

## THE CONTROL OF TRANSACTIONS WITH DERIVATIVES IN THE NON-FINANCIAL ORGANIZATIONS IN THE REPUBLIC OF BELARUS

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**Abstract.** Nowadays derivatives as a risk management instruments can be the source of increased risk themselves. Non-financial institutions are more likely to use derivatives to hedge market risks rather than to engage in speculative strategies in order to profit from short-term changes in market variables, which priori implies an increased level of risk. Hedging with derivatives can be considered as a less risky activity than speculation, however we cannot say that it is absolutely risk-free. Unfair actions in the department of finance, errors in the development and implementation of the hedging strategy, counterparty defaults on derivatives – all these are potential losses for the company, which applies hedging. In order to eliminate or minimize the negative consequences, which may occur from the presence of derivatives in the portfolio of the organization, well-structured control procedures are necessary. The aim of the study is to develop such control procedures. For this purpose general scientific research methods were used: analysis, synthesis, generalization, induction, deduction, observation. Methods of theoretical research: idealization, formalization, method of logical analysis, classification.

According to the results of the study, the factors that increase the risk of applying derivatives in non-financial organizations were identified. They are the following: specificity of derivatives, the risk of unfair actions of employees and contractors, low creditworthiness of counterparties, difficulties in reflecting derivatives in financial statements, etc. Taking into account the identified factors controlling procedures on transactions with derivatives for non-financial organizations of the Republic of Belarus was proposed. Those techniques will provide non-financial organizations confidence that non-core risks, associated with derivatives, are under the control of both responsible managers and senior management, which will convince investors in the reliability of investments in such organizations.

**Key words:** *derivatives, control procedures, hedging, risk*

**JEL code:** G13, M19

### Introduction

For non-financial organizations economic results should primarily reflect their core business risk and should not be exposed to large fluctuations caused by extraneous factors, such as changes in oil prices or interest rates. Prior to the advent of derivatives markets it was quite burdensome to manage risks. Ensuring that the actual level of risk meets the desired level required transactions with underlying assets, while derivatives solve these problems very effectively: they allow organizations to trade risk without trading the underlying asset itself (Wendy L., 2017). It means that derivatives provide an effective method of transferring risk from parties who do not want to be exposed to this risk to those market participants who are willing to take it upon themselves. They are hedge funds, professional traders and other speculators who are willing to take risks in order to profit from short-term changes in market variables (Pankov P., Masko L., 2018).

Thus, if the current (operational) activity of the company isn't aimed at profiting from changes in market variables (prices, interest rates, exchange rates, etc.), but the impact of these variables on the final results is significant, the

company's management may be interested in the development and implementation of a hedging strategy to get protection from market risks. The choice of specific hedging instruments depends on the knowledge and experience of specialists from financial department and will differ for every company due to the specifics of the industry, the availability of certain financial products, etc.; while the internal control system of any non-financial organization should provide management with confidence that derivatives won't cause huge losses and hedging strategy won't become a source of increased risk itself. As we can see from real practice, the reluctance of senior management to understand the complexities of derivatives, unfair actions or errors of employees from financial department, speculative operations under the pretext of hedging and a number of other factors can lead to the collapse or huge financial losses, which in most cases is caused by an inefficient system of internal control (Jacque L., 2015). Here we face with the question, how the control system should look like in order to make sure that derivatives, being a risk management tool, won't become a source of increased risk themselves.

The purpose of this work is to develop a control methodology, which will allow non-financial organization to eliminate or minimize the negative consequences that may occur in terms of the presence of derivatives in the portfolio of the organization. To do this, the following tasks will be solved:

- to analyze for what purpose non-financial organizations use derivatives in their activities;
- to identify and characterize the factors that increase risk of derivatives usage in non-financial organizations;
- to develop a control methodology of transactions with derivatives for Belarussian organizations.

### **Research results and discussion**

Non-financial organization may consider the derivatives market as the source of additional income, if its current activity isn't exposed to changes in market variables (commodity prices, exchange rates, interest rates, etc.). Otherwise, the company may be interested in applying hedging with derivatives. Since the use of derivatives isn't widespread in the Republic of Belarus, we consider foreign studies related to the peculiarities of derivatives usage in non-financial organizations. In most of these studies attention is paid to the issues of hedging risks using derivatives: the objectives, volumes, types of hedging are studied. Special attention is given to the relationship between hedging and increase in firm's market value and its investment attractiveness. Here are some of these studies.

As noted by Stulz (2013) corporate managers, on the basis of their professional intuition, rather often assume that an effective risk management program helps to increase the shareholder value of the company and its investment attractiveness.

Corporate hedging may be considered as a source of increasing shareholder value due to the fact that corporations use hedging to minimize expected taxes, underinvestment and financial costs (Aretz and Bartram, 2010).

Also Smith and Stulz (1985) argue that hedging with derivatives can bring significant benefits in countries, where companies have a convex (non-linear) tax scale. Hedging reduces the volatility of taxable income, leading to lower expected tax liabilities, and these tax savings have the potential to increase the value of the firm. Hedging can also increase shareholder value by mitigation the costs of financial shocks, which include bankruptcy and legal expenses.

The Bodnar study (2011) provides information on the objectives of the risk management strategy. Thus, for 705 companies in the non-financial sector worldwide, the main objectives are to increase the expected future cash flows; avoid large losses from unpredictable price changes; increase the value of the company. Also it is noticed that 71% of reviewed companies in the extractive sector, 67% in the manufacturing sector and 46% in the services sector use derivatives in their risk management strategy to hedge market risks.

As noted by Erik P. Gilje (2017), hedging plays the central role in risk management. In addition, the benefits of

hedging are theoretically well researched. However, there is lack of empirical evidence, that clearly shows how hedging affects the value of a firm and its investment attractiveness. The main reason for the lack of such evidence is related to the endogenous nature of hedging strategy.

Also, researchers in this area have conducted a number of studies on the example of various industries, the results of which don't allow to say definitely, whether hedging has impact on shareholder value or not. Thus, Allayannis and Weston (2001) checked the relationship between hedging the risks of foreign currency activities and the Tobin Coefficient (Q) and concluded that hedging increases the value of the company. The benefits from hedging are also supported by Carter et al. (2006) on the example of the US airline sector.

On the other hand, Jin and Jorion (2006) note that hedging doesn't affect the value of the company in the field of oil and gas production and even negatively affects the value of the company in the gold mining sector (Jin and Jorion, 2007). Bartram et al. (2011) also note that the impact of hedging on firm value is likely to be insignificant and cannot be unambiguously estimated over a long period of time.

Phan et al.'s (2014) on the example of 94 companies specializing in the exploration and production of oil and gas for the period from 1998 to 2009 notes the significant negative relationship between hedging and shareholder value, i.e. losses from hedging. The authors point out that at the theoretical level hedging can increase the value of a firm by reducing the costs associated with underinvestment and financial instability; however, there is very little reason to expect that these costs will materialize, if oil and gas prices are more likely to increase. It means that hedging increases shareholder value only, if there is a risk of negative price movement, when risks become more significant.

Wang and Birkeland (2017) relatively to the inverse relationship between hedging and firm value note that the impact of hedging in the sector of oil and gas production depend on the price patterns and is sensitive to sharp falling of prices. The authors note that investors recognize the need for hedging in crisis periods, and, accordingly, are ready to invest in those companies, that actively use this method of risk management. At the same time, during a stable market situation, investors are not inclined to recognize the effect of hedging. This findings help to explain the variability of previous empirical research. For example, Jin and Jorion (2006) study showed no connection between hedging and firm value due to low volatility during the sample period. Concerning Phan et al.s (2014) it is noted, that hedge losses are generally associated with a steady increase in prices during the reviewed period.

R. Stulz (2013) also notes that quite often the losses on derivatives under the well-thought hedging strategy are considered as a failure in the risk management system. Although the company applies hedging because it cannot predict, what result in the future will be received from the asset, liability or future cash flow that is exposed to market risk. And in order to avoid this uncertainty organizations resort to hedging, while if the market movement is favorable for the company, then the hedging instrument (derivative) will bring an offsetting loss.

At the same time, in the study of derivatives usage at the corporate level, conducted by M. Bartram (2017), is noted that now the global (not only the companies from the United States) studies for both hedging and speculation are very limited. The author confirms the logical thesis that non-financial organizations are more likely to hedge against the risk of changes in exchange rates, interest rates or commodity prices than to attempt to take speculative positions in order to profit from short-term price fluctuations. Also it is noted that most companies resort to the use of derivatives from time to time, based on their vision of the market at a particular time.

Thus, non-financial organizations use derivatives mainly to hedge risks in order to ensure the predictability of cash flows and, as a consequence, increase the value of the company. Accordingly, speculative transactions with derivatives, conducted by financial department, should cause healthy mistrust from the side of control department and senior management as well. However, even if there are no speculative transactions, the use of derivatives solely for hedging

doesn't guarantee that significant unexpected losses won't be received. In this regard, we consider that it is necessary to investigate the factors that may increase the risk of unplanned losses on derivatives in non-financial organizations.

As noted by Jacque L. (2015), if the company plans or has already received speculative profits at derivatives market, it is necessary to change the attitude to financial department from senior management side. Because in normal circumstances financial department of the firm has two important tasks: providing financing at a minimum cost of capital (from short-term financing through accounts payable to medium-and long-term bank loans and borrowings in the debt market) and hedging risks by limiting currency and interest positions. Therefore the objective of the former is to minimize the cost of capital and the latter is to minimize risks. However, over the past 25 years, many companies have redefined the mission of financial departments and transformed them in profit centers without clearly defining of an acceptable risk/return profile. In such cases, the probability of receiving a loss on derivatives transactions, as well as the probability that losses will become a complete surprise to management and investors significantly increases.

Also Zeidan, R., & Müllner, J. (2015) based on the practice analysis note that the remuneration system of financial directors (CFO) with hedging orientation shouldn't create conditions for risky behavior in derivatives market.

Aabo, et al. (2012) think that the more non-financial departments involved in currency risk management, the more firm speculates both in terms of selective hedging and in terms of active speculation. At the same time, effective communication between departments creates a more integrated risk management system across the firm, as opposed to the more traditional isolated risk management system based only in financial department. In any case it should be noted that in the presence of speculative operations the control system should be more rigid, regardless of how many departments are involved in such operations.

Also, in order to identify the specific features of derivatives that increase the company's risks when using these instruments let's turn to audit practice. Thus, the Regulation on international audit practice 1012 "Audit of derivative financial instruments" (which provides practical guidance on the planning and implementation of audit procedures in respect of derivative financial instruments) highlights the following factors that increase risk on derivatives:

- minor or no outflows/inflows of funds, necessity in which appears with the onset of the execution time of the transaction;
- no minimum remaining amount or other fixed amount paid or received;
- potential risks or rewards can far exceed current costs in the long run;
- the value of an entity's assets or liabilities may exceed balance amount of recognized derivative instrument, if it's recognized, especially for entities that shouldn't reflect derivative financial instruments at fair market value in the financial statements.

As noted by Ph. Jorion (2007), one of the first steps of effective risk management is to evaluate assets and liabilities at fair value. For a long period derivatives were reflected in the accounting on off-balance accounts, hence didn't appear in the balance sheet and the statement of profit or loss. The growth of derivative markets and a number of financial shocks due to losses on derivatives contributed to the adoption in 1998 the standard SFAS 133 "Accounting for Derivative Instruments and Hedging Activities" in the United States (SFAS 133), and the international financial reporting standard IAS 39 "Financial Instruments: Recognition and Measurement". These standards established requirements for mandatory assessment and revaluation of the fair value of derivatives with the attribution the results to profit or loss. It should be noted that a similar accounting standard in the Republic of Belarus is planned to be adopted in the near future.

In the International financial reporting standards (IFRS) derivatives (derivative financial instruments) are included in the category of financial instruments, which are contracts that give rise to a financial asset of one entity and a financial

liability or equity instrument of another entity. This definition covers a wide range of financial instruments, from loans and deposits under simple terms to complex derivatives, structured products and certain commodity contracts.

Getting back to audit practice we can consider the International Auditing Practice Note (IAPN) 1000 "Special Considerations in Auditing Financial Instruments". Where is noted that financial instruments are used:

- for hedging purposes (to change an organization's existing risk structure), including:
  - forwards to buy or sell currency in order to fix the future exchange rate;
  - conversion future interest rates into fixed or floating rates using swaps;
  - purchase option contracts to protect the organization from a specific price change, including contracts that may contain embedded derivative financial instruments;
- for trading purposes (for example, to enable an organization to open a risk position to benefit from short-term market fluctuations);
- for investment purposes (for example, to enable an organization to obtain benefits in the form of long-term investment income).

The complexity inherent in some financial instruments can cause increased risk. Business risk and the risk of material distortion of financial statements are increased when management and persons responsible for corporate governance (according to IAPN 1000):

- aren't fully understand the risks associated with the use of financial instruments, and their skills and experience are not sufficient to manage these risks;
- don't have knowledge and experience to properly assess financial instruments in accordance with the applicable financial reporting concept;
- haven't implemented an effective system of control over operations with financial instruments in the organization;
- improperly hedge risks or conduct speculative operations.

Financial instruments, including derivatives, are characterized by the following types of risks.

a) Credit risk (the risk of failure on contractual obligations by the counterparty) – is the risk of default of one of the parties on its obligations arising from financial instrument, resulting in financial damage to the other party. Credit risk includes the risk of non-settlement, which arises if one party of the transaction has fulfilled its obligations and the payment from the client or counterparty hasn't been received.

b) Market risk – is the risk of fluctuations of fair value or future cash flows related to the financial instrument caused by changes in market prices. As an example, we may consider the classic case of the Metallgesellschaft on the North American market, which has already been considered by many authors, such as Edwards and Canter (1995), Saha, D. (2011), Evans, R. and Jacque L. (2004). At first glance stack-and-roll hedging strategy of Metallgesellschaft allowed it to eliminate the price risk via synthetic forward contract. In fact it created at least two other types of risk: cash flow risk at the moment of transfer futures positions and financing/liquidity risk in the case of large losses during such transfer. The present value of the gain/loss on a 10-year forward contract is significantly less than the present value of a 30-or 60-day futures contract. In other words, the barrel-per-barrel hedge was excessive and highly speculative, as it increased the firm's dependence on oil prices.

c) Liquidity risk – is the risk associated with the inability to timely buy or sell a financial instrument at the appropriate price due to the lack of market opportunities for sale this financial instrument.

d) Operational risk is related to the special processing order that is required for financial instruments. Operational risk may increase as the terms of a financial instrument become more complex. Inefficient management of operational risk can lead to increasing other types of risk. Operational risk includes:

i) the risk of insufficient control procedures in the form of confirmations and reconciliations that cause incomplete or inaccurate accounting of financial instruments;

ii) risk of inappropriate documentation and monitoring of transactions with financial instruments;

iii) the risk of incorrect accounting and processing of transactions and improper management of risks arising from operations with financial instruments, and therefore the risk of incorrect reflection of the economic aspects of trading operations as a whole;

iv) the risk that employees are overconfident in the accuracy of the assessment methods in the absence of the necessary verifications, resulting in an incorrect assessment of operations or an improper assessment of the associated risk;

v) risk of insufficient consideration of financial instruments in the organization's risk management policies and procedures;

vi) risk of losses due to insufficient or ineffective internal corporate processes and systems or the results of external factors, including the risk of unfair actions by both firm's employees and third parties;

vii) risk that the valuation methods used to measure financial instruments are used incorrectly or untimely;

viii) legal risk, which is associated with losses resulting from the actions of legislative bodies that invalidate the performance of obligations under the terms of the contract or related netting agreements.

Among other issues related to the risks arising from the use of derivative financial instruments it's possible to distinguish the following:

– the risk of unfair actions, which may increase if, for example, an employee who has the ability to commit fraud, understands financial instruments and how to reflect them in accounting better than management and persons responsible for corporate governance;

– risk that master netting agreements may not be properly reflected in the financial statements;

– risk that certain financial instruments can move from asset to liability during their term and the risk that this transition may occur quickly.

In many organizations the responsibility for determining, approving and monitoring of the implementation of the policy on the volume of transactions with financial instruments rests for corporate management, therefore the role of corporate governance is to manage the risks to which the organization is exposed due to presence of financial instruments and to monitor those risks. Management and, where appropriate, parties responsible for corporate governance are also have to develop and implement an internal control framework to ensure that the financial statements are prepared according to the applicable financial reporting concept. The organization's internal controls applied to financial instruments are likely to be effective if management and persons responsible for corporate governance (according to IAPN 1000):

a) have created an appropriate control environment, ensured the active participation of persons responsible for corporate governance in the implementation of control over the usage of financial instruments, built a well-thought organizational structure with a clear distribution of powers and responsibilities, as well as implemented appropriate procedures and policies in the field of personnel management;

b) have implemented the risk management process taking into account the size of the organization and the level of complexity of the financial instruments used by the organization (a separate risk management function can be created);

c) have implemented information system, through which persons responsible for corporate governance, can get a complete understanding of the nature of transactions with financial instruments and related risks, including adequate documentation of those transactions;

d) have developed, documented and implemented an internal control system.

Thus, on the basis of audit practice and business practices, we will identify the factors that increase the risks of using derivatives in non-financial organizations in figure 1. First of all we include here the lack of a clear division between hedging and speculative operations, resulting in the situation when financial department becomes a profit center without proper control procedures; also unwillingness to understand or misunderstanding of the essence and consequences of hedging operations from management side, the lack of revaluation of OTC (over the counter) derivatives, the risks of unfair actions and errors of employees, for example, when company opens too large loss-making positions, which require depositing additional security margin that excess currently available funds, as well as a number of other factors that are listed above. If these factors potentially can influence the effectiveness of the organization's performance indicators, appropriate response in the form of the development and implementation of control procedures in this area will be required from the senior management.

<b>Internal factors</b>	The absence of hedging strategy approved by management
	Inefficient communication between departments in the process of development hedging strategy
	The absence or ineffective control over the compliance of the concluded deals with the hedging strategy
	The absence of revaluation of OTC derivatives
	The finance department has become a profit center through speculative operations
	The absence of limits on the volume of positions and the total loss (for speculative operations)
	Disregard of the principle of independence of the audited from the inspectors
	Non-compliance (absence) of the order of document circulation on operations with derivatives
<b>External factors</b>	Use of OTC derivatives (counterparty credit risk)
	Presence of large exchange positions (it may be necessary to deposit margin exceeding the available funds)
	Adverse movements of market variables in incomplete hedging or speculative operations
	The use of specific OTC derivatives, from which, if necessary, it is impossible to get rid of (liquidity risk)
	Excessive third-party imposition of complex hedging strategies
	Legal restrictions on transactions with derivatives and settlement of such transactions

**Fig. 1. Factors that increase the risk of using derivatives in non-financial organizations**

*Source: own elaboration on the basis of the literature and report on audit practice IAPN 1000*

Lee et al. (2018) based on the results of audits of internal control systems for financial reporting (ICFR) in the US companies for the period from 2004 to 2015 note that the correct application of accounting rules for various types of derivative contracts, full and timely documentation of hedging effectiveness, and the corresponding estimates of derivatives quite often don't comply with article 404 of the Sarbanes-Oxley Act (SOX 2002) regarding the implementation of the provision of derivatives accounting under SFAS 133. The lack of technical knowledge and experience in the application of SFAS 133, as well as the lack of proper and periodic supervision of the application of SFAS 133 were the main reasons for the negative opinions on the internal control of reporting systems under SFAS 133, which resulted in costly adjustments for companies.

The key elements of risk management processes and internal control related to derivative financial instruments in the non-financial organization include the following:

– development of approach to determination the level of risk that the organization is ready to undertake on operations with derivatives (this willingness is sometimes called the "risk appetite"), including policies of investing in derivative financial instruments, as well as the principles of control applicable to activities connected with derivatives;

– implementation of processes for documenting and authorizing new types of transactions with derivative financial instruments that take into account the accounting, regulatory, financial and operational risks associated with such instruments;

– processing of transactions with derivative financial instruments, including confirmation and reconciliation of available funds and assets with data received from third parties, and settlement procedures;

– separation of responsibilities between persons investing in derivative financial instruments and those responsible for processing and evaluating derivatives as well as for confirmation of relevant information.

The implementation of the actions named above will reduce the risks of using derivatives in non-financial organizations, but the question still remains: to what aspects should be paid priority attention. In table 1 we propose a number of criteria with appropriate gradations of risk level in order to assess what specific factors of derivatives connected with increased risk. This system of criteria for assessing the risk of using derivatives can be used for individual transactions as well as for entire portfolio of derivatives.

Table 1

## Proposed criteria for assessing the risk of transactions with derivatives in the non-financial organization

№	Risk assessment criteria	Value	Risk level
<b>The risks of misrepresentation</b>			
1	Reliability of counterparties (creditworthiness risk)	The execution of transactions is guaranteed by the exchange Large reliable banks Hedge funds, investment funds, small banks	Low Average High
2	Presence of an active market by types of used derivatives	Active market for all types of derivatives Unusual derivatives are used partially Non-traditional derivatives are widely used	Low Average High
3	The applied concept of reporting	IFRS or GAAP (hedge accounting not applied) IFRS or GAAP (with hedge accounting) Accounting rules of the Republic of Belarus	Low Average High
4	Presence of opened positions and their revaluation at the time of reporting	There is no opened positions Opened positions revalued at the reporting date No revaluation of the opened positions	Low Average High
5	Presence of risk management strategy and compliance of the actual use of derivatives with this strategy	Derivatives are used according to risk-management strategy There are operations that are not fixed in the strategy No risk management strategy	Low Average High
6	Purpose of derivatives usage	Only hedging for specific, assets, liabilities and cash flows Small number of speculative transactions A clear focus on making speculative income	Low Average High
7	Organization of work with derivatives in the company	Clear delineation of powers and responsibilities There are minor contradictions between departments Powers and responsibilities are not clearly defined	Low Average High
8	Automation of the accounting of derivatives	Fully automated accounting Partially automated accounting Manual accounting	Low Average High
<b>Risks of the internal control system</b>			
9	Participation of persons responsible for corporate governance in controlling the use of derivatives	Active participation Irregular, indirect participation Not carried out	Low Average High
10	The process of risk assessment on derivatives	Carried out by a separate structural unit Carried out in the department working with derivatives Not carried out	Low Average High
11	Compliance of accounting policy in the part of accounting for derivatives with the applicable accounting standards	Full compliance Partial compliance Apparent inconsistency	Low Average High



Ending of the table 1

12	Type of input data for fair value measurement of derivatives (in accordance with the IFRS 13 hierarchy)	Level 1 inputs Level 2 inputs Level 3 inputs	Low Average High
13	Internal control system for the use of derivatives	Complete Partial Absent	Low Average High
14	Reconciliation of the organization's accounting records with the accounting records of banks and depositories on derivatives	Carried out continuously Carried out irregularly Not carried out	Low Average High
15	Risk of dishonest actions from the side of management and employees (dependence of wages on the results of operations with derivatives)	Don't pose a threat to the organization Implicitly traced interest in distortion Evidently traced interest in distortion	Low Average High
Risk of non-detection			
16	The presence of experience on derivatives from the specialists of the control department	More than 5 years of active work with derivatives From 1 to 5 years of active work with derivatives Less than 1 year or none	Low Average High
17	Competence and the necessary capacity in the control department to check the operations with derivatives	Provided by the qualification of own employees Provided by the involvement of experts Lack of competence and / or capacity	Low Average High
18	Openness of management and staff responsible for the use of derivatives and availability of information	Full Partial Absent	Low Average High
19	Methods for determining potential losses on derivatives	Potential losses are not estimated Applied methods of modeling the worst-case scenarios (stress testing and scenario analysis) Techniques of modeling worst-case scenarios combined with the assessment of value-at-risk*	Low Average High
20	Continuous or sample controlling and the sampling method	Total inspection Statistical approach to sampling Non-statistical approach to sampling	Low Average High

\* to avoid self-deception risk assessment techniques should be based on stochastic rather than historical trends (Zeidan, R., & Müllner, J. (2015))

Source: author's development

Taking into account these criteria, control methodology of transactions with derivatives in non-financial organizations, in our opinion, involves the implementation of the following steps, which are shown in figure 2.

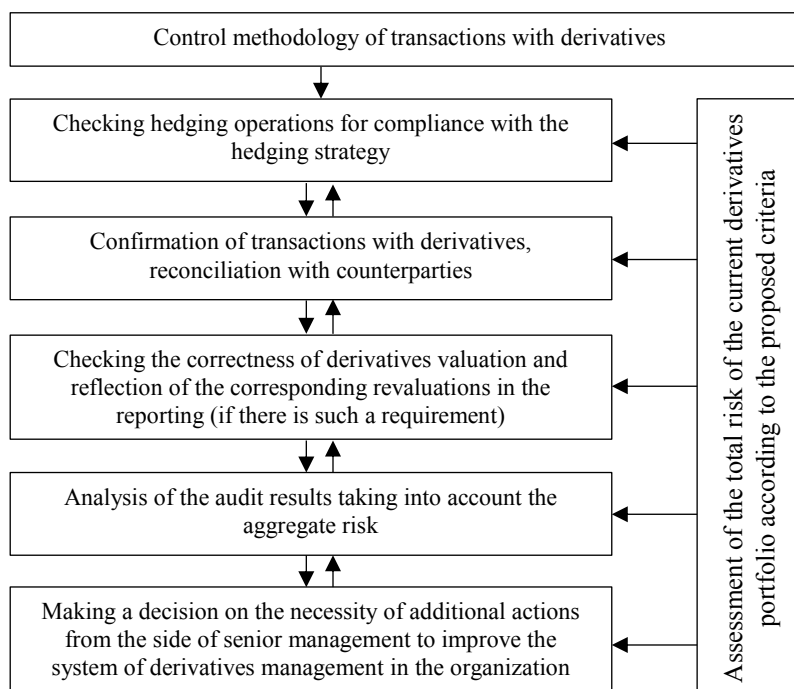


Fig. 2. Control methodology of transactions with derivatives in non-financial organizations

Source: author's development

The proposed methodology of control involves a consistent assessment of the compliance of the actual use of derivatives with the approved hedging strategy, verification of the reality of the conclusion and the adequacy of the assessment of positions on derivatives, analysis of the relevant results and the final decision on the effectiveness of hedging with derivatives. At the same time each step assumes the assessment of total risk of the current derivatives portfolio according to the proposed criteria that will allow company to understand the essence of actual transactions and most possible risks of existing operations. As a result, the consistent implementation of the proposed control procedures will allow identifying weaknesses in the derivatives management system in the organization and making a decision on the necessity for additional actions the side of senior management to bring the total level of risk on transactions with derivatives to an acceptable level.

### **Conclusions, proposals, recommendations**

Thus, according to the results of the study, the following can be noted

1. For non-financial organizations the most acceptable usage of derivatives is the application them as a risk management instrument for hedging risks of changes in market variables, resulting in increasing the value of the company and its investment attractiveness. Obtaining speculative income from derivatives in such organizations indicates that the financial department becomes a profit center, which increases organization's risks and requires adequate management decisions.

2. The factors that increase risks of using derivatives in non-financial organizations are the lack of a clear separation between hedging and speculative operations, unwillingness to understand or misunderstanding the essence and consequences of hedging operations from the side of corporate management, the absence of revaluation on OTC derivatives, risks of unfair actions and errors of employees, as well as a number of other factors listed above. If these factors potentially can influence performance effectiveness of the organization, corresponding response in the form of the development and implementation of appropriate methods of control will be required from senior management.

3. The impact of the designated factors on specific transactions as well as on the portfolio of derivatives as a whole can be assessed using the proposed method of risk assessment of transactions with derivatives. It can help management to determine which aspects of work with derivatives should be undertaken firstly and what actions should be taken in response to identified risks. Also, the implementation of the proposed methodology of control over the transactions with derivatives in non-financial organizations will help to ensure that derivatives, as risk management tool themselves won't become a source of unplanned losses.

4. Control methodology, based on the proposed criteria, will allow the non-financial organization to improve the quality of control on derivatives transactions, to strengthen the confidence that non-core risks associated with derivatives are eliminated as much as possible. All it will help to attract investors and ensure the growth of reliability of investments in non-financial organizations.

### **Bibliography**

- Aabo, T., Andryeyeva Hansen, M., & Pantzalis, C. (2012). Corporate foreign exchange speculation and integrated risk management. *Managerial Finance*, 38(8), 729–751. doi:10.1108/03074351211239379
- Allayannis, G., & Weston, J. P. (2001). The use of foreign currency derivatives and firm market value. *Review of Financial Studies*, 14(1), 243-276. DOI: <https://doi.org/10.1093/rfs/14.1.243>
- Aretz, K., & Bartram, S. M. (2010). Corporate hedging and shareholder value. *Journal of Financial Research*, 33(4), 317-371. DOI: 10.1111/j.1475-6803.2010.01278.x
- Bartram, Söhnke M., *Corporate Hedging and Speculation with Derivatives* (April 6, 2015). Warwick Business School - Department of Finance. DOI: <http://dx.doi.org/10.2139/ssrn.891190>

- Bartram, Söhnke M. and Brown, Gregory W. and Conrad, Jennifer S., The Effects of Derivatives on Firm Risk and Value (February 10, 2010). *Journal of Financial and Quantitative Analysis*, Vol. 46, No.4, August 2011, pp. 967-999. Available at SSRN: <<https://ssrn.com/abstract=1550942>> [Accessed 14/01/2019]
- Bodnar, Gordon M. and Giambona, Erasmo and Graham, John Robert and Harvey, Campbell R. and Marston, Richard C., *Managing Risk Management* (March 15, 2011). AFA 2012 Chicago Meetings Paper. <http://dx.doi.org/10.2139/ssrn.1787144>
- Carter, D. A., Rogers, D. A., & Simkins, B. J. (2006). Does hedging affect firm value? Evidence from the US airline industry. *Financial Management*, 35(1), 53-86. DOI: 10.1111/j.1755-053X.2006.tb00131.x
- Franklin R. Edwards & Michael S. Canter, 1995. "The Collapse Of Metallgesellschaft: Unhedgeable Risks, Poor Hedging Strategy, Or Just Bad Luck?," *Journal of Applied Corporate Finance*, Morgan Stanley, vol. 8(1), pages 86-105. Available at <<https://ideas.repec.org/a/bla/jacrfn/v8y1995i1p86-105.html>> [Accessed 14/01/2019]
- Gilje, Erik and Taillard, Jérôme, Does Hedging Affect Firm Value? Evidence from a Natural Experiment (July 25, 2016). *The Review of Financial Studies*: Oxford university press, vol. 30 № 12, 2017. P. 4083-4132. <http://dx.doi.org/10.2139/ssrn.2543096>
- International Auditing Practice Statement (IAPS) 1012 "Auditing derivative financial instruments". Available at <<http://www.ifac.org/system/files/downloads/b008-2010-iaasb-handbook-iaps-1012.pdf>> [Accessed 14/01/2019]
- International Auditing Practice Note (IAPN) 1000 "Special Considerations in Auditing Financial Instruments". Available at <<http://www.ifac.org/publications-resources/basis-conclusions-international-auditing-practice-note-iapn-1000-special-cons>> [Accessed 14/01/2019]
- Jacque Laurent *Global derivatives debacles: from theory to malpractice* / by Laurent Jacque. World Scientific Publishing Co. Pte. Ltd. Second edition, 2015. [https://doi.org/10.1142/9789814663267\\_0002](https://doi.org/10.1142/9789814663267_0002)
- Jin, Y., & Jorion, P. (2006). Firm value and hedging: Evidence from US oil and gas producers. *The Journal of Finance*, 61(2), 893-919. DOI: 10.1111/j.15406261.2006.00858.x
- Jin, Y. & Jorion, P. (2007). Does hedging increase firm value ? Evidence from the gold mining industry. Working Paper. Northridge, CA: California State University. Available at <<https://pdfs.semanticscholar.org/50f3/c0019e67d32454b61dbd3bb7fae3ee62867b.pdf>> [Accessed 14/01/2019]
- Jorion, P. (2007) *Value at Risk: The New Benchmark for Managing Financial Risk*. McGraw Hill, 3rd edn. ISBN: 978-0-07-173692-3
- Laurent L. Jacque, J. Avsen (2004). When a Hedge is a Gamble: An Empirical Investigation (1993-2002) of Metallgesellschaft's High Stakes Debacle / *The Financier*, Vol. 11/12, 2004-2005.
- Lee, S. M., Park, K. J., Song, H., & Wang, L. (2018). Material Weaknesses in Internal Control in Relation to Derivatives and Hedge Accounting. *Journal of Corporate Accounting & Finance*, 29(3), 24–31. doi:10.1002/jcaf.22341
- Pankov P., Masko L. (2018) Interdependence of investment attractiveness of the organization and hedging. *Bulletin of Polotsk state University. Series D: Economic and legal Sciences*. 2018. No. 5. p. 39-45. Available at <[https://elibrary.ru/download/elibrary\\_35512555\\_61577737.pdf](https://elibrary.ru/download/elibrary_35512555_61577737.pdf)> [Accessed 14/01/2019]
- Phan, D., Nguyen, H., & Faff, R. (2014). Uncovering the asymmetric linkage between financial derivatives and firm value The case of oil and gas exploration and production companies. *Energy economics*, 45, 340-352. DOI: <http://dx.doi.org/10.1016/j.eneco.2014.07.018>
- Saha, D. (2011). The Collapse of Metallgesellschaft (MG): Hedging or Speculation. *SSRN Electronic Journal*. doi:10.2139/ssrn.2394915
- Smith, C., & Stultz, R. (1985). The determinants of firms' hedging policies. *The Journal of Financial and Quantitative Analysis*, 20(4), 391-405. DOI: <https://doi.org/10.2307/2330757>
- Stulz, Rene M., *How Companies Can Use Hedging to Create Shareholder Value* (Fall 2013). *Journal of Applied Corporate Finance*, Vol. 25, Issue 4, pp. 21-29, 2013. <http://dx.doi.org/10.1111/jacf.12038>
- Wang, N. A, J. Birkeland. (2017). Study of Hedging at the Firm Level in U.S. Oil and Gas Exploration Firms. Master Thesis. Available at <<https://brage.bibsys.no/xmlui/bitstream/handle/11250/2476917/1746389.pdf?sequence=1>> [Accessed 14/01/2019]
- Wendy L. Pirie Ed., (2017) *Derivatives*. Hoboken, New Jersey: John Wiley & Sons. ISBN: 978-1-119-38181-5. LCCN Permalink <<https://lccn.loc.gov/2017005397>>
- Zeidan, R., & Müllner, J. (2015). Firm, market and top management antecedents of speculation: Lessons for corporate governance. *Journal of Multinational Financial Management*, 32-33, 42–58. doi:10.1016/j.mulfin.2015.08.001