

---

## Methodological Basis for Justification of the Risk-Oriented Strategy Development: The Case of a Grain Trading Company

---

O.Yu. Gavel<sup>1</sup>, A.Yu. Usanov<sup>2</sup>, V.I. Barilenko<sup>3</sup>, V.V. Rokotyanskaya<sup>4</sup>, N.V. Valuiskov<sup>5</sup>

**Abstract:**

*The article discusses the perspectives of hedging instruments used for justification and monitoring the effectiveness of risk-oriented strategies of development of grain trading companies.*

*The analytical tools that support decision-making under risk in agriculture are identified. The characteristics of the occurrence and realization of the risk factors in the grain market, the destructive potential of individual risks of agribusiness are also investigated.*

*The method of strategy development in conditions of high uncertainty in terms of the price on grain and derived products are proposed.*

*It includes identification and assessment of the potential effects of risks, revealing the most dangerous risks for hedging by mean of option models and derivatives. Analytical model for justification of risk-oriented strategy for grain traders companies allows maintaining its financial sustainability regardless of the state of the grain business traditional risks.*

*It positively affects on the key factors of the market value.*

**Keywords:** Agriculture, Grain Trading; Justification of Strategy, Risk, Hedging.

**JEL Classification:** Q17, L10.

---

<sup>1</sup>Financial University under the Government of the Russian Federation, Moscow, Russia.

<sup>2</sup>Financial University under the Government of the Russian Federation, Moscow, Russia.

<sup>3</sup>Financial University under the Government of the Russian Federation, Moscow, Russia.

<sup>4</sup>Russian State Agrarian University named after K.A. Timiryazev, Moscow, Russia.

<sup>5</sup>Don State Technical University, Shachty, Rostov Region, Russia.

## 1. Introduction

Nowadays, the risk management concept considers risks not only as a threat to business but also as a possibility of its growth to achieve a higher value-added. Most of Russian experts associate risk assessment with the probability of negative outcomes resulting in losses and unnecessary costs (Ivashkevich, 2013; Sibirskaya *et al.*, 2016; Serebryakova *et al.*, 2016). In this case, the COSO-based approach (Steinberg, 2004) appears to be the most effective in analyzing and justifying management action in the face of partial or total economic uncertainty. This approach is based on risks classification according to their sources of origin, risk occurrence areas, their outcomes, etc. and presumes the incorporation of obtained information in databases used for building risk manager dashboards. The IT-environment thus formed allows for improving internal control, audit and integrated initiatives aimed at increasing business efficiency, it also enables the risk managers to take account of company key stakeholders' attitudes towards risks (Bulyga, 2012). At the same time, the management audit gives the company an opportunity to assess the effectiveness of internal control and risk management systems; to justify, monitor and correct the managerial decisions, thus contributing to the growth of efficiency and productivity.

## 2. Methods

The COSO-based approach implies that internal control and risk management processes are operated by the same persons, as they are inextricably linked. However, it should be noted that risk management has a wider range of goals, covering both the development of a strategy, and the economic efficiency of the enterprise. The main risk management processes according to COSO methodology are presented in Figure 1 (Kleindorfer and Saad, 2005). In recent years, there has been an increased interest on the part of business analysts in long-term economic capital assessment, calculation and application of its indicators; marginal values of the key parameters for a company's development based not on the current cost of risk, but on the long-term income volatility forecast (Baram and Bourrier, 2011; Andersen, 2010; Algin, 1989; Ilyenkova, 1999; Barilenko *et al.*, 2014; Pikford, 2004; Barilenko *et al.*, 2015; Berdnikov and Gavel, 2013; Melnik, 2011). Attention of the analysts is focused not only on the financial and economic, but also scientific, technical, operational, social and ecological indicators of development providing realization of a stakeholder approach in business management.

Our review of various studies on the issues of analytical justification and monitoring of a company's marketing strategy (Ivashkevich, 2013; Baram and Bourrier, 2011; Andersen, 2010; Algin, 1989; Ilyenkova, 1999; Barilenko *et al.*, 2014; Pikford, 2004; Barilenko *et al.*, 2015; Berdnikov and Gavel, 2013; Melnik, 2011; Kogdenko, 2012) allowed revealing the following new research areas: development of new business intelligence tools to justify and monitor implementation of managerial

decisions in the situation of total or partial economic uncertainty; forecasting and monitoring of probable risk implications in agribusiness; control and analytical secure of flexible regulations of business processes.

**Figure 1.** *Areas of risk management processes in accordance with COSO methodology*

<b>Areas of risk management processes</b>
Analysis of business environment and organizational culture
Problems decomposition and setting of targets, identifying those most vulnerable to the impact of a negative event
Identification of hazard events influencing goals achievement
Assessment of the probability of a hazard event and its potential impact on the achievement of company goals
Determination of risk response ways: reactive action development and evaluation of opportunity to decrease the risk implementation
Implementation of control activity: policy and procedures necessary for reactive action correct performance
Data collection and exchange, providing access to the information to interested parties
Risk monitoring

Our study is attempting to achieve a comprehensive risk analysis for the grain crop market as one of the most complex sectors of agrarian economy, and to explore the potential of hedging instruments such as futures and options in order to develop a risk-oriented strategy for a grain trading company. The world grain market is characterized by a high volatility due to fluctuations in world prices of grain and grain products, considerable impacts of climate changes on agricultural productivity which increases with the improvement of material base and financing opportunities. Food shortages have already caused the occurrence of political risks, particularly in poor countries of Asia and North Africa.

### 3. Results

The analysis of Russian grain market shows a significant volatility of domestic spot prices: more than by 3 times for a ton of food wheat (classes 3 and 4). A significant change in price makes foreign trade contracts economically unprofitable even for large grain trading companies. In this context, the government, as a rule, introduces the restriction / embargo on grain export undermining the interest of foreign partners in cooperation with Russian exporters and carries out grain interventions when internal market prices can not compensate grain storage and production costs. This ultimately leads to a deterioration of financial position of producing companies and traders. A classification of grain market uncertainties by their sources is shown in Table 1.

**Table 1.** *Uncertainty in agriculture: Main sources*

<b>uncertainty nature</b>	<b>sources</b>
yield uncertainty	natural factors influencing the production process and thus affecting costs and output

market price uncertainty	the scale of economic activity, volume of export and import operations, domestic demand, results of competitors' economic activities
government economic policies	restriction / embargo on export and import operations, grain interventions by the Ministry of Agriculture of the Russian Federation

The risk management methods include, first of all, insurance and hedging. While the former is largely used in Russia, the latter is virtually not used to its full potential. The main reasons, of which the list given below is far from complete, include:

- the lack of skills and experience of management staff, their reluctance to take on responsibility for possible adverse effects of risk-oriented strategy implementation;
- risk aversion and therefore the lack of activity in stock markets.

The well-established pattern of behavior has become a significant barrier for many companies, impeding the development of risk-oriented strategies based on the use of risk-hedging tools. Applying risk-oriented strategies, grain market operators increase their ability to achieve a sustainable production output and financial stability (which is essential for foreign partners), to develop and update their technical and technological systems. As a result, the market value of business increases which perfectly responds to the interests of the company stakeholders.

An analytical justification of risk-oriented corporate strategies firstly implies the identification of risk management purposes and critical level of risk appetite, i.e. the consequences of the realization of risk factors acceptable to the company. At the same time, we define business risks as all risks inherent in a company's activities, considered in the light of the compensating effects of separate risk factors. In our opinion, a company's risk profile includes the following major groups: strategic risks including risk of losing competitive advantages, key customers and trained staff, investment and reputation risks; market risk including assessment of interest rate and exchange risks, risk of price fluctuation; hazard risks - risks of business failure, physical damage, incurrence of liability; operational risk - industrial sector and geographical area risks. The above-mentioned risk groups influence each component of the equation (1) establishing relations between types of risks and the factors of company's value formation (Kogdenko, 2012):

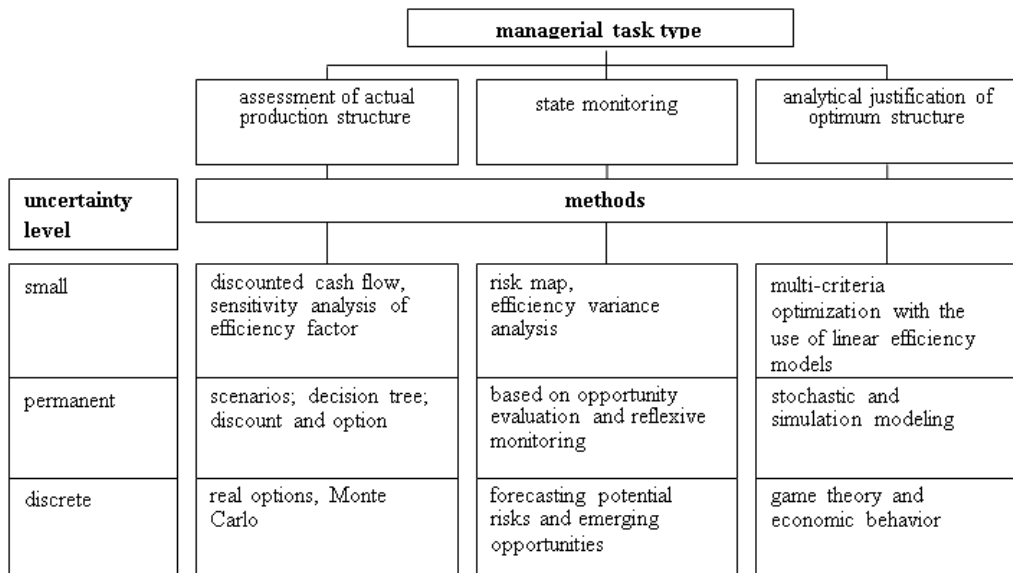
$$MV = NA * (ROI : WACC) + VA + LRV \quad (1)$$

MV - market value; NA – net assets; ROI– risk of investment; WACC – weighted average cost of capital; VA – added value assessed through the prospects of business growth resulting in net assets growth; LRV – long-range value representing the assessment of business advantages while selling it to a potential buyer.

The company's risk-oriented strategy and the corporate business model should be developed simultaneously. Identification of drivers influencing key indicators of business value is considered in the view of modern risk management concept as an additional factor of the company value creation. Avoiding risks or transferring them, a company reduces the potential growth in its net assets. Reflexive monitoring, identification of hazard factors, formation of risk tolerance/ hedging are integral part of risk management (Barilenko *et al.*, 2014).

We have developed a set of analytical tools helping to make managerial decisions in the risk environment based on analyzing alternatives and level of economic uncertainty (Figure 2). The development risks has to be identified according to the change of external environment and the volatility of internal environment. In these conditions, risk management and its analysis are carried out in conjunction with the internal control and strategic analysis systems. In our view, operational risks can be considered as diversifiable, market risks – as hedged, and hazard risks– as insured.

**Figure 2.** Analytical tools to support decision-making in the risk environment



Accordingly, operational risks can be considered as diversifiable, market risks – as hedged, and hazard risks – as insured. According to domestic practice, production, market and "human" risks are the most important for Russian agricultural producers. The most essential deviations of production and financial results from expected ones are usually caused by high variability of climatic conditions. It is almost impossible to predict them for the entire long-term production cycle; therefore weather hedges are widely used in agribusiness all over the world. At the same time, it should be

noted that regulatory risks are also partially defined by climatic fluctuations. Market and production risks are among the most hardly predicted. The effects of other risks on the results and business continuity of agro-industrial companies might be defined to be irregular and unsystematic. The "human" risk can have devastating effects, imposing the use of all feasible tools to prevent it. Risks influence on the company economic performance can be multidirectional in nature. To carry out a comparative assessment of development strategies it is reasonable to identify and monitor the total integral risk. We consider the integral risk as the set of risks proper to individual business processes relevant to the activity of a company. Differentiation of the main risk sources by production and sales stages is presented in Table 2.

**Table 2.** Classification of the main risks sources by stages of operational cycle

<b>Production and sales stages</b>	<b>Risk sources</b>
Primary production	Drop in prices after making decision on the cropping plan, or after placement for storage; Increase in prices after sale contract conclusion
Processing	high procurement prices for grain intended for industrial processing; decrease in selling prices for vegetable oils; fluctuations in the exchange rate
Export	export prices fall after grain purchase; increase in prices after sale contract conclusion; fluctuations in the exchange rate

Justification of decisions on total crops amounts and cropping plan is carried out annually, based on the forecasts for next year, analysis of the economic situation, grain ending stocks. As it has been already noted, the influence of a climatic factor on agribusinesses is extremely important, its negative changes can lead to substantial losses caused by grain shortfalls or price volatility. An efficient price for grain includes, as a rule, the basic component (local factors of supply and demand, transportation, differentiation, etc. ~ 20%) and "futures factors" (general economic conditions of supply and demand in the world market ~ 80%).

At a company level, the risk management procedures include volatility monitoring and actions aimed at enhancing productive and smoothing counterproductive variability. There are two approaches to the solution of this problem: (1) flexible modification: a reflexive monitoring aimed to decrease volatility parameters in production output (Berdnikov and Gavel, 2013); (2) variability mitigation by application of a set of approaches, including derivative market tools.

The use of flexible adaptive business models in combination with hi-tech production culture provides the companies with the opportunity to implement the first approach to solve the volatility problem.

The agricultural producer is always the underlying asset's owner: he has a long position, the seller is in the contrary situation: he has no underlying asset and acquires it on the market: he has a short position. Analyzing the active trading positions one must take into account that the seller needs to get into a short futures position to fix the asset selling price; the buyer, on the contrary, enters into futures contract for future delivery of underlying assets at a fixed price. Russian agribusiness could be characterized by the fact that cereal crops are harvested only once a year, and the vast majority of large contracts are futures in nature. Small and medium agricultural producers, in the hope to get greater returns, than it was expected before or during the peak agricultural season, wait for harvesting and try not to fix the price. Therefore both large and small trading companies need the option determining the price range for assets, making the organizations with multi-option strategies more stable when forming a balanced portfolio of crops.

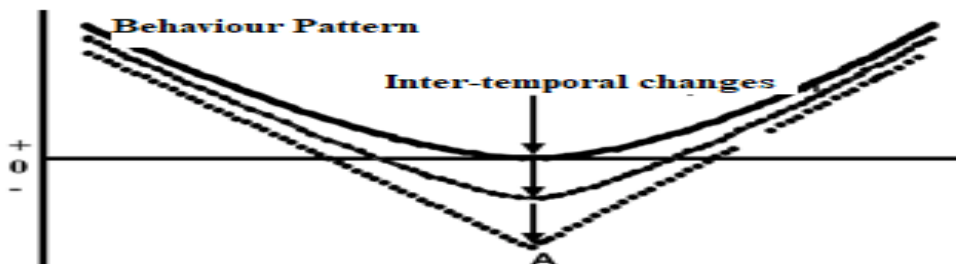
#### 4. Discussion

There are several option strategies applied by market traders to earn profit on market price fluctuations. The most often used strategies for grain markets are "long-straddle" and "long-strangle", "short-straddle" and "short-strangle", as well as proportional "call backspread" and "put-backspread" strategies (Figures 3-8).

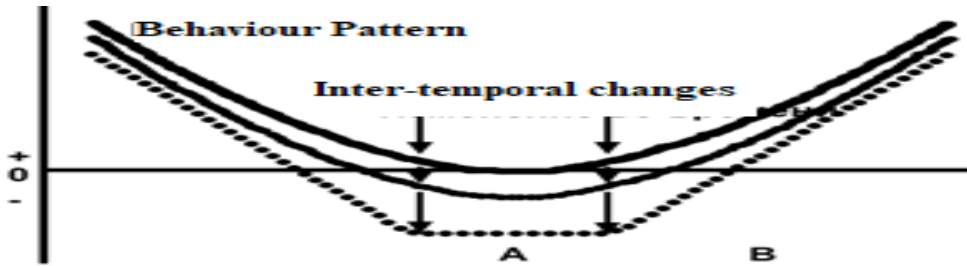
In agribusiness, the most popular models of risks hedging are "long-straddle" and "long-strangle" strategies. The Figure 3 shows the "long-straddle" payoff curve. The combination of this strategy includes a long position in both call and put options with the strike price "A", at the same time potential losses are defined as the cost of long-straddle. The trader is insured against any price fluctuations, getting profit with the help of financial instruments if the strike price is higher or lower than the difference between the exercise price and the premium.

Figure 4 shows the "long-strangle" strategy which is to be applied at a high volatility. It is characterized by a long position in put option with the strike price "A" and a long position in call option with the strike price "B". It has to be noted that this strategy is cheaper than the "long-straddle" strategy by a few percentage points.

Figure 3. Long-straddle payoff diagram

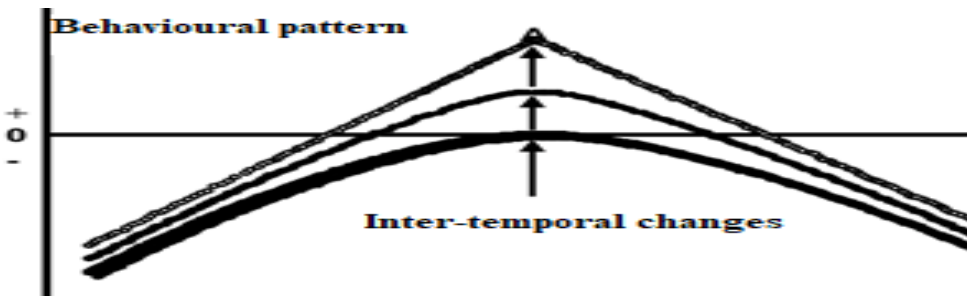


**Figure 4. Long-strangle payoff diagram**

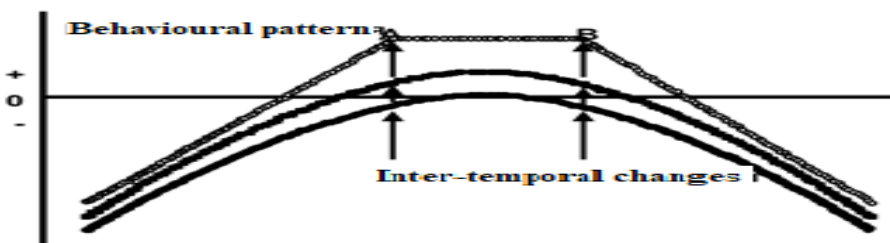


"Short-straddle" and "short-strangle" (Figures 5, 6) strategies are opposite to the above-considered, they demonstrate maximum efficiency when the underlying asset is supposed to experience little volatility. Volatility of the "short-strangle" strategy is rather low, however it can be higher than the volatility of the "short-straddle" strategy. In a short position, these options have one fixed strike price. Earnings growth is limited by the premium and is achieved due to their selling, at the same time losses can be unlimited.

**Figure 5. Short-straddle payoff diagram**



**Figure 6. Short-strangle payoff diagram**

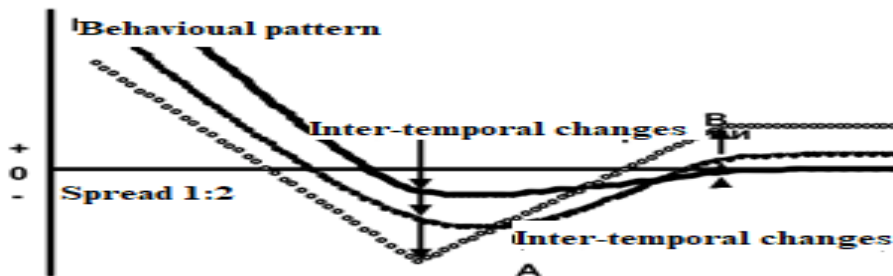


The call backspread and put backspread strategies are recognized as rather effective for grain markets hedging (Figures 7, 8). They are used in various situations. Call backspread ("call-spread" – "short-call A ", "two long-calls B ") works well if the

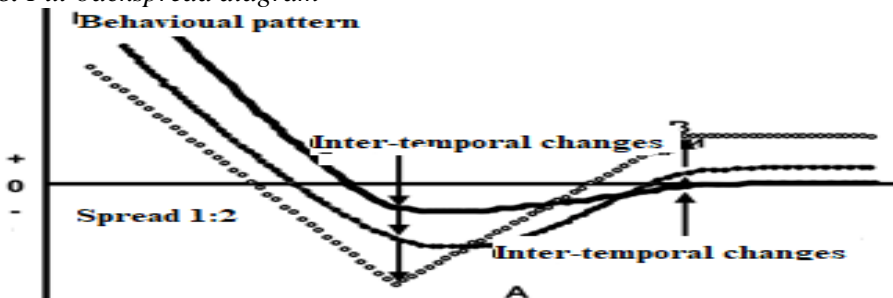


price of underlying asset (not owned by the trader ) is forecast to increase, and put backspread ("put-spread" – "short-put B ", "two long-puts A") – if the price is expected to fall. The strategies listed above are just possible options, and their list is not exhaustive (Natenberg, 2007). The ultimate goal of a company's risk strategy should be the use of risk factors in order to create additional value for the business stakeholders and to mitigate the risk impact on financial results. The main challenge faced by the analysts is to compare several mixed and pure risk strategies to find the optimal one for the given grain trading company.

*Figure 7. Call-backspread diagram*



*Figure 8. Put-backspread diagram*



Organizational and economic specifics of doing business affect the development of corporate strategy. In modern conditions, there are two opposite approaches to evaluating integration processes in agricultural area. The first approach considers integration processes to be a necessary condition of the increase in competitiveness and technical level of agricultural producers. Large land-owners, possessing 10-12% of arable land, provide as much as the half of the total cereal production of the Russian Federation. The second approach considers that the efficiency of vertically integrated agribusinesses is lower, than that of the non-integrated companies, the price of crediting agricultural cooperatives and farms is much higher that of large agriholdings. Based on the data of empirical researches, we have concluded that this view does not consider all the input costs typical for small business in Russia which makes a number of analytical indicators incomparable.

As a rule, Russian agriholdings are driving forces of high technology application in grain production and define its organizational and technological standards, providing stable volume of grain stocks. This resulted in the emergence of new market operators with even wider range of business activities compared to holding structures. Their effective demand contributes to the development of farm machine industry and seed farming, and their potential to lobby the interests of domestic producers at the local and federal levels is one of the main advantages of agriholdings. Therefore, the inappropriate staff training and retraining; shortage of experts, often compensated by attraction of low-skill labor migrants from the Central Asia, is a decisive factor restraining the development of agribusiness. As a result, the most part of agricultural companies of the Russian Federation are non-competitive on cost and exist only due to the government subsidies.

On the example of a grain trading company from the Black Sea region of the Russian Federation, the authors have proved the adoption of optimum market strategies to be realized when grain prices are forecast to rise or to fall, they also have defined long-term and short-term effects of the chosen strategy implementation (Gavel, 2013).

Analytical justification of grain trader's risk-oriented business strategies assumes identification and assessment of probable risk impacts defining the most destructive for hedging with the use of option and derivative models. The combined strategies of building market portfolio for a grain trader are, in our view, the most promising. The analytical justification of a risk-oriented strategy for a grain trading company assumes the minimum cost of option purchase in the context of increase in spot grain prices and an additional revenue at prices falling below the target level. The implementation of a risk-oriented strategy using hedging instruments allows for adjustment of company's business model, which maintains its financial stability regardless of the status of traditional grain business risks: operational, commercial and financial, having positive impacts on major factors of market value formation. Decrease in discount rate is due to the fact that it was calculated without use of risk leveling instruments compulsory in the context of market volatility before the risk-oriented strategy had been applied. The application of mathematical models estimating the cost of option strategies considerably increases the accuracy of revenue forecasting (Natenberg, 2007).

## **5. Conclusions**

Thus, the use of option theory allows reducing the influence of currencies fluctuations on the volatility of profit and sales revenue, increasing stability of financial results. This gives opportunity to accept a large debt without the increase in default risk, to increase leverage, final grain stocks, to benefit from economies of scale in grain products delivery without any threat of losing ownership controls. Flexible regulation of business processes and active approach to establishing grain

reserves also provide the decrease in adverse influence of regulatory and climatic factors on the operational business results.

## **References:**

- Algin, A.P. 1989. Risk and its role in social life. Moscow, Mysl, 207.
- Andersen, T.J. 2010. Strategic Risk Management Practice. Copenhagen Business School, 268.
- Baram, M., Bourrier, M. 2011. Governing Risk in GM Agriculture. Boston University Law School, 288.
- Barilenko, V.I., Berdnikov, V.V., Gavel, O.Y. 2014. Analytical justification of perspective business models of the small businesses. Administrative sciences, 4(13), 67-77.
- Barilenko, V.I., Berdnikov, V.V., Gavel, O.Y., Kerimov, C.V. 2015. Analytical justification of competitive business models: work-book, under the editorship of the professor V.I. Barilenko. Moscow, RUSAYNS, 315.
- Berdnikov, V.V., Gavel, O.Y. 2013. Analytical development tools and business models efficiency monitoring. Audit and financial analysis, 3, 283-294.
- Bulyga, R.P. 2012. Prospects, problems and ways of business audit development. Monograph chapter. Current problems of business analysis development in the conditions of focus on the innovative way of development. Moscow, Publishing house of Financial university, 94-108.
- Gavel, O.Y. 2013. Analytical justification of risk-oriented strategies of agribusiness development. Audit and financial analysis, 5, 54-74.
- Ilyenkova, N.D. 1999. Risk research methodology of economic activity. Doctoral thesis 08.00.12. Moscow, 42.
- Ivashkevich, V.B. 2013. Audit risks assessment and risk management systems in a large company. Audit and financial analysis, 1, 200-204.
- Kleindorfer, P.R., Saad, G.H. 2005. Managing disruption risks in supply chains. Production and operations management, 14(1), 53-68.
- Kogdenko, V.G., Melnik, M.V. 2012. Company value management. Value-oriented management: textbook. Moscow, UNITY-DANA, 447.
- Melnik, M.V., Berdnikov, V.V. 2011. Analysis and control in the commercial organization: Textbook MVA. Moscow, EKSMO, 560.
- Natenberg, S. 2007. Options: Volatility and cost estimation. Strategy and methods of option trade. Moscow, Alpina Business Books, 544.
- Pikford, J. 2004. Risk management. Moscow, LLC Vershina, 352.
- Sibirskaya, E., Yamykh, E., Eldyaeva, N., Dubrova, T. and Oveshnikova, L. 2016. Strategy of Systemic Development of Entrepreneurial Infrastructure of Regional Economy. European Research Studies Journal, 19(2), 239-262.
- Serebryakova, N.A., Semenenko, S.V., Grishchenko, N.V., Ulchenko, T.Y. 2016. Competitive Potential of Trade Organization: Theoretical and Methodological Foundations of Formation and Realization. European Research Studies Journal, 19(2), 1-12.
- Steinberg, L. 2004. Risk-taking in adolescence: What changes, and why? Annals of the New York Academy of Sciences, 1021, 51-58.