World Market of Credit Derivatives: Problems of Development and Regulation

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Abstract: The article substantiates the authors approach to the definition of credit derivatives. The analysis of development and functioning of the world market of credit default swaps is conducted. The problems of regulation of the world market of credit derivatives are revealed and ways of their solution are suggested.

Keywords: Credit derivative, CDS, credit default swap, regulation of the world derivatives market.

INTRODUCTION

A derivative financial instrument represents a contract on the basis of which the parties assume the obligations to perform certain actions regarding the underlying asset.

Prototypes of modern derivatives can be found even in the Middle Ages. Thus, in the first half of the 17th century, options for tulip bulbs became extremely widespread in the Netherlands, while in England first forward contracts appeared.

By the middle of the 19th century options trading on the London Stock Exchange became quite an ordinary procedure. At the same time, the first forward contract was made on the stock exchange in Chicago. A little more than a decade later a standard grain contract was traded on futures terms.

In the 80's of the 20th century a further transformation of the derivative financial market occured that was caused by the appearance of the OTC derivative market. Prerequisites for their formation were the financial globalization that began after the abolition of fixed exchange rates, the revolution in information technology, which significantly reduced the level of transaction costs, as well as the activities of transnational corporations, which accelerated changes in the credit sector.

1. DIFFERENT APPROACHES TO THE DEFINITION OF CREDIT DERIVATIVES

At the end of the last century the market of derivative financial instruments saw the appearance of new types of derivatives, which have become an innovative solution for that time due to their characteristics and provided opportunities. These instruments were called credit derivatives and the very term was adopted in 1992 by the International Swaps and Derivatives Association (ISDA).

In the literature there exists no universal definition of credit derivatives, as researchers tend to express different points of view on the considered issue.

Thus, John C. Hull believes that credit derivatives represent contracts, payments on which depend on the creditworthiness of one or more companies or countries[1].

Capital Markets Risk Advisors specialists define credit derivatives as instruments, which are based on the changing of credit characteristics of an asset or a group of assets that are sensitive to changes in the credit risk level.

The US Federal Reserve provides the following definition to credit derivatives: off-balance sheet financial instruments that allow one party (beneficiary) to transfer the credit risk on the asset to the other party (guarantor) without physically selling the asset itself.

In our opinion the most complete and full understanding of the phenomenon of credit derivatives can be obtained through their interpretation as derivative financial instruments that allow separating the credit risk on the underlying asset and transfering it to the other party without transfer of ownership of the

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[1]John C. Hall. 2014. “Options, futures, and other derivatives: translated from English.” M: I.D. Wiliams.

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asset, the repayment of which is carried out at the onset of a credit event, for instance, insolvency or default of the borrower and credit rating downgrade.

Credit derivatives are derivative instruments, the underlying asset of which is credit risk that in general terms can be defined as the risk of the borrower's failure to fulfill its obligations. In the event of the counterparty's inability to meet its obligations, there occurs a risk of default, and the risk of deterioration of his financial position leads to uncertainty about the performance of the borrower's obligations in due time.

In such agreements credit risk is represented as an individual asset, hence it can be purchased and sold without transferring rights on the underlying financial asset. This particular feature of credit derivatives determines the innovative nature of the instruments: credit risk is separated from a financial asset and is transformed into a separate commodity.

2. STAGES OF DEVELOPMENT OF THE WORLD MARKET OF CREDIT DERIVATIVES

Credit derivatives emerged at the end of the 20th century as a result of the development of financial engineering. It is believed that the beginning of the wide spread of credit derivatives in the world practice was put by J.P. Morgan bank[2]. The introduction of the first default derivatives by JP Morgan Chase Bank was carried out to transfer the risks of default on loans of Exxon company to the European Bank for Reconstruction and Development (EBRD)[3]. This was a new stage in the development of the derivatives market: J.P. Morgan Chase brought to the financial market an innovative tool that was a credit default swap.

The development of the market for credit derivative financial instruments occurred in several stages: an American researcher Smithson Charles identified three stages[4]:

1. the first stage (1980-1990's) is characterized by the participant's search of suitable instruments for managing credit risk, while the widespread use of classical asset securitization is due to the objective of hedging credit risks;

2. the second stage (1991-end of the 90s of the 20th century) with its important feature of the emergence of the intermediaries' market, where dealers use the technologies of other segments of the derivatives market with the aim of transfering credit risk from some participants to others. During this period financial instruments become more complex, as synthetic securitization mechanisms are created, total return swaps (TRS) and credit linked notes (CLN) appear as well;

3. the third stage (late 90's - early 2000's) is characterized by the formation of a single market of credit derivatives, the emergence of derivative financial instruments, the creation of structured credit products. For the first time credit default swaps were divided into vanilla (classical) and complex ones, focused on the requirements of investors. A distinctive feature of this period is that credit derivatives are used not only for hedging purposes, but also as a tool for extracting arbitrage profits, steps are taken to regulate the market.

In 1999 the International Swaps and Derivatives Association issued a set of standard definitions of credit derivatives for their use along with the ISDA General agreement-ISDA Credit Definitions 1999. The elaboration of the standards was a matter of great importance from a market development perspective, as it allowed participants to enter into transactions under uniform rules and ensure relative transparency of the market. At that stage a number of problems arose in the market of credit derivatives, related to the fullfilment of obligations by counterparties and debt restructuring, which led to the development of world judicial practice on these issues. Crises in emerging markets (the Argentine debt crisis of 2002) revealed shortcomings in the existing documentation, which contributed to its further clarification. The announcement of a default by the government with its ability to meet its obligations led to the fact, that ISDA tightened the criteria for the credit event recognition. With the development of the ISDA Credit Derivatives Definitions 2003, trading sessions started to be conducted in accordance with certain standardized practices. For example, a unified approach to setting the settlement date was developed, which is not typical for transactions carried out in the OTC segment of the world derivatives market. Such measures have increased the liquidity of the credit derivatives market, thus this stage can be regarded as

[2]Mezentsev, V.V. 2012. “Evaluation of credit default swap for Russian companies with the help of the reduced model and the Merton model.” Corporate Finance 1(21).
[3]Beder, Tanya S., and Cara M. Marshall. 2011. “Financial engineering: the evolution of a profession.Vol. 2.”John Wiley & Sons: 216.
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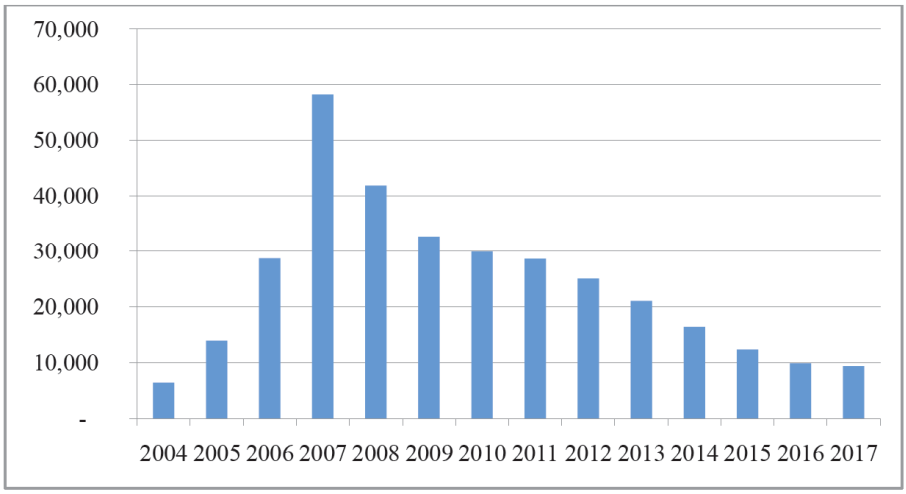

Figure 1: Dynamics of the CDS market from 2004 to 2017,billion US dollars.

Bank for International Settlements (www.bis.org).

the fourth stage of the development of the credit derivatives market[5].

The latest ISDA standards used by participants all over the world were developed and published in 2014.

3. ANALYSIS OF THE DEVELOPMENT OF THE WORLD MARKET OF CREDIT DERIVATIVES

Nowadays a credit default swap tends to be the most common tool, the execution of which depends on the default of a company or a country. Before the global financial crisis, there was a sharp increase in the volume of trade in this instrument.

According to the report prepared by the British Bankers Association, the nominal amount of all concluded transactions with CDS grew from $180 billion in 1997 to $20 trillion in 2006[6]. In accordance with other studies, the nominal volumes of transactions with CDS are much higher. This is due to the fact that ISDA began to collect data in 2001 and reported growth from $ 632 billion in 2001 to over $34 trillion by the end of 2006. On the official website of the Bank for International Settlements statistical data on the market of credit derivatives have been presented since 2004 and show an increase in the conventional amount of debt from $6.4 trillion rubles at the end of 2004 to more than $20 trillion in June 2006.

The largest amount of over-the-counter trade in credit default swaps falls on 2007: the nominal value of CDS contracts reached $58.2 trillion, while the world GDP, according to the World Bank data[7], equaled to $54.4 trillion.

Since 2008 the over-the-counter market of credit derivatives has been steadily declining. In 2010 its volume was estimated at $29.9 trillion, and by July 2017 the market volume fell to $9.6 trillion (Figure **1**).

Today the largest share of transactions is conducted with single-name instruments, they account for more than half of the total volume of transactions with credit derivatives (Figure **2**). The share of complex instruments is 48% of the nominal volume of the credit derivatives market. CDS-indices are extremely popular among market participants ($ 4,229 billion), while credit default swaps for several obligations ($ 373 billion) account for a much smaller volume of transactions.

The structure of the participants of the credit derivatives market has also changed since 2004. Thus, if at the beginning of the CDS market formation the share of financial institutions accounted for the largest part due to the operations of banks, then by 2007 the largest number of transactions was implemented by dealers (Figure **3**).

In our opinion this trend is explained by the fact that initially credit default swaps were the result of banks' innovative activity aimed at hedging credit risks. With

[5]Mengle, David. 2007. "Credit derivatives: An overview." Economic Review-Federal Reserve Bank of Atlanta 92.4: 1.

[6]Barrett, Ross, and John Ewan. 2006. BBA credit derivatives report 2006.British Bankers' Association. (https://www.bba.org.uk/publication/books-reports-and-subscriptions/bba-credit-derivatives-report-2006/).

[7]Coulibaly, Souleymane, *et al.* 2009. World development report 2009: reshaping economic geography (English).Washington, DC: WorldBankGroup.

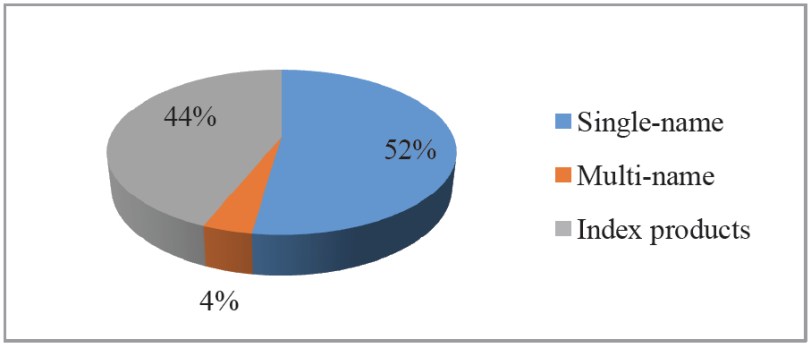

Figure 2: Structure of the market of credit derivatives at the end of 2017 by type of instrument. Bank for International Settlements (www.bis.org).

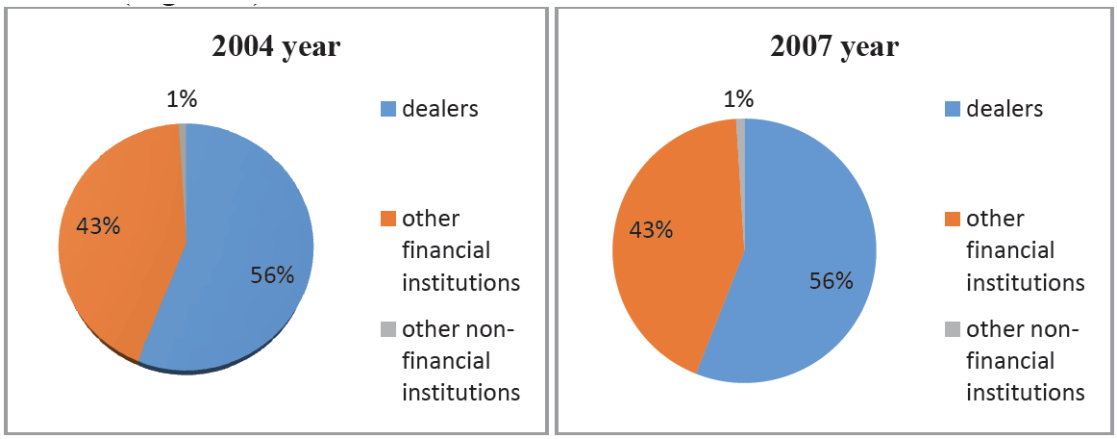

Figure 3: Comparative analysis of the structure of the CDS market participants.

the development of technologies in the derivatives market and the increase in the number of professional participants, speculative interest in credit derivatives increased, which subsequently made these tools more popular among dealers.

Presently the largest share of transactions with credit default swaps falls on central counterparties and equals to 75% of the total volume of transactions (Figure **4**). The growth of influence of central counterparties in the market of credit derivatives is due to the adoption of such legislative acts as the Dodd-Frank Act in the USA and EMIR in the European Union.

According to the data provided by the Bank for International Settlements, the gross market value of contracts on the CDS market was $298 billion, and the net market value amounted to $78 billion. Net market value takes into account bilateral netting agreements relating to CDS, but unlike gross credit risk it cannot be applied to the offsetting of counterclaims with other instruments. Interest in credit default swaps for government debt obligations also continues to decline. It is noteworthy that the main share of operations falls on counterparties from the European Union countries and is equal to 58.89%, while the share of American companies is 30.36%. Credit derivatives with a period of 1 year to 5 years tend to be the most widespread instrument.

The decline in the volume of the credit derivatives market, in our view, is the result of the adoption of legislative norms for OTC trading in credit derivatives. However, considering that their adoption is aimed at ensuring market transparency and risk reduction, one can count on restoring the confidence of market participants in credit derivatives after the world financial crisis of 2008.

The largest development of credit derivatives can be observed in Western countries: thus, the share of developed European countries is about 60%, the one of the United States equals to 30% of the total volume of trade in credit derivatives (Figure **5**).

A significant role of credit derivatives in the management of credit risks and their use in the world as a tool for minimizing such risks is confirmed by the

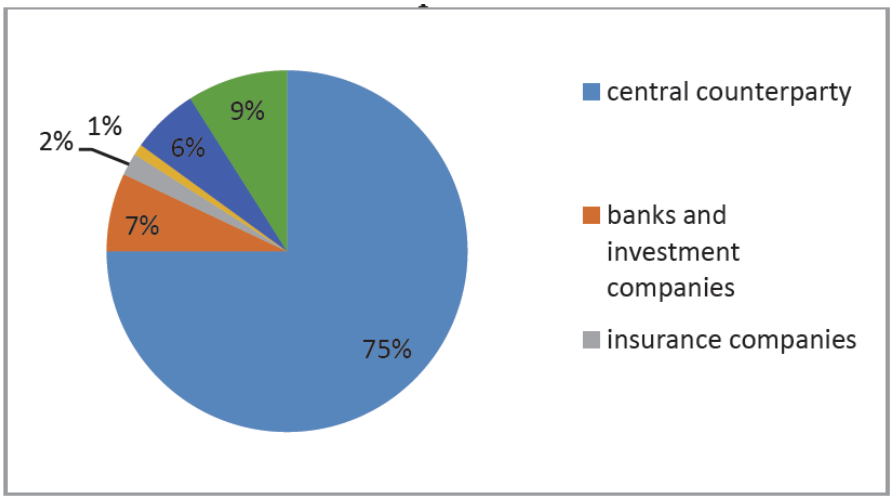

Figure 4: Financial companies in the CDS market at the end of 2017.
Bank for International Settlements (www.bis.org).

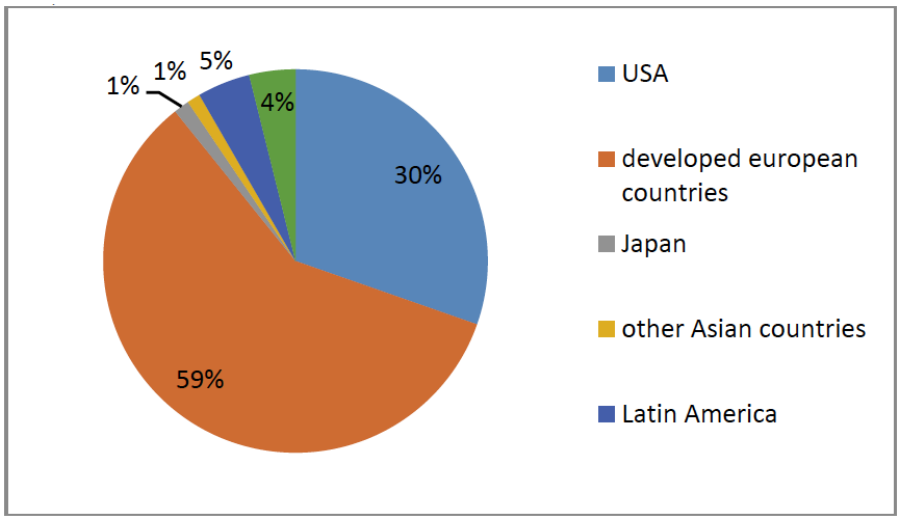

Figure 5: Geographic concentration of trade in CDS for 2017.
Bank for International Settlements (www.bis.org).

findings of the Office of the Comptroller of the Currency of the Treasury Department of the US (its functions also include regulating and supervising the activities of national banks). The quarterly OCC reports were examined and the dynamics of operations with credit derivatives for the third quarter of 2010-2017 were analyzed.

We can conclude that 25 largest commercial banks, savings associations and trust companies are mainly buyers of credit protection. The volume of transactions for the purchase of credit derivatives is on average 2% higher than the volume of credit protection sold (Figure **6**). An exception is the third quarter of 2012, when London branch of J.P. Morgan opened significant positions on the credit derivatives Markit CDX Investment Grade 9, including the indices of 125 largest companies[8].

4. PROBLEMS OF REGULATION OF THE WORLD MARKET OF CREDIT DERIVATIVES

The development of the market of credit derivatives represents an objective process of development of the world financial market, in particular, the market of derivative financial instruments. Relatively small initial investments and non-standard contract specifications caused a widespread use of credit derivatives by

[8]The Guardian. “JP Morgan trader 'London Whale' blows $13bn hole in bank's value.” (https://www.theguardian.com/business/2012/may/11/jp-morgan-trader-london-whale)

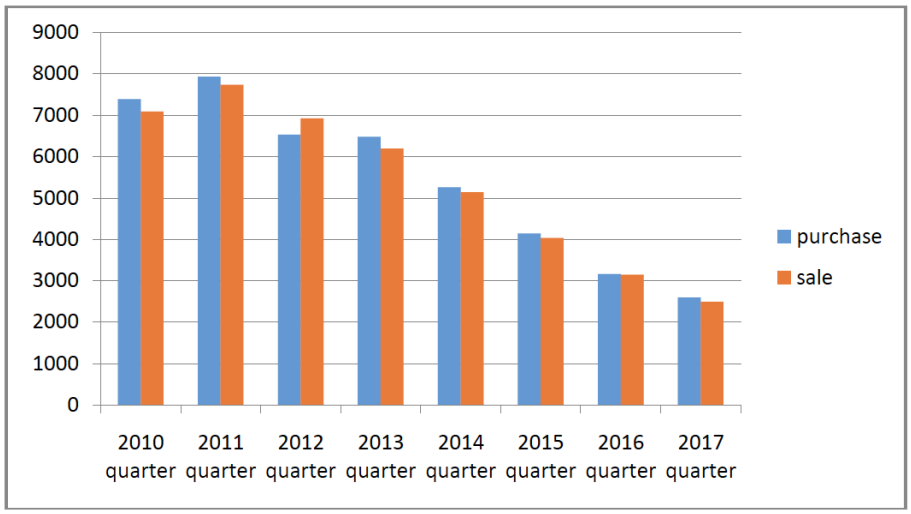

Figure 6: Dynamics of operations on purchase and sale of credit derivatives in the banking sector of the United States, million US dollars.

Office of the Comptroller of the Currency. 2017. Quarterly Report on Bank Trading and Derivatives Activities, Third Quarter 2017. Washington, D.C: Office of the Comptroller of the Currency. (https://www.occ.gov/topics/capital-markets/financial-markets/derivatives/derivatives-quarterly-report.html).

market participants as hedging instruments for credit risks. These advantages along with the absence of strict legislative regulation of this segment of the financial market contributed to the development of the speculative nature of conducted transactions. A sharp increase in the volume of operations with credit derivatives in 2007-2008 at the international and global financial markets led to an increase in credit and systemic risk and occurance of the "domino effect" among financial institutions. Insolvency of even one or several large financial institutions caused bankruptcy of other market participants, and on a global scale it led to the emergence of a global economic crisis.

The OTC market of financial derivatives was in the center of the financial crisis of 2008, and many experts consider this market to become its catalyst. Although it is believed that the crisis was provoked by mortgage instruments in the USA[9], the crisis phenomena have revealed serious problems in the derivatives market, in particular, in credit derivatives. Conditionally the beginning of the crisis is associated with the collapse of the largest investment bank Lehman Brothers in September 2008. Founded in 1850, this American bank had high agency ratings and was regarded by all market participants as a reliable institution. Meanwhile, Lehman Brothers conducted high-risk financial transactions with instruments accounted for in off-balance accounts and, despite the warnings of its own risk department, continued to increase the volume of operations in the derivatives market[10]. Losses from the cross-border operations of Lehman Brothers in the international financial markets were not controlled either by regulators, contractors or shareholders. Good reputation and high ratings of the bank excluded the probability of the occurrence of counterparty risk, its financial insolvency was revealed only after the bank filed an application for bankruptcy.

The bankruptcy of the largest investment bank and the ensuing chain of instability in the financial markets led to the development of negative events in commodity markets, which outlined the necessity for the adoption of reforms in the financial markets, especially in such a segment as the derivatives market.

At the meeting of the leaders of the Group of 20 (G20) on November 14 - 15, 2008 in Washington, the undervaluation of risks by participants in financial markets was noted in the regard of high income expectations without an appropriate integrated assessment of transactions[11].

To ensure stability in the world financial market, regulation of its individual segments, in particular of the

[9]Webster, S. 2015. “Opportunities Exist to Strengthen Policiesand Processes for Managing EmergencyAssistance» United States Government Accountability Office”. (https://www.gao.gov/new.items/d11696.pdf).

[10]Astapov, K.L. 2013. “The development of the derivatives market in the Russian Federation in the context of the decisions of the G20 countries.” Money and credit 6: 59

[11]Declaration of the Summit on Financial Markets and the World Economy (https://georgewbush-whitehouse.archives.gov/news/releases/2008/11/20081115-1.html).

derivatives market, the G20 countries proposed the following financial market reforms:

- increasing the transparency of information by improving financial reporting standards in order to better reflect complex financial products in them and to take measures to introduce centralized clearing;
- strengthening prudential supervision and risk management as tools for the financial market regulation, including strengthening the supervision over rating agencies;
- maintaining a single global financial market by introducing universal principles of investor protection, minimizing conflicts of interest, preventing market manipulation, protecting against abuse, creating a system for information exchange among different jurisdictions that does not undermine bank secrecy;
- strengthening the interaction of national financial authorities and regulation on the basis of consistent principles.

The above reforms aimed at overcoming the consequences of the global financial crisis and ensuring the stability of the financial system have determined the direction of further development of the credit derivatives market, such as centralized transaction clearing and the creation of repositories with the purpose of accumulating information on transactions. The adoption of the Dodd-Frank Act in the United States and the Regulation of the European Parliament and the Council on OTC derivatives, central counterparties and trade repositories (EMIR) in the European Union also require the participation of central clearing and margin security, which is intended to improve the legal regulation of this market segment.

The centralized clearing function is entrusted to the central counterparty, which, acting as a buyer for the seller and as a seller for the buyer of protection, helps to reduce the risks existing in the market. Thus, the central counterparty's responsibility is to assess the counterparty's solvency, capital adequacy and the establishment of a margin in order to cover current and possible losses. Accepting credit risks and counterparty risks, the central counterparty reduces the probability of consecutive defaults of participants. However, by accumulating all the risks the central counterparty becomes a potential threat to the stability of the financial system. The dual nature of central clearing requires the fulfillment of certain requirements for owned capital and strict regulation by the supervisory authorities, whose attention should increase in proportion to the participation of the central counterparty in different segments of the derivatives market.

The increased role of centralized clearing in the derivatives markets determined the specifics of the credit derivatives market: the share of the central counterparty in it is steadily growing, from 14.71% in 2010 to 50.88% in 2017, which can be observed in the chart below (Figure **7**) with a general decline in the volume of this market since 2007.

The key element of ensuring transparency in the market of derivative financial instruments is such institution of the financial market as a repository. The main activities of the repository are the accumulation of information on derivative financial instruments and sales and repurchase agreements (repo transactions) made on the over-the-counter market; systematization

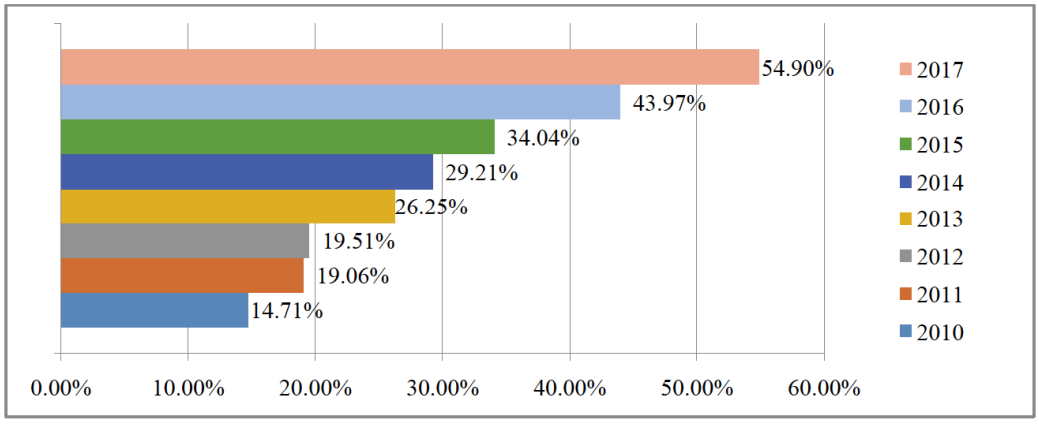

Figure 7: Dynamics of the participation of the central counterparty in transactions in the credit derivatives market for 2010-July 2017.

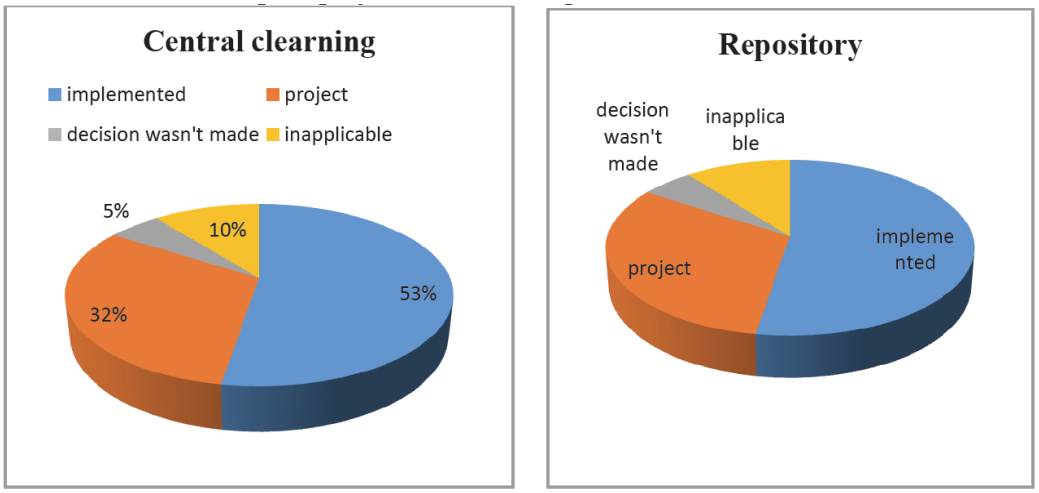

Figure 8: Results of reforms in the market of derivative financial instruments in the G20 countries for the end of 2012.

of registered contracts in the form of a register; providing confirmation of registered contracts to customers and regulators; storage of information. Tasks, the solution of which determines the functional purpose of the repository, involve working with large data sets. This, in turn, requires a unified form of messages provided to the repository, based on a clear classification of derivatives. This particular task occurs to be the most difficult to implement due to the circulation on the over-the-counter market of standardized contracts, the specifications of which are unified, along with non-standard or exotic tools. To solve this problem, most of the world's repositories use the combined approach proposed by the International Organization of Securities Commissions (IOSCO), which essential goal is to compile standardized, compulsory fields, and additional data fields that include specific contract terms and can vary.

According to the reports prepared by the Financial Stability Board in 2011-2012 concerning the regulation of the OTC derivatives market, the recommendations of the Group 20 were fulfilled in a number of countries. Thus, Figure **8** presents the results of creating a centralized clearing and repository, which leads to the conclusion that most of the G20 countries have implemented these reforms or adopted projects for their implementation.

Directions for the development of the Russian credit derivatives market correlate with the global recommendations proposed by the Group-20, taking into account the characteristics of the Russian economy and these directions reflect the worldwide trend towards stricter regulation of the derivatives market. Thus, the basis for creating a centralized counterparty became the adoption of several amendments to the Federal Law No.39-FZ, April 22, 1996 "On the Securities Market", the development of the Federal Law No.7-FZ, February 7, 2011 "On Clearing and Clearing Activities" and the adoption of by-laws. Nowadays in Russia, each trading floor possesses a clearing system: for MOEX this role performs the National Clearing Center, for the Saint-Petersburg Exchange (SPB Exchange) the clearing function is carried out by the MFB clearing center. Providing information on transactions in the Russian derivatives market is the responsibility of the central counterparty. Today there exist two repositories in Russia: the National Settlement Depository (NSD), recognized by the Bank of Russia as systemically significant, and the Saint-Petersburg Exchange repository. However, these initiatives did not cover all types of derivative financial instruments. Thus, in Russia credit derivatives are currently not subject to centralized clearing.

Other directions of development of the derivatives market, in particular, of credit ones, include the introduction of electronic trading systems and capital requirements. Nowadays the majority of the recommendations have been implemented in almost all member countries of the Group 20. Nineteen of the twenty four member countries[12] of the Group 20 present complete reporting on derivatives trading. The work continues at the international and national levels to address key issues in reporting and accessing data from repositories, including measures to harmonize

[12]Note: The European Union is represented by 6 countries: France, Germany, Italy, the Netherlands, Spain and the United Kingdom.

data and remove legal barriers. Significant progress was made with the introduction of comprehensive margin requirements for derivatives that are not subject to centralized clearing: at the end of August 2016 margin requirements were introduced in three countries, by the end of 2017 their number increased to fourteen. Other countries expect their entry into force by the end of 2018.

Capital requirements for derivatives that are not subject to centralized clearing, raised in accordance with the standards of the Basel Committee on Banking Supervision, taking into account risks, including systemic risk. Electronic trading platforms have been introduced in 12 countries with the appropriate legal support. In 6 countries, including Russia, derivative financial instruments are defined, transactions with which should occur within organized trading platforms. In Brazil, Hong Kong, India, the Republic of Korea, Saudi Arabia and Turkey projects have been proposed for their implementation and consultation sessions are being held.

Thus, the implementation of the above mentioned measures is explained by the need to maintain the financial stability of the world economy and determines the direction of the development of the world market of credit derivatives.

CONCLUSION

Understanding of the importance of credit risk management in the stable functioning of the economy led to the emergence of credit derivatives, which are understood as derivative financial instruments that separate credit risk from the underlying asset and transfer it to the other party without transferring ownership of the very asset. The analysis of the world market of credit derivatives showed that today the largest share of the market is represented by transactions with single-name instruments, accounting for more than half of the total volume of transactions with credit derivatives. Among the participants, the largest share of transactions with credit default swaps falls on central counterparties and equals to 75% of the total volume of transactions, which growth of influence is caused by the adoption of such laws as the Dodd-Frank Act in the USA and EMIR in the European Union.

At the same time, the most extensive development of credit derivatives can be observed in Western countries: the share of developed European countries and the United States accounted for about 60% and 30% respectively of the total trade in credit derivatives. A significant role of credit derivatives in the world practice as instruments for reducing credit risks is manifested in the data provided by the Office of the Comptroller of the Currency, according to which from 2010 to 2017 the volume of operations of the 25 largest commercial banks and savings associations for the purchase of credit derivatives on average by 2% exceeds the volume of sold credit protection.

Such features of the credit derivatives market as the over-the-counter nature of transactions and the opacity of market transactions led to the need to take measures to increase the transparency of the credit derivatives market. In 2010 the United States adopted the «Dodd-Frank Wall Street Reform and Consumer Protection Act», which sets out the requirements for exchange trade and centralized clearing in order to increase the transparency of the derivatives market. The directive on the markets for derivative financial instruments adopted in 2012 in the European Union introduced European market infrastructure regulation (EMIR).

Thus, the financial crisis of 2007-2008 revealed gaps in the regulation of the world market of derivative financial instruments. Problems and measures to address them, determined at the G20 meeting in 2008, became the basis for the development of national standards and regulations for the market of credit derivatives, which was reflected in the legislative measures taken to ensure the provision of timely, complete and transparent information on the state of the credit derivatives market.

The results obtained during the research seem to be relevant both for the world and for the Russian credit derivatives market and these results are aimed for financial institutions needs that use credit derivatives in managing credit risk. In the absence of unified approaches to the definition of credit derivatives, we believe that credit derivatives can be defined as derivatives that separate credit risk from the underlying asset and transfer it to the other party without transferring ownership of the asset itself, the repayment of its value is effected upon the occurrence credit event, for example, insolvency, default of the borrower or credit rating downgrade.

Being one of the fastest growing segments of the derivatives market, credit derivative financial instruments provide the ability to manage credit risk through the creation of mechanisms for its transfer. The

obvious fact that the redistribution of risk does not reduce its overall level in the system, makes market participants deal with effective management of credit risks, their minimization, as well as take timely and adequate measures when exceeding the maximum permissible values of credit risks. Special attention should be paid to the cost assessment of credit risks in connection with the need to create sufficient collateral for transactions with credit derivatives and proper control implemented by the regulatory authorities. We beleive that these measures will help to increase the liquidity of the credit derivatives market, ensure its transparency and stability, which in the long term will have a positive impact on the development of the global financial market.

It seems to be highly important to further improve regulatory requirements, which, on the one hand, would expand market participants' opportunities to conduct business and use new instruments, and on the other hand, would facilitate efficient market control in order to effectively protect the rights of its participants.

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