

## INFORMATION ON THE NATURE AND RISKS OF FINANCIAL INSTRUMENTS

### ***I. Financial instruments, subject to the investment services and activities offered by the Bank***

Subject to the investment services and activities offered by the Bank are the following types of financial instruments:

1. Transferrable securities
2. Money market instruments
3. Shares of undertakings for collective investment
4. Options
5. Swaps
6. Forward contracts

### ***II. Risks related to investing in financial instruments***

Hereby we aim to provide information about the risks related to the various instruments, which lead to various levels of risk exposure. Upon deciding whether to trade in such instruments, or to purchase financial products, you must bear the following in mind:

## FUNDAMENTAL TYPES OF RISK

### **1. General provisions**

The price or the value of the investment depends on fluctuations on the financial markets, while no positive returns are guaranteed. Historically achieved positive results on an investment made cannot be guaranteed in the future. The nature and degree of the investment risks are different depending on the markets, on which trading takes place, and on the type of the investment. Furthermore, the investment risks may be influenced by the manner of manufacturing the financial products or by defining their terms, by the needs and objectives of specific investors, by the

manner of developing them, offering, sale and trading of a specific investment, the location and principle office of the issuer, the diversification or concentration in the portfolio (for ex. the amount invested in one currency, security, country or issuer), the complexity of the transaction, and the use of leverage. The types of risks specified below could exert influence on any type of investment.

It is important to also take into account the margin requirements with some of the products specified in I above. When concluding deals for buying on margin, the investor must provide collateral in advance and/or have an approved limit.

The following types of margin may be distinguished:

- initial margin – this is the amount of the initially provided collateral or the approved limit. This margin allows the investor to conclude deals with the relevant instrument up to a certain amount.

- maintenance margin – this is the minimum required margin for concluding a particular deal. It is calculated as a percentage of the nominal amount of the deal and depends on its type, time period and other factors.
- available margin – this is the value of the initial margin less the negative revaluation of the instrument

Upon certain levels of the available margin / maintenance margin ratio, the investor might be requested to provide additional collateral (the so called margin call) or his deal might be terminated unilaterally.

The margin enables the investors to generate a higher return (leverage effect) with smaller amounts, but it also increases the risk of larger losses, including full loss of the provided collateral.

It must be noted that for all instruments with a fixed term offered outside the stock exchange, the liquidity is provided solely and only by the counterparty, this applies also to the cases of early termination of the deal, thus it is possible that additional constraints and/or additional expenses to be incurred by the client.

The types of risk specified below could exert influence on each financial instrument.

## **2. Liquidity risk**

The liquidity of the instrument is directly affected by its demand and supply. Under certain trade conditions it may appear difficult or impossible for a position to be liquidated. In addition, for over-the-counter (off-exchange) products, unless the

contractual terms provide otherwise, the counterparty is not obliged to terminate early or to buy back the product.

## **3. Credit risk**

The credit risk is the risk of loss caused by borrowers, persons liable under bonds, or counterparties who do not perform their obligations, or there is a risk that the credit rating of these parties will deteriorate.

## **4. Market risk**

The volatility of the prices of the investments depends on demand and supply on the market, the mindsets of the investors, and the prices of the basic or ancillary investments, as well as on sector and economic factors. These may be fully unpredictable.

## **5. Default risk**

The bankruptcy or default on contractual obligations by a company, with which you are performing business transactions, or of brokers participating in your transaction, may lead to the liquidation or closing of positions without your consent, or to failure to return some of your investments. There is also risk of bankruptcy in connection with the investment itself – for example from the company, which has issued the bond, or from the counterparty with over-the-counter derivatives (where the risk is related to the derivative itself and to a collateral or margin held by the counterparty).

## **6. Currency risk**

With respect to FX (foreign exchange) deals and deals with derivatives and securities denominated in a currency, other than the one, in which your account is denominated, the movement of the exchange rates may have both favorable and unfavorable effect on the profit or loss from these deals. The devaluation of the currency of a certain country will affect negatively the value of the investment denominated in this currency. The currency values are influenced by a combination of economic, social and political factors, and may vary considerably, even within the everyday trading.

## **7. Interest rate risk**

Interest rates may change. There is a risk with interest rates related to the possibility for the relative value of a security, especially a bond, to deteriorate due to interest rate increase. This may negatively affect other products as well.

## **8. Regulatory/Normative risk**

All investments may be exposed to regulatory or normative risk (risk of significant changes in the normative requirements). There is a risk of regulatory and legal actions and changes that could change the profit potential of an investment affecting the profitability of all, and especially the one of new investments. The legal changes may lead to the fact that an investment admissible in the past may become illegal. It is possible for changes to occur in issues related to the above changes, like for example tax changes, which to exert serious influence on profitability. This risk is unforeseeable and may depend on several political, economic and other factors.

## **9. Operational risk**

The operational risk is related to damages and problems in the functioning of significant systems and controls, including IT systems, which may affect all financial products, unfavorable external events, which do not have a financial nature, including legal risk

## **DESCRIPTION OF PRODUCTS AND THEIR RELEVANT RISKS**

### **1. Transferrable securities**

Securities are transferrable rights, registered on accounts at a Central Depository or in foreign institutions, while for the government securities (treasury bills) - registered on accounts at Bulgarian National Bank or at subdepository of government securities, or in foreign institutions performing such activities (non-present/electronic/ securities) or documents, substantiating transferable rights (present/hard copy/securities), which may be traded on the capital market as:

- a. Corporate stocks and other securities equivalent to the stocks in limited partnership entities, unlimited partnership entities and other legal entities, as well as depositary receipts for shares of stock.**
- b. Bonds and other debt securities, including depositary receipts for such securities.**
- c. Other securities, which grant the right to acquire or sell of such securities, or**

which lead to monetary payment stipulated by securities, exchange rates, interest rates.

### Risks related to transferrable securities

**a. Corporate stock and other securities equivalent to the shares in limited partnership entities, unlimited partnership entities and other legal entities, as well as depositary receipts for shares of stock**

- **market risk** - with the stocks the market risk comprises, on the one hand, the likelihood of sharp changes to the price and a relatively large volatility, which may lead both to profits and to serious losses for the investors, and on the other hand the lack of guarantee for preserving the amount of the investment and the lack of guaranteed returns;
- **operational risk** – settlement risk and risk related to the counterparty under the deal;
- **liquidity risk** – if the liquidity of a given issue of stock is reduced, the buy-sell spread and the time for concluding a deal increases, the investment in shares does not have a fixed term, respectively exiting such position depends fully on the investor and the presence of liquidity for a given security;
- **currency risk** – the securities denominated in foreign currency contain currency risk;
- **risk when using leverage** – the use of borrowed funds when purchasing securities enhances the effect both of the gains and of the losses from the investments.

**b. Bonds and other debt securities, including depositary receipts for such securities**

- **market risk** – the market risk from the debt securities involves changes to their prices when changing the required rates of return. When the required rates of return increase, the market prices of the fixed income debt securities falls, while upon reducing the required rates of return, they rise;
- **interest rate risk** – most commonly at the basis of the changes in the required rates of return lies the change in the market interest rates. Usually, upon rising interest rates on deposits and loans (the interest on benchmarking securities) the required rates of return on debt securities also rise, and respectively, upon decreasing interest rates the requested rates of return decrease;
- **credit risk** – the credit risk is a risk of default by the issuer (warrant under the security), upon deterioration in the creditworthiness of a given issuer the investors request higher returns on the debt securities issued by it, which decreases their market value;
- **risk of becoming bankrupt** – the holders of fixed-income securities are exposed to risk of the issuer becoming bankrupt, whereupon they could partially or fully lose the amount invested;

- **operational risk** – risk related to the functioning of systems, controlling, which may be expressed in the lack of delivery of a certain security, funds (settlement risk and risk related to the counterparty in the deal);
- **liquidity risk** - when decreasing the liquidity of a given issue of securities the buy-sell spread and the time for concluding the deal increase;
- **currency risk** – the securities denominated in a currency other than the Bulgarian lev contain also currency risk;
- **risk when using leverage** – the use of borrowed funds when purchasing securities increases the effect both of the profits and of the losses from the investments.

**c. Other securities granting the right to the acquire or sell such securities, or which lead to cash payment stipulated by securities, exchange rates, interest rates**

➤ **Rights offering issue**

The "Rights" are securities, which entitle to subscribing a certain number of stocks in connection with adopted resolution for increasing the capital of a public company. The guarantee the equality of the shareholders upon increasing the capital of the issuing company. In practice these are term securities, the profitability of which depends on the expected returns according to the class of stocks, to which they belong. Their trading takes place on the Bulgarian Stock Exchange (BSE), they are also non-present securities, similar to the shares, to which they refer. The provisions applying to them are set forth in the Public Offering of Securities Act (POSA). On the foreign markets for financial instruments there are analogous regulations governing the participation of the shareholders in the capital increase of the issuer company. Apart from the risks inherent to the investment in stock (and specified above), we must bear in mind also the additional risk when investing in rights, i.e. risk of full loss of the investment value within the short term of the existence of these rights – if the exercising of the rights proves to be unfeasible due to the slumping trend of the stock prices to below the subscription price indicated in the resolution for increasing the capital of the issuer company.

Upon orders for investing in rights, the Bank shall disclose information also about the stocks, subject of these rights.

➤ **Depository receipts on shares of stock accepted for trading on a regulated financial instruments market (DRs, ADRs, GDRs and other.)**

Depository receipts on shares of stock (DRs) are financial instruments, which enable the participants in a given market (usually a developed market) to invest in the capital of companies whose stock was admitted for trading on another market

(usually an emerging market), to which these participants have no access or to which it will be harder to receive such access. DRs are issued by a bank, which has purchased a certain number of shares of stock from the capital of a given company and holds these shares as an underlying asset. The DRs issued are of a value equal to the value of the shares (the underlying asset) and usually the issuer bank regularly announces DRs's "buy" or "sell" quotes while profiting from the spread between the two, while the investors have an instrument, which keeps with the price of the company stock on the market, on which it was accepted for trading. Most DRs are traded on the US stock exchanges, where they are called ADRs – American Depository Receipts, and in Great Britain where they are called GDRs – Global Depository Receipts.

The risks when investing and trading with DRs are identical with the ones for stock, the difference being that part of the liquidity risk, as well as the risk related to the counterparty in the deal, and the risk related to the settlement, refer to the market, on which the DRs are traded, and not to the one, on which the stock is traded, while the currency risk depends both on the currency, in which the stock is denominated, and also on the currency, in which the DRs are denominated.

- **Other securities leading to a cash payment stipulated by securities, currency rates, interest rates.** These are structured notes or structured bonds having the characteristics at the same time of fixed income securities and of derivative instruments. Generally, they are divided in two types – securities where the principal paid at maturity is guaranteed, and such, where the principal at maturity is not guaranteed.
  - **market risk** – these securities are exposed at the same time to the risks inherent to bonds and to the risks inherent to derivative instruments. Their price will depend on the current market interest rates, the current price of the underlying asset, the exercise price (strike price), if applicable, the volatility of the underlying assets, the time to maturity, etc.;
  - **interest risk** – the structured notes and the structured bonds are exposed to interest risk both with respect to the bond component and to the derivative component. The bond component in these securities is exposed to risk of rise in the interest rates, respectively fall of its value;
  - **credit risk** – just as with the bonds, upon the worsening of the creditworthiness of a given issuer the investors require higher returns on the debt securities issued by it, which decreases their market value;
  - **default risk** – just as with the bonds, the holders of such types of instruments are exposed to risk of the issuer becoming bankrupt, whereupon they could partially or fully lose the invested amount;
  - **operational risk** - risk related to the functioning of systems, controlling, which may be expressed in the lack of delivery of a security, funds (settlement risk and risk, related to the counterparty under the deal);
  - **liquidity risk** – often the structured notes and the structured bonds have a lower degree of liquidity where it is possible for them not to be exchange traded. This means that typically their liquidity is lower than the one of the bonds;
  - **currency risk** – the securities denominated in a currency other than the Bulgarian lev, contain also currency risk.
  - **risk when using leverage** – the use of borrowed funds when purchasing securities enhances the effect both of the profits and of the losses from the investments.

## 2. Money Market Instruments

This category includes a range of instruments, which are usually traded on the money markets, like short-term government securities (treasury bills – see also above), certificates of deposits (CDs) and commercial securities, with the exception of payment instruments. Normally it is assumed that such debt securities or other debt financial instruments are of initial and remaining maturity of up to 1 year.

## Risks related to the money market instruments

Even though they are usually regarded as lower risk – mainly due to the short maturity – these instruments also bear risks inherent to the debt securities:

- **market risk** – the market risk of the money market instruments is expressed in change in their prices or a change in the required returns;
- **interest rate risk** – most often the change in the market interest rates is at the basis of the change in the required returns. Usually upon rising interest rates on deposits and loans (interests on the benchmarking securities) the requested returns on the money market instruments also rise, and respectively, upon decreasing interest rates the required returns also decrease;
- **credit risk** – upon deterioration of the creditworthiness of an issuer, the investors require higher returns on the instrument issued by it, which decreases their market value. With the money market instruments this risk is significantly lower due to the relatively short term;
- **default risk** – the holders of money market instruments are exposed to the risk of the issuer becoming bankrupt whereupon they could partially or fully lose the invested amount. This risk is significantly lower for the money market instruments due to their relatively short term;
- **operational risk** - risk related to the functioning of systems, controlling, which may be expressed in the lack of delivery of a security, funds (settlement risk and risk related to the counterparty in the deal);
- **liquidity risk** - upon reduction in the liquidity of an instrument the buy-sell spread and the time for concluding the deal increase;
- **currency risk** – the securities denominated in a currency other than the Bulgarian lev contain currency risk;
- **risk when using leverage** – the use of borrowed funds when purchasing money market instruments increases the effect both of the profits and of the losses from the investments.

## 3. Shares in undertakings for collective investment

The collective investment schemes are undertakings for collective investment, whose objective is investing in cash funds generated through the public offering of transferable securities or other financial assets, and they act on the principle of risk distribution. The shares of the collective investment schemes are non-present (electronic) and are subject to a direct or indirect buyback based on the value of its net assets upon the submission of request on the part of the shareholders. The collective investment schemes may be generally divided into three types:

- (i) Mutual Funds;
- (ii) Closed-End Funds;
- (iii) ETFs – Exchange Traded Funds

## a. Mutual Funds

Mutual funds is a general term for the collective investment schemes of the “open-end type”. They have the obligation to issue shares, and to buyback the issued shares under certain conditions and under strictly calculated and regularly announced prices, thus creating liquidity for the financial instruments issued by them. Each investor may subscribe the desired volume of shares at any time and demand his shares for buyback in the desired volume. This obligation makes the mutual fund capital variable.

The issue and buyback of shares from mutual funds takes place “over-the-counter” and is organized by the managing company, which manages the relevant fund. The shares of most Bulgarian mutual funds have been admitted for trade on the BSE, but there the managing company does not have the obligation to issue them or buy them back, and the price is dictated by the demand and supply, which is often very limited considering the possibility of performing “over-the-counter” deals under the prices determined under the relevant procedures.

The mutual funds in Bulgaria may be in the form of investment companies of the open-end type, or contractual funds. The open-end investment companies are shareholding companies and their capital is distributed into shares, while the contractual funds are an independent property, distributed into share parts.

The main risks when investing in shares of mutual funds are the following:

- **market risk** – the issue prices and buyback prices of the shares of mutual funds are determined by the managing company based on the net value of the fund’s assets and are controlled by a custodian bank. The market risk of the investments in mutual funds depends on the investment strategy of each individual fund. Depending on its investment strategy a fund may have a geographical focus, like for example investments in Eastern Europe, or focus on certain types of assets – for example money market instruments, GS(T-bills), corporate bonds, stock. It is generally deemed that the investments in mutual funds reduce the specific risk for a security or an instrument through the diversification effect. Diversification is a technique for risk management where the total risk of a given portfolio is lower than the sum of the individual risks of each of its assets;
- **operational risk** – this risk is minimized for the “over-the-counter” deals;
- **liquidity risk** - with the over-the-counter deals it is minimized, but such risk exists with respect to the investment portfolio. Any eventual reduction in the liquidity of a certain position of the portfolio may lead to a drop in its price, respectively to a drop in the price of shares of the relevant fund;
- **currency risk** – the shares of mutual funds denominated in a currency other than the Bulgarian lev are exposed to currency risk. The mutual fund portfolios, investing in assets and financial instruments denominated in foreign currencies are also exposed to such risk/;
- **risk when using leverage** – using borrowed funds when purchasing mutual fund shares increases the effect both of the profits and of the losses from the investments.

## b. Closed-End Funds

The shares of Closed-End Funds are traded on regulated markets of financial instruments.

In Bulgaria they are organized in the form of a shareholding company called “closed-end investment company”. They may be managed by their own management bodies or by a managing company.

The closed-end funds have fixed capital, which may be increased under the terms for capital increase of the public companies. In their case the generated income is usually distributed between the investors in the form of dividends or free shares.

The main risks when investing in shares of closed-end funds are the following:

- **market risk** – with the closed-end funds there is a market risk both with respect to the shares issued by them and with respect to their investments portfolios. The risks from investing in shares of closed-end funds are similar to the ones from investing in the assets contained in their portfolios. It is generally accepted that the investments in closed-end funds reduce the specific risk for a given security or instrument through the effect of diversification. Diversification is a technique for risk management where the total risk of a given portfolio is lower than the sum of the individual risks of each of the assets in it;
- **operational risk** – bearing in mind the execution on a regulated market, this risk is to a certain extent minimized;
- **liquidity risk** - such risk exists both with respect to the shares issued by the fund and with respect to the investment portfolio. Any eventual reduction in the liquidity of a certain position from the portfolio may lead to a drop in its price, respectively to a drop in the price of the shares of the relevant fund. This risk is similar to the one of investing in the assets contained in the portfolio of the fund;
- **currency risk** – the stock and shares of the closed-end funds denominated in a currency other than the Bulgarian lev are exposed to currency risk. The portfolios of these funds investing in assets and financial instruments denominated in foreign currency are also exposed to such risk;
- **risk when using leverage** – the use of borrowed funds when purchasing stock and shares of closed-end funds increases the effect both of the profits and of the losses from the investments.

### c. ETFs – Exchange Traded Funds

The Exchange Traded Funds, ETFs, represent funds, which combine the characteristics of the open-end mutual funds, on the one hand, while on the other the closed-end funds. Similarly to the mutual funds, the ETFs issue and buyback shares, and respectively have variable capital, but unlike the mutual funds, the issue and buyback takes place in huge packages (lots) and is respectively accessible mainly to institutional investors, which in their turn may offer the shares to retail investors on regulated markets, on which they are allowed for trading. Usually some of these institutional investors are market makers of the shares of the ETFs. The clients of “DSK Bank” EAD may purchase and sell shares of ETFs on the regulated markets, on which they are admitted to trade.

A typical feature of ETFs is the fact that most of them follow the so called “passive strategy of management”, i.e. they invest the accumulated funds under rules and criteria set forth in advance in their prospectuses, and not according to subjective investment decisions of the fund managers. Usually, the ETFs are constructed in a way to (approximately) follow the movement of the market price of a certain basic asset, which may be: stock index, commodity

(oil, metals, grain, etc.) or a basket of commodities, currencies, or a basket of currencies, as well as the movement of corporate stock from a certain economic sector. This gives the opportunity to the investors to indirectly achieve global diversification, spreading over countries and regions from all over the world, as well as over various classes of assets, while investing a minimum amount.

On most regulated markets the rules for admitting ETF shares for trading oblige the companies managing such funds to declare the net value of the assets per share in real time at very small intervals – ranging from one to several minutes. Thus the awareness of the investors does not allow for large deviations of the market price of the ETF shares from their net value. Nevertheless, such deviations do exist in practice, triggered by increased demand or supply, but they remain minimal on the background of the change in the net value of the assets.

Apart from the ETFs, which follow the movement of the market price of a underlying asset, there are also the so-called “short” or “leveraged” ETFs (short and leveraged ETFs). The short ETFs follow movement in a direction opposite the direction of movement of the market price of the underlying asset. They achieve this effect by selling short and investing in derivative instruments. The leveraged ETFs use borrowed funds at a certain ratio to the own capital (the funds accumulated from the investors) thus aiming to increase the profitability of the underlying asset, proportionally to the ratio borrowed resource/own capital (debt-to-equity ratio). The leveraged ETFs may be both long (following the movement of the market price of the underlying asset), and short. They are respectively called “double long” and “double short” (which corresponds to a ratio borrowed resources /own capital of 50:50[D/E ratio]) or “ultralong” or “ultrashort”.

The legal form, under which the ETFs are mainly organized (in Europe) is an open-end investment company. In the US the ETFs are also organized as contractual funds and investment trusts (unit investment trusts).

The settlement of the shares of ETFs, the same as with the public companies, takes place in a depository.

The risks related to the stock/shares of ETFs are as follows:

- **market risk** – The movement of the ETF share prices almost entirely depends on the movement of the market prices of the underlying assets, therefore the market risk upon investing in ETFs is identical with the one of the underlying assets. The market risk of the ETFs, which follow the exchange indices or the performance of companies from certain sectors, is identical with the risk from investing in stocks. The market risk of ETFs, which follow bond or government security indices or baskets, is identical with the risk from investing in bonds. The market risk of ETFs, which follow the movement of commodities and raw materials, as well as of currencies and currency baskets, is identical with the market risk of the commodities and currencies themselves and consists of the lack of guarantee for preserving the amount of the investment, lack of guaranteed returns, and the likelihood of sharp changes in the price, which may lead both to profits and to losses for the investors;
- **operational risk** – bearing in mind the performance on a regulated market, this risk is minimized to a certain degree;
- **liquidity risk** - despite the relatively low liquidity risk of the ETF shares, the investment in them is indirectly related to the liquidity risk of the underlying asset.

Any eventual reduction in the liquidity of the underlying asset may lead to a drop in its price, respectively to a drop in the share price of the relevant ETF;

- **currency risk** – the ETF shares denominated in currencies other than the Bulgarian lev, are exposed to currency risk. The portfolios of these funds, investing in assets and financial instruments denominated in foreign currencies, are also exposed to such risk;
- **risk when using leverage** – We must pay special attention to the risk from leveraged ETFs. Most leveraged ETFs use borrowed resources at a ratio of 50:50 (double long) to own capital, but there are also such where the D/E ratio is 67:23 (triple long). This means that upon increase in the price of the basic asset by a given percentage, the price of the shares of the double long ETF will increase by a double amount of the percentage, but upon a drop in the price of the basic asset, the price of the shares of the double long ETF will also fall by a double amount of the percentage. Therefore the shares of the double long ETF are twice as volatile, and the ones of the triple long ETF – three times more volatile.

#### 4. Options

The options are bilateral contracts, which provide the right (but not the obligation) to one of the contracting parties to purchase or sell the basic security at a certain price - "exercise price" (strike price) at a future moment in time within a certain time or deadline, making a unilateral statement to the other party, provided that this unilateral affidavit will actually be fulfilled. The basic instruments may be, for example, commodities, currencies, interest rates, stock exchange indices, etc. The

options are used for *hedging, speculation or arbitrage*. The risk assumed by the buyer is limited to losing the amount on the paid premium. The option seller, on the other hand, assumes a significantly high risk.

The options are derivatives, which might be exchange traded, i.e. financial instruments, which have standardized terms and are traded on a regulated market; or traded over-the-counter, OTC, i.e. instruments, which are traded outside a regulated market and are designed by a financial institution in order to meet the specific needs of a client.

Some of the main conditions (and definitions), related to options, are the following:

- **Strike price:** the price, at which the buyer of a call or a put option may exercise his right to purchase or sell the underlying financial instrument;
- **Expiration date:** the date, on which the option expires (i.e. the last date, on which the option can be exercised);
- **Settlement date:** the date, on which the contract is executed either through a physical delivery (i.e. through the exchange of the underlying instrument against cash) or through a cash settlement (i.e. cash transfer to the option buyer) and it is usually two days after the expiration date of the option;
- **Contract amount:** the quantity of the underlying instrument, to which the contract refers;
- **Premium:** the price of (cost of) purchasing a call or a put option.

Depending on the type of the underlying financial instrument the options may be classified into the following categories:

- (i) **Foreign Exchange Options (FX Options)**
- (ii) **Interest Rate Options**
- (iii) **Options on exchange traded commodities (Commodity Options)**
- (iv) **Options on indices (Index Options)**
- (v) **Options on shares of stock (Stock Options)**

Depending on the type of exercise, they are divided into European and American; the first one can be exercised only on the expiration date, while the second one can be exercised within the period from the buy date until the expiration date.

The abovementioned instruments do not represent standardized products; they might be customized according to the investor's needs.

Risks:

**a. Foreign exchange options (FX Options)**

- **market risk** – the market risk with the FX options is the risk of change in the option value. The main factors influencing the value of a bought or sold option are the strike price, the current exchange rate, the volatility of the currency pair, the changes in the market interest rates under the two currencies and the time to maturity;
- **interest rate risk** – this is the risk of change in the market interest rates, which may lead to a change in the value of the FX option;
- **operational risk (OTC)** – the risk related to the systems functioning, controlling, which may result in no delivery of funds (settlement risk and risk related to the counterparty of the transaction);
- **liquidity risk** – with exchange traded options this risk is similar to the liquidity risk of the stocks traded on regulated markets. During a period of liquidity decrease for a specific option both, the difference in the buy-sell prices and the time for purchase or sale increase. The options bought / sold on an OTC market might be sold / bought only with the consent of the counterparty. With the OTC options the liquidity risk is related to the constraint that only the seller of the option may buy it back/ deliver;
- **currency risk** – such type of risk exists when the payments on the options are denominated in a foreign currency. With the FX options the underlying is a specific currency pair, which means that the risk from exchange rate moves is both - currency and market risk;
- **risk when using leverage** – due to the leverage effect the changes in the option values and prices are usually more significant than the changes in the prices of the underlying instrument. Thus, during the option tenor, the potential profits and the potential losses are both higher. The risk from an option purchase increases with the importance of the leverage effect for the respective option.

## b. Interest Rate Options

- **market risk** – the market risk with the interest rate options is the risk from change in the option value . The main factors influencing the value of an option purchased or sold are the strike price, the current values of the interest rates of the applicable interest curve, the volatility of the interest rates and time to maturity;
- **interest rate risk** – this is the risk from change in the market interest rates, which may lead to a change in the value of the interest rate option. In this case, since the underlying asset of the option is a reference interest index, the interest rate risk is also a market risk;
- **operational risk (OTC)** – the risk related to the systems functioning, controlling, which may result in no delivery of funds (settlement risk and risk related to the counterparty of the transaction);
- **liquidity risk** – with the exchange traded options this risk is similar to the liquidity risk of the stocks traded on regulated markets. During a period of liquidity decrease for a specific option both, the difference in the buy-sell prices and the time for purchase or sale increase. The options bought / sold on an OTC market might be sold / bought only with the consent of the counterparty. With the OTC options the liquidity risk is related to the constraint that only the seller of the option may buy it back/ deliver;
- **currency risk** – such type of risk exists when the payments on the options are denominated in a foreign currency;
- **risk when using leverage** – due to the leverage effect the changes to the values and prices of the options are usually more significant than the changes in the prices of the underlying instrument. Thus, during the option tenor, the potential profits and the potential losses are both higher. The risk from an option purchase increases along with the importance of the leverage effect of the respective option.

## c. Commodity Options

- **market risk** – the market risk with the commodity options is the risk from change in the value of the option. The main factors influencing the value of a bought or sold option are the strike price, the current price of the commodity, the price volatility of the commodity, the changes in the interest rates, the changes in the convenience yield<sup>1</sup> of holding the physical good, the changes storage costs of holding the physical good<sup>2</sup> and the time to maturity;
- **interest risk** – this is the risk from the change in the market interest rates, which may lead to a change in the option value;
- **operational risk** – the risk related to the systems functioning, controlling, which may result in no delivery of funds (settlement risk and risk related to the counterparty of the transaction);

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<sup>1</sup> Convenience yield is the benefit related to the physical access to a certain commodity. For example in a certain period there may be a greater demand for a commodity than for the derivative instruments on it and its holder may derive benefit from its physical sale

<sup>2</sup> The storage cost makes the holding of a derivative instrument for a given commodity more favorable than its physical ownership

- **liquidity risk** – with the exchange traded options this risk is similar to the liquidity risk of the stock traded on regulated markets. During a period of liquidity decrease for a specific option both, the difference in the buy-sell prices and the time for purchase or sale increase. The options bought / sold on an OTC market might be sold / bought only with the consent of the counterparty. With the OTC options the liquidity risk is related to the constraint that only the seller of the option may buy it back/ deliver;
- **currency risk** – such type of risk exists when the payments on the options are denominated in a foreign currency;
- **risk when using leverage** – due to the leverage effect, the changes to the values and prices of the options are usually more significant than the changes in the prices of the underlying instrument. Thus, during the option tenor, the potential profits and the potential losses are both higher. The risk from an option purchase increases along with the importance of the leverage effect of the respective option

#### d. Index Options

- **market risk** - the market risk with the index option is the risk from change in its value. The main factors influencing the value of a bought or sold option are the strike price (price of the index, at which the option may be exercised), the current value of the index, the price volatility of the index, the changes in the cash flows of the basic asset (dividends), the changes in the current interest rates and the time to maturity;
- **interest rate risk** – this is the risk from the change in the market interest rates, which may lead to a change in the option value;
- **operational risk** – the risk related to the systems functioning, controlling, which may result in no delivery of funds (settlement risk and risk related to the counterparty of the transaction);
- **liquidity risk** – with the exchange traded options this risk is similar to the liquidity risk of the stock traded on regulated markets. During a period of liquidity decrease for a specific option both, the difference in the buy-sell prices and the time for purchase or sale increase. The options bought / sold on an OTC market might be sold / bought only with the consent of the counterparty. With the OTC options the liquidity risk is related to the constraint that only the seller of the option may buy it back/ deliver;
- **currency risk** – such type of risk exists when the payments on the options are denominated in foreign currency;
- **risk when using leverage** – due to the leverage effect, the changes to the values and prices of the options are usually more significant than the changes in the prices of the underlying instrument. Thus, during the option tenor, the potential profits and the potential losses are both higher. The risk from an option purchase increases along with the importance of the leverage effect of the respective option

#### e. Stock Options

- **market risk** – the market risk of the stock option is the risk from change in its value.

The main factors influencing the value of a bought or sold option are the strike price, the current price of the stock, its volatility, the changes in the cash flows of stock (dividends), the changes in the interest rates, and the time to maturity;

- **interest rate risk** – this is the risk from the change in the market interest rates, which may lead to a change in the option value;
- **operational risk** – the risk related to the systems functioning, controlling, which may result in no delivery of funds (settlement risk and risk related to the counterparty of the transaction);
- **liquidity risk** – with exchange traded options this risk is similar to the liquidity risk of the shares traded on regulated markets. During a period of liquidity decrease for a specific option both, the difference in the buy-sell prices and the time for purchase or sale increase. The options bought / sold on an OTC market might be sold / bought only with the consent of the counterparty. With the OTC options the liquidity risk is related to the constraint that only the seller of the option may buy it back/ deliver;
- **currency risk** – such type of risk exists when the payments on the options are denominated in foreign currency;
- **risk when using leverage** – due to the leverage effect the changes in the values and prices of the options are usually more significant than the changes in the prices of the underlying instrument. Thus, during the option tenor, the potential profits and the potential losses are both higher. The risk from an option purchase increases along with the importance of the leverage effect of the respective option.

## 5. Swaps

The swap is a bilateral contract, under which the parties agree to exchange one cash flow against another based on a pre-determined nominal amount in a given currency at pre-determined periodic dates until the date of the contract maturity.

Swaps are over-the-counter instruments and are usually used for hedging, less often for speculation and arbitrage. The risk related to these instruments is significantly high.

The swaps, according to their underlying asset, are distinguished into the following main categories:

- Interest rate swaps:** swaps, where an exchange of cash flows based on various interest rates and/or reference rate indices takes place; they are usually used for hedging interest rate risk;
- Currency swaps:** swaps, which involve two currencies; usually used for hedging currency and interest rate risk;
- Commodity swaps:** swaps, whose payments are based on the return on the commodity indices; the commodity swaps are often used for hedging against the price volatility of certain commodities;

Some specific instruments from the group of the interest rate swaps are:

- **Interest rate swap for exchange of floating against fixed interest rate and vice versa** (Floating to Fixed Interest Rate Swap)
- **Interests rate swap starting on a forward date** (Forward Starting Interest Rate Swap)

- **Interest rate swap with embedded barrier** – a financial product for fixing a floating reference index (Euribor/Libor), at a lower interest rate than with the plain vanilla interest rate swap until achieving a given upper barrier or a reference rate.
- **Floating-against floating or Basis Swap** (Floating to Floating or Basis Swap)

Risks related to swaps:

**b. Currency swap (Forex Swap):**

- **market risk** – the FX swap is an instrument consisting of two “legs” – spot and forward. Since the two legs of the deal are in the opposite directions and have the same spot rate, the only risk for the parties in the deal is the interest rate risk, taking into account the role of the interest rates under the two currencies when determining the forward premium/discount on the forward leg. In this case the interest rate risk may lead to lost opportunity costs from the change in the interest rates before the swap maturity;
- **interest rate risk** – with the FX swap this type of risk matches the market risk. The changes in the market interest rates of the two currencies may lead to a change in the value of the currency swap;
- **operational risk** – the risk related to the systems functioning, controlling, which may result in no delivery of funds (settlement risk and risk related to the counterparty of the transaction);
- **liquidity risk** – the FX swap is over-the-counter traded instrument and can be terminated only with the consent of the counterparty in the transaction;
- **currency risk** – since the same spot rate applies for both legs of the currency swap, such risk does not exist.

**c. Interest Rate Swap:**

- **market risk** – the market risk with the interest rate swap arises from the change in the interest rates. An investor, who has concluded an interest rate swap, pays a fixed interest rate and receives a floating interest rate, is threatened by reduction in the interest rates since this will lead to negative revaluation of the instrument. Vice versa, an investor paying a floating interest and receiving fixed interest is threatened by rise in the interest rates;
- **interest rate risk** – with the interest rate swap this type of risk coincides with the market risk;
- **operational risk** - risk related to the functioning of systems, controlling, which may be expressed in lack of delivery of funds (settlement risk and risk related to the counterparty in the transaction);
- **liquidity risk** – the interest rate swap is an over-the-counter traded instrument and can be terminated only with the consent of the counterparty in the transaction;
- **currency risk** – the payments under the financial instrument interest rate swap are denominated in foreign currency and expose the holder to such type of risk.

#### d. Commodity Swap

- **market risk** – the value of the commodity swaps is determined by the current price of the commodity, the current interest rates, the convenience yield<sup>3</sup> of holding the physical good and the storage costs of the commodity, thus the listed factors determine the market risk from this instrument;
- **interest rate risk** – this is the risk from any unfavorable change in the interest rates, which may lead to decreasing the swap value;
- **operational risk** – the risk related to the systems functioning, controlling, which may result in no delivery of funds (settlement risk and risk related to the counterparty of the transaction);
- **liquidity risk** – the commodity swap is an over-the-counter traded instrument and may be terminated only with the consent of the counterparty in the transaction;
- **currency risk** – the payments under the financial instrument commodity swap are denominated in foreign currency and bear such risk for the instrument holder.

#### 6. Forward contracts

Forwards are bilateral contracts related to the purchase or sale of a certain quantity of a security or currency at a certain moment in the future and at a certain price. The forwards are close to the futures where the main difference is that the forwards are not traded on regulated markets, but are over-the-counter instruments.

As a result, the forwards, unlike the futures, do not have standardized characteristics, but are flexible instruments, which may be customized in order to meet the needs of the investors. The forwards do not have a standard amount or maturity. The price, at which the basic instrument is bought/ sold, is usually the forward rate of the instrument at the time when the contract was established.

Forwards are used mainly for hedging and speculation, or for arbitrage purposes, and in addition to the risks, to which the futures transactions are subjected, here we add also the risk from the counterparty due to the fact that they are traded outside a regulated market and there is no clearing house.

With respect to the basic financial instrument, the forwards may be classified into the following types:

- (i) Foreign exchange forwards (FX Forwards):** forwards whose underlying asset is a currency exchange rate (a currency pair);
- (ii) Forward rate agreements (FRAs):** forwards whose underlying asset is a reference interest rate index, like for example EURIBOR, LIBOR, and etc.;
- (iii) Commodity Forwards:** forwards, whose underlying asset is a commodity.

The FX forwards are usually used by investors who need to manage the currency risk.

The most popular FX forwards are:

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<sup>3</sup> Convenience yield is the benefit related to the physical access to a certain commodity. For example in a certain period there may be a greater demand for a commodity than for the derivative instruments on it and its holder may derive benefit from its physical sale

- **Plain vanilla forward:** agreement, which provides a fixed exchange rate on a pre-determined future date.
- **Flexible forward:** forward whose execution date is open for the entire forward period
- **Window forward:** forward, the execution of which starts after the expiration of a given period within the total forward period.

Risks:

- FX Forwards:** forwards, whose underlying asset is a currency exchange rate (a currency pair);
  - **market risk** – the value of the FX forwards is determined by the current spot rate of the currency pair and the interest differential under the two currencies. Upon increasing the spot rate, the value of the currency forward will decrease for the party, which must deliver the amount in the basic currency on maturity, and it will increase for the party, which must receive it on maturity;
  - **interest rate risk** – the interest rate risk is the risk from change in the interest rates for the currencies from the currency pair of the forward. When increasing the interest rate in the quoting currency and decreasing the interest rate in the basic currency – the forward value will fall for the party, which must deliver the amount in the basic currency at maturity, and will rise for the party, which must receive it;
  - **operational risk** – the risk related to the systems functioning, controlling, which may result in no delivery of funds (settlement risk and risk related to the counterparty of the transaction);
  - **liquidity risk** – the forward contract is an over-the-counter traded instrument and can be terminated only with the consent of the counterparty in the transaction;
  - **currency risk** – with the FX forwards the underlying asset is a specific currency pair, which means that exchange rate risk is both, market and currency risk.
- Forward interest rate agreements (FRAs):** forwards, whose underlying asset is a reference interest rate, e.g. EURIBOR, LIBOR, etc.;
  - **market risk** – the value of the FRAs is determined by the level of current market interest rates. Upon increase in the current interest rates the value of the FRA will decrease for the party receiving a fixed interest and will increase for the party, which is paying it;
  - **interest rate risk** – the interest rate risk is the risk of change in the market interest rates. With the FRAs the interest rate risk is also a market risk;
  - **operational risk** – the risk related to the systems functioning, controlling, which may result in no delivery of funds (settlement risk and risk related to the counterparty of the transaction);
  - **liquidity risk** – the forward interest agreements are over-the-counter traded instruments and can be terminated only with the consent of the counterparty in the transaction;

- **currency risk** – in case that the payments under the FRAs are denominated in foreign currency, they bear currency risk for the parties in the transaction.

**c. Commodity Forwards:** forwards, whose underlying asset is a commodity.

- **market risk** – the value of the commodity forwards is determined by the current price of the commodity, the current interest rates, the convenience yield<sup>4</sup> of holding the physical good the storage cost of the commodity and the time to maturity. The market risk is the risk of change in the value of an already concluded commodity forward;
- **interest risk** – the interest risk is the risk of change in the market interest rates;
- **operational risk** – settlement risk and risk related to the counterparty in the transaction;
- **liquidity risk** – the commodity forwards are over-the-counter traded instruments and can be terminated only with the consent of the counterparty in the transaction;
- **currency risk** – in case that the payments under the forwards are denominated in foreign currency, they bear also a currency risk for the parties in the transaction.

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<sup>4</sup> Convenience yield is the benefit related to the physical access to a certain commodity. For example in a certain period there may be a greater demand for a commodity than for the derivative instruments on it and its holder may derive benefit from its physical sale.