

# Role of Clearinghouses in the Development of Security Derivatives in Serbia

## Улога клириншких кућа у развоју трговања изведеним хартијама од вредности у Србији

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**Сажетак:** Циљ рада је утврђивање оптималног модела клиринга за развој тржишта дериватних уговора у Србији. Једна од основних карактеристика савременог пословања је динамичност и повећање степена неизвесности. Као последица оваквих појава јавила се потреба за развојем трговања изведеним хартијама од вредности на организованим тржиштима, чиме би се пословање учинило извеснијим. Неопходан предуслов за трговање овом врстом хартија од вредности је успостављање клириншке куће. Резултати рада показују да би тржиште дериватних уговора имало значајан повољан утицај на сегмент управљања ризиком у финансијском сектору као и у робном сектору. Оптималан модел клиринга у Србији би био омогућавање оснивања клириншке куће на самој берзи као и независне клириншке куће.

**Кључне речи:** клириншка кућа, дериватна берза, фјучерси, опције, хеџинг стратегије.

**Abstract:** The aim of the study was to analyze and suggest the optimal clearinghouse models in order to develop derivative contracts in the Serbia. One of the main characteristics of modern business is dynamics and increased degree of uncertainty. As a result of increased uncertainty, need for the development of trade with derivative securities on organized markets, as a risk management instruments, is increased. A necessary prerequisite for trading with these securities is a clearinghouse. The study shows that the developed derivative exchanges have beneficial and pronounced impact on the segment of risk management in the financial sector as well as in the commodity sector. The optimal model of clearing in Serbia is establishment of two clearinghouse models in the house clearinghouses and independent clearinghouses.

**Keywords:** clearinghouse, derivative exchanges, futures, options, hedging strategies.

## Introduction

Increasing volume of trade with derivative securities is a result of an increase in price volatilities of products and inputs, tax and interest rates, labor costs, exchange rates, an unfavorable effect of climate factors and the like. A result of these changes is increased

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need for development of financial instruments whose application could contribute to business seemed more certain. For this reason, over the past four decades there has been a strong development of derivative markets. Business entities in developed market economies have access to the use of various hedging strategies. In this way, hedgers transfer price risk from owner of goods on which they were created derivative securities to speculators that accepting risk is expected to realize a profit margin.

The essence of futures trade is prediction of future prices. On the one hand, sellers expect a drop in prices, while buyers rely on the reliability of forecasts of rising prices.

Derivative contracts or derivative securities include the group of securities whose value is derived from the value of other assets (underlying asset) from which the term "derivative securities" is derived. Derivative securities have been created on a number of different asset classes such as: metals, energy, agricultural products, stocks, interest rates, foreign currencies, indices, weather and other indicators.

With derivatives is linked term futures trading, which has a number of characteristics that distinguish it from the prompt (spot) trading. Unlike spot transactions, where the transaction ends immediately or within 2-5 days, forward character performing transactions presupposes the existence of a certain period of execution. Derivative contracts are traded on the OTC markets (non-standardized swaps and options) and the Derivative Exchanges (standardized options and futures) The main derivative contracts that are subject to mandatory clearing, or in some cases are:

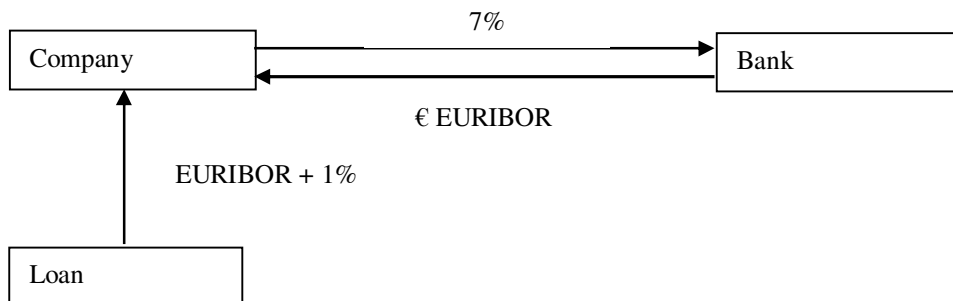
- Swap contracts,
- Futures contracts and
- Option contracts.

Swaps are agreements between two parties to exchange the different cash flows on a certain date in the future. Swaps are traded on the OTC markets; these contracts are not standardized and not traded secondary. Usually one of the parties on the swap contract is bank. The advantages of the swaps in relation to futures are that are not standardized and can be adapted to the needs of participants in trading.

Until recently, the swap contracts were not subject of the mandatory clearing. After the global economic crisis in 2008 the world trend is the regulation of swap markets in the sense that the trading is done through clearing houses thus achieving increase in security in the execution of these contracts (Kovacevic, 2014 / a).

**Example:** Like the other derivatives contracts swaps can be used for the purpose of risk management (hedging) or in order to make a profit (speculations). The company, which borrowed funds with the variable interest rate that is linked to EURIBOR wants to protect itself from the growth of EURIBOR and therefore enters in the swap agreement with a bank which undertakes the amount of 1000.000 euros to pay

the bank EURIBOR interest rate of 7% per annum while the bank pays the company EURIBOR interest rate on the same principal.



Scheme 1: Example of Interest rate swaps

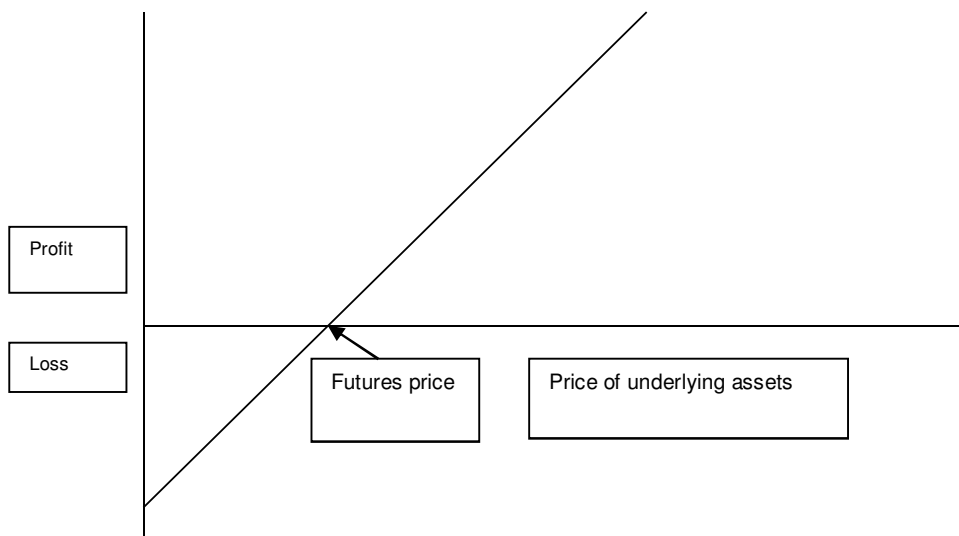
Source: (Kolb, Overdahl, 2007)

Swap contracts are without physical exchange of assets but both positions reconciled and the side that recorded a loss paid that amount to the other side. In the event that LIBOR is higher than 7% bank pays the difference of two interest rate swap gains the company the contract will be compensated identical increase in the interest rate on the loan and vice versa loss on swap contract will be compensated by an identical reduction in the amount of interest on the loan. And vice versa in the case of the annual EURIBOR interest rate at the annual level lower than 7% on the same principle, the company will realize the loss will be compensated by an identical amount of profit in paying the loan. In this way the company is 'fixed' EURIBOR at 7% and the total interest rate on borrowings amount to 8% regardless of the EURIBOR.

Futures are highly standardized contracts on underlining assets, with delivery in the future (Kovacevic, 2014B).

What is essential for the functioning of futures markets is clearing house that is positioned to the future buyer as a seller and opposite to the seller as a buyer. A clearing house guarantees the fulfillment of the derivative contract obligations. In this way, a direct knowledge of the buyer and seller is not required, personal trust passes to the institutional.

Futures contracts have a basic function in enabling different stakeholders to implement hedging strategies, as well as in the enclosing the price/value of the underlying assets in the future (Belozertsov, 2012).



*Graph No. 1: Profit graph of future contract buyer*

*Source: Authors*

At the Figure 1 it can be seen that the growth of prices / value of the underlying assets for the buyer of the futures contract is in profit and vice versa decrease in price / value of the assets of the futures buyer is at loss while in this situation seller wins. The importance of clearing houses is that both sides are obliged to deposit and maintain guarantee deposits that will enable the execution of the contract.

**Example:** Agricultural producer sells futures on corn for delivery in October, priced at \$ 300 per ton. In October, the futures contract closed at a price of 320 dollars per ton. Agricultural producer sells corn on the spot market in November for \$ 320 per ton.

Corn spot price	Futures corn price	Basis	
Planned price \$ 300 per ton	Opens short position for November (sales) for \$ 300 per ton	/	
October - the price on the spot market \$ 320 per ton	Closing the position in the October contract at a price \$ 320 per ton	/	
The result on the spot market: 320-300 dollars per ton = \$ 20 per ton more than the planned price	The net result of the futures market: 300-320 = 20 dollars per ton loss	/	The end result - Planned price of 300 dollars per ton - Realized price on the spot market \$ 320 per ton - Loss on the futures market at \$ 20 a ton <b>Total realized price of \$ 300 per ton</b>

*Table 1: Example for short hedging position (no change in basis)*

*Source: Authors*

The essence of opening short hedging positions lies in the fact that if there is a drop in the price on the spot market as is the case in the above example, the planned price is protected on the futures contract. Simply put, we can say that as much as the agricultural producer loses from falling prices on the spot market, he will get profit in same amount on the futures market. And opposite gain on sales at the spot market, which will happen in the future will be offset by an identical loss caused by increase in prices produced a futures market.

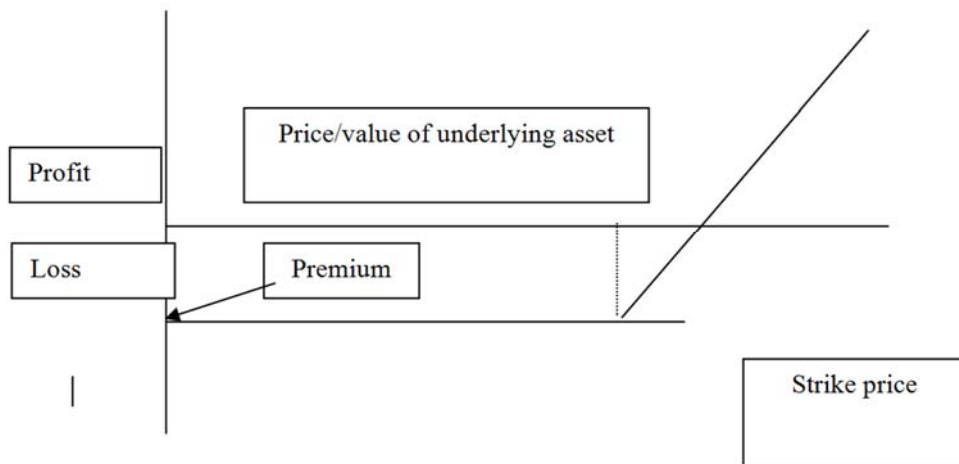
Option can be defined as derivative securities, which carry a certain right. Relations between the parties shall be regulated by an optional agreement (option contract). Optional agreement in legal term is an asymmetric contract, as option buyer has the right to buy or sell a particular type of asset at a pre-agreed price, but that does not oblige. The reason for obedience to the option seller to customer's options as vendor (writer) at the conclusion of the agreement receives an optional premium (premium), which represents the cost of the option.

Options traded on the exchanges are highly standardized in terms of amount of assets on the contract, the time of maturity, place of delivery for commodity option. High standardization as well as in the case of futures allows secondary trading.

There are two basic types of options contracts: call option and put option. Call and put options are separate contracts, because for each of these contracts, there is a buyer and seller. Call option is giving the buyer the option the right to buy the assets at a predetermined price by a certain date. The buyer of the call option can realize this right, but is not obligated to do so (Kolb, Overdahl, 2007).

The buyer of the put option has the right to sell certain assets to the put option seller.

Another division is on the American and European options. The buyer in the case of American options can realize their right at any time until the option expires, while the European option buyer his right can exercise only on the expiry date of the option.



*Graph No. 2: Call option buyers profit graph*

*Source: Authors*

At the graph 2 can be seen that the buyer of the call option has profit in case the price / value of the optional contract underlying assets is increased (option buyer is able to buy the relevant assets at a lower price than the current market), whereas in this case the option seller loses. The role of the clearing house is to guarantee the execution of the contract. The obligation of the seller of an optional contract is to deposit and maintain margin account which ensures that despite the loss on the contract traders will stay and fulfill their contractual obligations.

**Example:** As with other derivative contracts and options can be used to manage business risk or making a profit. A farmer in the case bought the July put option in May with a strike price of \$ 124 / t, with a paid premium of \$ 10 / t. in the table 2 can be monitored the possible development of the situation.

1.1.1.The price of wheat dollars / ton in the spot market	Option value dollars / t	Profit / loss dollars / t
200	0	-10
150	0	-10
114	14	0
100	24	14
90	34	24
80	44	34

*Table 2: Example for hedging strategies with put options*

*Source: Authors*

From Table 2 it can be seen that the breaking point is the price of wheat - 114 dollars/t. Furthermore, the profit realized buyer put option will grow in parallel with the decline in the price of corn. In case the price on the spot market of wheat is over 124 dollars/t the farmer will not activate optional right given that their goods can be sold at a higher price in the spot market.

## **1. The role of the clearing in trade with derivative contracts**

For futures to be traded efficiently, a necessary precondition is the existence of the clearing houses. The task of clearing houses is to ensure the execution of the financial part of the transaction. Clearing houses act as a third counterparty in derivative trade, which provides security for the performance of all contracts in the exchanges. For this reason, buyers and sellers can enter into derivative contracts on the exchange only through clearing houses. For example, the client gives the order to the broker to buy or sell a particular derivative instrument. If the Broker is not a member of the clearing house forwards the order to the clearing houses member, at the same time depositing the indicated amount for the margins. A clearing house checks the creditworthiness and financial balance of the trader and gives consent for the execution of the order.

A clearing house is positioned to the seller of futures contracts set as a buyer while to the seller is positioned as a buyer, thanks to which direct knowledge of the buyer and the seller is not required personally trust becomes institutionally.

Guaranteeing the execution of derivative contracts is done through the obligation of depositing the cash amount - margin as a guarantee deposit, guaranteeing that the party is at a loss on the futures contract will not cancel the execution of the contract. In the futures contract both buyer and seller of the contract have an obligation of deposit margins while with option only the option seller deposits and maintaining margins (Loader, 2014). There are two types of margins:

- Initial margins and
- Maintenance margin.

Initial margin is deposited before the opening of the contract while the margin for maintenance represents the minimum amount that is necessary for the trader has in his account. If the amount of funds falls below the level required to maintain, trader receives an invitation to deposit the missing amount to the amount of margin maintenance.

Margin accounts are settled at the end of the trading day. Settlement of margin accounts is done on the basis of the price for settlement (Settlement Price), which usually determines the body responsible for this type of work on the term Exchange (Settlement Committee). The Committee is usually made up of traders who are active in trading these futures contract. The Committee shall meet immediately after the closing of trading and in the case of small changes in futures prices and the large volume of trade is usually the price at which netted margin accounts is taken last concluded price. If the contract is traded on a small scale The Committee may estimate that the last price achieved does not represent the actual value of the contract and the price on the basis of which will be to count against margin accounts usually calculated by using the same futures contracts with different maturities, which are most often in the appropriate relationship to price.

The role of the clearing in the functioning of non-standardized forward contracts primarily swaps is defined by the G-20 summit in St Petersburg held on 5 and 6 September 2013, at which outlined directions for the development of commodity and financial organized markets in 20 developed countries that have adopted the following the principles for the trading with derivative instruments:

- setting common criteria for the functioning of the stock exchange and organized OTC market,
- regulating the trading of swaps (swaps), through licensing swap dealers, trading and registration obligations of clearing for trading swaps,
- strict obligation of reporting on trading,
- introduction of the common general criteria for boundary-regulatory bodies of the stock exchange system, as well as better coordination of cooperation between regulatory bodies. In 2012 came into force a law in the professional community



known as the Emir with similar provisions as the Dodd-Frank Wall Street Reform and Consumer Protection Act adopted in 2010, laid down the mandatory clearing and the stock market and most OTC trading instruments (Kovacevic, 2014 / a).

## 2. Results and discussion

For the purpose of this paper, the desk research method and method of interview with relevant experts have been used. To provide objective results were also used method of descriptive statistics, comparative method and theoretical analyses.

Despite the expressed need for the derivative contracts as a results of primarily changes in interest rates, commodity prices, exchange rates and the like. Establishment of this type of market in Serbia has not occurred, largely due to the lack of an appropriate legal framework (Zakic, Vasiljevic, 2013).

The positive effect of the developed derivative contracts in Serbia will be expressed (Kovacevic, 2013):

- directly and indirectly.

Direct influence includes the positive effect manifested through hedging strategies on standardized and non-standardized markets. On the side of the indirect effects:

- Public disclosure of prices and other information related to exchange trading, which are important for a variety of business functions of agricultural enterprises. Industry complex uses market data to create the production plan through. Processors use data for procurement plan of raw materials and the like.
- Trading with derivative contracts have a pronounced positive effect on the stability of prices of agricultural products and inputs, interest rates, exchange rates and the like.
- Developed commodity derivatives market affects the overall economy and reduces inflationary pressure through a reduction in the price fluctuations.
- Increasing the volume of commercial banks loans to agribusiness, developed market for commodity derivatives affected in three ways: (1) detection of prices of agricultural products, which is an important banks in case of using the goods like stocks and enabling determination of the value of the collateral, (2) if the loan is not repaid, banks have organized market where they can sell the product, and (3) in the case of using the goods as collateral, banks have the opportunity to sell futures in the period when the loan matures and thus insure themselves against adverse price movements and the loss of value of collateral, allowing banks higher assessing the value of the collateral and the issuance of a large amount of the loan.

Although based on the Capital Markets Act (Off. Gazette of RS, no. 31/2011) there are legal base for trading derivative securities, this market has not been established. The reasons are primarily that the Law on Capital Market did not enable the establishment of exchange clearing houses (in the clearing house) and independent clearing house.

In terms of commodity derivative exchanges, adoption of the Law on Commodity Exchanges will create the possibility for a safe and efficient spot trading and the establishment of a futures market on agricultural products (Zakić, Kovačević, 2012).

According to the Law on Capital Market the only institution that can carry out the clearing function is the Central Registry of Securities. Although there are examples in the world (USA) that operation of clearing houses is a carried out by state-owned institutions such clearing is exclusively done for government securities and their establishment and operation is subject to the same rules as other clearing houses.

**Model of In the house clearing in Serbia** would enable the establishment of the simplest models clearing that market derivative contracts had normal function of guaranteeing the execution of these contracts while further on spot commodity markets provide clearing and settlement, thus increasing security for payment and delivery of goods in the spot commodity stock exchange market and also increase the level of services provided by Commodity Exchange.

**Model of independent clearing in Serbia** will establish the licensing and operation of clearing houses which provide clearing services to all participants willing to engage clearinghouse. The establishment of an independent clearing would have the following positive effects:

- Increase in the volume of trade in derivative contracts through attracting existing customers of the large independent clearing houses.
- Increasing the "capacity for the inclusion of domestic commodity exchanges in the global exchange groups". The general trend in the world is globalization of derivative contracts trade and the formation of exchange groups. In all cases up to now when including the exchange in global exchange group was not followed by the establishment of new clearing houses on the exchange that entered the exchange group, only existing clearing house expanded its activities to the new exchange. The establishment of independent clearing houses will lead to the possibility of inclusion of Serbian stock exchange in the global stock exchange groups.
- Existing customers of the large independent clearing houses will have positive effect on commodity exchanges by involvement in the trading of foreign retailers which is particularly important to reduce the opportunity for manipulation especially in the "shallow" markets such as Serbia where a local group affiliated merchants can cause disturbances in this market.

**The model of central clearing houses** in the Serbian practice established by the Central Registry of Securities. This clearing model has proven to be unsuccessful on the Serbian market.

At the moment effective clearinghouse system is not established in Serbia and it is main obstacle toward developed derivative securities market in Serbia. It will be necessary to harmonized Law on Capital Market with EU' EMIR and MIFID 2 regulations in order to regulate procedure for licensing and controlling clearinghouse. There is no strict obligation in EU regulative how this should be regulated but usual practice is that process of licensing and controlling is delegated to Commission for securities and Central bank this model can be recommended for Serbia.

## **Conclusion**

Trade with financial derivatives and commodity derivatives in Serbia is not established despite the expressed needs. Favorable impact on the development of derivative exchanges largely depends on establishment of a clearing house independent and in-the-house clearing houses, which in all developed derivative markets in the international scene performing clearing and settlement. There is a need in order to establish a trading with derivative contracts for relevant amendments to the Law on Capital Market as well as the adoption of the new Law on commodity exchanges which will allow the establishment of clearing.

The harmonization of domestic legislation with EU legislation in this area is important for Serbia's European path, to increase the volume of exchange traded and OTC traded derivatives, to increase security in trading etc.

Establishment of a clearing model which is aligned with EU requirements will allow domestic businesses to manage various business risk i.e. fluctuations in interest rates, changes in exchange rates, change in commodity prices and the like, with a positive macroeconomic effect on the overall economy of Serbia.

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## **Resume**

Derivative securities market serves as instrument for hedging strategies, discovers the futures prices, lower inflation pressures etc.

As derivatives are trades in the futures there is a significant risk that one of the traders at loss will retract from the contract and will not fulfill derivative contract obligation. To avoid this risk and in order for derivative securities market to function well, it is necessary to establish clearinghouse and all traders at derivative markets are obliged to deposit and maintain guarantees at clearinghouse. Thus clearinghouse serves as a guarantor for all transaction with derivative contracts.

Effective clearinghouse system is not established in Serbia at the moment and it is main obstacle toward developed derivative securities market in Serbia. It will be necessary to harmonized Law on Capital Market with EU, EMIR and MIFID 2 regulations in order to regulate procedure for licensing and controlling clearinghouse. There is no strict obligation in EU regulative how this should be regulated but usual practice is that process of licensing and controlling is delegated to Commission for securities and Central bank.

Changes in Law on Capital Market will establish the ground for development of the derivative securities market in Serbia and will harmonized Serbian legislation with EU and global financial markets.