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MEĐUNARODNE REZERVE KAO FAKTOR STABILNOSTI U USLOVIMA KRIZE

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Rezime

U ovom radu se ispituje uloga i značaj međunarodnih rezervi u uslovima krize. Da bi se lakše razumeli razlozi zbog kojih je ispoljena tendencija rasta međunarodnih rezervi u svetu, u radu se detaljno istražuju motivi zemalja za njihovim pojačanim akmuliranjem. Imajući u vidu da su devizne rezerve ključna komponenta međunarodnih rezervi, u radu se ispituju tendencije njihovog formiranja, kao i koristi i troškovi usled njihovog držanja. Ispitivanja u radu se povezuju sa finansijskim krizama, posebno sa savremenom globalnom finansijskom krizom. Usled globalizacije svetskog finansijskog tržišta, gomilanje deviznih rezervi u zemljama u razvoju (ZUR) i zemljama sa tržištem u nastajanju (emerging markets) utiče i na zemlje čije valute čine glavninu svetskih deviznih rezervi. Pošto je dolar najzastupljenija valuta deviznih rezervi u svetu, ukazuje se na povezanost između gomilanja deviznih rezervi u ZUR i zemljama sa tržištem u nastajanju, na jednoj strani, i kretanja u privredi SAD, na drugoj strani. Rizici držanja velikih deviznih rezervi povezani su sa mogućnošću slabljenja američkog dolara kao valute koja je najzastupljenija u deviznim rezervama u svetu. S tim je u vezi veliko učešće američkih državnih hartija od vrednosti u portfeljima deviznih rezervi ZUR i zemalja sa tržištem u nastajanju, posebno Kine kao najvećeg holdera deviznih rezervi u svetu. U radu se ukazuje na posledice sadašnje valutne strukture svetskih deviznih rezervi, i skreće pažnja na inicijative o njihovoj valutnoj prekompoziciji. Polazeći od nalaza i ocena o značaju deviznih rezervi za zemlje koje ih kumuliraju, u ovom radu se analizuraju tendencije formiranja deviznih rezervi Srbije i ispituje njihova uloga u održavanju tekuće eksterne likvidnost i stabilnosti domaćeg deviznog tržišta.

Ključne reči: međunarodne rezerve, devizne rezerve, ZUR, zemlje sa tržištem u nastajanju, valutna struktura, hartije od vrednosti

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INTERNATIONAL RESERVES AS A FACTOR OF STABILITY IN TIMES OF CRISIS

This paper is part of a research within the project of the Ministry of Science and Technology of the Republic of Serbia, no. 179065.

Summary

This paper examines the role and significance of international reserves in the times of crisis. In order to facilitate the understanding of reasons for the present tendency of growth of international reserves worldwide, the paper investigates in great detail the motivation of countries for their increased accumulation. Bearing in mind that foreign exchange reserves are the key component of international reserves, the paper examines the tendencies of their formation, along with the costs and benefits of their holding. The analysis in this paper is connected to financial crises, in particular the contemporary global financial crisis. Due to the globalization of the financial market, the accumulation of FX reserves in the developing countries and emerging markets impacts the countries in whose currencies the majority of global FX reserves are held. Given that the dollar is the most dominant FX reserves currency in the world, the paper indicates the connection between the accumulation of FX reserves in the developing countries and emerging markets on the one hand, and the trends in the US economy, on the other. The risks of holding huge FX reserves are related to the possibility of weakening of the US dollar as the most represented currency in the global FX reserves. Related to this is the large share of the US securities in the FX reserves portfolios of the developing countries and emerging markets, especially China as the largest holder of FX reserves in the world. The paper underlines the consequences of the present currency structure of the global FX reserves, drawing attention to the initiatives for their currency re-composition. Starting from the findings and assessments on the importance of FX reserves for the countries that accumulate them, the paper analyzes the tendencies for formation of FX reserves of Serbia, and examines their role in the maintenance of current external liquidity and stability of the domestic FX market.

Key words: international reserves, FX reserves, developing countries, emerging markets, currency structure, securities

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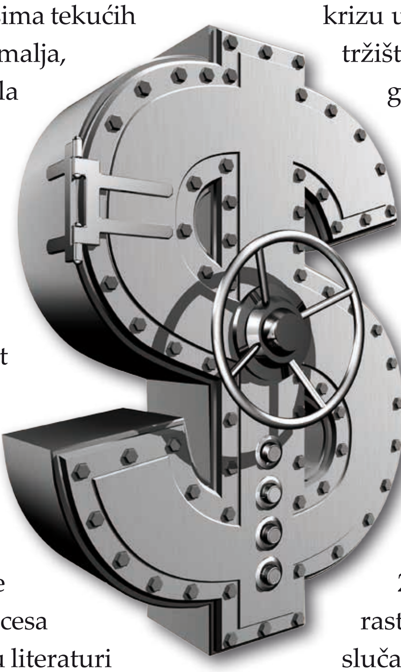
Uvod

Azijska finansijska kriza iz 1997. godine stavila je na velike teškoće ZUR i zemlje sa tržištem u nastajanju koje nisu imale dovoljne devizne rezerve da bi se zaštitile od prekida priliva inostranog kapitala, odnosno od njegovog bekstva iz zemlje. Skromne devizne rezerve zemalja pogođenih ovom krizom nisu bile u stanja da spreče udar na devizno tržište, tako da su valute ovih zemalja naglo gubile vrednost, uz prateće efekte na inflaciju. Pouke krize su bile dovoljno jasne, tako da su ZUR i zemlje sa tržištem u nastajanju tokom 2000-ih godina pristupile gomilanju deviznih rezervi. Zahvaljujući suficitima u bilansima tekućih transakcija, jedna grupa zemalja, na čelu sa Kinom, je uspela da akumulira veliki iznos deviznih rezervi, pri čemu njihov veći deo čine državne hartije od vrednosti SAD. To praktično znači da je američki dolar ključna valuta svetskih deviznih rezervi. Nasuprot zemljama koje gomilaju devizne rezerve nalazi se nekoliko zemalja (sa centralnom ulogom SAD) koje beleže velike deficite tekućeg računa, uz prateće budžetske deficite. Ova dva procesa dovode se u vezu, pri čemu se u literaturi analiziraju posledice za obe grupe zemalja i svet u celini. Brojni su radovi koji skreću pažnju na koristi koje imaju zemlje sa nagomilanim deviznim rezervama. Najčešće se ističe da veće devizne rezerve pružaju mogućnost samozaštite ukoliko dođe do naglog prekida priliva inostranih sredstava, ili do njihovog bekstva iz zemlje. Oba poremećaju u tokovima kapitala su verovatna u uslovima finansijske krize. Druga najčešće navođena korist od gomilanja deviznih rezervi je povezana sa izvoznom orjentacijom zemlje, koja na taj način želi da spreči apresijaciju svoje valute. Potcenjena vrednost valute deluje stimulativno na izvoz, tako da zemlje sa izvozno usmerenom strategijom računaju sa suficitom trgovinskog bilansa. Ovaj razlog gomilanja deviznih rezervi u literaturi se označava kao "merkantilistički motiv". Oba spomenuta motiva podstiču brojne zemlje da nastave sa uvećanjem deviznih rezervi. Međutim, sem prednosti, gomilanje deviznih rezervi ima i troškove. Glavni trošak je razlika između kamatne stope hartija od vrednosti koje čine devizne rezerve i potencijalne alternativane upotrebe ovih sredstava. Drugi ugao gledanja na troškove odnosi se na mogući uticaj deviznih rezervi na inflaciju i pregrevanje kreditnog tržišta i tržišta aktiva. Zemlje koje u svojim deviznim rezervama imaju dominantno učešće američkog dolara omogućuju SAD širenje deficita trgovinskog bilansa i budžetskog deficita. To su zadovoljavajuće pretpostavke za povećavanje potrošnje iznad stvorenog BDP-a u SAD, što se može pretvoriti u finansijsku krizu usled rasta prometa na finansijskom tržištu. To se upravo i dogodilo 2007. godine kad je izbila finansijska kriza u SAD, koja se, zbog isprepletanih finansijskih odnosa između banaka i drugih finansijskih organizacija u svetu, brzo pretvorila u globalnu finansijsku krizu. Posledice ove krize su poremećaji u međunarodnim tokovima kapitala, tako da su zemlje koje su nagomilale devizne rezerve lakše podnele udare krize. Srbija je takođe povećavala devizne rezerve od 2000. godine. Zahvaljujući njihovom rastu, bilo je moguće reagovati u slučajevima povećanog odliva kapitala. Time je postignuta likvidnost deviznog tržišta, a intervencije Narodne banke Srbije (NBS) na deviznom tržištu su delovale stabilizujuće na devizni kurs.



Motivi držanja međunarodnih rezervi

Međunarodne rezerve drže centralne banke da bi obezbedile uredna plaćanja prema inostranstvu i za intervencije na deviznom tržištu. Korisno je spomenuti da u međunarodne rezerve spadaju devizne rezerve, specijalna prava vučenja, rezervna pozicija kod Međunarodnog monetarnog fonda (MMF-a) i monetarno zlato. Zemlje koje se opredeljuju za fiksni devizni kurs drže nešto viši nivo deviznih rezervi jer one predstavljaju garanciju

Introduction

The Asian financial crisis back in 1997 caused many difficulties for the developing countries and emerging markets, which had no sufficient FX reserves to protect themselves from discontinued inflows of foreign capital, or from capital flights. The modest FX reserves of the countries hit by the crisis were unable to prevent a blow at the FX market, which resulted in a sudden loss of value of these countries' currencies, with the accompanying side-effects on inflation. The lessons learned from the crisis were clear enough, so that in 2000s the developing countries and emerging markets started to accumulate their FX reserves. Thanks to the surpluses in the current transactions balance sheets, one group of countries, headed by China, managed to accumulate a large amount of FX reserves, the largest part being in the US securities. This practically means that the US dollar is the key currency of the global foreign exchange reserves. Opposed to the countries accumulating FX reserves are several countries (the US playing the central role) recording high current account deficits, accompanied by relevant budgetary deficits. These two processes are brought in relation, with reference literature analyzing the consequences to both groups of countries and to the world as a whole. Numerous papers draw attention to the benefits enjoyed by the countries with accumulated FX reserves. What is mostly underlined is that high FX reserves offer a possibility of self-protection in case of a sudden stop in foreign funds inflow, or a capital flight. Both these types of capital flows disruption are possible in times of a financial crisis. Another frequently stated benefit from FX reserves accumulation is related to the country's export orientation, which is thereby trying to prevent appreciation of its currency. The underestimated currency value is an incentive for export, so that the countries with export-oriented strategy count on a balance of trade surplus. In the reference literature, this reason for FX reserves accumulation is known as "mercantilist motive". Both of the mentioned motives encourage numerous countries to continue with the accumulation of FX reserves. However, in addition to its benefits, FX reserves accumulation incurs some costs. The main costs if the difference between the interest rate on securities being the part of FX reserves and the potential alternative usage of the concerned funds. Another aspect of costs refers to the potential impact of FX reserves on inflation and overheating of the credit market and asset market. The countries whose foreign exchange reserves record the predominant share of the US dollar cause the expansion of the USA's balance of trade deficit and budgetary deficit. These are the satisfactory assumptions for the increased consumption over the generated GDP in the USA, which may turn into a financial crisis due to the growth of turnover at the financial market. This is exactly what happened in 2007 when the financial crisis broke out in the USA, which, due to the interwoven financial relations among banks and other financial organizations in the world, quickly turned into the global financial crisis. The consequences of this crisis are the disturbances in international capital flows, hence the countries with accumulated FX reserves handled the shocks more easily. Serbia has also been increasing its FX reserves since 2000. Thanks to their growth, it was possible to react in the cases of increased capital flight. Thereby the FX market liquidity has been maintained, and the FX rates stabilized through the interventions of the National Bank of Serbia (NBS) at the FX market.

Motives for holding international reserves

International reserves are held by central banks in order to provide regular cross-border payments, and for the purpose of FX market interventions. It might be useful to mention that international reserves include FX reserves, special drawing rights, reserve positions at the International Monetary Fund (IMF), and monetary gold. The countries which choose the fixed FX rate

da se može održati određeni nivo deviznog kursa. Veća otvorenost zemlje (veći udeo izvoza i uvoza u bruto domaćem proizvodu) po pravilu znači njenu veću izloženost poremećajima u platnom bilansu. Nedovoljne devizne rezerve u ovom slučaju znače i veće troškove prilagođavanja u slučaju poremećaja u okruženju. Zemlje koje su liberalizovale račun kapitala naročito su izložene riziku bekstva kapitala u slučaju krize. Iznenadni pritisak na deviznom tržištu mogao bi dovesti do velikih poremećaja deviznog kursa i tržišta kapitala ako zemlja nema dovoljno deviznih rezervi da interveniše na deviznom tržištu. Motivi držanja međunarodnih rezervi uglavnom se dovode u vezu sa opreznosnim razlozima u slučaju šokova u tekućem kapitalnom računi, i radi intervencije na deviznom tržištu u cilju održanja određenog nivoa deviznog kursa. U ovim slučajevima međunarodne rezerve služe kao mehanizam samoosiguranja od većih poremećaja deviznog kursa i platnog bilansa. Ako nastupi iznenadno bekstvo kapitala ili se povećaju oscilacije tokova kapitala, međunarodne rezerve mogu da ublaže ove udare. Značaj deviznih rezervi za ublažavanje udara finansijskih kriza potvrđen je u brojnim empirijskim radovima, između ostalih i u istraživanju koje su sproveli Bussiere and Mulder (1999). Intervencije centralnih banaka na deviznom tržištu treba posmatrati kao nameru da se obezbedi njegovo dobro funkcionisanje, ili želju da se spreči apresijacija domaće valute u cilju održavanja izvozne konkurentnosti.[1] Ovaj razlog Feldstein (1999) označava kao "merkantilistički motiv". Centralnim bankama zemalja u kojima je na snazi režim fiksnog deviznog kursa potreban je veći iznos deviznih rezervi, dok je monetranim vlastima u režimu fleksibilnog deviznog kursa potreban manji iznos, koje će iskoristiti za intervencije na deviznom tržištu radi smanjenja oscilacije deviznog kursa. Krizne epizode iz 1990-ih godina kao i savremena globalna finansijska kriza pokazala je da centralne banke treba da drže veći iznos deviznih sredstava zbog održavanje eksterne likvidnosti. Jedno od objašnjenja povećanja deviznih rezervi tvrdi

da je njihovo kumuliranje posledica smanjene mogućnosti monetarnih vlasti da kontrolišu priliv kapitala (Rodrik, 2006). Neki ekonomisti smatraju da veliki iznos deviznih rezervi predstavlja cenu koju zemlja mora da plati zbog nesposobnosti da smanji kratkoročni spoljni dug, ili zbog lošeg upravljanja kapitalnim i finansijskim računom (Osorio, 2007).

U novije vreme su publikovani brojni radovi sa ciljem da objasne koji od spomenutih motiva može potpunije da obrazloži akumuliranje međunarodnih rezervi u razvijenim zemljama i ZUR. U većini istraživanja se dolazi do zaključka da oba navedena motiva (opreznosni i održavanje deviznog kursa na određenom nivou) objašnjavaju kumuliranje međunarodnih rezervi (videti, na primer, Aizenman and Lee, 2007). Značaj deviznih rezervi u zemljama sa nerazvijenim tržištem analizirao je Dominguez (2010).

Neretko se motiv održavanja deviznog kursa povezuje sa izvozno usmerenom strategijom privrednog rasta, koja omogućava gomilanje deviznih rezervi. U tim slučajevima, motiv održavanja potcenjene domaće valute intervencijama na deviznom tržištu direktno je povezan sa izvozno usmerenom strategijom.

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[1] Novije analize pokazuju da mnoge izvozno orijentisane industrijalizovane zemlje, posebno one iz Istočne Azije, akumuliraju rezerve kako bi sprečile apresijaciju svoje valute (Helleiner, 2010).

hold the somewhat higher FX reserves, because they serve as a guarantee that a certain FX rate can be maintained. Higher openness of a country (bigger share of export and import in its gross domestic product), as a rule, implies its higher exposure towards the disturbances in the balance of payments. Insufficient FX reserves in this case also imply higher costs of adjustment if there is any turmoil in the environment. The countries which liberalized their capital account are particularly exposed to the risk of capital flight in case of a crisis. A sudden pressure at the FX market might cause some huge fluctuations in the FX rates and disturbances in the capital market if the country does not have sufficient FX reserves to intervene at the FX market. The motives for holding international reserves are mostly related to the precautionary reasons in case of potential shocks at the current capital account, or in case of FX market interventions with a view to maintaining a certain FX rate. In such cases, international reserves serve as a mechanism of self-insurance against the considerable FX rate and balance of payment volatility. In case of a sudden capital flight or increased capital flows oscillations, international reserves might alleviate such shocks. The importance of FX reserves for the alleviation of shocks caused by financial crises has been confirmed in numerous empirical papers, including, among others, the research conducted by Bussiere and Mulder (1999). Central banks' interventions at the FX market should be seen as an intention to provide its sound functioning, or as a desire to prevent the appreciation of the local currency in order to maintain export competitiveness.[1] This reason has been marked as the "mercantilist motive" by Feldstein (1999). Central banks in those countries having the fixed FX rate regime require a larger amount of FX reserves, whereas the monetary authorities in the flexible FX rate regime require a smaller amount, to be used for FX market interventions for the purpose of reducing the FX rate oscillations. The occasional crises back in the 1990s, and the contemporary global financial crisis, have shown that central banks should hold larger amounts of FX funds to maintain external liquidity. One of the explanations for the FX reserves increase claims that their accumulation is a result of a limited possibility of monetary authorities to control capital inflows (Rodrik, 2006). Some economists believe that a large amount of FX reserves is actually a price a country has to pay for its inability to reduce its short-term external debt, or for its bad management of capital and financial accounts (Osorio, 2007).

Many papers have recently been published with a view to explaining which of the mentioned motives might fully explain the accumulation of FX reserves in the developed and developing countries. Most investigations offer the conclusion that both motives (precautionary reasons and maintenance of the FX rate at a certain level) explain the FX reserves accumulation (see, for instance, Aizenman and Lee, 2007). The importance of FX reserves in the emerging markets has been analyzed by Dominguez (2010).

Often is the motive of FX rate maintenance related to export-oriented strategy of economic growth, which enables the accumulation of FX reserves. In such cases, the motive of

[1] The latest analyses have shown that many export-oriented industrialized countries, especially those in East Asia, accumulate reserves in order to prevent appreciation of their currency (Helleiner, 2010).

Dinamika rasta, struktura i regionalna raspodela deviznih rezervi

U istraživanju koje su sproveli Jeanne i Ranciere (2007) dolazi se do zaključka da je veće akumuliranje rezervi u ZUR otpočelo početkom 2000-ih godina. Neke ZUR su i pre izbijanja globalne finansijske krize iz 2007. godine akumulirale značajan iznos deviznih rezervi, koje su služile kao odbrana deviznog kursa tokom krize. Rast deviznih rezervi posle 1990-te godine treba posmatrati kao fazu koju karakteriše dominacija fleksibilnog deviznog kursa i rast trgovinske i finansijske otvorenosti zemalja. Ukoliko kretanje deviznih rezervi posmatramo kroz tri posleratne faze (Bretonvudski period - 1948-1970; Fluktuirajući dolarski standard - 1973-1998; i Povećana nestabilnost svetske privrede od 1998. godine), može se uočiti njihova rastuća dinamika. Podaci o tome daju se u tabeli 1.

Tabela 1. Prosečne godišnje stope rasta i oscilacije deviznih rezervi

Period	Tekući dolari		Konstantni dolari	
	Prosečna stopa rasta	Koeficijent varijacija	Prosečna stopa rasta	Koeficijent varijacija
1948-1970[a]	3,09	1,31	1,75	2,54
1973-1998[b]	9,47	0,93	5,02	1,82
1998-2004[c]	13,47	0,57	12,74	0,48
2005-2011[d]	15,40			

Izvor: Redrado et al. (2006, str. 13, tabela 1) (podaci za pod a, b i c); IMF COFER DATA (2012) (podaci za pod d).

Na osnovu podataka tabele 1. zapaža se ubrzanje prosečne stope rasta rezervi, koje je omogućilo njihov veliki apsolutni porast. Teško je naći neku drugu makroekonomsku varijablu koja je imala sistematski rast u realnom izrazu tokom dugog vremenskog perioda, kao što je to slučaj sa međunarodnim rezervama. Uporedo sa ubrzanom dinamikom prosečnog rasta međunarodnih rezervi, zapaža se da su oscilacije ovog rasta vremenom bile sve manje i manje, što upućuje na zaključak o povećanoj stabilnosti akmuliranja rezervi.

Glavnu komponentu međunarodnih rezervi čine devizne rezerve. Svetske devizne rezerve su porasle od 6% svetskog BDP-a iz 1999. na oko 15% u 2009. godini. Najdinamičniji rast je zabeležen kod azijskih zemalja i zemalja izvoznica nafte. Najveći rast deviznih rezervi je zabeležen u Kini, gde je njihov iznos dostigao 3.000 milijardi dolara krajem 2010. godine, i činio je skoro polovinu njihovog BDP-a u toj godini, odnosno skoro jednu trećinu ukupnih svetskih deviznih rezervi. Mada se u literaturi nailazi i na stavove po kojima je gomilanje deviznih rezervi u zemljama sa suficitom tekućeg računa moglo doprineti finansijskim tenzijama pre izbijanja globalne finansijske krize, težište analiza rasta deviznih rezervi uglavnom se odnosi na oportunitetne troškove njihovog držanja (Summers, 2006), odnosno na značajne negativne efekte njihovog vrednovanja ("dollar trap"), jer se američki dolar javlja kao ključna rezervna valuta.

U periodu pre izbijanja globalne finansijske krize, zemlje sa tržištem u nastajanju (emerging markets) otpočele su snažnije da uvećavaju svoje devizne rezerve. Već u 2004. godini, devizne rezerve u njihovom posedu bile su veće od deviznih rezervi razvijenih zemalja. Sve veći raskorak u korist ZUR i zemalja sa tržištem u nastajanju beleži se od 2007. godine, odnosno od izbijanja globalne finansijske krize. Krajem drugog kvartala 2012. godine, 66% ukupnih svetskih deviznih rezervi nalazilo se u posedu ZUR i zemalja sa tržištem u nastajanju (grafikon 1). Lideri u porastu deviznih rezervi su zemlje Istočne Azije i Kina. Zahvaljujući dinamičnom rastu deviznih rezervi, njihov prosečan odnos prema BDP-u ZUR više je nego udvostručen u periodu između 1980. i 2010. godine (porast od 9,5% na 23,3%). Rast posmatranog relativnog odnosa posebno je bio snažan u Istočnoj Aziji, gde je prosečan odnos deviznih rezervi i BDP-a povećan od 15,5% iz 1980. na 55,3% u 2010. godini (Benigno and Fornaro, 2012, str. 1).

maintaining the underestimated local currency by means of FX market interventions is related to export-oriented strategy.

Dynamics of growth, structure and regional distribution of FX reserves

The research conducted by Jeanne and Ranciere (2007) reaches the conclusion that higher accumulation of reserves in the developing countries started in early 2000s. Some of the developing countries even before the outbreak of the global financial crisis in 2007 accumulated a considerable amount of FX reserves, which served as the protection of the FX rate during the crisis. The growth of FX reserves after 1990 should be seen as a stage characterized by the domination of the flexible FX rate and the growth of trading and financial openness of the countries. If we take a look at the trends in FX reserves through three post-war stages (Bretton Woods Period - 1948-1970; Fluctuating Dollar Standard - 1973-1998; and Increased instability of the global economy starting from 1998), we can observe their growing dynamics. The relevant data are shown in Table 1 below.

Table 1. Average annual growth rates and FX reserves oscillations

Period	Current dollars		Constant dollars	
	Average growth rate	Variations coefficient	Average growth rate	Variations coefficient
1948-1970[a]	3,09	1,31	1,75	2,54
1973-1998[b]	9,47	0,93	5,02	1,82
1998-2004[c]	13,47	0,57	12,74	0,48
2005-2011[d]	15,40			

Source: Redrado et al. (2006, pp. 13, Table 1) (data for a, b and c); IMF COFER DATA (2012) (data for d).

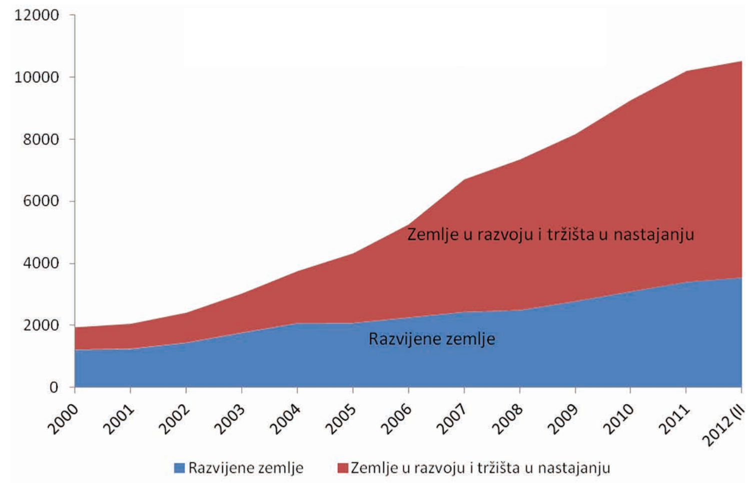
The data presented in Table 1 indicate an increase in the average growth rate of reserves, which enabled their large absolute growth. It is difficult to find another macroeconomic variable which has recorded a systematic growth in real terms over a long period of time, as is the case with international reserves. In parallel with the accelerated dynamics of the average growth of international reserves, it can be observed that the oscillations of this growth were gradually reducing over time, which, in turn, points to the conclusion about the higher stability of reserves accumulation.

The main component of international reserves are FX reserves. The global FX reserves increased from 6% of global GDP in 1999 to about 15% in 2009. The most dynamic growth has been recorded in Asian countries and oil-exporting countries. The biggest growth of FX reserves was recorded in China, where they amounted to USD 3.000 billion towards the end of 2010, accounting for almost half of their GDP that year, i.e. for almost one third of the total global FX reserves. Although some experts put forward their positions, claiming that the accumulation of FX reserves in the countries with current account surpluses could have contributed to the financial tensions before the outbreak of the global financial crisis, most of the analyses of the FX reserves growth refer to the opportunity costs of their holding (Summers, 2006), i.e. the significant adverse effects of their valuation (the so-called “dollar trap”), given that the US dollar plays the role of the key reserves currency.

In the period before the outbreak of the global financial crisis, the emerging markets started to considerably increase their foreign exchange reserves. Already in 2004 their FX reserves were higher than the FX reserves owned by the developed countries. The increasing gap in favour of the developing countries and emerging markets has been recorded since 2007, i.e. since the outbreak of the global financial crisis. Towards the end of the second quarter of 2012, as much as 66% of total global FX reserves were owned by the developing countries and emerging markets (Chart 1). The leaders in growth of FX reserves are China and the countries in East Asia. Thanks to the dynamic growth of FX reserves, their average ratio to GDP in the developing countries more than doubled in the period between 1980 and 2010 (a growth ranging from 9.5% to 23.3%). The growth of the observed

Grafikon 1 - Regionalna raspodela deviznih rezervi u svetu

U milijardama dolara



Izvor: IMF (2012). http://www.imf.org/external/np/sta/cofer/eng/cofer.pdf Pristup 15.10.2012. godine.

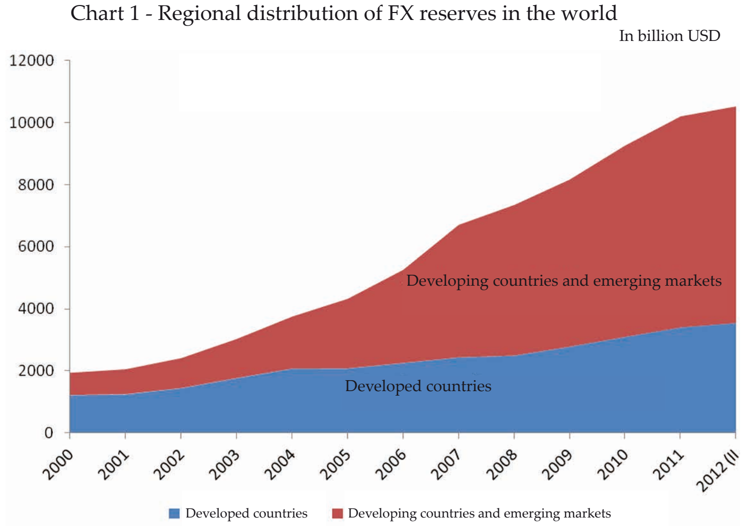
Rast deviznih rezervi je značajan i zbog toga što omogućava bolje razumevanje pravaca međunarodnih tokova kapitala između ZUR. Za razliku od neoklasičnih modela rasta u kojima se polazi od pretpostavke da se kapital kreće u područja u kojima je najveći rast produktivnosti, danas se može videti da privrede sa najvišim stopama rasta karakteriše manji neto priliv kapitala. Ovakva neočekivana slika duguje se deviznim rezervama. Objašnjenje ove pojave daju Gourinchas and Jeanne (2011) pokazujući da su zemlje sa najvećim stopama privrednog rasta neto izvoznice kapitala zbog gomilanja deviznih rezervi. Osim toga, u vreme krize država može da obezbedi likvidnost korporativnog sektora pomoću deviznih rezervi. Time država može da poveća stopu privrednog rasta u poređenju sa ravnotežnim rastom u otvorenoj privredi. U vreme krize država takođe može da pomoću deviznih rezervi obezbedi međunarodnu likvidnost ukoliko nastupi prekid priliva inostranog kapitala u privredu.

U istraživanju OECD (2011) utvrđeno je da su devizne rezerve Kine i Japana znatno iznad uobičajenog proseka za ove zemlje, pri čemu je odstupanje u slučaju Kine u 2009. godini bilo veće od 1.000 milijardi dolara. Sve što je iznad proseka, ove zemlje bi, prema nalazima ove studije OECD, mogle racionalnije da iskoriste tako što bi sredstva stavile u državne fondove koji sprovode agresivniju investicionu strategiju (tzv. Sovereign wealth fund - SWF), kupujući manje likvidne hartije od vrednosti. Neke od zemalja u novije vreme izdvajaju deo deviznih rezervi u ove fondove uviđajući da njihov preveliki iznos sa stanovišta osiguranja platnog bilansa znači neracionalno ponašanje. Dobar primer za korišćenje deviznih rezervi u savremenim uslovima je Kina, koja njihov značajan deo izdvaja za investiranje u drugim ZUR radi proizvodnje sirovina za kinesko tržište. Visoke stope privrednog rasta tokom skorašnje globalne finansijske krize Kina je podupirala trošeći devizne rezerve. U slučaju Kine postoji dobra sprega između njenog trgovinskog suficita sa SAD, porasta deviznih rezervi denominiranih uglavnom u dolarima i rasta budžetskog deficita u SAD. Mada veliki iznos deviznih rezervu u jednoj valuti zbog rizika promene deviznog kursa može da poništi pozitivne efekte na platni bilans preko kapitalnih gubitaka, Kina preovlađujući deo svojih deviznih rezervi drži u američkom dolaru. Razlog je u tome što je tržište dolara duboko i likvidno, a američke državne hartije od vrednosti veoma pouzdane. Osim toga, fakturisanje trgovine između Kine i SAD vrši se uglavnom u dolarima, tako da devizne rezerve u isto vreme služe kao zaštita od trgovinskih i dužničkih šokova. Veliki deo literature upravo se koncentriše na devizne rezerve kao zaštitni faktor u odnosu na agregatne šokove (za noviji doprinos videti Durdu et al., 2009. i Obstfeld et al., 2011). Nekoliko novijih studija je naglasilo značaj deviznih rezervi za brzinu oporavka privrede posle krize (videti Didier, Hevia, and Schmukler, 2012).

Što se tiče kretanja kapitala, u Kini postoje jasna ograničenja koja se odnose na kretanja privatnog kapitala. Na drugoj strani se registruje značajan odliv kapitala kroz akumuliranje deviznih rezervi. Mada se ovaj hibridni sistem razlikuje od ustaljenih paradigmi otvorene i zatvorene privrede, u literaturi nije detaljnije ispitivan. U novije vreme istraživači pokušavaju da objasne makroekonomske performanse kineske privrede polazeći od stanja relative ratio was particularly prominent in Asia, where the average ratio of FX reserves and GDP increased from 15.5% in 1980 to 55.3% in 2010 (Benigno and Fornaro, 2012, pp. 1).

China in 2009 exceeding USD 1000 billion. Everything above the average, according to the findings of this OECD study, these countries could utilize more rationally, by placing the assets with the state funds implementing a more aggressive investment strategy (the so-called Sovereign Wealth Funds - SWF), by purchasing less liquid securities. Some of the countries have recently been allocating a part of their FX reserves into these funds, having realized that their too large amount, from the perspective of balance of payment insurance, implies irrational behaviour. A good example for the utilization of FX reserves in contemporary conditions is China, which has been allocating a considerable part of its reserves to invest into other developing countries in order to produce raw materials for the Chinese market. During the recent global financial crisis China supported the high economic growth rates by spending its FX reserves. In case of China there is a good correlation between its trading surplus with the USA, the growth of FX reserves denominated mostly in dollars, and the growth of budgetary deficit in the USA. Although a large amount of FX reserves in a single currency, due to the FX rate risk, may annul the positive effects to the balance of payments through capital losses, China holds the predominant share of its FX reserves in the US dollar. The reason for this lies in the fact that the dollar market is deep and liquid, and the US government securities extremely reliable. Apart from that, the invoicing of trade between China and the USA is done mostly in dollars, hence the FX reserves at the same time serve as a protection against trading and debt-related shocks. Many authors focus exactly on FX reserves as a factor of protection against aggregate shocks (for the latest contribution see Durdu et al., 2009 and Obstfeld et al., 2011). Several recent studies have underlined the importance of FX reserves for the speediness of economic recovery after the crisis (see Didier, Hevia and Schmukler, 2012).

Chart 1 - Regional distribution of FX reserves in the world



Source: IMF (2012). http://www.imf.org/external/np/sta/cofer/eng/cofer.pdf Date of access 15.10.2012.

The growth of FX reserves is also important because it enables the better understanding of directions of international capital flows among the developing countries. As opposed to the neo-classical growth models which start from the assumption that capital flows to the regions with the highest growth of productivity, today we can witness the economies with the highest growth rates being characterized by a lower net capital inflow. Such an unexpected situation is due to FX reserves. The explanation for this phenomenon is provided by Gourinchas and Jeanne (2011), who have shown that the countries with the highest economic growth rates are the net capital exporters due to the FX reserves accumulation. Moreover, in times of a crisis, a country can provide liquidity of the corporate sector by means of its FX reserves. Thereby, the country can increase the economic growth rate compared to the balanced growth in an open economy. In times of a crisis, thanks to its FX reserves, a country can also provide international liquidity in case of a discontinued inflow of foreign capital into the economy.

An OECD research (2011) determined that the FX reserves of China and Japan are considerably above the standard average for these countries, with the deviation in case of poluotvorene kineske privrede (Bacchetta, Benhima, and Kalantzis, 2011). Nezavisno od pristupa u istraživanju efekata deviznih rezervi na privredu Kine, neizbežan je zaključak da su one rezultat velikih trgovinskih suficita ove zemlje, koja je u 2011. godini bila vodeći svetski izvoznik, sa dobrim izgledima da to bude i u 2012. ali i u narednim godinama. Zahvaljujući akumuliranim rezervama, Kina je uspela da tokom globalne finansijske krize zadrži visoke stope privrednog rasta i spreči prenošenje recesionih struja na domaću privredu. Kao vodeći holder američkih državnih hartija od vrednosti, Kina se javlja kao poverilac najjače privrede sveta. Uprkos riziku gubitka vrednosti usled slabljenja dolara, Kina nije prestrukturirala portfolio svojih deviznih rezervi, ostajući privržena američkim papirima i dolaru kao vodećoj valuti denominacije njenih deviznih rezervi. Velike devizne rezerve Kine i drugih zemalja ujedno služe kao preventiva da ne dođu u situaciju da pozajmljuju sredstva od Međunarodnog monetranog fonda (MMF-a), koja bi podrazumevala ispunjavanje zahteva ove institucije koji treba da obezbede makroekonomsku stabilnost. Moglo bi se reći da su ove zemlje poslušale savet koji im je upitio Feldstein (1999), po kome treba da se oslone na velike devizne rezerve u cilju samozaštite i manje zavisnosti od pomoći MMF-a. Stoga je dosta verovatno da su teški zahtevi koje postavlja MMF, kao i neizvesnost u pogledu dobijanja njegove pomoći, uticali na brojne zemlje da povećavaju svoje devizne rezerve (videti Bird and Mandilaras, 2011).

Osim prednosti koje zemlji donose devizne rezerve, treba skrenuti pažnju i na to da prevelike devizne rezerve imaju svoje troškove. Oni se sastoje od direktnih i indirektnih troškova. Direktni troškovi proističu iz visine deviznih rezervi, dok se indirektni troškovi odnose na mogući uticaj deviznih rezervi na inflaciju i pregrevanje kreditnog tržišta i tržišta aktiva. Sprovođenje sterilizacije u cilju neutralisanja efekata deviznih rezervi na novčanu masu može dovesti do poremećaja u domaćem bankarskom sistemu (Mohanty and Turner, 2006). Kontinuirano uvećavanje deviznih rezervi može proizvesti i sistemske rizike. Priliv kapitala po pravilu otvara prostor za više stope privrednog rasta, a bum na domaćem tržištu može se završiti krizom. Sistemske teškoće mogu nastati zbog toga što akumuliranje deviznih rezervi podrazumeva suficite tekućeg računa, koji kod zemalja čije valute imaju status rezervne valute podrazumeva deficit tekućeg računa. Dakle, deficiti su koncentrisani na mali broj zemalja, što može dovesti do dugoročne destabilizacije međunarodnog monetarnog sistema. Kriza onda ne bira žrtve, jer njeni talasi zapljuskuju podjednako kako zemlje koje imaju tako i one koje nemaju akumulirane devizne rezerve. Ova sekvenca događaja skreće pažnju na moguće negativne eksternalije akumuliranja velikih deviznih rezervi. Globalna finansijska kriza iz 2008. godine nastala je zbog preteranog investiranja u SAD kao zemlji svetske rezervne valute, koje je bilo podržano gomilanjem deviznih rezervi u zemljama sa tržištem u nastajanju. Akumuliranje velikih deviznih rezervi u ovim zemljama obezbedilo je dodatni kapital SAD, povećavajući verovatnoću izbijanja krize. Kad je izbila na površinu, kriza se, posredstvom finansijskih veza između finansijskih institucija sa visokim leveridžom, prenela na ostale zemlje. Zahvaljujući isprepletanosti finansijskih odnosa između banaka u vodećim svetskim finansijskim centrima, američka kriza se pretvorila u globalnu krizu.

Globalna finansijska integracija je omogućila

As for the capital movements, there are clear limitations in China related to the movements of private capital. On the other hand, there has been registered a considerable outflow of capital through the accumulation of FX reserves. Although this hybrid system differs from the well-established paradigms of open and closed economies, it has not been examined in much detail in the expert literature. The analysts have recently been trying to explain the macroeconomic performance of the Chinese economy, starting from the position of the half-open Chinese economy (Bacchetta, Benhima, and Kalantzis, 2011). Regardless of the approach to the investigation of the effects FX reserves have on the economy of China, the inevitable conclusion is that they come as a result of the large trading surpluses of this country, which was the leading global exporter in 2011, with the good prospects to be so, too, in 2012, and in the forthcoming years as well. Thanks to its accumulated reserves, during the global financial crisis China managed to maintain the high economic growth rates, and prevent the spill-over of the recession trends to its local economy. As the major holder of the US government securities, China is the creditor of the most powerful economy in the world. Despite the loss of value risk due to the dollar depreciation, China did not restructure its FX reserves portfolio, having remained devoted to the US securities and dollar as the leading currency of its FX reserves denomination. The large FX reserves of China and other countries at the same time serve as prevention against the need to borrow funds from the International Monetary Fund (IMF), which would call for the fulfilment of this institution's requirements, with the idea of maintaining macroeconomic stability. One could say that these countries took the advice expressed by Feldstein (1999), according to which they should rely on their large FX reserves with a view to their self-protection and lower dependence from the IMF assistance. Therefore, it is very likely that the tough demands imposed by the IMF, along with the uncertainty about receiving their help, have influence many countries to increase their FX reserves (see Bird and Mandilaras, 2011).

In addition to the benefits brought by foreign exchange reserves to a country, one should draw attention to the fact that excessive FX reserves also incur certain costs. They include direct and indirect costs. Direct costs arise from the FX reserves amount, whereas indirect costs refer to the potential impact of the FX reserves on inflation and overheating of the credit market and asset market. Conducting sterilization in order to neutralize the effect of FX reserves on money supply may result in some disturbances within the domestic banking system (Mohanty and Turner, 2006). Continuous increase in FX reserves may also incur some systemic risks. Inflow of capital, as a rule, generates room for higher economic growth rates, whereas a boom in the domestic market may, in turn, lead to a crisis. Systemic difficulties may occur because the FX reserves accumulation implies current account surpluses, which, in the countries whose currencies have the reserve currency status, implies a current account deficit. Therefore, deficits are concentrated in a small number of countries, which may lead to a long-term destabilization of the international monetary system. The crisis, then, does not choose its victims, since its waves equally sweep over both the countries which have and those that do not have accumulated FX reserves. This sequence of events draws attention to the possible negative externalities of large FX reserves accumulation. The 2008 global financial crisis occurred due da akumuliranje deviznih rezervi u jednoj grupi zemalja poveća osetljivost zemlje rezervne valute, što predstavlja pretnju stabilnosti globalnog finansijskog sistema. Ovakav sled događaja može dovesti do sistemskog rizika. Na vezu između gomilanja deviznih rezervi i mogućnosti izbijanja sistemske krize u literaturi se ukazuje u novije vreme (videti, na primer, Obstfeld and Rogoff, 2010).

Poslednjih godina je povećana otvorenost trgovine između ZUR i zemalja sa tržištem u nastajanju, usled liberalizacije trgovinskih režima i smanjivanja transportnih i komunikacionih troškova. Time su zemlje postale osetljive na pad inostrane tražnje za njihovim proizvodima. Diverzifikacija trgovine između više partnera smanjuje rizik pada uvozne tražnje pojedinih zemalja, tako da su ZUR i zemlje sa tržištem u nastajanju razgranale trgovinske veze poslednjih godina. Liberalizaciju trgovine je pratilo finansijsko otvaranje mnogih regiona. Mada veća liberalizacija računa kapitala olakšava raspodelu rizika, ona ujedno povećava osetljivost zemalja na finansijske šokove ili iznenadni prekid priliva kapitala. Zaokret u pravcu veće uloge stranih direktnih investicija (SDI) umanjio je osetljivost nekih zemalja sa tržištem u nastajanju na porast otvorenosti računa kapitala (IMF, 2012, str. 140). Rast deviznih rezervi nije rezervisan samo za brzorastuće privrede Azije sa tržištem u nastajanju, već se i kod ZUR zapaža njihov rast - prosečna vrednost deviznih rezervi zemalja sa tržištem u nastajanju i ZUR porasla je sa manje od 8% BDP-a u 1990-im na 18% BDP-a u periodu 2010-2011. godine (IMF, 2012, str. 145). Posmatrano u apsolutnom izrazu, devizne rezerve zemalja sa tržištem u nastajanju porasle su 2010. godine za 863 milijarde dolara, a u 2011. za 765 milijardi dolara (IMF, 2012, str. 211, tabela A13). Zemlje sa tržištem u nastajanju, rukovođene bolnim iskustvima iz azijske finansijske krize iz 1997. godine, shvatile su značaj suficita platnog bilansa u zaštiti zemlje od promenljivih tokova kapitala. Rast deviznih rezervi pomogao je brojnim azijskim zemljama da lakše savladaju teškoće tokom najnovije globalne finansijske krize (Lto, 2009). Danas je manji broj zemalja motivisan da ostvaruje suficite tekućeg računa i drži veće devizne rezerve zbog ograničenog pristupa međunarodnim finansijskim tržištima. Ove zemlje spadaju u kategoriju zemalja sa niskim dohotkom, za koje je zajedničko to što su neretko zabrinute u pogledu mogućnosti da sa svetskog tržišta kapitala povuku dugoročna sredstva za privredni razvoj. Većina ostalih zemalja može da pozajmljuje sredstva na međunarodnim finansijskim tržištima pod relativno povoljnim uslovima, ukoliko se za to ukaže potreba. Trošak ovih pozajmica treba posmatrati kao razliku između kamatne stope po kojoj se mogu pozajmiti sredstva na međunarodnom finansijskom tržištu i prinosa koje stiču po osnovu držanja deviznih rezervi. Na drugoj strani, tražnja za dolarskim rezervama omogućava zadržavanje nižih kamatanih stopa u SAD.[2]

Najveće devizne rezerve na svetu ima Kina. One su krajem marta 2012. godine iznosile oko 3.300 milijardi dolara, što je predstavljalo 45% BDP-a Kine iz 2011. godine. Apsolutni iznos kineskih deviznih rezervi u dolarskom iskazu bio je tri puta veći od deviznih rezervi Japana, koje su iznosile 1.210 milijardi dolara, odnosno 21% BDP-a. Ukupan iznos kineskih deviznih rezervi skoro da se izjednačio sa celokupnim deviznim rezervama koje poseduju razvijene zemlje zajedno, odnosno njihov iznos je predstavljao skoro polovinu ukupnih deviznih rezervi koje drže ZUR i zemlje sa tržištem u nastajanju (US Department of the Treasury, 2012, str. 14). Najveći holderi dolarskih rezervi su Kina i Japan.[3] Pošto Kina ne saopštava podatke o strukturi svojih deviznih rezervi, procenjeno je da se na njih odnosi oko 70%

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[2] Niže kamatne stope su omugućile bum stanogradnje u SAD, koji je postao jedan od uzroka subprime krize. Privelegija SAD je u tome što su mogle da se dodatno zadužuju emitujući državne obveznice koje glase na dolar, jer se time izbegava rizik deviznog kursa. S jedne strane, akumulacija deviznih rezervi nastaje zbog zabrinutosti za finansijsku stabilnost u svetu (videti Obstfeld et al., 2010), dok na drugoj strani njihovo kumuliranje izlaže finansijski sistem dodatnim rizicima i šokovima (Steiner, 2010, str. 2). Rast deviznih rezervi može izazvati pritisak na rast cena, što može ugroziti održavanje cenovne stabilnosti u zemlji kao osnovni zadatak centralne banke. Inflacija sa svoje strane može ugroziti privredni rast.

[3] Najveće dolarske rezerve poseduje Kina, koja je 2009. godine pretekla Japan u pogledu holdinga američkih državnih hartija od vrednosti (Hu, 2010).

to the excessive investment in the USA, as the country of the global reserves currency, which was supported by the FX reserves accumulation in the emerging markets. Accumulation of large FX reserves in these countries provided additional capital to the USA, increasing the probability of a crisis. Once it broke out, by means of financial connections among the high leverage financial institutions, the crisis spilt over to other countries. Due to the interconnectedness of financial relations among banks in the leading world financial centres, the American crisis turned into the global crisis.

The global financial integration enabled the FX reserves accumulation in a group of countries to increase the sensitivity of the reserves currency country, posing a threat to the stability of the global financial system. Such developments may lead to systemic risk. The connection between FX reserves accumulation and possibility of a systemic crisis has been recently examined in reference literature (see, for instance, Obstfeld and Rogoff, 2010).

In recent years the openness of trade among the developing countries and emerging markets has been increased, due to the liberalization of trading regimes and reduction of transport and communication costs. Thereby the countries became sensitive to drops in foreign demand for their products. Diversification of trade among several partners reduces the risk of lower import demand of certain countries, hence the developing countries and emerging markets have branched out their trading connections in the past years. Liberalization of trade was accompanied by financial opening of many regions. Although higher liberalization of capital accounts facilitates the distribution of risks, at the same time it increases the sensitivity of countries to financial shocks or a sudden stop in capital inflows. A shift towards the increasing role of direct foreign investments (DFI) has reduces the sensitivity of some emerging markets to the growing openness of capital accounts (IMF, 2012, pp. 140). The growth of FX reserves is not restricted only to quick-growing Asian economies with emerging markets, their growth has also been recorded in the developing countries - the average value of FX reserves in developing countries and emerging markets has increased from 8% of GDP in the 1990s to 18% of GDP in 2010-2011 (IMF, 2012, pp. 145). In absolute terms, FX reserves of the emerging markets have increased in 2010 by USD 863 billion, and in 2011 by USD 765 billion (IMF, 2012, pp. 211, Table A13). Taught by the painful experiences from the Asian financial crisis in 1997, the emerging markets realized the importance of balance of payment surplus in the protection of a country from the variable capital flows. The growth of FX reserves has helped many Asian countries to more easily overcome the difficulties during the latest global financial crisis (Lto, 2009). Today less countries are motivated to achieve current account surpluses and hold higher FX reserves due to the limited access to the international financial markets. These countries fall into the category of low income countries, which share the frequent concern regarding the possibility to borrow long-term funds from the global capital market for the purpose of their economic development. Most other countries may borrow funds at the international financial markets under the relatively favourable conditions, if the need for that arises. The cost of these loans should be viewed as a difference between the interest rate at which the funds may be borrowed at the international financial market and the revenues gained in respect of FX reserves holdings. On the other hand, demand for dollar-denominated reserves enables the maintenance of lower interest rates in the USA.[2]

The largest FX reserves in the world are held by China. In late March 2012 they amounted to about USD 3300 billion, which equalled 45% of China's GDP in 2011. The absolute amount of the Chinese FX reserves in dollars

[2] Lower interest rates enabled the house-construction boom in the USA, which became one of the causes of the subprime crisis. The privilege of the USA was that they were able to borrow additionally by issuing government bonds denominated in dollars, thus avoiding the FX rate risk. On the one hand, accumulation of FX reserves is caused by the concern for financial stability in the world (see Obstfeld et al., 2010), whereas on the other hand, their accumulation exposes the financial system to additional risks and shocks (Steiner, 2010, pp. 2). The growth of FX reserves may cause some pressure on the growth of prices, which may, in turn, jeopardize the maintenance of the price stability in the country as the main task of the central bank. Inflation, from its side, may also threaten the economic growth.

celokupnih kineskih deviznih rezervi, što je više od svetskog proseka od 64% u 2008. godini (Vujanovic, 2011, str. 8).

Optimalni nivo i valutna struktura deviznih rezervi

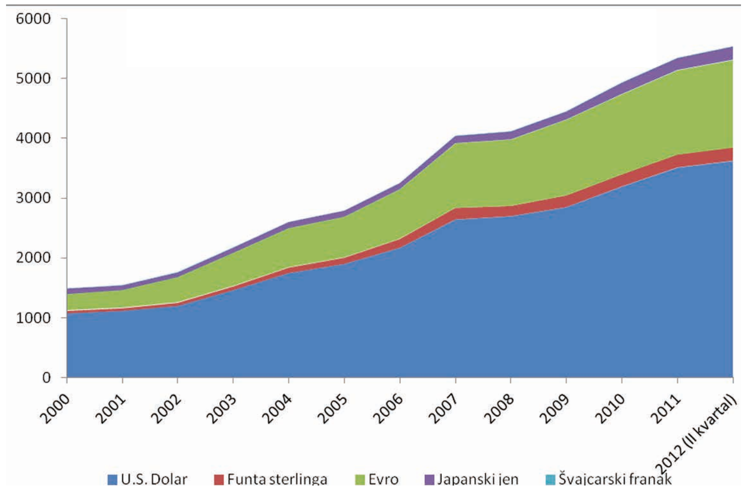
Tradicionalno se smatralo da je optimalni nivo deviznih rezervi u visini tromesečnog pokrića uvoza robe i usluga. Posle azijske finansijske krize, težište optimalnosti je pomereno na nivo koji je dovoljan da pokrije iznos kratkoročnog spoljnog duga zemlje. Koncept optimalnosti je proširen posle krize u Argentini, tako što se u utvrđivanju optimalnog nivoa uzima u obzir zaštita lokalnog finansijskog sistema koji je izložen kretanjima na deviznom tržištu, bekstvo kapitala čiji su vlasnici domaći rezidenti i fluktuacije deviznog kursa. Sa proširenjem zadataka koji im se postavljaju, značajno je porasla svetska tražnja deviznih rezervi. Brojni su radovi koji pokušavaju da objasne nivo deviznih rezervi koje drže zemlje, kao i njihove oscilacije. S obzirom na različite motive njihovog držanja, istraživanja nivoa deviznih rezervi mogu se svrstati u dve široke grupe. U jednoj se nalaze radovi u kojima se koriste kalibrirani bihevioristički modeli, koji polaze od kvantifikacije averzije prema riziku i ostalih fundamentalnih parametara (videti, na primer, Jeanne and Rancière, 2008). Nalazi ovih modela po pravilu se svode na zaključak da su iznosi deviznih rezervi u zemljama sa najvećim svetskim deviznim rezervama iznad optimalnog nivoa. U drugu grupu spadaju radovi koji pokušavaju da objasne koji faktori opredeljuju nivo deviznih rezervi po grupama zemalja (na primer, Cheung and Ito, 2009). Zaključci radova iz druge grupe su da nivo deviznih rezervi u zemljama sa najvećim rezervama odražava njihove specifičnosti (prethodna sistematizacija radova je prema OECD, 2011, str. 295).

Jeanne and Rancière (2011) su razvili model za utvrđivanje optimalnog nivoa deviznih rezervi za malu otvorenu zemlju koja želi da se zaštiti od naglog prekida priliva kapitala. Prema ovom modelu, optimalni nivo deviznih rezervi se povećava kako raste verovatnoća iznenadnog prekida priliva kapitala, a opada srazmerno veličini oportunitetnih troškova držanja rezervi.

U grafikonu 2. daje se valutna struktura alociranih deviznih rezervi. Treba imati u vidu da su alocirane devizne rezerve znatno manje od ukupnih svetskih deviznih rezervi. Primera radi, ukupne svetske devizne rezerve na kraju drugog kvartala 2012. godine su iznosile 10.523 milijardi dolara, a alocirane devizne rezerve samo 5.845 milijardi dolara (56% ukupnih rezervi). (IMF, 2012a).

Grafikon 2 - Valutna struktura zvaničnih deviznih rezervi

U milijardama dolara



Izvor: IMF (2012). http://www.imf.org/external/np/sta/cofer/eng/cofer.pdf Pristup 15.10.2012. godine.

Literatura o strukturi deviznih rezervi nije tako obimna kao u slučaju utvrđivanja njihovog optimalnog nivoa. Uprkos tome mogu se izdvojiti dva glavna pristupa. Jedan polazi od pretpostavke da se centralne banke ponašaju na isti način kao privatni investitori, tako da se u tom slučaju mogu koristiti modeli optimizacije portfolija da bi se objasnila valutna struktura deviznih rezervi. Drugi pristup se zasniva na polazištu po kome se potrebe centralne banke za privremenim finansiranjem uvoza i intervencijama na deviznom tržištu mogu uzeti za obrazloženje formiranja valutne strukture deviznih rezervi. Na uzorku od 20 zemalja Beck i Weber (2010, str. 31) su utvrdili da su opreznosni motivi glavni pokretači was three times higher than the FX reserves held by Japan, which amounted to USD 1210 billion, i.e. 21% of GDP. The total amount of the Chinese FX reserves was almost the same as the total FX reserves held by the developed countries together, and almost half of the total FX reserves held by the developing countries and emerging markets (US Department of the Treasury, 2012, pp. 14). The biggest holders of dollar-denominated reserves are China and Japan.[3] Given that China does not disclose the data on the structure of its FX reserves, it has been estimated that dollar-denominated reserves account for about 70% of the total Chinese FX reserves, which is more than the global average of 64% in 2008 (Vujanovic, 2011, pp. 8).

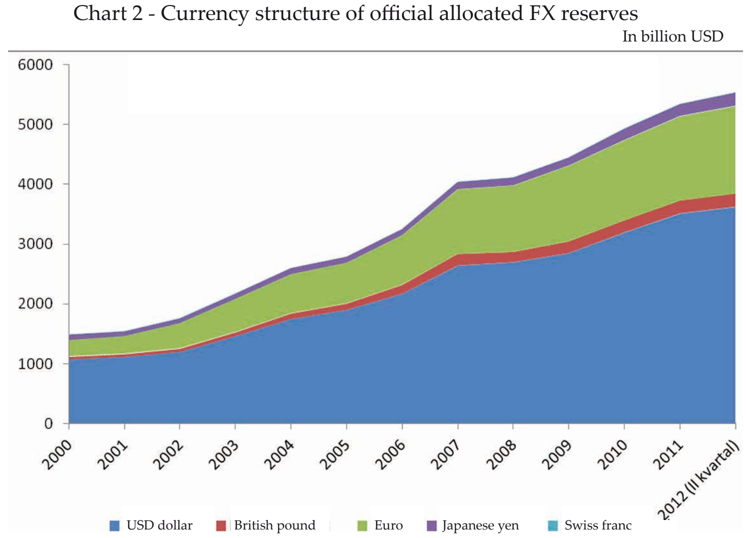
Optimal level and currency structure of FX reserves

Traditionally, the optimal level of FX reserves was considered to be equal to the three-month coverage of export of goods and services. In the aftermath of the Asian financial crisis, the optimality was shifted so as to denote the level sufficient to cover the amount of the short-term external debt of a country. The optimality concept was expanded after the crisis in Argentina, by taking into account the protection of the local financial system exposed to the FX market fluctuations, flight of capital owned by domestic residents, and FX rate fluctuations, when determining the optimal level. Along with the expansion of the tasks put forward before them, the global demand for FX reserves has considerably increased. There are numerous papers trying to explain the level of FX reserves held by certain countries, along with their oscillations. Given the different motives for holding FX reserves, the analyses of FX reserves levels can be classified into two broad groups. The first group gathers the papers using the calibrated, behaviourist models, which start from the quantification of risk aversion and other fundamental parameters (see, for instance, Jeanne and Ranciere, 2008). The findings of these models, as a rule, boil down to the conclusion that the FX reserves amounts in the countries with the largest FX reserves in the world are above the optimal level. The second group gathers the papers trying to explain which factors determine the FX reserves levels per groups of countries (for instance, Cheung and Ito, 2009). The conclusions in the papers of the second group are that the FX reserves levels in the countries with the highest reserves reflect their specificities (the previous systematization of papers was done according to the OECD, 2011, pp. 295).

Jeanne and Ranciere (2011) developed a model for determining the optimal level of FX reserves for a small, open country wishing to protect itself from a sudden stop in capital inflows. According to this model, the optimal FX reserves level increases in parallel with the increasing probability of the occurrence of a sudden stop in capital inflow, and decreases proportionately to the size of opportunity costs of reserves holding.

Chart 2 below presents the currency structure of allocated FX reserves. It should be taken into account that the allocated FX

Chart 2 - Currency structure of official allocated FX reserves



Source: IMF (2012). http://www.imf.org/external/np/sta/cofer/eng/cofer.pdf Date of access 15.10.2012.

[3] The largest dollar-denominated reserves are held by China, which in 2009 overcame Japan in terms of holding the US government securities (Hu, 2010).

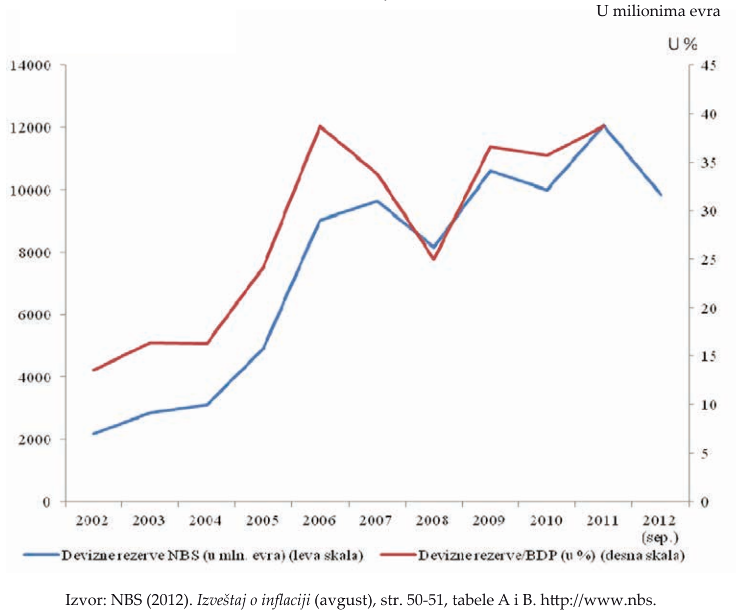
akumuliranja deviznih rezervi, ali i da utiču na alokaciju aktiva saglasno motivima prinosa. Ispitivanje je pokazalo da je alokacija rezervi prvenstveno vezana za opreznosne motive. Valutnu strukturu deviznih rezervi treba posmatrati iz ugla uticaja tri faktora: trgovinski tokovi, finansijski tokovi i režim deviznog kursa. Rezultati modela koji su primenili Eichengreen i Mathieson (2000, str. 8) pokazuju da zemlja koja svoju valutu vezuje za dolar u svojim deviznim rezervama ima veći udeo dolara; zatim, što je veći udeo jedne valute u spoljnim plaćanjima, utoliko je veći njen udeo u deviznim rezervama centralne banke; valuta servisiranja spoljnog duga takođe utiče na valutnu strukturu deviznih rezervi.

Globalna finansijska kriza je pokazala da su zemlje sa najvećim deviznim rezervama u svetu preovlađujućim delom prihvatale nerizične državne obveznice kao osnovnu komponentu akumuliranih deviznih rezervi. Naglašen značaj za sigurnost ovakve strukture deviznih rezervi ima režim fiksnog deviznog kursa, dok je mogućnost njihove produktivnije upotrebe u drugom planu. Zbog toga ne iznenađuje činjenica da su hartije od vrednosti denominirane u američkom dolaru bile tražena aktiva tokom krize, zbog očekivanja da dolar neće izgubiti na vrednosti. Drugi razlog opredeljenja za dolar leži u dubokom i likvidnom američkom tržištu hartija od vrednosti. Konačno, uloga dolara u denominaciji svetske trgovine i kao noseće valute u transakcijama na deviznom tržištu, opredelila je njegovu dominantnu ulogu u strukturi deviznih rezervi.

Devizne rezerve Srbije i njihov uticaj na makroekonomsku stabilnost

Devizne rezerve Srbije posle 2000. godine su se uvećavale kao rezultat priliva kapitala iz inostranstva po osnovu privatizacije, inostrane pomoći i dodatnog zaduživanja. Paralelno sa porastom apsolutnog iznosa deviznih rezervi, rastao je i njihov udeo u bruto domaćem proizvodu (BDP) (videti grafikon 3). Priliv kapitala iz inostranstva doprineo je realnoj apresijaciji dinara tokom 2001. i 2002. godine. Sem toga, priliv inostranog kapitala je omogućio širenje trgovinskog deficita i deficita tekućih transakcija, ali jednim delom i rast deviznih rezervi. Rastući trend deviznih rezervi svoju gornju tačku dostigao je krajem 2011. godine, kada je odnos između deviznih rezervi i BDP-a iznosio skoro 40%. Kumuliranje deviznih rezervi duguje se i kreditima kod MMF-a, kao i zaduživanju države na međunarodnom tržištu kapitala. Povećanje deviznih rezervi je pružalo sigurnost da će država moći uredno da servisira inostrani dug, ali i da se tekuća plaćanja prema inostranstvu odvijaju bez teškoća. Na drugoj strani, njihov rast je omogućavao intervencije na deviznom tržištu u slučaju da dođe do povećanog odliva kapitala. Značaj deviznih rezervi u ovoj ulozi viđen je u nekoliko navrata kad je došlo do većeg odliva kapitala. Tokom 2011. godine registrovano je povećanje deviznih rezervi, ali je u prvoj polovini 2012. godine njihov iznos smanjen zbog povećanih intervencija na deviznom tržištu.

Grafikon 3 - Devizne rezerve Srbije



Izvor: NBS (2012). *Izveštaj o inflaciji* (avgust), str. 50-51, tabele A i B. http://www.nbs.rs/export/sites/default/internet/latinica/90/90_5/inflation_avgust_2012.pdf Pristup 10.10.2012. godine (podaci za period 2002-2011); http://www.nbs.rs/internet/cirilica/scripts/showContent.html?id=6081&konverzija=no Pristup 14.10.2012. (podatak za septembar 2012. godine).

reserves are considerably lower than the total FX reserves in the world. For example, the total FX reserves in the world, at the end of the second quarter of 2012, amounted to USD 10,523 billion, whereas the allocated FX reserves amounted to only USD 5845 billion (i.e. 56% of total reserves). (IMF, 2012a).

The literature on the structure of FX reserves is not that extensive as in the case of determining their optimal level. Despite that, there are two main approaches that can be singled out. One of them starts from the assumption that central banks act in the same manner as private investors, so that, therefore, one may use portfolio optimization models in order to explain the currency structure of FX reserves. The second approach is based on the assumption that the needs of central banks for temporary export financing and FX market interventions may be taken as an explanation for the formation of FX reserves currency structure. Using the sample of 20 countries, Beck and Weber (2010, pp. 31) determined that precautionary motives are the main catalysts for FX reserves accumulation, but that they also influence the allocation of assets for the purpose of higher revenues. Their research showed that allocation of reserves is primarily related to precautionary motives. Currency structure of FX reserves should be considered from the perspective of impact of the following three factors: trading flows, financial flows and FX rate regime. The results of the model implemented by Eichengreen and Mathieson (2000, pp. 8) indicate that a country which pegs its currency to the dollar has a larger share of dollar-denominated FX reserves; also, the higher the share of one currency in cross-border payments, the higher its share in the central bank's FX reserves; moreover, the currency of foreign debt servicing also has an impact on the FX reserves currency structure.

The global financial crisis has shown that the countries with the higher FX reserves in the world mostly accepted the risk-free government bonds as the main component of their accumulated FX reserves. The fixed FX rate regime has a prominent importance for the safety of such FX reserves structure, whereas the possibility of their more productive usage remains in the background. Therefore, it does not come as a surprise that securities denominated in the US dollars were such sought-for assets during the crisis, due to the expectation that the dollar would not depreciate. The second reason for choosing the dollar lies in the deep and liquid US securities market. Finally, the role of the dollar in the global trade denomination and its leading role in the FX market transactions have helped define its dominant role in the structure of FX reserves.

FX reserves of Serbia and their impact on macroeconomic stability

After 2000 the FX reserves of Serbia have been increasing as a result of foreign capital inflow related to privatization, foreign aid and additional borrowing. In parallel with the growth of the absolute amount of FX reserves, their share in the gross domestic product (GDP) has also been increasing (see Chart 3). The inflow of foreign capital has contributed to the real appreciation of the dinar in 2001 and 2002. Moreover, the inflow of foreign capital enabled the expansion of trading deficit and current transactions deficit, but in part also the growth of FX reserves. The upward trend of FX reserves reached its peek in late 2011, when the ratio between the FX reserves and the GDP amounted to almost 40%. The accumulation of FX reserves was also due to the IMF loans, and the Government's borrowing at the international capital market. The increase in FX reserves provided security in terms of the Government regularly servicing its foreign debt, but also in terms of the current cross-border payments being effected without any difficulties. On the other hand, their growth enabled the FX market interventions in case of an increased capital flight. The significance of FX reserves in this role was proven on several occasions when the extensive capital flights actually occurred. In 2011 the increase of FX reserves was recorded, but in the first half of 2012 their amount was reduced due to the intensified FX market interventions.

Devizne rezerve NBS krajem septembra 2012. godine su iznosile 9.833 miliona evra, što je za 2,2 milijarde evra manje u odnosu na kraj 2011. godine. Na osnovu ovog smanjivanja iznosa deviznih rezervi može se zaključiti da je NBS bila primorana da interveniše na deviznom tržištu kako bi sprečila veći pad vrednosti dinara. Istovremeno, ovim intervencijama je omogućena likvidnost deviznog tržišta, tako da je jedan deo kratkoročnog kapitala napustio zemlju. Ovo je još jedan konkretan dokaz koliko je za malu otvorenu privredu važno da poseduje veći iznos deviznih rezervi kada dolazi do preokreta u tokovima kapitala.

Potrebno je učiniti još nekoliko napomena o deviznim rezervama Srbije. Pre svega, u njihovom stanju od 9.833 miliona evra krajem septembra 2012. godine nalaze se sredstva banaka po osnovu obavezne rezerve i sredstva povučena od MMF-a (ukupan iznos ove dve stavke je 4.351 milion evra), tako da je stanje neto deviznih rezervi NBS (ukupan iznos umanjen za dve navedene stavke) iznosilo 5.482 miliona evra. Dakle, iznos neto rezervi NBS je znatno manji od njihovog ukupnog iznosa, tako da se to mora imati u vidu prilikom procene do kog iznosa se može ići u njihovom trošenju. To praktično znači da se neto iznos deviznih rezrevi približio granici stalnih deviznih rezervi (nivo ispod koga se ne može ići). Ovde se nalazi jedan deo objašnjenja zbog čega postojeći nivo deviznih rezervi nije visok, odnosno razlog zbog koga bi trebalo dogovoriti novi kreditni aranžan sa MMF-om. U strukturi deviznih rezervi Srbije krajem 2011. godine inostrane hartije od vrednosti su činile oko 70% njihovog ukupnog iznosa, dok se ostatak odnosi na depozite i efektivu u inostranstvu, i manjim delom, na specijalna prava vučenja.[4]

Sem stanja ukupnih deviznih rezervi NBS, još nekoliko relevantnih pokazatelja potvrđuje da su one bile dovoljne da osiguraju likvidnost u tekućim plaćanjima prema inostranstvu, i zaštitu od trenutnog prekida u prilivu kapitala, odnosno od njegovog povećanog odliva (tabela 2).

Tabela 2. Pokazatelji eksterne pozicije Srbije

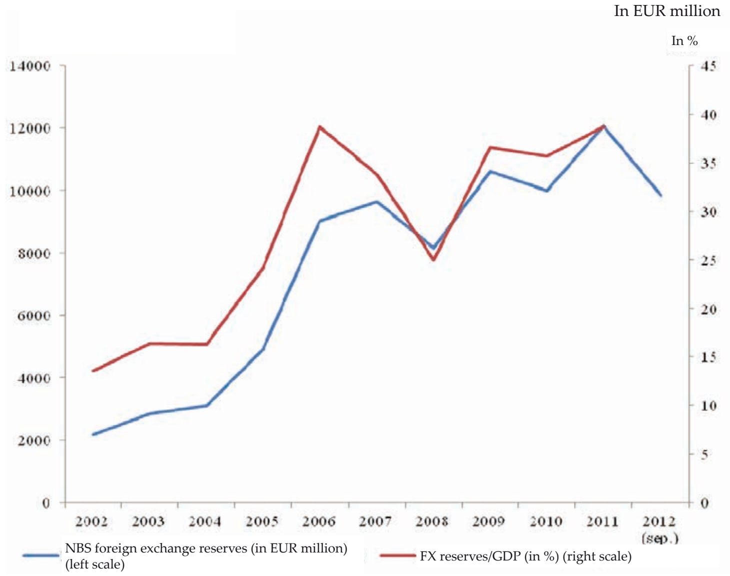
U mesecima i procentima

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Devizne rezerve / uvoz robe i usluga (u mesecima)	4,1	4,7	3,9	6,1	9,0	7,2	5,2	9,4	8,1	8,6
Devizne rezerve / kratkoročni dug (u procentima)	360,7	535,6	702,2	519,2	941,7	917,5	380,8	528,8	546,4	1860,8
Devizne rezerve/M1 (u procentima)	143,3	195,1	220,1	290,3	356,1	306,7	300,4	393,4	416,6	429,6

Izvor: NBS (2012). *Izveštaj o inflaciji* (avgust), str. 50-51, tabele A i B. http://www.nbs.rs/export/sites/default/internet/latinica/90/90_5/inflation_avgust_2012.pdf Pristup 10.10.2012. godine

4 Podaci o deviznim rezervama Srbije su iz NBS (2012). Izveštaj o inflaciji (avgust), str. 50-51, tabele A i B. http://www.nbs.rs/export/sites/default/internet/latinica/90/90_5/inflation_avgust_2012.pdf Pristup 10.10.2012. godine

Chart 3 - FX reserves of Serbia



Source: NBS (2012). *Report on inflation* (August), pp. 50-51, Tables A and B. http://www.nbs.rs/export/sites/default/internet/latinica/90/90_5/inflation_avgust_2012.pdf Date of access: 10.10.2012 (Data for 2002-2011); http://www.nbs.rs/internet/cirilica/ scripts/showContent.html?id=6081&konverzija=no Date of access: 14.10.2012 (Data for September 2012).

In late September 2012 the NBS foreign exchange reserves amounted to EUR 9,833 million, which is by EUR 2.2 billion less than at the end of 2011. Based on this decrease in the FX reserves amount one may conclude that the NBS was forced to intervene at the FX market in order to prevent a more prominent depreciation of the dinar. At the same time, these interventions provided liquidity of the FX market, hence one share of the short-term capital fled the country. This is another concrete proof of how important it is for a small, open economy to own a larger amount of FX reserves when the capital flows shift.

Several more observations need to be made when it comes to the FX reserves of Serbia. First of all, their total amount of EUR 9,833 million in late September 2012 includes the banks' assets in respect of required reserves, and the funds borrowed from the IMF (these two items in total amount to EUR 4,351 million), meaning that the net FX reserves of the NBS (total amount reduced by these two items) amounted to EUR 5,482 million. Therefore, the net amount of the NBS FX reserves is considerably lower than their total amount, which has to be taken into account when assessing their highest amount to be spent. Practically, this means that the net amount of FX reserves came close to the threshold for permanent FX reserves (the lowest allowed level). This is part of the explanation why the existing level of FX reserves is not high, i.e. the reason why a new credit arrangement should be agreed with the IMF. In the structure of FX reserves of Serbia towards the end of 2011, foreign securities accounted for about 70% of their total amount, whereas the rest referred to deposits and cash held abroad, and, in a smaller degree, to special drawing rights.[4]

In addition to the amount of total FX reserves of the NBS, several other relevant indicators confirm that they were sufficient to ensure liquidity in current cross-border payment transactions, and protection against a sudden stop in capital inflows, or against capital flights (Table 2).

[4] The data on FX reserves of Serbia are obtained from the NBS (2012). *Report on inflation* (August), pp. 50-51, Tables A and B. http://www.nbs.rs/export/sites/default/internet/latinica/90/90_5/inflation_avgust_2012.pdf Date of access: 10.10.2012

Prema podacima tabele 2. uočava se da su devizne rezerve kao broj meseci uvoza robe i usluga do 2009. godine imale tendenciju rasta, dostigavši 9,4 meseca krajem 2009. godine. Krajem 2011. godine njihov iznos je bio dovoljan da se pokrije uvoz robe i usluga za 8,6 meseci. S obzirom na to da je ovaj pokazatelj u celom posmatranom periodu bio veći od 3 meseca, koliko se tradicionalno smatra kao njihov minimalan iznos, može se zaključiti da su u celom posmatranom periodu one bile dovoljne za uredna plaćanja po osnovu uvoza robe i usluga.

Osnos između deviznih rezervi i inostranog kratkoročnog duga pokazuje da su devizne rezerve bile višestruke veće od iznosa kratkoročnog duga, što je predstavljalo garanciju da iznenadni odliv kratkoročnog kapitala iz zemlje ne bi značajnije uzdrmao domaće devizno tržište. U periodu 2006-2008. godine ispoljena je tendencija opadanja ovog pokazatelja, da bi u periodu 2009-2011. kontinuirano rastao. Zbog odliva kratkoročnog kapitala 2011. godine, iznos ukupnih deviznih rezevi bio je 18,6 puta veći od iznosa kratkoročnog inostranog duga.

Ako se posmatra odnos između deviznih rezervi i agregata novčane mase M1, može se zaključiti da je ispoljen trend njihovog rasta do 2006. da bi posle pada u 2007. i 2008. ponovo obnovljen trend rasta do 2011. godine. Krajem 2011. godine devizne rezerve su bile 4,3 puta veće od novačane mase po užem konceptu M1. Dakle, nivo deviznih rezervi je garantovao mogućnost zamene celokupne novčana mase za strane valute, što je imalo antiinflaciono dejstvo, obeshrabrujući pritisak na devizni kurs.

Tendencije sva tri prethodna pokazatelja potvrđuju da je tend rasta deviznih rezervi ulivao sigurnost ne samo za uredna plaćanja prema inostranstvu već i da je podsticao domaću makroekonomsku stabilnost.

U naredni godinama, kad se očekuje porast otplate stranog duga, devizne rezerve će igrati sve značajniju ulogu u održavanju eksterne likvidnosti.

Zaključak

Finansijske krize u svetu i rizici vezani za iznenadne prekide u prilivu inostranog kapitala, odnosno rizici bekstva kapitala iz zemlje, uticali su na mnoge ZUR i zemlje sa tržištem u nastajanju da povećaju svoje devizne rezerve. Ova pojava u literaturi je označena kao akumuliranje deviznih rezervi. Trend uvećanja deviznih rezervi u ovim zemljama je pojačan tokom 1990-ih godina, dakle pre izbijanja globalne finansijske krize koja je svoj vrhunac dostigla 2008-2009. godine. Među zemljama sa velikim rastom deviznih rezervi posebno se ističe Kina, koja je pretekla Japan po visini rezervi, i čije su devizne rezerve skoro izjednačene sa ukupnim deviznim rezervama razvijenih zemalja. Pojava gomilanja deviznih rezervi u ove dve grupe zemalja predstavlja izazov za istraživače širom sveta, tako da je literatura na temu gomilanja deviznih rezervi obimna. U većini radova se ističe da se različiti povodi gomilanja deviznih rezervi mogu svesti na dva ključna motiva: (1) samozaštita zemlje u slučaju iznenadnog prekida priliva kapitala usled krize, ili zbog bekstva kapitala, i (2) zbog tzv. "merkantilističkog motiva", koji u osnovi znači nastojanje zemlje da spreči apresijaciju svoje valute u cilju favorizovanja izvozno-usmerene strategije. Istraživanja ukazuju na nesumnjive koristi od gomilanja rezervi, posebno u uslovima krize, jer se smanjuje zavisnost zemlje od međunarodnog tržišta kapitala. Neretko se naglašava da zemlje sa velikim deviznim rezervama smanjuju svoju zavisnost od MMF-a, tako da mogu da izbegnu njegova uslovljavanja za odobravanje kredita. U tim slučajevima, sredstva MMF-a mogu biti manji dodatak domaćim deviznim rezervama, koje garantuju likvidnost zemlje prema inostranstvu. Sem prednosti koje potiču od gomilanja deviznih rezervi, u literaturi se ukazuje i na direktne i indirektne troškove njihovog držanja. Direktni troškovi proističu iz visine deviznih rezervi, dok se indirektni troškovi odnose na mogući uticaj deviznih rezervi na inflaciju i pregrevanje kreditnog tržišta i tržišta aktiva. Sprovođenje sterilizacije u cilju neutralisanja efekata deviznih rezervi na novčanu masu može dovesti do poremećaja u domaćem bankarskom sistemu. Osim toga, gomilanje deviznih rezervi u jednoj grupi zemalja omogućuje porast trgovinskog i budžetskog deficita u malom broju zemalja čije valute ulaze u sastav svetskih deviznih

Table 2 Indicators of external position of Serbia

In months and percent

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
FX reserves / import of goods and services (in months)	4,1	4,7	3,9	6,1	9,0	7,2	5,2	9,4	8,1	8,6
FX reserves / short-term debt (in percent)	360,7	535,6	702,2	519,2	941,7	917,5	380,8	528,8	546,4	1860,8
FX reserve / M1 (in months)	143,3	195,1	220,1	290,3	356,1	306,7	300,4	393,4	416,6	429,6

Source: NBS (2012). *Report on inflation* (August), pp. 50-51, Tables A and B. http://www.nbs.rs/export/sites/default/internet/latinica/90/90_5/inflation_avgust_2012.pdf Date of access: 10.10.2012

The data in Table 2 show that the FX reserves, in terms of the number of months of importing goods and services, until 2009 had a tendency of growth, having reached 9.4 months in late 2009. Towards the end of 2011 their amount was sufficient to cover the import of goods and services for 8.6 months. Given that throughout the entire period this indicator was higher than 3 months, which is traditionally considered the minimum amount, one may conclude that in the entire observed period the FX reserves were sufficient for regular payments in respect of importing goods and services.

The ratio between FX reserves and foreign short-term debt indicates that the FX reserves were several times higher than the short-term debt, which served as a guarantee that a sudden flight of short-term capital would not significantly shake the domestic FX market. In the period 2006-2008 this indicator manifested a tendency of decline, but from 2009 to 2011 it recorded a continuous growth. Due to the flight of short-term capital in 2011, the amount of total FX reserves was 18.6 times higher than the foreign short-term debt.

Monitoring the ratio between FX reserves and money supply aggregate M1, one may conclude that this indicator recorded an upward trend until 2006, which was, after the decline in 2007 and 2008, renewed until 2011. Towards the end of 2011, the FX reserves were 4.3 times higher than money supply according to the narrower M1 concept. So, the level of FX reserves guaranteed the possibility of exchanging the overall money supply for foreign currencies, which had an anti-inflationary impact, alleviating the pressure on the FX rate.

The tendencies of all three above-mentioned indicators confirm that the upward trend of the FX reserves not only provided safety in terms of regular cross-border payments, but also encouraged the domestic macroeconomic stability.

In the forthcoming years, when the foreign debt repayment is expected to increase, the FX reserves will continue to play the ever more important role in maintaining external liquidity.

Conclusion

Global financial crises and risks related to sudden stops in foreign capital inflows, or to capital flights, have encouraged many developing countries and emerging markets to increase their foreign exchange reserves. This phenomenon has been referred to in expert literature as FX reserves accumulation. The trend of increasing FX reserves in these countries has been intensified in the 1990s, i.e. before the outbreak of the global financial crisis, which reached its peek in 2008-2009. The country which particularly stands out among the countries with a large growth of FX reserves is China, which overcame Japan in terms of FX reserves amount, and whose FX reserves are almost equal to the total FX reserves of the developed countries. The accumulation of FX reserves in these two groups of countries poses a challenge to researchers all over the world, which is why the literature on the topic of FX reserves accumulation is rather extensive. Most papers underline that various reasons for accumulating FX reserves may be reduced to two key motives: (1) self-protection of a country rezervi. Time se stvara mogućnost prevelike potrošnje u ovom zemljama, koja uz veliki promet na finansijskim tržištima može dovesti do krize u tim zemljama. Globalizacija svetskog finansijskog tržišta omogućuje prenošenje krize između zemalja, čime se stvaraju pretpostavke za izbijanje sistemske krize. Uprkos tome, većina ZUR i zemalja sa tržištem u nastajanju uverena je da gomilanje deviznih rezervi ima veće koristi nego štete, posmatrano na duži rok. Na primeru Srbije mogli smo videti da veće devizne rezerve omogućavaju monetarnim vlastima da obezbede likvidnost deviznog tržišta i spreče preterane oscilacije deviznog kursa. Dostignut nivo deviznih rezervi je omogućio odliv značajnog iznosa kratkoročnih kredita, bez većih potresa na deviznom tržištu. Sem toga, veći nivo deviznih rezervi se pokazao poželjnim u vreme krize koja je umanjila priliv inostranog kapitala tokom 2012. godine. Manji priliv kapitala je nadoknađen trošenjem deviznih rezervi, čime je održana tekuća likvidnost prema inostranstvu. Njihova uloga u narednim godinama će biti sve veća jer se očekuje porast otplate duga prema inostranstvu. Imajući u vidu zaštitnu ulogu deviznih rezervi u vreme krize, može se i dalje očekivati njihov rast u ZUR i zemljama sa tržištem u nastajanju. Međutim, sadašnja ključna uloga američkog dolara u svetskim deviznim rezervama preispituje se kod zemalja sa najvećim rezervama, tako da se može očekivati valutna prekompozicija njihovih deviznih rezervi u smislu smanjivanja uloge dolara i jačanja nekih drugih valuta ili specijalnih prava vučenja.

in case of a sudden stop in capital inflows due to a crisis, or in case of a capital flight; and (2) the so-called "mercantilist motive", which basically refers to the tendency of a country to prevent the appreciation of its currency in order to favour the export-oriented strategy. The investigations reveal the undeniable benefits of reserves accumulation, especially in times of crisis, given the reduced dependency of a country from the international capital market. It has often been emphasized that the countries holding large FX reserves thereby reduce their dependence from the IMF, hence being able to avoid their conditions for extending loans. In these cases, the IMF funds may serve as a minor addition to the domestic FX reserves, which guarantee the country's external liquidity. In addition to the benefits brought by foreign exchange reserves accumulation, the reference literature points to the direct and indirect costs of their holding. Direct costs arise from the FX reserves amount, whereas indirect costs refer to the potential impact of the FX reserves on inflation and overheating of the credit market and asset market. Conducting sterilization in order to neutralize the effect of FX reserves on money supply may result in some disturbances within the domestic banking system. Moreover, accumulation of FX reserves in a group of countries brings an increase of trade and budgetary deficits in a small number of countries whose currencies are part of the global FX reserves. This, in turn, creates the possibility of excessive consumption in these countries, which in combination with large turnover at the financial markets may cause a crisis in these countries. Globalization of the world financial market enables the spill-over of the crisis among the countries, which generates the preconditions for the outbreak of a systemic crisis. Despite this, most developing countries and emerging markets believe that FX reserves accumulation brings more benefits than damage, viewed in the long run. Taking the example of Serbia, we saw that large FX reserves enable monetary authorities to provide liquidity of the FX market and prevent excessive oscillations of the FX rate. The achieved level of FX reserves enabled a considerable outflow of short-term loans, without any substantial shocks at the FX market. Moreover, the higher amount of FX reserves proved to be desirable in times of the crisis which reduced the inflow of foreign capital in 2012. The reduced inflow of capital was compensated for by spending the FX reserves, which maintained the current external liquidity. The role of FX reserves will be increasingly important in the forthcoming years, given the expected increase in foreign debt repayment. Bearing in mind the protective role of FX reserves in times of crisis, one may expect their further growth in the developing countries and emerging markets. However, the present key role of the US dollar in the global FX reserves has been re-examined in the countries holding the highest amounts of FX reserves, so that one may expect currency re-composition of their FX reserves in terms of reducing the role of the dollar and strengthening the role of some other currencies or special drawing rights.

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