



## Research Article

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# Hedging as a Method of Price Risk Management

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### Abstract

*Derivative financial instruments have great importance in the fight against financial risks. The purpose of applying to derivative financial instruments is to extract profits from price fluctuations of the corresponding exchange asset, as well as to protect (hedge) against undesirable changes in market prices for the corresponding exchange asset. Risk hedging is based on the strategy of minimizing unwanted risks, so the result of the operation can also be a reduction in potential profit, since profit, as it is well known, is inversely related to risk. If earlier hedging was used exclusively for minimizing price risks, then at present the goal of hedging is not to remove risks, but to optimize them. In the article, the authors made conclusions about the existing value of hedging as a tool to reduce the risk associated with the adverse effect of market factors on the price of another instrument associated with it, or on the cash flows generated by it.*

**Keywords:** *Hedging, Financial Risks, Price Risks, Derivatives Market, Derivative Financial Instruments, Futures and Option Contracts*

## 1. Introduction

In the modern world, there are general trends in economic development, the characteristics of which are increased uncertainties due to globalization of markets, increased competition, complication of technological systems in all aspects of life, volatility in world markets associated with confrontation of interests of individual countries. In this case, there are two "conflict" factors: on the one hand, these causes increase the degree of uncertainty and risks, and, on the other, they contribute to the emergence of new risk management capabilities. In this connection, the problem of improving approaches to the analysis, assessment and minimization of risks is relevant at present (Artamonov & Ayupov, 2015)

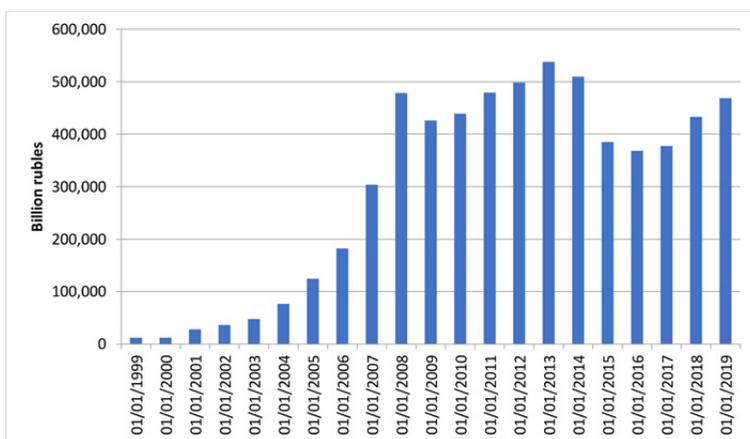
It should be noted that, in market conditions, all financial risks, including price risks, inevitably increase. However, at the same time opportunities are being created for the effective management of these threats.

The hedging is one of the main for this purpose. At its core, this simple operation, however, is quite difficult to implement in practice. The reason for this is the intricacies of the market for fixed-term contracts, which have to be resorted to manage price risks.

## 2. The Essence and Concept of Price Risk

Risks arising from price fluctuations are the most common. They pose a threat to ordinary people, and to large companies, and to the economies of entire countries. Ordinary citizens suffer primarily from inflation, which causes a rise in prices for consumer goods and utilities, as well as due to a decrease in the purchasing power of the national currency. Corporations are constantly faced with the risk of changes in prices for raw materials, energy carriers and manufactured products. States can lose significant amounts of revenue from the export of goods due to the fall in their value on the world market.

Price risk is a kind of payment for the ability to build economic relations on a market basis. To tolerate the danger that is fraught with changes in the value of financial and tangible assets, it is also necessary because such fluctuations can also bring additional gain (Bodrov et al, 2018). For example, a long upward trend in the energy market over the past 20 years has allowed the Central Bank of Russia to increase its foreign exchange reserves by more than 44.5 times: from \$ 12.1 billion (as of January 1, 1999) to \$ 468.4 billion. (01/01/2019), fig. 1.



**Fig.1.** The volume of gold reserves of Russia in 1999-2019, billion rubles (Ivanova, 2009).

However, as world experience shows, losses arising in the event of realization of price risk usually cover all the previously obtained benefits. The consequences can turn out to be truly catastrophic. Thus, a sharp drop in world oil prices played a significant role in the collapse of the USSR. Partly for the same reason, in 1998, the Russian government defaulted on government obligations. According to an assessment by the UN Food and Agriculture Organization (FAO) made this year, the prevailing growth in food prices in many countries can lead to unrest. Moreover, in 50 states they can escalate into starvation riots, fraught with a violent shift of the ruling regimes.

Therefore, price risks are fought as far as possible. Governments are looking for opportunities to diversify their economies. Corporations use a rich arsenal of risk management tools. In an attempt to distribute risks, individuals place their savings on the markets and in different assets.

## 3. Derivative Financial Instruments as a Way to Reduce Price Risks

One of the most effective ways to manage price risks is associated with the use of a hedging mechanism. Its essence is to fix the price of delivery of the goods or financial assets on a specific date.

For this purpose, as a rule, instruments of the derivatives market are used. Such as forward and futures contracts, as well as options and swaps (Mirgaziyanovna et al, 2017).

For example, a copper manufacturer, who is wary of reducing the cost of this metal on the market, can use futures or option contracts traded on the relevant exchange to provide a

reasonable price when selling its products. In turn, the buyers of this metal have the opportunity to eliminate the risk of a sharp increase in the price of the purchased metal by making counter-transactions on the same stock exchange. At the same time, the period during which this mechanism will operate depends, in fact, only on the decisions of the hedger himself. Derivatives market tools allow you to enter into transactions for quite a long time. If the opportunities provided by the exchange are insufficient, then hedging can be carried out by concluding transactions on the over-the-counter market (Nikonova et al, 2018; Yusupova et al, 2018; Alkhateeb, 2019; da Mota Silveira & Martini, 2017).

In fact, the implementation of two basic conditions is necessary to eliminate price risk. The first one is the desire to take control of this risk. The second condition is connected with the possibility of concluding a transaction in the derivatives market for the asset that is supposed to be hedged. Moreover, its price in the futures and cash markets should change quite consistently. The problem is due to the fact that many products are not represented on stock exchanges. In addition, the qualitative differences between specific tangible assets lead to inconsistent fluctuations in their prices in the futures and real markets. (Okulov, 2015; Yusupova et al, 2017; Einollahi, 2016).

This circumstance is considered the main obstacle to the execution of a hedge. However, many experts believe that even if there are no suitable tools for hedging the price of this commodity on the derivatives market, its value can be modeled artificially. To do this, it is necessary to determine the pricing formula, which includes assets, on the basis of which derivative instruments are created, intended for trading in the relevant market.

Similarly, for example, it is possible to cover price risks when exporting natural gas from Russia, since there are no financial instruments on the world market that can hedge these products. It should be noted that at the same time, the price risks of a variety of goods cannot be eliminated even with the help of similar methods. Let us say it is almost impossible to hedge unpredictable changes in the value of cement, brick or cars. These products have neither reliable pricing formulas, nor urgent financial instruments that reflect the market value of these products. There is an opinion that hedging is necessary primarily for producers. This is a misconception caused by increased attention to the price of commodities - oil, metals, and also food. At the same time, the need for hedging is experienced by processing enterprises, exporters, and end users. For example, airlines, transport and shipping companies, utilities, etc. (Yakupov, 2018; Yusupova et al, 2017; Tosheva, 2016).

Moreover, the overwhelming majority of hedgers, almost 95% of their total number, are not mining, but processing enterprises, as well as end users. According to the experts of the investment bank Morgan Stanley, companies are beginning to apply hedging in cases where price risks can cause quite serious problems for the business. For example, the airline Lufthansa, which makes extensive use of financial instruments, has itself become a very large operator in the derivatives market (Sadeghpour et al, 2017).

Mining companies almost do not hedge their price risks, the expert notes. This is primarily due to the fact that firms thus provide a high potential for profitability of investments in their business. After all, as you know, a significant risk is inextricably linked with increased profitability. This is very attractive for many investors. But at the same time, if the mining company eliminates the threats associated with price risks, the yield of its securities will decline, which will entail a massive departure of investors.

Therefore, eliminating hedging from the firm's risk management arsenal is also a kind of strategy. Moreover, in addition to hedging, there are other opportunities to eliminate the negative impact of price risks. For example, by building a business on a vertically structured model.

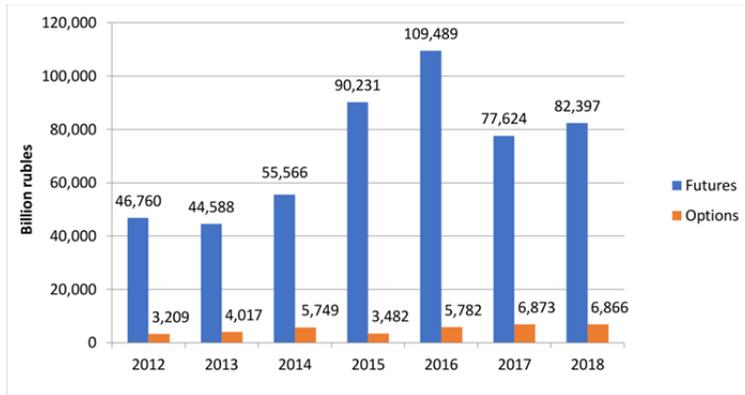
#### **4. The Problem of Hedging in Russia**

For domestic companies, hedging is still exotic for many reasons. First of all, it is because the use of this mechanism of covering price risk entails the additional responsibility of company managers. Their arguments are simple - the facts of dismissal due to the non-use of the hedge are unknown. At the same time, this happened to those who led these operations.

The second problem is connected with the fact that the derivatives market in Russia is still very poorly developed. In domestic practice, you can apply a hedge only to such goods as gold,

silver, sugar, wheat, diesel fuel, and URALS crude oil. A narrow range of tradable assets, unattractive delivery terms, and insufficient liquidity in a number of instruments — all this creates serious problems. Therefore, the current state of the derivatives market in Russia makes it possible to hedge the price risks for the most part of the products listed above.

Although, at present, the prospects for the derivatives market are growing according to analytical data of the PJSC Moscow Exchange, fig.2.



**Fig. 2.** Trading volumes in futures and option contracts in 2012-2018, billion rubles (Yusupova et al, 2017).

The volume of trading in the derivatives market in 2018 increased by 5.6% compared with 2017 and amounted to 89.3 trillion. rubles. In December 2018, the volume of trading in derivative instruments increased by 36.3% and amounted to 8.2 trillion. rubles (6.0 trillion rubles in December 2017) or 145.6 million contracts (111.2 million contracts in December 2017). The volume of trading in futures contracts amounted to 140.4 million contracts, option contracts - 5.2 million contracts. The average daily trading volume in December was 392.4 billion rubles (287.9 billion rubles in December 2017). The volume of open positions in the derivatives market at the end of December amounted to 454.3 billion rubles (702.9 billion rubles in December 2017). The volume of trading in the market of standardized derivative financial instruments in 2018 increased by more than eight times as compared with 2017 and amounted to 884 billion rubles.

Another major obstacle to domestic companies seeking to use financial markets to hedge price threats is due to tax risks. The current legislation quite clearly defines the tax regime in respect of futures transactions concluded for the purpose of hedging. However, according to experts from the PricewaterhouseCoopers Tax Office, problems in the legal field leave ample opportunities for representatives of tax authorities to interpret certain provisions of the Tax Code at their discretion. So hedge income will be considered income, and the costs of these operations will have to be reimbursed at the expense of profits. Tax risks are especially high when using tools such as options that ironically are most convenient for hedging.

However, in foreign markets the hedging is not so simple. The fact is, that in addition to the traditional problems associated with the liquidity and acceptability of a particular financial instrument for a hedge, this operation itself inevitably creates new risks. Moreover, they are not always obvious both by the nature of the impact on the final result, and by the strength of the impact on it. In some cases, ignoring these threats can lead to substantial losses, if not to the bankruptcy of the enterprise.

## 5. Qualitatively New Financial Instruments as One of the Solutions to the Problem of Price Risks

Let us give a clear example - agricultural production, in particular crop production. The peculiarity of this business is that the manufacturer cannot be completely sure of how much finished product he

will receive until it is in stock. Since before that, either a strong hail can happen, which is able to knock out grain from ripe ears, or the heat will not allow the grain to ripen, and heavy rainfall will not give an opportunity to harvest, etc. If this projected but not yet received volume of products is hedged in advance when prices are high, then the manufacturer may be unable to ensure the delivery of the declared goods. However, post-harvest hedging is often useless. The problems arising from agricultural producers clearly show the imperfection of the derivatives market. The tools used here are well suited for speculative gains, as well as for investment. However, the global derivatives market still has many flaws that impede hedging operations. The only way to eliminate the drawbacks is to create qualitatively new financial products. With regard to crop production, it can be defined, for example, as "output per 1 hectare in monetary terms".

According to experts, the need for such innovations is already overdue. However, the psychological readiness of participants in financial markets to accept new financial products is doubtful. For example, the widely advertised weather futures, abundantly represented on the stock exchanges of the world, many years after the appearance of these instruments, remain virtually unclaimed by neither speculators nor hedgers.

Nevertheless, despite all the difficulties and problems arising in connection with hedging, it is necessary to apply this price risk management mechanism. The feasibility of such activities is largely determined by the costs arising from the administration of the hedge.

It should be noted that the feasibility of a hedge for companies of different sizes is not the same. According to experts in the field of risk management, the economic benefit arises from firms whose annual turnover exceeds 500 million rubles. At the same time, one should not lose sight of such an essential moment as the individual features of a particular business. In some cases, the economic feasibility of the introduction of hedging in the enterprise may occur with a turnover of 2.5 million rubles per year. This applies in particular to travel companies.

Such firms often need to cover the risk associated with currency fluctuations. Especially if the costs are denominated in a currency that is not common among Russian citizens. In this case, the costs and revenues are multi-currency. Otherwise, you will have to constantly change the cost of travel vouchers, which may lead to the loss of competitive advantages.

This problem is solved by reducing the cash flow of different currencies to a common denominator. It is enough to use a suitable futures contract, option, forward, or turn to the spot market instruments. In any embodiment, such hedge is the easiest to implement, moreover, it is associated with very insignificant costs. Therefore, in this case, the administrative costs are so low that they allow even small firms to derive additional benefits for their business from hedging.

However, there are not many ways to reduce hedge costs. One of the options is to outsource this business process. Companies providing similar services are few, but they exist. Another option involves the purchase of structured financial products that are able to fulfill the task of covering a specific price risk.

## 6. Findings

There are always financial risks in the activities of any companies. They can be associated with the sale of manufactured products, as well as with the risk of depreciation of capital invested in any assets. This means that in the course of their activities, companies, other legal entities and individuals, are faced with the possibility that they will incur a loss as a result of their operations, or the profits will not be as good as they expected due to an unexpected change in prices for that asset, with which the operation is performed.

Financial risk involves both the possibility of loss and the possibility of winning, but people, in most cases, are not prone to risk, and therefore they agree to give up more profit in order to reduce the risk of loss. Derivative financial instruments are used for this purpose - forwards, futures, options, and risk reduction operations with the help of these derivatives are called hedging (from the English «hedge», which means to enclose a fence, to limit, to avoid a direct answer).

## 7. Conclusion

Thus, the modern economy is characterized by significant price fluctuations for many types of goods. Producers and consumers are interested in creating effective mechanisms that can protect them from unexpected price changes and minimize adverse economic consequences.

Under market conditions, price risks increase, and at the same time opportunities are created for their effective management. The management tool is hedging, which allows entrepreneurs to insure themselves against possible losses by the time the transaction is liquidated for a term, provides increased flexibility and efficiency of business operations, and reduces the cost of financing trade in real goods.

## 8. Acknowledgements

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