
DEVELOPMENT OF DERIVATIVE TRADING ON FINANCIAL MARKET AND AGRIBUSINESS SECTOR IN SERBIA

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ABSTRACT

Transactions with futures and other derivatives began their development in the XIX century on the exchanges in USA and other developed countries, but financial market in Serbia is still underdeveloped with exchange materials, volumes and number of participants. Investors on the Belgrade Stock Exchange mostly trade with stocks and government bonds. Also, Agrar Product Novi Sad has organized only spot trading of agricultural products. The paper goal is to present all relevant assumptions and significance of derivative trading development in Serbia with discussion about choice to start derivative trading on the already existing exchanges or to establish a new futures exchange that is going to be specialized for derivative trading. As the research method authors use content analysis and comparison of significant national and foreign literature with analyses of trading volumes on international and domestic exchanges. Authors recommend that Agrar Product Novi Sad be the first in expansion of market listing with commodity futures and options. On this way market is going to be deeper, creating efficient mechanisms for investor's protection from price risks, creating conditions for safer and long term production planning, with increase in market attractivity that could set the Agrar Product Novi Sad as a leader in commodity derivative trading in the South-East Europe

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Introduction

According to ISDA Quarterly, derivatives play a critical role in helping firms to reduce the uncertainty that comes from changing interest rates and currency markets. Whether used by global companies to eliminate exchange rate risk on foreign currency earnings, by pension funds to hedge inflation and interest rate risk in long-dated pension liabilities, or

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by governments to reduce interest rate risk on new bond issuance, derivatives allow end users to offset risks they face and to create certainty and stability in financial performance. With use of derivatives firms can invest in the future with greater confidence, creating jobs and contributing to economic growth. This activity is primarily driven by trades with companies, banks, pension funds and governments. For instance, a company might decide to issue debt to finance an expansion of its business, and use interest rate derivatives to lock the cost of financing. Or an exporter might look to convert foreign currency revenue into domestic currency at a pre-agreed rate, eliminating earnings uncertainty. In the most cases, the primary aim is to mitigate risk, reduce balance-sheet volatility, and increase certainty in cash flows, allowing firms to invest in new business initiatives with greater confidence. Governments may decide to issue debt in foreign currency as a means to help development of overseas capital markets, to access a new investor base or to tap into cheaper funding rates, then use a cross-currency swap to eliminate interest rate and currency mismatches. By using derivatives, these entities can effectively and efficiently manage and optimize risk profile of their debt portfolios and manage their overall balance sheet. (ISDA Quarterly, 2017)

Basic derivative instruments that can decrease all growing price risks on financial markets are forwards, futures, options and swaps. Derivative instruments are derived from specific assets like commodity, securities, currencies, interest rates, equity, stock indexes, credits and mortgages and they represent standardized contracts with delay delivery and future payment of contracted material. According to Dugalić and Štimac (2007), on the spot market investors trade with securities and other assets with current delivery and payment in 2-5 days, but on the derivative markets investors want to manage market risk so they define contracts now with future terms of delivery and payment. Basic characteristics of derivative contracts are: standardization of basic asset and standardization of trading terms, assembly of supply and demand, mechanisms to guarantee settlement, delivery due date, means of payment etc. (Dugalić and Štimac, 2007).

Derivative instruments have departed from underlying asset and become individual trading instrument which maturity value indirectly depends from value of underlying asset. According to Zakić and Stojanović (2008), besides two original roles of derivative instruments - to acquire funds for agricultural production and increase investment profitability, derivatives have one more significant role – to protect capital value from market risks. Also, in the most cases there is no delivery of contracted asset on maturity but only cash settlement of price difference, so these instruments have a great possibility for earnings and speculation besides hedging. Investment banks, pension funds, investment funds and international companies have a very important role on derivative markets because they use derivatives in order to decrease capital costs, manage risks and implement arbitrage on world securities markets. Derivatives can also be interesting for government investing in areas that can only sustain with their help because derivatives decrease risks of starting market turbulences like inflation. Trading with derivatives have great advantages, but also some risks that regulation institutions have recognized as threats and brought new regulation limits and rules

for derivative trading, but regulation has to predict change and development of new instruments in order to decrease risks and prevent financial crises.

In the last 30 years use of derivatives notes constant growth rates in developed countries as well as in emerging countries, which is shown in trading volume data on organized derivative exchanges and Over-the-Counter OTC market by all derivative categories. (Sundaram, 2013). If we analyze structure of trading volume on the world greatest derivative exchanges we can see that financial derivatives have dominant role in relations to commodity derivatives because of different functions and characteristics of underlying asset. Financial derivatives are originally created for protection from price risk, interest rate risk and currency risk, however, in time financial derivatives become lucrative form of investment and speculation. Although, commodity derivatives with bases in agricultural products have dropped in terms of market share, they still satisfy their significant roles to transfer risk and predict prices on agricultural market. If we analyze commodity derivatives in absolute numbers, there is trend of growth that supports all rising popularity of hedging in agribusiness sector. (Zakić and Stojanović, 2008)

According to Saunders and Cornett (2006), the most financial institutions uses derivative contracts to manage financial risks at the micro or macro level with micro hedging or macro hedging. Micro hedging is strategy of implementation futures and forward contracts to manage risk of specific asset or liability (for example protect value of bond portfolio from increase of interest rates). Managers use macro hedging when derivative instruments are used to manage total duration gap balance and consider entire portfolio in order to mutually balance the interest rate sensitivity and duration of asset and liabilities. Managers of financial institutions consider choice between micro and macro hedging with regards to profit expectations, target level of protection, prediction of market indicators, accounting standards and regulations. Also, derivatives are not part of regulatory capital reservations that is defined for deposit institutions, so they have great advantages as an investment alternative. (Saunders and Cornett, 2006)

In 1980s the USA futures exchanges were dominant in derivative trading but strong futures growth rate and high profits as a result had entrance of foreign exchanges in derivative trading segment (London Metal Exchange, Tokyo Commodity Exchange, Central Japan Commodity Exchange, Shanghai Futures Exchange, National Stock Exchange of India, Moscow Exchange etc.). Domination of the American futures exchanges was replaced with broad geographical dispersion and fierce competitive struggle of the great futures exchanges. Also, the emerging countries are participating in this area of financial business besides to developed countries. The Globex electronic trading system contributed further expansion and globalization of derivative market and it provides traders around the world opportunity to trade with futures and options even when futures exchanges are not officially open. In these way derivative trading becomes international and competition between American and foreign futures exchanges are even more intense. (Eremić, 2004)

With futures and options investor's trade on organized exchanges while with forwards and swaps investor's trade on OTC market. If we have in mind that a great number of derivative transactions take place directly on the OTC market there is need of regulatory measures and obligation that derivative transactions goes through Central Clearing Counterparty – CCP so it is possible to monitor derivative trading volumes, their quality and structure of participants. (Rudić, 2016) Financial derivatives that are traded on OTC market are set on rules defined in the standardized financial contracts like ISDA Master Agreement that have role of minimizing credit risk through netting and collateral. Netting is process of credit risk reduction through mutual obligations offset to a net liability that one party pays to the other. Collateral, as means of security, is defined in ISDA document *Credit Support Annex – CSA*. These agreements that define netting and collateral on derivative trading through OTC are necessary to involve in our legal framework so market participants like banks and exporting companies could have more incentives to enter in derivative transactions. (Rudić, 2016)

Materials and methods

Authors uses data from statistical portal Statista, Annual report of World Federation of Exchanges from 2016, data from internet sites of Belgrade Stock Exchange, National Bank of Serbia and Agrar Product Novi Sad. As the research method authors use content analysis and comparison of significant national and foreign literature with analyses of trading volumes on international and domestic exchanges. Authors analyze trading volumes of top world derivative exchanges, structure of derivative trading by product lines and regions in 2016 and 2015 with analysis of current situation on the financial market in Serbia. The paper goal is to present all relevant assumptions and significance of derivative trading development in Serbia with discussion about choice to develop derivative trading on the already existing exchanges: Belgrade Stock Exchange and Agrar Product Novi Sad, or to start a new futures exchange that is going to be specialized for derivative trading. Also, paper analyses derivative trading with foreign currency forwards and swaps on the OTC market in Serbia.

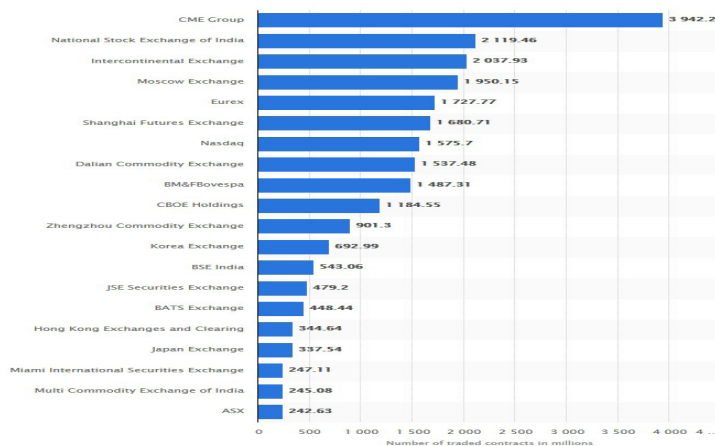
Results and Discussion

Analyses of global derivative market

According to statistical portal Statista authors present next review of the top world derivative exchanges by number of closed contracts in 2016 (*Figure 1*). CME Group that is consisted of Chicago Mercantile Exchange, Chicago Board of Trade, New York Mercantile Exchange and Commodity Exchange (NYMEX, COMEX), has achieved the greatest volume of derivative trading in 2016 with approximately 3,94 billion of closed contracts that had approximately average annual value of 1 quadrillion dollars. CME Globex electronic trading platform offers vast range of the most liquid financial derivative markets in USA, Europe, Asia and Latin America. Today, more than 80% of derivative trading in CME Group is going through Globex platform. In the top five exchanges with the largest volumes of derivative trading besides CME Group

are: National Stock Exchange of India with 2.12 billion of contracts, Intercontinental Exchange with 2.04 billion of contracts, Moscow Exchange with 1.95 billion of contracts and Eurex with 1.73 billion of contracts. The world derivative trading is also performing in significant amount through next exchanges: Shanghai Futures Exchange, NASDAQ, Dalian Commodity Exchange, BM&Fbovespa, CBOE Holdings, Zhengzhou Commodity Exchange, Korea Exchange, BSE India, JSE Securities Exchange, BATS Exchange, Hong Kong Exchange and Clearing, Japan Exchange, Miami International Securities Exchange, Multi Commodity Exchange of India and ASX.

Figure 1. The top world derivative exchanges in 2016 by trading volume in millions of contracts

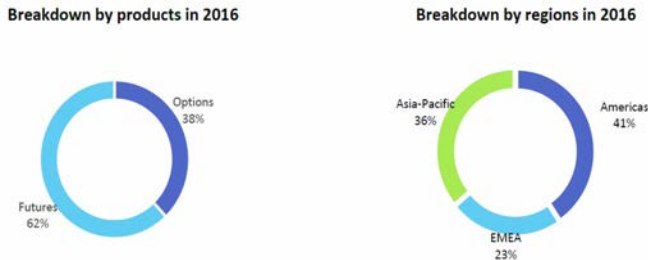


Source: Statista

According to report of World Federation of Exchanges - WFE (2017) there is rise in derivatives trading of 2.2% in 2016 in relations to 2015. Total number of closed derivative contracts is 24.9 billion: options participate with 9.4 billion of contracts and futures with 15.5 billion of contracts. If we compare this result with 2011 that is the strongest year in trading volumes, total trading volume has risen for 9.4% and average annual growth rate is 2.2% in the last five years. If we evaluate regional distribution of derivative trading volume, we can see that USA has increased trading volume for 6.7% and EMEA region (Europe, Middle East, and Africa) for 7.8% compared to 2015, while Asia-Pacific region has decreased trading volume for 5.5%. USA region has the greatest participation in derivative trading volume with 41% of total trading volume and growth in trading volume of stock index futures and options, interest rate futures and options, currency futures and options and commodity futures and options. EMEA region participates with 23% of total derivative trading volume and has growth rate of 7.8% compared to 2015 that is result of increased trading volumes in stock index futures, interest rate and commodity derivatives. Asia-Pacific region participates with 36% of total derivative trading volume and has fall of 5.5% because of decreased trading volume of derivatives on single stocks and stock indexes. On the next two

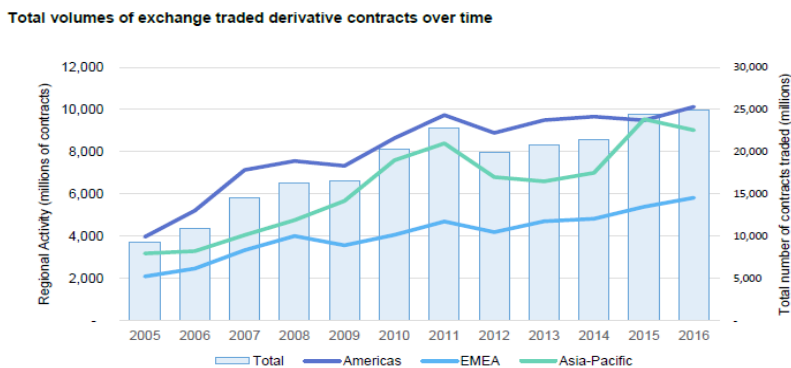
Figures (*Figure 2 and Figure 3*) we can see structure by products and regions in 2016 and review of regional derivative trading volume for the period from 2005 to 2016. (World Federation of Exchange, 2017)

Figure 2. Structure of derivative trading by products and regions in 2016



Source: World Federation of Exchange, 2017.

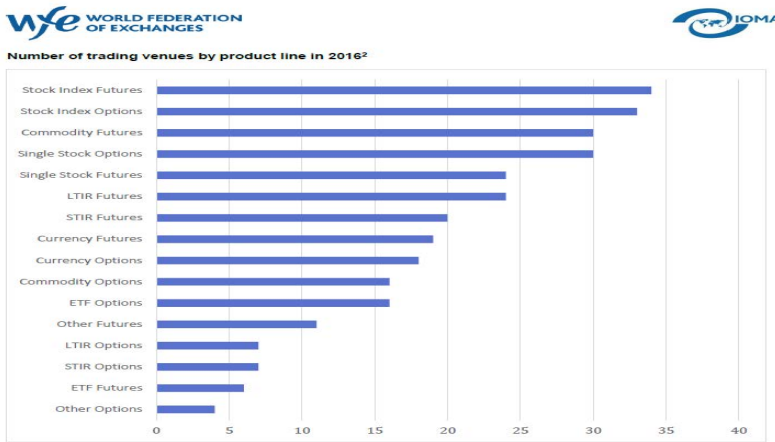
Figure 3. Total derivative trading volumes by regions from 2005 to 2016



Source: World Federation of Exchange, 2017.

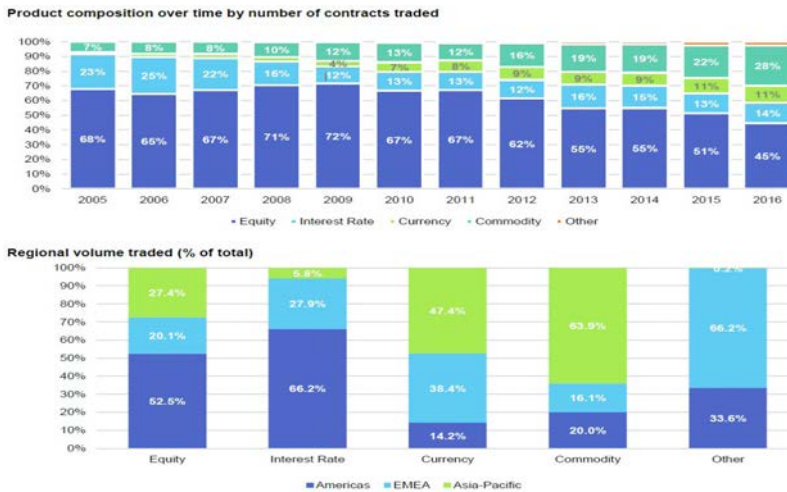
When we analyze *Figure 4* and *Figure 5* from WFE report about derivative trading volumes by instruments we can see that all derivative instruments have growth rates only equity derivatives and other derivatives had decreased compared to 2015. Commodity derivatives have growth rate of 27.5% compared to 2015, with over 6.8 billion contracts in 2016. Interest rate derivatives and currency derivatives have growth rates of 5.5% and 10.4% respectively compared to 2015. In 2016 futures have participated with 62% and options with 38% in global derivative trading volume, while in 2015 options accounted for 42% of global derivative trade. Futures contracts have raised 10% and options dropped 8% compared to 2015. On the *Figure 4* authors present the most traded derivatives contracts by trading volume in 2016, where we can notice that investors traded the most with futures and options on stock indexes, commodity futures, single stock futures and options, short term and long term interest rate futures, currency futures and options etc.

Figure 4. Derivative trading volumes by product line in 2016



Source: World Federation of Exchanges, 2017.

Figure 5. Product composition in period 2005-2016 and regional trading volume in 2016



Source: World Federation of Exchanges, 2017.

According to WFE report (2017), equity derivatives remain the most actively traded derivative product, but their contribution has declined for the first time under 50% of the total volume traded, ending 2016 at 45%. Equity derivatives volumes fell by 11% in 2016 with declines across almost all product lines. Single stock options were down 4.9% related to 2015 while volumes traded in stock index options and futures were down 26.1% and 7.3% respectively. Despite the decline in volumes, these were still among the most actively traded derivatives products in 2016, accounting for over 75% of all equity derivatives traded and for 34% of all exchange traded derivatives. While the EMEA and the Asia-Pacific region (which together accounted for 47.5% of

the equity derivatives volumes traded) saw declines of 20.7% and 26.1% in volumes traded respectively, the USA region had a 5.5% increase in the volumes traded related to 2015. (WFE, 2017)

According to WFE report (2017), interest rate derivative volumes, which accounted for 14% of the total derivatives volume traded in 2016, were up 5.5% related to 2015, a reversal from the declines observed in 2014 and 2015. The America and the EMEA region, which together account for 94% of all exchange traded interest rate contracts, experienced increases in volumes traded of 5.5% and 6.5% related to 2015. Volumes in the Asia-Pacific region, which accounts for only 6% of the total volume, were up 0.4% related to 2015. Currency derivatives, (11% of the total derivatives volume traded) grew by 10.4% related to 2015. The USA and the Asia-Pacific regions, which together account for 61.6% of the total volume traded, saw increases in volume traded of 14% and 23.2% respectively. The EMEA region, (38.4% of the total volume traded) has a decline of 3.2% related to 2015.

According to WFE report (2017), commodity derivative trading volumes were up 27.5% related to 2015. Commodity futures overtook single stock options as the most actively traded contract type in 2015. This remained the case in 2016 with commodity futures accounting for 27% of the total volume traded. The EMEA region which is responsible for 16.1% of the total commodities volume traded experienced a huge jump of 57% in the volume traded. The Asia-Pacific region (which accounts for 63.9% of commodities volume) saw a 27% increase in the volume traded while the USA region (20% of the total volume) experienced a 13% increase in the volume traded related to 2015. The “other derivatives” category comprised from exotic options and futures, REIT derivatives, dividend and dividend index derivatives, CFDs and inflation futures, have dropped by 1.1% related to 2015, driven by the decline in volumes traded on Johannesburg Stock Exchange and Japan Exchange Group.

Development of derivative trading on the financial market in Serbia

Futures and other derivatives began their evolution in XIX century on the futures exchanges in USA and other developed countries, but Serbian financial market is still undeveloped in regard to exchange instruments, trading volumes and number of investors. Chicago Board Options Exchange CBOE successfully released the first futures contract on virtual crypto currency bitcoin in December 2017 that has exceeded all expectations about trader's interest and large demand overloaded exchange several times. (N1, 2017) When we analyze global financial market and innovations like bitcoin we can see the level that our national market is far behind in this competitive race.

On the Belgrade Stock Exchange investors mostly trade with stocks and national bonds, although trading materials can be a great number of market instruments like other liability securities, warrants for buying stocks, bonds or other securities, derivatives, deposit certificates and other financial instruments that are defined in the Law on securities market and other financial instruments for trading on national exchanges. Also, Agrar Product Novi Sad has only spot trading with core agricultural products like corn, wheat and soya. (Birovljev, Ercegovic and Radaković, 2012)

One of the options to start standardized derivative trading in Serbia is to establish a new futures exchange for trading with commodity and financial derivatives and adopt changes in existing Law on capital market. The other option is to expand listing on the current exchanges from just spot transactions to futures and options. This option involves expansion of Belgrade Stock Exchange and Agrar Product Novi Sad listing with financial and commodity derivative trading respectively, that is standardized in means of trading asset, terms of payment and delivery. This process involves initiating margin account system and establishment of clearing house. One of the important questions is defining clearing and settlement model that is process in current jurisdiction of the Central Registry and Depository of Securities, but common global praxis is principle „in the house“ - that clearing is organized in the exchange market. In addition, it is necessary to have government support with establishment of Futures Trading Commission on the USA model that would perform role of registration and granting working permits, securing fair business, regulate and supervise trade in derivative instruments. (Birovljev et. al, 2012)

What is current situation on the Belgrade Stock Exchange? Belgrade Stock Exchange indexes recorded maximal values on the last trading day in 2017, BELEX15 reached daily maximum of 763.39 index points, which is the highest value of this indicator reached in the last six years, precisely from 20.06.2011., while the closing value was 759.80 and that was the highest recorded value of this indicator on the end of a year since the last trading day in 2007. BELEXline finished 2017 with the level of 1.662,53 points, which is the best result from 15.10.2008.

Belgrade Stock Exchange joined EBRD project SEE Link on 22.02.2016., which represents innovational regional trading platform for securities listed on exchange markets in Bulgaria, Macedonia and Croatia. Submission of Belgrade Stock Exchange and Ljubljana Stock Exchange were signed at the headquarters of the EBRD in London on Investment Summit of the Western Balkans. With the last connection of the Banja Luka Stock Exchange, SEE Link trading platform was expanded on the six markets with total value of market capitalization over 50 milliards of dollars and over 900 available securities. In the next years it is expected that Athens and Sarajevo Stock Exchange also join this trading platform.

According to annual trading reports of the Belgrade Stock Exchange, value of total trade for 2016 was 44.57 milliards of dinars or almost 362 million of euro's, which is growth of 98.7% in relations to 2015. Trading instruments were stocks, municipal bonds and bonds of the Republic of Serbia. Unlike previous years when stocks were dominant in trading, 2016 will be marked as the first year of total domination of bonds of the Republic of Serbia in trading records. (Belgrade Stock Exchange, 2017)

Besides positive trends on the Belgrade Stock Exchange that encourages the idea of trading material expansion through standardized trading with futures and options, additional support of derivative development in Serbia is present through OTC market and organized auctions of the National Bank of Serbia. National Bank of Serbia enables protection from foreign exchange risk through organized meetings on the interbank market for foreign exchange hedging. On these meetings forward rate is set as fixed

price for buying or selling of the foreign currency on specific date in future. On this way instruments of foreign hedging are used equally for protection from strengthening or weakening of the currencies. For the example exporters had opportunity to sign on 29.01.2011. quarterly forward contract to buy dinars for euros in approximate exchange rate of 107.5 dinars. If exporters used that opportunity they could change their inflow of euros on the forward rate of 107.5 instead of exchange rate in that moment of 99.7 dinars.

Banks in Serbia offer possibility for closing foreign currency forward, covered foreign currency forward and foreign currency swap. Foreign currency forward represent contract for buying or selling foreign currency for dinars with delivery of both currencies on the specific date in the future at pre-agreed exchange rate. Covered foreign currency forward represent contract where companies have obligation to in advance deposit a part or total amount or dinars, but foreign currency is exchanged at contracted date in the future. From total of 29 banks that have license to operate in Serbia only 18 banks offers services of foreign currency hedging to exporting companies. (National Bank of Serbia, 2017)

Foreign currency swaps represent contracts for buying and selling two currencies at the same time with a priori determined exchange rate on two different future dates. National Bank of Serbia organizes swap auctions on dates predefined in the calendar of regular foreign currency swap auctions EUR/RSD, in order to boost interbank swap market development. Auctions are organized for selling foreign currency, euros for dinars, which provide additional euro-liquidity and for buying foreign currency, euros for dinars, which provide additional dinar-liquidity.

Swap points are difference between forward and spot exchange rate EUR/RSD in foreign currency swap and indicates gap in the interest rates that carries two currencies, euro and dinar, that are subject of swap contract. Swap points are calculated in compliancy with the Decision on conditions and manner of conducting swap buying and selling of foreign currency between the National Bank of Serbia and domestic banks. National Bank of Serbia organized so far nine swap auctions and swap conditions for ninth auction for selling foreign currency – euro's for dinars organized on 19.01.2018. were: spot exchange rate was 118,4991, duration of swap transaction was 14 days, date for spot transaction was 23.01.2018., date of swap maturity was 06.02.2018., the minimum bid for swap purchase and sale of foreign currency was 1.000.000€.

According to information from National Bank of Serbia internet site about foreign exchange transactions realized in 2017 authors present total interbank trading on foreign exchange market classified by execution date of transaction to: transactions with date of execution shorter than spot, spot, forward and swap (*Table 1*). Presented data about interbank trading on the foreign exchange market do not involve transactions with the National Bank of Serbia on interbank foreign exchange market. When we analyze presented data we can point out that forward trading has no realized transactions in the 2017, although it is available. Also, forward trading has no realized transactions in 2016 and 2015 according to the records of the NBS. Swap transactions in 2017 had trading volumes of 182.654.028 euro's and 201.651.573 dollars. In the future National Bank of Serbia should have more active participation in currency swaps for adequate management of foreign exchange reserves. In addition, currency swaps and other

derivative arrangements could be used for public debt hedging to minimize exposure to the global financial market turbulences.

Table 1. Total interbank trade on the foreign exchange market of Serbia in 2017

Dates 2017	Trading volume - execution date shorter than spot		Trading volume - spot		Trading volume - forward		Trading volume - swap	
	EUR	USD	EUR	USD	EUR	USD	EUR	USD
1.2.2017.	7.066.103	7.621.497	23.000.000	24.807.796	0	0	10.000.000	10.785.998
8.2.2017.	2.774.407	2.962.789	9.500.000	10.145.047	0	0	10.000.000	10.678.997
14.2.2017.	5.227.597	5.551.187	0.00	0.00	0	0	10.000.000	10.619.003
22.2.2017.	2.044.814	2.156.665	10.000.000	10.547.002	0	0	10.000.000	10.547.002
Total Feb.	92.228.246	98.268.166	179.339.304	191.553.069	0	0	40.000.000	42.631.000
1.3.2017.	15.254.720	16.107.452	13.000.000	13.726.695	0	0	10.000.000	10.558.996
8.3.2017.	378.64	400.00	9.000.000	9.507.604	0	0	10.000.000	10.564.004
15.3.2017.	1.768.271	1.878.434	5.000.000	5.311.500	0	0	10.000.000	10.622.999
22.3.2017.	5.435.024	5.871.998	7.500.000	8.102.997	0	0	10.000.000	10.803.996
23.3.2017.	3.381.568	3.649.728	24.500.000	26.442.861	0	0	2.779.578	3.000.000
29.3.2017.	1.544.214	1.669.450	14.500.000	15.675.951	0	0	10.000.000	10.811.001
Total March	105.436.180	112.693.164	270.800.000	289.390.380	0	0	52.779.578	56.360.996
5.4.2017.	4.363.193	4.657.272	23.500.000	25.083.900	0	0	10.000.000	10.674.000
12.4.2017.	2.751.733	2.918.763	11.160.272	11.837.699	0	0	10.000.000	10.606.999
25.4.2017.	1.700.000	1.847.731	16.092.005	17.490.407	0	0	2.000.000	2.173.801
Total April	123.957.178	132.628.351	311.595.715	334.509.855	0	0	22.000.000	23.454.800
5.5.2017.	5.414.133	5.947.427	9.300.000	10.216.054	0	0	3.000.000	3.295.501
Total May	87.158.529	96.648.311	276.049.788	305.585.611	0	0	3.000.000	3.295.501
30.6.2017.	7.000.000	8.007.302	21.985.824	25.149.590	0	0	2.000.000	2.287.800
Total June	101.519.022	114.218.105	409.903.628	461.234.239	0	0	2.000.000	2.287.800
3.7.2017.	2.087.619	2.382.599	31.000.000	35.380.286	0	0	3.734.440	4.262.115
5.7.2017.	2.590.432	2.941.694	17.650.000	20.043.336	0	0	2.000.000	2.271.200
7.7.2017.	87.61	100.00	25.750.000	29.391.051	0	0	4.000.000	4.565.600
11.7.2017.	5.000.000	5.694.501	21.351.216	24.316.905	0	0	4.571.904	5.206.943
18.7.2017.	3.350.000	3.862.550	32.100.000	37.011.301	0	0	4.568.106	5.267.026
Total July	163.605.160	189.659.389	486.824.197	560.640.609	0	0	18.874.450	21.572.884
4.9.2017.	6.292.544	7.478.057	45.500.000	54.072.179	0	0	5.000.000	5.941.998
18.9.2017.	1.233.738	1.473.329	12.225.607	14.599.813	0	0	2.000.000	2.388.399
21.9.2017.	1.250.000	1.485.875	6.752.377	8.026.550	0	0	1.000.000	1.188.700
Total Sept.	216.703.007	258.291.733	510.863.777	608.749.760	0	0	8.000.000	9.519.097
20.11.2017.	2.150.000	2.522.809	37.755.667	44.302.491	0	0	9.000.000	10.560.598
23.11.2017.	7.832.726	9.264.545	80.022.726	94.650.846	0	0	9.000.000	10.645.196
29.11.2017.	6.153.100	7.293.269	13.000.000	15.408.899	0	0	9.000.000	10.667.699
Total Nov.	93.522.419	109.984.214	845.219.991	993.295.954	0	0	27.000.000	31.873.493
6.12.2017.	9.572.972	11.334.401	17.380.000	20.577.923	0	0	9.000.000	10.656.002
Total Dec.	590.755.730	700.225.607	852.727.484	1.010.495.270	0	0	9.000.000	10.656.002
Total Volume	1.574.885.471	1.812.617.040	4.143.323.884	4.755.454.847	0	0	182.654.028	201.651.573

Source: National Bank of Serbia, summary review of the authors

In order to have more active involvement of banks, investment funds, pension funds and companies on derivative market and to benefit from derivative instruments, it is necessary to have government boost and to organize seminars and professional trainings in this area. Also, the significant help would be strengthening of international collaboration with international institutions and associations like the World Bank and ISDA and greater involvement of business associations like the Association of Serbian banks, ACI Serbia and Chamber of Commerce and Industry of Serbia. Serbian government should also regulate question of netting and collateral that would enable safe, transparent and favorable derivative transactions on OTC market. (Rudić, 2016)

Development of commodity derivatives in Serbia

According to Mihailović, Cvijanović and Kuzman (2014), primary agricultural production is a significant factor of the total national economy, primarily due to its share in GDP and total employment. Together with food industry, this sector has over 15% of Serbian GDP and primary agriculture significantly contribute to other industrial sectors which directly depend on raw materials from agriculture. On the Serbian market perhaps the best way to start standardized derivative trading is to firstly introduce commodity futures and options on Product Agrar Novi Sad in order to maximally use current facilities of exchange and conduct hedging with agricultural products like corn, wheat and soya (the most traded commodities from 2007 to 2018) and agricultural index PRODEX.

Also, it is necessary to promote trading with warehouse receipts that are already allowed with annex of rules for trading on exchange and are listed on national commodity exchange. The one step forward to implementation of commodity derivative trading is adoption of the Law on commodity exchanges that has all rules for modern commodity trading and allows futures trading besides to spot trading as in all developed countries. Results of the new futures trading would certainly be low at first time when we consider the low development of our market and small number of active trading participants. Also, introduction of futures trading on existing national exchanges brings risk that our existing undeveloped exchange market would crash because margin account system requires deposit payments for guarantee trading model that would in terms of extreme illiquidity of our market had effect on significant decrease of participants and trading volume. (Product Agrar Novi Sad, 2018)

According to Zakić and Stojanović (2008), the significant role in the futures trading development is finding solutions for financing agricultural production and stocks and providing free financial funds available for investment in derivatives. In global practice, as resolution for this problem, the warehouse receipt is often used, which is a link between financing and commodity trading. Warehouse receipt is security that proves ownership of commodities that is placed in licensed public warehouse that can conserve quality of grains, vegetables, fruits and meat. Warehouse receipt has two parts: 1) coupon is proof of ownership of stored goods; 2) mortgage is basis for obtaining banking loans for short-term financing of farmers. Warehouse receipts have great

advantages for short term financing agricultural production and quality classification of stocks for spot and futures exchange trading.

Commodity derivative trading development and warehouse financing model requires achievement in particular conditions, especially in the field of regulation, reliable and well-managed public warehouses, precisely defined licensing process, inspection and monitoring of warehouses, establishment of guarantee fund and clearing, the necessary knowledge of market investors, the introduction of derivative instruments to futures exchange listing, establishing Futures Trading Commission and the key condition for development of commodity derivatives is that national banks target the financing of agricultural production and supplies. (Zakić and Stojanović, 2008)

Zakić et al. (2014) also recommends development of an electronic warehouse system that has the next significant advantages related to paper form public warehouse system:

- Electronic system is safer because public warehouse will be allowed to issue warehouse receipts up to the licensed capacity, while in paper form public warehouse can issue warehouse receipts in quantity greater than the licensed capacity. In this manner, the electronic system would increase the overall safety and the lower amount of funds in the Indemnity Fund would be necessary.
- Banks will be allowed to enter in the electronic warehouse system and put the collateral on warehouse receipt. In this way procedures for banks are less time consuming and more secure which leads to lower interest rates.
- Commodity exchanges will have direct links and trading orders could be sent in electronic form, while paper warehouse receipts needs to be sent to the commodity exchange by mail.
- There is no need for public warehouse to purchase costly blank paper warehouses receipts and dairies for keeping public warehouse receipts records, so the overall system would be less expensive.

There are a lot of questions that should be thoroughly examined and choice needs to be a solution that is the best way to implement derivative trading in practice. Existing practice of trading with commodities is dated from 1921 and Product Agrar Novi Sad is functioning successfully since 1958. (Product Agrar Novi Sad, 2018) With adoption of the Law on commodity exchanges, Product Agrar Novi Sad would have possibility for expansion market material listing towards standardized contracts like futures and options. On this way exchange market would be deeper, more attractive and have efficient mechanism for market participants protection and this opens possibility for longterm and safer production planning. Also, in the next phase financial derivatives could be introduced on Belgrade Stock Exchange listing in order to exploit all benefits of derivative trading and existing infrastructure. (Birovljev et. al, 2012) Serbia has the opportunity to establish futures and options exchange market and become leader in commodity and financial derivative trading in the South East Europe.

Conclusions

Futures and other derivatives began their evolution in XIX century on the futures exchanges in USA and other developed countries, but the Serbian financial market is still undeveloped in regard to exchange instruments, trading volumes and number of investors. When we analyze global financial market and innovations like bitcoin we can see the level that our national market is far behind in this competitive race. On the Belgrade Stock Exchange investors mostly trade with stocks and national bonds, while the Agrar Product Novi Sad has only spot trading with core agricultural products like corn, wheat and soya. On the Serbian market perhaps the best way to start standardized derivative trading is to firstly introduce commodity futures and options on the Agrar Product Novi Sad in order to maximally use current facilities of exchange and conduct hedging with agricultural products and agricultural index PRODEX. Derivative trading development and warehouse financing model requires achievement of very important conditions, especially in the field of regulation, reliable and well-managed public warehouses, precisely defined licensing process, inspection and monitoring of warehouses, establishment of margin account system, guarantee fund and clearing, the necessary knowledge of market investors, establishment of Futures Trading Commission, the introduction of derivative instruments on futures exchange listing and the key condition for commodity derivatives development is that national banks target the financing of agricultural production and supplies.

There are a lot of questions that should be thoroughly examined and choice needs to be a solution that is the best way to implement derivative trading in practice. With adoption of the Law on commodity exchanges, the Agrar Product Novi Sad would have possibility for market material listing expansion towards standardized contracts like futures and options. On this way exchange market would be deeper, more attractive, have the efficient mechanism for market participant's protection and this opens possibility for safer and long-term production planning. In addition, financial derivatives could be introduced on the Belgrade Stock Exchange listing in order to exploit all benefits of derivative trading and existing infrastructure. Serbia has the opportunity to establish futures and options exchange market and become leader in commodity and financial derivative trading in the South East Europe.

Parallel with development of standardized derivative trading it is necessary to boost Serbian OTC market with more government measures that promote foreign currency forward and swap contracts closed on organized meetings and auctions of the National Bank of Serbia on the interbank market and to organize and promote interbank market for other types of forward and swap contracts that would offer complete protection from financial risks. Situation with foreign currency forward trading through OTC market is alarming, the 2/3 of banks that have license to operate in Serbia offers services of foreign currency hedging to exporting companies, but according to National Bank of Serbia data there was no forward trading in the past period, although it is available. In addition, Serbian government should regulate the question of netting and collateral that

would enable safe, transparent and favorable derivative transactions on OTC market. In order to have more active involvement of banks, investment funds, pension funds and companies on derivative market and to benefit from derivative instruments, it is necessary to have government support and to organize seminars and professional trainings in this area.

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Conflict of interests

The authors declare no conflict of interest.

References

1. Agrar Product Novi Sad, <http://www.proberza.co.rs/> (January 20, 2018)
2. Belgrade Stock Exchange, <http://www.belex.rs> (December 25, 2017)
3. Birovljev, J., Ercegovac, D., Radaković, M. (2012). The perspectives of commodity futures implementation on the financial market of Serbia. *Anali Ekonomskog fakulteta u Subotici*, Vol. 27, 13-29 [in Serbian: Perspektive uvođenja robnih fjučersa na finansijsko tržište Srbije].
4. CFA Institute. (2005). *Fixed Income, Derivatives, Alternative Investments and Portfolio Management, CFA Program Curriculum – Volume IV*, Pearson, Boston.
5. Dugalić, V., Štimac, M. (2007). *The basics of stock exchange operations*. Second edition, The pillars of culture, Belgrade [in Serbian: Osnove berzanskog poslovanja].
6. Eremić, M. (2004). Development and actual structure of global derivative market. *Finance*, Ministry of finance Serbia, Belgrade, Vol. 1-6 [in Serbian: Razvoj i aktuelna struktura globalnog tržišta derivata].
7. International Swaps and Derivatives Association. (2017). *ISDA Quarterly*, Vol 3, Issue 2, August 2017 (available at: <https://www.isda.org/>)
8. Mihailović, B., Cvijanović, D., Kuzman, B. (2014). *Challenges of Management Consulting in Modern Business of Agricultural Enterprise*, (Monograph), Institute of Agricultural Economics, Belgrade.
9. National Bank of Serbia, <https://www.nbs.rs/> (January 25, 2018)
10. N1, <http://rs.n1info.com/a348655/Biznis/Bitkoin-stigao-na-americku-berzu.html> (December 11, 2017).

11. Rudić, V. S. (2016). The role of derivatives in currency risk management on the financial market of Serbia. (PhD dissertation), Faculty for banking, insurance and finance, Belgrade [in Serbian: Uloga derivata u upravljanju valutnim rizicima na finansijskom tržištu Srbije].
12. Saunders, A., Cornett, M. M. (2006). Financial markets and institutions (Modern view). Second edition, Masmedia, Zagreb [in Serbian: *Finansijska tržišta i institucije (Moderno viđenje)*].
13. Statista, <https://www.statista.com/statistics/272832/largest-international-futures-exchanges-by-number-of-contracts-traded/> (December 15, 2017)
14. Sundaram, R. K. (2013). *Derivatives in Financial Market Development*. International Growth Centre, London School of Economics and Political Science, Working Paper, February 2013, 1-34.
15. World Federation of Exchange. (2017). *WFE IOMA 2016 Derivatives*. (available at: <https://www.world-exchanges.org/>)
16. Zakić, V., Kovačević, V., Ivkov, I. and Mirović, V. (2014). *Importance of Public Warehouse System for Financing Agribusiness Sector*, Economics of Agriculture, Institute of Agricultural Economics, Belgrade, 2014, Vol. 4, 929-944.
17. Zakić, Z., Stojanović, Ž. (2008). *Agro economics*. CID, Economic faculty in Belgrade [in Serbian: *Ekonomika agrara*].