



Risk assessment

In order to determine market risk, let us refer to the definition and classification of Financial Instruments in MIFID II (Appendix 1, Section C). This section contains 1) Securities and 4) Futures. The strategy of arbitrage trading involves the creation of a "synthetic bond" and therefore it would be wiser to calculate the risk on our product as it would be a bond.

For more details on "synthetic bonds".

When making deals, a trading robot sends two bidirectional orders to two markets: spot (normal market) and derivatives market.

The profit is formed due to the delta, i.e. the difference in the price of the underlying asset and the futures. There is a conditionally normal price - it is calculated relative to the discount interest rate. The price takes into account the interest rate and the time to expiration of a particular futures contract.

As a result of an imbalance in the market, from time to time arising in connection with an emotional outburst among traders or due to the instant receipt of large orders to buy or sell, the delta either narrows (then we buy it) or expands (then we sell it).

Selling a delta is a combination of a bought spot and a sold futures.

Delta buying is a combination: a sold spot and a bought futures.

A trading robot and traders who have constant access and control over the actions of a trading robot calculate the amount of the underlying asset and the corresponding volume of the futures in such a way that the trading system is not in an open position either on the futures or on the spot. those. trading positions must be market neutral (no market risk or otherwise - price risk).

After collecting the required position volume on the spot - futures link, the trading strategy has a market neutral position, which carries the minimum profitability until the expiration of the futures contract. Further market behavior does not particularly affect trading. Since the formula for calculating the price of a futures there is a numerator in the form of a spot price. Therefore, when the market rises or falls, the link remains stable. The most important is the fact that the movement of the delta (position) takes place in a certain corridor.

We buy at the lower border of the corridor. We sell at the upper border of the corridor.



Graph of Gazprom delta behavior from a real trading terminal



Risks

The risk may arise in the following case.

When the media and on the issuer's website talk about the possibility of corporate events related to the payment of dividends, then in this case there is a risk when you are in the purchased delta (short stock and long futures) for this issuer. The stock falls in value after the cut-off by the amount of dividends attributable to the share, but the futures keeps the price.

How to avoid this risk.

In case of a possible announcement of such news, we follow the announcements of the issuer and try either not to be in a pose for such an issuer. Or open only delta short (long stocks and short futures).

If we make a synthetic bond for a currency (dollar / dollar futures, euro / euro futures, etc.), then the risk described above is absent.

There is no transactional risk of loss of assets, since all non-cash settlements take place within one exchange and there are no OTC transactions. Repo transactions, for example, are made only with a central counterparty or with our broker.

Unforeseen risk

If the Central Bank of the Russian Federation suddenly (in the event of a war or the like) sharply increases the rate, then the delta grows rapidly, and in this case, if we were on sale at the delta, we get to the stop-loss set by our broker at 2% from the amount of investment. But this case can be attributed to force majeure.



Conclusions:

Comparing a synthetic bond with a corporate bond, the following conclusions can be drawn. A synthetic bond should be compared with the bond of the highest-rated issuer, since, in fact, in our case the issuer is the exchange. In addition, our synthetic bond has an advantage over the corporate bond in that it has a maturity (term of settlement of a futures on the exchange) from one to three months, while the average term of bonds is 5 years, and the issuers with the highest rating are characterized by longer terms. ... The latter allows, in the event of an unforeseen one-time increase in discount rates by the Central Bank of the country of the bond issuer, not to accept the risk of changes in the bond price, which becomes significant with a long term (duration).

Bond duration (DO) is nothing more than a certain period of time or a time interval (from the English duration - duration). In simple words, this is the period remaining until the moment when the money invested in the purchase of the bond will fully pay off. This term is calculated taking into account the frequency of payments and the amount of coupon yield for each specific bond. The larger the value of TO, the closer it (duration) is to the period remaining until the bond maturity and, accordingly, the longer the payback period of your investment (hence, the greater the risk).

The smaller the value of TO, the further it (duration) is from the period remaining to maturity of the bond and, therefore, the shorter the payback period of your investment, and, consequently, the less risk.

The synthetic bond has a much higher profit level and the term is incomparably short when compared to a corporate bond. Duration in our case is minimal and the risk is correspondingly small (comparable to a deposit in a reliable bank). On a seven-point scale, level 2 will most accurately reflect the level of risk.