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## FX RISK HEDGING POSSIBILITIES FOR CORPORATE SECTOR IN SERBIA\*

Mogućnosti zaštite od valutnog rizika za korporativni  
sektor u Srbiji

### Abstract

The aim of the paper is to analyze the possibilities of FX risk management for Serbian corporations. The importance of FX risk management emerges from significant borrowing in foreign currencies and FX-indexed loans. In addition, import and export activities create currency mismatch between cash inflows and outflows. In this situation, fluctuations in EUR/RSD, USD/RSD, CHF/RSD and other relevant exchange rates impose potential losses upon corporations operating in Serbian market. On the other hand, standardized instruments for FX risk hedging have not been developed, while non-standardized contracts are modestly used. In these circumstances, appreciation of foreign currencies relative to RSD may create significant systemic consequences through spillover of FX risk into credit risk and other related risk categories.

**Keywords:** *FX risk, hedging instruments, corporate sector, Serbia.*

### Sažetak

Cilj rada jeste analiza mogućnosti za upravljanje valutnim rizikom za preduzeća u Srbiji. Značajnost upravljanja valutnim rizikom javlja se usled značajnog zaduživanja u stranim valutama i putem zajmova sa valutnom klauzulom. Dodatno, uvozne i izvozne aktivnosti kreiraju valutnu neusaglašenost između novčanih priliva i odliva preduzeća. U takvoj situaciji fluktuacije EUR/RSD, USD/RSD, CHF/RSD i drugih relevantnih deviznih kurseva nameću potencijalne gubitke preduzećima koja posluju na tržištu Srbije. Sa druge strane, standardizovani instrumenti zaštite od valutnog rizika nisu razvijeni dok se nestandardizovani instrumenti koriste u malom obimu. U takvim okolnostima aprecijacija stranih valuta u odnosu na dinar može stvoriti značajne sistemske posledice kroz prelivanje valutnog u kreditni i druge povezane kategorije rizika.

**Cljučne reči:** *valutni rizik, instrumenti zaštite, korporativni sektor, Srbija.*

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## Introduction

The subject of analysis in this paper is predominantly management of FX risk firms are facing on the financial market in Serbia. In everyday business operations, companies face different risks: credit risk, operational risk, liquidity risk, interest rate risk, FX risk, legal and regulatory risk, systemic risk and country risk. It should be emphasized that FX risk is closely connected to other aforementioned risk categories.

Corporations would not face FX risk if operating in only one currency. This risk is a consequence of exchange rate fluctuations and the fact that local companies sell their products on international markets and import inputs from abroad, while borrowing financial resources in foreign currency or in the form of FX-indexed loans to finance their activities. Having in mind that payments or selling of goods and services abroad are done mostly in EUR and USD, corporations are at risk of exchange rate fluctuations between the local and foreign currency in the period between the moment of export/import of goods and services and the moment of payment. FX risk exposure in dual currency systems is even more complex due to the fact that it can easily spill over into credit risk. Appreciation of foreign currency in circumstances of significant indebtedness of corporate entities indexed to or denominated in that currency, while assets side of their balance sheets is expressed in the local currency, raises the risk of illiquidity, insolvency, and in extreme cases, default on obligations. The monetary system in Serbia is of dual currency nature that per se provides a form of hedging of currency exposure, predominantly for creditors and savings entities, while for debtors it may create increasing currency mismatch and debt exposure that may lead to spillover of FX risk into default risk. Standard hedging instruments and strategies face challenges to implementation on the local market due to its relative illiquidity and shallowness. So far, banks in Serbia predominantly offer non-standardized term contract in the form of forward and swap contracts, while more complex exchange-traded derivatives are not present on the local market. In addition, further regulatory compliance is required for the development of term market in Serbia.

## Literature review

The FX market was formally established in the 1970s. Since then different FX regimes have taken place around the world. The shift from fixed towards more flexible FX rates led to FX rate fluctuations and their potentially adverse effects on operations, cash flows and financial results of companies. As a consequence of the rising need for protection against FX rate fluctuations, non-standardized and standardized term contracts have been developed [12]. Specificity of using derivatives for FX risk hedging is the following – for hedging strategies it is not necessary to actually own a sum of money equal to the notional amount when taking position in a contract. It is more of a scaling factor to the deal. Hence, the notional flows in the market can be very large relative to a smaller capital base. At the contract maturity, the difference between the agreed rate and the market rate is paid out, scaled by the notional amount of the deal [11].

Géczy, Minton and Schrand [10] suggest that companies use derivatives to reduce cash flow variations that might prevent them from investing in valuable growth opportunities. Firms with extensive foreign exchange rate exposure and economies of scale in hedging activities are also more likely to use currency derivatives. They stress that the source of foreign exchange rate exposure is an important factor in the choice among types of currency derivatives. Companies engaged in exports and imports are using FX derivatives more frequently, especially when FX fluctuations are larger [15].

Different authors investigated factors that predominantly led to company's sensitivity to exchange rate fluctuations. According to Parlapiano, Alexeev and Dungey [20] company exposure to exchange rate risk is primarily affected by the level of international involvement, industry, firm size and country of origin.

In addition, the benefits from hedging FX exposure of international investments from the perspective of German, Japanese, British and USA investors in the 1975-2009 period demonstrated that hedging of currency risk had substantially reduced the volatility of foreign investments [21].

According to Kuruc, Tissot and Turner [14], decreasing aggregate currency mismatches were recorded in emerging economies. Aggregate exposure is mostly reduced due to official sector foreign currency exposure reduction. After the global crisis, many economies have reduced their foreign currency liabilities, orienting themselves more towards local currency borrowing. In addition, central banks accumulated larger FX reserves. In contrast, companies are more easily borrowing on international markets and FX borrowing increased significantly in the last decade, according to Shin [22]. By 2016 net FX liabilities of emerging countries increased to 37% of exports indicating that non-financial corporations' FX liabilities significantly exceeded FX assets [14, p. 12].

According to the latest empirical results, it may be concluded that currency hedging in foreign investments and portfolio management is already very significant, but that it will become increasingly important in the future, especially for developing countries' currencies and corporate sector that reach a higher level of internationalization [5].

## Overview of currency exposure of the corporate sector in Serbia

After a long period of strong inflationary expectations based on years of high inflation and, in an extreme form, hyperinflation, the transactors on the local financial market oriented themselves more towards alternative – “more stable” currencies – first Deutsche Mark, and afterwards EUR, CHF, USD. Regulatory efforts emerged to restore confidence and interest in local currency. The Memorandum on the Strategy of Dinarization of the Serbian Financial System was signed in March 2012 by the National Bank of Serbia (NBS) and the Government of the Republic of Serbia with the aim of increasing the usage of RSD in the domestic financial system [19].

The dinarization strategy is based on the following three pillars:

1. Strengthening of the macroeconomic environment: low and stable inflation, managed floating exchange rate and sustainable economic growth;
2. Development of the market for dinar denominated securities;

3. Development of instruments for protection against foreign exchange risk.

In the last six years successful results have been achieved within the first pillar:

- Low and stable inflation,
- Relatively stable exchange rate,
- Balance of payments improvement,
- Public finance management improvement,
- Significant reduction of nonperforming loans (NPLs),
- Positive assessment of the technical mission of the International Monetary Fund.

The results in the second pillar are the following:

- Extended yield curve for longer maturities (basis for valuation),
- Increased activity on the secondary market for dinar government securities,
- Preparation for inclusion in the bond index,
- Increased RSD part of the public debt (from 2.5% to 24.3% in ten years).

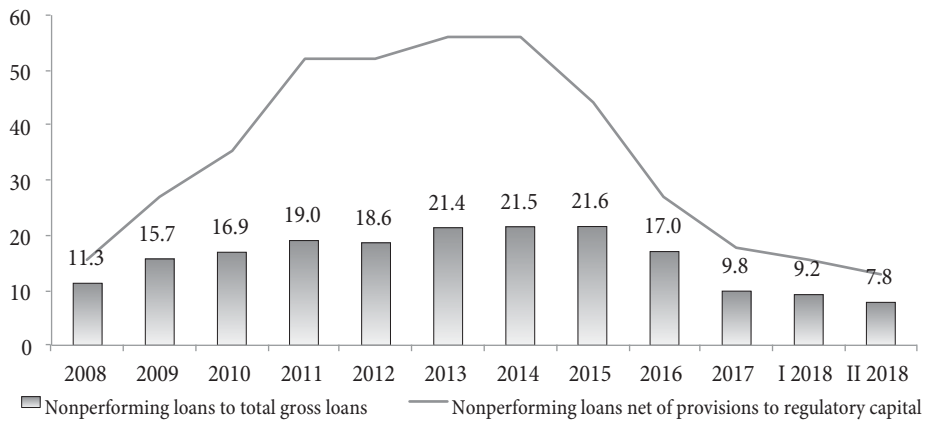
The third pillar refers to the FX risk protection and is still in the development phase.

The most important sectors in the financial system are strongly exposed to and affected by FX rate variability. Currency mismatch between revenues and costs, cash inflows and cash outflows, is present in the household, government and corporate sector. FX risk exposure increases whenever obligations of a particular entity are connected to foreign currency while revenues are generated in local currency. It occurs in the cases when foreign currency appreciates relative to RSD. The increased amount of RSD necessary for debt servicing may lead to partial or total default on a particular obligation. In that extreme case, FX risk spills over into credit risk that may further lead to illiquidity and even insolvency of the debtor. When currency mismatch is present, especially in the government and banking sector, it may have serious systemic consequences and jeopardize broader financial stability.

Macroeconomic stability in the previous period has led to a decrease of the relative share of NPLs in total loans provided by the banking sector in the local financial market.

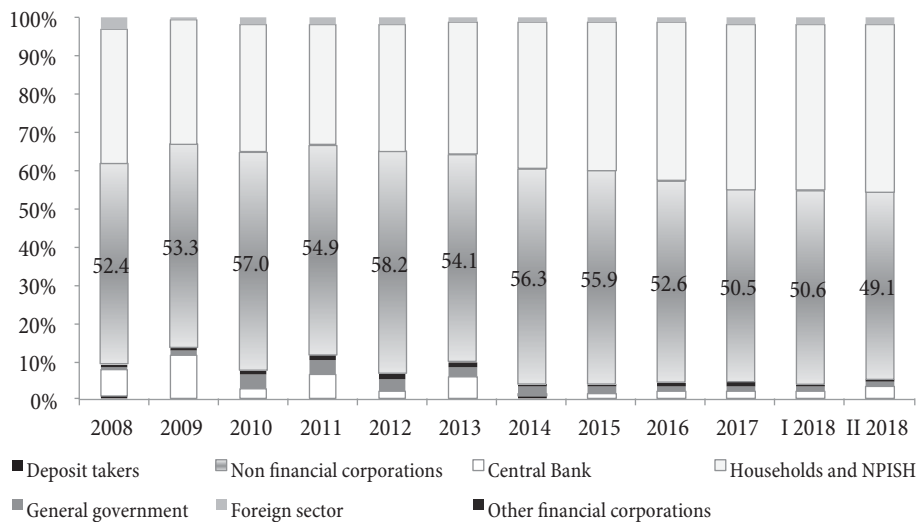
When focusing attention to sectoral distribution of bank loans, the highest percentage relates to the corporate sector, followed by households and other borrowers.

Figure 1: NPLs to total gross loans and NPLs net of provisions to regulatory capital in the Republic of Serbia, in %



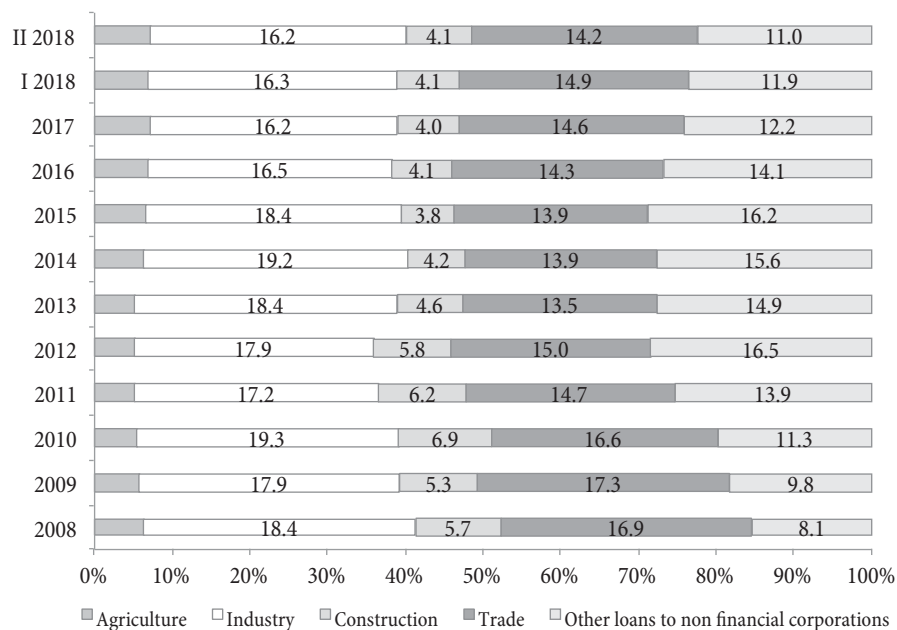
Source: Authors' presentation based on the data in [23].

Figure 2: Sectoral distribution of loans to total loans in the Republic of Serbia, in %



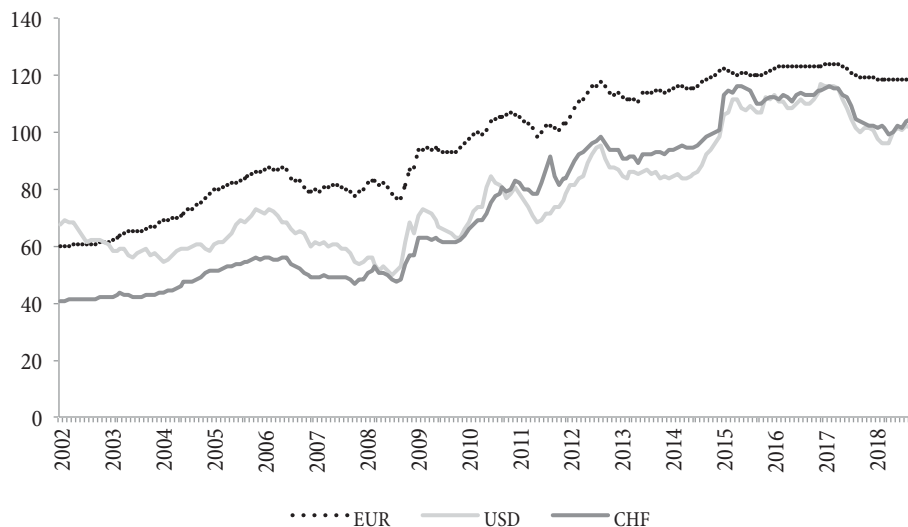
Source: Authors' presentation based on the data in [23].

Figure 3: Bank loans to nonfinancial corporations



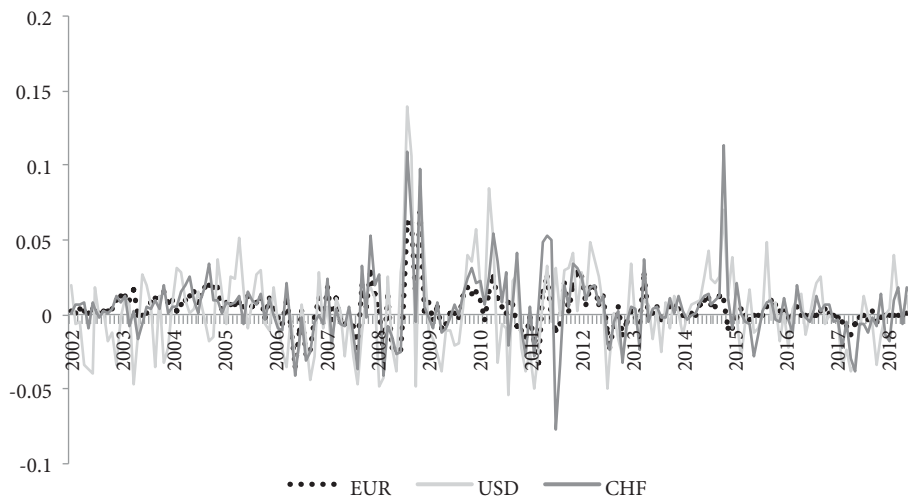
Source: Authors' presentation based on the data in [23]

Figure 4: EUR/RSD, USD/RSD and CHF/RSD FX rates in 2002-2018



Source: Authors' presentation based on the data in [23].

Figure 5: EUR/RSD, USD/RSD and CHF/RSD FX rate variability in 2002-2018



Source: Authors' calculation based on the data in [23].

Table 1: Correlation matrix of FX rate returns

	EUR/RSD	USD/RSD	CHF/RSD
EUR/RSD	1		
USD/RSD	0.586	1	
CHF/RSD	0.762	0.567	1

Source: Authors' calculation based on the data in [23].

Table 2: Descriptive statistics for FX rate returns

	EUR/RSD	USD/RSD	CHF/RSD
Variance	0.000	0.001	0.001
Standard deviation	0.013	0.028	0.022
Mean	0.003	0.002	0.005
Coefficient of variation	3.849	13.595	4.802

Source: Authors' calculation based on the data in [23].

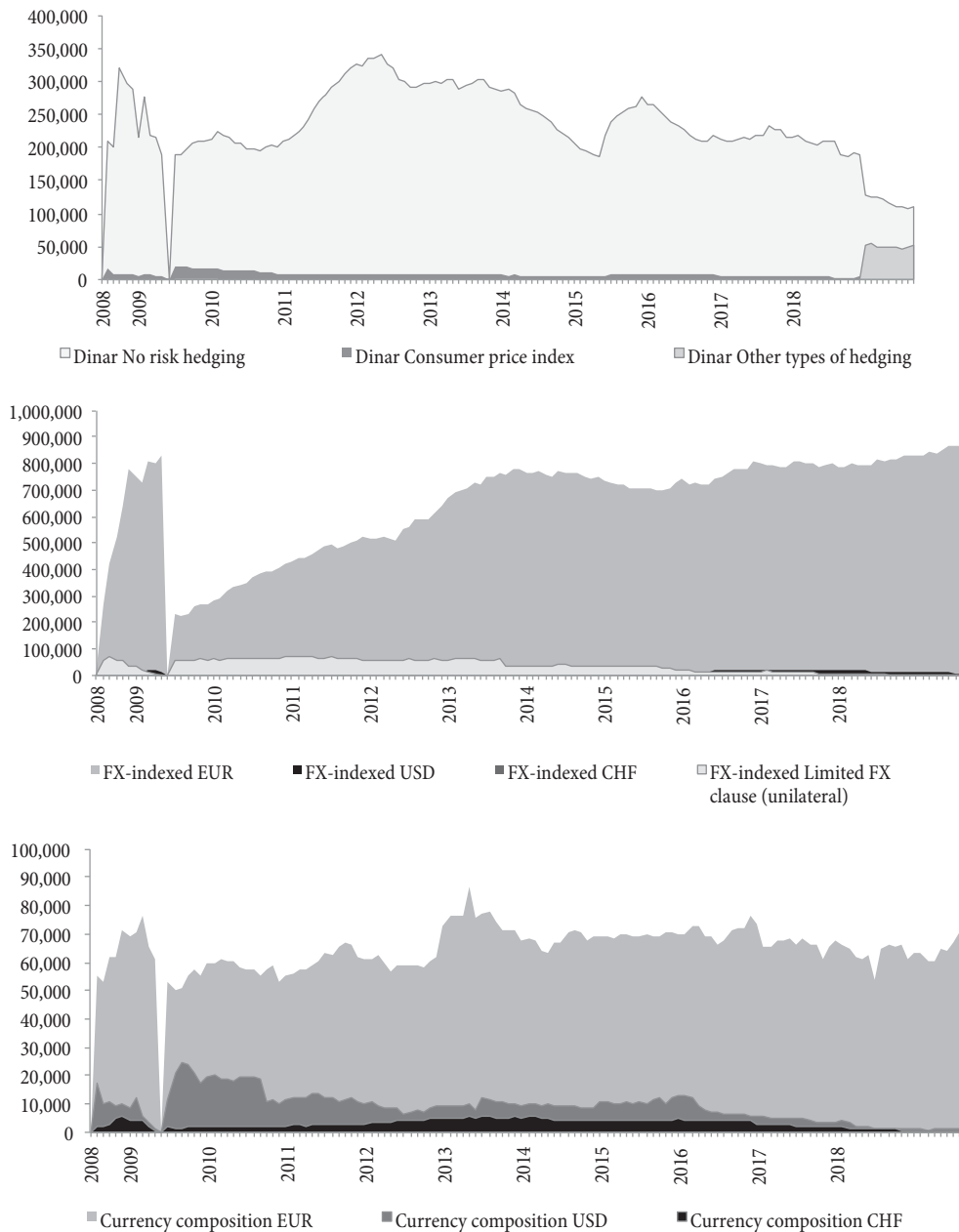
A more detailed overview indicates that the highest percentage of loans are associated with the industry and trade subsectors of the broader nonfinancial corporate sector.

FX rates predominantly represented in local and international financial transactions are EUR/RSD, USD/RSD and CHF/RSD, among others.

FX rate variability, that is generally profound in the periods of crisis, affects the exposure of indebted corporations to FX and accompanying risks.

The variability of and medium to high positive correlation between FX reference rates affects corporate sector revenues and costs, cash inflows and outflows and

Figures 6, 7 and 8: Bank claims on corporate sector by contracted hedge and currency structure



Source: Authors' presentation based on the data in [23].

debt servicing capacities increasing the FX, credit and liquidity risk exposures.

Bank claims on corporate sector reveal that most of the loans are EUR-indexed or denominated in EUR while RSD loans are mostly without risk hedging.

The currency structure of corporate sector's debt indicates a strong need for currency hedging. Despite that, derivatives market in Serbia is still underdeveloped and limited by regulatory non-compliance and illiquidity of underlying assets market.

## Overview of the Serbian FX derivatives market

Most of the key sectors in Serbian economy are characterized by currency mismatch. The corporate sector is facing significant FX exposure in all the circumstances when it creates FX-indexed debt or debt denominated in foreign currency while generating revenues and cash flows in the local currency. One way to reduce the exposure would be through higher export orientation of domestic companies. This orientation is strategic in nature and

requires significant shifts in existing production and sales models and international competitiveness, which demands time and resources. Another way would be to implement FX and other derivative contracts in risk transfer and effective hedging.

The legislation covering this area includes two laws and several by-laws:

- Law on Foreign Exchange Operations [17]
- Law on the Capital Market [16].

The by-laws include:

- Decision on Terms and Manner of Performing Exchange Operations [3]
- Decision on Terms and Conditions of Performing Foreign Payment Transactions [2]
- Decision on Performance of Financial Derivative Transactions [1].

These decisions regulate FX payments and transfers based on transactions with financial derivatives. Corporations are allowed to trade derivatives on: organized and MTP markets in the country and abroad without restrictions; on the over-the-counter (OTC) market with banks and nonresidents for hedging the following risks: FX, interest rate, price risk of securities and commodities and stock exchange index risk.

**Table 3: Banks in Serbia that offer instruments for FX risk hedging**

ADDIKO BANK A.D. BEOGRAD
AIK BANKA A.D. BEOGRAD
BANCA INTESA AKCIONARSKO DRUŠTVO BEOGRAD
CRÉDIT AGRICOLE BANKA SRBIJA, AKCIONARSKO DRUŠTVO, NOVI SAD
ERSTE BANK A.D. NOVI SAD
FX risk hedging
Interest rate risk hedging
EXPOBANK AKCIONARSKO DRUŠTVO BEOGRAD
EUROBANK AKCIONARSKO DRUŠTVO BEOGRAD
JUBMES BANKA A.D. BEOGRAD
KOMERCIJALNA BANKA A.D. BEOGRAD
OTP BANKA SRBIJA A.D. NOVI SAD
PROCREDIT BANK A.D. BEOGRAD
RAIFFEISEN BANKA A.D. BEOGRAD
SBERBANK SERBIA
SOCIÉTÉ GÉNÉRALE BANKA SRBIJA A.D. BEOGRAD
SRPSKA BANKA A. D. BEOGRAD
UNICREDIT BANK SRBIJA A.D. BEOGRAD
VOJVOĐANSKA BANKA A.D. NOVI SAD

Source: [23].

Currently, available FX instruments for hedging FX exposure in the Serbian financial market include only non-standardized OTC contracts – special forms of forwards and swaps mostly offered by commercial banks.

FX hedging instruments available in the market are:

1. FX forwards,
2. Covered FX forwards,
3. FX swaps.

FX forwards are contracts to buy or sell foreign currency at a price expressed in RSD, on an agreed future date at a forward rate agreed in advance. Interest rates used in determination of the forward rate include the domestic BELIBOR, rate for government bills, reference rate of the NBS, and foreign currency rates: LIBOR, EURIBOR, etc.

Covered FX forwards are contracts to buy foreign currency where a company deposits a part or total of the RSD value in advance and receives foreign currency on an agreed future date. FX swaps represent simultaneous purchase and sale of two currencies at predetermined exchange rates at two different dates.

The FX forward contract most often used by corporations on the local market is a long 1 month USD/RSD based on 1 m LIBOR and 1 m EURIBOR, while forward sell transactions are much rarer and with longer maturity (6 m/1 y). Currency mostly bought forward was USD (to be able to pay for the import of energy products) and lately EUR.

Domestic companies use other foreign exchange hedging instruments (FX swaps, cross-currency swaps) insufficiently. In the January 2012 - February 2018 period, there were only 99 FX swaps (about 20 transactions per

**Table 4: FX forward transactions by Serbian corporations**

	Forward buy			Forward sell		
	in mill EUR	Weighted average maturity in days	% of total buy	in mill EUR	Weighted average maturity in days	% of total sell
2012	754.7	38	6.7	1.3	18	0
2013	533.8	24	5	1.4	39	0
2014	430	24	5	0.8	49	0
2015	531	16	4.8	1.5	77	0
2016	450.5	22	3.9	12.9	263	0.1
2017	388.8	37	3	17.1	349	0.2
Jan 2018	24.9	84	2.5	2.9	365	0.4
Feb 2018	10.1	61	1.1	12.2	511	1.4

Source: [23].

year on average) with the total value of the first leg of EUR 134.3 million (below EUR 22 million per year on average). In the same period, there were 60 cross-currency swaps (slightly more than 9 per year on average). Transactions with FX options were not recorded (since the NBS collects the data).

### Prerequisites and recommendations for further development of the derivatives market in Serbia

Corporations in Serbia cannot benefit from the developed local term FX market, like corporations in developed economies. The primary reason lies in the legal framework that has not been fully established and the fact that the standardized market for derivatives did not come into force for any type of assets.

The domestic corporate sector has at its disposal non-standardized instruments; however, the necessary institutional framework has not been established in this market either. As a result, there are no institutional guarantees given by a clearing house or other mechanisms for securing the execution of non-standard term contracts, which is why participants in trading can only rely on personal trust in the counterparty.

According to the provided analysis, the basic precondition for improving the term FX and other derivatives market is the legal framework upgrade.

Considering the significance of the legal framework, a comparative analysis of the Serbian and EU legislations was carried out.

The Republic of Serbia is in the process of joining the EU and has the obligation to harmonize its legislation in the field of term contracts market with the EU legislation. It should be noted that after the global economic crisis, the legislative framework was harmonized at the global level. MiFID II [7] and EMIR legislative frameworks were introduced with the aim of strengthening investor protection and improving the functioning of financial markets, making them more efficient, resilient and transparent. Of particular importance is the G20 Summit held on 24-25 September 2009 in Pittsburgh, after the 2008 global economic crisis. The G20 leaders agreed that all standardized OTC derivative contracts should be cleared through a central counterparty

(CCP) by the end of 2012 and that OTC derivative contracts should be reported to trade repositories. In June 2010 in Toronto, the G20 leaders reaffirmed their commitment to accelerate the implementation of strong measures to improve transparency and regulatory oversight of OTC derivative contracts in an internationally consistent and non-discriminatory way [6, Article 5].

The guidelines for the development of organized financial and commodity markets were stipulated for 20 most developed countries, which have adopted the following important principles for the development of trading in derivative financial instruments [9]:

- Establishment of common criteria for the functioning of organized markets – stock exchange and OTCs,
- Regulation of swap transactions, through licensing of swap dealers, trade records and clearing obligations for swap trading,
- The “swap futurization” process that involves the clearing of swaps or other types of guarantees in order to improve the security of execution of trading transactions that did not include, until that moment, the obligation of providing guarantee instruments,
- Strict obligation on trade reporting,
- Introduction of general common criteria for regulatory bodies of commodity-exchange systems, as well as better coordination of cooperation of regulatory bodies.

The following table summarizes the present state of regulation of derivatives market in the EU and Serbia.

The legislative and supervisory function in the area of capital markets, including all derivatives (financial, commodity, exotic, etc.), is performed by the European Securities and Markets Authority (ESMA). The law, known as EMIR in professional milieu, entered into force in 2012 and contains similar provisions as the Dodd-Frank Act [4]. The basic EMIR provisions related to commodity exchange operations are the following: (1) compulsory clearing for both exchange and OTC trading instruments, (2) application of certain risk management techniques in trading derivative instruments, (3) reporting on trading<sup>1</sup>,

<sup>1</sup> Both counterparties in trading have an obligation to report transactions within a specified time period.

Table 5: Comparative analysis of regulation of derivatives market in the EU and Serbia

	Republic of Serbia		EU	
	Current state	Regulation	Current state	Regulation
Licensing system for clearing houses	Not established	Law on the Capital Market	Established	The European Market Infrastructure Regulation (EMIR) - Regulation (EU) No 648/2012 - stipulates general conditions while each country regulates this subject in detail
Entities eligible to perform clearing house activities	Central Securities Depository	Law on the Capital Market	All licensed legal entities	The European Market Infrastructure Regulation (EMIR) - Regulation (EU) No 648/2012
Minimum capital of the Central Registry	EUR 750,000	Law on the Capital Market Article 216	EUR 7.5 million	EMIR, Article 16
The obligation of guaranteeing swap transaction execution (Futurization of swaps)	Institutional obligations for swap clearing have not been established	Law on the Capital Market	Established institutional obligations for swap clearing or other guarantees for transaction execution	EMIR
Reporting obligations for swap trading	Commercial banks that participate in derivatives trading have an obligation to report to the NBS	Decision on Performance of Financial Derivative Transactions, Official Gazette of the Republic of Serbia, No 76/2018	Participants in swap trading have an obligation to report to the trade repository	EMIR, Article 45

Source: Authors' presentation based on the analysis of the regulations of the Republic of Serbia and the EU.

(4) special requirements for the establishment and operation of clearing houses and trading platforms.

The legal requirements for trading in standardized term contracts in Serbia were created more than fifteen years ago, but stock exchange trading has not yet been established [18].

The main room for improvement of the legal framework for term contracts lies in the regulation of licensing and control of the clearing house operations [8]. Namely, the Law on the Capital Market foresees that the abovementioned activities in this market are performed by the Central Securities Depository. According to the EU legislation, the establishment and operation of clearing houses must be available to all stakeholders (clearing is considered to be a "market service"). A clearing house must be a separate legal entity, which is not the case with the Central Securities Depository, which, in addition to clearing, performs its basic function – registration of securities.<sup>2</sup>

<sup>2</sup> The purpose of the obligation to have a clearing house as a separate legal entity is to protect the Central Securities Depository in case of bankruptcy of a clearing house and vice versa, in case of bankruptcy of a related legal entity, to avoid financial problems in the clearing house.

Regarding the licensing and control of the clearing house, EMIR stipulates that the regulatory function must be performed by at least one institution, but it does not specify which one. In almost all EU countries, licensing and control of clearing house operations is done by the Securities and Exchange Commission and the Central Bank, which can also be recommended for the conditions that exist in Serbia. The harmonization of the Law on the Capital Market with the EU regulations in the area of clearing would enable the establishment of i-house clearing houses and independent clearing houses. In addition to necessary harmonization of legislation, the following effects could be achieved: the capacity of domestic exchanges to join the global exchange groups<sup>3</sup> could be improved, the possibilities of manipulation would be reduced, which is especially significant for "shallow" markets, since large international clearing houses bring traders that are not connected with domestic traders, and the volume of trading on domestic exchange and OTC market, that

<sup>3</sup> Up until now, when a new exchange joined the exchange group, the exchange groups did not establish a new clearing house, nor did they entrust this task to the central registry, but the existing clearing house expanded its activities to include the new exchange.

attracts the existing clients of large international clearing houses, could be increased. It should be emphasized that a clearing house registered in one member state can perform clearing operations across the EU without any additional registration [13].

Another important area of harmonization of the Law on the Capital Market is the regulation of swap trading. Regulation is needed in two areas – first, establishment of obligation on swap clearing or another type of guarantee provision for the execution of this type of contract, and second, introduction of an obligation to report on swap trading to the regulatory authority.

Harmonization of the Law on the Capital Market with the EU common rules in the area of derivative securities would have the following effects:

- Improving trading in derivative instruments for risk management through the establishment of institutional guarantees for the execution of this type of term contracts,
- Positive effect on trading in underlying securities (shares, bonds) through the process of harmonization of the Law with the EU acquis,
- Positive effect on the process of Serbia's EU accession through harmonization of the Law on the Capital Market with the EU acquis in the area of financial markets.

Of high significance for the development of FX and other derivatives markets, as well as the underlying securities market, would be the harmonization of the Law on the Capital Market with the EU regulations and the application that the Republic of Serbia would send to the European Commission and ESMA for determining the compliance of the Serbian and EU legislations. According to the procedures, the Commission may adopt decisions on the equivalence of the legal, supervisory and enforcement framework in third countries, if a number of conditions are met. The assessment that forms the basis of such decisions should not prejudice the right of a clearing counterparty established in a third country and recognized by ESMA to provide clearing services to clearing members or trading venues established in the EU [6, Article 6]. By this decision of the European Commission, the clearing houses and trade repositories established in Serbia could work in

the EU and vice versa, which could greatly enhance the development of the Serbian financial market.

## Conclusions

The aim of this paper was to analyze the possibilities of the corporate sector in Serbia to perform FX risk hedging. The analysis showed that the corporate sector is exposed to FX and other related risks. The structural way of solving currency mismatch for local corporations would be to create a prerequisite for their higher export activities. The other approach assumes the development of the derivative instruments market. So far, Serbian corporations have occasionally used non-standardized OTC FX term contracts in the form of uncovered and covered forwards and FX swaps. Further development of this market segment, together with the segment of standardized FX and other derivative contracts, requires harmonization of the legislation on financial markets in the Republic of Serbia and the EU. That especially refers to the area of clearing system harmonization that would enhance further development of the local financial market and its integration with the EU and global financial systems.

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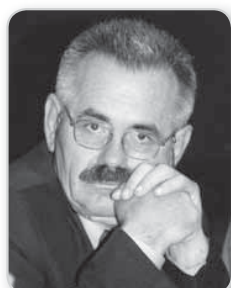
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