

## DERIVATIVES MARKET IN SERBIA – CURRENT DEVELOPMENTS AND PERSPECTIVES \*

*UDC 336.76(497.11)*

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**Abstract.** *In this paper, we review evolution of derivatives trade in Serbian financial market, and its prospects. The first part is partly based on authors' analytical observation of actual stance of matters in domestic economy, and partly on questionnaire-based survey, done recently in the banking industry. It is found that a major part of the banking industry makes efforts to respond to the increasing need for derivatives. Some banks already offer risk management products, notable currency forward and swaps. The second part of the paper is more like a forecast of future development, made upon the observed facts. We try to back up our view with economic rationale, as possible. Answers on crucial dilemmas are given, as to the sequence of introducing types of contract, institutional trade arrangement, and the role risk factors play. We discuss constrains and deliver an agenda for some key players.*

**Key Words:** *Derivatives, Serbian financial market, banks, currency forward agreement.*

### INTRODUCTION

The basic types of derivative instruments are forward, futures, swap and option. A forward contract is a two-party agreement to exchange an asset at a specified future time for a predetermined price. A futures is basically the same type of contract, but tailored to be traded on an exchange. A swap is an agreement to exchange series of cash flow in the future, on the basis of predetermined formulae, and sometimes can be replicated as a portfolio of forward contracts. An option is unique instrument since it is the only type that does not commit both parties to take an action in the future. One party (option holder) has the right; the other (writer or seller) has only the obligation. The holder has the right to buy (call option) or sell (put option) the underlying asset to the counterparty for the specified price, on the certain date (European style) or by the certain date (American Style). Moreover, the option is the only derivative that has its own price (premium).

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Received August 6, 2010

\* Acknowledgement: Author is deeply grateful to the Republic of Serbia Ministry of Science for the funds and support that made this research possible through its Research project No. 149052.

Derivative instruments and markets play a unique role in developed economies. With derivatives a market participant is able to manage risk more efficiently, for some it is even the only way available to accomplish the job; while the whole market benefits from better risk allocation. Precisely this has given the impetus to the growth of derivatives. Today, the cash markets remain the main place to invest, but fast growing derivative markets take over the other role, becoming almost exclusive venue for risk management purpose.

It is hard to say which market predominate the other one. Statistics used to measure the scope of the operations differ. The most widely used indicators to measure the scope of equity market are its capitalisation and trade volume. For derivatives it is open interest that is used in place of capitalization. But, those two measures are not equal. Total value of equity issued (i.e. total capitalization) sometimes accompanies very low trade volume, hiding low turnover ratio. For, the primary and secondary market interest for a share of stock may significantly differ. In very actively traded derivatives volume of trade multiply its open interest. Some facts favour cash markets.

Nevertheless, illustrative of the progress derivatives market made recently is the fact that exchanges, members of World Federation of Exchanges, got 43 percent of their total income from trade in derivatives (in comparison to 52 percent in stock trading), and the share increases by half just in one year (WFE, 2005, p. 34). Moreover, the most active institutional arrangement used to trade derivatives is not exchange traded. Over-the-counter trade accounts for more than 85 percent of total nominal contracts value (BIS, 2006, Table 1, p. 7). Thus, trade in derivatives caught up, if not overcome, the cash part of financial trade.

Flourishing network of derivative exchange spreads all over the world. Two thirds of 63 derivatives exchanges, that existed around the world at the end of the second millennium, started during the period 1985 – 1995, many of them in emerging countries (Clayton et al., 2006, Table 1, p. 34). The list of instruments also spreads out to include that peculiar asset as meteor facts (quantity of rain fallen, the number of sunny days, tornados, etc.) macroeconomic variables (inflation rate, real property prices) and many others. Derivatives can be used to resemble any financial instrument, so they are more than financial instruments; they are a concept (e.g. options are used to replicate financial structure). Derivatives are surely a principal tool for the 21 century financial engineering.

## 1. THE HISTORICAL PREDECESSORS OF CONTEMPORARY DERIVATIVES MARKET

Economic historians do not agree on the place and time of creation of the first derivative. In Asia, a regulated rice market existed as early as 19th century. Today's leading Japanese market for derivatives in agricultural products, Tokyo Grain Exchange, has its roots in 1874. However, in less formal way trade took place centuries ago. Historians note that the first commodity contract that set apart payment and delivery comes from 17th century on Yodoya rice market in Osaka (*cf.* Erić, 2003, p. 385).

Medieval Amsterdam is honoured with being the origin of the first derivative created on a financial asset. By the end of 17th century a small but relatively sophisticated securities market existed there. The main stock traded was the share of the world's first joint-stock company opened to the public, the Dutch East India Company (Verenigde Oostindische Compagnie). Michie (2008, p. 27), referring to Joseph de la Vega writings, states:

"the techniques in use included spot and future contract; call, put, and straddle options; margin trading, hedging, and short-selling; and ability to defer both payment and delivery", and he writes further (*opus citatum*, p. 30): "[P]ractice in use in Amsterdam were also quickly introduced [in London: *added*], such as options and dealing for time". Interestingly, this time, as formerly in Amsterdam, government tried to restrict time bargains, but to no avail. The last sentence indicates that it often happens that derivatives confuse the public. It is not rare that trade in derivatives was marked extremely risky, and was blamed as it damaged market and society well-being. This is the principal reason why the early developments in derivatives trade ceased at the time, creating discontinuity.

Nevertheless, in modern times Northern America was place to host the first regulated derivatives market. As true in other cases here trade begins as an autonomous process, mostly to solve terminal irregularity in demand and supply. Chicago market is the real predecessor of whole contemporary network of derivative market all over the world. Chicago Board of Trade was the first institution that hosted organized trade. This market was established in 1848. The name Chicago Mercantile Exchange (CME) for the first time was used in 1919 when the organization changed the name from Chicago Butter and Egg Board (previously Chicago Produce Exchange).

It is easy to offer a reasonable explanation why the trade in derivatives begins with commodities. In ancient times all trade (cash or other) was in commodities. World economy had to wait centuries to see the first financial instrument tailored to be traded more or less orderly. However, recent developments in world trade secured dominant position of financial trade. Nowhere the trend looks so clear as it does in derivatives trade. For instance, in today's US derivatives market more than four fifths of the total turnover is realized in financial derivatives (financial instruments and currencies), while equally persuasive look the figures on open interest (CFTC, 2005). The fact is astonishing, since the first derivative that had a financial asset as underlying instruments was introduced in 1972. It was first currency future in the world. It does not take long to see other financial products traded the same way. Trade in futures on eurodollar begins in 1981, following stock index futures.

Our rather short travel through the economic history, back to the very roots of derivative trade, confirms a sort of regularity. Derivatives are created rightly on those assets which already burst their cash trade component. Most intense trade in ancient times took place in various commodities, notably the principal agricultural products.

## 2. DERIVATIVES IN SERBIA

### 2.1 Origins

Since Milan Obrenović enacted "The law on public exchanges" (*Zakon o javnim berzama*), in 1886, it was not long before Serbia joined an exclusive club of countries that had a regulated exchange (1894). From the very beginning the exchange hosted both trade in various commodities (mostly agricultural products) and financial assets (currencies, equities and government bonds). Later on, the trade in commodities and financial products separates to different locations, and it remained this way in the next decades.

Illustrative of the rapid progress being made in Belgrade was the fact that along with prompt (cash) trade, trade with postponed delivery takes place side by side. Among the

most important terminal agreements of that time were (Šušakčević, 2000, p. 35): the simple terminal agreement (futures) and various contingent claims very similar to today's option contracts.

Option like contracts have been stipulated as to give right to one party to change some of contractual features until option expire. The option like agreement with simple premium gives right to a party paid the premium to modify or cancel the contract. The other types also existed. Contingent option contracts gives right to a party (with long call option position) to ask a counterparty (option writer) for additional quantity to be delivered to her/him, or to ask a counterparty to accept additional quantity (in case of long put position) to be delivered by her/him. Moreover, the holder of option of specific type could demand delivery not only at expiration date but also before it (American style option). Some peculiar combinations were also known; if a party in a option contracts with simple premium take offsetting positions, one in which she or he is a buyer, and the other in which is a seller of the same underlying asset, with other side closed its position against her/him, she or he could either close out one position, or arbitrarily chose which one they will sustain (buyer or seller).

As it was in most advanced stock markets of that time, the Belgrade Exchange set up margin accounts (kaucija), as it be able to clear terminal transactions on a regular way. It is obvious that by the techniques its use and its importance, the Belgrade Exchange was a remarkable institution of its time. The Belgrade Stock Market was the first market as such in Western Balkans. Albeit the market formally existed by 1953, when the government officially closed its doors for next decades, unfortunately, the World War II interrupted the fast growth of the innovative institution (*cf.* Dugalić and Štimac, 2005, pp. 370-7).

Reopening of the institution happened in 1989 (Yugoslav capital market) but not a lot happened till 2002, when trade in *forex* bonds was introduced as well as continuous trading. But, the former glory has not been reached, yet. For instance, we are still waiting for the first derivative to be introduced in organized trade.

## 2.2 New beginnings and new developments

The last couple of years witnessed first steps in introducing derivatives to domestic market. Currently, domestic banks offer private contract, notably forwards and swaps.

The National Bank of Serbia also steps forward advancing the business practice. Recently NBS introduced currency swap contract, as a package of the offsetting spot and forward transactions. As such, the swap is given the role to help banks to manage their currency risk exposure. With NBS taking regularly one side of the transaction, and a bank taking the other, the swap remains another piece in NBS tool kit to regulate banking industry, meaning nothing to sophistication of the private market.

The biggest advance in private derivative markets was a quasy currency forward. This type of contract is a specific mix of typical terminal agreement (forward) and deposit contract. As stated in the introductory section, a typical, or classic forward, is a two-party agreement to exchange an asset at a specified future time for a predetermined price. In case of currency forward it means that neither party has to pay anything to the other since the specified future time, i.e. delivery date. Neither does the seller pay (deliver) foreign currency, nor does the buyer pay counter-value in domestic currency. A quasy, or "covered" forward assumes different payment schedule. The seller still delivers foreign cur-

rency at a specified future time, but the buyer pays at the signing of contract. The advance payment can be treated as a performance bond (safety deposits); at least, it serves a similar role. Unlike the performance bond, which assures the payment, but payment comes independently, here the whole payment is done in advance. It may not look like deposit without having in mind that the forward seller compensates the buyer by paying the regular interest (they agreed upon) on money deposited, and for the maturity of forward contract. Modified like this, the contract offsets a contractual party, that with a short position (agrees to *sell* the foreign currency on term), which is regularly a bank, for counterparty risk. The other party (that with long forward position) agrees to pay full terminal price in advance. Unlike quasy forward, a typical (or "plain vanilla") forward allows bank's client to take either position, to buy or sell on term. The counterparty risk issue here is solved by the bank conditioning a counterparty to agree upon a credit line or safety deposit not less than a twenty percent of nominal contract value, no matter if they are the buyer or the seller.

It is exactly non-resident controlled banking units that offered first quasy forward (e.g. Intesa SanPaolo). Perhaps, they use know-how, already developed for other markets. The banks that operate solely in Serbia are less aggressive in the market for currency risk related products. For instance, AIK bank offers only an exchange rate indexed deposit contract in dinars. This review shows that some derivative trades take place in Serbia today, but it says little about how frequent this practice takes place, or what the scope of the market is. Thus, in the next section, we will try to fill the gap.

### 2.3 Current state of development: the survey results

In order to assess current state of development of derivatives market in Serbia we distributed a questionnaire among the management staff of banks operating in Serbia. Questionnaires were routed to the staff that manage bank's investment/private banking or a custody division. In total, 25 fulfilled questionnaires returned from 18 banks. The sample is rather small, and the response rate is a bit above fifty percent. The survey was done in the period 15th September – 10th October, 2009. The instrument we used to survey is a structured questionnaire, with eleven multiple-choice question.

What, specifically has to be assessed is: how familiar the management is with derivative matters, their contractual features, purpose of use (questions 1 – 3). Several questions were added to assess the extent of use (4 – 10). Finally, we asked the managers what pre-conditions are necessary to have a developed market for derivatives in Serbia (11). In what follows we comment the results.

*Question No. 1:* "Please, state your attitude toward derivative instruments". Participants have to decide on between five available statements: very negative, negative, positive, very positive, or stay with no answer. Twenty out of 25 marked "positive" while five marked "very positive".

*Question No. 2:* "Please, assess how informed you are on the role and the features of derivative instruments". Here, participants mark one out of five offered statements: not informed, merely uninformed, merely informed, fully informed, or stay with no answer. Twenty two participants marked themselves as being merely informed, while others (3) as being fully informed.

*Question No. 3:* "Please note the source used to get you informed". Offered are: the internet, literature, conferences, seminars and courses, from regulators (NBS, KHV)".

The literature is stressed to be the most important source (12), followed by the internet (6) and conferences (6), regulators (3), and seminars (2).

The next section (4 – 10) surveys the current state of derivatives use in banking industry.

*Question* No. 4: "Has your bank ever used any terminal contract". We collected 25 answers in total. Three negative, and 22 affirmative.

*Question* No. 5: "If yes, which category does it belong to?" Offered are: forward, option, swap, and other.

*Question* No. 6: "If yes, which asset underlined the derivative contract". Offered are: currency, interest sensitive assets, and equity.

*Question* No. 7: "If yes, please state institutional arrangement in which you made the deal(s)". Offered are: derivative exchange and over-the-counter (direct bargaining with a client).

*Question* No. 8: "Please state the purpose of the signed contract(s)". Offered are: hedging, speculation, and other.

In all cases it was *currency forward* agreement, bargained with a *client directly*, i.e. on OTC market. Interestingly, all of them indicated that the purpose of its use was exclusively exchange rate risk *hedging*.

*Question* No. 9: "Please classify the type of your counterparty". Offered are: domestic banks, other banks, other financial organizations, and enterprises. Majority of participants (62 percent) indicated as a counterparty a domestic bank. Less frequently it was another bank (30 percent), while it rarely happens that other financial organizations (4 percent) and enterprises (4 percent) get into a deal.

*Question* No. 10: "Please state the activities you undergo to attract derivative business". Offered are: staff education, establishing a separate department, strategic planning of the activity, and do nothing. Since the offered answers are not mutually exclusive, participants often marked more than one answer. Almost equally weighted are staff education (44 percent) and planning the activity (37 percent), while less frequently the banks go to separate derivatives division (19 percent).

*Question* No. 11: "Please mark reasons that most severely constrain development of domestic derivatives market". In answering the last question they are to pick up to two out of four offered answers: official legislature that rules business in derivatives, lack of experienced staff in banks, lack of interest in banks, and uninformed client base. All the answers clearly indicates first and fourth reason, putting aside any internal deficiency.

We conclude that derivatives trade gets a regular practice, and that banks do much to make themselves ready for the market, just about to arrive. A number of banks open new and lucrative business lines.

### 3. PERSPECTIVES TO DEVELOP DERIVATIVES MARKET

There are several dilemmas that a researcher can face attempting to trace the perspective development of the derivatives market in the years to come. The most notable dilemmas are:

- a) A type of instrument that develops first,
- b) Institutional arrangements that govern the trade,
- c) The role risk factors play.

However, some of them have already been solved. The first derivative to trade in modern Serbia was currency forward agreement. A forward, *per se*, is an OTC contract. Finally, the first cash market that was joined by its forward component was foreign exchange market. It seems that the forecast is not going to be a hard task.

### 3.1 Types of instruments

It is precisely complexity that determines the sequence of introducing types of instruments. As known a forward is the simplest derivative. It commands one way exchange of underlying asset, or net cash flow, between the parties getting into contract. Moreover, there is a rather simple formulae widely used for centuries to evaluate forward price. This is the rationale why forward trade precedes all other derivatives. Features of futures contract are as simple as the features of forward contract. They differ only in institutional arrangement used for their trading. A forward, like a bit more complex swap, is an off-exchange contract. A futures need an organized exchange.

So far, many leading derivative exchanges organized trade in futures and options side by side. However, in many cases futures trade predetermines option trade. The reason for that could be the above mentioned complexity. But there is one more thing. In many cases options are written on futures. For derivatives to be settled in a regular way, an underlying market able to produce reliable prices is necessary. The trade in derivatives is conditioned by regular price discovery. Futures markets are far more liquid than cash markets. They are able to produce relevant prices daily and in non-arbitrary manner. This means that if a cash market can not provide regular price discovery, a relevant futures market takes the role of option's underlying market.

Therefore, the sequence of introducing various types of derivatives, in case of Serbia, will probably replicate that one already seen worldwide: forward, swap, futures, and at the end options.

### 3.2 Institutional arrangements

The development already seen in numerous cases all around the world indicates clear cut sequence in events ruling the development of derivative markets. OTC trade precedes introducing derivatives traded on regulated markets. It becomes obvious that the development of derivatives market follows sequential terminal pattern. Eventual official support to establish fully fledged market with infrastructure, rules and regulations, becomes necessary. Nevertheless, intermediaries often precedes it with autonomous efforts to diversify their business portfolio. As already stated above, in majority of cases worldwide derivatives trading starts as off-exchange trading.

OTC and exchange trade in a way compete with, but in a way complement trade arrangements. OTC trade is easier to establish, because it relies on existent infrastructure, traditional intermediaries make market active, basic law does not prohibit trade (*cf.* Iglič, 2008), and the only thing has to be done is to tie demand and supply.

Exchange trade needs advanced infrastructure: standard contract specification, clearing and settlement, order routing, matching and reporting infrastructure. But it is suitable for those players that, because of inadequate size and credit quality, are excluded from OTC market.

Moreover, OTC markets for derivatives are quote-driven markets. Financial intermediaries are sole liquidity suppliers, responsible for making the market. Derivative exchanges are, on the contrary, order-driven market structures (or hybrid). For an OTC markets to operate well trade concentration is not crucial, as it is in order-driven markets when some orders provide but some absorb liquidity created. A small, or disbalanced order flow can severely jeopardize two basic roles of the exchange: price discovery and trade allocation. This is why introduction of exchange traded derivatives must come after the interest in trade, and trade volume, reach the scope and balance.

### 3.3 The role of risk factors

Derivatives are superior tools for risk reallocation. Interest to specific risk factor stays crucial for bursting the demand for a derivative able to reallocate it. Therefore, it is expected that market participants will strongly demand those derivatives which serve the role best. Today, derivatives are created as to use in reallocating equity risk, interest rate risk, currency risk, commodity risk, as well as many other risk factors (economic fundamentals like asset price, inflation, meteo-facts, etc). Our time machine shows that currency futures trigger modern days' organized trade in derivatives. It was the first traded derivative created on a financial assets on Chicago markets.

#### *Currency risk*

Adverse changes in net worth and/or profitability can occur as a result of unforeseen change in exchange rates. In the exercise below (Table 1) we show how a balance sheet gets exposed to exchange rate risk. A firm (e.g. a bank) forms liabilities both in the local and foreign currencies. The same way, it acquires both local currency assets and foreign currency assets. If amount of foreign assets items differs from foreign liabilities it is called net open position. Whether it affects positively or negatively depends on the way exchange rate changes. The extent of exposure depends on how balanced the asset and liability sides of the balance sheet are. The exposure itself does not necessarily mean a loss. If the book is open on right side, as it is in first and third case (the first and third line of the Table 1), net worth is going to rise. Otherwise it is going to fall. The essence of asset/liability management is balancing the books according to as exact as possible forecast of exchange rate movements.

Table 1 Balance sheet exposure to currency risk

Balance sheet position	Currency	Asset value		Liability value	Net worth
$Fx$ assets $>$ $Fx$ liabilities	Appreciate	Rise	$>$	Rise	Rise
$Fx$ assets $>$ $Fx$ liabilities	Depreciate	Fall	$>$	Fall	Fall
$Fx$ assets $<$ $Fx$ liabilities	Appreciate	Rise	$<$	Rise	Rise
$Fx$ assets $<$ $Fx$ liabilities	Depreciate	Fall	$<$	Fall	Fall
$Fx$ assets = $Fx$ liabilities	Appreciate	Rise	=	Rise	No change
$Fx$ assets = $Fx$ liabilities	Depreciate	Fall	=	Fall	No change

As obvious from the Table (1) the market participants should avoid having net asset position when local currency depreciates, and having net liability position when it appreciates. Thus, the extent of risk lying in books depends on how balanced liability and asset



sides of the balance sheet are, thus the name "balance sheet exposure" to currency risk. Moreover, due to the fact that currency risk easily mutates into default risk, this way calculated exposure (direct exposure) stays only a part of overall balance sheet risk. The second part is so called indirect exposure. While direct bank exposure to currency risk can not be harmful due to currency mismatch regulations, indirect exposure asks for special interest. Two thirds of all the banking sector's claims on enterprises, and three quarters of claims on households are foreign currency indexed or denominated (NBS, 2009a, Tables 6b-6c). The balance sheet exposure of non-bank sector (households and enterprises) is open on liability side. It means that local currency depreciation damages net worth.

Appart of the balance sheet exposure, there is also transaction exposure to exchange rate risk. Here unit of exposure is not overall balance sheet but rather sole transaction itself. For many market participants it is rational to use this scope of analysis. Importers or exporters are exposed to exchange rate risk because local currency proceed or purchasing cost will depend on the exchange rate. For an economy this type of exposure depends on how balanced export and import are.

Several features of domestic banking sector are responsible for widespread currency risk. Firstly, it is exchange rate regime, which inclines to flexible side. For the sake of curiosity, currency risk related derivatives were rare in Bretton Woods era. Fixed parity clears any volatility and uncertainty that could ask for a risk transfer.

Secondly, it is high level of unofficial currency substitution in Serbia. Albeit, the issue is not ready to be solved, the risk transfer instruments could handle it. Luca and Petrova (2008) show that lack of derivative markets makes things worse for the countries burdened with currency substitution. High level of deposit and credit euroization ranks Serbia on the top of countries in South East Europe (*cf.* Marinković, 2009, Table 2; p. 501).

Finally, the model Serbia used in past decade to speed up its growth largely is responsible for the economy's exposure to currency risk. Capital import from abroad, mostly credit resources, opened borrowers' books on liability side. As stated, banks managed to match their books, by shifting the currency risk further to their borrowers: households and enterprises.

While out of scope of this paper, it is good to know that those three determinant are linked, and the link is not unidirectional. What happens with exchange rate influences how fast the credit flows from abroad, and *vice versa*. The same is true with credit euroization and the way domestic economy finance its growth. Therefore, those three determinants are cornerstones of huge currency risk that bothers most (if not all) participants in Serbian market. Finally, current account deficit means that import predominate export. This, regardless finance matters, exposes tradable sector to depreciation risk.

Having this in mind, we conclude that for many non-bank market participants traditional techniques for managing the exposure can not be effective. They are pushed into short cash foreign currency position, that can only be offset by a long terminal position.

It might be that market easily slips into "one sided structure". Majority of perspective participants (end-users) will stand on buying side of the market, so that there must be someone willing to take on "weak" side of the market. The term "weak" means here a special privilege, that can be used by intermediaries to set up the price, and "to skim off the cream". This could jeopardize the newly established market, not only by "haircuts" but also by driving the forward rate out of fundamentals.

### Interest rate risk

Interest rate risk is a bit more complex than currency risk. For a financial intermediary there are two basic drivers of interest risk. The first is mismatch in maturity structure of assets and liabilities. If, on average (weighted) liabilities mature before assets, it means that the liabilities will be repriced before the assets. In the meantime, any rise in interest rates drives expenses higher while the interest income stays unchanged. That is all that matters when a bank borrow and lend at fixed rates. But, a change in rates may come regardless of maturity. If a deal is priced with floating rates it will be repriced as frequent as the reference rate changes.

A method, originally developed by J.P. Morgan bank, integrates both effects (ARBL Gap analysis). A gap is said to be positive if amount of assets that repriced during the arbitrary chosen time span exceeds amount of liabilities repriced, otherwise it is negative. A positive gap exposes a bank to losses if rates fall, and *vice versa*. For a bank is naturally to have negative gaps in short term, what means that rise of short-term rates will damage net income.

In the table below (2) we show a summary of the mechanics.

Table 2 Balance sheet exposure to interest rate risk

Gep	Interest rate	Interest income		Interest expenses	Net interest income
Positive	Rise	Rise	>	Rise	Rise
Positive	Fall	Fall	>	Fall	Fall
Negative	Rise	Rise	<	Rise	Fall
Negative	Fall	Fall	<	Fall	Rise
Zero	Rise	Rise	=	Rise	No change
Zero	Fall	Fall	=	Fall	No change

Currently in Serbia the majority of banking claims to enterprises is priced in variable rates (mostly Euribor and Libor). For households almost the total debt is priced in variable rates (NBS, 2009b). It makes maturity composition of balance sheet rather irrelevant for the interest risk story. So, the banks probably matched their books, shifting once again all the pressure to borrowers.

The above exercise (Table 2) shows an interest rate exposure model convenient to use in banking industry, which both borrow and lend. But for an economic unit that solely, or predominantly, borrows, the total net financial cost is subject to change as soon as price of debt changes. Therefore, balancing gap is not an available technique, since the balance sheet position (ARBL Gap) is naturally negative.

A way to solve the problem is changing the banking practice, shifting from variable to fixed rates. However, it is already seen in the Serbian market. Some banks do not prohibit fixed rate credit contract. They offer both variable and fixed rate credits. But it is regularly most costly to take a loan with fixed. As being better informed party, banks even when make it available, make it more costly. Even repricing or rescheduling the credit since years was practice in banking industry. However, banks by charging it harshly effectively prohibit it.

Perhaps new way of thinking is gentlemen's agreement signed by NBS and (Vienna Agreement) some banks, regional leaders. The agreement ties the banks not to cut the credit lines to the Serbia, or to stay exposed to the local market as much as they were before the crisis, but, with NBS committed to proactive role, e.g. to subsidize proposed restructuring of banks' credit portfolio in terms of currency, maturity and interest rate charged.

Thus, for the future, natural way out of trouble will be OTC market for interest rate related risk transfer products. Probably the most amenable to use from the very beginning should be cap, floor, or collar agreements, or possibly floating-to-fix swaps. All of them are OTC products, so that intermediaries make the market.

The bad karma is as follows: those who are in charge to provide the risk management tools are exactly those who proved themselves to be reluctant to land at fixed rate. The issue we have just noted stays the biggest inhibition even in most developed markets that put together as many providers as it could be in financial world. If someone doesn't want to take the risk from you, by lending at fixed rate, the probability that you will eventually find anyone who is willing to do that, stays a lot bigger when hundred of various providers compete among themselves, than if the sample is constrained on tens' of banks. This brings the issue to the competitiveness (*cf.* Krstić and Marinković, 2009) matters.

Sometimes, in well developed markets, non-financial entities (end-users) take both sides, with financial organization bring them together, acting as a diler. But, what brings new complexity to the issue is the fact that perspective end-users do not fill familiar with derivative matters.

### ***Equity risk***

Equity risk has many faces. Some investors diversify, some not. Investing vehicles like mutual funds made more attractive basket trading and stock indices (or even bond, real estate property and commodity indices). They are looking for hedging residual risk in market for index futures and options. Individual investors stick to derivatives for individual share of stock. Obvious advantage shift non-investing oriented strategies from cash market toward derivative markets, overwhelming derivatives market with speculations, hedging and arbitrage.

Here we want to stress some facts that could possibly explain why equity derivatives will probably play the residual role in future Serbian market for financial derivatives. Firstly, it is overall development of cash equity market. As noted above, cash market drives derivative one. For equity derivatives to play bigger role it is necessary to have a well-developed stock market. In this moment Serbian equity market is far away from an orderly and fair market structure. An outcome of the trade is excessive volatility, uncertainty, either related to ability to trade as you wish, or to price you expect to accomplish your trade with. The number of companies that still trade continuously decreases at all times since the turmoil.

Secondly, we want to point-out another reason inclined mostly to the technique of trading stocks. Many well established stock exchanges worldwide changed since recently their trading session structure in response to manipulation practice that comes up in cash market itself, but with a motive to affect derivative market. Since prices moves cross-market arbitrage, any misconduct that influences cash market closing price, influences settlement price and consequently fairness of futures market. In ten out of eleven leading market structures worldwide (*cf.* De Jong and Rindi, 2009, Table 1.2; p. 16) trade closes with a call (single price auction, or batch) auction, that comes immediately after the continuous trading phase. The innovation substitutes for earlier practice that the last trade (or sometimes more complex algorithm) in continuous phase determines the closing price, use both in reporting purpose and, what is especially important, to determine settlement

price in related derivative markets. Unlike stock markets, derivative markets do not stick to that rule, what indicates that although cash and derivatives market influence each other, the way of influence flows more directly from cash market to derivative, than reverse. Unfortunately, in spite of being blamed for many manipulations, the procedure used on Belgrade Stock Exchange to discover closing price for equities did not change meaningfully. If the Belgrade Stock Exchange wants to host derivative trading in near future, it surely has to think about changing its trading session structure in the way the leading world exchanges have already done it.

Thirdly, the emerging markets, both equity or derivative, are threatened by fierce competition from abroad. Very often established markets grab the best share of trading activity (*cf. Claessens et alia, 2002*) by granting a place on the listing to the most prominent companies from abroad. Derivative markets are hit even harder; firstly, by transition of cash (equity) market activity to the better venues, and secondly, by taking over the derivatives created on local assets. Notable example is Wiener Bourse attempt to introduced traded derivatives created on Serbian stocks (SRX EUR), or more recently, Belgrade Stock Exchange's agreement with ABN AMRO bank on creating structured products on BELEX15. Although it could be a good first step, it sacrifice the potential of future development of local derivative market. Perhaps we should look for a way out in partnership with other regional exchanges that face similar problems.

#### CONCLUSION

In this paper we review the evolution of derivatives trade in Serbian financial market, and its prospects. The first part is based on authors' analytical observation of actual stance of matters in domestic economy, and on questionnaire-based survey, recently done by the authors in the banking industry. We found that majority of banks made efforts to respond to increasing need for derivatives. Since recently leading banks have started offering less sophisticated risk management products to the public. Firstly, it was a currency forward agreement.

The second part of the paper is more like a forecast of future development made upon the facts observed here and other places. We have done as much as we could to back up our view with economic rationale. We note some facts that constrain developments of derivative markets. Namely, the banks which are supposed to be leaders in making the market show no clear interest in doing that. The force of competition that often comes from other financial institution breaking the monopoly of traditional intermediaries (banks) is far from being effective. The local financial industry is led by complex financial groups (conglomerates) with not so much scope left for independent financial service providers. Although some banks offered currency risk related products, they do it on occasional basis, with no ambition to make two-sided continuous trade at fair price, and with no discriminatory rules and conditions. Those that are harshly affected by currency and interest rate risk, i.e. enterprises and households, lack the knowledge and understanding of derivatives business. The third key player is domestic financial exchange. Lack of initiative of the financial exchange to diversify its business by offering a new range of products could partly be assigned to the bad moment. Since the recent turmoil even cash trade has been losing its momentum. Therefore, it will probably be long before we see the first derivative traded on the exchange.

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## TRŽIŠTE DERIVATA U SRBIJI – STANJE I PERSPEKTIVE DALJEG RAZVOJA

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*U radu istražujemo nastanak trgovine derivatima na srpskom finansijskom tržištu, kao i perspektivama njenog daljeg razvoja. Prvi deo rada je delimično zasnovan na autorovim analitičkim opservacijama aktuelnog stanja u domaćoj ekonomiji, a delimično na analizi koju smo nedavno obavili u bankarskom sektoru metodom strukturiranih upitnika. Ustanovili smo da većina banaka ulaže napore da sagleda i odgovori na sve veću potrebu tržišta za derivatima. Neke od banaka već su u svoju ponudu uključile proizvode za upravljanje rizikom, uglavnom valutni forvard ugovor i svop. Drugi deo rada koncipirali smo kao prognozu razvoja u budućem periodu, zasnovanu na uočenoj pravilnosti i činjenicama. Uvek kada je to bilo moguće pokušavali smo da svoje viđenje potkrepimo argumentovanim ekonomskim obrazloženjem. Ponudili smo neke odgovore na ključne dileme, na primer, redosled uvođenja različitih tipova ugovora, model koordinacije razmene, kao i ulogu ključnih faktora rizika. Takođe, razmatramo ograničenja i eventualne akcije koje bi ključni akteri trebali preduzeti.*

**Ključne reči:** derivati, finansijsko tržište Srbije, banke, valutni terminski ugovor