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ABSTRACT

Research paper is about hedging and non-hedging methods of managing financial and currency risks.

In conditions of increasing instability of the financial market conditions, against the background of the economic crisis, there was an urgent need to limit the increased financial risks. Therefore, in addition to the existing mechanisms of risk insurance, the application of the hedging mechanism with the help of derivative financial instruments became especially important. The increased instability of the world economy becomes the main factor determining the development of hedging, which is an effective mechanism for redistribution of financial risks between economic entities. Currently, the mechanism for applying hedging to both professional participants of the financial market and companies in the real sector of the economy has already been established in the world.

Hedging of risks is an important function of the derivatives market. Hedging operations are the most convenient way to neutralize market risks. At the same time, the main task of hedging is to protect transactions from unpredictable price changes in the underlying asset market. Hedge objectives are determined depending on the type of business that plans to use risk reduction. Each company has its own tasks, and not always companies need to eliminate only the adverse consequences of risks: very often in practice, companies need to completely neutralize the price risk.

INTRODUCTION

Actuality of the study. In conditions of increasing instability of the Azerbaijan financial market, against the background of the economic crisis, there was an urgent need to limit the increased financial risks. Therefore, in addition to the existing mechanisms of risk insurance, the application of the hedging mechanism with the help of derivative financial instruments became especially important. The increased instability of the world economy becomes the main factor that determines the development of hedging in Azerbaijan, which is an effective mechanism for redistributing financial risks between eco-economic entities. At present, the mechanism of applying hedging in the world is both professional participants of the financial market and companies in the real sector of the economy.

Domestic practice of hedging shows that in recent years, the attitude to risks of Azerbaijan companies has changed significantly. If in the early 90's Azerbaijan companies tried to earn literally everything, including stock speculation with raw materials and finished products, but now, with the overall increase in the efficiency of Azerbaijan business, the task of ensuring stability and predictability of financial results is put at the forefront. To fix and protect the favorable structure of the cost of investment against the risk of fluctuations in world prices and thereby stabilize an acceptable level of profitability of the business becomes more profitable than trying to get super-profits on international exchanges.

In the management circles of Azerbaijan companies, there is growing awareness that by applying high-performance risk management technologies based on the latest developments in mathematical finance and applied statistics, it will be possible to solve such important corporate tasks as neutralizing fluctuations in prices for raw materials, equipment and finished products, and on this basis ensuring the stability of corporate capital flows and predictability of general financial indicators will significantly increase the cost of business. As a result, the goals of long-term business planning and capitalization increase require Azerbaijan companies to develop and apply effective hedging algorithms-techniques for neutralizing fluctuations in prices for commodities through the use of derivative financial

instruments. This applies primarily to companies involved in the import of raw sugar, soybean, expoBSE of grain products, oil, natural gas, gold, silver, ferrous and non-ferrous metals, etc. In addition, purchases of non-exchange goods (for example, industrial equipment) abroad can also successfully hedge against currency risks.

The need to expand the range of risk management tools and the introduction of the methods of scientific risk management through the mechanisms of hedging into the practice of work by professional participants in the Azerbaijan derivatives market determine the relevance of the topic of the dissertation research.

The degree of scientific elaboration of the problem. Despite the relatively long existence of the exchange market for derivative financial instruments, foreign literature focuses on applied issues related to the functioning of the derivatives market. Foreign authors, in particular G.J. Alexander, F. Black, J.V. Beyle, L. Galitz, L.J. Gitman, D. Duffy, M.D. Jonk, R.T. Deigler, P.A. Klein, S.D. Kovni, K.B. Connolly, J.S. Cox, D. Lederman, T. Lofton, D.F. Marshall, Sh. Natenberg, M. Rubenstein, K. Strickland, K. Takki, M.S. Tomset, S. Figlev, D.S. Hull, W.F. Sharpe, M. Scholes and others, considering the market for derivative financial instruments, focus on key market concepts, applied valuation issues, pricing modeling, the formation of trading strategies, and fundamental and technical analysis of the derivatives market.

The purpose of the research is to identify the specifics and directions for the development of hedging financial risks in the Azerbaijan derivatives market, as well as in developing practical recommendations for the development of risk hedging operations by Azerbaijan companies.

To achieve this purpose, the following tasks were identified in the work:

1. To offer typologization of theoretical hedging concepts on the basis of their generalization, to systematize the financial risks to which Azerbaijan companies are exposed, and to characterize the possibility of their mitigation through hedging of risks;

2. To substantiate the possibility of using different classes of hedging strategies on the Azerbaijan market, both professional participants in the securities market, and

participants in the real sector of the economy on the basis of a study of the institutional and economic conditions of the Azerbaijan derivatives market;

3. To classify participants in the financial hedge market - and to determine the factors that influence the choice of a hedging strategy, which will allow creating an algorithm for selecting a hedging strategy for market participants;

4. Disclose the conditions for the development of hedging financial risks in Azerbaijan by analyzing the structure of segments and identifying the specifics of the functioning of its individual segments;

5. Identify features of hedging in the Azerbaijan derivatives market and conduct comparative analysis with international markets for derivative financial instruments;

6. Study the economic conditions for expansion of hedging operations of risks in the Azerbaijan option market;

7. Determine the limitations of the Azerbaijan hedging mechanism and develop recommendations for their overcoming for the market regulator, auction organizers, for hedge companies.

The object of the study is the stock market of derivative financial instruments in Azerbaijan.

The subject of the study is economic relations related to the implementation of strategies for hedging economic entities on the Azerbaijan stock market of derivative financial instruments.

The theoretical and methodological basis for the study of the problems examined in the thesis is based on the results of Azerbaijan and foreign investors in the field of risk management, hedge theory, expert assessments of management companies, hedge funds, as well as legislative acts of the Azerbaijan regulating the activity of the financial market in particular, the market for derivative financial instruments and analytical studies of international financial organizations and audit companies.

The information basis of the research was formed on the basis of acts of the Azerbaijan legislation, program and regulatory documents of the Government of the

Azerbaijan, the National Bank of Azerbaijan, the Service for Financial Markets, the World Bank, the International Monetary Fund, statistical data of the State Statistics of the Azerbaijan, and monographic research materials.

The scientific novelty of the dissertation research lies in the substantiation of theoretical and methodological provisions for the development of hedging financial risks in the Azerbaijan derivatives market, as well as in developing recommendations for market participants-hedgers, auction organizers and market regulators on the development of hedging of risks by Azerbaijan companies.

The practical significance of the research is that the results obtained can be applied by Azerbaijan participants in the derivatives market in the process of hedging and managing the portfolio of derivatives. In the thesis, a step-by-step hedging algorithm for bidders was developed, the tools for hedging risks depending on the market segment were identified, the most effective hedging strategies for use by participants depending on the market segment were identified.

The structure of the dissertation. The thesis includes introduction, three chapters, conclusion and bibliography.

CHAPTER I: THEORETICAL FOUNDATIONS OF HEDGING AS A METHOD OF MANAGING FINANCIAL RISKS

1.1. Research of theoretical concepts and methods of hedging financial risks

Hedging of risks is an important function of derivative financial instruments. The price of derivative financial instruments is determined by the market value of the underlying asset underlying them, i.e. is derived from the price of that asset.

Hedging is the most convenient way to neutralize market risks. The essence of the hedge is to fix, with the help of derivative financial instruments, an acceptable level of prices for future transactions. At the same time, the main task of hedging is to save real deals from unfavorable price changes in the market.

Hedge objectives are determined depending on the type of business that plans to use risk reduction. Each company has its own tasks, and not always companies need to eliminate only the adverse consequences of risks, very often in practice the business requires full neutralization of price risk. Accordingly, hedging tasks can be built in different directions, which means that the results will differ. By forming a hedge target, the investor can determine it from the point of view of minimizing the risk, maximizing the expected income or maximizing the expected utility, i.e. maximize the expected yield, taking into account the possible risk.

In the financial literature, there are several views on the concept of hedging. They can be classified according to two criteria:

1) on strategies applicable within the framework of the concept;

2) on tools specific to the concept.

In accordance with the first sign, 3 hedging concepts can be distinguished:

- traditional;
- speculative;
- portfolio.

For traditional hedging, complete exclusion of risk is typical. Hedgers occupy positions in the futures market that are opposite to the spot market and are the same in their number. When liquidating spot positions, positions in the futures market are

also closed. The traditional theory implies that the correlation of the prices of the underlying asset and the futures contract prices is close to one on the Caddock scale, so the dispersion of the hedged position should be less than the variance of the unhedged position. Hedge is complete if the changes in the basis are zero. When using this concept, the company's price risk is completely excluded, all other things being equal. If we consider the hedgers of the Azerbaijan market, then this strategy is most acceptable for exporting importers who want to exclude the currency risk of their operations.

The speculative concept of hedging is inherently not different from the usual speculation in the market. The main ideologist of this concept was N. Working. He put forward the opposite proposition that the purpose of hedgers is to maximize profits. He did not define the border between hedgers and speculators, since both have both futures and spot positions. N. Working argues that most of the hedging is carried out in anticipation of changes in the ratio between the spot price and the price in the futures market. According to N. Working, holders of long spot positions will resort to a hedge if they expect a decrease in the basis, and will do without it if they expect growth of its value. Most often, portfolio managers managing portfolio hold such a position. If the market trend develops in the opposite direction, then, in order not to completely cover the position, hedge it with futures contracts. And when it returns to the forecasted trend, the futures position is closed.

Portfolio hedging is a combination of traditional and speculative hedging concepts. Developed this concept, L. Johnson and D. Stein. They used a portfolio theory to substantiate the concept. This allowed them to combine the position of the traditional theory of avoiding risk with the position of N. Working on maximizing the expected profit. In comparison with the usual portfolio approach, the application of portfolio theory to hedging is characterized by one feature. It is that spot and futures markets are not considered interchangeable. The spot position is taken as fixed, and the decision is made with respect to the question of which part of it to hedge. Thus, unlike traditional theory, the portfolio approach assumes that the spot position can be hedged completely or partially. [14, P.122]

Figure 1 shows the variants of all three hedging concepts. On the vertical axis, the expected profitability (Er) is postponed, on the horizontal axis - the standard deviation (σ). Hyperbola (line ABCD) is the border risk-return of the portfolio, which includes a hedged asset without risk, such as a government bond, because it also acts as a hedge. The graph shows four rising lines from left to right. These are curves of indifference. They characterize the function of the expected utility of the investor. The higher the indifference curve is, the higher the level of utility it corresponds to. At point A, the spot position of the investor is not insured, so the hedging ratio h is zero. At point D, the number of futures contracts is equal to the amount of the spot asset, as h = 1. This position corresponds to the traditional concept of hedging. At point C, there is a portfolio with a minimum risk. Therefore, the hedging ratio h * is the coefficient of the minimum variance.

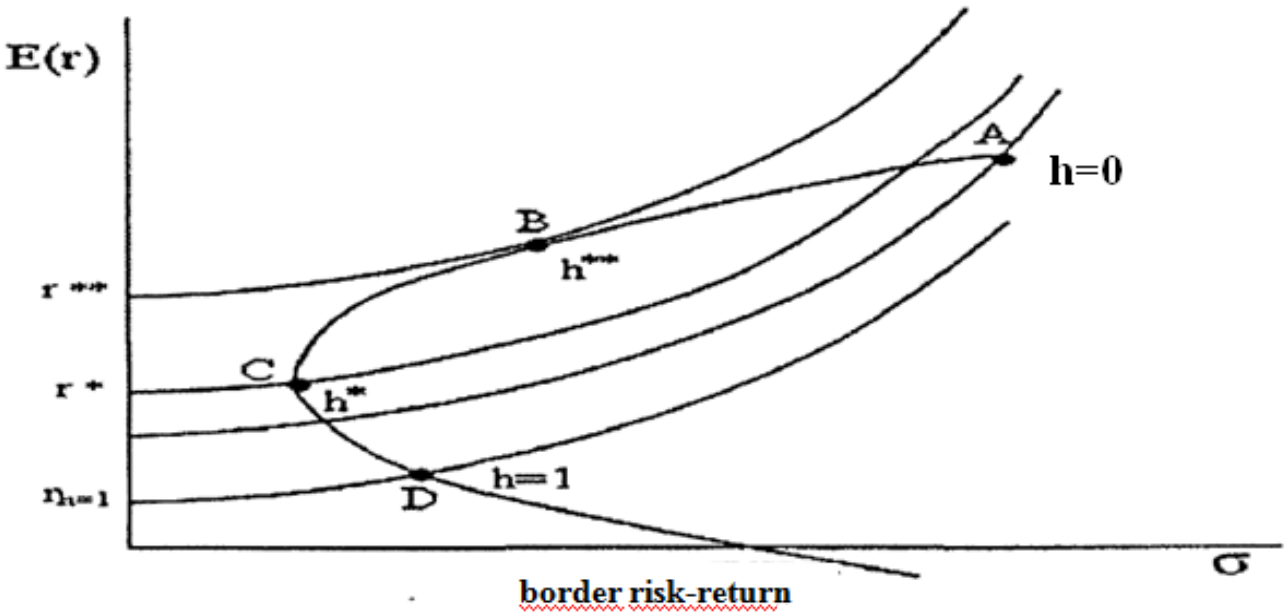


Figure 1 - Determination of the hedging ratio in the framework of portfolio theory

Within the portfolio theory, the investor strives to maximize the expected utility. In this regard, of all the possible portfolios presented at the ABCD border, he should choose only one that is at the point of touching the border risk-return with the highest-placed indifference curve. This portfolio is located at point B, where the value of the hedging ratio is h **. Thus, the decision to hedge a spot position in the

futures market is no different from any other investment decision - investors are hedged in order to get the best combination of risk and return.

Since portfolio hedging is a combination of the other two concepts, it is more universal in choosing strategies. Within the framework of this theory, a more appropriate instrument is an optional contract, which has more opportunities for hedging.

There is also another classification of hedging concepts. Its foundations were formulated by Ross and Merton.

1. Traditional approach (perfect hedging). Currently, strategies in accordance with the traditional approach to hedging are standard for financial engineering and have been widely used in practice and risk management theory. Based on this approach, the formation of strategies depends on market conditions and the characteristics of derivative financial instruments. For example, in the Black-Scholes model, the position with the underlying asset can be completely hedged against the risk by using the delta, gamma, theta-neutral hedge position. To build a dynamic hedge, you need knowledge of the following parameters: price, interest rate, option execution time, and volatility of the underlying asset.

The undoubted advantage of the standard methods of the traditional approach is that if the assumptions of the model are fulfilled, they allow estimating the value of the urgent position, regardless of the assumptions of the hedge owner. Because it does not take into account the expectations of the holder of the urgent position, the features of his investment strategy, as well as the attitude towards risk.

2. Imperfect hedging:

- hedge in the mean square;
- quantile hedging;
- hedging of expected losses.

A qualitatively different approach to managing the risk of a short position offers methods of imperfect hedging. The main feature of this method is that when building a hedging strategy, there is a risk of losses. Due to this risk, it becomes possible to reduce the cost of hedging a derivative. [23, P.165]

Hedging strategies based on imperfect hedging methods are more universal, since they allow one to take into account the owner's expectations, his risk appetite and the specifics of his investment strategy. The hedged portfolio of the holder of the futures position can be formed on the basis of the market analysis regarding the future dynamics of the underlying asset. Reducing the cost of forming a hedging strategy provides an opportunity for better management of the risk of the aggregate investment portfolio.

The instruments of imperfect hedging reduce the cost of hedging by taking the risk of reducing the value of the portfolio. The classical theory of decision-making assumes that, other things being equal, a rational participant in the market is ready to take risks only if in return he is offered compensation in the form of increased profitability. Accordingly, the basic idea of imperfect hedging methods is to maximize the expected return with a limited level of risk.

By modifying a hedging portfolio, a hedger can affect the level of risk. Assuming that, in some cases, payments of a fixed-term contract will not be reproduced or will be reproduced, but not in full, then a possible reduction in the cost of implementing the strategy leads to the greatest increase in the expected return with the least increase in risk.

Consider each of the three types of imperfect hedging.

Hedging in RMS is a method of imperfect hedging, characterized in that the measurement of the quality of the hedging strategy is carried out by means of the square of the difference between the terminal capital and the payment obligation. Basics

This method is developed in the work of Duffy and Richardson (1991). His further development he received in the articles of Volkov, Melnikov, Nechaev. The peculiarity of the method of hedging in the mean square is that it allows you to control the decrease in costs for hedging a derivative, but has the disadvantage, namely, that both positive and negative deviations of payments increase the risk of the strategy.

The second approach of imperfect hedging is quantitative hedging. The value of a derivative is determined as a result of market factors, the unforeseen change in which determines the risk of the holder of a fixed position. The risk of the holder of a futures position is in unpredictable market fluctuations or sudden changes in the economic situation and refers to the type of market risks.

The measure of market risk is the concept of Value-at-Risk. Its essence lies in determining the magnitude of the largest losses on a given confidence interval. This method gives a full picture of the risk position and measures its economic value.

Using the VaR concept as a measure of risk, the task of finding the optimal yield-risk distribution reduces to the general theory of confidence-based statistical estimation. One of its main concepts is the notion of quantile, that is, the boundaries of the domain of estimation with a given interval. As a result, the hedging method of an urgent position, in which the quantile of the distribution of the profit or loss of a hedging strategy is used as a criterion for the success of a strategy, is called quantile. The idea of quantile hedging was first proposed by G. Fellmer in March 1995 in the context of the standard Black-Scholes model. Nevertheless, quantile-based measures of risk are useful to the extent that the owner of an emergency position is aware of their limitations.

The method of quantitative hedging considers only the probability of occurrence of losses, and not their magnitude. Therefore, this approach raises criticism from a practical point of view.

The third approach of imperfect hedging is the concept of hedging expected losses. Unlike quantile hedging, this concept takes into account the size of the expected loss, but it controls the probability of its occurrence. This method determines the risk as a mathematical expectation of losses and minimizes it to the cost of hedging. The main idea of the concept of hedging the expected losses is presented in the article by Follmer and Lekert. Mainly the authors describe the investor's attitude to risk through some function of losses weighted by this function. The task is to minimize the risk of losses, provided that the cost of hedging does not exceed the initial capital. [18, P.67]

The concepts of quantile hedging and hedging of expected losses are often described in the literature as related methods of imperfect hedging. Their comparison shows that a hedging strategy can be optimal for both criteria only under certain circumstances.

Thus, the methods of imperfect hedging open wide opportunities for more effective management of the risk of an emergency position taking into account the expectations of its owner, his attitude to risk and the specifics of his investment strategy.

As a result of a critical analysis of different concepts and approaches to hedging, it can be concluded that the concepts are classified according to the instrument to which they are distributed and depending on the strategies corresponding to this concept.

From the analysis of existing hedging concepts and the characteristics corresponding to them, it is possible to remove the tool tag, since the concepts of futures strategies are correlated with the options concepts, and therefore combine some hedging concepts and distinguish three basic concepts of hedging:

1) the concept of perfect hedging (traditional hedging);

2) the speculative concept of hedging;

3) the concept of imperfect hedging (portfolio hedging):

- hedge in the mean square
- quantile hedging;
- hedging of expected losses.

In the economic literature, the term "hedging" is defined as the art of managing price risk by using a compensating position on derivatives. But for the hedger, the attendant risks are also important.

Finding the optimal structure of an open position requires a more precise definition of the concept of risk. At the moment, it is used as a level of uncertainty about the possible losses from the issuance of a fixed-term contract. It is necessary to identify the risks that affect the hedging position in the futures market. There is a classification of economic risks for market, credit and operational. Only market risks

are subject to hedging. Credit and operational risks are also important, and they need to be monitored.

Consider credit risk and its impact on the position of the hedger. A participant of an urgent over-the-counter market, having open positions, is exposed to credit risk, which is the probability that the other party will not fulfill its obligations under a fixed-term contract. For exchange-traded futures contracts, this risk is quite low due to the clearing system. It is on the over-the-counter market that credit risks deserve special attention, where the parties independently specify the characteristics of the derivative instrument and monitor their performance. Since the work deals with derivatives derivatives, the credit risk is reduced to a minimum and becomes operational, because there is a risk of failure of the clearing system of the obligations of bidders.

The risk associated with the infrastructure of the functioning of the market for derivative financial instruments and the activities of the hedger itself, we attribute to operational risks. One of the most important risks faced by all bidders, including hedgers, is the liquidity risk, which reflects the ability of a financial instrument to be convertible into cash. Liquidity depends on the ability of bidders to formulate risk hedging strategies.

In the Azerbaijan market there are also specific operational risks, characteristic only for our derivatives market. This is the risk of uncertainty in the legislative framework and taxation associated with hedging transactions, the risk of a narrow specification of the instrument base in the futures market.

The risk associated with immediate hedger activity, or model risk, is the probability of an error in assessing the risk of a financial position as a result of incorrect modeling. As the position in derivative financial instruments becomes more complex, the model risk increases.

So, the risks that accompany hedging can only be considered, and not controlled. It is not possible to hedge them.

Consider the classification of market risks that are subject to hedging. This is necessary in order to structure problems and carry out situation analysis and choose effective management. [22, P.42]

The author outlines the following classification of risks, which corresponds to the goals and objectives of the dissertation research. Proceeding from these principles, it is possible to single out the most widely used classification of market risks by market segments, including:

- interest rate risk;
- currency risk;
- stock risk;
- price risk of commodity assets.

Each of these types of risk arises due to constant intraday fluctuations in the exchange value. Further, the work will compare each of these risks with instruments in the Azerbaijan and international markets, as well as possible strategies for applying to hedge them.

So, it is possible to conclude that the bidder has risks that he either controls or hedges. It controls operational, credit, model risks, and only market can hedge. However, controlled risks are also very important due to the main activities of the participants.

1.2. Features of the use of hedging strategies for financial risks in the Azerbaijan derivatives market

In order to comprehensively consider the strategies existing in the domestic futures market, it is necessary to proceed from the concept of hedging. In the first part, we identified three concepts of hedging. Table 1 shows the classification of the main hedging strategies depending on the concept. It can be seen that the most universal hedging mechanism is option strategies, since the speculative concept of hedging does not share market participants such as hedgers and speculators.

Table 1

Classification of hedging strategies depending on the concept of hedging

	Futures hedging strategies	**Combination**				**Spread**				
		Rack	**Stredl**	**Strip**	**Strap**	**Spread the bull**	**Bear Spread**	**Backspred**	**Retio spread**	**Spread the butterfly**
The concept of perfect hedging (the traditional approach)	+	+	+	+	+	+	+	+	+	+
The Woking concept (speculative approach)	+	-	-	-	-	-	-	-	-	-
The concept of imperfect hedging (portfolio approach)	-	+	+	+	+	+	+	+	+	+

As can be seen from the table, futures hedging strategies correspond to the concept of perfect hedging and Woking's concept, and option ones to concepts of perfect and imperfect hedging.

Futures hedging strategies can be classified as follows:

• band;

• Parallel.

In practice, futures strategies are convenient only if the dates of receipt of repayment funds are known in advance at certain moments in the future. For example, in agriculture it is possible to hedge for the whole year ahead and in full, to sell a financial instrument immediately with execution in a year, and to pay off - at certain moments in the future, coinciding with the timing of receipt of funds.

Agriculture is one of the few industries for which hedging is actual in full because of the huge number of risks that it is practically impossible to manage (including climatic ones). At the same time, adverse weather conditions that could lead to catastrophic consequences for agriculture can be hedged with weather derivatives (including options) and thereby try to minimize losses (but it must be remembered that this requires appropriate financial investments).

Strategies using futures contracts are used in practice to hedge the negatively expected changes in the underlying asset market more shortly. But more universal strategies can be built from option contracts and combinations of futures and options.

Options allow investors to form different strategies. The simplest of these are combinations of options and shares. The investor uses them to hedge his position on the underlying asset.

Option strategies can be classified into direct and volatile.

There are strategies that are formed by the simultaneous sale / purchase of several options. It is possible to distinguish two groups of optional hedging strategies: combinations and spreads. [8, P.87]

A combination is a portfolio of options, consisting of options of different types per asset with simultaneous expiration of contracts that are long at the time of purchase or short at the time of sale. The exercise price of options does not affect the formation of the position.

Spread is a portfolio of options, consisting of options for one asset, but with different expiration dates for contracts and different execution prices. Spreads are divided into two types: vertical and horizontal.

The vertical spread consists of options with the same expiration dates for contracts, but with different execution prices. The horizontal spread includes options with the same strike prices, but with different expiration dates.

The spread can be divided into two types: rising and falling. When a hedger forms an increasing vertical spread, the option that is bought has a lower strike price than the option that is sold. In a rising horizontal spread, the option that is acquired has a more distant expiration date for the contract.

For a vertical spread, its rising or falling variance is related to the analysis of the market situation by the investor, i. he plans to profit from the growth or decrease in the price of the underlying asset. Many financial companies have products associated with options strategies, ranging from the usual purchase of options and ending with complex delta, gamma-neutral strategies.

For example, the structural product of the BCS financial group "For shareholders". The yield of the product is determined based on the price of shares reached on the day of the termination of the contract, using the following conditions (options are marked on the yield curve):

I. If the final price is below the threshold price of 97.5 manat (or equal to it), the investor is paid a guaranteed income of 20% per annum of the investment amount.

II. If the price of shares on the day of the end of the contract will be greater than the threshold price of 97.5 manat, then the investor sells its shares at 97.5 manat per share. Also, the investor is paid a guaranteed income of 20% per annum of the investment amount.

This product is based on a simple strategy - selling a put option.

Consider successively the hedging strategies that are applicable in the Azerbaijan derivatives market.

A rack transaction is a combination of call and put options for a single instrument with the same strike prices and contract expiration dates. The seller forms a long or short position. The buyer uses this strategy when he expects a significant change in prices and high volatility in the market, but he does not know in which direction the changes will be. If his expectations are met, he will make a profit. In turn, the seller of the rack counts on small fluctuations in the prices of the underlying asset and low volatility in the market. The buyer pays a double premium on this transaction.

The same combination can be constructed by buying (selling) one stock and buying (selling) two call or put options.

In our current market situation, in our opinion, the use of a racket strategy for buying is effective, as volatility in the markets is expected due to the situation in the European Union. Optimal is the purchase of a call option with a strike of 155 000 for 5300 manat. and buying a put option with the same strike for 3545. The profitability of the position will be if the market changes to any side at 8845 points. [17, P.133]

From the analysis of the schedule of open positions on the option for the index futures BSE (Figure 2) shows that the current expectations of investors are pessimistic, since open positions prevail on put options.

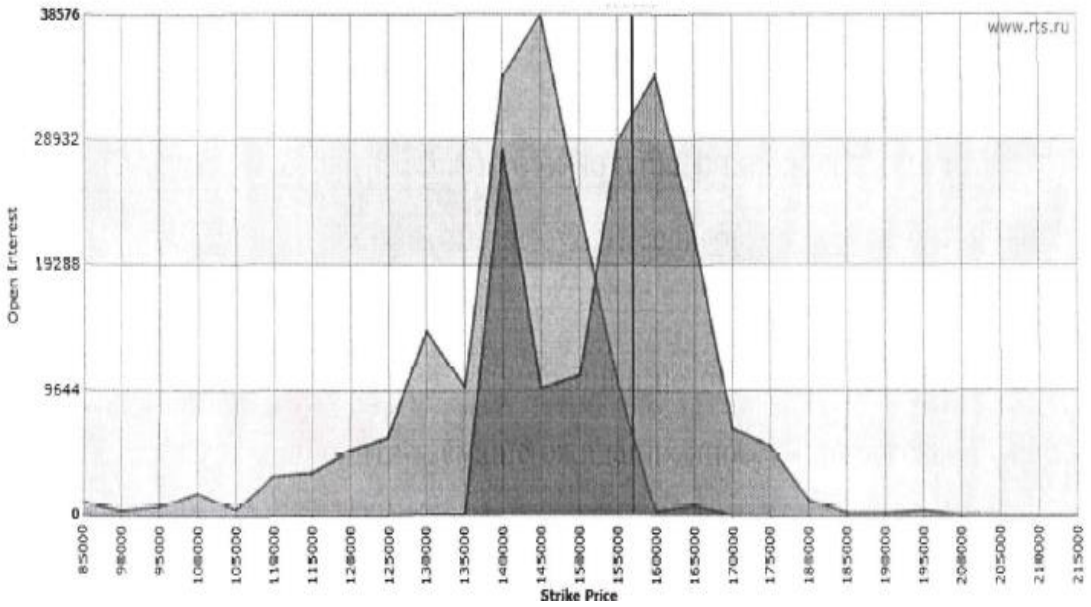
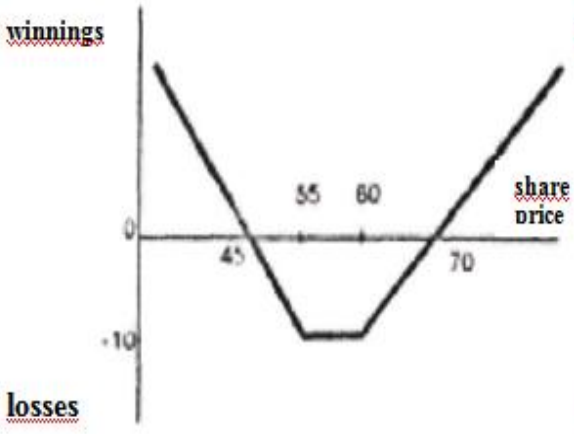


Figure 2. Open positions on option contracts for the BSE index futures contract with delivery in March 2017 (January 27, 2017)

An important combination for market participants is strangle. It is a set of call and put options for the same underlying assets with the same contract expiration dates, but with different execution prices. This combination is identical to the rack, but it is more interesting for the seller of the option, as it makes it possible to profit from a wider range of price fluctuations for the underlying asset, although the premium the seller receives is lower than for the strangle. Figure 3 shows the winnings and (losses) of the buyer, in Figure 4 - the seller of the strangle.



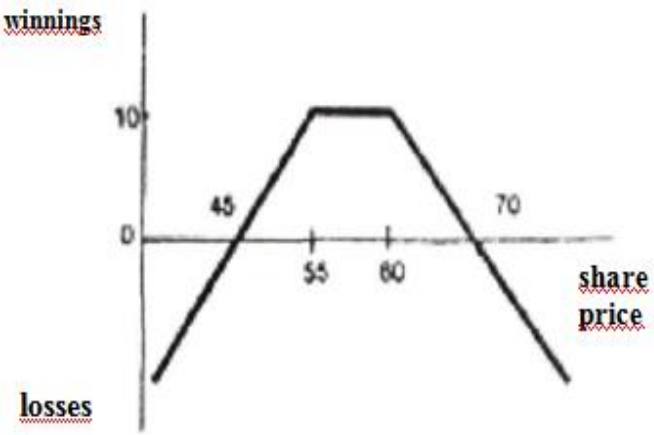


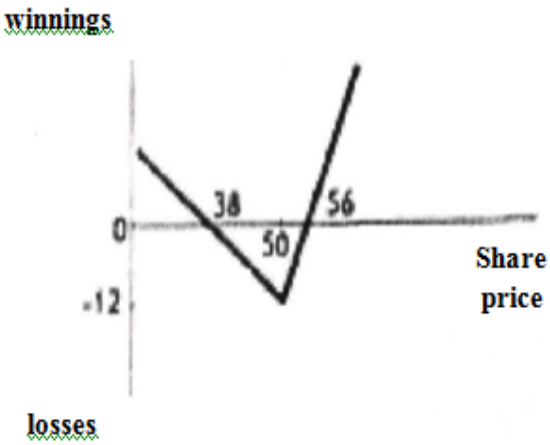
Figure 3. Profit (loss) of the buyer of strangle **Figure 4. Profit (loss) of the seller of a strangle**

The buyer's strangle is also called the bottom vertical combination, or the long strangle, and the seller's strangle is the upper vertical combination, or short strangle.

Strap is a combination of one put option and two call options. Expiration dates for contracts are the same, and execution prices may be the same or different. An investor can take a long or short

position.

As can be seen from Figures 5, 6, the graph of the stack is similar to the rack, but only the right side of the chart is at a large angle due to the purchase of two call options. Strap investor called a long rap, and the seller's rap - short.



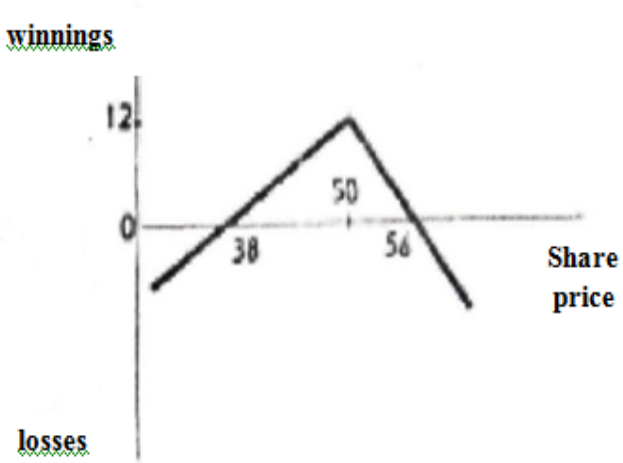


Figure 5. The buyer's profit (loss) **Figure 6. The seller's profit (loss)**

In the Azerbaijan market it is possible to apply the strategy of a long snap on the option for SOCAR shaeres with a strike price of 18,500, but the purchase of the call option should not be more than 400 manat, and the put option should not exceed 500 manat. The position, in our opinion, is interesting in connection with the events in Iran and the positive expectations from the international forum in Davos. Confirm our forecasts and investors' expectations, since most open positions are in the call option (Figure 7).

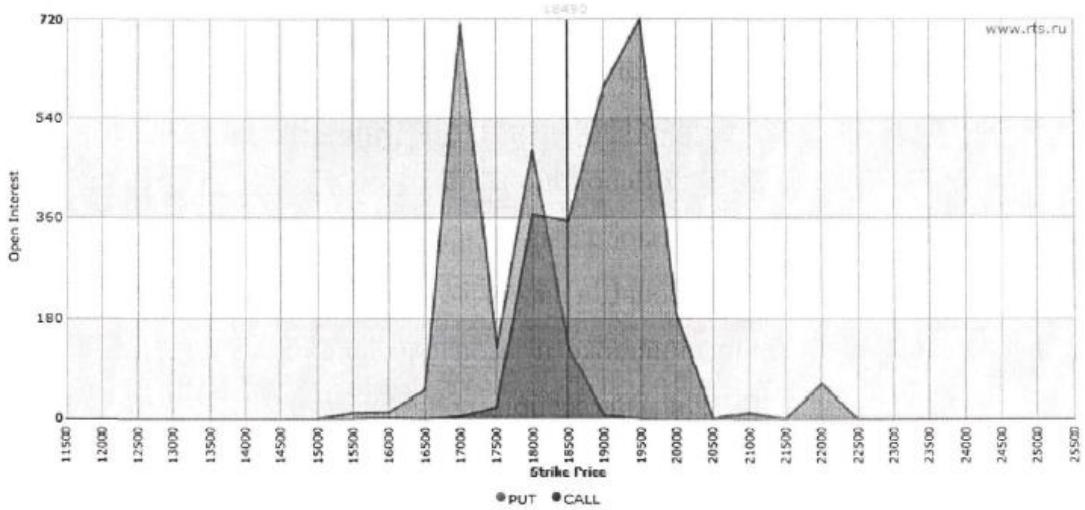


Figure 7. Open positions on option contracts for futures for SOCAR shares. Strike 18,500 (Jan 30, 2017)

The bull spread is formed from the acquisition of a call option with a lower strike price and the sale of a call option with a higher strike price. Contract expiration dates are the same. In the formation of such a strategy, a capital investment spread is required from the buyer, since the cost of buying a call option with a lower execution price will always be greater than the cost of buying an option with a higher execution price. Therefore, when an investor uses this strategy, they say that he is buying a spread. When the investor forms a bull spread, he calculates an increase in the stock price. The investor limits his losses and profits to a fixed amount. [32, P.143]

The bull spread can also be formed by acquiring a put option with more a low strike price and a put option with a higher strike price. With this strategy, unlike a combination of call options, the investor has a cash inflow when the spread is created. Therefore, when an investor builds this strategy, they say that he is selling a spread.

The opposite position of the bull spread is called the bear spread. The bear spread consists of buying a call option with a higher strike price and selling a call option with a lower strike price. The investor forms a strategy when he predicts a lowering of prices for the underlying asset, although he seeks to reduce his losses in case of his growth. Since the price of a long call is lower than the price of a short call, the balance of funds will be positive as a result. Therefore, when an investor uses such a strategy, they say that he sells a spread.

An important strategy for a hedger is the bear spread strategy, which can be constructed by selling a put option with a lower strike price and buying a put option with a higher strike price.

With this strategy, the investor incurs initial costs, since selling a put option is more expensive than buying a put option. In this situation, it is said that the investor buys a spread. The butterfly spread is formed from options with three different execution prices, but with the same expiration date of the contracts. It is built with the help of a long call option with a lower price for the execution of XI, a call option with a higher price for the execution of X3, and the sale of two call options with an execution price of X2, which is in the middle between XI and X3. Typically, the price of X2 is close to the current stock price at the time of making deals.

Spread butterfly requires the investor initial investment. The investor uses this strategy when he does not expect strong price changes in the underlying asset and low price volatility. The result of the strategy will be positive if the price of the underlying asset does not deviate much from X2, and negative if there is a significant increase or fall in the prices of the underlying asset.

So, the considered option strategies are only a small part of the opportunities that are used by bidders. Strategies can be used as speculations in the market and applied to portfolio hedging theory. Each of these strategies is applicable in the Azerbaijan derivatives market, but only on a limited number of instruments.

Thus, the author typologies hedging strategies on three grounds: the hedging concept, the type of financial instrument, the type of hedged risk, which made it possible to rank hedging strategies by segments of the Azerbaijan derivatives market and to justify the possibility of using different classes of hedging strategies in the Azerbaijan market as professional participants market of securities, and participants of the real sector of the economy.

1.3. Factors influencing the choice of a hedging strategy for risks

The Azerbaijan practice of hedging risks shows that over the past twenty years the attitude towards risks has seriously changed for Azerbaijan companies. If in the 90 years Azerbaijan companies tried to make money on everything, including stock speculation with raw materials and finished products, now, with the overall increase in the efficiency of Azerbaijan business, the task of ensuring stability and predictability of financial results comes to the fore. To fix and protect a favorable cost structure from the risk of fluctuations in world prices and thereby stabilize an acceptable level of profitability of the business becomes more profitable than trying to bargain for super-profits on international exchanges. In the management circles of Azerbaijan companies, there is growing awareness that using highly effective risk management technologies based on the latest developments in mathematical finance and applied statistics, it will be possible to solve such important corporate tasks as neutralizing fluctuations in prices for raw materials, equipment and finished products, on this basis, the stability of corporate cash flows and the predictability of general financial indicators, which, on the whole, will significantly increase the cost of business. As a result, the goals of long-term business planning and capitalization increase require Azerbaijan companies to develop and apply effective hedging algorithms-techniques for neutralizing fluctuations in world prices for commodities through the use of derivative financial instruments. This applies primarily to companies involved in the import of raw sugar, soybean, expoBSE of grain products, oil, natural gas, gold, silver, platinum, ferrous and non-ferrous metals, etc. In addition, purchases of non-exchange goods (for example, industrial equipment) abroad can also successfully hedge against currency risks. [39, P.155]

In order to build an algorithm for choosing a hedging strategy for market participants, it is necessary to classify participants in the financial market and determine the factors that influence the choice of a hedging strategy. Table 2 presents potential hedgers.

Table 2

Classification of participants in the financial market – hedgers

Category	Brief list of sectors	Notes
Consumers	Airlines, transport companies, utilities, shipping companies	The size of the operating costs of 15-40% is determined by the price risk
Processing companies	Oil refining, steelmaking, aluminum and copper production	Price risks arise from a variety of products, and also create an uncertainty in the size of the profit
Manufacturers	Mining companies	Business is characterized by a constant amount of costs. While the price risk extends to 100% of revenue. Hedging is usually used only to ensure stability in the implementation of certain projects
Exporters, importers	Trading companies	Price risks arise on a wide range of products. Hedging is used to protect profits
NPF, mutual fund, trust management	Management companies	Constantly faced with market risks, hedging is an important way to neutralize them both in the course of their own operations and for customers
Financial Institutions	Banks	
	Brokerage companies	The emergence of new low-risk instruments related to hedging in the derivatives market
	Private investors	Neutralization of portfolio risk depending on the market situation

Table 2 shows that hedgers can be classified into two main groups - financial companies and companies in the real economy.

Companies in the real sector of the economy are those participants in the financial market, most of which do not have analytical agencies for forecasting prices for goods, interest rates, exchange rates. Therefore, it is much more profitable for them to reduce their risks associated with the increase in prices for these variables, which allows them to ensure stable cash flows and predictability of key financial indicators. Based on this, they will adhere to the traditional concept, the main purpose of which is to minimize risk. Also, the hedging process will solve the following tasks facing them:

• significantly reduce the stock, currency risks associated with the purchase of raw materials and the supply of finished products. As a result, profit fluctuations will decrease and the manageability of production will improve;

• reduce the risk and costs of raw materials;

• ensure continuous price protection without having to change the stock policy or enter into long-term futures contracts;

• simplify the attraction of credit resources: banks take into account hedged collateral. Contracts for the supply of finished products are also taken into account in the analysis of creditworthiness;

• hedging releases the company's resources by restoring the reserves of future expenses.

If we analyze each of the categories of companies in Azerbaijan, we will identify hundreds of organizations - potential hedgers, 30% of which understand the need to reduce price risks, but do not yet see an acceptable infrastructure to provide such a mechanism or see it as unprofitable because to form a hedging model need highly qualified specialists, for whose payment the profitability of the hedge will not be enough.

Financial companies are participants of the financial market, for whom trading in securities is the main activity. Therefore, for them the main task is to preserve the value of the portfolio, which is most widely disclosed in the portfolio concept of hedging. The investor can not completely abandon the favorable development of events, otherwise his activity becomes meaningless. Therefore, he uses a hedge to create the best combination of risk and return. For example, he can fix one of the types of risk in order to earn on the other. [21, P.119]

As we see from the table, each type of business has its own goals and objectives, and each company faces different types of risks. Not always companies only need to eliminate the adverse effects of risks, often in practice, business requires the construction of a perfect hedge. Before building hedging strategies, the management of the company must take into account the factors that influence the choice of strategy:

1. Availability of exchange instruments.

2. Liquidity.

3. Market conjuncture.

4. Infrastructure.

5. The urgency of the position.

6. Costs for position hedging.

7. Monetary resources needed to secure positions.

In accordance with these factors, it is possible to distinguish the hedger action algorithm:

1. Definition of hedging objectives (full or partial neutralization of market risks).

2. Identification of risks.

The management of the company must determine the market risks to which the company is exposed. Market risks, such as interest rates, exchange rates, stock prices, commodities. Most market risks can be hedged by the availability of developed and efficient markets, where these risks are redistributed among the participants.

The companies proceed from the fact that they will be rewarded for the risks associated with the main production activity. Further it is necessary to analyze these risks. This is not just a calculation of their monetary expression, but an economic analysis of the prospects for the movement of the market and a comparison of the magnitude of possible changes with the scale of the company's operations.

3. Analysis of the necessary market infrastructure.

A very important aspect for the company's decision to hedge is the futures market infrastructure, which includes the availability of the necessary tools in the derivatives market, the broker's ability to execute the required volume of the application and the ability to control positions using modern software.

4. Estimating the cost of hedging, taking into account possible losses in case of rejection of a hedge.

The formation of hedging strategies requires financial costs from market participants, but economically justifiable costs are acceptable, whereas actual losses

are not. In this regard, it is important to note that strategies based on the use of derivative financial instruments are more acceptable to market participants due to low costs and high liquidity in comparison with traditional ways of neutralizing risks.

5. An estimation of monetary resources necessary for maintenance of positions. Depending on the type of contract and market segment, there is a guarantee provision of positions, which is blocked by the exchange to reduce the risks of default on the contract.

6. Forecast of changes in market conditions.

Expectations of the company about the likely directions of price movement on the asset. The company has its own forecasts for changing the market conditions of the underlying asset and is making plans for the future, taking into account these market movements, although in some cases such views may be unreasonable and ultimately lead to low effectiveness of the hedging process.

7. Development of a hedging strategy.

The hedging strategy is chosen depending on the hedging objectives, the hedge volume and the forecast of market prices.

8. Evaluation of the effectiveness of hedging.

The most common goal for hedging operations is to achieve the planned financial result, but with growth there will be super-profits, and with a fall in price, losses.

The effectiveness of the hedge is calculated by dividing the resulting financial result by the planned one.

The effectiveness of the hedge = A / B, where A - the resulting financial result, B - the planned result.

A completely different goal is pursued by companies whose main task is to maintain the current financial situation. They can use a portfolio approach to hedging.

Examples include the activities of exporting / importing companies that work with foreign exchange assets. They would like to hedge their operations from the currency component of the business. The portfolio will be perfect, which is completely independent of external price changes. An insufficiently hedged portfolio

will be exposed to the risk of profit or loss when changes in the underlying asset market in accordance with the traditional approach. [5, P.46]

From the assessment of hedging effectiveness, the company should determine an acceptable risk-return ratio when using hedging, which will also affect the hedging strategy.

When conducting hedging operations, the company sets a goal to insure its possible losses, but hopes to still get profit.

After implementing this algorithm, the hedger generates and sends a request for a deal to the broker.

Depending on the urgency of the hedging operation, it is necessary to transfer the positions from one contract to another, taking into account the expiration date of the contract.

Given the construction of complex hedging strategies consisting of a combination of financial instruments, daily monitoring of the hedger's position is required and its adjustment depending on market factors.

Thus, the developed hedger algorithm for choosing and implementing a hedging strategy based on an analysis of factors influencing the choice of strategy allows standardizing the procedure for constructing hedging strategies in order to reduce the overall level of risk in hedging operations and to reduce the financial risks of Azerbaijan companies through hedging in the market derivative financial instruments.

CHAPTER II: ANALYSIS OF MARKET CONDITIONS FOR THE CONSTRUCTION OF HEDGING STRATEGIES IN VARIOUS SEGMENTS OF THE AZERBAIJAN DERIVATIVES MARKET

2.1. Market conditions for hedging risks in the stock market segment of derivatives

The Azerbaijan market for derivative financial instruments has been actively developing since the beginning of 2007. Currently, development has been replaced by rapid growth in all areas. The market has reached a level where it is no longer possible to list all the changes in all segments. Therefore, we note the main points.

In early 2007, the law on the protection of futures deals was finally approved, which significantly simplified, and, most importantly, secured the work of investors with derivatives. The effect did not take long to wait: at the disposal of hedgers appeared many new interesting contracts.

Indeed, just four years ago the Azerbaijan market of futures and options was presented at best by two dozen instruments from one or two market segments. Today we see a completely different picture. Only in the FOREX futures market in 2008 the number of instruments was about 70, that is more than three times as compared to the previous year. Significantly increased and trading volumes on the exchange. The manat turnover increased by 177% compared to 2007. In absolute terms, the BSE exchange is still the undisputed leader. At present, BSE FOREX is traded with derivative financial instruments with the basic assets of the Baku Stock Exchange (BSE) index, industry indices, stocks and bonds of Azerbaijan issuers, loan bonds, foreign currency, the average AzIBOR one-day loan rate and the AzPrime three-month loan rate, as well as goods - Brent crude oil, diesel fuel, gold, silver, sugar, wheat and even the weather. For example, FORTS accounted for almost 64% of the total turnover of the Azerbaijan derivatives market. [37, P.197]

Organized changes in the BSE Fort 2010 exchange gave a fundamental impetus to the development of the urgent section of the exchange. Transformation touched the very process of organizing trades. Now the trading time is extended, and FORTS introduced an evening trading session, which will take place until midnight.

Radical changes also affected the risk management system. First, the BSE Exchange introduced a system of margin positions, and then an intermediate clearing. As a result, the potential risks of investors have significantly decreased, and the work with urgent instruments has become "cheaper" and more reliable. For example, the size of the collateral for the majority of contracts has significantly decreased, and the approach to accounting for the portfolio as a whole has also changed. As a result - a significant reduction in the costs of the investor, as well as a significant increase in the liquidity of virtually all contracts, despite the crisis trends in the global economy. If we perform a comparative analysis of the tables (Appendix 1), we see that in the fourth quarter of 2008 both the trading volume and the number of open positions declined by almost 70% compared to the third quarter of 2008. There are many reasons for this - from increased volatility and ending simply the loss of funds from bidders due to forced closing of positions by brokers. Figure 8 clearly shows the impact of the crisis on the derivatives market: first of all, a 5-fold decrease in price, an increase in volatility by a factor of 3, and a drop in volumes by a factor of tens.

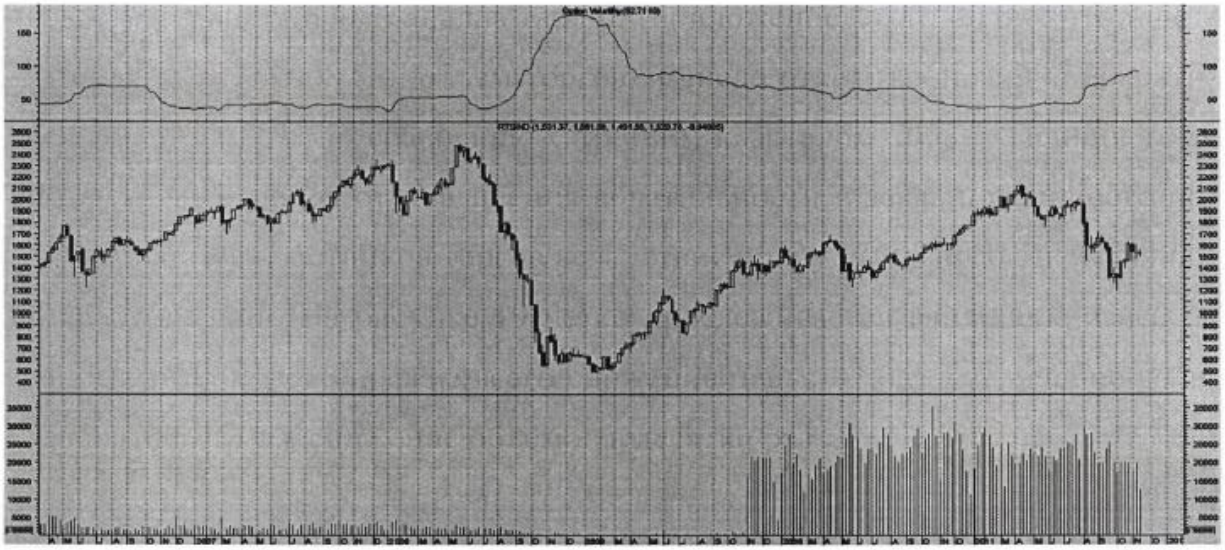


Figure 8. The futures price chart for the BSE index (middle window), its volatility (the upper window) and the volume (the bottom window) (February 2006 - November 2017).

According to the results of 2009-2010. the situation not only stabilized, but also opened great prospects for the organizers and bidders. In general, we can summarize: BSE FORTS with its system of guaranteeing and risk management not only with dignity sustained the crisis of 2008, but also dragged some of the

speculators from the stock market segment of the Baku Interbank Currency Exchange (BICE), as evidenced by the volume of trades that dozens of times exceeded the pre-crisis level.

Basic assets that can be hedged using derivatives:

• shares, as well as options and futures for shares and indexes are allowed to hedge only by shares, futures and options for shares, indices;

• Exchange commodity assets, as well as futures and options on them are allowed to hedge only futures and options for exchange-traded assets;

• Foreign currency, as well as futures and options on it are allowed to hedge only futures and options on foreign currency or securities nominated in the same foreign currency.

In addition to the additional advantages that the managers and clients of NPFs can get from working with derivatives derivatives, activating the MC on the futures market will lead to an increase in liquidity on it and, as a result, will increase the attractiveness of derivative financial instruments for all categories of bidders.

Consider those instruments that are currently available in the Azerbaijan derivatives market, the basis of which are equity assets.

The main instrument in the stock market of the derivatives market of Azerbaijan for the hedger is index futures. Index futures are the most liquid instrument of the Azerbaijan derivatives market. In just 12 months before these instruments, in the total trading volume, it almost doubled, mainly due to the futures contract on the BSE index. However, this contract was constantly considered by Azerbaijan companies, in particular hedgers. Practically from the moment of launch it was clear that the contract would be highly liquid, since index hedging tools have many advantages over other instruments.

Futures and options on the futures on the BSE index provide great opportunities for hedging risks on the portfolios of shares and for work on the Azerbaijan stock market. Derivative financial instruments on the BSE index are available for a large audience of hedgers, ranging from Azerbaijan companies with small capitalization and ending with large state monopolies.

Futures on the BSE index are standard contracts that are executed not through the delivery of a basic asset, but by cash settlements. When concluding transactions with futures on the BSE index, bidders undertake to pay or receive a difference (variation margin) between the transaction price and the futures contract execution price. The strike price is determined based on the average BSE index value for the last trading hour on the last trading day of the futures contract.

The ability of portfolio managers as the main hedgers of the Azerbaijan market, which gives options, futures for the BSE index:

• the possibility of hedging risks on equity portfolios;

• an alternative to operations on the spot market for the formation of a portfolio of shares, oriented to the structure of the BSE index;

• low commission costs (in particular, no depository fee);

• free lending;

• Increased efficiency of management of equity portfolios that do not coincide in structure with the BSE index;

• the possibility of a "short" sale of a whole portfolio of shares at once, since the sale and purchase of futures are symmetrical and equally simple operations;

• trading in the volatility of the BSE index;

• creation of a synthetic futures on the stock index of the "second echelon";

• construction of various arbitrage and hedger strategies using futures and options on the BSE index, as well as futures and options on individual stocks of Azerbaijan issuers on the FORTS futures market. [27, P.71]

In 2012, the share of index instruments accounted for more than half of the volume of derivatives market transactions. By and large, this is exactly what the organizers of bidding have done. Pros and cons are inherent in each of the two indicators. For example, the BSE index is traditionally calculated in dollars at the prices of the classic BSE market, which means that it carries an additional risk in the form of instability of the US currency. On the other hand, it was this indicator that became the benchmark of the Azerbaijan market. The fact that the list of shares for the calculation of the BSE index contains much more securities can be perceived in

two ways. Nevertheless, whatever the experts say, the last word is still for the bidders. The expansion of the range of instruments creates new opportunities for building risk hedging strategies in the Azerbaijan financial market.

On the RTS FORTS exchange 6 index futures are traded, for 3 of them the basic asset is the Azerbaijan stock market - this is the futures on the BSE, BICE and BSE Standard. It is possible that the futures on the BICE index should replace the futures on the BSE Standard, as according to the RTS Standard, only the liquidity is calculated, and the BICE index is calculated for almost all securities of the Azerbaijan stock market and is more liquid.

In 2010-2017. for investors, the range of industry indices expanded. At the moment, futures on the index of the oil and consumer sectors of the market are traded on the BSE FORTS exchange. Since, unlike the BSE index, these indicators are calculated on the basis of a more modest list (from 10 to 12 securities), futures on them are potentially more attractive for arbitrage. The fact that futures contracts were first introduced from these 7 industry indices to these indicators are not accidental. The consumer segment is extremely interesting not only for speculation, but also for hedging, as it is one of the most dynamic. The oil and gas segment is invaluable for hedgers due to the ability to insure risks when working with the shares of relevant companies, and also to protect against general instability in this industry. However, the development of the segment of index contracts is just beginning. There is still a minimum of starting futures for the remaining industry indices.

A very important innovative tool for the BSE FORTS market is the futures on the volatility index.

The essence of derivatives on VIX is to track the overall volatility of the stock market, and futures and options do not always follow the dynamics of the underlying asset.

The settlement price and the price of the last futures deal are interrelated, which indicates the availability of market makers on the market, given the low liquidity of the contract, since the price of the last transaction corresponds to the estimated price of the contract.

Due to the pronounced negative correlation between the level of volatility and the price of the futures contract on the BSE index (Figure 9), the contract on the VIX is ideally suited for hedging positions.

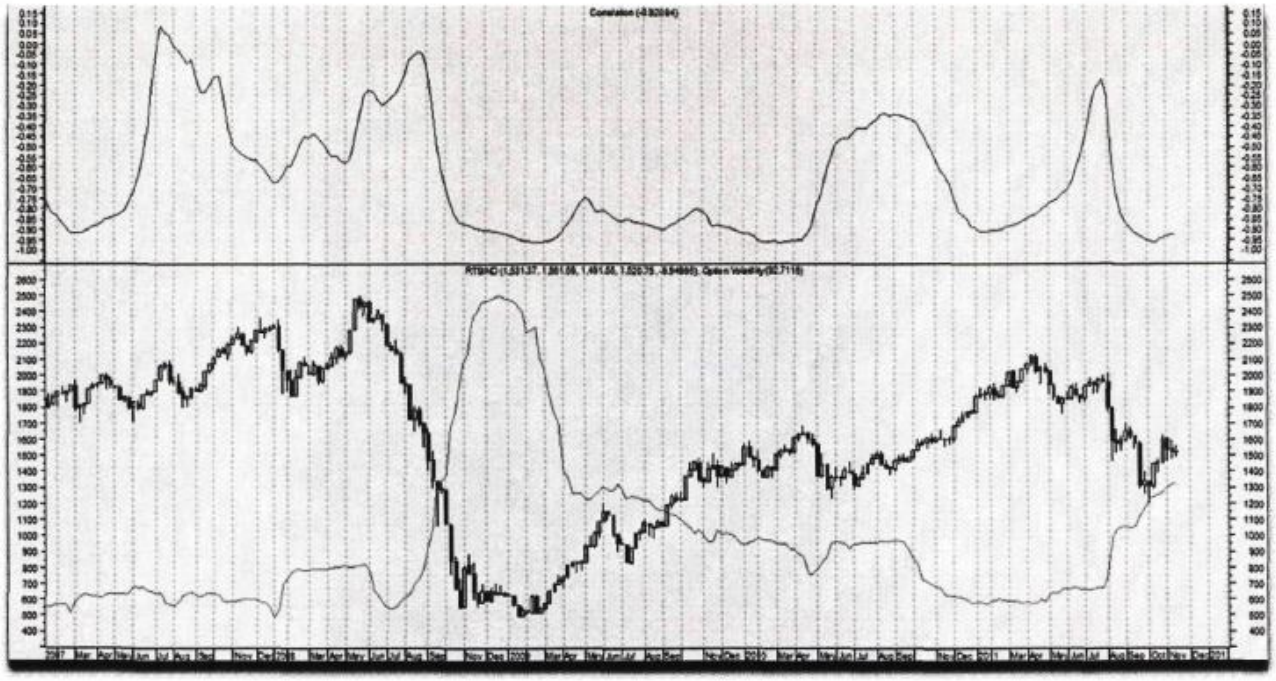


Figure 9. Correlation of the futures price chart for the BSE index and volatility, January 2003-December 2017.

Until recently, tools for stocks were the most in demand in the futures market. Now the situation has changed, and their share in the total turnover of FORTS has been reduced by almost half. But this does not mean that investors have lost interest in this type of derivatives. If earlier participants could only operate with derivatives on highly liquid shares of the Azerbaijan stock market, now contracts have also appeared on the securities of the second tier. Although the share of these contracts is low - only 8% belong to the general open interest in futures for the shares of the second tier. We should not forget that the second-tier paper also occupies a rather modest position in the underlying asset market, so it is unlikely to expect high turnover from their derivatives.

If you evaluate the quality of derivatives on equity instruments, you should analyze the following indicators: futures volatility, price correlation between the underlying asset and futures, the cost of hedging. [42, P.102]

The analysis used the price charts of the most liquid instruments of the PFI stock segment, such as futures on the BSE index, futures for SOCAR shares, National bank, as well as illiquid instruments. As a result of the analysis, the following conclusions can be drawn:

• The correlation analysis of the derivatives market instruments and the spot market showed (Appendix 1, 2) that there is a high correlation between the underlying assets and futures contracts on the Caddock scale, which indicates the presence of not only speculators but also hedgers and arbitrageurs on the market. The use of such a tool as correlation was complicated, since there are no stock derivatives on the BICE stock exchange, but there is a formed market of the underlying asset (Spot), and there is a well liquid market on the RTS stock exchange, and the market of the underlying asset (spot) is much inferior to the BICE market. Therefore, when analyzing the correlation of the price of the underlying asset, the trading data on the BICE exchange was taken, and the derivatives market was taken in the FORTS market. In general, the correlation over 0.5 is moderate, but there are seasonal fluctuations associated with the supply of the underlying asset, since on the last trading day all participants who do not intend to enter the supply close the previously opened positions, liquidity falls, the price goes into the situation of "backwardness";

• The market for these instruments is in most cases in the situation of contango, which gives additional opportunities for constructing strategic hedges in the Azerbaijan derivatives market;

• the leverage is 1/3, 1/10, the guarantee coverage of the contracts was reduced due to the introduction of margin positions;

• The problematic part of this segment is second-tier instruments, there is very low liquidity, which is caused by low liquidity of the underlying assets themselves.

2.2. Structural analysis of the commodity segment of the derivatives market in order to construct hedging strategies

At present, in the Azerbaijan practice, the financial assets of the stock segment are mainly hedged. As for the financial assets of the commodity segment of the

derivatives market, for a number of objective reasons, participants do not use this set of derivative financial instruments.

In order to understand the reasons, it is necessary, first, to study the structure of the commodity segment of the derivatives market in Azerbaijan; secondly, to investigate the level of liquidity and the availability of necessary infrastructure and, thirdly, to assess the availability of bidding for participants.

The commodity segment of the Azerbaijan derivatives market consists of 27 commodity exchanges registered in the Azerbaijan. Commodity exchanges that have a license can be classified into three types:

1) really not functioning. The exchanges have only the license of the Financial Markets Control Chamber (FMCC) but do not perform the functions of the auction organizer;

2) performing the function of trading platforms, i.e. everyone can place an order for the purchase or sale of goods. There is no standardization here, and the level of liquidity, respectively, is extremely blurred, but the instruments for trading are as much as the imagination of trading members allows;

3) exchanges that organize trading at an acceptable level for the hedger, i.e. for participants in the organization of bidding there is the necessary infrastructure, standardization of instruments, liquidity and other necessary parameters.

Only the third category of organizers of the urgent commodity market, namely the BSE, BICE, the Baku International Commodity and Raw Materials Exchange, the International Exchange of the Oil and Gas Complex, the Baku Energy Exchange, the Baku Stock Exchange, is subject to analysis for hedging risks.

In order to conduct a comprehensive comparative analysis of the commodity segment of the derivatives market in Azerbaijan, it is necessary to identify the parameters:

1) availability of tools;

2) liquidity;

3) infrastructure;

4) the cost of participation or membership;

5) correlation with international derivative financial instruments for commodity assets.

If we analyze the contract schedule for rice croup, it becomes obvious that liquidity is at a low level. The agricultural sector is heavily influenced by seasonality, so by the time of rice harvesting in southern Azerbaijan, there are expectations of increasing the liquidity of this contract.

A comparative analysis of the history of development of the Chicago Mercantile Exchange shows that the BICE stock exchange has chosen the same path of development of the commodity section. The Chicago Mercantile Exchange also attracted to the sector first businesses that are not interested in speculation in the market, but hedging risks, and then came to the market speculators who added liquidity.

Thus, the BICE exchange makes logical and objectively justified steps to organize trading in derivative financial instruments for commodity assets.

Brent is a reference grade of oil in the European oil market. It is from the quotations of this grade that the price of selling Azerbaijan Brent oil depends, which differs by a floating amount, called the differential. [13, P.182]

The introduction of the futures contract for Brent crude oil is caused by the need to hedge the differential value in the face of falling oil prices around the world.

The use of futures contracts for Brent crude oil allows oil companies to fully hedge their positions and level out changes in oil prices, which is extremely important in the current market conditions. Separately, it should be noted that the costs of Azerbaijan companies for hedging can be fully attributed to the cost of finished products, since all operations are conducted in the Azerbaijan jurisdiction for manats. Thus, hedging operations of Azerbaijan participants can be transferred from London to Baku.

The high liquidity of the underlying asset allows us to positively assess the implementation of this contract and talk about the emergence of a new high-quality tool for private and institutional investors in the commodity assets sector.

Futures contracts for oil products allow participants of the Azerbaijan fuel market (producers and consumers of diesel fuel) to insure themselves against negative price fluctuations. In addition, these contracts allow traders to implement various trade and arbitrage strategies.

In our opinion, this futures contract is a speculative asset, because there is no relationship between fixed-term contracts for the commodity segment of the derivatives market and the spot market in Azerbaijan. This contract is intended primarily for wheat exporters, but not for commodity producers, for the following reasons: in general, with liquidity, the BSE Forte commodity market futures contract is more affordable and cheaper in comparison with the Chicago contract. Development of trading in the futures contract for wheat on BSE Fort will be facilitated by the normalization of pricing on the spot market, subject to Azerbaijan's export of grain.

As for the current situation, exporters can use tools to hedge wheat prices through the futures on the BSE index, and wheat producers can not because the spot market of this asset and the futures market do not correlate.

When analyzing the contract for soybeans, the opposite situation can be traced. In Azerbaijan, the spot market for soybeans correlates with the contract on the Chicago Mercantile Exchange, as soybeans and processed products are imported to Azerbaijan. Therefore, the contract for soybeans has great prospects to become not only a speculative tool, but also an instrument for use by hedgers.

The emergence of new settlement futures contracts was largely due to the successful entry of futures on the RTS index, Brent crude oil and low liquidity of delivery contracts for diesel fuel.

Consider a segment of precious metals. Contracts for silver, gold, palladium appeared on the BSE exchange as one of the first and are currently used by both speculators and hedgers, because without distortion they reflect the global conjuncture of the precious metals market.

Figure 10 shows that the correlation reaches high values on the Cheddock scale, which indicates a high interrelation between the instruments and, consequently, the high liquidity of the instrument and the interest of all bidders, including hedgers.

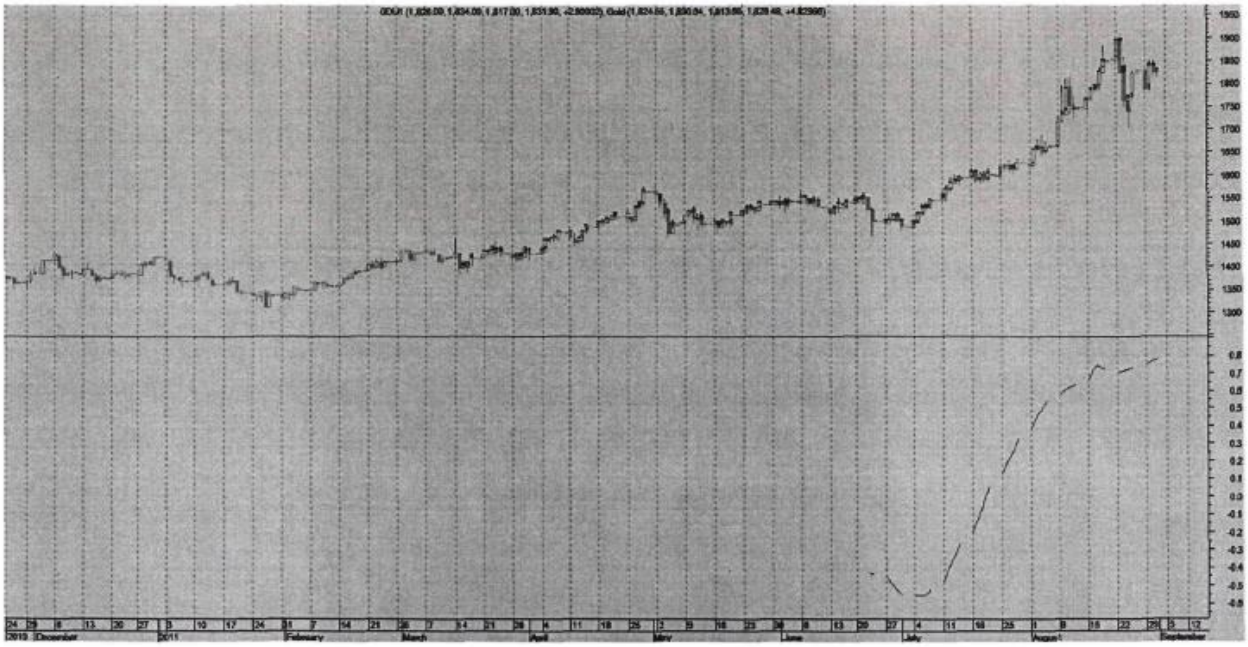


Figure 10. Correlation of gold futures contract on CME and on BSE FORTS (June-November 2017)

Apart from BSE Forte, no Azerbaijan stock exchange offers contracts for precious metals. Contracts for precious metals are a convenient mechanism for hedging the currency component of the company's business, bank or individual. With the help of these tools it is possible to hedge the risks associated with instability in world markets. For example, in 2008, the purchase of gold could hedge the risks of all of the stock and commodity assets. The Azerbaijan analogue of the global gold contract, as can be seen in Figure 10, is significantly associated with changes in the world market. [25, P.17]

The energy segment of the derivatives market is relatively new. The BSE Exchange several months ago introduced contracts for electricity, which was facilitated by the integration of the BSE exchange with the International Energy Exchange (ARENA). The appearance of these contracts is the final stage in the reform of the electricity sector and the establishment of interconnections between the real and financial sectors of the economy in this segment.

Futures contracts for electricity have great prospects, since electricity is one of the main elements of the costs of companies whose price changes need to hedge. The

need for risk hedging is also due to the high volatility of the wholesale electricity markets, since they are formed on the basis of a rather large number of factors, such as the price of fuel used for the production of electric energy, the type of fuel on which generating equipment, repair schedules, networks, the introduction of new capacities, the water content of rivers, etc. A direct consequence of price volatility are high price risks for participants in this market.

In our opinion, the exchanges have different views on the development of the exchange segment of the derivatives market for commodity assets: one is directed at real bidders, but is developing very slowly, and the other is on speculation by contracts, but development occurs many times faster. Now they complement each other, as a result of which the more effective type of development of the exchange commodity market in Azerbaijan will be revealed empirically, and if the merger takes place, then one mechanism will be imposed on another mechanism, and the market, in our opinion, will lose more at this stage than will acquire. However, another development option can not be ruled out: when integration will provide a balanced mechanism.

It is possible to draw the following conclusions:

1. In Azerbaijan there is as yet no developed mechanism for hedging price risks in the commodity segment of the derivatives market.

2. Commodity assets are more speculative instruments.

3. From the point of view of the hedger, the product segment is only developing and does not fully perform its functions.

4. It is the segment of commodity derivatives that is most promising, since it is retarded. The merger of the BICE and BSE exchanges should help increase liquidity in the commodity segment of the derivatives market, but the organizers of trades need to take into account the positive aspects of both mechanisms.

5. The majority of Azerbaijan exchanges that organize trading in the commodity segment are at the stage of attracting liquidity to the sector, i.e. there are enough tools for trading, the main participants are also ready for trading, but hedgers' interest in Azerbaijan instruments is low. [4, P.164]

2.3. Investigation of institutional and economic conditions for hedging financial risks by Azerbaijan companies in the money segment of the derivatives market

The sharp weakening of the manat against major world currencies changed the structure of the FORTS turnover. The futures contract for a couple of dollars / manat has come to the fore. This tool is attractive not only for hedgers and speculators. It is interesting even for individuals who want to keep their savings in foreign currency. If a few months ago, the spread for buying and selling dollars in exchange offices did not exceed one manat, then recently it reached 4 manats, while in the futures market the spread for March futures for a couple of dollars / manat is approximately 1.5 kopecks.

Low guarantees in the currency segment of the Azerbaijan market made derivatives for the currency one of the most attractive instruments. In this regard, BSE Forte introduced a futures contract for a pair of euro / dollar, dollar / manat, euro / manat. The first day of trading showed that derivative financial instruments for foreign exchange contracts are actively used by market participants, including hedgers. This shows the liquidity of the instrument.

On the urgent Azerbaijan market of BSE FORTS, two new tools of the currency market were added: futures for the Australian dollar / US dollar exchange rate and futures on the pound sterling / dollar rate. The appearance of these contracts has expanded the already existing opportunities for foreign exchange operations. In addition, with the introduction of these pairs on BSE FORTS, you can talk about the appearance of a real alternative to FOREX.

In most currency transactions, the US market uses US dollars or euros. Historically, the US dollar has a higher liquidity than the euro. As a result, the market of dollar instruments is developing faster. Prior to the appearance of contracts for the euro / dollar and euro / manat on FORTS futures and options were applied to the US dollar. In January 2018, the average daily volume of futures trading on the dollar with the calculation in March was about 3.2 billion manats. On some days, 20% of the total turnover of the derivatives market was focused on trading contracts for foreign currency.

With the development of foreign economic relations of Azerbaijan companies and in the process of the formation of the euro, arose the need for the emergence of various instruments for the second world currency. The introduction of new futures makes it possible to implement the most optimal strategies for managing the risk of changing exchange rates. In connection with the policy of the CBR of the bi-currency basket as an operational benchmark in the foreign exchange market, the emergence of contracts for euro / dollar and euro / manat allowed to hedge completely the risks of changes in the exchange value of the manat against major currencies. For Azerbaijan companies and banks, this is an excellent opportunity to optimize financial flows.

At the same time, the turnover of derivatives, which are based on interest rates, showed a dynamic growth in 2010. In principle, we can say that it was thanks to these contracts that the share of the money segment grew almost twofold. Meanwhile, instruments for interest rates have existed for some time and on another trading floor - in the urgent section of the BICE, where they are also in demand. The interest of the participants to them is quite understandable. In the summer of 2008, the American market, like the rest of the world, shook the mortgage crisis. As a result, on the one hand, there was an urgent need to hedge the risk of interest rate changes, and on the other, speculation with these contracts became a good source of profit. [41, P.196]

In early July 2017, interest rate contracts were launched on the MICEX derivatives market. The base asset is the AzONIA (AZN OverNight Index Average) rate. The settlement futures for the 1-month average interest rate AzONIA, designed in analogy with the contract for the average rate on funds, helps to hedge the overnight rate. His basic asset is the arithmetic average of AzONIA for a calendar month (interest period). In fact, the instrument acts as a standardized alternative to the OIS market (Overnight Index Swap), because the sequence of such contracts can approximate the corresponding interest rate swap. By opening a futures position and holding it until the execution date, the market participant, when performing corresponding operations in the spot market, obtains a result similar to providing or receiving one-day interbank loans during the settlement period at the average interest rate fixed in the opening price of the position. The contract on the average rate of

AzONIA enables you to hedge payments on overnight loans during the settlement period.

Another new instrument of the money segment of the derivatives market, futures for the 3-month fixing of OIS based on the AZONIA rate, is practically a FRA (Forward Rate Agreement), since it allows fixing the future value of the rate on a 3-month OIS with standard settlement dates. The contract acts as an analogue of the futures for the euro / dollar and already circulating on the derivatives market of Azerbaijan on the AzPrime rate.

The new contracts significantly expanded the opportunities for bidders to minimize interest risk, given that the rate of AZONIA is gradually taking the place of a recognized indicator of the Azerbaijan money market.

Futures contracts on the value of the rate on short-term loans are derivative financial instruments of the Azerbaijan inter-bank loan market. The basic assets of these contracts are the main indicators of the Azerbaijan short-term credit market, as they are calculated on the basis of rates of short-term loans provided by the most authoritative and financially stable banks of the country. These contracts are settlement payments: they are executed by means of cash settlements, and not by delivery of the underlying asset.

Futures on the average rate of interbank one-day credit is a standard settlement contract based on the average rate of a manat one-day loan on the Azerbaijan Interbank Market AzIBOR - Azerbaijan Inter-Bank Offered Rate (AzIBOR overnight) or AZPrime - Azerbaijan Prime Offered Rate (AZzPrime overnight).

Futures on the three-month loan rate is a standard settlement contract, the basic asset of which is the manat three-month loan rate on the Azerbaijan Interbank Market AzPrime Rate - Azerbaijan Prime Offered Rate. The foreign counterpart of this contract is the futures on the three-month deposit rate in US dollars. London Inter-Bank Offered Rate (LIBOR) is the first in terms of trading volume among all futures for short-term rates. As a result, in August it was possible to observe record turnover on these instruments, reaching 1.5 billion manats. At the end of the year, the total volume of trades on contracts from this segment increased by 38.7%, which is second

only to the increase in derivatives by indices. Thus, it can be concluded that money market instruments have found their niche and further development is just a matter of time. [29, P.134]

In 2017, the growth of turnover of exchanges did not stop, new types of contracts appeared, so that soon it would be possible to find a tool for almost any purposes and hedging strategies.

The contract has great prospects, if we take into account the experience of the Chicago Mercantile Exchange, in which the derivatives to the basket of bonds are accepted as benchmark (benchmark) for the fixed-income instruments market.

Thus, long-term interest futures are convenient instruments for hedging interest risk for a portfolio of bonds for several reasons:

• prices for basket futures for Mortgages and Credit Guarantee Fund bonds (MCGF) are closely related to prices on the MCGF spot market;

8. do not require high transaction costs-only the collateral is paid for in the position; for example, the cost of occupying a futures position for a two-year basket MCGF with a nominal value of 1 million manats is only 30,000 manats (3%);

7. Futures on the basket MCGF - liquid instruments with transparent pricing and risk management system.

Thus, the author identifies the specifics of institutional and economic conditions for hedging financial risks in the Azerbaijan derivatives market:

1) advanced development of the stock market segment of derivative financial instruments (Table 3):

Table 3

Structure of the Azerbaijan derivatives market by segments in 2017

Derivatives market segment	**Share of the segment in the derivatives market by trading volume,%**
Stock	81,98
Monetary	17,13
Commodity	0,9

- Trading volumes account for more than 80% of the total turnover of the derivatives market;

- The stock market in most cases is in the situation of contango, which creates additional opportunities for building hedging strategies;

- Increase in liquidity several times in the post-crisis period;

2) increase in the use of option contracts in hedging transactions;

3) Active introduction by stock exchanges of contracts for commodity derivative financial instruments in order to attract hedgers as the main participants of the derivatives market.

In the Azerbaijan market, conditions for hedging financial risks of commodity assets are currently limited, therefore, term instruments are more speculative, and for hedging operations, Azerbaijan companies are forced to use derivative financial instruments for commodity assets of foreign exchanges;

4) increase in the concentration of trading volumes through the pooling of exchanges.

Accounting for these peculiarities will help improve the measures of government regulators and organizers of trades in the Azerbaijan derivatives market with respect to hedging transactions, as well as market participants - hedgers.

CHAPTER III: DEVELOPMENT OF HEDGING OF FINANCIAL RISKS BY AZERBAIJAN COMPANIES IN THE MARKET OF DERIVATIVE FINANCIAL INSTRUMENTS

3.1. Identification of quantitative and qualitative characteristics for comparison of market conditions of hedging in the national market

For the purposes of a comparative analysis of the derivatives market in the structure of the developed and developing markets, it is necessary to single out the parameters for comparing exchanges and to identify the reasons for the lagging of the domestic derivatives market from foreign ones. Parameters will be viewed from the point of view of the Azerbaijan hedger as the most interested participant in the reliability and multifunctionality of the exchange on which he trades.

We will refer to such characteristics of comparison:

1) a range of tools;

2) liquidity;

3) volatility;

4) the correlation between the underlying asset and the derivative;

5) Hedging costs.

The independent direction of the analysis should be legislation and taxation of futures deals. [9, P.31]

These are the main parameters that are important for bidders, and in the absence of one of them, the whole mechanism of the functioning of exchange trades in derivative financial instruments may be disrupted or at least lose interest for hedgers. Therefore, the analysis should be carried out in a comprehensive manner, because even with a wide range of financial instruments, the main required characteristic of hedging risks is their liquidity, and even volatility, correlation and arbitrage will depend on the level of liquidity, but under targeted regulation by the state and taxation that does not infringe interests of bidders and simultaneously contributing to the development of the market and increasing its effectiveness.

The analysis of the characteristics will be carried out in stages. We analyze the stages in accordance with the assessment of the parameters of the derivatives market functioning taking into account their interrelation.

The first parameter of comparison, which determines the main difference between the Azerbaijan market and the US, is the universalization of the Azerbaijan market, i.e. while there are two main futures exchanges (BICE and BSE Forte), identical instruments are traded on them, for example, the futures on the RTS index and the BICE index, the futures contract for shares of SOCAR, National bank, futures for the US dollar and the euro, which are traded on two exchanges in parallel, and as a result - the erosion of liquidity. Options trading is carried out only on BSE Forte. In early 2017, the exchanges decided to merge, and therefore this problem will gradually be eliminated.

In the US futures market, there are two main exchanges - CME Group and NYSE Euronext. The main difference is that traded instruments are differentiated by exchanges. CME Group specializes in commodity, interest-bearing, currency derivatives, and NYSE Euronext is more in the derivatives of the stock segment. This is a more efficient and qualitative level of interaction between the participants of exchange trades.

A serious shortcoming of the Azerbaijan exchange mechanism is the lack of the possibility of margining positions between the most liquid markets - RTS Forte (futures market) and BICE (spot market).

At the leading American sites such a problem is absent, as the main liquidity of the spot market and derivatives market is focused on NYSE Euronext, and commodity, currency and interest-bearing derivatives are traded on the CME Group.

The second important parameter is the level of market liquidity, which, in turn, is divided into trading volume in money terms, the number of contracts and the volume of open positions. If we compare the volumes of contracts that are traded on these exchanges, then the volumes in the CME Group exceed the BSE Forte 3 times (Table 4) for the period from June 2008 to October 31, 2017, although this is only a commodity, currency and interest segment futures market.

Table 4

Trading volume

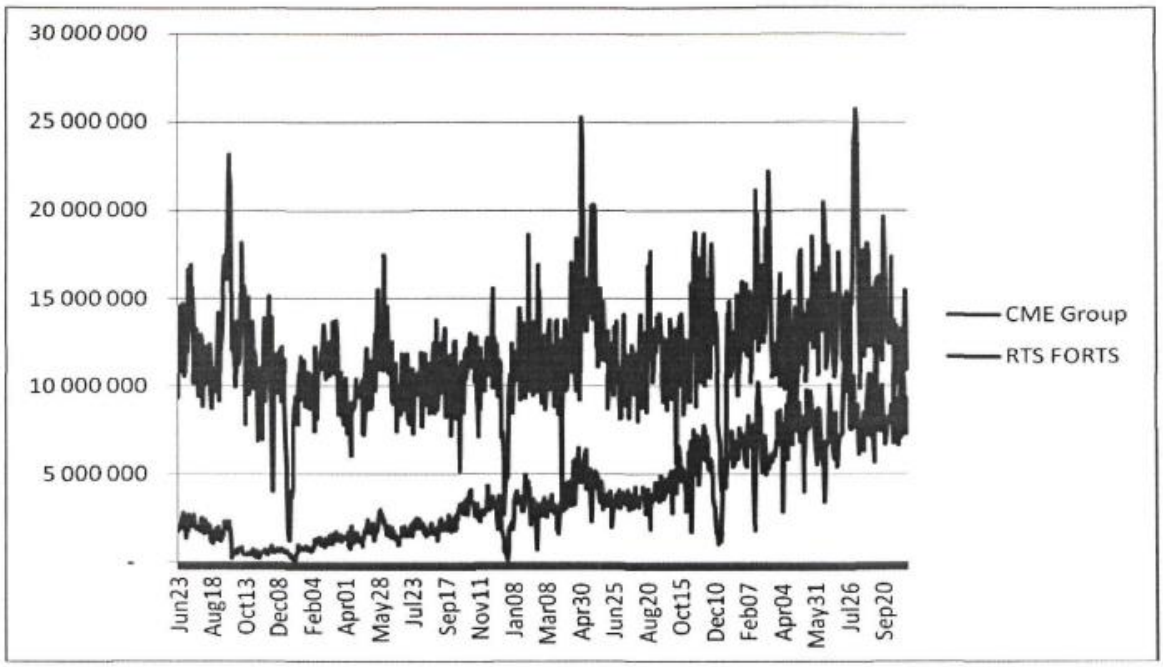
	CME Group, NYSE Euronext	BSE FORTS, BICE
Trading volume, thousand $ (June 2014 - October 2017)	23 146 871 043	5 255 853 952

If we analyze the trend of trading volumes (Figure 11), the dynamics chart shows that the trading volume on BSE Fort for this period grew 3 times, and the trading volumes at CME Group during the whole period practically did not change. From this we can conclude that the Azerbaijan derivatives market is more promising in its development. [23, P.204]

If you analyze the segments of the futures market of the Chicago Mercantile Exchange (Figure 12), you can see that the main share in the volume of trading is held by futures contracts for interest rates (Interest Rates), then for equities and energy.

If we compare the volume ratio with the Azerbaijan stock exchange BSE Forte, it turns out that the level of liquidity is different.

The main share of trading volumes on the Azerbaijan stock exchange of Baku Stock Exchange is concentrated in the stock market segment, CME Group - in derivative financial instruments at interest rates, and NYSE Euronext in stock derivatives (Table 5).



(SE Euronext, June 23, 2014 - October 31, 2017.

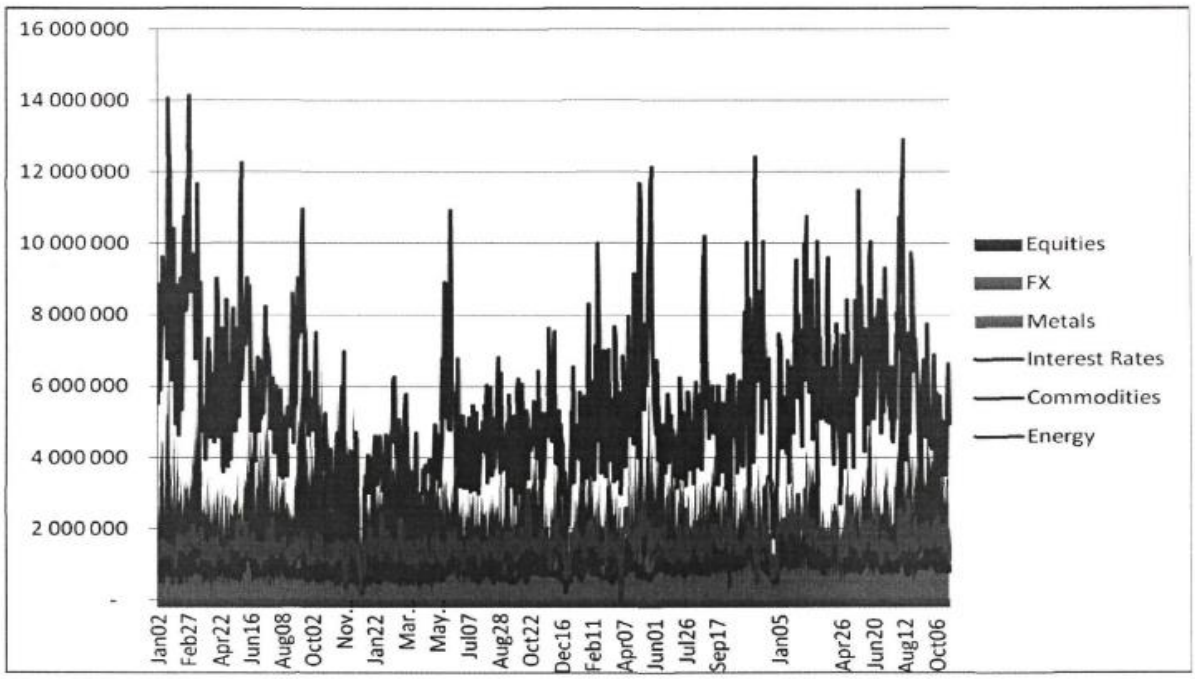


Figure 12. Dynamics of trading volumes at CME Group in terms of market segments (January 2, 2014 - October 31, 2017)

Table 5

Structure of trading volumes of BSE Forte and CME Group

	JSC "Baku Stock Exchange"	NYSE Euronext	CME Group
Promotions	88,20%	44,8%	26,09%

Interest rates	3,80%	22,4%	44,90%
Currency	4,5%	11,7%	6,32%
Product segment	2,80%	11,5%	9,67%
Power Engineering	0,70%	9,6%	13,02%

From the comparative analysis of trading volumes it follows that Baku Stock Exchange OJSC has a tendency to increase volumes, but there is a significant lag behind American exchanges. The negative aspect of BSE Forte's market development is that there is a strong structural shift in the development of the stock market segment of derivative financial instruments, although world experience shows that futures contracts for other underlying assets should be distributed almost evenly.

The most problematic characteristic of the Azerbaijan derivatives market is the liquidity of options contracts. The share of the US option market in the total volume of transactions is 13.7%, and the share of options in the total volume of the Azerbaijan futures market is 4.3%, and this is mainly stock market options. Options are traded only on the BSE Forte exchange.

The third most important parameter of the market is volatility. This parameter is comparable to the example of the CME Group gold futures and BSE FORTS, as this is the most liquid instrument from the commodity range of the Azerbaijan derivatives market.

Figure 13 shows that the volatility of gold on the Chicago Exchange since July 2016 has stabilized at the level of 11-15%, while at the beginning of the year it reached 30%.

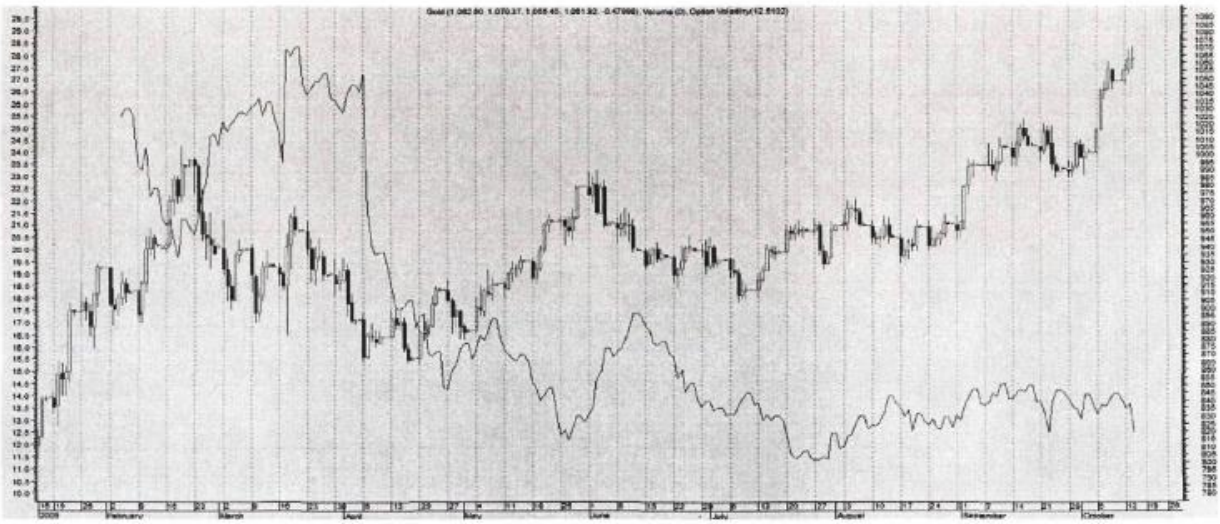


Figure 13. Volatility of gold futures (CME Group)

Based on the analysis of the volatility of the instruments of the commodity market of BSE Forte and CME Group on the example of gold futures, it can be concluded that there is no advantage in the American derivatives market in this parameter of benefits. Hence, based on this parameter, the Azerbaijan derivatives market is more acceptable for Azerbaijan hedgers. In the energy segment, volatility levels also do not differ from the US market. As for the grain market segment, the BICE, where futures for wheat are traded, does not provide data for analysis.

Fourthly, the correlation of instruments is high, which does not allow arbitrage between the markets. [7, P.199]

The fifth stage in the assessment of the futures market is the assessment of costs when operating in the US and Azerbaijan markets. At the moment, brokers appear that provide the opportunity for Azerbaijan hedgers to use the tools of international exchanges with competitive terms of trade, which should give a new impetus to development in Azerbaijan. Now the combined Azerbaijan derivatives BSE Forte and BICE have to compete with American and European time-frames.

The independent direction of the analysis is legislation and the taxation of futures deals. Until now, the market for derivative financial instruments is poorly regulated. The legal acts currently in force contradict each other, even in terms of definitions and terms.

Taxation of futures deals also requires improvement, although even now, enterprises have the opportunity to reduce the tax base for their main activities by hedging operations in an organized market. And the organized market can be both Azerbaijan and American.

Thus, in the Azerbaijan futures market, there is an integral mechanism of functioning, formed on the basis of the experience of developed countries, including the United States. The further development of the derivatives market in Azerbaijan will be conditioned by several factors:

1. Improvement of the legislative framework and taxation of futures deals.

2. Increasing the number of instruments for trading.

3. Increasing the interest of bidders not only in carrying out speculative transactions, but also in hedging the operation for the core business.

4. Training of risk managers of real sector companies.

To date, the crisis has forced managers to think not only about making a profit and increasing it, but also about hedging the risks associated with the market situation. And it is precisely today that risk management, and in particular hedging, acquires a special status for enterprises both in the financial sector and in the real sector of the economy.

Thus, in work the author identifies qualitative and quantitative characteristics for comparing the conditions for hedging financial risks of the Azerbaijan exchange market with other national exchange markets:

1) a range of tools;

2) liquidity;

3) volatility;

4) the correlation between the prices of the underlying asset and derivatives;

5) Hedging costs. This allows us to formulate conclusions on the appropriateness of using financial instruments to build hedging strategies on Azerbaijan or, alternatively, on other derivatives exchanges, taking into account the availability of conditions in accordance with these characteristics:

- the stock market of the Azerbaijan derivatives market meets all the necessary conditions for building hedging strategies and is therefore more acceptable for the activities of the Azerbaijan hedger than foreign counterparts of the derivatives market;

- In the commodity segment of the Azerbaijan derivatives market, financial instruments are traded, the basic assets of which are American contracts for oil, gold, soybeans, corn, etc., which attracts speculators more than hedgers.

Based on the results of the analysis, the author concluded that there are opportunities on the Azerbaijan derivatives market for hedging financial risks, which were formed on the basis of the experience of functioning of developed financial markets.

3.2. Directions for the development of options strategies as universal strategies for hedging financial risks

The option is the most complex and market-sensitive instrument of the derivatives market. In developed countries, options are highly prevalent, ranging from speculation in the market and ending with the payment of bonuses to employees. The Azerbaijan options market is the most lagging, but also the most promising segment of the derivatives market. Options are traded only on the RTS Forte exchange. In the line of options contracts, there are 3 main segments - commodity, stock and cash. [37, P.119]

These tools are of primary interest to us from the point of view of hedging. Stock options are mostly traded on the Azerbaijan market. Of the commodity options are interesting for refined gold and silver bullion. As for currency options, at the moment there is only a margin option for a couple of manat / dollar.

The BSE exchange, in parallel with the usual options, launches the margin for more convenient control of risks on the part of the exchange and bidders. This became necessary after the collapse of the options market in November 2008 (Figure 14). The chart shows that the volume of the options market is five times higher than the pre-crisis and has a tendency to increase trading volumes.

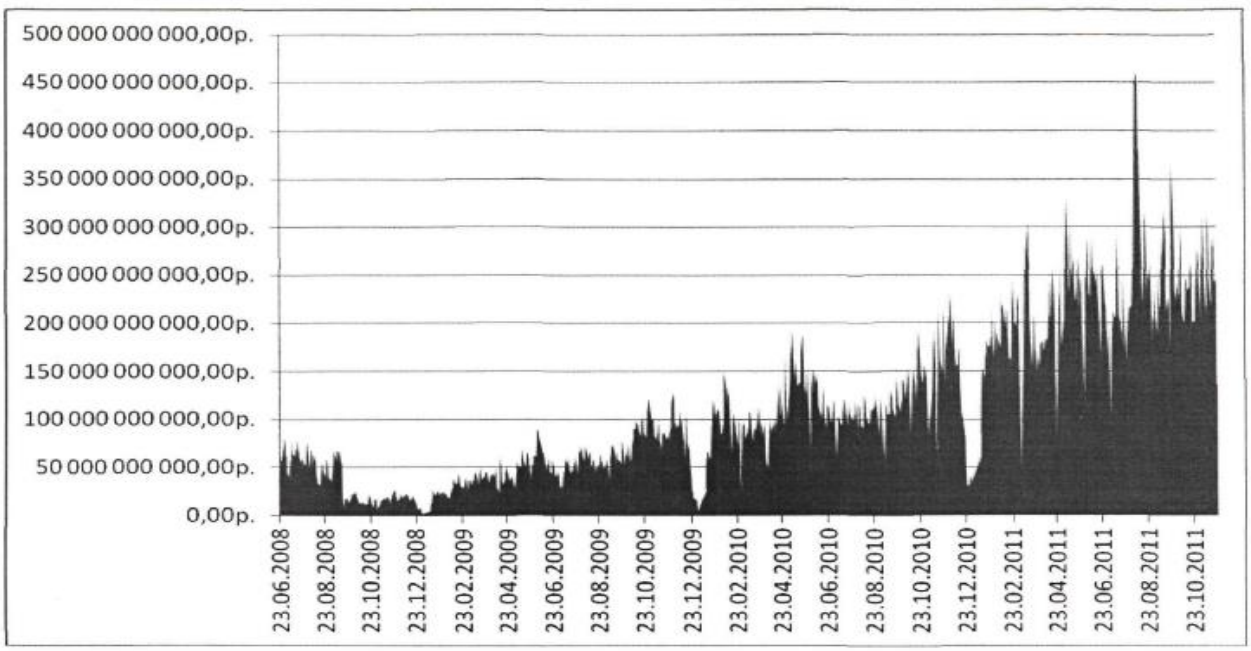


Figure 14. The volume of trading options on the RTS FORTS (June 2008 - November 2011)

In order to know the quality of options in the Azerbaijan market for hedging and speculation and the possibility of applying strategies to them, it is necessary to conduct an analysis. To do this, take 4 main tools from each market segment: gold, BSE index, Sberbank shares and a pair of dollar / manat. We will estimate the following parameters: liquidity, volatility and the Greek characteristics (gamma, vega, theta) required for trade and strategy formation. The most important parameter is liquidity, on which all other indicators depend. [45, P.113]

Table 7 shows that in the structure of the options market, 98.65% are options for stock assets; currency and commodity - 1,35%. This is explained by the liquidity of the underlying assets themselves - shares and futures on them.

Table 7

Structure of transactions in the Azerbaijan derivatives market in August-October 2011

	The value of transactions, million manat	Amount of deals	Share of transactions volume,%
Options for stock futures	28307,7	78545	3,08
Options for index futures	878109,3	1117202	95,57
Other options	12437,1	10317	1,35

In the commodity segment of the market for options contracts, only refined gold and silver in bullion are traded. Other contracts are either not available for trading, as they are delivery, or no transactions were recorded for them. It is the commodity segment of the market that is the most lagging behind.

The share of the options market is a tenth of the total market, but here only the option for the dollar / manat rate is traded, but two additional option contracts are planned to be introduced - euro / dollar and euro / manat. Of course, the tools are speculative, but they can be used by participants to hedge positions in the FOREX market.

An important indicator for traders of the option market is volatility. Without understanding and knowledge of volatility, it is almost impossible to build options strategies. [11, P.43]

So, there are 2 types of volatility: historical and expected.

Historical volatility is the actual volatility over a certain historical time.

Expected - market valuation of volatility for the future.

The expected volatility depends on a number of factors. Let us dwell on basic:

1. Historical volatility: the higher the historical volatility, the higher the expectations for future volatility.

2. The political and economic calendar of options expiring after press releases will be higher than options that expire before the news.

3. Liquidity of the options market: if demand exceeds supply for volatility, then volatility increases, everyone buys volatility.

4. Change of technical levels: if an important level of support / resistance is broken through on the chart, then the market expects instability.

5. Day of the week - because the option loses its value every day. The option expiring on Monday will be more expensive than the option expiring on Friday or Tuesday, as you are paying a 3-day theta on the option, which expires on Monday.

The factors affecting the volatility of the option, as well as its price, are many. We are interested in analyzing how these parameters are applicable in the domestic market for making decisions and forming strategies. Important parameters in the formation and maintenance of the portfolio of instruments are the Greek parameters (delta, gamma, vega, theta). To illustrate the Greek characteristics of delta, gamma, vega, theta, we use the following notation: blue line - indicator data at the time of expiration, red - with a time value that coincides with the value of the underlying asset, i.e. futures on the BSE index.

The delta is the ratio of the change in the option premium to the change in the price of the underlying asset. The delta, also referred to as the hedging ratio, is the most significant indicator for hedgers after liquidity and volatility.

Gamma is the acceleration of the option price. Gamma measures the rate of change in the delta as the price of the underlying asset changes. From the analysis of graphs it is clear that the gamma of each of the instruments corresponds to its theoretical properties, for example, it increases as the option approaches the ATM state, or for long-term options, gamma is smaller than for short-term options. The gamma effect can also be used to analyze positions.

Vega measures the sensitivity of the option price to a change in volatility. Long-term options are more sensitive to changes in volatility, thus, the meaning of the vega is greater. Also, the closer the option to ATM, the greater its vega and the dependence on volatility.

Theta measures the sensitivity of the time component of the option premium to shortening the life of the option.

Thus, the analyzed options of the Russian market correspond to the theoretical pricing models of premiums on them, which indicates the possibility of applying delta hedging strategies, gamma-hedging and speculation. The disadvantage is the shift in the development of the options market towards the stock segment and the obvious lag of the commodity market. The direction of development is also necessary in the direction of the currency segment, since a large number of companies use foreign counterparts of currency derivatives for insurance against price changes.

The positive point is the use of the RTS index by financial companies in the formation of structural products.

From a practical point of view, it is possible to build strategies on the domestic options market only with 5-6 tools, most of which represent the stock segment of the options market.

In our opinion, the slow development of the options market is due to the lack of competition among the organizers of the trades and the low literacy of traders in the field of derivatives. Although the option is the most convenient instrument for hedging positions on the portfolio. [18, P.166]

Thus, it is possible to build hedging strategies on the domestic options market only with several instruments, most of which represent the stock segment of the options market.

3.3. Development of a set of measures to improve the regulation of hedging financial risks in Azerbaijan

During the existence of the Azerbaijan derivatives market, financial institutions dominated the participants. Credit institutions that suffered serious losses from foreign exchange transactions lost confidence in this segment of the market, which only recently began to recover partially.

According to official information of Azerbaijan exchanges, the share of commercial banks in the number of the most active operators of the derivatives market does not exceed 30%. The main operators of the market are investment companies. The number of banks participating in the market for derivative financial instruments is about 5% of the total number of commercial banks. In this regard, at present, the conjuncture of the derivatives market affects only the a narrow circle of banks and is unable to have a destabilizing effect on the banking system as a whole. [43, P.187]

The author analyzed one of the problems of the Azerbaijan derivatives market - the possibility of expanding the range of participants in transactions with derivatives. It can be divided into two components: 1) the involvement of professional participants in hedging transactions; 2) attracting participants in the real sector of the economy.

Currently, the derivatives market is operated mainly by professional participants of the Azerbaijan financial market, using futures and options as a common subject of speculative transactions. This is evidenced by the fact that the basic basis for almost all derivatives is shares, while brokerage firms and investment companies that do not own securities portfolios or manage such portfolios enter into transactions with stock derivatives. Derivatives can protect against the risk of depreciation of securities of owners or managers of stock portfolios. For all other

participants, derivatives are another area of investment speculative activity. The identical situation is observed in the market of currency futures, which also lacks importers and exporters, for whom foreign currency is not a financial asset, but a means of payment in real business operations for which they are engaged, and for which currency derivatives could serve as a protection tool, hedging them risks in the real business from fluctuations in the exchange rate.

From the analysis we can conclude that in the Azerbaijan market for the purchase and sale of derivatives is not yet a real need or a real offer of a basic asset of derivatives. This is also evidenced by the fact that the vast majority of transactions in this market are not of a commercial nature, that is, they do not end with the purchase / sale of the underlying asset.

Professionals in the financial markets, derivatives, attract high transaction efficiency, which in turn is determined by a high leverage (leverage), which is often 10: 1, 20: 1 and even more in futures and options markets. However, the relative novelty of these instruments for Azerbaijan entities of the economy, together with the technological complexity of derivatives, is still limiting the potential range of participants in the derivatives market, even among financial professionals. From our point of view, to solve the problem of the popularization of derivatives, thereby increasing the participation of professionals in operations with them, it is possible through the application of a number of mechanisms for the dissemination of financial knowledge through the holding of special conferences; through the preparation and dissemination of training programs; through the training of all interested individuals and legal entities in the courses. Such exchanges could be organized by exchanges, as the persons most interested in attracting new members of the exchange trade, together with professional non-profit associations of participants in the securities market.

The author outlines the following most important tasks, the solution of which is related to the development of hedging in Azerbaijan:

1. Increase the capacity and liquidity of the Azerbaijan derivatives market.

2. Ensuring the development of market infrastructure for hedging operations, including the development of lagging market segments.

The structure of the Azerbaijan derivatives market has a significant shift towards the derivatives of financial instruments. This is due to the liquidity of the underlying assets of the stock segment and the universality of the use of index derivatives to hedge the risks of the securities portfolio. [18, P.37]

3. Formation of a stable tax climate for hedgers.

4. Improvement of legal regulation in the market of derivative financial instruments.

Measures to increase the capacity and liquidity of the Azerbaijan derivatives market:

- introduction of mechanisms ensuring the participation of numerous Azerbaijan hedging companies in the Azerbaijan derivatives market and protection of their assets;

- expansion of the spectrum of derivative financial instruments as an additional opportunity to build hedging strategies;

- raising the level of awareness of hedge companies about the possibilities of using the Azerbaijan derivatives market to reduce financial risks.

Measures to develop the infrastructure of the Azerbaijan derivatives market for hedging operations:

- creation of legal and institutional conditions for the possibility of consolidation of exchange and settlement and depositary infrastructures;

- creation of a fixed legal framework for clearing obligations, forming and capitalizing financial institutions' clearing organizations;

- Provision of services to Azerbaijan companies for accounting for rights to derivative financial instruments used to hedge positions in the Azerbaijan derivatives market.

Measures to improve the legal regulation of hedging operations in the Azerbaijan derivatives market:

- Disclosure of information on the Azerbaijan derivatives market;

- improving the management of Azerbaijan companies by hedged portfolios of derivatives.

The participation of Azerbaijan hedging companies in the Azerbaijan derivatives market is not only one of the factors for increasing the competitiveness of Azerbaijan business, but also a sign of a certain maturity of the Azerbaijan derivatives market that provides participants with hedging requirements.

The activities of market regulators in this area should be aimed at strengthening the protection of hedging operations of Azerbaijan hedging companies and creating conditions for their active use.

One of the important tasks of the market for derivative financial instruments is to reduce risks in transactions with underlying assets, as well as to create important conditions for fair pricing of underlying assets. Measures to regulate the market for derivative financial instruments should be aimed at improving tax legislation.

To improve the legal regulation of hedge transactions in the market for derivative financial instruments, it is necessary:

- ensure that the rights to derivative financial instruments are accounted for and that these instruments are handled in accordance with the rules for accounting and circulation of securities;

- create mechanisms for the distribution of risks among market participants by hedgers, speculators, arbitrageurs;

- it is important to leave the opportunity for traders to form derivative financial instruments and not to limit them to any requirements, because the participants will choose the tools most suitable for them, and the illicit financial instruments are liquidated.

- it is necessary to strengthen the control over insider transactions, non-standard transactions and manipulations in the market of derivative financial instruments;

- create conditions for market pricing for commodities, such as oil, gas, coal, wheat, corn, barley, sunflower oil, metals, building materials and others. In order for commodity producers and consumers of these goods to make greater use of hedging mechanisms in the market for derivative financial instruments, it will be necessary to recognize warehousing certificates as securities at a legislative level. This will open

up great prospects for the development of the commodity segment of the Azerbaijan derivatives market.

Trading regulators in conjunction with stock exchanges should carry out constant work on explaining the possibilities of the derivatives market to economic agents to reduce the risks of changes in prices of commodity producers and consumers, thereby contributing to the formation of an efficient commodity exchange market. [28, P.76]

At the same time, it is quite obvious that for a given category of market subjects, the issues of mastering the mechanisms of trading in derivatives are not a difficult task. For them, the value of derivatives transactions is more important. We will clarify that the costs of traders in the derivatives market usually consist of entrance fees to the urgent sections of exchanges, from various other exchange fees and payments for guarantee maintenance of positions open on the exchange. Let us analyze these costs on two Azerbaijan exchanges, where derivatives trading is currently being actively pursued.

Subscriber service is extended to general settlement firms, specialized settlement firms on the stock market, as well as to members of the Section who are in the process of registering as these settlement firms:

- is charged from the moment the Derivatives Market Committee decides to accept the applicant as a member of the Derivatives Section; • if the Derivatives Market Committee's decision to accept the applicant as a member of the Derivatives Section occurred after the 15th day of the second month of the quarter, half of the tariff amount is charged;

• in case the decision by the Derivatives Market Committee to accept the applicant as a member of the Derivatives Section occurred after the 15th day of the third month of the quarter, the tariff is not charged;

- charged according to quarter results;

• in the event that the amount of the exchange fee paid by the settlement firm during the quarter exceeds the amount of this tariff, the tariff is not charged;

• in the event that the amount of the exchange fee paid by the settlement firm during the quarter is less than the amount of this tariff, a difference is charged between the amount of this tariff and the amount of the exchange fee paid for that quarter;

- is charged either by writing off funds from the trading cash registers of the settlement firm, or by billing;

- when you leave the settlement firms, the fee is refunded.

In our opinion, the task of expanding a very limited number of participants in trading in derivatives of the exchange could be solved through the improvement and promotion of direct access technologies to the electronic trading systems in the regions. Currently, all Azerbaijan exchanges work on the direct access system, and here we focus on the promotion of these systems to the Azerbaijan regions - to Siberia, to the Far East, especially in those regions where there are no stock exchanges. At the regional level, it would also be advisable to carry out the activities to popularize the derivatives described above. [19, P.165]

Another direction of costs is the guarantee provision of futures or options positions open on the exchange. The exchange trading system of derivatives involves the introduction of a small amount of the initial deposit. Small in relation to the amount of the transaction with the underlying asset, the initial deposit is 2-8% of the contract for the future delivery of the goods. In this case, the deposit has a returnable character, that is, it is taken into account in the final settlement of the position, these amounts are taken into account by bidders in the costs of the positions opened by them. For this reason, the need to divert funds leads to a rise in the cost of derivatives trading. Alternative costs are the sums of lost revenues of funds diverted to the margin account.

Thus, the author outlines the following proposals, the implementation of which will promote the expansion and activation of the participation of professionals in financial markets in derivatives trading:

1. Use of direct access to trading on the BICE exchange, and on BSE FORTS - through brokerage companies.

2. Introduction by traders of direct access technologies to the regions.

3. Organization of a single system of position margins.

4. Use of the technology of multiplicity of the supplied assets.

All measures proposed by the author are relatively easy to implement and depend mainly on the desire of the organizers of trading derivatives - exchanges to involve in the system of exchange trading a wider range of users. However, we emphasize, all this will not help solve the main problem of the Azerbaijan market - the problem of using derivatives in the real sector of the economy as hedging instruments. And this problem is extremely complex, multifaceted and, of course, can not be solved by improving the exchange trade. The solution to this problem depends on:

1) the general level of qualification of management personnel at Azerbaijan enterprises and organizations;

2) the system of financial reporting and accounting adopted in the Azerbaijan economy;

3) the degree of openness of production and marketing activities and financial reporting of economic entities.

Also, the use of derivatives is determined by the level of culture of business insurance against price risks. This is much written by analysts who are researching Azerbaijan financial risks. However, the phenomenon of culture does not arise from nothing. Recall that in the Western countries until the mid 70-ies for many commodity and all financial assets also there was no market for futures and options. Urgent markets appeared in Western countries to protect against the increased volatility of prices in these years in virtually all commodity and financial markets. Therefore, it is more correct to talk not about the level of culture, but about the degree of necessity for business insurance companies from price risks. In turn, the degree of this need depends on the level of price volatility. It is also necessary to take into account the costs of building an insurance system with the help of derivatives.

Let us pass to the second part of the problem - involving the participants of the real sector of the economy in hedging risks. At the moment, the most common view

is that in the real sector, hedging is primarily for producers. This is due to increased attention to the price of commodities - oil, metals, and food. At the same time, processing enterprises, exporters, and end-users are also in need of hedging. For example, airlines, transport, shipping companies, utilities, etc. Moreover, the overwhelming majority of hedgers, almost 95% of their total number, are not extractive, but processing enterprises, as well as final consumers. Companies start applying hedging in cases where price risks can cause serious business problems. Mining companies almost do not hedge their price risks.

Of course, the problem of the domestic derivatives market is primarily the use by its participants of commodity tools for speculation, and not for hedging price risks in the real sector of the economy. To solve this problem, one should understand its cause. So, let's start with the emergence of the derivatives market in Azerbaijan in the early 90's. The need for hedging in the real sector was absent. This was facilitated by high inflation and a constant increase in prices for virtually all commodity groups. At the same time, understanding the importance of entering the market of hedgers who are real commodity producers, the exchanges still tried to launch futures for goods. However, economic conditions were clearly unfavorable for this. [10, P.139]

The revival of the Azerbaijan derivatives market after the 1998 crisis turned out to be a long process. However, the economic conditions in Azerbaijan in the early 2000s changed, the speculative component of the commodity market gradually began to decline. And as soon as commodity producers found themselves in the system of market economy relations, they faced the acute problem of hedging price risks. Questions about the creation of commodity futures exchanges and the economic need for organizing real exchange trade in futures contracts, the basic asset of which would be real goods, within the communities of commodity producers and at the level of various ministries and departments are discussed so far. On the one hand, all bidders are interested in the functioning of the urgent commodity market: the exchanges will receive a new impetus in the development of business, speculators - a large liquidity of the market, hedgers themselves can make their business more stable. On the other hand, the problem lies in the distrust of counteragents to each other, but not that they

will not fulfill obligations under an unfavorable change in price, but that the quality of the underlying asset supplied to them will not correspond to what they want. Guarantees that you buy a good product, for which you paid, no one can give. Of course, without state involvement and tightening of control over the quality of goods, potential hedgers will be concerned about the possibility of hedging. An important aspect of hedging development in Azerbaijan will be the development of a law on "warehouse receipts".

The structure of the hedgers of the Azerbaijan market is at the stage of formation. If professional participants in the securities market are actively engaged in hedging their risks on the Azerbaijan or foreign derivatives market, then the companies of the real sector of the economy only think about it.

Thus, the author proposes a set of measures to develop the hedging process in the Azerbaijan derivatives market for the market regulator, auction organizers and market participants - hedgers:

- measures to stimulate the use of hedging operations;
- Measures to develop the commodity and money market;
- measures to standardize the procedures for constructing hedging strategies.

CONCLUSİON

In today's economic world, no company, no investor can afford to ignore the basic concepts of international finance. The competitive position of individual business entities, regardless of whether they are engaged in international trade or not, can be affected by changes in exchange rates, and different inflation rates, and the difference in interest rates. And if the company is engaged in international activities, then this probability is significantly increased.

Nowadays, all subjects of foreign economic activity, if they want to increase incomes and reduce risks, must represent how the values of exchange rates influence their financial activities. Therefore, studying the laws of international finance, in particular strategies for managing currency risks, is a necessary feature of teaching modern business.

Currency risks are the danger of a change in the value of the currency of the price in relation to the currency of payment between the time of entering into a contract and the time of making payment on it. Both sides of the contract are subject to currency risks. Since currency risks always exist, the world practice has developed special mechanisms to protect against currency risks. In the process of such protection, a decision is made about its appropriateness, a part of the contract to be protected is selected, and a specific method of protection (hedging of risks) is selected.

Summing up, we can draw such conclusions.

As methods of hedging currency risks in different periods of time, different ones were used.

In the postwar years, this method of protecting against currency risks became widespread, as currency reservations. The currency clause is a condition stipulated in the contract, whereby at the time of payment the value of the contract is recalculated in accordance with the gold content. Reservations based on the gold content of national currencies were applied in the post-war years. Then, forms of currency clauses were used, based on courses of a stable currency or at once several currencies, so-called currency baskets, and many others. Since the 70s of the 20th century. this

form of currency risk insurance is almost not used because of its inherent shortcomings.

Currency exchange options are also used as a method of currency risk insurance. A currency option is a transaction between the option buyer and the seller of currencies, which gives the option buyer the option to buy or sell at a certain rate the amount of the currency during the stipulated time for the remuneration paid to the seller.

Forward foreign exchange transaction - the sale or purchase of a certain amount of currency with an interval between the conclusion and execution of the transaction at the rate of the day of conclusion of the transaction. Forward foreign exchange transactions are carried out outside the exchange. The parties to the forward transaction are usually banks and industrial and commercial corporations.

Currency futures - an urgent transaction on the exchange, representing the purchase and sale of a certain currency at the rate fixed at the time of the transaction conclusion with execution after a certain period.

"Swap" - an operation that combines cash purchase and sale with the simultaneous conclusion of a counter transaction for a certain period. There are several types of operations "swap": currency, interest, debt, with gold and their various combinations.

Among the advantages of hedging currency risks are the following:

1) hedging leads to an increase in the value of the company, provided that the company actively uses borrowed capital;

2) hedging, and, therefore, a reduction in currency risk leads to predictability of future cash flows, which contributes to the efficiency of the company's financial planning;

3) hedging currency risk theoretically ensures that the company's net proceeds exceed a certain critical level for the company;

4) the company's managers who decide on the appropriateness of methods and tools for hedging currency risks have a large volume and better quality of information

about the financial situation, the level of risk and the rate of profit of the enterprise than its shareholders, which indicates a higher level of decisions made by them.

The negative consequences of hedging foreign exchange risks include the following:

1) financial risk management is often carried out at the expense of shareholders. If the company has the goal of maximizing the shareholders' income, hedging does not always allow this,

2) company executives cannot with 100% guarantee to anticipate market changes. If the market is in a state of equilibrium, then the expected current net hedge value is zero,

3) the cost of hedging in a veiled form is included in the cost price of the firm's products.

In order to resolve these problems, at each enterprise that hedges currency risks through derivatives, it is necessary to develop and implement regulations for the performance of hedging transactions. The purpose of this regulation is to establish the order of interaction between units of the hedging organization in the course of operations related to the exchange trade in derivatives, the basic asset of which is foreign currency.

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XÜLASƏ

Dissertasiya işi “Maliyyə və valyuta risklərinin idarə olunmasında dedcinq və non-hedcinq metodları” adlanır. Dissertasiya işində hedcinq anlayışı, maliyyə derivativləri ilə hedcinq, valyuta risklərinin səbəbi, maliyyə böhranının valyuta risklərinin idarə olunmasına təsiri, hedcinq strategiyaları məsələləri müzakirə edilir.

Hedcinq maliyyə bazarlarında risklərin sığortalanmasına istiqamətlənmiş tədbirlərdir. Yəni, hedcinq gələcəkdə sərmayə risklərini minimallaşdırmaq və yaxud ümumiyyətlə yox etmək məqsədilə hər nəyisə (məhsul, valyuta, Mərkəzi bank) müəyyən məbləğə alıb-satmaq haqqında müqavilədir. Daha dəqiq desək, gələcəkdə müqavilənin hansı məbləğdə baş verəcəyini bilməklə hər iki tərəf özünü gözlənilməz qiymət dəyişikliyindən sığortalayır.

Hedcinq əməliyyatları sayəsində şirkətlər özünü qiymət dəyişikliyi riskindən sığortalayır. Yəni, riskləri azaltmaqla potensial gəliri də azaldırlar. Risk nə qədər çoxdursa, gəlir də bir o qədər çox olar və əksinə. Hedcinq zamanı şirkətlər baş bir zərərlə üzləşmir. Lakin bu sığortalanmanın əvəzini son nəticə yaxşı olduqda ödəyirlər. Bu zaman qazana biləcəkləri gəliri hedcinq səbəbindən itirmiş olurlar.

Daha dəqiq desək, hedcinq edərkən potensial zərərlərdən qorunaraq potensial gəliri ixtisar edirlər. Buna görə də, başa düşmək lazımdır ki, hedcinq əsas olaraq gəlirlərin artırılmasına deyil, zərərlərin azaldılmasına istiqamətlənmişdir.

SUMMARY

Dissertation is called "Hedging and non-hedging methods of managing financial and currency risks". In the dissertation, the concept of hedge, hedging with financial derivatives, the reason for currency risks, the impact of the financial crisis on currency risk management, hedging strategies issues are discussed.

Hedging is a measure aimed at risk insurance in financial markets. That is, hedging is an agreement to buy a certain amount of money (product, currency, Central Bank) for a certain amount of time in order to minimize or eliminate the risks of investment. More precisely, knowing the amount of contract in the future, both parties insure itself from an unexpected price change.

Through hedging transactions, companies insure themselves from the risk of price changes. In other words, reducing risks also reduces potential income. The higher the risk, the higher the income, and the more. During hedging, companies do not face any major loss. However, they pay for the cost of the insured when the end result is good. In this case, they can lose their income due to hedge funds.

More precisely, they hedge their potential revenue by reducing potential losses. Therefore, it should be understood that the hedge is primarily aimed at reducing losses, rather than increasing revenues.

РЕЗЮМЕ

Диссертация называется «Хеджирование и не хеджирование методов управления финансовыми и валютными рисками». В диссертации обсуждается концепция хеджирования, хеджирование финансовых производных, причина валютных рисков, влияние финансового кризиса на управление валютным риском, проблемы хеджирования стратегий.

Хеджирование - это мера, направленная на страхование рисков на финансовых рынках. То есть хеджирование - это соглашение о покупке определенной суммы денег (продукта, валюты, Центрального банка) на определенное время, чтобы минимизировать или исключить риски инвестиций. Точнее, зная сумму контракта в будущем, обе стороны застрахованы от неожиданного изменения цены.

Благодаря сделкам хеджирования компании страхуют себя от риска изменения цен. Другими словами, снижение рисков также снижает потенциальный доход. Чем выше риск, тем выше доход и тем больше. Во время хеджирования компании не сталкиваются с серьезными потерями. Тем не менее, они оплачивают стоимость застрахованного, когда конечный результат является хорошим. В этом случае они могут потерять свой доход из-за хедж-фондов.

Точнее, они хеджируют свой потенциальный доход за счет снижения потенциальных потерь. Поэтому следует понимать, что хеджирование в первую очередь направлено на сокращение потерь, а не на увеличение доходов.