a long position in Bermuda swaption to enter the opposite swap, and to the other side is the same as the standard swap and short position in Bermuda swaption to enter the opposite swap. For example, a five-year swap with the possibility of cancellation between

2nd and 5th year is the same as the standard five-year interest rate swap and Bermuda swaption to enter the opposite swap that matures in five years.

Compounding swap from the standard swap differs only in the fact that there is only one exchange of payments (Hull, 2003, p. 595). At the end of the swap period counterparties exchange all the payments.

Cancelable compounding swap is a swap in which one party has the possibility to terminate the swaps on certain dates (Hull, 2003, p. 604). In the case when the party that has right to do so terminate the swap, both counterparties at the time of termination pay the compounded value of all the payments up to the time of termination of the swap.

Conditional (accrual) swap is a swap in which the interest is calculated only for the days when floating interest rate was within a certain range or below/above agreed level (Hull, 2003, p. 603). When it comes to standard swap the fixed rate interest is calculated by multiplying the interest rates and the number of days for which the calculation is made (the number of days in the month or quarter) and dividing with the number of days in the year. However, in this type of swap, interest is calculated only for those days when the variable rate was below/above or within some agreed range, so the notional principal is not multiplied by the total number of days in the period, but by the number of days in which the variable interest rate fulfilled agreed condition. (Hull, 2003, p. 127)

Yield curve swap is the swap in which both set of payments are related to the same rate, but a different maturity (Martellini,Priaulet,Priaulet,2003, p. 345). For example, an investor can enter in swap to receive 3M Libor rate and to pay 6M Libor rate. Non-parallel shift in the yield curve in this case result in interest rate spread changes for the investor.

Ascending (step-up or accreting) swap is a swap in which, unlike most of the swaps where notional principal is constant, the notional principal increases over time (Arditti, 1996, p. 291). Suppose that an investor take a loan that he pulls in installments, so over the time the value of the debt increases. In this case he will arrange a swap with notional principal that increases over time.

Descending (amortizing) swaps are those in which the notional principal decreases over time (Kolb, 1999, p. 633). For example if the investor borrowed funds at a variable rate, since it was better at the moment, but he wants the debt at fixed rate, he will initiate a swap. In addition, if the funds are invest so that the investor expects every month that he will be able to repay some of the debt, he will initiate a swap in which notional principal decreases over time.

Rollercoaster swap is a combination of the previous two types of swaps. Notional principal in this case, first increases and then decreases (Arditti, 1996, p. 291). It is used when the value of debt is growing at first, and after some point begins to decline.

Index amortizing swap is a swap in which the notional principal is decreasing depending on the level of interest rates (Chance, 1998, p. 636). The lower the interest rate, the greater the reduction in notional principal.

Libor in Arrears swap is the one in which floating-rate of interest is calculated at the floating-rate observed on day of payment, opposed to a standard swap where the payment is calculated at floating-rate value observed on the day of the last payment (Hull, 2003, p. 599).

Constant maturity swap is the interest rate swap that allows the fixation of duration of funds received under the swap (Chance, 1998, p. 638). This assumes periodical adjustments of floating rate, with the exception that in this type of swap, floating rate is usually related to swaps rate of a certain duration (rather than Libor). For example, a variable interest payable semi-annually can be linked to a five-year swap rate.

Differential swap is a swap in which interests are calculated at floating rates related to the different currencies (Hull, 2003, p. 601; Chance, 1998, p. 637). For example, paying 6M sterling Libor on notional principal of 100 million pounds, and receiving 6M euro Libor on the same principal.

Zero-coupon swap is an extreme example of the swap. In this case, a fixed interest rate is equal to zero, and payment is made at swap cancelation at fair swap value (Arditti, 1996, p. 292). It is used in situations where a party has liquidity problems until swap cancelation.

Prepaid swap is the one in which one party (usually the party that pays at a fixed rate) at the time of swap initiation pays the present value of all his payments during swap life, and then receives payments on agreed dates (at variable rates) (Fabozzi, 1996, p. 172).

Besides these, there are swaps in which the interest is not calculated at the same notional principal. For example, paying on the principal of $ 100 million, and receiving the payments on the notional principal of $ 150 million.

Swap as a basis for other derivatives

Futures swap

Forward/futures swap is the interest rate swap in which the exchange of interest payments start on agreed future date. An investor ,who plans to borrow in two months $ 100 million for a period of 5 years at the rate of Libor, and expected that interest rates will rise in two months, and wants to fix his costs, may do so by entering into forward swap under which he will be paying a fixed rate on the notional principal of $ 100 million over 5 years, and receiving a Libor, with the exchange of interest payments starting in two months (Arditti, 1996, p. 291) . After two months, interest rates have risen, but the investor will still lend funds as planned. The increase in borrowing costs due to a higher rate will be offset by the increase in inflow from the swap, and the investors cost will depend only on pre-agreed fixed swap rate. Therefore, by initiating the forward swap investor fixes his obligations without any additional cost and protect against interest rate risk in the event of unfavorable movements in interest rates. However, this strategy prevents the investor to benefit in the event of favorable market movements. In fact, if interest rates fall after two months, opposite to the investors' expectations, his costs would not be lower because the savings from borrowing at a lower rate would be neutralized by reduced inflows on variable leg of the swap.

Swaption

Swaption - Some options may be embedded into the swap. Callable swap gives the right, but not the obligation, to the party that pays at fixed rate to terminate the swap (Arditti,1996, p. 298). Party will use his right if there is a fall in the market rates because it can then enter

into a new swap at a lower rate. Swap with a put option gives the right but not the obligation, to the party that receives a fixed rate to terminate the swap, and he will do so if market rates increase, because than he can enter into a new swap to receive at higher fixed rate. These features built into swap are not the same as swaption.

Swaption is a separate option that gives the holder the right to enter into swap. Call (payer) swaption gives the owner (purchaser) right to enter into swap in which he has an obligation to pay at pre-arranged fixed rate (Kolb, 1999, p. 639-640). He will use his right if market rates rise, because then contracted rate will be lower than the market, and therefore the amount to be paid. Time (receiver) swaption gives the owner right to enter into swap in which he has an obligation to pay at a variable rate. This option will be used if market rates fall, because then costs are lower while he has to pay at a lower rate than the market.

Swaption are similar to the forward swap except that in this case there is no obligation to enter into swap. Swaption buyer, therefore, has the possibility to protect himself from adverse market movements, but also to gain on the positive.

If, for example, investor can borrow in three months at a variable rate for a period of 5 years, and wants the liability to be at a fixed rate, he will buy swaption that allows him to enter into the five-year swap in which he will be paying at a fixed rate of 10%, and receiving at a variable rate. After three months, if the market rate is less than 10%, he will let the swaption expire. However, if the market rate in three months is more than 10%, he will use the opportunity of entering into swap and consequently will have liability at fixed rate of 10%. So in this way the investor wants to ensure that in three months, regardless of how much is the market rate, he will pay no more than 10%.

Advantages and limitations of interest swaps

In order to eliminate the interest rate risk, investors, instead of engaging in interest rate swaps, may alter their balance sheets converting assets with fixed interest rate in interest-sensitive assets and vice versa. However, such a strategy would be more expensive for several reasons. First, institutions have significant transaction costs when they are rearranging their balance sheets. Second, different financial institutions have informational advantages in giving loans to certain customers (Mishkin, Eakins, 2006, p.665). Therefore, the adjustment of the balance sheet, in order to eliminate the interest rate risk, may result in the loss of these benefits, which financial institutions are generally not ready to give up. Interest rate swap solves this problem by allowing institutions to convert fixed rate assets in interest-sensitive assets, or vice versa, without any changes in the balance sheet. In this way, high transaction costs are avoided, and the financial institution can continue to grant loans when they have comparative advantages.

Interest rate swap has a huge advantage over other financial derivatives. In fact, contrary to the interest rate futures and options that are used for a much shorter period of time (usually no longer than one year), swaps can be concluded for a very long time, sometimes even 20 years (Mishkin, Eakins, 2006, p.665). If the financial institution has to manage the interest rate risk in the long period, the financial futures and options won't be very useful, but interest rate swaps would be.

The third advantage of the interest swaps is that they allow the two institutions to exploit their comparative advantage in borrowing in the markets at a fixed or variable interest rate. Suppose that investor A has a better credit rating and can either borrow a million dollars at variable interest rate, let's say, LIBOR plus 2%, or to issue bonds with a fixed interest rate of 7%, while investor B can borrow a million dollars at the rate of Libor plus 2.5% or to borrow at a fixed rate of 9% (Mishkin ,Eakins, 2006, p. 665). Investor A has better conditions, i.e. he has an absolute advantage in borrowing at fixed and at a variable rate, because he has a better credit rating. However, investor A has a comparative advantage in borrowing at fixed interest rate, while investor B has a comparative advantage in borrowing at a variable interest rate. By entering into swap, both institutions would lower their borrowing costs. The ability to exploit comparative advantage in borrowing at variable interest rates as opposed to borrowing at fixed rates is an important swaps feature that has greatly contributed to great popularity of swaps.

Possibility of using the comparative advantages when it comes to borrowing is often the subject of criticism. The frequently asked question is how the possibility of arbitration did not result in equality of the spread between the fixed and the spread between variable interest rates at which investors with different credit rating may barrow. The reason for this is in the nature of contracts available when it comes to borrowing at a fixed and variable rate. When it comes to borrowing at variable interest rate there is possibility of periodic adjustments of the interest rate, so if the credit rating of investor change - interest rate can be adjusted. However, this possibility does not exist when it comes to borrowing at fixed interest rate. The difference in the spread between the rates for investors of different credit rating reflects the likelihood that they go bankrupt. In the short run, likelihood that the situation will worsen is not big so the spread in rates is lower than in the long run. In fact, statistics show that, with time, the probability, that position of investors with lower credit rating will worsen increases faster than the probability that a credit rating of investors with higher credit ratings will deteriorate. Therefore, with the increase of the borrowing period, increase rates at which investors with different credit ratings can borrow.

Although interest rate swaps have significant advantages that make them very popular within financial institutions, they also have some drawbacks that limit their usefulness. Swap market, as well as forward market, may suffer from a lack of liquidity. In addition, the parties often find it difficult to connect each other to agreed swaps.

In addition, swaps are subject to the same default risk as forward contracts. However, the default risk in the swap is not the same as in other instruments because it applies only to interest, while the risk for the full amount of the notional principal does not exist, because it is never exchanged. If one party would not be able to fulfill its obligations and pay the interest, the other side could simply stop paying its obligations. In addition, if counter party is no able to fulfill his obligations, it does not have to be bad for the other side. For instance, if it comes to interest rates fall, the party that pays at fixed rate and receive at variable interest rate will be in a worse position, so it would be suitable for this side if the counterparty stops with fulfilling its obligations and if it comes to the termination of the swap.

These disadvantages are successfully overcome with the help of intermediaries, such as investment banks and especially large commercial banks, which have the ability to collect

cheaply information on the creditworthiness and reliability of the parties, and are able to match them in swap. Of course, interest rate swaps bear risks for banks that occur as an intermediates and that is way there is a series of regulations designed to limit the risk to which they may be exposed based on financial derivatives.

Conclusion

Financial derivatives, primarily interest rate swaps, are extremely popular hedging instruments against adverse changes in interest rates. Its popularity interest rate swaps owes primarily to the fact that they provide protection against risk in a relatively simple manner and without high initial costs. In addition, interest rate swaps do not carry a high risk because the notional principal is never exchanged, but only the interest payments, and one counterparty may simply cease to perform its obligations if the other counterparty stops fulfilling its obligations. Moreover, in practice, due to the need to adapt to the different needs of market participants, a large number of modifications of the standard interest rate swap incurred. Interest rate swaps market suffers from certain drawbacks, but they are successfully overcome, so that in developed countries, interest rate swaps are far leading by the value of notional principal and the gross market value in relation to other financial derivatives.

References

Arditti, F. D. 1996. *Derivatives - A Comprehensive Resource for Options, Futures, Interest Rate Swaps and Mortgage Securities*, Boston: Harvard Business School press.

Chance, D. M. 1998. *An Introduction to Derivatives and Risk Management*, 5th ed. Fort Worth, Harcourt College Publishers.

Choudhry, M. 2005. *Fixed-Income Securities and Derivatives - Analysis and Valuation*, Princeton: Bloomberg Press.

Culp, C. 2004. *Risk Transfer – Derivatives in Prac*tise. New Jersey: John Wiley and Sons.

Cvitanić, J. and Zapatero, F. 2004. *Introduction to the Economics and Mathematics of Financial Markets*, Cambridge: MIT Press.

Eales, B. and Choudhry, M. 2003. *Derivative Instruments: A Guide to Theory and Practice*, Oxford: Butterworth Heinemann.

Fabozzi, F. J. 1996. *Measuring and Controlling Interest Rate Risk*, New Hope, PA: Frank J. Fabozzi Associates.

Fabozzi, F. J. and Mann, S. V. 2005. *The handbook of fixed income securities*, 7th ed. New York: McGraw-Hill Professional.

Fabozzi, F. J. 2007. *Fixed Income Analysis*, 2nd ed. New Jersey: John Wiley and Sons.

Peterson D. P. and Fabozzi, F. J. 2010. *The Basics of Finance - An Introduction to Financial Markets, Business Finance, and Portfolio Management*, New Jersey: John Wiley and Sons.

Hull, J. C. 2003. *Options, Futures and Other Derivatives*. 5th ed. New Jersey: Prentice-Hall.

Kolb, R.. 1999. *Futures, Options and Swaps*. 3rd ed. Cambridge: Mass, Blackwell Publishers.

Martellini, L., Priaulet, P. and Priaulet, S. 2003. *Fixed-Income Securities - Valuation, Risk Management and Portfolio Strategies*, Chichester, England: John Wiley and Sons.

Mishkin, F. S. and Eakins, S. G. 2006. *Financial markets and institutions*, Boston: Addison-Wesley.

Reilly, F. K. and Brown, K. C. 2003. *Investment Analysis and Portfolio Management*, 7th ed. Mason, Ohio: South-Western/Thomson Learning.

Stephens, J. 2002. *Managing Interest Rate Risk – using financial derivatives*. Chichester, England: John Wiley and Sons.

Kamatni skupovi

REZIME – *Promene kamatnih stopa imaju veliki uticaj na uspešnost poslovanja. Zbog toga je za tržišne učesnike od velikog značaja da prepoznaju i adekvatno upravljaju ovim rizikom. Finansijski derivati predstavljaju relativno jednostavan vid zaštite od neželjenih promena kamatnih stopa. Kamatni svopovi su naročito popularni s obzirom na to da omogućavaju svodjenje kamatnog rizika na najmanju moguću meru uz relativno male inicijalne troškove i bez velikog rizika, ali i zbog činjenice da na tržištu postoje različite modifikacije standardnog svopa kako bi se što bolje prilagodili različitim potrebama tržišnih subjekata.*

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