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Bankarstvo

Vladimir Vasić

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Razmišljanja o savremenoj međunarodnoj finansijskoj infrastrukturi



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Očekivanja i izazovi bankarskog sektora u 2021. godini

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Protekle 2020. godinu nesumnjivo je obeležila pandemija izazvana virusom COVID 19 i kriza velikih razmera koja je ostavila zdravstvene i ekonomske posledice na svetsku ekonomiju i društvo u celini. Banke su imale krucijalnu ulogu u stabilizaciji globalne ekonomije kroz realizaciju državnih paketa podsticaja i pomoći u velikom broju evropskih zemalja, kao i u SAD, Kanadi, Japanu i mnogim drugim lokalnim ekonomijama. Dobra kapitalizovanost bankarskog sektora pre pandemije uticala je na ublažavanje negativnih efekata krize, ali će na budući oporavak i rast globalne ekonomije prevashodno uticati intenzitet i trajanje pandemije, odnosno dostupnost vakcina.

Makroekonomska kretanja

Kao što je navedeno u novembarskom Izveštaju o inflaciji NBS, posle početne faze pandemije krajem prvog i u drugom tromesečju ove godine, treće tromesečje u mnogim zemljama obeležio je oporavak ekonomske aktivnosti, koji je bio brži od očekivanog, što je uticalo na to da vodeće međunarodne finansijske institucije koriguju prognoze globalnog privrednog rasta za 2020. godinu. S tim u vezi, predviđanja MMF-a iz oktobra pokazuju da će stopa rasta globalne ekonomije za 2020. godinu biti negativna i da će iznositi - 4,4%, što je nešto blaža ocena od one iz juna, dok se globalna stopa rasta za 2021. godinu predviđa na oko 5,2%, što bi značilo da će nivo globalnog BDP-a u 2021. godini biti otprilike na nivou BDP-a iz 2019. godine (0,6% iznad). Ipak, ponovo širenje virusa od oktobra uticalo je na vraćanje pojedinih zaštitnih zdravstvenih mera i pojačalo zabrinutost za brzinu globalnog ekonomskog oporavka u narednom periodu. U uslovima prisutne neizvesnosti u pogledu daljeg toka pandemije i njenog uticaja na globalni rast, u novembru su stigle pozitivne vesti o vakcini, što je uticalo na blago povećanje optimizma na tržištima, ali se još sa sigurnošću ne zna kada će vakcina biti dostupna i kojom brzinom će biti distribuirana.

Prema podacima Narodne banke Srbije, COVID-19 i globalno usporavanje će na Srbiju imati manje posledice u odnosu na ostale evropske zemlje zbog postignute makroekonomske i finansijske stabilnosti, prethodne dinamike rasta i fiskalnog prostora stvorenog u prethodnim godinama, pravovremenog i obuhvatnog paketa mera, kao i povoljne strukture ekonomije. Narodna banka Srbije je korigovala navise projekciju rasta BDP-a za 2020. godinu, sa -1,5% na -1%, što će biti jedan od najboljih rezultata u Evropi. U 2021. godini za



Srbiju je predviđena stopa rasta BDP-a od oko 6% uz simetrične rizike. Rizici projekcije BDP-a u narednoj godini u najvećoj meri potiču od neizvesnosti u pogledu toka i trajanja pandemije na globalnom nivou, kao i preduzetih zdravstvenih mera i mera ekonomske politike, pri čemu su, kako i same međunarodne finansijske institucije ističu, rizici projekcije globalnog ekonomskog oporavka neuobičajeno visoki.

Bankarski sektor – pravci u kojima se reaguje ili može reagovati

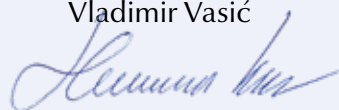
Pored pada profitabilnosti, pandemija je uticala na globalnu bankarsku industriju donoseći promene u tržišnoj poziciji banaka, podstičući novi talas inovacija, menjajući ulogu filijala, a posebno je ubrzala digitalizaciju u skoro svim oblastima bankarstva. Iako je tehnologija oduvek imala uticaj na bankarsku industriju, pandemijska dešavanja bitno su drugačija i po obimu i po dinamici promena. Kombinacija tehnologije i digitalnog omogućava pristup novim proizvodima i uslugama i menja tradicionalni način obavljanja bankarskih poslova. Pozicija banaka koje su pre pandemije strateški ulagale u inovativnu tehnologiju značajno je bolja, međutim i ostale banke mogu poboljšati svoju poziciju i poslovanje ako promptno reaguju i preduzmu aktivnosti na ubrzanju tehnološke modernizacije.

Kako u svojim rezultatima istraživanja na globalnom nivou navode velike konsultantske kuće, za snažan oporavak privrede biće potreban jak bankarski sektor. U ambijentu niskih kamatnih stopa i ne tako visoke profitabilnosti, u kojem je i dalje prisutan rizik u pogledu neizvesnosti trajanja pandemije, banke će morati u fokusu da imaju potrebe klijenata, istovremeno povećavajući efikasnost obavljanja operacija i otpornost organizacije kroz upravljanje rizicima, jačanje kapitala i bezbednosti tehnologija. Prema navedenim istraživanjima, u fokusu će posebno biti tri područja: unapređenje pružanja usluga klijentima putem pravih kanala, sa dinamičnim i relevantnim proizvodima i uslugama, razmatranje novog načina rada, kao i izgradnja otpornijih i agilnijih organizacija. Drugim rečima, biće potrebna aktivna uloga banaka u oporavku i daljem napretku privrede u smislu sagledavanja pojedinačnih potreba klijenata radi prevazilaženja posledica krize, uz paralelno prilagođavanje operativnih modela u cilju postizanja veće efikasnosti i otpornosti celokupne organizacije. Banke mogu poboljšati komunikaciju sa klijentima primenom optimalne kombinacije digitalnih i ljudskih interakcija, novim partnerstvima, kao i novim modelima pružanja usluga i proizvodima prilagođenim pojedinačnim potrebama klijenata. Pragovi upravljanja rizikom moraju odražavati šire ekonomske promene, a veća pažnja mora se posvetiti izazovnijim segmentima kupaca.

Kao jedan od ključnih izazova bankarskog sektora, prema rezultatima pomenutih istraživanja, navodi se globalno liderstvo sa određenim ciljem. Budući da bankarski sektor ima jedinstvenu i vitalnu ulogu u globalnoj ekonomiji, banke treba da budu na čelu vodećih društvenih promena i ublažavanja klimatskog rizika kroz usmeravanje i realokaciju kapitala, unapređenje okvira za upravljanje rizicima i transparentnost izveštavanja.

Glavni i odgovorni urednik

Vladimir Vasić





Expectations and Challenges of the Banking Sector in 2021

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The year behind us has been undoubtedly marked by the COVID-19 virus pandemic and the large-scale crisis that has had a severe negative impact on the global health systems and economies, as well as on society as a whole. The banks played a crucial role in stabilising the global economy, through the realisation of government incentives and aid packages in many European countries, as well as in the USA, Canada, Japan, and many other local economies. The high level of capitalisation in the banking sector prior to the pandemic facilitated the mitigation of the negative effects of this crisis, but the intensity and duration of the pandemic, and the availability of vaccines, will have the strongest impact on future recovery and the growth of the global economy.

Macroeconomic Trends

As was noted in the National Bank of Serbia's Report on Inflation for November, following the initial phase of the pandemic at the end of Q1 and during Q2, Q3 has seen a recovery of economic activities in many countries, which was faster than expected, and which, in turn, influenced the leading financial institutions to adjust their forecasts of global economic growth in 2020. In line with this, the IMF forecasts from October show that the global economic growth rate for 2020 will be negative, and will amount to -4.4%, which is a milder estimate than the one from June, while the global growth rate for 2021 is estimated at about 5.2%, meaning that the global GDP in 2021 will be near the level from 2019 (by 0.6% higher). However, the renewed spreading of the virus that started in October caused the reinstatement of certain preventive measures and concern over the speed of global economic recovery in the coming period. In the face of such uncertainty regarding the future course of the pandemic and its influence on global growth, November brought positive news on a vaccine, which caused a slight increase in optimism on the markets, although it is still uncertain when the vaccine will be available, and how fast it will be distributed.

According to the information from the National Bank of Serbia, COVID-19 and the global slowdown will leave fewer consequences on Serbia than on other European countries, due to the achieved macroeconomic and financial stability, the growth dynamics and fiscal flexibility created in the previous years, the timely and thorough adoption of measures, as well as the advantageous economic structure. The National Bank of Serbia adjusted its GDP growth forecast for 2020 upwards, from -1.5% to -1%, which would be one of the best results in Europe. In 2021, the projected GDP growth rate for Serbia is around 6%, with symmetrical risks. The GDP projection risks in the following year mostly stem from the uncertainty in terms of the course and duration of the pandemic at a global level, as well as from the adopted health and economic policy measures, where the global economic recovery projection risks are unusually high, as was pointed out by international financial institutions.

Banking Sector – Existing and Possible Directions of Response

Aside from causing a decrease in profitability, the pandemic also affected the global banking industry by initiating changes in the banks' market positions, encouraging a new wave of innovations, altering the role of branch offices, and especially by speeding up the digitalisation process in almost all areas of banking. Although technology has always had an influence on the banking industry, the circumstances caused by the pandemic were notably different, both in scope and the dynamics of changes. The combination of technology and digitalisation enables access to new products and services, and changes the traditional flow of banking operations. The position of the banks which had strategically invested in innovative technologies prior to the pandemic is now significantly better. Nonetheless, other banks can also improve their position and operations if they react promptly and work towards speeding up their technological modernisation.

As large consultant firms state in their global research results, a strong banking sector will be needed to enable a strong economic recovery. Faced with low interest rates and not-so-high levels of profitability, with a still present risk in terms of the uncertain duration of the pandemic, the banks will have to focus on their clients' needs, while also increasing operative efficiency and organisational resilience through risk management and strengthening capital and technology security. According to the mentioned research, three areas will be in focus: improving services for clients through legal means, with dynamic and relevant products and services, considering new operating methods, as well as building more resilient and agile organisations. In other words, a more active role of banks will be needed for the recovery and further advancement of the economy, in terms of understanding the individual needs of clients in order to overcome the effects of the crisis, with parallel activities on adapting operative models to achieve higher efficiency and resiliency of a particular organisation. The banks can improve their communication with clients by implementing an optimal combination of digital and human interactions, through new partnerships, as well as through new models of providing services and with products targeting the individual needs of clients. Risk

management thresholds must reflect the wider economic changes, and more attention must be dedicated to the more challenging client segments.

Global leadership with a distinctive goal is highlighted as one of the key challenges of the banking sector, according to the mentioned research results. Seeing as how the banking sector has a unique, vital role in the global economy, banks should be on the forefront of leading social changes and mitigating climate risk by directing and reallocating capital, improving risk management frameworks, and transparency in reporting.

Editor-in-Chief

Vladimir Vasić



Odnos uzročnosti između bilansa tekućeg i finansijskog računa zemalja Zapadnog Balkana – slučaj Srbije

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Rezime: Zemlje Zapadnog Balkana (ZB) su registrovale porast deficita tekućeg računa (TR) i neto priliva kapitala u periodu pre izbijanja finansijske krize 2008. godine. Spoljni dug ovih zemalja je porastao. Cilj ovog rada je da istraži uzročnost između bilansa TR i finansijskog računa (FR) Srbije. Okvir za empirijsku analizu je vektorski autoregresioni (VAR) model i vektorski model sa korekcijom ravnotežne greške (VEC model). Primenom Johansenovog testa kointegracije utvrđeno je postojanje dugoročne uzročnosti između ove dve varijable. Ocenjeni dugoročni koeficijent uz varijablu FR kao nezavisnu promenljivu pokazuje da porast salda FR Srbije za 1% dovodi do povećanja deficita TR Srbije za 0,58%. Primenom testa Grejndžerove uzročnosti utvrđeno je da postoji uzročnost od FR prema TR, iz čega proističu preporuke za nosioce ekonomske politike. Ovi rezultati ukazuju na potrebu kontinuirane provere održivosti deficita TR Srbije, kao i potrebu nadgledanja nivoa prisustva stranog kapitala u privredi Srbije.

Ključne reči: tekući račun, finansijski račun, kointegracija, Grejndžerova uzročnost, VAR model, VEC model, Zapadni Balkan, Srbija

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Uvod

Zemlje ZB (Albanija, Bosna i Hercegovina, Crna Gora, Severna Makedonija, Srbija) beležile su rast neto priliva stranog kapitala, ali i rast deficita TR u razdoblju pre izbivanja globalne finansijske krize 2008. godine. Priliv kapitala je omogućio rast domaće tražnje zemalja ZB, što je doprinelo širenju deficita trgovinskog bilansa. Značajan deo neto priliva kapitala je usmeren na razvoj infrastrukture, kao važne pretpostavke za jačanje konkurentnosti privrede zemalja ZB. Međutim, pošto je rastao trgovinski deficit, nametnulo se pitanje efikasnosti stranog kapitala u podizanju izvozne konkurentnosti privrede. Trgovinski deficit i deficit TR porasli su do neodrživog nivoa pre izbivanja globalne finansijske krize. Ipak, u periodu posle krize došlo je do značajnog smanjivanja deficita TR, što je popravilo makroekonomske performanse ovih zemalja. Međutim, poslednjih godina je došlo do širenja deficita TR. Usled toga, pitanje njegove održivosti opet postaje aktuelno (Bartlett & Prica, 2017). To je i razumljivo ako se zna da je odnos spoljnog duga i izvoza kod većine zemalja ZB prilično visok, što je bitan pokazatelj njihove eksterne solventnosti. Spoljnotrgovinski trendovi u svim zemljama ZB su slični, mada postoje razlike u njihovoj međunarodnoj ekonomskoj poziciji (Kitova & Steinhauzer, 2018).

Položaj zemalja ZB na međunarodnom tržištu kapitala danas u velikoj meri zavisi od performansi njihovog platnog bilansa. Zemlje koje karakteriše deficit TR prinuđene su da u FR formiraju suficit pomoću koga se finansira ovaj deficit. Za svaku zemlju koja ima dugoročni deficit TR je značajno da oceni održivi nivo spoljnog duga u funkciji finansiranja ovog deficita (Bulut, 2011; Rosini & Zanghiery, 2009). Rasprostranjeno gledište u literaturi je da se deficit TR uglavnom formira kao posledica deficita trgovinskog bilansa (Cota et al., 2017), koji ujedno predstavlja transfer inostrane akumulacije u domaću zemlju. Pri tome je inostrana akumulacija dopuna male domaće štednje (Chinn & Prasad, 2003; Makin & Narayan, 2008). S obzirom na nedovoljnu domaću štednju, zemlje ZB se u investiranju oslanjaju na strana sredstva, pre svega na strane direktne investicije (SDI) (Popović & Erić, 2017). Očekuje se da se strana akumulacija pretvori u realne investicije, koje u budućnosti mogu da doprinesu povećanju izvoza i izvoznih prihoda. Svakako da i rastuće investiranje podrazumeva rast agregatne tražnje, koja se jednim delom zadovoljava iz uvoza, i vrši povratni pritisak na rast trgovinskog deficita i deficita TR. Priliv stranog kapitala, preko apresijacije deviznog kursa, vodi pogoršanju TR (Kim & Kim, 2011). Poslednjih godina, priliv SDI u zemlje ZB je porastao, mada on još uvek zaostaje za drugim zemljama u tranziciji (Estrin & Uvalić, 2014). Posredstvom SDI, zemlje se uključuju u globalne lance isporuke (eng. global value chains - GVCs), što doprinosi povećanju njihovog izvoza (Shimbov et al., 2019; Stöllinger, 2016; Srholec, 2007) i strukturnim promenama privrede (McMillan et al., 2014). Međutim, u zemljama koje su značajni domaćini za SDI, javlja se dodatni problem za njihov platni bilans. Naime, koliko god priliv SDI u početnim fazama rasterećuje platni bilans zemalja domaćina od pritiska za dodatno zaduživanje u inostranstvu, u kasnijim fazama (kad prestane reinvestiranje ostvarenog profita), raste pritisak u računu primarnog dohotka. Zemlje sa velikim neto prilivom SDI suočavaju se sa rastućim negativnim saldom računa primarnog dohotka, koji povećava deficit njihovog TR. Na kraju se opet nameće pitanje finansiranja ovog deficita.

Struktura priliva stranog kapitala i regulacija finansijskog tržišta takođe utiču na dugoročne performanse platnog bilansa (Moral-Benito & Roehn, 2016). Strani kapital u zemljama ZB ispoljava navedene uticaje na privrede ovih zemalja i njihov platni bilans. U ovom radu se ispituje međuzavisnost između bilansa TR i FR na primeru Srbije, kao reprezentativnoj zemlji sa područja ZB.

Preostali deo rada strukturiran je na sledeći način. U drugom delu se prezentira pregled literature na području međudnosa između TR i FR. U trećem delu su izloženi istraživački ciljevi, metodologija istraživanja i opisani korišćeni podaci. U četvrtom delu se daju empirijski rezultati istraživanja i diskusija, dok su u poslednjem, petom delu, dati zaključci.

Pregled literature

Literatura koja obrađuje međusobne uticaje TR i FR uglavnom se razlikuje prema pravcu uslovljenosti (da li neravnoteža TR uslovljava neravnotežu FR ili obratno), kao i prema mehanizmima transmisije uticaja jedne na drugu pojavu. Razlike se uglavnom svode na inicijalni impuls koji doprinosi porastu agregatne tražnje, usled koga u otvorenoj privredi dolazi do smanjivanja suficita ili porasta deficita TR.

Pristalice gledišta po kome TR uslovljava kretanje FR smatraju da porast agregatne tražnje utiče na porast uvoza, a zatim dolazi do induciranog priliva kapitala radi pokrića novonastale neravnoteže. Kao argument navode mogućnost da ekspanzivna fiskalna politika podstakne rast potrošnje ili investicija, i da zbog toga nastupa poremećaj u FR. Ukoliko se ekspanzivna fiskalna politika sprovodi putem deficitnog finansiranja (budžetski deficit), onda država nastoji da se zaduži na tržištu kapitala (Bernheim, 1988). Ako se radi o zaduživanju u inostranstvu, to predstavlja, prema shvatanju ovih ekonomista, dokaz da je porast agregatne tražnje, uslovljen porastom budžetske potrošnje, zahtevao inostrano finansiranje. U tom slučaju se dolazi do zaključka da poremećaj TR uslovljava poremećaj FR. Sličan sled događaja može nastupiti usled ekspanzivne monetarne politike. Xie & Chen (2014) su istraživali međusobnu uzročnost između deficita TR i budžetskog deficita za 11 zemalja OECD, koristeći Grejndžerov test uzročnosti (Granger, 1969). Njihovi nalazi pokazuju da između ovih varijabli postoji dvosmerna uzročnost. Autori su došli do zaključka da budžetski deficit uslovljava rast domaćih kamatnih stopa, što za sobom povlači strani kapital, usled čega dolazi do apresijacije domaće valute, a zatim i do deficita TR (Salvatore, 2006). Grier & Ye (2009) su pokazali da su serije budžetskog deficita i TR stacionarne i uslovno heteroskedastične, i da na dugi rok ne poseduju zajedničku putanju. Takođe je otkriveno da kratkoročnu dinamiku karakteriše perzistentno pozitivan međudnos između šokova budžetskog deficita i šokova deficita TR.

Urbanovski (2017) je ispitivao međudnose između nominalnog deviznog kursa, TR i FR Češke Republike. Primenjena je kointegraciona analiza i model sa korekcijom ravnotežne greške (eng. vector error correction - VEC model), a dobijeni rezultati pokazuju da postoji Grejndžerova uzročnost od TR prema FR, ali i obratno. Autor je upozorio da preterana liberalizacija češkog finansijskog sistema može dovesti do velikog priliva kapitala, a time i do smanjivanja

suficita (ili produbljivanja deficita TR), što bi moglo izazvati valutnu krizu u toj zemlji. Yan (2005) je ispitivao međuodnos TR i FR za razvijene zemlje i došao do zaključka da promene u TR uzrokuju promene FR, odnosno da FR služi za finansiranje neravnoteže TR. Do sličnog zaključka je došao Tang (2014) na osnovu analize privrede SAD. Oeking & Zwick (2015) su analizirali dinamiku TR i dinamiku različitih vidova neto tokova kapitala (portfolio tokovi, direktne investicije i tokovi ostalih investicija) za odabrane OECD zemlje pomoću koncepta Grejndžerove uzročnosti. Osim toga, sproveli su testiranje radi provere da li se pravac Grejndžerove uzročnosti menja tokom konjunktornog ciklusa. Rezultati testa su pokazali da postoji Grejndžerova uzročnost od promena TR ka promenama komponenti FR. Pored toga, uočeno je da se za kratkoročne tokove pravac uzročnosti menja u zavisnosti od faze konjunktornog ciklusa: u vreme pada privredne aktivnosti finansijski tokovi finansiraju TR, dok u vreme oživljavanja privrede finansijski tokovi induciraju promene TR.

Druga grupa ekonomista smatra da porast priliva kapitala u zemlju dovodi do poremećaja TR. Oni zastupaju gledište po kojem rastući priliv kapitala dovodi do apresijacije domaće valute, što podstiče uvoz i vodi neravnoteži TR (Abell, 1990). Naročito se spominje da priliv SDI dovodi do porasta uvoza tehnologije, opreme i sirovina, što može usloviti pogoršanje TR zemlje. U literaturi postoji veliki broj radova koji pronalaze uzročnost od FR ka TR. Garg & Prabheesh (2015) su na slučaju Indije utvrdili da između TR i računa kapitala ne postoji uzročna veza. Zatim su sproveli empirijsko istraživanje uzročnih odnosa između komponenti TR i računa kapitala posredstvom deviznog kursa. Utvrdili su da postoji uzročna veza od nedužničkih tokova kapitala prema TR, posredstvom realnog efektivnog deviznog kursa. Dakle, dekompozicija tokova kapitala je doprinela da se sagleda međusobni uticaj posmatranih varijabli. Preporuka ovog rada je da je potrebno unaprediti stabilnost finansijskog sektora pre nego što se izvrši potpuna liberalizacija računa kapitala. Turan (2015) je sproveo empirijsku analizu međuodnosa između TR i FR i njegovih glavnih komponenti. Na uzorku od nekoliko zemalja (Hrvatska, Mađarska, Poljska i Slovenija) je primenio Toda-Jamamoto test Grejndžerove uzročnosti (Granger, 1969), koristeći kvartalne podatke. Autor je došao do zaključka o postojanju jednostrane uzročnosti od FR prema TR za Hrvatsku i Sloveniju, odnosno od TR prema FR za Poljsku i Rumuniju, dok je u slučaju Mađarske otkrivena dvosmerna uzročnost. Yan & Yang (2008) su empirijski dokazali da priliv stranog kapitala može prouzrokovati perzistentnost deficita TR i dovesti do valutne krize. Takođe je pokazano da se priliv stranog kapitala i neravnoteža računa kapitala prepliću na različite načine između zemalja u razvoju i zemalja sa tržištem u nastajanju. Koristeći Grejndžerov test uzročnosti, autori su došli do zaključka da postoji uzročnost od priliva stranog kapitala prema TR u slučaju zemalja sa tržištem u nastajanju, dok je u slučaju razvijenih zemalja utvrđena zanemarljiva uzročnost. S obzirom na relativno nedovoljno razvijena finansijska tržišta, ovi autori zemljama sa tržištem u nastajanju preporučuju opreznost na području upravljanja velikim prilivom kapitala. Mastroiannis (2012) je ispitivao međuodnos između TR i FR portugalske privrede. Primenjena kointegraciona analiza sugerije postojanje dugoročne veze između priliva stranog kapitala i stanja TR, pri čemu postoji jednosmerna uzročnost od priliva stranog kapitala prema stanju TR. Međutim, autor je zaključio da na kratak rok postoji dvosmerni uticaj između ove dve varijable. Fry et al. (1995) su utvrdili da je kod pojedinih zemalja u razvoju

međudnos između TR i FR jednosmeran, kod drugih dvosmeran, a da za neke zemlje ne postoji uzročnost između ovih računa.

Ciljevi istraživanja, metodologija i podaci

Namera ovog rada je da istraži pravce uzročnosti između TR i FR Srbije. Da bi se to postiglo, postavljeni su sledeći ciljevi: 1) da se prezentiraju dosadašnji nalazi u literaturi o međudnosu između TR i FR; 2) da se postavi adekvatna metodologija istraživanja; 3) da se izlože i diskutuju rezultati empirijske analize o uzročnosti između TR i FR Srbije.

U radu se analizira period 2000 – 2019. godine. Originalni podaci su iskazani u evrima. Za svaku varijablu se koriste dve serije podataka: godišnji podaci za period 2000 – 2019. i kvartalni podaci za period 2007 – 2019. Kvartalne serije su formirane agregiranjem mesečnih podataka i služe za proveru robustnosti ocenjenog ekonometrijskog modela. Vremenske serije su za potrebe empirijske analize transformisane u prirodne logaritme. Serija označena kao LTR predstavlja logaritmovane vrednosti vremenske serije TR, dok LFR predstavlja logaritmovane vrednosti vremenske serije FR. Podaci su preuzeti sa sajta Narodne banke Srbije (https://www.nbs.rs/internet/cirilica/80/platni_bilans.html), pristupljeno 18.06.2020. Podaci za period 2007 – 2019. dati su prema BPM06 (Metodologija izrade platnog bilansa prema uputstvu MMF-a) i usklađeni su sa metodologijom BPM05, koja se odnosi na period 2000 – 2006. godine. Kao okvir za empirijsku analizu međusobnog odnosa spomenute dve vremenske serije, u radu su primenjeni VAR i VEC model. U radu će biti prvo izvršena provera stacionarnosti vremenskih serija u nivou. Koristeći standardne modele za testiranje jediničnog korena, utvrdili smo da su serije integrisane reda 1, što se uglavnom označava kao $I(1)$. Sledeći korak je ocena VAR modela da bi se utvrdio red modela (autoregresiona struktura), relevantan za sprovođenje testa kointegracije. Da bismo utvrdili da li su varijable u našem modelu kointegrisane, u radu je primenjen kointegracioni test prema metodologiji koju su razvili Johansen (1991, 1995) i Johansen & Juselius (1990). Ova metodologija je uključena u softverski paket EViews 11 (EViews, 2020), koji je korišćen u ovom radu. Polazna tačka ove metodologije je VAR model reda p definisan kao:

$$y_t = \delta + A_1 y_{t-1} + \dots + A_p y_{t-p} + Bx_t + \varepsilon_t \quad (1)$$

gde je y_t vektor nestacionarnih endogenih varijabli $k \times 1$, δ , ..., A_p je matrica parametra dimenzije $k \times p$, x_t je $d \times 1$ vektor egzogenih (determinističkih) varijabli, B je matrica parametara egzogenih varijabli dimenzije $k \times d$, ε_t je $k \times 1$ vektor slučajne komponente modela, δ je slobodan član, p je red docnje u VAR modelu (Lütkepohl, 2005). VAR se može preurediti kao:

$$\Delta y_t = \delta + \Pi \tilde{y}_{t-1} + \sum_{i=1}^{p-1} \Gamma_i y_{t-i} + Bx_t + \varepsilon_t \quad (2),$$

gde je

$$\Pi = \sum_{i=1}^p A_i - I \text{ i } \Gamma_i = - \sum_{j=i+1}^p A_j. \quad (3)$$

Π je matrica kointegracionog koeficijenta (matrica dugoročnog uticaja), Γ je matrica koeficijenta diferencirane vrednosti varijable y (matrica kratkoročnog uticaja). Ako matrica koeficijenta Π ima reduciran rang $r < k$, onda postoji $k \times r$ matrica α i β , svaka ranga r , tako da je $\Pi = \alpha\beta'$ i $\beta'y_t$ stacionarno. β predstavlja kointegracioni vektor, a r je broj kointegracionih relacija (eng. cointegration rank). Matrica α sadrži parametre prilagođavanja VEC modela. Vektor opisan kao $\beta'y_{t-1}$ može se interpretirati kao rastojanje varijable od njene ravnotežne vrednosti. Ako je $r = 0$, između varijabli ne postoji kointegracija, tako da je u tom slučaju $\Pi=0$.

U literaturi postoje različiti postupci za ocenu postojanja kointegracije. U ovom radu ćemo koristiti Johansenov postupak da bismo testirali postojanje kointegracija i da bismo ocenili kointegracione parametre. Johansenov metod ocenjuje Π matricu u VAR-u bez ograničenja, a zatim se sprovodi test da se utvrdi da li se može odbaciti ograničenje usled smanjivanja ranga Π . Za dato r , estimator maksimalne verodostojnosti kointegracionog vektora β definiše kombinaciju od y_{t-1} , koja omogućuje za r najveću kanoničnu korelaciju Δy_t sa y_{t-1} posle korekcije za pomaknute difference determinističke varijable, ako postoje. Johansen preporučuje dva različita testa signifikantnosti ovih kanoničnih relacija i smanjenog ranga Π matrice: test traga i test maksimalne verodostojnosti. Statistika traga se izračunava kao:

$$J_{trace} = -T \sum_{i=r+1}^k \log(1 - \lambda_i) \quad (4),$$

gde je λ_i najveća i -ta verodostojnost Π matrice, a T veličina uzorka.

Statistika maksimalne verodostojnosti se izračunava kao:

$$J_{max} = -T \log(1 - \lambda_{r+1}) \quad (5)$$

za $r = 0, 1, \dots, k-1$. T u ovoj relaciji je veličina uzorka, a λ_i je i -ta najveća kanonična korelacija.

Pomoću testa traga se testira nulta hipoteza o postojanju r kointegracionih vektora nasuprot alternative hipoteze o postojanju k kointegracionih relacija, gde k predstavlja broj endogenih varijabli. Test maksimalne verodostojnosti testira nultu hipotezu o postojanju r kointegracionih relacija naspram alternativne da postoji $r + 1$ kointegracionih relacija. Asimptotske kritične vrednosti se dobijaju u softverskom paketu EViews 11, koji smo koristili u ovom radu. Ukoliko se utvrdi postojanje dugoročne veze između varijabli, to će biti dokaz da su one kointegrirane.

Nakon utvrđivanja broja kointegracionih vektora, u radu je ocenjen adekvatan VAR model. Zatim je ispitana kratkoročna dinamika tako što je ocenjen vector error correction (VEC) model. Ako su varijable u VAR modelu kointegrirane, to znači da se VAR model može prikazati kao VEC model. Dakle, VEC je sličan VAR modelima i može se iskazati kao VAR model u jednačini (2). U radu se primenjuje Grejndžerov test uzročnosti da bi se otkrio pravac uzročnosti između varijabli.

Rezultati i diskusija

Prvi korak u empirijskoj analizi je provera stacionarnosti vremenskih serija TR i FR Srbije. Primenom proširenog Diki-Fulerovog (eng. Augmented Dickey-Fuller (ADF)) testa jediničnog korena (Dickey & Fuller, 1979) ustanovljeno je da obe serije u nivou poseduju najmanje po jedan jedinični koren. U drugoj iteraciji je zaključeno da su obe serije integrisane reda $I(1)$. Da bismo proverili da li postoji kointegracija između ove dve serije, primenjen je Johansenov test kointegracije u okviru VAR modela. Sledeći korak je iniciranje VAR modela da bi se utvrdio optimalni broj docnji. Izbor docnji je izvršen prema rezultatima višedimenzionog AIC (Akaike, 1974) i SIC (Schwartz, 1978) informacionog kriterijuma, koji sugerišu kao optimalne tri docnje. Isti kriterijumi upućuju na kointegracioni model koju uključuje konstantu kao determinističku komponentu. Uzimajući u obzir ove sugestije, i pošto obe vremenske serije poseduju po jedan jedinični koren, pristupili smo proveriti da li postoji kointegracija između ove dve varijable pomoću Johansenovog testa kointegracije (Johansen, 1991; 1995). Rezultati testa daju se u tabeli 1.

Tabela 1: Johansenov test kointegracije

Statistika traga (Eng. Trace Statistics)				
Nulta hipoteza o broju kointegracionih jednačina	Karakteristična vrednost	Statistika traga	0,05 Kritična vrednost	p-vrednost**
$H_0: r=0^*$ $H_1: r > 0$	0,656156	22,34686	20,26184	0,0255
$H_0: r=1$ $H_1: r > 1$	0,218823	4,198217	9,164546	0,3834
Maksimalna verodostojnost (Eng. Maximum Eigenvalue Statistics)				
$H_0: r=0^*$ $H_1: r > 0$	0,656156	18,14864	15,89210	0,0218
$H_0: r=1$ $H_1: r > 1$	0,218823	4,198217	9,164546	0,3834

Napomene: * Označava odbacivanje hipoteze na nivou značajnosti od 0,05. ** Mac-Kinnon-Haug-Michelis (1999) p-vrednost. Test statistike traga i maksimalne verodostojnosti ukazuju na postojanje jedne kointegracione jednačine na nivou značajnosti od 0,05.

Izvor: Proračun autora

U tabeli 1. je testirana nulta hipoteza o odsustvu kointegracije između posmatranih varijabli, naspram alternativne da između njih postoji najmanje jedna kointegraciona relacija: $H_0: r=0$ (nema kointegracije) i $H_1: r > 0$ (postoji najmanje jedna stacionarna veza) (r je broj stacionarnih kombinacija). Zaključak je da postoji jedna kointegraciona jednačina na nivou značajnosti od 5%. Budući

da su posmatrane vremenske serije kointegrirane, u narednom koraku ćemo koristiti VAR model koji uključuje vremenske serije u nivou.

Pošto je u modelu identifikovana jedna kointegraciona relacija, u tabeli 2 je data ocena dugoročne veze između posmatranih varijabli. Ocenjen je kointegracioni vektor β . Ove ocene se zasnivaju na normalizaciji $\beta'S_{11}\beta = I$, pri čemu je S_{11} definisano u Johansen (1995). Ocenjeni koeficijenti obe varijable su bez ograničenja. Svaka varijabla je posmatrana pojedinačno kao nezavisna promenljiva (model se ocenjuje dva puta). Znači uz ocenjene kointegracione koeficijente u tabeli 2 su obrnute zbog normalizacije. U Relaciji 1 tabele 2 posmatra se LTR kao zavisna varijabla, a u Relaciji 2 zavisna varijabla je LFR.

Tabela 2: Dugoročna veza između varijabli

	LTR	LFR	C
Relacija 1	1,000	-0,576 (0,152) [-3,796]	-3,425 (1,181) (-2,899)
Relacija 2	-1,737 (0,317) [-5,483]	1,000	5,949 (2,418) [2,460]

Napomena: $U()$ je data standardna greška a $u[]$ t-statistika.

Izvor: Autor

U relaciji 1 tabele 2, u kojoj je normalizacija izvršena na LTR, koeficijent uz LFR (-0,576) znači da porast salda FR (suficit) od 1% dovodi do rasta deficita TR za 0,58% (porast zaduženosti zemlje prema inostranstvu dovodi do povećanja deficita TR). Relacija 2 pokazuje da porast deficita TR za 1% dovodi do porasta salda FR za 1,74%. Oba ocenjena koeficijenta su statistički signifikantna i imaju očekivani predznak.

U ocenjenom VAR(3) modelu, prema rezultatima Brojš-Godfrijevog testa autokorelacije (eng. Breuch-Goodfrey Serial correlation LM test) (videti Breusch & Pagan, 1980), u prvih 12 docnji ne postoji autokorelacija. (za red autokorelacije videti Hannan & Quinn, 1979) Reziduali ocenjenog VAR(3) modela, prema rezultatima Dornik-Hansenovog (Dornik & Hansen, 1994) i Lutkepolovog (Lütkepohl, 1991) testa normalnosti reziduala, su normalno raspodeljeni. Rezultati Vajtovog testa heteroskedastičnosti reziduala (White, 1980) pokazuju odsustvo heteroskedastičnosti. Pošto ocenjeni VAR(3) model pokazuje zadovoljavajuća statistička svojstva, opredelili smo se za specifikaciju sa tri docnje.

Da bismo proverili da li je neka od razmatrane dve varijable u modelu egzogena, u ocenjenom VAR(3) modelu primenićemo Grejndžerov test uzročnosti (eng. Granger Causality test). Rezultati testa daju se u tabeli 3.

Tabela 3: Grejndžerova VAR uzročnost/Valdov (eng. Wald) test egzogenosti

Zavisna promenljiva	χ^2 statistika	Stepeni slobode	p-vrednost
LTR	10,741	3	0,0132
LFR	1,571	3	0,666

Izvor: Proračun autora

U tabeli 3 se testiraju sledeće hipoteze: H_0 : LFR ne uzrokuje LTR (hipoteza tvrdi da prethodno kretanje LFR ne utiče na LTR); H_1 : LFR uzrokuje LTR. Na osnovu dobijenih rezultata odbacuje se nulta hipoteza po kojoj LFR ne uzrokuje LTR (ocenjena χ^2 statistika je statistički signifikantna na nivou od 5%) i prihvata alternativna da LFR uzrokuje LTR. Na osnovu rezultata u trećem redu tabele 3 ne može se odbaciti nulta hipoteza da LTR ne uzrokuje LFR (ocenjena test statistika nije statistički signifikantna). Prema tome, u postavljenom dvodimenzionom sistemu postoji jednosmerna uzročnost od FR prema TR. U međusobnom odnosu ove dve varijable, LTR je endogeno determinisana varijabla, a LFR egzogena varijabla. To praktično znači da saldo FR utiče na deficit TR, dok deficit TR ne utiče na saldo FR (svakako treba imati u vidu da Grejndžerova uzročnost ne znači da je jedna pojava rezultat one druge, već da je samo reč o uzročnosti Grejndžerovog tipa). Osim toga, strukturne karakteristike privrede Srbije takođe utiču na formiranje deficita TR (Kovačević, 2018). Budući da su vremenske serije u razmatranom sistemu kointegrirane, može se zaključiti da se TR u svom kretanju prilagođava stazi dugoročne ravnotežne veze koju formira sa FR.

Nakon što je utvrđeno postojanje Grejndžerove uzročnosti od FR prema TR, i nakon što su varijable kointegrirane, sledeći korak je da ocenimo model sa korekcijom ravnotežne greške za TR. VEC model je primenjen tako što se varijabla TR ocenjuje kao zavisna promenljiva. Prilikom specifikacije docnje u VEC modelu imamo u vidu da se interval docnje odnosi na docnju prve diference. Posmatrano u odnosu na nivo vremenske serije LTR, VEC model je restriktivni VAR sa dve docnje. U tabeli 4 se daju rezultati ocenjenog VEC(2) modela.

Tabela 4: Model sa korekcijom ravnotežne greške

	Zavisna promenljiva ΔLTR
Ravnotežna greška	- 0,653 (-3,537)*
ΔLTR_{t-1}	0,192 (1,021)****
ΔLTR_{t-2}	-0,658 (-3,610)*
ΔLFR_{t-1}	-0,109 (-0,580)****
ΔLFR_{t-2}	0,408 (2,311)**
Sumarna statistika	
Koeficijent determinacije R^2	0,718
Prilagođeno R	0,624
Zbir kvadrata reziduala	1,372
Standardna greška jednačine	0,338
F-statistika	7,642
Log likelihood vrednost	-2,727
Akaike AIC	0,909
Schwarz SC	1,154
Mean dependent	0,091
S.D. dependent	0,551

Napomene: * Označava signifikantnost na nivou od 1%.

** Označava signifikantnost na nivou od 5%. *** Označava signifikantnost na nivou od 10%.

**** Označava odsustvo statističke signifikantnosti. U zagradama su date t-vrednosti.

Izvor: Autor

Prvi interesantan nalaz u tabeli 4 je da ocenjena regresija za zavisnu varijablu ΔLTR ima značajan koeficijent determinacije $R^2=0,718$ što znači da posmatrani regresori objašnjavaju oko 70% varijabiliteta promenljive ΔLTR . Ocena koeficijenta prilagođavanja za ΔLTR varijablu je statistički značajna na nivou od 1% i sugerise da se svake godine oko 65% dinamike deficita TR prilagođava dugoročnoj ravnotežnoj vezi koju formira sa saldom FR. Ocenjeni koeficijent prilagođavanja ima očekivan negativan predznak. To je preduslov modela da bi se odstupanje u kretanju varijabli od njihove dugoročne veze korigovalo, tako da ocenjena ravnotežna greška predstavlja snagu koja vuče varijable ka njihovoj dugoročnoj ravnotežnoj vezi. Ocenjeni koeficijent prve dočnje prve difference serije TR nije statistički signifikantan, dok je koeficijent druge dočnje statistički signifikantan na nivou od 1%. To zapravo znači da se tekuće promene varijable ΔLTR mogu objasniti ranijim promenama ove varijable. Prethodne vrednosti varijable ΔLFR (druga dočnja) takođe utiču na kretanje ΔLTR , iz čega se nameće zaključak da promene bilansa FR pokazuju Grejndžerovu uzročnost na promene bilansa TR. To praktično znači da težište prilagođavanja dugoročnoj vezi između ΔLTR i ΔLFR leži na ΔLTR . Brzina prilagođavanja nakon odstupanja od ravnoteže zavisi od vrednosti koeficijenta. Dakle, kratkoročna odstupanja od dugoročne ravnotežne vrednosti koriguju se prema veličini ocenjenog parametra prilagođavanja. U ocenjenom VEC modelu je izvršena provera Grejndžerove uzročnosti između varijabli i potvrđena je kauzalnost od FR prema TR.

U cilju provere specifikacije modela, ocenjen je VEC model za kvartalne vremenske serije LTR i LFR, koje pokrivaju vremenski period od 2007:Q1 do 2019:Q4. Podaci su preuzeti sa sajta NBS (https://www.nbs.rs/internet/cirilica/80/platni_bilans.html), pristupljeno 24.06.2020. Vremenske serije su desezonirane pomoću Census X-13 u softverskom paketu EViews 11. Obe vremenske serije poseduju po jedan jedinični koren. Primenom Johansenovog testa kointegracije utvrđeno je da između dve serije postoji jedna kointegraciona jednačina. Nakon što je potvrđeno postojanje kointegracije, ocenjeni su koeficijenti dugoročne veze. Rezultati se daju u tabeli 5.

Tabela 5: Dugoročna veza između varijabli LTR i LFR (kvartalni podaci za period od 2007:Q1 do 2019:Q4)

	LTR	LFR	C
Relacija 1	1,000	-0,956 (0,044) [-21,506]	-0,386 (0,280) [-1,377]
Relacija 2	-1,079 (0,055) [-19,730]	1,000	0,635 (0,352) [1,802]

Napomene: $U()$ je data standardna greška, a $u[]$ t-statistika.

Izvor: Proračun autora

Na osnovu tabele 5 normalizovani koeficijenti dugoročne veze imaju očekivani predznak i oba su statistički signifikantna. Koeficijent uz LFR (-0,956) u relaciji 1 pokazuje da u slučaju porasta suficita FR za 1%, deficit TR se uvećava za 0,96%. Na osnovu relacije 2 zapaža se da porast deficita TR za 1% dovodi do

porasta suficita FR (neto priliv stranog kapitala) za 1,08% (koeficijenti u tabeli 6 su normalizovani, što je uslovalo promenu njihovog predznaka).

Ocenjen je VAR(3) jer su taj red docnje sugerisali višedimenzioni informacioni kriterijumi. Sprovedeni testovi reziduala su pokazali da ovaj model ima zadovoljavajuća svojstva: ne poseduje autokorelaciju, raspodela reziduala je normalna (prema Doornik-Hansenovom testu normalnosti), i nije registrovana heteroskedastičnost greške. Dakle, ocenjen model poseduje stacionarne karakteristike. Na osnovu ocenjenog modela ispitana je simultana međuzavisnost između TR i FR. Cilj je da se proveri endogenost varijabli. Rezultati se daju u tabeli 6.

Tabela 6: Grejndžerova VAR uzročnost/Valdov (eng. Wald) test egzogenosti

Zavisna promenljiva	χ^2 statistika	Stepeni slobode	p-vrednost
LTR	13,7799	3	0,0032
LFR	3,6673	3	0,2997

Izvor: Autor

Rezultati VAR modela su potvrdili prethodni nalaz o postojanju jednosmerne uzročnosti od FR ka TR. Pošto smo utvrdili da su ove dve vremenske serije kointegrirane, može se zaključiti da se TR prilagođava dugoročnoj ravnotežnoj vezi koju formira sa FR. Međutim, TR ne utiče na kretanje FR jer ne postoji Grejndžerova uzročnost u ovom pravcu (ocenjeni koeficijent nije statistički signifikantan).

Pošto smo ustanovili postojanje Grejndžerove uzročnosti od FR prema TR, preostalo je da ocenimo koeficijent kratkoročne dinamike prilagođavanja TR u svom kretanju prema dugoročnoj ravnoteži koju formira sa FR. U tom cilju ćemo oceniti VEC model, pri čemu se varijabla TR u modelu ocenjuje kao zavisna promenljiva. Rezultati ocenjenog VEC(2) modela daju se u tabeli 7 (specifikacija označava docnju u odnosu na prvu diferencu).

Tabela 7: Model sa korekcijom ravnotežne greške (kvartalni podaci od 2007:Q1 do 2019:Q4)

	Zavisna promenljiva ΔLTR
Koeficijent prilagođavanja	-0,511(-2,076)**
ΔLTR_{t-1}	-0,057(-0,280)****
ΔLTR_{t-2}	0,414(2,514)**
ΔLFR_{t-1}	-0,180(-0,984)****
ΔLFR_{t-2}	-0,474(-3,306)**
S1	-1,302(-7,077)*
S2	0,713(3,559)**
S3	0,724(3,995)*
S4	0,456(2,529)**
S5	0,374(2,129)**
S6	-0,548(-3,052)*
S7	-0,554(-3,088)*
S8	0,256(1,379)****
S9	0,391(2,093)**

	Zavisna promenljiva ΔLTR
Sumarna statistika	
Koeficijent determinacije R^2	0,788
Prilagođeno R	0,709
Zbir kvadrata reziduala	1,061
Standardna greška jednačine	0,174
F-statistika	9,990
Log likelihood	24,368
Akaike AIC	-0,423
Schwarz SC	0,117
Mean dependent	-0,008
S.D. dependent	0,323

Napomene: * Označava signifikantnost na nivou od 1%.

** Označava signifikantnost na nivou od 5%. *** Označava signifikantnost na nivou od 10%.

**** Označava odsustvo statističke signifikantnosti. U zagradama su date t-vrednosti.

S1-S9 su veštačke varijable kojima se potiru autlajeri u kvartalnoj vremenskoj seriji LTR.

Izvor: Autor

Ocenjeni koeficijent prilagođavanja (eng. error correction term) za ΔLTR varijablu je statistički značajan na nivou od 5% i pokazuje da se u svakom kvartalu 51% dinamike deficita TR prilagođava dugoročnoj ravnotežnoj vezi koju formiraju ove dve vremenske serije. Koeficijenti kratkoročne dinamike na drugoj doznji su statistički signifikantni na nivou od 5%. Naša empirijska analiza uz korišćenje kvartalnih podataka je potvrdila robustnost prethodno primenjenog VAR modela na godišnjim podacima.

Empirijski nalazi u ovom radu pokazuju da između FR i TR postoji dugoročna ravnotežna veza, i da se ove dve pojave u tekucem kretanju približavaju dugoročnoj ravnoteži. Identifikovana je uzročnost od FR prema TR. Dobijeni rezultati šalju značajne poruke nosiocima ekonomske politike u Srbiji. Pre svega, dugotrajn deficit TR većih razmera može da dovede do pritiska na devizni kurs, što može da izazove valutnu krizu. Mada neto priliv SDI relaksira spoljnu zaduženost zemlje, a time i pritisak na devizni kurs, rast deficita računa primarnog dohotka vrši kontinuiran pritisak na uvećanje deficita TR. Rastući fond stranog kapitala u privredi Srbije (SDI, portfolio investicije i spoljni dug) mogao bi da oteža stanje u platnom bilansu u slučaju eksternih šokova. Nagla liberalizacija FR mogla bi da ugrozi održivost TR Srbije. Nalazi u ovom radu potvrđuju ranije nalaze do kojih su došli Kim & Kim (2011). Pošto strukturni faktori takođe utiču na formiranje deficita TR Srbije, koji se uvećava sa porastom privredne aktivnosti, nosioci ekonomske politike treba da preduzimaju mere u cilju otklanjanja strukturnih neravnoteža.

Zaključak

U ovom radu smo istraživali međusobne veze između TR i FR platnog bilansa Srbije. Pošto smo utvrdili da postoji kointegracija između ovih varijabli, u radu je primenjen Grejndžerov test uzročnosti u VAR okruženju. Polazeći od godišnjih podataka, utvrdili smo da postoji dugoročna veza između bilansa FR i TR, tako da

porast suficita FR za 1% dovodi do porasta deficita TR za 0,58%. Ako se bilans TR uzme kao nezavisna varijabla u ocenjenom modelu, porast deficita TR za 1% vodi porastu suficita FR bilansa za 1,74%. Ocena koeficijenta prilagođavanja za varijablu TR je statistički značajna na nivou od 1% i sugerise da se svake godine oko 65% dinamike deficita TR prilagođava dugoročnoj ravnotežnoj vezi koju formira sa saldom FR. Ocenjena slučajna greška je statistički signifikantna i pokazuje da dve varijable koriguju tekuće kretanje u pravcu svoje dugoročne ravnotežne veze. Primenjen VAR Grejndžerov test uzročnosti je pokazao da u ocenjenom VAR modelu postoji jednosmerna uzročnost od FR prema TR. U tom slučaju, težnja ekonomske politike da reducira deficit TR podrazumeva da se stalno nadgleda stanje FR. Globalna ekonomska i finansijska kriza iz 2007 – 2009. godine je ukazala na problem naglog pada investicija i izloženost svake zemlje eventualnom „bekstvu“ kapitala. Stoga kontinuirano preispitivanje održivosti deficita TR ujedno znači i potrebu stalnog praćenja i preispitivanja održivog nivoa stranog kapitala u privredi Srbije.

Glavni doprinos ovog empirijskog istraživanja je u tome što su dobijeni rezultati pokazali da postoji jednostrana Grejndžerova uzročnost od FR ka TR Srbije. Ovaj nalaz je posebno značajan u slučaju porasta priliva kapitala u zemlju (poslednjih godina neto priliv SDI), jer to uzrokuje porast deficita TR. Porast fonda SDI generiše rastuće iznose repatrijacije profita i povećava deficit računa primarnog dohotka (odliv dividendi). Nagla liberalizacija FR bi mogla da pogorša stanje platnog bilansa i izazove valutnu krizu u slučaju eksternih šokova (finansijska kriza ili nagli prekid priliva kapitala). Veliki priliv kapitala u „normalno“ vreme može da izazove nestabilnost platnog bilansa u vreme oštarih eksternih šokova. Prezentirani empirijski nalazi dopunjuju ranija istraživanja koja se odnose na međudnosa kapitalnog i TR i prilagođavanje platnog bilansa zemalja ZB.

Ograničenje istraživanja u ovom radu je u tome što se analiza temelji na kratkim vremenskim serijama i ispitivanju međudnosa dva globalna računa platnog bilansa: TR i FR. Da bi se bolje razumeo uticaj FR na TR potrebno je sprovesti detaljnije istraživanje koje će obuhvatiti uticaj relevantnih komponenti FR na TR. Osim toga, u budućim istraživanjima bi trebalo razložiti uticaj komponenti računa robe i usluga, kako bi se preciznije identifikovali ključni strukturni činioci koji utiču na formiranje deficita TR platnog bilansa Srbije i njenu spoljnu konkurentnost.

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The Causal Relationship Between Current Account and Financial Account Balance in Western Balkan Countries – the Case of Serbia

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Summary: The Western Balkans (WB) countries registered an increase in the current account (CA) deficit and net capital inflow in the period before the outbreak of the global financial crisis of 2008. The external debt of these countries has increased. The aim of this paper is to examine the causality relationship between the CA and financial accounts (FA) balance of Serbia. A framework for the empirical analysis is the vector autoregression (VAR) model and the vector error correction (VEC) model. Using the Johansen cointegration test, we find the existence of a long-run causality relationship between these two variables. The estimated long-run coefficient on the FA variable as an independent variable shows that an increase of Serbia's FA balance by 1% leads to an increase in the CA deficit of Serbia by 0.58%. Applying the Granger causality test, it was found that causality runs from FA to the CA, which implies recommendations for economic policymakers. The finding indicates the need to continuously check the sustainability of the CA deficit of Serbia, as well as to monitor the level of presence of foreign capital in the Serbian economy.

Keywords: current account, financial account, cointegration, Granger causality, VAR model, VEC model, Western Balkan, Serbia

JEL: F21, F32, F34, C32

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Introduction

The WB countries (Albania, Bosnia and Herzegovina, Montenegro, Northern Macedonia, and Serbia) recorded an increase in net foreign capital inflows, but also an increase in the CA deficit in the period before the outbreak of the global financial crisis in 2008. The capital inflows have stimulated the expansion of domestic demand in WB, which contributed to the widening of the trade deficit. A large part of the net capital inflow relates to the development of infrastructure, which is the prerequisite for strengthening the competitiveness of the WB countries. However, the increasing trade deficit raises the question of whether foreign capital plays a role in enhancing the export competitiveness of WB economies. The trade deficit and the CA deficit rose to an unsustainable level before the outbreak of the global financial crisis. However, in the post-crisis period, there was a significant reduction in the CA deficit, which improved the macroeconomic performance of these countries. However, in recent years, there has been a widening in the WB countries CA deficit. As a result, the question of its sustainability again becomes a topical subject (Bartlett & Prica, 2017). That is understandable, because the ratio of external debt and exports in most WB countries is quite high, which is an important indicator of their external solvency. The trends in the international trade of the WB countries are similar, although there are differences in their international economic position (Kitova & Steinhauzer, 2018).

The current position of the WB countries on the international capital market depends largely on the performance of their payment balance. Countries that are characterized by a CA deficit are forced to create a surplus in the FA to finance that deficit. For any country with a long-term CA deficit, it is important to assess the external debt sustainability in order to finance that deficit (Bulut, 2011; Rosini & Zanghiery, 2009). A view that the CA deficit is mainly caused by the trade deficit is widespread in the literature (Cota et al., 2017). At the same time, the CA deficit represents the transfer of foreign accumulation to the domestic country. It supplements the small domestic savings (Chinn & Prasad, 2003; Makin & Narayan, 2008). The insufficient domestic savings is the reason why WB countries rely more on foreign funds, primarily on foreign direct investment (FDI) (Popović & Erić, 2017). Foreign accumulation is expected to turn into an investment, which could lead to an increase in exports. Certainly, the increase in investment will lead to higher aggregate demand, which will be partly satisfied through imports. It would generate upward pressure on the trade deficit and the CA deficit. The inflow of foreign capital, through the exchange rate appreciation, leads to a deterioration of the CA (Kim & Kim, 2011). In the last few years, FDI inflow into the WB has increased, although it still lags behind other countries in transition (Estrin & Uvalić, 2014). The inward FDI helps countries to engage in global value chains (GVCs), which contributes to the increase in their exports (Shimbov et al., 2019; Stöllinger, 2016; Srholec, 2007) and structural changes in their economy (McMillan et al., 2014). However, in host countries, there is an additional balance of payments problem. Namely, as much as the FDI inflow in the initial stages relieves the payment balance of the host countries from the pressure for additional borrowing abroad, in the later stages (when the reinvestment of the realized profit stops) the pressure

on the primary income account increases. Countries with large net FDI inflows face a growing negative primary income account balance, which increases their CA deficit. In the end, the question of financing this deficit arises again. The structure of foreign capital inflows and financial market regulation also affects the long-term performance of the balance of payments (Moral-Benito & Roehn, 2016). The foreign capital in the WB countries generates the above effects on their economies and balance of payments. This paper examines the relationship between the CA and FA in Serbia as a representative WB country.

The rest of the paper is structured as follows. The second part presents the theoretical background in terms of the relationship between CA and FA. The third part contains the research objectives, research methodology, and describes the data used. The fourth part gives empirical results of research and discussions, while the last, fifth part, gives the conclusions.

Literature Review

The literature concerning the relationship between CA and FA differs mainly according to the direction of conditionality (whether the CA imbalance affects the FA or vice versa), as well as according to the mechanisms by which one phenomenon affects another. The differences in views are mainly according to what is the initial impulse that encourages the increase in aggregate demand, which in the open economy leads to the reduction in the CA surplus or an increase in the CA deficit.

Authors who take the view that the CA causes the movement of the FA believe that the increase in aggregate demand affects the increase in imports, resulting in an induced capital inflow to cover the new imbalance. As an argument, they point out that the expansionary fiscal policy can stimulate the growth of consumption or investments, and that this will cause a disturbance in the FA. In the case of expansionary fiscal policy through deficit financing (a budget deficit), the government seeks to borrow from the capital market (Bernheim, 1988). In the case of foreign loans, that is, according to these economists, proof that the increase in aggregate demand caused by an increase in budget spending requires foreign loans. In that case, it is concluded that the disturbance in the CA causes the disturbance of the FA. A similar sequence of events may occur due to expansionary monetary policy. Xie and Chen (2014) investigated the mutual causality between the CA deficit and the budget deficit for 11 OECD countries, using the Granger non-causality test (Granger, 1969). Their findings show that there is bidirectional causality between these variables. The authors concluded that the budget deficit causes higher domestic interest rates, which attracts foreign capital. The foreign capital inflows will lead to local currency appreciation, which leads to an increase in the CA deficit (Salvatore, 2006). Grier and Ye (2009) showed that the time series of the budget deficit and the CA balance is stationary and conditionally heteroskedastic and that they do not have a common path in the long run. They also found that short-term dynamics are characterized by a persistent positive correlation between budget deficit shocks and CA deficit shocks.

Urbanovski (2017) has examined the relationships between the nominal exchange rate, the CA, and the FA of the Czech Republic. The cointegration analysis and a VEC model were applied, and the obtained results show that the Granger causality exists from the CA to the FA, and vice versa. The author concluded that excessive liberalization of the Czech financial system could lead to a large inflow of capital, and thus to a reduction of the surplus (or deepening of the CA deficit), which could cause a currency crisis in that country. Yan (2005) examined the relationship between the CA and the FA for developed countries and concluded that changes in the CA cause changes in the FA, i.e. that the FA serves to finance the CA imbalance. A similar conclusion was reached by Tang (2014) based on the analysis of the US economy. Oeking and Zwick (2015) analyzed the dynamics of the CA balance and the dynamics of different types of net capital flows (portfolio flows, direct investment and other investment flows) for selected OECD countries using the concept of Granger causality. Also, they conducted a test to check whether the direction of Granger's causality changes during the business cycle. The test results showed that there is Granger causality from changes in the CA to changes in the components of the FA. Besides, it has been observed that in the short-term flows the direction of causality changes depending on the phase of the business cycle: at the period of decline in economic activity financial flows finance the CA, while at the period of economic recovery financial flows induce CA changes.

Another group of economists believes that the increase in capital inflows leads to a disturbance in the CA. They believe that large capital inflows lead to currency appreciation, which encourages imports and leads to CA imbalances (Abell, 1990). In particular, it is mentioned that the FDI inflow leads to an increase in imports of technology, equipment, and raw materials, which may lead to deterioration in the CA. Many papers in the literature find causality from FA to CA. Garg and Prabheesh (2015) found, in the case of India, that there is no causal link between the CA and the capital account. They then conducted an empirical study on the causal relationships between the components of the CA and the capital account through the exchange rate. They found that there is a causal link from non-debt capital flows to the CA, through the real effective exchange rate. Thus, the decomposition of capital flows contributed to identifying the mutual influence between the observed variables. This paper recommends that it is necessary to improve the stability of the financial sector before the full capital account liberalization. Turan (2015) conducted an empirical analysis of the relationship between the CA and the FA and its main components. He applied the Toda-Yamamoto Granger Causality Test (Granger, 1969) in the sample of several countries (Croatia, Hungary, Poland, and Slovenia), using the quarterly data. The author concluded that there is unidirectional causality from the FA to the CA for Croatia and Slovenia, i.e. from the CA to the FA for Poland and Romania, while in the case of Hungary bidirectional causality was discovered. Yan and Yang (2008) have empirically proven that foreign capital inflows can cause persistent CA deficits and could lead to a currency crisis. It has also been shown that foreign capital inflows and capital account imbalances intertwine in different ways between developing countries and emerging market countries. By using Granger's non-causality test, the authors concluded that there is causality from foreign capital inflows to the CA in the case of emerging market countries, while the causality in the

case of developed countries was negligible. Given the relatively underdeveloped financial markets, these authors recommend caution to emerging market countries in the area of large capital inflow management. Mastroiannis (2012) examined the causal relationship between the CA and foreign capital inflows in the Portuguese economy. The cointegration methodology was applied, and results suggest that there exists a long-run relationship between the foreign capital inflow and the CA balance, where a unidirectional causality runs from the foreign capital inflow to the CA balance. However, the author found that there is short-run bidirectional causality among these two variables. Fry et al. (1995) found that, in some developing countries, the relationship between the CA and FA is unidirectional, in others bidirectional, and that for some countries there is no causality between these accounts.

Research Objective, Methodology, and Data

The purpose of this study is to investigate the directions of the causality between the CA and the FA in the case of Serbia. To achieve this, the following goals have been set: 1) to present the findings so far in the literature on the relationship between CA and FA; 2) to set an adequate research methodology; 3) to present and discuss the results of the empirical analysis on the causation between the CA and the FA of Serbia.

The paper analyses the 2000 – 2019 period. The original data are expressed in euros. Two data sets are used for each variable: annual data for the period 2000 – 2019 and quarterly data for the period 2007 – 2019. Quarterly series are obtained by aggregating monthly data and serve to check the robustness of the estimated econometric model. Time series are transformed into natural logarithms for empirical analysis. The series labeled as a LCA represents the logarithmic values of the time series of the CA variable, while the LFA represents the logarithmic values of the time series of the FA variable. Data are taken from the website of the National Bank of Serbia (https://www.nbs.rs/internet/cirilica/80/platni_bilans.html), accessed on 18.6.2020. Data for the period 2007 – 2019 are given according to BPM06 (Balance of Payments Methodology according to the IMF instructions) and are harmonized with the BPM05 methodology, which refers to the period 2000 – 2006. A framework for the empirical analysis of the relationship between the CA and FA in this paper is the VAR model and the VEC model. We first check the stationarity of the time series in the level. By using standard methods for testing the unit root, we found that the series are integrated of order one, which is usually displayed as $I(1)$. The next step is to estimate the VAR model to determine the order of the model (autoregressive structure), relevant for conducting the cointegration test. To determine whether the variables in our model are cointegrated, we use a cointegration test according to the methodology developed by Johansen (1991, 1995) and Johansen and Juselius (1990). This methodology is included in the software package EViews 11 (EViews, 2020), which we use in this paper. The starting point of this methodology is a VAR model of order p defined as:

$$y_t = \delta + A_1 y_{t-1} + \dots + A_p y_{t-p} + Bx_t + \varepsilon_t \quad (1)$$

where y_t is a $k \times 1$ vector of non-stationary endogenous variables, $A_1, \dots, A_p$ are $k \times p$ matrices of the lag coefficients, x_t is $d \times 1$ vector of exogenous (deterministic) variables, B is a $k \times d$ matrix of exogenous variables, ε_t is $k \times 1$ vector of innovations, δ is a free term, p is the lag order in the VAR model (Lütkepohl, 2005). VAR can be rearranged as:

$$\Delta y_t = \delta + \Phi y_{t-1} + \sum_{i=1}^{p-1} \tilde{A}_i \Delta y_{t-i} + Bx_t + \varepsilon_t \quad (2),$$

where

$$\Phi = \sum_{i=1}^p A_i - I, \text{ and } \Gamma_i = - \sum_{j=i+1}^p A_j. \quad (3)$$

Π is the cointegration coefficient matrix (long-run impact matrix), Γ is the coefficient of the differentiated value of the variable y matrix (short-run impact matrix). If the coefficient matrix Π has reduced rank $r < k$, then there exist $k \times r$ matrices α and β , each with rank r such that $\Pi = \alpha\beta'$ and $\beta' y_t$ is $I(0)$. The β represents the cointegrating vector, and r is the number of cointegration relations (the cointegration rank). The matrix α contains the adjustment parameters in the VEC model. The vector described as $\beta' y_{t-1}$ can be interpreted as the distance of a variable from its equilibrium value. If $r = 0$, there is no cointegration between the variables, so in that case $\Pi = 0$.

Various procedures were used in the literature for estimating the existence of cointegration. In this paper, we will use the Johansen procedure to test the existence of cointegrations and to estimate the cointegration parameters. Johansen's method estimates the Π matrix in the unrestricted VAR, and then a test is performed to determine whether the restrictions due to the reduced rank of Π can be rejected. For a given r , the maximum likelihood estimator of the cointegration vector β defines the combination of y_{t-1} , that allows for r the largest canonical correlation of Δy_t with y_{t-1} after correction for lagged differences and deterministic variables, if such exist (Johansen, 1995). Johansen recommends two different tests to examine the significance of these canonical correlations and the reduced rank of the Π matrix: the trace test and the maximum eigenvalue test. Trace statistic is calculated as:

$$J_{trace} = -T \sum_{i=r+1}^k \log(1 - \lambda_i) \quad (4),$$

where λ_i is the i -th largest eigenvalue of the Π matrix, and T is the sample size.

Maximum eigenvalue statistic is computed as:

$$J_{max} = -T \log(1 - \lambda_{r+1}) \quad (5)$$

for $r = 0, 1, \dots, k-1$. T in this relation is the sample size, and λ_i is the i -th largest canonical correlation.

Using the trace test, the null hypothesis about the existence of r cointegration vectors is tested in this paper against the alternative hypothesis of the existence of k cointegration relations, where k is the number of endogenous variables. The maximum likelihood test tests the null hypothesis about the existence of r cointegration relations against the alternative of $r + 1$ cointegration relations. Asymptotic critical values are obtained in the EViews 11 software package, which we used in this paper. If the existence of a long-run relationship between the variables is established, it will be proof that they are cointegrated.

After determining the number of cointegration vectors r , we estimate an adequate VAR model. The short-run dynamics is then analyzed in the VEC model. If the variables in the VAR model are cointegrated, this means that the VAR model can be represented as a VEC model. Thus, VEC is similar to VAR models and can be expressed as a VAR model in equation (2). This paper uses the Granger non-causality test to detect the direction of causality between variables.

Results and Discussion

The first step in the empirical analysis is to check the stationarity of the time series of the CA and FA of Serbia. Using the Augmented Dickey-Fuller (ADF) unit root test (Dickey and Fuller, 1979), it was found that both series have at least one unit root at a level. In the second iteration, it was concluded that both series are integrated of order $I(1)$. To check for the cointegration of two series, the Johansen cointegration test in the VAR model is used. The next step is to initiate a VAR model to determine the optimal model order. The choice of lag-length in the VAR model was made according to multidimensional AIC (Akaike, 1974) and SIC (Schwartz, 1978) information criteria, which suggest as the optimal three lag order. The same criteria point to a cointegration model that includes a constant as a deterministic component. Taking these suggestions into account, and since both time series have one unit root, we proceed to test for cointegration among these two variables using the Johansen cointegration test (Johansen, 1991; 1995). The test results are given in Table 1.

Table 1: Johansen Cointegration Test

Unrestricted Cointegration Rank Test (Trace Statistics)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistics	0.05 Critical Value	Prob.**
$H_0: r=0^*$ $H_1: r > 0$	0.656156	22.34686	20.26184	0.0255
$H_0: r=1$ $H_1: r > 1$	0.218823	4.198217	9.164546	0.3834
Unrestricted Cointegration Rank Test (Maximum Eigenvalue Statistics)				
$H_0: r=0^*$ $H_1: r > 0$	0.656156	18.14864	15.89210	0.0218
$H_0: r=1$ $H_1: r > 1$	0.218823	4.198217	9.164546	0.3834

Notes: * Denotes rejection of the hypothesis at the 0.05 level.

** MacKinnon-Haug-Michelis (1999) p-values. Trace and Max-eigenvalue test indicate 1 cointegration eqn(s) at the 0.05 level.

Source: Own research

In Table 1, the null hypothesis of no cointegration between the two variables against the alternative that there is at least one cointegration relation between them was tested: $H_0: r = 0$ (no cointegration) and $H_1: r > 0$ (there is at least one stationary connection) (r is the number of stationary combinations). The conclusion is that there is one cointegration equation at the significance level of 5%. Since the observed time series are cointegrated, in the next step we will use a VAR model that includes time series in the level.

Since one cointegration relationship is identified in the model, Table 2 presents an estimate for the long-run relationship between the observed variables. The cointegration vector β was estimated. These estimates are based on the normalization of $\beta' S_{11} \beta = I$, where S_{11} is defined in Johansen (1995). The estimated coefficients of both variables are without restrictions. Each of the two independent variables is considered individually (the model is estimated twice). Due to the normalization process, the signs of the cointegration coefficients are reversed. In Relation 1 (Table 2) LCA is considered as a dependent variable, and in Relation 2 the dependent variable is LFA.

Table 2: The Long-Run Relationship Between Variables

	LCA	LFA	C
Relation 1	1.000	-0.576 (0.152) [-3.796]	-3.425 (1.181) (-2.899)
Relation 2	-1.737 (0.317) [-5.483]	1.000	5.949 (2.418) [2.460]

Note: Standard errors in () & t-statistics in [].

Source: Own research

In relation 1 of Table 2, in which normalization is performed on the LCA, the coefficient on the LFA (-0.576) means that an increase in the FA balance (sur-

plus) of 1% leads to an increase in the CA deficit by 0.58% (an increase in external debt leads to an increase in the CA deficit). Relation 2 shows that an increase in the CA deficit by 1% leads to an increase in the FA balance by 1.74%. Both estimated coefficients are statistically significant and have the expected sign.

In the estimated VAR (3) model, according to the results of the Breusch-Godfrey Serial correlation LM test (see Breusch & Pagan, 1980), there is no autocorrelation in the first 12 lags (for the order of autocorrelation see Hannan & Quinn, 1979). The residuals from the estimated VAR (3) model, according to the results of the Dornik & Hansen (1994) and Lütkepohl (1991) residual normality test, are normally distributed. White (1980) residual heteroskedasticity test results show the absence of heteroskedasticity. Since the estimated VAR (3) model shows satisfactory statistical properties, we opted for the specification which includes three lags.

To check for possible exogeneity of variables, we apply the Granger non-causality test in the estimated VAR (3) model. The test results are given in Table 3.

Table 3: VAR Granger Causality/Block Exogeneity Wald test

Dependent variable	χ^2 statistics	df	Prob.
LCA	10.741	3	0.0132
LFA	1.571	3	0.666

Source: Author

The following hypotheses are tested in Table 3: H_0 : LFA does not cause LCA (hypothesis states that the past value of LFA does not affect LCA); H_1 : LFA causes LCA. Based on the obtained results, the null hypothesis according to which LFA does not cause LCA (estimated χ^2 statistics is statistically significant at the level of 5%) is rejected and an alternative that LFA causes LCA is accepted. Based on the results in the third row of Table 3, the null hypothesis that LCA does not cause LFA cannot be rejected (the estimated test statistics are not statistically significant). Therefore, in this two-dimensional system, there is a one-way causality relationship from the FA to the CA (LCA is an endogenously determined variable, and LFA is an exogenous variable). This practically means that the balance of the FA affects the CA deficit, while the CA deficit does not affect the balance of the FA (it should be borne in mind that Granger's causality does not imply that one variable is the result of another, but that it is only a matter of causality of the Granger type). Also, the structural characteristics of the Serbian economy affect the CA deficit (Kovačević, 2018). Since the time series in the considered system are cointegrated, it can be concluded that the CA movements are adjusted towards the long-run equilibrium path with the FA.

Since the existence of Granger causality from FA to CA has been established, and since the variables are cointegrated, the next step is to estimate the equilibrium error correction model for the CA. The VEC model is applied by estimating the CA variable as a dependent variable. To estimate a VEC model, it needs to specify the lag length (it should be remembered that the lag interval specification refers to lags of the first difference terms). So, concerning the

level of the time series ΔLCA , the VEC model is a restricted VAR with two lags. Table 4 gives the results of the estimated VEC (2) model.

Table 4: VEC Estimates

	Dependent variable ΔLCA
Error Correction	- 0.653 (-3.537)*
ΔLCA_{t-1}	0.192 (1.021)***
ΔLCA_{t-2}	-0.658 (-3.610)*
ΔLFA_{t-1}	-0.109 (-0.580)****
ΔLFA_{t-2}	0.408 (2.311)**
Summary statistics	
R- squared	0.718
Adj. R-squared	0.624
Sum sq. resids	1.372
S.E. equation	0.338
F-statistic	7.642
Log likelihood	-2.727
Akaike AIC	0.909
Schwarz SC	1.154
Mean dependent	0.091
S.D. dependent	0.551

Notes: *Indicates significance at the 1% level.

Indicates significance at the 5% level. *Indicates significance at the 10% level.

****Denote the absence of statistical significance. t-value in parentheses.

Source: Author

The first interesting finding in Table 4 is that the estimated regression for the dependent variable ΔLCA has a significant value of the coefficient of determination $R^2=0.718$ which means that the observed regressors explain about 70% of the variability in the variable ΔLCA . The estimated adjustment coefficient for the ΔLCA variable is statistically significant at the level of 1% and suggests that each year about 65% of the CA dynamics are adjusted to the long-run equilibrium relationship between FA balances. The estimated adjustment coefficient has the expected negative sign. This is a model prerequisite to correct the deviation in the movement of variables from their long-run relationship, so that the estimated equilibrium error represents the force which pulls the variables towards their long-term equilibrium relationship. The estimated coefficient for the first lag of the first difference of the CA variable is not statistically significant, while the coefficient for the second lag is statistically significant at the level of 1%. This means that the current changes in the ΔLCA variable can be explained by previous changes in this variable. The previous values of the variable ΔLFA (lag 2) also affect the movement of ΔLCA , so it can be concluded that changes in the FA balance Granger cause changes in the CA balance. This practically means that the main burden of adjustment to the long-run relationship between ΔLCA and ΔLFA lies on ΔLCA . The speed of adjustment after deviation from equilibrium depends on the value of the coefficient. Thus, short-run deviations from the long-run equilibrium value are adjusted according to the size of the estimated adjustment coefficient. In the estimated VEC model,

the Granger causality between the variables is checked and the causality from the FA to the CA is confirmed.

To check the model specification, the VEC model has been estimated for the quarterly time series LCA and LFA, which cover the period 2007:Q1 to 2019:Q4. The data are taken from the NBS website (https://www.nbs.rs/internet/cirilica/80/platni_bilans.html), accessed 6.24.2020. The time series are seasonally adjusted using the Census X-13 in the EViews 11 software package. Both time series have one unit root. Using the Johansen Cointegration test, it was determined that there is one cointegration equation between the two series. Since the existence of cointegration was confirmed, the coefficients of the long-run relationship have been estimated. The results are given in Table 5.

Table 5: The Long-Term Relationship Between the Variables LCA and LFA
(period, 2007:Q1, 2019:Q4)

	LCA	LFA	C
Relation 1	1.000	-0.956 (0.044) [-21.506]	-0.386 (0.280) [-1.377]
Relation 2	-1.079 (0.055) [-19.730]	1.000	0.635 (0.352) [1.802]

Note: Standard errors in (); t-statistics in [].

Source: Author

According to Table 5, the normalized long-run relationship coefficients have the expected sign and both are statistically significant. The coefficient on LFA (-0.956) in Relation 1 shows that an increase in a surplus of the FA by 1% will lead to the increase in the CA deficit by 0.96%. Relation 2 shows that the increase in the CA deficit by 1% leads to the increase in the FA surplus (net inflow of foreign capital) by 1.08% (coefficients in Table 6 are normalized, which caused a change in their sign).

VAR (3) model has been estimated because this lag order was suggested by multidimensional information criteria. The residual tests have been performed and results showed that this model has satisfactory properties: there is no autocorrelation, the residuals have a normal distribution (according to the Doornik-Hansen normality test), and there is no heteroskedasticity. Thus, the estimated model is stationary. Based on the estimated model, the simultaneous relationship between the CA and the FA is examined. The aim is to check for endogeneity of variables. The results are given in Table 6.

Table 6: VAR Granger Causality/Block Wald Test

Dependent variable	χ^2 statistics	df	Prob.
LCA	13.7799	3	0.0032
LFA	3.6673	3	0.2997

Source: Author

The results of the VAR model confirmed the previous finding of one-way causality from the FA to the CA. Since we have determined that these two time series are cointegrated, it can be concluded that the CA adjusts to the long-run equilibrium relationship with the FA. However, the CA does not affect the movement of the FA because there is no Granger causality in this direction (the estimated coefficient is not statistically significant).

Since we have identified the Granger causality running from the FA to the CA, it remains to estimate the coefficient of short-run dynamics of the CA adjustment in its movement towards the long-term equilibrium with the FA. Therefore, we will estimate the VEC model, where the CA variable is estimated as a dependent variable. The results of the estimated VEC (2) model are given in Table 7 (the lag interval specification refers to lags of the first difference terms).

Table 7: Vector Error Correction (VEC) Model Estimates (quarterly data, 2007:Q1, 2019:Q4)

	Dependent variable ΔLCA
Error Correction	-0.511 (-2.076)**
ΔLCA_{t-1}	-0.057 (-0.280)****
ΔLCA_{t-2}	0.414 (2.514)**
ΔLFA_{t-1}	-0.180 (-0.984)****
ΔLFA_{t-2}	-0.474 (-3.306)**
S1	-1.302 (-7.077)*
S2	0.713 (3.559)**
S3	0.724 (3.995)*
S4	0.456 (2.529)**
S5	0.374 (2.129)**
S6	-0.548 (-3.052)*
S7	-0.554 (-3.088)*
S8	0.256 (1.379)****
S9	0.391 (2.093)**
Summary statistics	
R- squared	0.788
Adj. R-squared	0.709
Sum sq. resids	1.061
S.E. equation	0.174
F-statistic	9.990
Log likelihood	24.368
Akaike AIC	-0.423
Schwarz SC	0.117
Mean dependent	-0.008
S.D. dependent	0.323

Note: * Indicates significance at the 1% level.

** Indicates significance at the 5% level. *** Indicates significance at the 10% level.

**** Denotes the absence of statistical significance. t-values in parenthesis. S1-S9 denotes dummy variables that remove outliers in the time series quarterly data LCA.

Source: Own research

The estimated error correction term for the Δ LCA variable is statistically significant at the level of 5% and shows that in each quarter 51% of the dynamics of the CA deficit are adjusted to the long-run equilibrium relationship between these two time series. The coefficients of short-run dynamics at the second lag are statistically significant at the level of 5%. Our empirical analysis using the quarterly data confirmed the robustness of the previously applied the VAR model to annual data.

The empirical findings in this paper show that there is a long-run equilibrium relationship between the FA and the CA and that these two phenomena in the current movement are approaching a long-run equilibrium. The causality from FA to CA has been identified. The obtained results send significant messages to policymakers in Serbia. First of all, a large proportion of the long-run CA deficit can lead to pressure on the exchange rate, which can cause a currency crisis. Although the FDI net inflow relaxes the country's external indebtedness, and thus the pressure on the exchange rate, the growth of the primary income account deficit exerts continuous pressure to increase in the CA deficit. The growing stock of foreign capital in the Serbian economy (FDI, portfolio investment, and external debt) could aggravate the balance of payments in the event of external shocks. The sudden liberalization of the FA could jeopardize the sustainability of Serbia's CA. The findings of this study confirmed previous findings by Kim & Kim (2011). Since structural factors also affect Serbia's CA deficit, that increases when economic activity increases, policymakers should take measures to eliminate structural imbalances.

Conclusion

In this paper, we have investigated the relationships between CA and FA in Serbia. Since we have found cointegration between these variables, the VAR Granger non-causality test was applied. Using the annual data, we find that there is a long-run relationship between the FA and CA balance, so that an increase in the FA surplus by 1% leads to an increase in the CA deficit by 0.58%. If we take CA balance as an independent variable in the estimated model, an increase in the CA deficit by 1% leads to the growth in the FA surplus by 1.74%. The estimated adjustment coefficient for the CA variable is statistically significant at the level of 1% and suggests that each year about 65% of the dynamics of the CA deficit are adjusted to the long-run equilibrium relationship with the FA balance. The estimated Error term is statistically significant and shows that the two variables correct the current movement in the direction of their long-run equilibrium relationship. The applied VAR Granger non-causality test showed that in the estimated VAR model there is a one-way causality running from FA to CA. In this case, the ambition of policymakers to reduce the CA deficit implies that they should permanently monitor the FA. The global economic and financial crisis of 2007 – 2009 pointed to the problem of a sharp drop in investment and the exposure of each country to a possible "capital flight". Therefore, the continuous review of the CA deficit sustainability also means the need for permanent monitoring and review of the sustainable level of foreign capital in the Serbian economy.

The main contribution of this empirical research is its finding that there is a one-sided Granger causality running from FA to CA in Serbia. This finding is particularly significant in the case of an increase in capital inflows (net FDI inflows in recent years) as that capital causes an increase in the existing CA deficit. The inward stock of FDI generates profit repatriation and an increase in the primary income account deficit (dividend outflow). Sudden liberalization of the FA could exacerbate the balance of payments and provoke a currency crisis in the event of external shocks (financial crisis or sudden cessation of capital inflows). Large capital inflows in normal times can cause a balance of payment difficulties at times of severe external shocks. Our empirical findings complement previous research on relationships between FA and CA and the adjustment of the balance of payments in WB countries.

The limitation of the research in this paper is that the analysis is based on a short time series and examining the relationship between the two global balance of payments accounts: CA and FA. To better understand the impact of FA on CA, it is necessary to conduct more detailed research that will include the impact of the relevant components of FA on CA. Also, future research should explain the impact of the components of the goods and services accounts, in order to more precisely identify the key structural factors that affect Serbia's CA deficit and its external competitiveness.

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Empirijsko istraživanje determinanti stranih direktnih investicija u zemljama u razvoju: Studija slučaja zemalja Zapadnog Balkana

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Apstrakt: U radu su predstavljeni rezultati originalnog empirijskog istraživanja efekata i značaja stranih direktnih investicija na ekonomski razvoj zemalja u razvoju, kao i determinanti privlačenja istih, sa posebnim osvrtom na evropske zemlje u razvoju, koje je sprovedeno primenom panel podataka, na primeru izabranih zemalja Zapadnog Balkana: Srbije, Crne Gore, Bosne i Hercegovine i Makedonije. Istraživanje je sprovedeno za period od 2000. do 2017. godine. Rezultati istraživanja pokazuju da ne postoji statistički značajna veza između indeksa političkog rizika, BDP i stope nezaposlenosti i transfera tehnologije, sa jedne i stope priliva SDI, sa druge strane. Rezultati analize otkrivaju da je stopa SDI obratno srazmerna stopi inflacije u zemlji domaćina.

Ključne reči: strane direktne investicije, socio-politička nestabilnost, zemlje u razvoju, panel analiza

JEL: E22, C22

Uvod

Strane direktne investicije predmet su značajnog interesovanja stručne i akademske zajednice u zemljama u razvoju. Ovo interesovanje je naročito povećano u poslednjoj dekadi XX veka i taj trend se i dalje nastavlja. Osnovni razlog tome je dramatično povećanje stranih direktnih investicija u zemlje u razvoju. Naime, poslednjih godina svedoci smo dramatičnog povećanja stranih direktnih investicija, naročito u tzv. tržišta u nastajanju. Strane direktne investicije su povećane sa 24 milijarde dolara (1990. godine) na 178 milijardi dolara u 2001. godini (Word Bank, 2001; Asiedu, 2011). Zemlje u razvoju predstavljaju veoma interesantne investicione alternative za strane investitore koji dolaze iz razvijenih zemalja, kako u pogledu međunarodne diversifikacije plasmana kapitala, jer imaju veoma niske ili čak i negativne koeficijente korelacija prihoda sa razvijenim zemljama, tako i s aspekta mogućnosti ostvarivanja izuzetno velike premije za rizik. Naime, uprkos određenim razlikama u stepenu razvijenosti i uređenosti, većina ovih zemalja jeste izložena sličnim procesima snažnog uticaja priliva stranih direktnih investicija i nude mogućnost za ostvarivanje velikih profita za investitore. Iz tog razloga, ova tržišta predstavljaju interesantne investicione alternative za strane banke, investicione fondove i osiguravajuće kompanije. Poetski rečeno, mogućnost ostvarivanja ekstremno visoke premije za rizik i niski koeficijenti korelacije sa razvijenim zemljama, učinili su ova tržišta izuzetno atraktivnim investicionim alternativama u procesu međunarodne diversifikacije plasmana. O ovome svedoče brojne studije (Dailami, Atkin (1990), Harvey (1995), Bekaert, Harvey (1997), Ogunjimi, Amune (2017), Asiedu, Gyimah-Brempong, (2008), Bassey, Temitope (2015), Jensen, McGillivray (2005)), koje ukazuje na rastući udeo finansijskih tržišta ovih zemalja u svetskom tržištu kapitala. Iz gore spomenutih razloga, multinacionalne korporacije i finansijske institucije iz razvijenih zemalja sve više žele da svoja slobodna sredstva plasiraju u ove zemlje. Sa druge strane, zemlje u razvoju, usled nedostatka kapitala, male ekonomske moći, neuspelih i nezavršenih procesa tranzicija, u privlačenju direktnih stranih investicija vide svoje prilike za pokretanje privrednog i ekonomskog razvoja, redukovanju stope nezaposlenosti, te povećanje društvenog blagostanja uopšte. Jednom rečju, u direktnim stranim investicijama one vide mogućnost povećanja svih makroekonomskih pokazatelja rasta i razvoja, počev od stope bruto društvenog proizvoda, pa do stope konkurentnosti domaće privrede. Ovo još više dobija na značaju kada se ima u vidu činjenica da veliki broj zemalja iz ove grupe nema ili ima veoma ograničen pristup drugim izvorima finansiranja. Kada se imaju u vidu kreditni rejtinzi ovih zemalja, te njihov uticaj na uslove dobijanja kredita kod međunarodnih finansijskih institucija ili mogućnosti plasiranja svojih dužničkih hartija od vrednosti na svetskom tržištu kapitala, njihova očekivanja u pogledu efekata i značaja stranih direktnih investicija čine se veoma opravdanim.

Efekti stranih direktnih investicija ne ogledaju se samo u prilivu svežeg kapitala, već i u transferu novih tehnologija, *know-how*, organizacionih i menadžerskih rešenja i sl. Nažalost, efekti stranih direktnih investicija na privredni i ekonomski razvoj zemalja domaćina nisu uvek onakvi kakvi bi se očekivali na osnovu teorijskih postulata koncepta stranih direktnih investicija. Postoje i one strane

direktne investicije koje se prema svojim efektima mogu svrstati u eksploatatorske ili „predatorske“ investicije.

Međutim, nezavisno od ovoga, zemlje u razvoju nastoje da kreiranjem povoljnih makroekonomskih uslova privuku strane direktne investicije. Različiti makroekonomski uslovi i njihove kombinacije različito utiču na stepen njihovog privlačenja. Otuda, cilj ovog rada jeste da ispita da li i u kom stepenu određene determinante, kao što su socio-politička nestabilnost, poslovno okruženje i privredni ambijent i *know-how* utiču na privlačenje stranih direktnih investicija. Reč je o determinantama o kojima u širim akademskim i stručnim krugovima postoje određene predrasude u vezi stepena i smera njihovih uticaja na privlačenje direktnih stranih investicija. Međutim, rezultati empirijskih istraživanja često nisu u skladu sa ovim predrasudama i očekivanjima šire javnosti. Otuda cilj ovog rada jeste da ispita kakav je uticaj ovih determinanti na privlačenje stranih direktnih investicija u Srbiji, Crnoj Gori, Bosni i Hercegovini i Makedoniji.

Empirijsko istraživanje

Kako bi se odgovorilo na pitanje da li socio-politička (ne)stabilnost, poslovno okruženje i privredni ambijent, kao i transfer tehnologije predstavljaju značajnu determinantu privlačenja stranih direktnih investicija u izabranim zemljama Zapadnog Balkana, kao što su Srbija, Crna Gora, Bosna i Hercegovina i Makedonija, u radu je izvršeno ispitivanje sledećih varijabli, kao odgovarajućih proksija prethodno spomenutih determinanti stranih direktnih investicija: indeks političkog rizika zemlje, stopa rasta bruto društvenog proizvoda, stopa inflacije, stopa nezaposlenosti i indeks tehnološkog transfera. Prvi indeks korišćen je kao proksi za (ne)stabilnost socio-političkog okruženja. Indeks političkog rizika zemlje je ukupna mera rizika za datu zemlju, izračunata korišćenjem svih 17 komponenti rizika iz metodologije Službe za politički rizik (Political Risk Services International Country Risk Guide - PRS), uključujući previranja, finansijske transfere, direktna ulaganja i izvozna tržišta. Indeks pruža osnovni, pogodan način za direktno poređenje zemalja, kao i demonstriranje promena u proteklih pet godina.

Godišnja stopa rasta bruto domaćeg proizvoda, stopa inflacije i stopa nezaposlenosti korišćeni su kao adekvatni proksi za poslovno okruženje i privredni ambijent (videti u Pflüger, Michael, et. al. (2013)). Godišnja stopa rasta bruto domaćeg proizvoda iskazana je u konstantnim cenama izraženim u lokalnoj valuti i predstavlja zbir bruto dodatne vrednosti svih rezidentnih proizvođača u ekonomiji plus bilo koji porez na proizvod i minus bilo koje subvencije koje nisu uključene u vrednost proizvoda. Izračunava se bez odbitaka za amortizaciju proizvedene imovine, ili za iscrpljivanje i degradaciju prirodnih resursa. Agregati se zasnivaju na konstantnim američkim dolarima za 2010. godinu.

Za potrebe ovog istraživanja stopa inflacije izračunata je primenom Lasperove formule i predstavlja stopu inflacije merenu indeksom potrošačkih cena koja odražava godišnju procentualnu promenu u trošku za prosečnog potrošača u kupovini korpe roba i usluga koje mogu biti fiksirane ili promenjene u određenim intervalima, kao što je godišnja.

Stopa nezaposlenosti je takođe korišćena kao proksi za poslovno okruženje i privredni ambijent, pri čemu stopa nezaposlenosti, korišćena kao proksi u ovom radu, predstavlja procenat radne snage koja je bez posla, ali koja je dostupna na tržištu radne snage.

Kao proksi za transfer tehnologije u radu je iskorišćen indeks izvoza visoke tehnologije. Indeks predstavlja procenat od ukupnog izvoza, a u njegovu korpu spadaju svi proizvodi sa visokim intenzitetom istraživanja i razvoja, kao što su vazduhoplovstvo, kompjuteri, farmaceutski proizvodi, naučni instrumenti i električni uređaji i sl. Očekivano je da postoji značajna pozitivna korelacija između ovog indeksa i stope privlačenja stranih direktnih investicija.

Podaci su prikupljeni sa zvaničnog veb sajta Svetske banke i Globalne ekonomije, za period od 2000. do 2017. godine. Za svrhu analize korišćen je metod panel podataka između zemalja (*cross-sectional panel data approach*), koji se bavi analizom podataka u kojima se ponašanje entiteta posmatra tokom vremena. Glavna svrha ove analize jeste da se identifikuje da li postoji neki obrazac u prikupljenim podacima, tokom vremena i u različitim entitetima (Radivojevic, Jovovic, 2017). Drugim rečima, to je korisno za praćenje efekata specifičnih za zemlju i nevidljivih razlika između zemalja, što omogućava kontrolu pristrasnosti izazvane problemom potencijalne heterogenosti i nedostajućih podataka (videti u Radivojevic et al, 2019). Zbog strukturnih pauza za neke podatke, u istraživanju je korišćen nebalansirani panel podataka.

Zavisna varijabla u istraživanju jeste stopa stranih direktnih investicija, koju predstavljaju neto prilivi investicija za sticanje trajnog upravljačkog interesa u preduzeću koje posluje u zemlji domaćina. Tačnije, ona predstavlja zbir akcijskog kapitala, reinvestiranja zarade, drugog dugoročnog kapitala i kratkoročnog kapitala prikazanog u platnom bilansu.

Varijable su izabrane imajući u vidu sledeće tri činjenice: 1) da su izabrane varijable adekvatni proksi za determinante stranih direktnih investicija; 2) da su dostupni podaci o svim varijablama za sve zemlje koje su predmet istraživanja; 3) da u literaturi nema jasnog stava niti radova koji su proučavali njihovo dejstvo primenom panel podataka.

Prethodno rečeno može se predstaviti sledećom jednačinom:

$$FDI_{i,t} = \beta_1 + \beta_2 gdp_{i,t} + \beta_3 unr_{i,t} + \beta_4 inf_{i,t} + \beta_5 prs_{i,t} + \beta_6 tt_{i,t} + \beta_7 FDI_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

pri čemu su:

- $FDI_{i,t}$ - stopa stranih direktnih investicija za i-tu zemlju u (t) vremenskom periodu
- $FDI_{i,t-1}$ - stopa stranih direktnih investicija za i-tu zemlju u (t-1) vremenskom periodu
- $gdp_{i,t}$ - stopa bruto domaćeg proizvoda za i-tu zemlju u (t) vremenskom periodu
- $unr_{i,t}$ - stopa nezaposlenosti za i-tu zemlju u (t) vremenskom periodu
- $inf_{i,t}$ - stopa inflacije za i-tu zemlju u (t) vremenskom periodu
- $prs_{i,t}$ - indeks političkog rizika za i-tu zemlju u (t) vremenskom periodu
- $tt_{i,t}$ - indeks tehnološkog transfera za i-tu zemlju u (t) vremenskom periodu
- $\varepsilon_{i,t}$ - rezidual

Za ocenu jednačine korišćene su dve metode ocene panel podatka: 1) metod fiksnog efekta, koji uzima u obzir neopaženu heterogenost između zemalja. Cilj je da se uhvate efekti nezavisnih varijabli na stopu stranih direktnih investicija. Svaka zemlja ima svoje specifičnosti koje mogu da utiču na privlačenje stranih direktnih investicija, otuda je realno pretpostaviti da postoji korelacija između $\varepsilon_{i,t}$ i (SDI); Drugim rečima, ona omogućava da se zadrži vremenski konstantna neopažena heterogenost između entiteta (zemlje). Metod omogućava da se eliminišu efekti ovih vremensko-invarijantnih karakteristika, tako da se samo procenjuje neto efekat prediktora; 2) uopšteni metod momenata (GMM). Za razliku od drugih ocenjivača, glavna prednost GMM je da se može koristiti čak i kada pretpostavke drugih metoda nisu zadovoljene. Generalno govoreći, GMM se može posmatrati kao generalizacija mnogih drugih metoda, i kao rezultat toga, manje je verovatno da će generisati netačne ocene parametara (Chausse, 2010). Kako bi se otkrilo da li stopa privlačenja stranih direktnih investicija utiče na privlačenje novih, u jednačini (1) kao nezavisna varijabla uključena je stopa stranih direktnih investicija iz prethodnog perioda. S obzirom na to da se može očekivati da je ova varijabla u korelaciji sa slučajnom varijablom iz tekućeg perioda, to je još jedan razlog za primenu GMM ocenjivača, uz napomenu da će jednačina (1) biti transformisana primenom operatora (Δ) prve diferencijacije, koja se može zapisati u sledećem obliku:

$$\Delta FDI_{i,t} = \beta_1 + \beta_2 \Delta gdp_{i,t} + \beta_3 \Delta unr_{i,t} + \beta_4 \Delta inf_{i,t} + \beta_5 \Delta prs_{i,t} + \beta_6 \Delta tt_{i,t} + \beta_7 \Delta FDI_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

Na ovaj način se rešava potencijalni problem pristrasnosti dinamičkog panela podataka (detaljnije videti u Radivojevic et al. 2019).

Rezultati istaživanja

U tabeli 1 prikazani su sumarni podaci deskriptivne statistike izabranih varijabli za period od 2000. do 2017.

Tabela 1: Sumarni prikaz podataka deskriptivne statistike varijabli (%), izuzetak je PSR)

Varijable	Br. Opser.	Srednja vrednost	Standar. devijacija	Minimalna vrednost	Maksimum vrednost
FDI	70	7,114	6,749	0,401	37,249
FDI _{t-1}	66	7,2178	6,856	0,401	37,249
GDP	72	3,236	2,930	-6,002	9,301
UNR	72	24,801	25,816	12,600	37,250
INF	60	6,582	2,855	-1,089	95,005
PSR	72	0,626	0,120	0,091	0,832
TK	63	2,547	1,222	0,832	5,530

Izvor: Autori

Kretanje nivoa SDI kreće se od 0,401% do 37,3%, što odražava značajnu fluktuaciju i ukazuje na veliku varijabilnost u prilivu stranih direktnih investicija u ovim zemljama tokom posmatranog perioda, o čemu svedoči i stopa standardne devijacije koja se kreće oko 6,8%. Prosečna vrednost SDI približno iznosi 7,1%, što ukazuje na veoma nizak prosečan priliv stranih direktnih investicija u ovom regionu tokom poslednjih 18 godina. BDP pokazuje i negativne i pozitivne vrednosti. Najveća negativna vrednost ovog indikatora iznosila je oko 6%, što je ukazivalo na veliku stagnaciju, dok je najveća pozitivna vrednost ovog indikatora u posmatranom periodu iznosila oko 9%. Prosečna stopa BDP beleži pozitivnu vrednost, što ukazuje da je ovaj region ostvario blagi privredni rast u posmatranom periodu jer prosečna stopa BDP iznosi oko 3,2%. Stopa nezaposlenosti u ovom regionu kreće se prosečno oko 25%. Najveća stopa nezaposlenosti iznosila je oko 37%, dok je njena najniža zabeležena vrednost 12%, što ukazuje na veliki problem nezaposlenosti u ovim zemljama. Stopa inflacije kretala se od rekordnih 95%, do negativne vrednosti od oko 1%. Prosečna vrednost ove varijable iznosi oko 6%. Visoka stopa standardne devijacije makroekonomskih varijabli, može se, između ostalog, protumačiti kao posledica velikih oscilacija u ekonomskim i privrednim aktivnostima u ovim zemljama tokom prethodnih petnaestak godina. Što se tiče vrednosti indeksa političkog rizika zemlje, on se kretao od minimalne vrednosti 0,09 do maksimalne vrednosti 0,8, što ukazuje na značajnu fluktuaciju u kvalitetu socio-političkog okruženja. Prilikom tumačenja ovog rezultata treba biti oprezan jer su do kraja devedesetih godina bili ratni sukobi u ovom regionu, te kako se vremenski horizont povećava, tako se vrednost ovog indikatora stabilizuje. Prosečna vrednost ovog indikatora iznosi oko 0,6, što ukazuje na umereni rizik. Maksimalna vrednost ovog indikatora jeste 1 i implicira pozitivno i stabilno okruženje, obratno je kada je vrednost ovog indikatora nula. Vrednosti proksija za transfer tehnologije tj. indeksa izvoza visoke tehnologije, više nego jasno svedoče o malom učešću *know how* ovih zemalja u ukupnom izvozu, što bi se moglo protumačiti da bi ove zemlje trebalo da rade na privlačenju stranih direktnih investicija, kako bi došle do novih saznanja. Sa druge strane, posmatrano iz ugla stranih investitora, zbog svoje zaostalosti, ove bi zemlje trebalo da budu dobre investicione alternative za nešto starije vrste tehnologija (crne, „prljave“ tehnologije). Kretanje ovog indeksa kretalo se od minimalnih 0,8%, do maksimalnih 5,5%. Pohvalno je što je prosečna vrednost ovog indeksa u posmatranom periodu bila pozitivna, oko 2%, što znači da ove zemlje ipak izvoze neke visoko sofisticirane proizvode tj. vrše transfer *know how*.

Kada se vrši ekonometrijska analiza na panel podacima, prvi korak u analizi predstavlja testiranje prisustva jediničnog korena kod vremenskih serija. Drugim rečima, kako bi analiza bila valjana neophodno je da serije pokazuju osobine stacionarnosti. Iz tog razloga analiza je započeta ispitivanjem stacionarnosti vremenskih serija varijabli primenom *Im-Pesaran-Shin* (IPS) testa, uz napomenu da je broj docnji određen primenom pravila trećeg korena. Rezultati testa su prikazani u tabeli 2.

Tabela 2: Rezultati IPS testa

	Varijabla	Vrednost testa	P - vrednost
FDI	Nivo	-0,184	0,426
	1. difer.	-0,615	0,269
	2. difer.	-3,909	0,000
FDI _{t-1}	Nivo	-0,654	0,256
	1. difer.	-2,210	0,0135
GDP	Nivo	-0,708	0,239
	1. difer.	-0,668	0,251
	2. difer.	-4,088	0,000
UNR	Nivo	0,599	0,725
	1. difer.	-0,478	0,316
	2. difer.	-3,309	0,001
INF	Nivo*	14,599	0,067
	1. difer.*	9,393	0,000
PSR	Nivo	-1,726	0,042
	1. difer.	-3,049	0,001
TK	Nivo	1,497	0,932
	1. difer.	-2,079	0,018

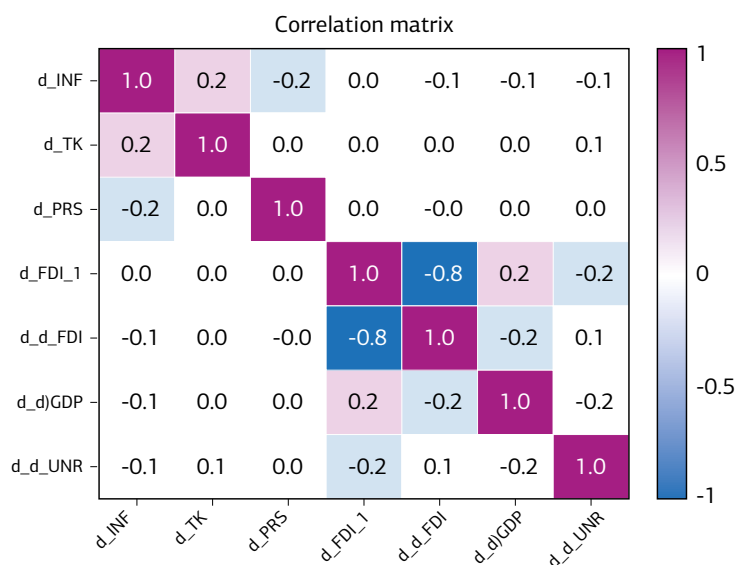
Napomena: * označava vrednost inverzno chi-kvadrata testa sa osam stepeni slobode.

Izvor: Autori

Kao što se može videti iz tabele, sve varijable pokazuju nestacionarnost prvog reda. Iz tog razloga test je ponovljen nakon diferencijacije prvog reda. Nakon diferencijacije prvog reda sve varijable, izuzev stope SDI, stope BDP i stope nezaposlenosti su postale stacionarne. Postupak je nastavljen diferenciranjem drugog reda za nestacionarne varijable. Nakon diferencijacije drugog reda sve varijable su postale stacionarne, tako da je analiza dalje nastavljena izračunavanjem matrice korelacije. Matrica korelacije prikazana na je slici 1.

Kao što se može videti sa slike 1 nijedna varijabla nije pozitivno visoko korelisana sa ostalim varijablama, tako da su sve varijable zadržane u daljem istraživanju, osim varijable SDI iz prethodnog perioda (t-1) sa zavisnom varijablom, što je i očekivano.

Slika 1: Matrica korelacije



Izvor: Autori

Rezultati ocene parametara jednačine (1) i (2), primenom prethodno opisanih metoda ocene parametara panel podataka, prikazani su u tabeli 3.

Tabela 3: Rezultati ocene parametara

Varijabla	Metod fiksnog efekta			Jedno-stepeni GMM ocenjivač		
	Koef.	p vred.		Koef.	p vred.	
Konstanta	- 0,204	0,861		-0,055	0,479	
FDI _{t-1}	-0,596	<0,0001	***	-0,598	<0,0001	***
GDP	-0,090	0,629		-0,088	0,634	
UNR	-0,113	0,838		-0,115	0,722	
INF	-0,549	0,095	*	0,547	0,089	*
PSR	-13,135	0,551		-13,488	0,237	
TK	0,310	0,778		0,311	0,708	

	Metod fiksnog efekta	Jedno-stepeni GMM ocenjivač	
R ²	0,40	AR(2)	-1,283 (0,199)
		Šargan test	Chi-kvadrat (38) = 46,936 (0,1519)
Zajednički test regresora	F(6, 40) = 4,3829 (0,002)		
Test različitih odsečaka	F(3, 40) = 0,012 (0,998)		
Valdov test heteroskedastičnosti	41,5796 (2,03e-008)		
Test normalnosti reziduala modela	Chi-kvadrat (2) = 8,746 (0,013)**		

*Napomena: U zagradi su date p-vrednosti testa autokorelacije prvog i drugog reda. *, **, *** statistički značajne varijable za nivoe poverenja od 1%, 5% i 10%, retrospektivno. Šarganov test pokazuje da su svi instrumenti uključeni u model su validni. H-matrix je korišćena za ocenu matrice varijanse-kovarijanse.*

Izvor: Autori

Kao što se može videti iz tabele 3, ocene parametara primenom dinamičkog modela ocene panel podataka pokazuju da R kvadrat ovog ocenjivača iznosi 0,40, što znači da skoro 40% varijacija u zavisnoj varijabli može biti objašnjeno pomoću izabranih varijabli. Dalji rezultati pokazuju da postoji statistička značajna veza između SDI iz prethodnog perioda i stope priliva iz tekućeg perioda, što je očekivano. Međutim, iznenađujući je znak ove korelacije i može se tumačiti da će opadanje stope priliva SDI od 0,59% iz prethodnog perioda dovesti do povećanja tekuće stope priliva stranih direktnih investicija. Takođe, rezultati otkrivaju da postoji statistički značajna veza između inflacije i SDI, koja iznosi -0,549%. Tumačenje ovog rezultata je sledeće: rast stope inflacije od 1% dovešće do pada SDI za 0,549% i obratno važi. Ovo je i očekivano, i sa ekonomskog aspekta može se tumačiti da strani direktni investitori zahtevaju stabilno okruženje i da imaju averziju prema inflaciji, što je i razumljivo kada se imaju u vidu efekti inflacije na efikasnost poslovanja. Što se tiče ostalih varijabli, između njih i priliva SDI nije otkrivena statistički značajna veza.

Rezultati testova prikazani u tabeli 3 ukazuju na opravdanost primene dinamičkog ocenjivača. Primena ovog ocenjivača opravdana je kada je ispunjena pretpostavka da zemlje imaju svoje specifičnosti, koje su vremenski invarijantne. S obzirom da to da dinamički model fiksnih efekata grešku modela dekomponuje na dve komponente, determinističku, koja u stvari predstavlja refleksiju vremenski invarijantne specifičnosti ovih zemalja (alfa u modelu (1)) i stohastičku komponentu (rezidual u modelu (1)), izbor ovog ocenjivača panel podataka je bio razumljiv. Budući da se zasniva na pretpostavci o identičnoj i nezavisnoj distribuciji reziduala, kako bi se ispitala njegova validnost, u nastavku rada je izvršen dijagnostički test, čiji su rezultati prikazani u prvom delu tabele 3. Test zajedničkih regresora iznosi oko 4,4, što ukazuje na to da je potrebno odbaciti nultu hipotezu na kojoj se test zasniva. Test različitih odsečaka (alfa) ukazuje da među zemljama nema vremenski invarijantnih specifičnosti. Takođe i Valdov test heteroskedastičnosti otkriva da zemlje nemaju zajedničku grešku varijanse. Test normalnosti distribucije reziduala pokazuje da za nivo značajnosti od 95% za koji je rađen test, reziduali slede normalnu distribuciju.

Izneti rezultati dijagnostičkog testa impliciraju da je u ovom slučaju ocenjivač združenih najmanjih običnih kvadrata adekvatniji od metoda fiksnih efekata. Stoga su u nastavku rada prikazani rezultati ocene modela (1) primenom ovog ocenjivača. Rezultati su prikazani u tabeli 4.

Tabela 4: Rezultati metoda združenih najmanjih običnih kvadrata

Metod združenih najmanjih običnih kvadrata			
Varijabla	Koef.	p vrednost	
Konstanta	-0,202	0,857	
FDI _{t-1}	-0,595	<0,0001	***
GDP	-0,091	0,616	
UNR	-0,616	0,847	
INF	-0,544	0,084	*
PSR	-13,843	0,501	
TK	0,314	0,767	
R ²	0,40		
Wald-ov test heteroskedastičnosti	38,6196 (8,347e-008)		
Test normalnosti reziduala modela	Chi-kvadrat (2) = 8,948 (0,011)**		

Izvor: Autori

Rezultati ocene panel podataka modela prikazani izrazom (1) ukazuju da sve varijable, izuzev stope priliva SDI iz prethodnog perioda i stope inflacije, nemaju statistički značajnu vezu sa stopom priliva SDI u tekućem periodu. Kako bi se ispitala validnost i ovog ocenjivača urađen je dijagnostički test, čiji su rezultati, takođe, prikazani u tabeli 4. Rezultati testa pokazuju odsustvo homoskedastičnosti varijanse i prisustvo normalnosti distribucije kod reziduala. Imajući ovo u vidu, treba istaći da rezultate dobijene primenom i ovog ocenjivača treba uzeti sa rezervom, zbog kršenja pretpostavke o homoskedastičnosti.

Kako opšti metod momenata predstavlja efikasan metod ocene panel podataka, čak i u situaciji kada nisu zadovoljene osnovne pretpostavke svih ostalih ocenjivača, u nastavku rada je potrebno fokusirati se isključivo na rezultate dobijene primenom ovog ocenjivača. Rezultati ovog ocenjivača dati su u drugom delu tabele 3. Šarganov test pokazuje da su izabrani instrumenti validni, dok test serijske autokorelacije drugog reda pokazuje odsustvo autokorelacije, što ukazuje na validnost ovog ocenjivača.

Rezultati ovog ocenjivača potvrđuju zaključke iznete na osnovu prethodna dva ocenjivača, tj. za priliv stranih direktnih investicija u izabranim zemljama značajne su samo dve varijable, stopa inflacije i stopa priliva SDI iz prethodnog perioda i obe varijable imaju negativnu vezu.

Diskusija o dobijenim rezultatima

Dobijeni rezultati su pomalo iznenađujući, odnosno nisu u skladu sa preovladavajućim uverenjem šire, ali ne i akademske javnosti, koja je upoznata sa rezultatima različitih studija vezanih za ovu problematiku za zemlje u razvoju (videti istraživanja Alesina (1996), Alvarez (1996) i sl.). Prvi interesantni nalaz jeste nepostojanje statistički značajne veze između indeksa političkog rizika i priliva SDI, što je za širu javnost iznenađujuće, ali kada se ima u vidu da je prosečan indeks 0,6 tokom posmatranog perioda (uz napomenu da je maksimalna vrednost ovog indikatora 1, što ukazuje na nepostojanje političkog rizika i što je indikator stabilnog socio-političkog okruženja) i da nakon završetka ratnih sukoba s kraja devedesetih godina, vrednost ovog indeksa ne varira značajnije, može se protumačiti da strani investitori ova tržišta doživljavaju kao relativno stabilna u socio-političkom smislu, te da se prilikom odlučivanja o ulaganju rukovode pre svega subvencijama i povlasticama koje ove zemlje nude stranim ulagačima.

Sledeći interesantan nalaz, za šire mnjenje, jeste da ne postoji statistički značajna veza između BDP i stope priliva SDI. Realno je očekivati da sa povećanjem BDP raste i odliv SDI jer to znači da se više vrednosti odliva u vidu investicija na strana tržišta. Međutim, u pogledu priliva SDI, različite studije pokazuju postojanje i pozitivne i negativne veze. Pozitivna se tumači da rast BDP znači poboljšanje uslova poslovanja, što predstavlja povoljno okruženje za investiranje, te dolazi do rasta SDI u nerazvijene zemlje. Sa druge strane, negativna korelacija se tumači da povoljno utiče na privlačenje stranih direktnih investicija, jer investitori ulažu na tržište gde će da dođe do smanjenja cena resursa i radne snage. Naravno, postoje istraživanja i koja ukazuju na nepostojanje zavisnosti između ove dve varijable, već da se pri odlučivanju o ulaganju na tržišta zemlja u razvoju strani investitori rukovode drugim kriterijumima (videti u Hur et al. (2013a), Hur et al. (2013b)).

Rezultati analize otkrivaju da stopa nezaposlenosti nije statistički značajna i da ne utiče na priliv SDI. Ovo se može protumačiti da strani ulagači, iako ulažu u ova tržišta, u radno intenzivne proizvode i da nastoje da ekonomsku korist ostvare, pre svega, iskorišćavanjem jeftine radne snage, ipak pri ulaganju ne vode računa o nezaposlenosti, smatrajući da nezaposleno stanovništvo nije dovoljno kvalifikovano i da je to uzrok njihovog neangažovanja. Fokus im je na jeftinoj radnoj snazi, za koju im nije važno da li će da ih privuče sa tržišta rada (nezaposlenih) ili već radno angažovanih kadrova. Sa druge strane, stopa priliva SDI je obrnuto srazmerna stopi inflacije u zemlji domaćina. Ovo je i očekivano kada se ima u vidu da strani ulagači na ovim tržištima isključivo ulažu zbog jeftinih resursa. Rast inflacije uticaće na rast cena resursa, a to nije u njihovom interesu.

Rezultati analize otkrivaju da ne postoji statistički značajna veza između priliva SDI i transfera tehnologije, što se može objasniti činjenicom da se strani investitori, kada se odlučuju za ulaganja u tržišta u razvoju, rukovode, pre svega, činjenicom da će prednost ostvariti iskorišćavanjem jeftinih resursa i radne snage. Drugim rečima, ne ulaže se na ova tržišta da bi se iskoristili znanje i tehnologija koje poseduju ove zemlje. Otuda je ovaj rezultat razumljiv i očekivan.

Međutim, za dublju analizu po ovom pitanju potrebno je poznavati strukturu SDI. Postoje brojna istraživanja koja ukazuju da je motiv stranim investitorima bio da iskoriste tehnološka dostignuća zemlje domaćina, ali su takvi primeri u ovim zemljama retki.

Zaključak

Jedan od glavnih problema sa kojim se suočavaju zemlje u razvoju, kakve su zemlje Zapadnog Balkana, kao što su Srbija, Crna Gora, Bosna i Hercegovina i Makedonije jeste nizak nivo privrednog i ekonomskog rasta. Ovaj problem skopčan je, sa jedne strane, sa nedovoljnom domaćom akumulacijom i, sa druge strane, sa nedostatkom svežeg kapitala za investicije. Otuda se ove zemlje bore da privuku strane direktne investicije davanjem različitih podsticajnih mera stranim ulagačima i nastojanjem da kreiraju što povoljnije privredne uslove i ambijent. Međutim, ratni sukobi i politička i opšta makroekonomska nestabilnost u ovom regionu početkom devedesetih godina uticala je na slabu stopu priliva SDI u ove zemlje, te neiskorišćenja njihovog ekonomskog položaja i dostignuća s kraja osamdesetih godina, kada su i druge socijalističke zemlje ušle u proces tranzicije.

Priliv SDI u ove zemlje bio je ispod nivoa koji bi obezbedio ubrzanje strukturnih reformi, više stope rasta, veću ekonomsku aktivnost stanovništva, povećanje deviznih rezervi i dobijanje povoljnog kreditnog rejtinga. Otuda, priliv stranih direktnih investicija u ove zemlje ne znači samo priliv svežeg kapitala, već transfer *know how* u oblasti tehničko-tehnoloških procesa, načina upravljanja i marketing miksa. Istovremeno znači i smanjenje nezaposlenosti i ubrzavanje privrednog rasta koji ima značajnih implikacija po političku stabilost i kreiranje zdravog privrednog ambijenta za dalje privlačenje stranih direktnih investicija. To je inače i razlog zašto kreatori makroekonomske politike nastoje da stvore što privlačnije uslove za privlačenje stranih direktnih ulagača, nudeći pre svega različite podsticaje i pokušavajući da modernizuju poslovni ambijent, kako kroz izgradnju kvalitetne pravne regulative, tako i kroz infrastrukturu.

Međutim, nalazi u ovom radu na indirektan način impliciraju da strani ulagači ulažu na ova tržišta samo radi iskorišćenja jeftinih reursa i radne snage, što kreatorima makroekonomske politike može da posluži kao etalon za donošenje adekvatnih podsticajnih mera, kojim bi privukli investicije koje dovode do povećanja izvoza visoko sofisticiranih proizvoda i usluga, a neiskorišćenju nacionalnih bogatstava i radne snage.

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Empirical Research of Foreign Direct Investment Determinants in Developing Countries: A Case Study of the Western Balkan Countries

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Summary: This paper presents the results of an original empirical research of the effects and the importance of foreign direct investments on the economic development of developing countries, as well as the determinants of attracting them, with particular reference to European developing countries, which was conducted using panel data through an example of selected Western Balkan countries: Serbia, Montenegro, Bosnia and Herzegovina and Macedonia. The research was conducted during the period from 2000 to 2017. The research results show that there is no statistically significant connection between political risk indices, GDP and unemployment rates and technology transfers, on the one hand, and FDI inflow rates, on the other. The results of the analysis reveal that the FDI rate is inversely proportional to the inflation rate in the host country.

Keywords: foreign direct investments, socio-political instability, developing countries, panel analysis

JEL: E22, C22

Introduction

Foreign direct investments are a subject of considerable interest of the professional and academic community in developing countries. This interest has been particularly increased in the last decade of the twentieth century and this trend continues. The main reason for this is the dramatic increase of foreign direct investments in developing countries. Namely, in recent years we have witnessed a dramatic increase of foreign direct investments, especially in the so-called emerging markets. Foreign direct investments increased from 24 billion dollars (1990) to 178 billion dollars in 2001 (World Bank, 2001, Asiedu, 2011). Developing countries are very interesting investment alternatives for foreign investors coming from developed countries, both in terms of international diversification of equity placements, because they have very low or even negative correlation coefficients of returns with developed countries, and in terms of the possibility of achieving a very high risk premium. To be specific, despite certain differences in the degree of development and orderliness, most of these countries are exposed to similar processes of strong influence of foreign direct investment inflows and offer the opportunity to generate large profits for investors. For this reason, these markets are interesting investment alternatives for foreign banks, mutual funds and insurance companies. Poetically speaking, the possibility of achieving extremely high risk premiums and low correlation coefficients with developed countries, has turned these markets into extremely attractive investment alternatives in the process of international placement diversification. Numerous studies testify to this (Dailami, Atkin, 1990, Harvey, 1995, Bekaert, Harvey, 1997, Ogunjimi, Amune, 2017, Asiedu, Gyimah-Brempong, 2008, Bassey, Temitope 2015, Jensen, McGillivray, 2005), which points to the growing share of these countries' financial markets in the global capital market. For the reasons mentioned above, multinational corporations and financial institutions from developed countries are increasingly more eager to place their free funds in these countries. On the other hand, developing countries, due to lack of capital, low economic power, failed and incomplete transition processes, see foreign direct investment inflows as an opportunity to achieve economic and business development, reduce unemployment rates and increase social well-being in general. In a word, in foreign direct investments they see the possibility of increasing all macroeconomic indicators of growth and development, starting from the rate of gross domestic product to the level of competitiveness of the domestic economy. This is all the more important when one considers the fact that a large number of countries in this group lack or have very limited access to other sources of funding. Considering the credit ratings of these countries and their impact on the conditions of obtaining loans with the global financial institutions, or the ability to place their debt securities on the global capital market, their expectations regarding the effects and importance of foreign direct investments seem very justified.

The effects of foreign direct investments are not only reflected in the inflow of fresh capital, but also in the transfer of new technologies, *know-how*, organizational and managerial solutions, etc. Unfortunately, the effects of foreign direct investments on the economic and business development of the host countries are not always as expected from the theoretical postulates of the concept of

foreign direct investments. There are also those foreign direct investments which, by their effects, can be classified as exploitative or “predatory” investments.

However, apart from this, developing countries seek to attract foreign direct investments by creating favorable macroeconomic conditions. Different macroeconomic conditions and their combinations differently affect the degree of their attraction. Therefore, the aim of this paper is to examine whether, and to what extent, certain determinants, such as socio-political instability, the business environment, and the economic environment and *know-how*, influence the attraction of foreign direct investments. These are determinants which, in the broader academic and professional circles, evoke certain prejudices regarding the extent and direction of their effects on attracting foreign direct investments. However, the results of empirical research are often not in line with these prejudices and expectations of the general public. Therefore, the aim of this paper is to examine the impact of these determinants on attracting foreign direct investments in Serbia, Montenegro, Bosnia and Herzegovina and Macedonia.

Empirical Research

To answer the question whether socio-political (in)stability, business environment and economic environment, as well as technology transfer, are a significant determinant of attracting foreign direct investments in selected Western Balkan countries, such as Serbia, Montenegro, Bosnia and Herzegovina and Macedonia, the paper examines the following variables as appropriate proxies of the aforementioned foreign direct investment determinants: country’s political risk index, gross domestic product (GDP) growth rate, inflation rate, the unemployment rate and technology transfer index. The first index was used as a proxy for the (in)stability of the socio-political environment. Country Political Risk Index is the total measure of risk for that country, calculated using all 17 risk components of the Political Risk Services International Country Risk Guide (PRS) methodology, including turmoils, financial transfers, foreign direct investments and export markets. The index provides a basic, convenient way to directly compare countries, as well as to demonstrate changes over the past five years.

Annual Gross Domestic Product Growth Rate, Inflation Rate and Unemployment Rate were used as adequate proxies for the business environment and economic environment (see Pflüger et al. 2013). The annual gross domestic product growth rate at market prices is based on a constant local currency and represents the sum of the gross value added of all resident producers in the economy, plus any product tax and minus any subventions not included in the value of the product. It is calculated without deduction for depreciation of manufactured property, or for depletion and degradation of natural resources. The aggregates are based on constant US dollars for the year 2010.

For the purposes of this research, the inflation rate was calculated using the Laspeyres’ formula and represents the inflation rate measured by the Consumer Price Index, which reflects the annual percentage change in cost of the

average consumer in purchasing a basket of goods and services that may be fixed or changed at specific intervals, such as annual.

The unemployment rate was also used as a proxy from the aspect of business environment and the economic environment, where the unemployment rate, used as a proxy in this paper, represents the percentage of workforce that is unemployed, but is available in the labor market.

The high technology export index was used as a proxy for technology transfer in this paper. The index represents a percentage of total export, and its basket includes all products with high research and development intensity, such as aviation, computers, pharmaceuticals, scientific instruments and electrical appliances, etc. It is expected that there is a significant positive correlation between this index and the rate of attraction of foreign direct investments.

The data were collected from the official website of the World Bank and the Global Economy, for the period from 2000 to 2017. A cross-sectional panel data approach was used to analyze the data in which entity behavior is observed over time. The main purpose of this analysis is to identify if there is any pattern in the data collected over time in different entities (Radivojevic, Jovovic, 2017, 303). In other words, it is useful for monitoring country-specific effects and invisible differences between countries, allowing for control of bias caused by the problem of potential heterogeneity and missing data (see Radivojevic et al. 2019, 488). Due to structural breaks, an unbalanced data panel was used for some data in the research.

A dependent variable in the research is the rate of foreign direct investments, which represents the net inflows of investments for the acquisition of a lasting management interest in a company operating in the host country. More specifically, it represents the sum of share capital, earnings reinvestment, other long-term capital and short-term capital shown in the balance of payments.

The variables were selected considering the following three facts: 1) that the variables selected are adequate proxies for the determinants of foreign direct investments; 2) that data on all variables are available for all researched countries; 3) that there is no clear position in the literature or papers that have studied their effect using panel data.

The foregoing can be represented by the following equation:

$$FDI_{i,t} = \beta_1 + \beta_2 gdp_{i,t} + \beta_3 unr_{i,t} + \beta_4 inf_{i,t} + \beta_5 prs_{i,t} + \beta_6 tt_{i,t} + \beta_7 FDI_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

wherein:

- $FDI_{i,t}$ - foreign direct investment rate for the i -th country in the (t) time period
- $FDI_{i,t-1}$ - foreign direct investment rate for the i -th country in the $(t-1)$ time period
- $gdp_{i,t}$ - the rate of gross domestic product for the i -th country in the (t) time period
- $unr_{i,t}$ - unemployment rate for the i -th country in the (t) time period
- $inf_{i,t}$ - the inflation rate for the i -th country in the (t) time period
- $prs_{i,t}$ - Political Risk Index for the i -th country in the (t) time period
- $tt_{i,t}$ - Technology Transfer Index for the i -th country over a (t) time period

$cap_{i,t}$ - the rate of capital between equity and assets for the i -th country over a (t) time period•

$\varepsilon_{i,t}$ - residual

Two methods of evaluating panel data were used to evaluate the equation: 1) the fixed effect method, which takes into account the unnoticed heterogeneity between countries. The aim is to capture the effects of independent variables on the rate of foreign direct investments. Each country has its own specificities that can influence the attraction of foreign direct investments, so it is realistic to assume that there is a correlation between $\varepsilon_{i,t}$ and (FDI); In other words, it allows one to maintain a constant undetected heterogeneity between entities (countries) over time. The method allows for the elimination of the effects of these time-invariant characteristics, by only estimating the net effect of the predictors; 2) Generalized Momentum Method (GMM). Unlike other estimators, the main advantage of GMM is that it can be used even when the assumptions of other methods are not satisfied. Generally speaking, GMM can be viewed as a generalization of numerous other methods, and as a result, it is less likely to generate incorrect parameter estimates (Chausse, 2010). In order to find out whether the rate of attracting foreign direct investments affects attracting new ones, equation (1) includes the foreign direct investment rate from the previous period as an independent variable. Since this variable can be expected to correlate with a random variable from the current period, this is another reason for applying the GMM estimator, noting that equation (1) will be transformed by applying the operator (Δ) of the first differentiation, which can be written in the following form:

$$\Delta FDI_{i,t} = \beta_1 + \beta_2 \Delta gdp_{i,t} + \beta_3 \Delta unr_{i,t} + \beta_4 \Delta inf_{i,t} + \beta_5 \Delta prs_{i,t} + \beta_6 \Delta tt_{i,t} + \beta_7 \Delta FDI_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

This method solves the potential problem of dynamic panel data bias (see Radivojevic et al. 2019 for details).

Research Results

Table 1 summarizes the descriptive statistics of the selected variables for the period from 2000 to 2017.

Table 1: Summary of Variable Descriptive Statistics (% , exception is PSR)

Variables	Nr. Obser.	Mean value	Standar. deviation	Minimum value	Maximum value
FDI	70	7.114	6.749	0.401	37.249
FDI _{t-1}	66	7.2178	6.856	0.401	37.249
GDP	72	3.236	2.930	-6.002	9.301
UNR	72	24.801	25.816	12.600	37.250

Variables	Nr. Obser.	Mean value	Standar. deviation	Minimum value	Maximum value
INF	60	6.582	2.855	-1.089	95.005
PSR	72	0.626	0.120	0.091	0.832
TK	63	2.547	1.222	0.832	5.530

Source: Authors

The FDI level fluctuates from 0.401% to 37.3%, reflecting significant fluctuation and indicating great variability in foreign direct investment inflows in these countries over the observed period, as evidenced by the standard deviation rate of about 6.8%. The average FDI value is approximately 7.1%, which indicates a very low average foreign direct investment inflow in this region over the last 18 years. GDP shows both negative and positive values. The highest negative value of this indicator was about 6%, which indicated a great stagnation, while the highest positive value of this indicator in the observed period was about 9%. The average GDP rate is positive, indicating that this region recorded a slight economic growth over the observed period, as the average GDP rate is about 3.2%. The unemployment rate in this region averages at around 25%. The highest unemployment rate was around 37%, while its lowest rate was recorded at 12%, which indicates a major unemployment problem in these countries. The inflation rate ranged from a record 95% to a negative value of about 1%. The average value of this variable is about 6%. The high rate of standard deviation of macroeconomic variables can be interpreted, *inter alia*, as a consequence of large fluctuations in economic and business activities in these countries over the past fifteen years. Regarding the value of the country's political risk index, it ranged from a minimum value of 0.09 to a maximum value of 0.8, indicating a significant fluctuation in the quality of the socio-political environment. Caution should be exercised in interpreting this result, as there were war conflicts in this region up until the end of the 1990s, and as the time horizon increased, the value of this indicator stabilized. The average value of this indicator is around 0.6, indicating a moderate risk. The maximum value of this indicator is 1 and implies a positive and stable environment, it is the other way around when the value of this indicator is zero. Proxy values of technology transfer, i.e. high-technology export indices, more than clearly testify to the low share of *know-how* of these countries in total exports, which could be interpreted as requiring these countries to work to attract foreign direct investments, in order to gain new knowledge. On the other hand, from the perspective of foreign investors, because of their backwardness, these countries should be good investment alternatives to slightly older types of technology (black, "dirty" technologies). The movement of this index ranged from a minimum of 0.8%, to a maximum of 5.5% in total exports. It is commendable that the average value of this index in the observed period was positive, about 2%, which means that these countries still export some highly sophisticated products, i.e. transfer *know-how*.

When performing econometric analysis on panel data, the first step in the analysis is to test the presence of unit root in time series. In other words, in order for the analysis to be valid, it is necessary that the series exhibit stationarity properties. For this reason, the analysis was started by examining the stationarity of time series of variables using the *Im-Pesaran-Shin* (IPS) test, noting

that the number of delays was determined by applying the third root rule. The test results are shown in Table 2.

Table 2: IPS Test Results

	Variable	Test value	P - value
FDI	Level	-0.184	0.426
	1. differ.	-0.615	0.269
	2. differ.	-3.909	0.000
FDI _{t-1}	Level	-0.654	0.256
	1. differ.	-2.210	0.0135
GDP	Level	-0.708	0.239
	1. differ.	-0.668	0.251
	2. differ.	-4.088	0.000
UNR	Level	0.599	0.725
	1. differ.	-0.478	0.316
	2. differ.	-3.309	0.001
INF	Level*	14.599	0.067
	1. differ.*	9.393	0.000
PSR	Level	-1.726	0.042
	1. differ.	-3.049	0.001
TK	Level	1.497	0.932
	1. differ.	-2.079	0.018

Note: * indicates the value of the inverse chi-square of the test with eight degrees of freedom.

Source: Authors

As can be seen from the table, all variables show the first-order non-stationarity. For this reason, the test was repeated after the first-order differentiation. After the first-order differentiation, all variables, except FDI rates, GDP rates and unemployment rates became stationary. The procedure was continued by the second-order differentiation for the non-stationary variables. After the second-order differentiation, all variables became stationary, so the analysis was further continued by calculating the correlation matrix. The correlation matrix is shown in Figure 1.

As can be seen from Figure 1, none of the variables is positively highly correlated with the other variables, so that all variables are retained in the further study, except the FDI variable from the previous period (t-1) with the dependent variable, as expected.

Figure 1: Correlation Matrix



Source: Authors

The results of estimating the parameters of equations (1) and (2) using the previously described methods of estimating the parameters of the panel data are shown in Table 3.

Table 3: Results of Parameter Estimation

Variable	Method of fixed effect			One-step GMM estimator		
	Coeff.	p value		Coeff.	p value	
Constant	- 0.204	0.861		-0.055	0.479	
FDI _{t-1}	-0.596	<0.0001	***	-0.598	<0.0001	***
GDP	-0.090	0.629		-0.088	0.634	
UNR	-0.113	0.838		-0.115	0.722	
INF	-0.549	0.095	*	0.547	0.089	*
PSR	- 13.135	0.551		-13.488	0.237	
TK	0.310	0.778		0.311	0.708	

	Method of fixed effect	One-step GMM estimator	
R2	0.40	AR(2)	-1.283 (0.199)
		Shargan test	Chi-square (38) = 46.936 (0.1519)
Common Regressors Test	F(6, 40) = 4.3829 (0.002)		
Test of different sections	F(3, 40) = 0.012 (0.998)		
Wald's heteroskedasticity test	41.5796 (2.03e-008)		
Normality test of model residuals	Chi-square (2) = 8.746 (0.013)**		

*Note: The first and second order autocorrelation p-values are given in parentheses. *, **, *** statistically significant variables for confidence levels of 1%, 5% and 10%, retrospectively. Sargan test shows that all instruments included in the model are valid. The H-matrix was used to evaluate the variance-covariance matrix.*

Source: Authors

As can be seen from Table 3, parameter estimates using the dynamic panel data estimating model, show that the R square of this estimator is 0.40, meaning that almost 40% of the variations in the dependent variable can be explained by the selected variables. Further results indicate that there is a statistically significant connection between FDI from the previous period and the inflow rate from the current period, as expected. However, it is a surprising sign of this correlation and it can be interpreted that a decrease in the FDI inflow rate of 0.59% from the previous period, will lead to an increase in the current rate of foreign direct investment inflow. Also, the results reveal that there is a statistically significant connection between inflation and FDI, which stands at -0.113%. The interpretation of this result is as follows: an increase in the inflation rate of 1% will cause the FDI to fall by -0.549% and vice versa. This is expected, and also from an economic point of view it can be interpreted that foreign direct investors require a stable environment and have an aversion towards inflation, which is understandable, given the effects of inflation on business efficiency. As for the other variables, between them and the FDI influx, no statistically significant connection was detected.

The results of applying the dynamic estimator show that this decision was correct. Namely, the implementation of this estimator is justified, when the assumption that the selected countries have their specificities, which are time invariant, is established as realistic. Given that the dynamic fixed effects model decomposes the model error into two components, a deterministic one, which is in fact a reflection of the time-invariant specificity of these countries (alpha in model (1)) and a stochastic component (residual in model (1)), the choice of this panel data estimator was understandable. Since it is based on the assumption of an identical and independent distribution of the residuals, in order to test its validity, a diagnostic test was carried out below, the results of which are shown in the first part of Table 3. The common regressors test is about 4.4, indicating no acceptance of the null hypothesis on which the test is based. The cross-sectional test (alpha) indicates that there are no time-invariant specifici-

ties between countries. Also, Wald's heteroskedasticity test reveals that countries have no common variance error. The residual distribution normality test shows that, for a significance level of 95% for which the test was performed, residuals follow the normal distribution.

The results of the diagnostic test imply that, in this case, the estimator of the united ordinary least squares is more adequate than the fixed effects method. Therefore, the results of model evaluation (1) using this estimator are presented below. The results are shown in Table 4.

Table 4: Results of the Method of United Ordinary Least Squares

The united ordinary least squares method			
Variable	Coeff.	p value	
Constant	-0.202	0.857	
FDI _{m-1}	-0.595	<0.0001	***
GDP	-0.091	0.616	
UNR	-0.616	0.847	
INF	-0.544	0.084	*
PSR	-13.843	0.501	
TK	0.314	0.767	
R ²	0.40		
Wald's heteroskedasticity test	38.6196 (8.347e-008)		
Normality test of model residuals	Chi-square (2) = 8.948 (0.011)**		

Source: Authors

The results of the evaluation of the model panel data presented by the expression (1) indicate that all variables, except for the FDI inflow rate from the previous period and the inflation rate, have no statistically significant connection with the FDI inflow rate in the current period. In order to test the validity of this estimator as well, a diagnostic test was performed, the results of which are also shown in Table 4. The test results show the absence of homoskedasticity of variance and the presence of normality of distribution at residuals. With this in mind, it should be noted that the results obtained by the implementation of this estimator should be considered with caution for violating the assumption of homoskedasticity.

As the general method of moments is an effective method of evaluating panel data, even in the situation where the basic assumptions of all other estimators are not met, this further work should focus solely on the results obtained by the implementation of this estimator. The results of this estimator are given in the second part of Table 3. The Sargan test shows that the selected instruments are valid, while the second-order serial autocorrelation test shows the absence of autocorrelation, indicating the validity of this estimator.

The results of this estimator confirm the conclusions drawn from the previous two estimators, i.e. for foreign direct investment inflows in selected countries,

only two variables are significant, the inflation rate and the FDI inflow rate from the previous period, both of which have a negative connection.

Discussion on the Results Obtained

The results obtained are somewhat surprising, that is, they are not in line with the prevailing belief of the general public, but not of the academic public, who is aware of the results of various studies related to this issue for developing countries (see research by Alesin, 1996, Alvarez, 1996, etc.). The first interesting finding is the absence of a statistically significant connection between the political risk index and the FDI inflow, which is surprising to the general public, but given the average index of 0.6 over the observed period (noting that the maximum value of this indicator is 1, indicating non-existence of political risk and which is an indicator of a stable socio-political environment), and that after the end of the war conflicts in the late 1990s, the value of this index does not vary significantly, it can be interpreted that foreign investors see these markets as relatively stable in socio-political terms, and are primarily guided by the subventions and benefits that these countries offer to foreign investors when deciding to invest.

Another interesting finding, for a broader view, is that there is no statistically significant connection between GDP and FDI inflow rates. It is realistic to expect that with an increase in GDP, the outflow of FDI will increase, as this means that more value outflows in the form of investments in foreign markets. However, regarding the inflow of FDI, various studies show that there are both positive and negative connections. The positive is that GDP growth means improving business conditions, which is a favorable environment for investment, and the growth of FDI in underdeveloped countries. On the other hand, the negative correlation is interpreted to have a beneficial effect on attracting foreign direct investments, as investors invest in a market where resource and labor prices will decrease. Of course, there is research suggesting that there is no dependence between these two variables, but that, when deciding to invest in the markets of developing countries, foreign investors are guided by other criteria (see Hur et al. 2013a, Hur et al. 2013b).

The results of the analysis indicate that the unemployment rate is not statistically significant and does not affect the inflow of FDI. This can be interpreted as that foreign investors, although investing in these markets in labor-intensive products and striving to obtain economic benefits, first of all, by using cheap labor, do not take into account unemployment when investing, considering that the unemployed population is not qualified enough and that this is the cause of their unemployment. Their focus is on cheap labor, and for them, it doesn't matter if the labor will be attracted from the job market (unemployed) or if they are already employed. On the other hand, the FDI inflow rate is inversely proportional to the inflation rate in the host country. This is expected when bearing in mind that foreign investors are exclusively investing in these markets because of their cheap resources. Rising inflation will affect the rise in resource prices, which is not in their interest.

The results of the analysis reveal that there is no statistically significant connection between FDI inflows and technology transfers, which can be explained by the fact that the foreign investors, when deciding to invest in developing markets, are guided above all by the fact that they will gain advantage by using cheap resources and manpower. In other words, they are not investing in these markets to harness the knowledge and technology that these countries possess. Therefore, this result is understandable and expected. However, a deeper analysis of this issue requires knowledge of the FDI structure. There are numerous studies indicating that the motive for foreign investors was to exploit the technological advances of the host country, but such examples are rare in these countries.

Conclusion

One of the main problems faced by developing countries, such as Serbia, Montenegro, Bosnia and Herzegovina and Macedonia in the Western Balkans, is the low level of economic and business growth. This problem is compounded, on the one hand, by insufficient domestic accumulation and, on the other, by a lack of fresh capital for investments. Hence, these countries are struggling to attract foreign direct investments by providing various incentives to foreign investors and seeking to create the most favorable economic conditions and environment. However, the war conflicts and the political and general macro-economic instability in this region in the early 1990s influenced the low rate of FDI inflow into these countries, and the lack of utilization of their economic position and achievements since the late 1980s, when other socialist countries entered the transition process.

The inflow of FDI into these countries was below a level that would provide for accelerated structural reforms, higher growth rates, higher economic activity of the population, an increase in foreign currency reserves and a favorable credit rating. Therefore, the inflow of foreign direct investments into these countries means not only the inflow of fresh capital, but the transfer of *know-how* in the field of technical and technological processes, management methods and marketing mix. At the same time, it means reduction of unemployment and acceleration of economic growth, which has significant implications for political stability, and the creation of a healthy economic environment to further attract foreign direct investments. This is also the reason why macroeconomic policy makers seek to create the most attractive conditions for attracting foreign direct investors, offering primarily different incentives, and trying to modernize the business environment, both through the construction of quality legal regulations, and through infrastructure.

However, the findings in this paper indirectly imply that foreign investors invest in these markets solely to exploit cheap resources and manpower, which can serve as a benchmark for macroeconomic policy makers to enact adequate incentive measures to attract investments, leading to an increase in exports of highly sophisticated products and services, rather than the exploitation of national wealth and manpower.

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Pregled kretanja i strukture depozita u Republici Srbiji

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Rezime: Pored toga što je u prvi plan iznela pitanja bankarske regulative, svetska finansijska kriza osvestila je značaj koji poverenje deponenata u finansijski sistem ima za njegovu stabilnost, kao i ulogu i značaj sistema osiguranja depozita u tom procesu. Efekti krize na domaću privredu osetni su od poslednjeg kvartala 2008. godine, kada je kriza počela da se širi globalno. U skladu sa tim, predmet rada predstavlja analiza kretanja nivoa i strukture depozita u domaćem bankarskom sektoru u periodu od 2008. do 2019. godine. Pored toga, rad ima za cilj da ukaže na značaj i perspektive razvoja institucije osiguranja depozita u Republici Srbiji.

Ključne reči: sistem osiguranja depozita, stabilnost finansijskog sistema, Agencija za osiguranje depozita, Bazni principi, finansijska regulativa, Srbija

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Uvod

Svetska ekonomska i finansijska kriza imala je brojne negativne posledice na funkcionisanje finansijskih sistema zemalja širom sveta. Iako prvobitno nastala u SAD, kriza se vrlo brzo proširila na ostatak sveta, zahvatajući, kako razvijene, tako i nerazvijene ekonomije (Hanić i saradnici, 2014).

Nekoliko aspekata koje je ova kriza iznela u prvi plan jesu sledeći (Goodhart, 2008, 1):

- *obim i pokriće sistema osiguranja depozita;*
- *brze korektivne akcije u cilju suzbijanja insolventnosti banaka;*
- *operacije centralnih banaka na tržištu novca;*
- *upravljanje rizikom likvidnosti od strane komercijalnih banaka;*
- *procikličnost minimalnih zahteva u pogledu adekvatnosti kapitala komercijalnih banaka i Bazelska regulativa i nedostatak kontracikličnih instrumenata;*
- *obim regulacije i reputacioni rizik;*
- *krizni menadžment, kako unutar zemlje, tako i prekogranični krizni menadžment.*

Uzimajući u obzir navedeno, kao i izuzetno značajnu ulogu banaka kao finansijskih intermedijatora, odnosno njihovu i dalje dominantnu ulogu u finansijskim sistemima, ne čudi što je Globalna finansijska kriza u prvi plan iznela pitanja bankarske regulative i potrebu jačanja finansijskih sigurnosnih mreža. U kriznim periodima posebno se ističe značaj sistema osiguranja depozita i poverenja javnosti u finansijski sistem. Zbog toga ne čudi što su, upravo tokom krize, sistemi osiguranja depozita u mnogim zemljama pretrpeli značajne izmene (koje su uglavnom podrazumevale povećanje nivoa osiguravajućeg pokrića ili pokriće svih depozita za određeni vremenski period), dok je pet zemalja tek u tim okolnostima po prvi put uspostavilo sisteme osiguranja depozita.

Sa druge strane, nakon krize, veliki broj zemalja je u značajnoj meri izmenio karakteristike nacionalnih sistema osiguranja depozita, odnosno mandat osiguravača depozita (pružena je mogućnost da sistemi osiguranja depozita direktno učestvuju u finansiranju restrukturiranja banaka, skraćen je period za početak isplate depozita, ojačan je mehanizam dopunskog finansiranja i sl.), a još četrnaest zemalja uvelo je sisteme osiguranja depozita.

Jasno je da osnovni stub finansijskog sistema Srbije predstavlja bankarski sektor. Navedeno je posledica nedovoljno razvijene svesti o značaju sistema osiguranja u Srbiji, što je uzrokovano socijalno-ekonomskom situacijom u zemlji i niskim nivoom finansijske pismenosti stanovništva. Pored toga, domaće finansijsko tržište može se okarakterisati kao plitko i još uvek nedovoljno razvijeno. Drugim rečima, nedovoljna zainteresovanost za ostale segmente finansijskog sistema, odnosno njihova nedovoljna razvijenost, kao i reforma bankarskog sektora koja je usledila početkom 2000-tih godina, uticali su na to da u pogledu visine aktive i nivoa ostalih pokazatelja poslovanja, bankarski sektor u našoj zemlji uzme dominantno učešće.

Efekti krize na domaću privredu osetni su od poslednjeg kvartala 2008. godine, kada je kriza počela da se širi globalno. Sa tim u vezi, predmet rada predstavlja

analiza kretanja nivoa i strukture depozita u domaćem bankarskom sektoru u periodu od 2008. do 2019. godine. Rad ima za cilj da ukaže na značaj i perspektive razvoja institucije osiguranja depozita u Srbiji.

Rad je podeljen u pet celina. Nakon uvodnih razmatranja, pružen je kratak pregled relevantne literature koja se bavi izučavanjem sistema osiguranja depozita u svetu. Treći i četvrti deo posvećeni su prikazu osnovnih karakteristika sistema osiguranja depozita u Srbiji, odnosno analizi kretanja i strukturi depozita u našoj zemlji. Poslednji, peti deo, zaključuje.

Pregled literature

Sistem osiguranja depozita predstavlja integrativnu komponentu bankarske regulative velikog broja zemalja širom sveta. Posledično, sistem osiguranja depozita za cilj ima zaštitu deponenata, odnosno izgradnju i jačanje poverenja javnosti u finansijski sistem, čime u značajnoj meri doprinosi i izgradnji njegove stabilnosti.

Delotvornost postojanja institucije osiguranja depozita posebno dolazi do izražaja u periodima kriza i bankarskih panika. Sa tim u vezi, grupa autora (Anginer i saradnici, 2014) pokazala je u svojoj studiji da je u kriznim periodima bankarski rizik niži, odnosno da je stabilnost finansijskog sistema viša u onim zemljama koje imaju instituciju osiguranja depozita. Šta više, rezultati sprovedene studije ukazuju na to da efekat „moralnog hazarda“ u zemljama za koje je karakteristično postojanje sistema osiguranja depozita preovladava u periodima stabilnosti, dok „stabilizacioni efekat“ preuzima primat u kriznim vremenima.

Sa druge strane, autori Martinez Peria i Šmukler (Martinez Peria & Schmukler, 2002) u svojoj studiji istraživali su vezu između tržišne discipline i sistema osiguranja depozita, kao i između bankarskih kriza i tržišne discipline po osnovu iskustava Argentine, Čilea i Meksika tokom 80-ih i 90-ih godina prošlog veka. Rezultati sprovedenih istraživanja ukazuju na to da agregatni šokovi u periodima kriza utiču na nivo depozita i visinu kamatnih stopa, bez obzira na karakteristike proučavanih bankarskih sistema.

Nasuprot tome, a na bazi analize sprovedene na panelu od 61 zemlje u periodu 1980 – 1997. godine autorke Demirguč-Kunt i Detragiache (Demirguč-Kunt & Detragiache, 2002) u svojoj studiji pokazale su da postojanje institucije osiguranja depozita utiče na povećanje verovatnoće nastanka bankarskih kriza, posebno u onim zemljama koje odlikuje slabo institucionalno okruženje i prisustvo deregulacije u pogledu formiranja kamatnih stopa. Takođe, rezultati sprovedenih istraživanja istovremeno ukazuju da je negativan uticaj osiguranja depozita na stabilnost finansijskog sistema obično jači što je opsežniji nivo pokrića depozita, odnosno, u slučaju da je regulativa pod kontrolom javnog, a ne privatnog sektora.

Iz navedenog proizilazi da na delotvornost sistema osiguranja depozita ne utiču samo karakteristike njegovog modela, već i okruženje u kome deluje. Sa tim u vezi, poznato je da poslovno okruženje obuhvata makroekonomske uslove, snagu države, strukturu finansijskog sistema, prudencijalnu regulaciju i nadzor,

pravni i pravosudni okvir, i sistem računovodstva i obelodanjivanja informacija. Drugim rečima, iako je poslovno okruženje uglavnom izvan delokruga osiguravača depozita, ono u značajnoj meri utiče na sposobnost osiguravača depozita da ispuni svoj mandat i delimično određuje njegovu delotvornost u zaštiti deponenata i jačanju finansijske stabilnosti (IADI Core Principles for Effective Deposit Insurance Systems, 2014).

U skladu sa svim navedenim, a uviđajući značaj koji institucija osiguranja depozita ima u domenu smanjenja sistemskog rizika i jačanja stabilnosti finansijskog sistema, Međunarodno udruženje institucija za osiguranje depozita (IADI) i Bazelski komitet za nadzor banaka (BCBS) juna 2009. godine prvi put objavljuju Bazne principe za delotvorne sisteme osiguranja depozita. Bazne principe i metodologiju usklađenosti s njima (zajednički nazvani: Bazni principi) koriste i nacionalni sistemi za osiguranje depozita kao standard, odnosno merilo za procenu kvaliteta sistema osiguranja depozita i prepoznavanje nedostataka u praksi. Danas postoji ukupno 16 Baznih principa koji se mere na bazi ispunjenosti 96 kriterijuma za procenu.

Osnovne karakteristike sistema osiguranja depozita u Srbiji

U pogledu regulative Agencija za osiguranje depozita, Narodna banka Srbije i Ministarstvo finansija sa jasno definisanim i razgraničenim nadležnostima čine tri stuba domicilne finansijske sigurnosne mreže.

Sa tim u vezi, u julu 2005. godine, u našoj zemlji uveden je novi sistem osiguranja depozita fizičkih lica sa osiguravajućim pokrićem od 3.000 evra. Međutim, nepovoljna kretanja u svetskim okvirima tokom ekonomske krize prenela su se i na domaće tržište, što se, između ostalog, odrazilo i na odliv depozita iz bankarskog sektora krajem 2008. godine. Na dan 30.9.2008. godine, ukupni depoziti fizičkih lica iskazani u evrima, iznosili su 6,4 milijardi evra (što je povećanje u odnosu na početak godine od 900 miliona evra), da bi na dan 31. oktobra, došlo do odliva štednje u visini od 1,1 milijarde evra. Da bi se sprečio dalji pad depozita kao posledica suočavanja sa finansijskom krizom, merama regulatora monetarne politike 2008. godine iznos osiguravajućeg pokrića značajno je povećan - sa 3.000 evra na 50.000 evra, a proširen je i obuhvat deponenata, tako da su sistemom osigurani depoziti ne samo fizičkih lica, već i preduzetnika i malih i srednjih pravnih lica. Proširenje pokrića uticalo je ujedno i na rast osnovice za obračun premije, odnosno kapitalizaciju fonda. Ove promene predstavljale su deo regulatornog okvira za upravljanje krizom i vraćanje poverenja u bankarski sistem, njegovu dalju zaštitu od masovnog povlačenja depozita i kolapsa i, naravno, održavanje finansijske stabilnosti zemlje u periodu globalne ekonomske krize. U skladu sa tim, a u cilju vraćanja poverenja deponenata u bankarski sistem, i Evropska komisija je u Briselu oktobra 2008. godine predložila povećanje osiguranog bankarskog depozita na iznos od minimum 50.000 evra (do tada je iznosio 20.000 evra), da bi do kraja 2009. godine ta suma dostigla 100.000 evra. Izmene Zakona o osiguranju depozita u Srbiji pozitivno su uticale na vraćanje poverenja javnosti u bankarski sistem, tako da je efekat odliva depozita anuliran već polovinom 2009. godine.

U skladu sa Baznim principima, kreatori politike treba jasno da utvrde nivo (osigurani iznos) i obuhvat pokrića. Pokriće treba da bude ograničeno, pouzdano i njime treba da se obuhvati, odnosno, osigura velika većina deponenata, ali i da se ostavi značajan iznos depozita izložen tržišnoj disciplini. U Republici Srbiji iznos pokrića je ograničen, ali visok (imajući u vidu prosečan iznos depozita i nivo životnog standarda), eksplicitno je naveden u Zakonu o osiguranju depozita i jednak je za sve kategorije osiguranih deponenata i sve banke kao depozitne institucije. Ujedno sve banke koje poseduju dozvolu za rad članice su sistema osiguranja depozita, bez posebnih kriterijuma za prijem u članstvo.

U oktobru 2019. godine stupio je na snagu Zakon o izmenama i dopunama Zakona o osiguranju depozita kojim je domaći sistem osiguranja depozita značajno unapređen i dodatno usklađen sa međunarodnom praksom i standardima, kao i pravnim tekovinama Evropske unije. Očekivani pozitivni efekti proistekli iz odredbi ovog zakona su višestruki i podrazumevaju, pored doprinosa finansijskoj stabilnosti, i podsticaj smanjenju rizika u poslovanju banaka, pravedniji pristup obračunu premije, unapređenje položaja i zaštite deponenata, jačanje poverenja javnosti u finansijski sistem, povećanje efikasnosti sistema osiguranja depozita i unapređenje održivosti fonda za osiguranje depozita.

Premije osiguranja depozita predstavljaju primarni i redovni izvor za finansiranje fonda za osiguranje depozita i ono se vrši po ex-ante principu, kao i do sada. Ovim Zakonom izmenjena je osnovica za obračun premije osiguranja depozita, tako da se premija, umesto na prosečno stanje ukupnih osiguranih depozita u banci (ukupni depoziti fizičkih lica, preduzetnika, mikro, malih i srednjih pravnih lica, ne uključujući depozite koji se po zakonu isključuju iz sistema osiguranja depozita), obračunava na prosečno stanje ukupnih osiguranih iznosa u banci (iznos osiguranog depozita do 50.000 evra po deponentu u banci), dalje, uvedena je mogućnost obračuna premije osiguranja depozita na osnovu nivoa rizika u poslovanju banaka i ojačani su dopunskih izvori finansiranja Fonda za osiguranje depozita. Njime su izmenjene odredbe koje se odnose na ciljni iznos fonda, čime je ciljni iznos fonda za osiguranje depozita definisan na nivou od 7,5% osiguranih iznosa depozita u bankarskom sistemu, a Agencija za osiguranje depozita je dužna da obezbedi da zaključno sa 1. januarom 2030. godine iznos sopstvenih sredstava na računu fonda za osiguranje depozita dostigne taj nivo i da shodno tome određuje stopu premije (član 23).

Fond za osiguranje depozita u Republici Srbiji ima dualnu funkciju (tzv. "paybox-plus" mandat), pored isplate osiguranih depozita, sredstva fonda se mogu koristiti i za finansiranje restrukturiranja banke u obimu i pod uslovima utvrđenim Zakonom o bankama.

Pravni okvir kojim se regulišu struktura i funkcionisanje sistema za osiguranje depozita u Evropskoj Uniji sadržan je u Direktivi o sistemima za osiguranje depozita 2014/49/EU Evropskog parlamenta i Evropskog saveta (u daljem tekstu: Direktiva), koja je stupila na snagu 3.7.2014. godine i primenjuje se od jula 2015. godine. U cilju usklađivanja sa propisima EU u Republici Srbiji 2015. godine uveden je novi Zakon o osiguranju depozita. Ipak, potpuno usklađivanje domaće regulative sa pomenutom Direktivom će se tek sprovesti, a najznačajnije promene odnosiće se na povećanje osiguranog iznosa depozita na 100.000 evra, i proširenje obuhvata zaštićenih deponenata koje podrazumeva

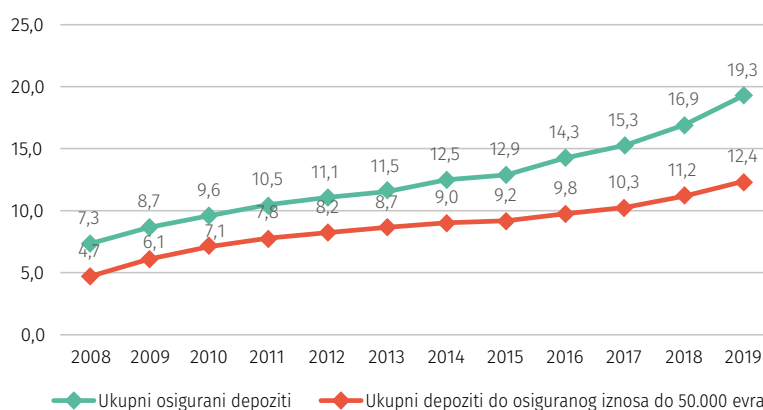
uključivanje privrednih subjekata koji imaju status velikih pravnih lica (osim finansijskih institucija, osiguravajućih društava, penzijskih fondova i državnih organa i institucija, kao i organa lokalne uprave) u sistem osiguranja.

Rok za započinjanje procesa isplate osiguranih iznosa u skladu sa Zakonom o osiguranju depozita je sedam radnih dana i već je usklađen sa Direktivom, koja nalaže zemljama članicama postepeno skraćivanje roka tako da se tek od 2024. godine započinje sa isplatom u roku od sedam radnih dana. Isplata depozita u Republici Srbiji vrši se u dinarima i evrima (u dinarima za dinarske depozite, u evrima za depozite u valutama različitim od domaće).

Kretanje i struktura depozita u Srbiji

U periodu 2008 – 2019. godine primetan je značajan trend rasta osiguranih depozita, za koji je delom zaslužno postojanje sistema osiguranja depozita u našoj zemlji. Iznos osiguranih depozita u posmatranom periodu više je nego udvostručen, a samo u toku 2019. godine rast ove kategorije depozita iznosio je 14%, što je najveći godišnji rast u posmatranom periodu, uprkos niskim kamatnim stopama banaka na depozitne uloge u odnosu na prethodne periode (Grafikon 1).

Grafikon 1: Pregled kretanja osiguranih depozita i depozita do osiguranog iznosa od 50.000 evra u periodu 2008 – 2019, mlrd EUR



Napomena: Dinarske vrednosti preračunate su po srednjem kursu NBS, na poslednji dan u godini

Izvor: Agencija za osiguranje depozita

Čak i u periodu 2012 – 2014. godine kada je otvoren stečajni postupak nad pet banaka, usled čega su Republika Srbija i Fond za osiguranje depozita za rešavanje banaka intervenisali ukupno sa gotovo 900 miliona evra, deponenti nisu izgubili poverenje u finansijski sistem i nije usledio novi dramatičan odliv

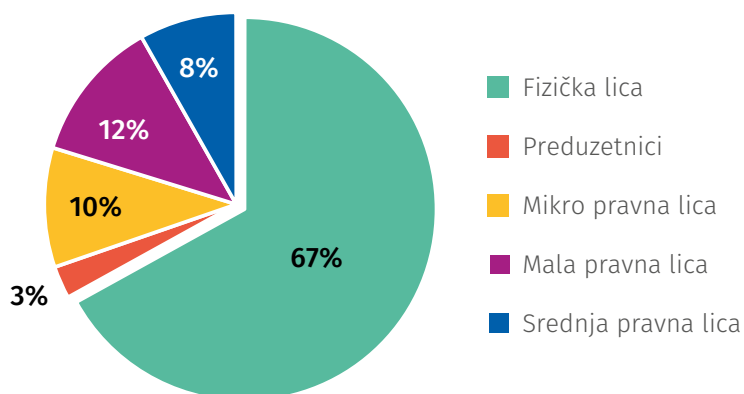
depozita, te se i u tim godinama beleži rast depozita, iako nešto nižeg intenziteta.

Karakteristike u pogledu strukture depozita uključenih u sistem osiguranja nisu se značajnije menjale u prethodnih 10 godina.

U skladu sa tim, sistemom osiguranja depozita u najvećoj meri pokriveni su depoziti fizičkih lica i preduzetnika. Ujedno, osigurani depoziti fizičkih lica čine 67% ukupnih osiguranih depozita u Srbiji. Nivo i obim pokrića će se ponovo razmotriti u skladu sa revizijom zakona u očekivanju pristupanja Srbije Evropskoj uniji. Povećanje nivoa pokrića sa 50.000 na 100.000 evra ne bi se značajnije odrazilo na ovu kategoriju deponenata.

Na Grafikonu 2 prikazan je pregled učešća osiguranih depozita prema vrsti deponenata na dan 31.12.2019. godine.

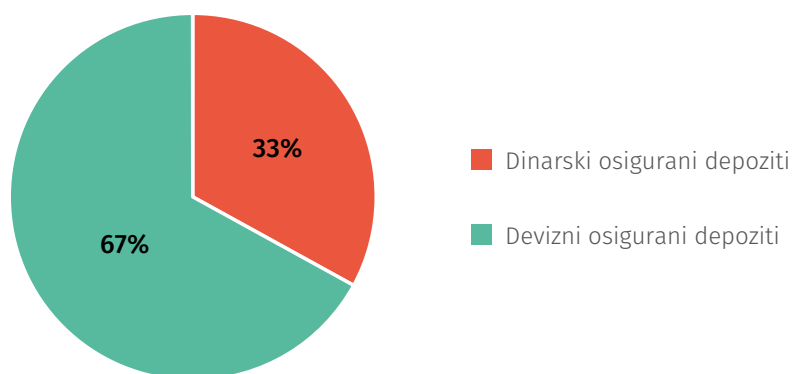
Grafikon 2: Pregled učešća osiguranih depozita prema kategoriji deponenata na dan 31.12.2019. godine



Izvor: Agencija za osiguranje depozita

Na Grafikonu 3. prikazana je valutna struktura osiguranih depozita, u okviru koje se vidi da i dalje dominantno učešće imaju depoziti denominovani u stranom valutnom znaku (67%).

Grafikon 3: Valutna struktura osiguranih depozita na dan 31.12.2019. godine

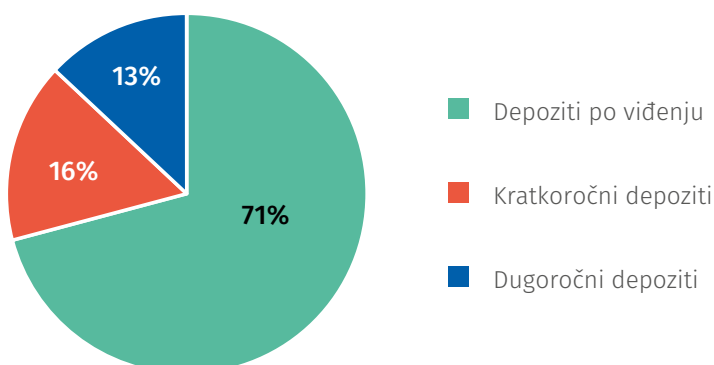


Izvor: Agencija za osiguranje depozita

Ipak, u okviru mera Narodne banke Srbije i Vlade Republike kroz strategiju dinarizacije finansijskog sistema, primećuje se da dinarski depoziti beleže permanentan rast od 2013. godine.

U pogledu ročne strukture depozita uključenih u sistem osiguranja (Grafikon 4), primetno je da čak 87% ukupnih depozita čine depoziti oročeni do godinu dana i depoziti po viđenju.

Grafikon 4: Ročna struktura depozita na dan 31.12.2019. godine



Izvor: Agencija za osiguranje depozita

Posmatranjem ročne strukture depozita uključenih u sistem osiguranja u navedenom periodu, zaključuje se da su dugoročni depoziti u celom posmatranom

periodu imali najmanje učešće, dok su kratkoročni depoziti sve do 2014. godine imali najveće učešće, od kada se stanje menja u korist depozita po viđenju, kao posledica smanjenja kamatnih stopa.

Zaključak

Pored toga što je u prvi plan iznela pitanja bankarske regulative, Svetska finansijska kriza osvestila je značaj koji poverenje deponenata u finansijski sistem ima za njegovu stabilnost, kao i ulogu i značaj sistema osiguranja depozita. Tokom i nakon krize, veliki broj zemalja u značajnoj meri izmenio je karakteristike nacionalnih sistema osiguranja depozita, odnosno mandat osiguravača depozita (pružena je mogućnost da sistemi osiguranja depozita direktno učestvuju u finansiranju restrukturiranja banaka, skraćen je period za početak isplate depozita, ojačan je mehanizam dopunskog finansiranja i sl.), a određeni broj zemalja tek tada po prvi put implementira sistem osiguranja depozita.

Uzimajući u obzir da su efekti krize na domaću privredu osetni od poslednjeg kvartala 2008. godine, kada je kriza počela da se širi globalno, u radu je proučavano kretanje i struktura depozita u našoj zemlji u prethodnih jedanaest godina. Sa tim u vezi, u periodu 2008 – 2019. godine primetan je značajan trend rasta osiguranih depozita u Srbiji. Iznos osiguranih depozita u posmatranom periodu više je nego udvostručen, a samo u toku 2019. godine rast ove kategorije depozita iznosio je 14%, što je najveći godišnji rast u posmatranom periodu, zahvaljujući stabilnom bankarskom sistemu i sistemu osiguranja depozita, a uprkos niskim kamatnim stopama banaka na depozitne uloge.

Pored toga, karakteristike u pogledu strukture osiguranih kategorija deponenata i valute nisu se značajnije menjale. U tom pravcu, u ukupnim depozitima dominantno učešće i dalje imaju depoziti fizičkih lica i devizni depoziti. Posmatrano po ročnosti, depoziti po viđenju i kratkoročni depoziti zastupljeniji su od dugoročnih depozita, s tim da od 2014. godine depoziti po viđenju beleže najveće učešće.

Izmenama i dopunama Zakona o osiguranju depozita iz 2019. godine sistem osiguranja depozita je značajno unapređen i dodatno usklađen sa najboljom međunarodnom praksom i standardima, kao i pravnim tekovinama Evropske unije. Iako je sistem osiguranja depozita u velikoj meri uskladjen sa Direktivom, u susret pristupanju Republici Srbiji Evropskoj uniji neophodnost potpunog uskladjivanja sa pravnim tekovinama Unije zahtevaće dodatne izmene Zakona o osiguranju depozita, pri čemu su najznačanije povećanje osiguranog iznosa sa 50.000 na 100.000 evra i proširenje obuhvata zaštićenih deponenata koje podrazumeva uključivanje privrednih subjekata koji imaju status velikih pravnih lica (osim finansijskih institucija, osiguravajućih društava, penzijskih fondova i državnih organa i institucija, kao i organa lokalne uprave) u sistem osiguranja.

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Deposit Flows and Structure in Serbia

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Summary: Having drawn attention to the existing banking regulation issues, the Global Financial Crisis also raised awareness of the importance of depositors' confidence for the stability of the financial system, and brought the role and significance of the deposit guarantee schemes to the fore. Serbian economy started experiencing its effects in Q4 2008, in parallel with the global spreading of the crisis. This paper focuses on the fluctuations in deposit levels and structure in the Serbian banking system, between 2008 and 2019. It also aims to underscore the importance and development perspectives of the Serbian deposit guarantee scheme.

Keywords: deposit guarantee scheme (DGS), financial system stability, Deposit Insurance Agency (DIA), Core Principles, financial regulation, Serbia

JEL: G21

Introduction

The global economic and financial crisis adversely impacted the financial systems around the world in a number of ways. It first emerged in the US and quickly spread to the rest of the world, engulfing the developed and developing economies alike (Hanić et al., 2014).

The crisis gave prominence to several aspects (Goodhart, 2008, 1):

- *the scale and scope of deposit insurance;*
- *prompt corrective actions to deal with bank insolvency;*
- *money market operations by central banks;*
- *commercial bank liquidity risk management;*
- *pro-cyclicality of capital adequacy requirements, Basel regulatory framework and lack of counter-cyclical instruments;*
- *boundaries of regulations and reputational risk;*
- *domestic and cross-border crisis management.*

Having in mind the above, the singular role of banks as financial intermediaries, and their still dominant position in financial systems, it should come as no surprise that the Global Financial Crisis thrust into the limelight the banking regulation issues and the urgent need to strengthen financial safety nets. In times of crisis, DGSs and public confidence in the financial system are paramount. Unsurprisingly, it was during the crisis that many countries introduced substantial changes in their deposit guarantee schemes (mainly involving increased coverage levels or blanket guarantees for a limited amount of time), whereas five countries set up their respective deposit guarantee schemes for the first time.

After the crisis, however, a number of countries decided to significantly modify the main features of their DGSs and their respective deposit insurers' mandates (some DGSs were allowed to directly participate in financing bank resolutions, pay-out delays were shortened, backup funding mechanisms were strengthened, etc.), and DGSs were established in another 14 countries.

The banking sector is undoubtedly the main pillar of the Serbian financial system. This is the result of underdeveloped awareness of the insurance services, which, in turn, is the consequence of the social and economic situation in Serbia and the low level of financial literacy of the general population. Furthermore, the Serbian financial market may be qualified as shallow and underdeveloped. In other words, the lack of interest in other segments of the financial system, their insufficient development and the banking sector reform in early 2000s combined to raise the banks to a dominant position in Serbia in terms of asset levels and other performance indicators.

Serbian economy started experiencing the effects of the crisis in Q4 2008, when it began to spread globally. This paper focuses on the trends in deposit levels and structure in the Serbian banking system between 2008 and 2019. It also aims to underscore the importance and perspectives of the Serbian deposit guarantee scheme.

This paper consists of five parts. The introductory remarks are followed by a short overview of relevant literature on DGSs around the world. In the third and the fourth part, respectively, we shall present the key features of Serbian DGS, and analyse the deposit flow and structure in Serbia. The last – fifth – part is the conclusion.

Literature

DGS is part of banking regulations in a large number of countries. Consequently, a DGS aims to protect depositors and build public trust in the financial system, thus helping promote its stability.

The effectiveness of a DGS is most noticeable in the periods of crisis and banking panic. In their study, a group of authors (Anginer et al., 2014) have demonstrated that the “bank risk tends to be lower during the crisis, and the financial system stability is greater in the countries with deposit insurance coverage”. Their findings have shown that the “moral hazard effect” in the countries with a viable DGS dominates in peace time, while the “stabilisation effect” takes precedence in turbulent times.

Nevertheless, Martinez Peria and Schmukler (Martinez Peria & Schmukler, 2002) examined the “interaction between market discipline and deposit insurance, and the impact of banking crises on market discipline”, focusing on the experiences of Argentina, Chile and Mexico during the 1980s and 1990s. They learnt that the aggregate shocks in times of crisis affect depositors and interest rates, regardless of characteristics of the studied banking systems.

In contrast, based on evidence for 61 countries in 1980-1997, Demirguc-Kunt and Detragiache (Demirguc-Kunt & Detragiache, 2002) found that “explicit deposit insurance tends to increase the likelihood of banking crises, the more so where bank interest rates are deregulated and the institutional environment is weak. Also, the adverse impact of deposit insurance on bank stability tends to be stronger the more extensive is the coverage offered to depositors, where the scheme is funded, and where it is run by the government rather than the private sector.”

This means that the effectiveness of a DGS depends not only on its model characteristics, but also on its environment. Business environment is the product of a combination of macroeconomic conditions, power of the state, financial system structure, prudential regulation and supervision, legal and juridical framework, and the accounting and disclosure system. Although it remains outside the deposit insurer’s mandate and powers, it has considerable impact on the deposit insurer’s ability to fulfil that mandate and partially determines its effectiveness in depositor protection and promotion of financial stability (IADI Core Principles for Effective Deposit Insurance Systems, 2014).

In conformance with the above, in June 2009, appreciating the important role of deposit insurers in reducing the systemic risk and strengthening the financial system stability, the International Association of Deposit Insurers (IADI) and the Basel Committee on Banking Supervision (BCBS) issued the Core Principles for Effective Deposit Insurance Systems. The Core Principles and the

Compliance Assessment Methodology for the Core Principles (jointly referred to as: the Core Principles) are used by jurisdictions as a standard or a benchmark for assessing the quality of their DGSs and for identifying weaknesses in their deposit insurance practice. Sixteen Core Principles are now applicable, including 96 assessment criteria.

Main Characteristics of the Serbian Deposit Guarantee Scheme

In line with the regulatory framework, the Deposit Insurance Agency, the National Bank of Serbia and the Ministry of Finance, with their clearly defined and separate mandates, constitute the three pillars of the Serbian financial safety net.

In July 2005, a new deposit insurance system was established in Serbia, protecting the bank deposits of natural persons (individuals) up to EUR 3,000. However, during the crisis, adverse global trends spilled over into Serbian market, which reflected, *inter alia*, in a major outflow of deposits from the banking sector in late 2008. As of 30 September 2008, aggregate retail deposits in Serbian banks stood at EUR 6.4 billion (up by EUR 900 million in comparison with the beginning of the year). In merely a month, the total deposits plummeted by EUR 1.1 billion. To prevent further drops in deposit levels as a result of the financial crisis, in 2008, the monetary policy regulator increased the coverage limit from EUR 3,000 to EUR 50,000 and extended the scope of protection to include not only natural persons, but also entrepreneurs and SMEs. Broader coverage affected the premium assessment base and, therefore, the Deposit Insurance Fund (DIF) replenishment. These changes were part of the amended legal framework, which intended to improve crisis management, restore public confidence in the banking system, protect the system from bank runs and failures, and safeguard financial stability during the global economic crisis. In order to rebuild depositors' confidence in the banking system, in October 2008, the European Commission proposed to increase the coverage limit to EUR 50,000 (from EUR 20,000), and then again to EUR 100,000 by the end of 2009. The positive effects of the amendments to the Deposit Insurance Law in Serbia reflected in restored public confidence in the banking sector, and the downward trend in deposit levels was reversed by mid-2009.

According to the Core Principles, "policymakers should define clearly the level (limit) and scope of deposit coverage. Coverage should be limited, credible and cover the large majority of depositors, but leave a substantial amount of deposits exposed to market discipline." In Serbia, the coverage is limited but high (compared to the average deposit balance and living standards), explicitly defined in the Deposit Insurance Law and equal for all categories of insured depositors and all banks as depositaries. All licensed banks are DGS members and there are no special criteria for admitting new members.

In October 2019, new amendments to the Deposit Insurance Law significantly improved and further aligned the Serbian DGS with international practice and standards, and *acquis communautaire*. Multiple positive effects of the amended Law are expected, such as: improved financial stability, reduced bank risks, more equitable approach to premium assessment, enhanced depositor pro-

tection, more public confidence in the financial system, better efficiency of the DGS and more sustainable DIF.

Deposit insurance premiums are the primary and regular source of DGS funding. As before, they are levied *ex ante*. In accordance with the amended Law, the deposit insurance premium base has been changed. It now equals the average level of total covered deposits up to EUR 50,000 (insured deposits up to EUR 50,000 per depositor per bank) rather than the average total eligible deposits (all deposits of individuals, entrepreneurs, micro, small and medium-sized legal entities, excluding the deposits which are treated as exceptions by the law). Risk-based premium assessment is introduced as an option and backup funding sources have been strengthened. The provisions which define the target reserve ratio have also been amended. Statutory target DIF is now 7.5 per cent of covered deposits in the banking system. The DIA is required to reach this target by 1 January 2030 and set the premium rate accordingly (Deposit Insurance Law, Art. 23).

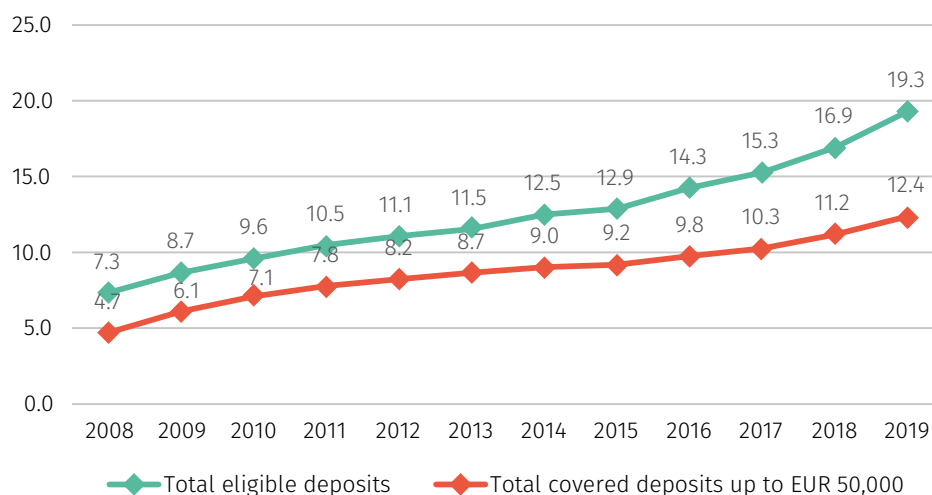
The Serbian DIF has a dual purpose (so-called “paybox-plus” mandate): in addition to the depositor reimbursement, it may also be utilised to fund bank resolutions up to the limits and under the conditions set forth in the Law on Banks.

The structure and operations of the DGSs in the EU are regulated by the Directive 2014/49/EU of the European Parliament and of the Council on deposit guarantee schemes (the DGSD), effective since 3 July 2014 and applicable since July 2015. New Deposit Insurance Law, enacted by the Serbian Parliament in 2015, was intended to harmonise the Serbian statutory framework regulating the DGS with the DGSD. Full harmonisation of Serbian regulations with the DGSD is still pending. The most significant changes will relate to increasing the coverage limit to EUR 100,000 and extending the scope of coverage to the companies classified as large legal entities (with the exception of financial institutions, insurance companies, pension funds, public authorities and institutions, and local government authorities).

Pay-out delay, as defined in the Deposit Insurance Law, is 7 business days. This is in compliance with the DGSD, which obliges the member states to gradually shorten the delay to the target 7 business days in 2024. Deposits are disbursed in dinars and euros (in dinars in case of the deposits in domestic currency, and in euros if the deposit is denominated in any foreign currency).

Deposit Flows and Structure in Serbia

Between 2008 and 2019, the deposit base in Serbian banks has grown considerably, partially as a result of the existence of the DGS. In this period, eligible deposits in Serbian banks more than doubled. In 2019, deposits in this category increased by 14 per cent, which is the largest annual growth in the referent period despite low deposit interest rates offered by banks compared to previous periods. (Figure 1).

Figure 1: Eligible and Covered Deposit Flows Between 2008 and 2019, EUR in Billions

Note: Dinar balances converted at the middle exchange rates set by the NBS on December 31 each year

Source: DIA Serbia

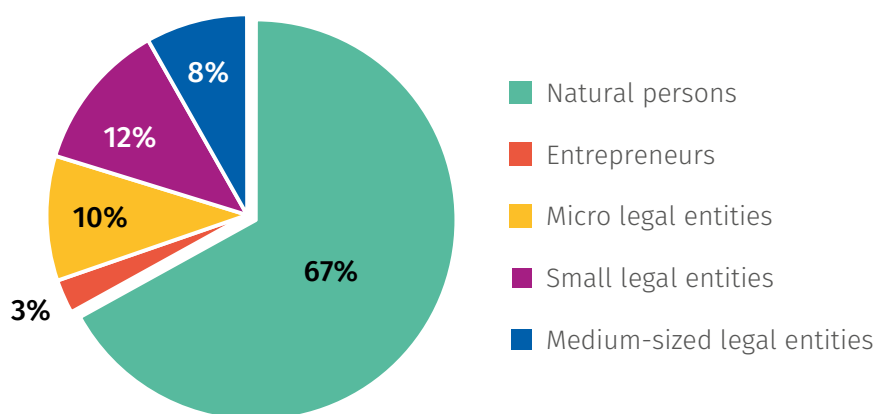
Even between 2012 and 2014, when five domestic banks failed and the cost of the combined efforts of the Republic of Serbia and the DIF to resolve these banks reached nearly EUR 900 million, depositors' confidence in the financial system appeared to be largely unaffected. Bank runs were avoided and the deposit base continued to grow, although at a slower pace.

The structure of deposits protected by the deposit guarantee scheme has not exhibited any significant changes in the last 10 years.

DGS covers to the greatest extent the deposits of natural persons and entrepreneurs. Deposits of natural persons constitute 67 per cent of total eligible deposits in Serbia. Level and scope of coverage will be reviewed when the regulatory reform takes place to ensure complete harmonization at the time of Serbia's accession to the EU. The increase of coverage limit from EUR 50,000 to EUR 100,000 will not affect this category of depositors significantly.

Figure 2 shows the distribution of total eligible deposits by categories of insured depositors as of 31 December 2019.

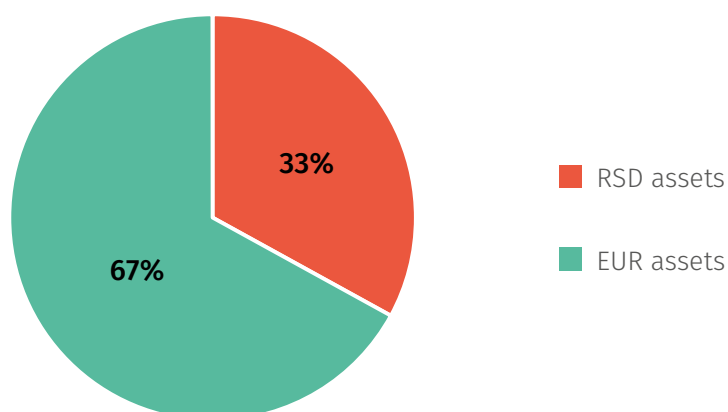
Figure 2: Distribution of Total Eligible Deposits by Categories of Insured Depositors as of 31 December 2019



Source: DIA Serbia

Figure 3 illustrates the currency structure of eligible deposits at the end of 2019. As shown in the graph, foreign-currency deposits hold a dominant share (67 per cent).

Figure 3: Currency Structure of Eligible Deposits as of 31 December 2019

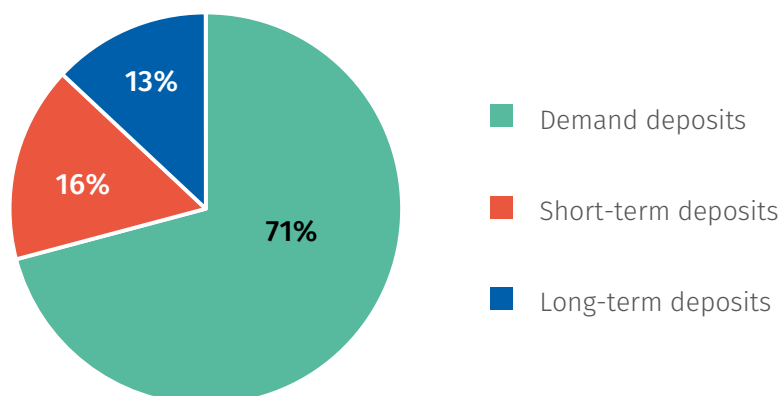


Source: DIA Serbia

Nevertheless, deposits denominated in dinars have been growing steadily since 2013, in line with the measures implemented by the National Bank of Serbia and Serbian Government as part of the strategy to “dinarise” the financial system.

With regard to the term structure of eligible deposits in Serbian banks (Figure 4), short-term deposits (with maturities under 12 months) and demand deposits make up as much as 87 per cent of total deposits.

Figure 4: Term Structure of Deposits as of 31 December 2019



Source: DIA Serbia

The analysis of term structure of eligible deposits shows that the long-term deposits had the smallest share throughout the referent period, whereas the short-term deposits were dominant until 2014, when the situation started changing in favour of demand deposits, most likely as a consequence of lower deposit interest rates.

Conclusion

In addition to bringing the banking regulation issues to the fore, the Global Financial Crisis raised awareness of the role and importance of DGSs, as well as the significance of depositors' confidence in financial system for its stability. During and after the crisis, many countries modified the features and mandates of their respective DGSs (DGSs were allowed to directly contribute to bank resolution funding, pay-out delay was shortened, backup funding mechanisms were strengthened and so forth). At the time, a number of countries set up their respective national DGSs for the first time.

In view of the fact that the impact of the crisis on Serbian economy became evident from Q4 2008, when the crisis started spreading globally, we have presented here the deposit flows and structure in the past eleven years. Between 2008 and 2019, insured deposits have grown considerably. The level of eligible deposits in the referent period more than doubled, while in 2019 alone it rose by 14 per cent, which is the highest annual growth in the studied period, mainly thanks to the stability of the banking system and the deposit guarantee scheme and despite low deposit interest rates.

The structure of insured depositor categories and currencies have not undergone any major changes. Retail deposits and foreign-currency deposits still have the dominant share in total deposits. Also, demand deposits and short-term deposits are more common than long-term deposits. Demand deposits reached their highest share in 2014.

Amendments to the Deposit Insurance Law enacted in 2019 helped improve and further align the Serbian DGS with the best international practice and standards, and the EU *acquis*. Nevertheless, full harmonisation with the *acquis communautaire* will require additional amendments to the Deposit Insurance Law, most important of which include the increase of the coverage limit from EUR 50,000 to EUR 100,000 and the inclusion of large legal entities (with the exception of financial institutions, insurance companies, pension funds, public authorities and institutions, and local government authorities).

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Rezervna novčanica od 100 dinara

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Rezime: Banknota od 100 dinara koja nosi datum 15. jul 1934. je rezervna novčanica nastala usled pogoršanja ekonomskih i međunarodnih odnosa u Evropi, što je motivisalo nadležne državne organe i Narodnu banku Kraljevine Jugoslavije da se angažuju u stvaranju ratne rezerve. Od ukupnog tiraža koji iznosi 24.565.000 novčanica Narodna banka je manji deo pustila u opticaj u periodu od 6. do 15. aprila 1941. godine za isplatu vojnim jedinicama. Veći deo njenog tiraža je uništila, a jedan deo je okupator opljačkao i iskoristio za plaćanja u okupiranoj zemlji. Urađena je u Zavodu za izradu novčanica prema crtežima akademskog slikara Vase Pomorišca, u saradnji sa grafičarem Pantom Stojićevićem i graverom Veljkom Kunom.

Ključne reči: rezervna novčanica, ratne rezerve, Narodna banka Kraljevine Jugoslavije, Srpska Narodna banka, tiraž, opticaj, Vasa Pomorišac, Jovan Lovčević, Melko Čingrija, Aleksandar I Karađorđević.

JEL: N14



Vasa Pomorišac

Akademski slikar Vasa Pomorišac rođen je 1893. godine u Jaši Tomiću, tadašnjem Modošu. Studirao je na Akademiji umetnosti u Minhenu. Učestvovao je u Prvom svetskom ratu u Dobrovoljačkoj diviziji. U Grčkoj je pri Vrhovnoj komandi vojske Kraljevine Srbije radio kao ratni slikar. Nakon rata nastavlja studije na Akademiji za umetnost i zanat u Zagrebu i u Školi umetnosti i zanata u Beogradu. Sa profesorom Ljubom Ivanovićem obilazio je srpske manastire praveći kopije brojnih fresaka. Studije je nastavio u Londonu od 1920. do 1924. godine gde se u Centralnoj školi za umetnost i zanat specijalizovao za slikanje na staklu. Od 1930. do 1931. godine radi u Školi za umetnost i zanat, a potom postaje profesor na Akademiji likovnih umetnosti. Od 1950. godine je profesor na Akademiji primenjene umetnosti u Beogradu. Najpoznatije slike su mu: „Izvor“, „Kartaši“, „Autoportret“, „Autoportret sa paletom“, „Čerka“, „Devojka“, i dr. Njegove tri kopije fresaka iz Manasije čuvaju se u muzeju Viktorije i Alberta u Londonu. Kopije fresaka izlagao je u Parizu i Londonu. Umro je u Beogradu 1961. godine.

Poznajući rad slikara Vase Pomorišca i njegovu opčinjenost srpskim fresko slikarstvom, ne čudi ni konstatacija poznavalaca oslikavanja novčanica da je ovo jedna od najlepših naših banknota. Kopirajući freske po našim manastirima Pomorišac se susretao i sa predstavama srpskih vladara, vladarki, vlastele i vlastelinki koji su bili obučeni u bogatu, stilizovanu odeću srednjeg veka. Tako obučene ženske figure nalaze se i na ovoj novčanici.

Osim ove od 100 dinara, Vasa Pomorišac je autor i novčanice od 1000 dinara koja nikada nije puštena u promet. Ovo remek delo nacionalne notafilije Međunarodna organizacija za banknote (*International Banknote Society*) proglasila je za jednu od deset najlepših novčanica na svetu.

Na osnovu dopisa koji je poslat iz Zavoda za izradu novčanica 13. februara 1934. godine Narodna banka Kraljevine Jugoslavije dobija detaljan opis nove – rezervne novčanice od 100 dinara. Nakon toga, iz Narodne banke ministru finansija 15. februara iste godine stiže dopis sa opisom ove buduće novčanice. Šest dana kasnije ministar finansija, Milorad Đorđević, ovlašćuje Narodnu banku da počne sa njenim štampanjem.

Samo osam dana bilo je potrebno da se donese odluka o početku štampanja novčanice koja će nositi datum 15. jul 1934. godine, ali je više od tri godine bilo potrebno da se taj posao završi. Dokaz tome je podatak koji se nalazi u „Pregledu novčanica“ od 31. decembra 1936. godine (Arhiv Narodne banke) u kojem se navodi da je izrada novčanice od 100 dinara još uvek u toku.

Motivi nastanka novčanice

Ova stotinarka je rezervna novčanica nastala usled pogoršanja ekonomskih i međunarodnih odnosa u Evropi, što je motivisalo nadležne državne organe i Narodnu banku Kraljevine Jugoslavije da se angažuju u stvaranju ratne rezerve. U Programu rada Zavoda za izradu novčanica za period od 1931. do

1935. godine unet je plan izrade ovih novčanica. Taj Program rada usvojio je i Upravni odbor Narodne banke na sednici od 14. marta 1931. godine. Nakon četiri godine, tačnije 18. juna 1935. godine, pismom iz Narodne banke obavešten je ministar finansija da je formirana ratna rezerva u novčanicama, među kojima je i ova od 100 dinara. Bliže obaveštenje šta je rezervna novčanica dao je inspektor zemaljske odbrane u pismu koje je upućeno Narodnoj banci: „Rezerva u novčanicama za zemaljsku odbranu smatra se neprikosnovenom i može se angažovati samo za slučaj primene člana 1. Zakona o zemaljskoj odbrani a po prethodnoj odluci predsednika Saveta zemaljske odbrane“.

Novčanica od 100 dinara je jedna od najlepših novčanica Narodne banke koja je izrađena u Zavodu za izradu novčanica prema crtežima akademskog slikara Vase Pomorišca, u saradnji sa grafičarem Pantom Stojičevićem i graverom Veljkom Andrejevićem Kunom. Iz pisma direktora Zavoda glavnom direktoru Narodne banke od 26. juna 1934. godine saznajemo da su za izradu crteža Vasa Pomorišac i Panta Stojičević dobili honorar od 40.000 dinara.

Osnovne karakteristike

Novčanica od 100 dinara je višebojna, dugačka 164mm a široka 96mm, sa crtežom veličine po dužini 157mm a po širini 89mm. Vodotisak koji se nalazi u donjem desnom uglu na licu i donjem levom uglu naličja novčanice ima oblik osmougla visine 39mm. U njemu se nalazi oslikana glava kralja Aleksandra I Karađorđevića. Tekst na licu novčanice dat je ćirilicom a na naličju latinicom.

Lice novčanice:

- Na desnoj strani je figura žene sa purpurnim plaštom i lovorovim vencem na glavi u haljini naših srednjovekovnih vladarki, ukrašenoj biserima i dragim kamenjem;
- Mladi sokolar sa mačem stoji pored žene;

Jovan Lovčević

Dr Jovan Lovčević je u vreme finalne izrade rezervne novčanice od 100 dinara bio vice-guverner, ali je potpisan kao član Uprave Narodne banke. Iz šturih dostupnih podataka saznajemo da je bio profesor na Pravnom fakultetu, upamćen kao neko ko je spasio bibliotečki fond ovog fakulteta. Naime, tek useljena zgrada fakulteta oštećena je u aprilskom bombardovanju Beograda 1941. godine. Rad na fakultetu bio je obustavljen. U zgradu su se uselile nemačke okupacione snage. Bibliotečki fond fakulteta bio je pred uništenjem, ali je spašen zahvaljujući odvažnoj intervenciji Lovčevića kod zapovednika nemačke vojske. Lovčević, inače poreklom Nemač, bio je tada profesor finansija i finansijskog prava na Pravnom fakultetu. Među profesorima koji su preživeli rat (mnogi profesori i dekan su streljani 1944. godine na Banjici) i obnovili rad fakulteta bio je i Lovčević. Profesurum je nastavio da se bavi a dekan fakulteta bio je od 1953. do 1954. godine. Autor je brojnih stručnih knjiga: *Finansije Nemačke u ratu 1914-1918. godine*, *Institucije javnih finansija*, *Italijanska škola finansijskih nauka*, *Nauka o finansijama*, itd.

- Ispod nogu žene levo su simboli nauke i književnosti sa lovorovim lišćem i vinovom lozom sa plodovima;
- Na levoj strani novčanice je crtež crkve na Oplencu, zadužbine kralja Petra I Oslobodioca;
- Okvir na licu novčanice je 9mm sa motivom prepleta i narodnih šara.
- Okvir oko filigrana je u narodnim šarama;
- U sredini gornjeg okvira je natpis Narodna banka Kraljevine Jugoslavije;
- Više crkve je natpis „plaća donosiocu sto dinara, Beograd 15. juli 1934“, a ispod član Uprave dr Jovan Lovčević (vice-guvernerv) i guverner dr Melko Čingrija (v.d. guverner) sa svojeručnim potpisima;
- Desno od crkve ispod teksta nalazi se osmociфreni kontrolni broj;
- U sva četiri ugla lica novčanice nalaze se polja za azbuku i seriju;
- U levom donjem uglu i desnom gornjem polju nalazi se broj 100, desni malo veći od levog;
- U sredini donjeg okvira je tekst o falsifikatu;
- Ispod donjih polja za seriju i azbuku su imena autora „Pomorišac – Stojićević FEC“, a desno gravera „Veljko A. Kun SC“.

Melko Čingrija



Kao objašnjenje ilustracije Dubrovnika na naličju novčanice može poslužiti dug i impresivna istorija ovog grada, ali i podatak da je tokom njene izrade v.d. guverner Narodne banke Kraljevine Jugoslavije od aprila 1934. do februara 1935. godine bio Dubrovčanin, dr Melko Čingrija. Da li je prikaz Dubrovnika bila ideja njenih kreatora, možda pojačana namerom da ugode guverneru, ili je to bila želja guvernera koju su Pomorišac i Stojićević ispoštovali nije poznato, ali je svakako daleko od slučajnosti.

Dr Čingrija je rođen u Dubrovniku 1873. godine i nakon studija prava u Beču i Zagrebu doktorirao je 1895. godine u Gracu. U Dubrovniku je potom otvorio advokatsku kancelariju. Između 1903 i 1908. godine bio je zastupnik u Dalmatinskom saboru, a od 1911. do 1918. godine u Carevinskom veću u Beču. Sudelovao je u donošenju Deklaracije od 30.5.1917. godine, kojom se zahteva ujedinjenje svih zemalja u monarhiji u kojima žive Hrvati, Slovenci i Srbi, i Ženevske deklaracije od 9.11.1918. godine. Bio je član Narodnog veća Kraljevine SHS u Zagrebu i član Privremenog narodnog predstavništva Kraljevine SHS u Beogradu. Kao član delegacije Kraljevine SHS učestvovao je u Parizu u radu Mirovne konferencije. Član Radikalne stranke postao je 1926. godine. Bio je gradonačelnik Dubrovnika od 1911. do 1914. i od 1919. do 1920. godine. Aktivno je učestvovao u privrednom životu zemlje, bio je utemeljivač i predsednik Upravnog veća Hrvatske vjeresijske banke u Dubrovniku, član Uprave Dubrovačke parobrodske plovidbe, predsednik Dubrovačkog saveza za unapređenje turizma. Tokom II svetskog rata živeo je u Splitu pišući memoare. Umro je u Dubrovniku 1949. godine.

Naličje novčanice:

- Na desnoj strani nalaze se dve figure žena obučene u haljine naših srednje-vekovnih vlastelinki. Leva drži naslonjenu kotvu, a desna u krilu drži srp i snop žita;
- Između figura žena nalazi se crveni štit sa državnim grbom, stilizovanim belim orlom sa jugoslovenskim amblemom, a iznad glave orla je državna kruna;
- Oko grba je lovorov venac a ispod njega je veliki broj 100;
- Desno od leve figure ispod grba nalaze se emblem: trgovine, zanatstva, finansija i umetnosti;
- Levo od desne figure nalaze se zemaljski plodovi;
- Oko celog naličja nalazi se okvir 9mm širok sa stilizovanim narodnim šarama;
- Na levoj strani naličja nalazi se pejzaž Dubrovnika sa morem, kiparima i okolinom;
- Desno od desne figure žene su visoke peći i dimnjaci;
- Na levoj polovini gornjeg okvira je natpis Narodna banka Kraljevine Jugoslavije i tekst „plaća donosiocu 100 dinara“;
- U gornjem desnom uglu je veliki broj 100;
- U donjem okviru s desne strane nalazi se tekst o falsifikatu.

Narodna banka je manji deo od ukupnog tiraža koji je iznosio 24.565.000 novčanica od 100 dinara pustila u opticaj u periodu od 6. do 15. aprila 1941. godine za isplatu vojnim jedinicama. Veći deo tiraža je uništila, a jedan deo je okupator opljačkao i iskoristio za plaćanje u okupiranoj zemlji. Puštanje u tečaj objavljeno je u službenom listu Kraljevske banske uprave Drinske banovine „Narodno jedinstvo“, broj 30 od 12. aprila 1941. godine. Ove novčanice je iz okupirane Srbije iz optičaja povukla Srpska Narodna banka u periodu od 1. do 10. jula 1941. godine.

Novčanica od 1000 dinara

Na novčanici od 1000 dinara koja nosi datum 6. septembar 1935. godine i ima tiraž od 4.169.000 komada potpisnici su dr Jovan Lovrić, član Uprave i dr Milan Radosavljević, guverner. Po sredini novčanice je vođeni žig sa glavom maloletnog kralja Petra II. Ispod vodotiska je klauzula o kažnjavanju falsifikovanja.

Ovo remek delo nacionalne notafilije proizvod je slikara Vase Pomorišca i grafera Veljka Kuna. Odlikuje se izvanrednom perspektivom crteža i znalački odabranim bojama, što su svakako bili dominantni uslovi za dobijanje laskave ocene Međunarodne organizacije za banknote.

Veći deo tiraža ove novčanice Narodna banka je uništila početkom Drugog svetskog rata u Jugoslaviji. Manje količine su ukradene prilikom transporta ili uništavanja u periodu od 6. do 17. aprila 1941. godine. Kako nije bila u prometu i nije mogla da se zameni novim novčanicama Srpske Narodne banke, ova banknota ima samo umetničku, istorijsku i numizmatičku vrednost.



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Reserve 100-Dinar Banknote

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Summary: The 100-dinar banknote dated 15 July 1934 is a reserve banknote produced as a result of the worsened economic and international relations in Europe, which had motivated the competent state bodies and the National Bank of the Kingdom of Yugoslavia to start amassing war reserves. Out of the total 24,565,000 banknotes, the National Bank had released a smaller part into circulation between 6-15 April 1941, to pay the military units. A larger part of the banknotes was destroyed, while another smaller part was stolen by the occupying forces and used for payments in the occupied country. The banknote was produced at the Institute for Manufacturing Banknotes and Coins, according to the drawing of Vasa Pomorišac, an academic painter, in cooperation with a print-maker, Panta Stojićević, and an engraver, Veljko Kun.

Keywords: reserve banknote, war reserves, National Bank of the Kingdom of Yugoslavia, National Bank of Serbia, circulation, Vasa Pomorišac, Jovan Lovčević, Melko Čingrija, Aleksandar I Karađorđević.

JEL: N14



Vasa Pomorišac

Vasa Pomorišac, an academic painter, was born in 1893, in Jaša Tomić, called Modoš at the time. He studied at the Art Academy in Munich. He fought in the First World War, in the Volunteer Division. In Greece he worked as a war painter with the Supreme Army Command of the Kingdom of Serbia. After the war he continued his studies at the Arts and Crafts Academy in Zagreb, as well as the School of Arts and Crafts in Belgrade. He visited Serbian monasteries with professor Ljuba Ivanović and made replicas of many frescoes. He continued his studies in London, between 1920 and 1924, where he specialised at glass painting at the Central School of Arts and Crafts. From 1930 to 1931 he worked at the School of Arts and Crafts, and later became a professor at the Fine Arts Academy. In 1950 he became a professor at the Academy of Applied Arts in Belgrade. His most famous paintings are "Spring", "Card Players", "Self-Portrait", "Self-Portrait with a Palette", "Daughter", "A Girl", etc. Three of his replicas of frescoes from Manasija Monastery are kept in the Victoria and Albert Museum in London. His fresco replicas were exhibited in Paris and London. He died in Belgrade in 1961.

Knowing the work of Vasa Pomorišac and his love of Serbian fresco painting, it should not come as a surprise that aficionados of banknote drawings believe this to be one of the most beautiful Serbian banknotes. When painting replicas of frescoes from the Serbian monasteries, Pomorišac worked with the images of Serbian male and female rulers, and aristocrats dressed in opulent, stylised medieval clothing. Similarly dressed female figures are also featured on this banknote.

Aside from the 100-dinar banknote, Vasa Pomorišac was the author of the 1000-dinar banknote which was never released into circulation. This exemplary work of our national notaphily was recognised by the International Banknote Society as one of the ten most beautiful banknotes in the world.

Based on the letter from the Institute for Manufacturing Banknotes and Coins as of 13 February 1934, the National Bank of the Kingdom of Yugoslavia received a detailed description of the new, reserve 100-dinar banknote. Subsequently, on 15 February, the National Bank sent the Minister of Finance a letter with the description of this new banknote. Six days later, the Minister of Finance, Milorad Đorđević, authorised the National Bank to commence with the printing of the banknote.

It took only eight days to reach a decision on the printing of this banknote dated 15 July 1934, but over three years were needed for this to be finalised. Proof of this can be found in the "Banknote Overview" as of 31 December 1936 (Archive of the National Bank), which stated that the production of the 100-dinar banknote was still underway.

Motives for Creating the Banknote

This reserve 100-dinar banknote was produced as a result of the worsened economic and international relations in Europe, which had motivated the competent state bodies and the National Bank of the Kingdom of Yugoslavia to start amassing war reserves. The Programme of Activities of the Institute for Manufacturing Banknotes and Coins for the period between 1931 and 1935 includes the plan for the printing of these banknotes. The Programme of Activities was adopted by the Management Board of the National Bank at its session on 14 March 1931. Four years later, on 18 June 1935, the National Bank sent a letter to the Minister of Finance, notifying him about the formation of a war reserve in banknotes, which included this 100-dinar banknote. A more detailed definition of a reserve banknote was given by an Inspector of Territorial Defence in a letter addressed to the National Bank: "A reserve of banknotes is considered inviolable for territorial defence and can be enacted only in case of the implementation of Article 1 of the Law on Territorial Defence, and in accordance with the preceding decision of the President of the Territorial Defence Council".

The 100-dinar banknote is one of the most beautiful banknotes of the National Bank which was made at the Institute for Manufacturing Banknotes and Coins, according to the drawing of Vasa Pomorišac, an academic painter, and in cooperation with a print-maker, Panta Stojićević, and an engraver, Veljko Kun. The letter of the Director of the Institute for Manufacturing Banknotes and Coins to the Head of the National Bank, dated 26 June 1934, details that the drawing fee for Vasa Pomorišac and Panta Stojićević was 40,000 dinars.

Jovan Lovčević

Jovan Lovčević, PhD, was the Deputy Governor at the time of the final production of the 100-dinar reserve banknote, but he was signed as a member of the Management Board of the National Bank. From the scant available data, we learn that he was a professor at the Faculty of Law, remembered as someone who saved the library fund of this faculty. Namely, the newly moved faculty building was damaged in the April bombing of Belgrade in 1941. Work at the faculty was suspended. The German occupation forces moved into the building. The library fund of the faculty was about to be destroyed, but was saved due to the brave intervention of Lovčević with the commander of the German army. Lovčević, who was of German origin, was a professor of finance and financial law at the Faculty of Law, at the time. Lovčević was among the professors who survived the war (many professors and the dean were shot in 1944, in Banjica) and renewed the work of the faculty. He continued to work as a professor, and he was the dean of the faculty from 1953 to 1954. He authored numerous technical books: *German Finance in the War of 1914-1918*, *Institutions of Public Finance*, *Italian School of Financial Sciences*, *Science of Finance*, etc.

Melko Čingrija



The illustration of Dubrovnik on the reverse of the banknote can be explained by the long and impressive history of this town, as well as the fact that, during its creation, the interim Governor of the National Bank of the Kingdom of Yugoslavia, from April 1934 to February 1935, was a man from Dubrovnik, Melko Čingrija, PhD. It is not known whether the illustration of Dubrovnik was the idea of the banknote's creators, aiming to please the governor, or the wish of the governor himself, which Pomorišac and Stojićević then enacted, but it is definitely far from a coincidence.

Čingrija was born in Dubrovnik in 1873 and, after studying law in Vienna and Zagreb, he obtained his doctorate degree in 1895, in Graz. He later opened a law firm in Dubrovnik. Between 1903 and 1908 he was a representative at the Diet of Dalmatia, and between 1911 and 1918 at the Imperial Council in Vienna. He participated in the adoption of the Declaration from 30.5.1917, which demanded the unification of all countries where Serbs, Croats and Slovenes lived into a joint monarchy, as well as the Geneva Declaration from 9.11.1918. He was a member of the National Council of the Kingdom of SCS in Zagreb and a member of the Temporary National Representation of the Kingdom of SCS in Belgrade. As a member of the delegation of the Kingdom of SCS, he participated in the operation of the Peace Convention in Paris. He became a member of the Radical Party in 1926. He was the Mayor of Dubrovnik from 1911 until 1914 and from 1919 until 1920. He actively participated in the economic life of the country, and was the founder and president of the Board of Directors of Hrvatska vjeresijska banka in Dubrovnik, a member of the management of the Dubrovnik Steamship Company, and President of the Dubrovnik Association for the Promotion of Tourism. During the Second World War, he lived in Split, writing memoirs. He died in Dubrovnik in 1949.

Basic Characteristics

The 100-dinar banknote is multi-coloured, 164mm long and 96mm wide, with a 157mm long and 89mm wide drawing. The watermark in the lower right corner on the obverse and the lower left corner of the reverse is octagonal and 39mm tall. Within it is the painted face of King Aleksandar I Karađorđević. The text on the obverse is in Cyrillic script, while the one on the reverse is in the Latin script.

Obverse:

- *On the right side is a female figure with a purple cape and a laurel wreath on her head, wearing a dress of the Serbian medieval rulers, decorated with pearls and gems;*
- *A young falconer with a sword is standing next to the woman;*

- Below the woman's feet, on the left side, are the symbols of science and literature, with laurel leaves and grape vines;
- The left side of the banknote shows a drawing of the church at Oplenac, an endowment of King Petar I the Liberator;
- The frame on the obverse is 9mm wide, with the intertwined motif of national patterns;
- The frame around the filigree has national patterns;
- The middle of the upper frame features the inscription: National Bank of the Kingdom of Yugoslavia;
- Above the church is the inscription "pays the bringer one hundred dinars, Belgrade 15 July 1934", and below are the names of the Board member Jovan Lovčević, PhD (Deputy Governor) and the Governor Melko Čingrija, PhD (interim Governor) with their signatures;
- To the right of the church, below the text, is the eight-digit control number;
- All four corners of the obverse feature the space for the letters and the series;
- The lower left corner and the upper right corner feature the numerical 100, the one on the right being slightly bigger;
- The middle of the lower border features the text on counterfeits;
- Below the lower spaces for the letters and series are the names of the authors "Pomorišac – Stojićević FEC", and on the right side is the name of the engraver "Veljko A. Kun SC".

Reverse:

- The right side features two female figures dressed in the robes of medieval Serbian aristocracy. The one on the left holds an anchor, and the one on the right holds in her lap a sickle and a sheaf of grain;
- Between the two female figures is a red shield with the national coat of arms, a stylised white eagle with the Yugoslavian emblem, and the state crown above the eagle's head;
- A laurel wreath surrounds the coat of arms, with a large 100 underneath;
- On the right of the left figure below the coat of arms are the emblems of: trade, crafts, finance and art;
- To the left of the right figure are the earthly fruits;
- Around the entire reverse is a 9mm wide frame with stylised national patterns;
- The left side of the reverse features a landscape of Dubrovnik with the sea, cypresses and the surroundings;
- To the right of the right female figure are blast furnaces and chimneys;
- The left half of the upper frame features the inscription "The National Bank of the Kingdom of Yugoslavia" and "pays the holder 100 dinars";
- The upper right corner features the numerical 100;
- The lower right part of the frame includes the text on counterfeits.

The National Bank released a smaller part of the 24,565,000 total 100-dinar banknotes into circulation in the period 6-15 April 1941, to pay the military units. A larger part of the banknotes was destroyed, while another smaller part was stolen by the occupying forces and used for payment in the occupied country. The release into circulation was published in the official gazette of the

Royal Banking Administration of Drina Banate “Narodno jedinstvo”, no 30 as of 12 April 1941. These banknotes were withdrawn from the occupied Serbia by the National Bank of Serbia, in the period 1-10 July 1941.

The 1000-Dinar Banknote

The 1000-dinar banknotes, which bear the date 6 September 1935 and have a circulation of 4,169,000 pieces, were signed by Jovan Lovrić, PhD, a member of the Management Board, and Milan Radosavljević, PhD, the Governor. In the middle of the banknote is a watermark with the head of the underage King Petar II.

Below the watermark is a clause punishing forgery. This masterpiece of national notaphily was made by the painter Vasa Pomorišac and engraver Veljko Kun. It is characterised by an extraordinary perspective of its drawings and the expertly selected colours, which were certainly the dominant conditions for obtaining a flattering rating from the International Banknote Organisation.

Most of the pieces of this banknote were destroyed by the National Bank at the beginning of the Second World War in Yugoslavia. Smaller quantities were stolen during transport or destruction between 6 and 17 April 1941. As it was not in circulation and could not be replaced with new banknotes of the National Bank of Serbia, this banknote has only artistic, historical and numismatic value.



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Finansiranje kanala snabdevanja

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Prevod
obezbedio
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Rezime: Finansiranje kanala snabdevanja ili obrnuti faktoring se može definisati kao korišćenje finansijskih instrumenata i tehnologija sa ciljem optimizacije upravljanja obrtnim sredstvima i likvidnošću, koji su povezani sa lancem snabdevanja. U ovom tipu transakcije učestvuju: dobavljač, kupac i faktor kao posrednik. Imajući u vidu raspoložive ekspertize, profesionalni edukovani kadar, strukturirana iskustava, tehničku opremljenost i neke druge performanse, banke su u ulozi faktora idealni akteri finansiranja kanala snabdevanja.

Podrška koju pružaju međunarodne finansijske institucije, od kojih će neke biti konkretnije spomenute u tekstu koji sledi, može biti dragocena prilika za unapređenje već postojećih modela, te iniciranje novih projekata i instaliranje odgovarajućih platformi, što bi svakako bilo od koristi, kako za klijente, tako i za same banke.

Ključne reči: obrnuti faktoring, finansiranje lanca snabdevanja, banke kao akteri

JEL: G21, G29



Jedan od svakako najznačajnijih preduslova za osnivanje i poslovanje pravnog lica/preduzetnika predstavlja obezbeđenje likvidnosti. Pod likvidnošću se podrazumeva sposobnost pravnog lica/preduzetnika da blagovremeno izmiruje dospele obaveze prema dobavljačima i drugim poveriocima.

Pored sopstvenih obrtnih sredstava, pravno lice/preduzetnik može koristiti i sredstva iz kredita odobrenih od strane jedne banke, od strane grupe banaka (tzv. sindicirani kredit) ili od strane proizvođača (tzv. robni kredit). Pod određenim uslovima, pravno lice/preduzetnik može koristiti eksterne izvore sredstava bez obaveze vraćanja, kao što su na primer: donacije, subvencije i neke druge.

U praksi se često koriste dopunske vrste finansiranja: faktoring, forfaiting i lizing, te alternativni modeli finansiranja, kao na primer sve popularnije tzv. grupno finansiranje (eng. Crowdfunding).

Faktoring predstavlja finansijski instrument kojim faktor finansira dobavljača/ isporučioaca po osnovu prodaje roba i/ili usluga na domaćem ili stranom tržištu. U zavisnosti od važećih propisa pojedinačnih zemalja, faktoringom se mogu baviti banke i/ili pravna lica, odnosno firme registrovane za pružanje usluga faktoringa. Predmet faktoringa može biti svako postojeće ili buduće nedospelo, celo ili delimično, kratkoročno novčano potraživanje iz zemlje ili inostranstva, sa rokom dospelosti najčešće do 180 dana.

Obrnuti faktoring se sve češće sreće pod nazivom „finansiranje kanala snabdevanja“ (eng. Supply Chain Finance – SCF), odnosno „upravljanje kanalima snabdevanja“ (eng. Supply Chain Management – SCM). Ovaj model finansiranja se može definisati kao korišćenje finansijskih instrumenata i tehnologija sa ciljem optimizacije upravljanja obrtnim sredstvima i likvidnošću, koji su povezani sa lancem snabdevanja, uz učešće: dobavljača, kupaca i posrednika.

Suštinska prednost ovog instrumenta se ogleda u tome da firme-kupci imaju mogućnost da znatno ranije izmire svoje obaveze prema dobavljačima, čime unapređuju postojeći poslovni odnos sa istima, a što otvara mogućnost ugovaranja novih poslova pod povoljnijim uslovima.

Obrnuti faktoring, kao i standardni faktoring, obavezno uključuje tri aktera: naručioca-kupca, dobavljača i faktora kao finansijera. Dobavljač generalno može da računa na skraćivanje rokova naplate, kao i da bira fakture koje će mu biti prioritetno plaćene. Dodatna prednost obrnutog faktoringa je što faktor može da servisira veliki obim faktura, čime postiže centralizaciju aktivnosti. U ovakvom sistemu od posebnog značaja je koordinacija svih informacija iz domena logistike kretanja robe. Naime, prevoz robe je izuzetno značajna i osetljiva karika u pogledu dinamike kretanja robe, te pouzdanosti informacija kojima raspolaže dobavljač ili transportna kompanija ili logistički partner. Svaki od navedenih aktera ima fizičku kontrolu nad robom za koju mu je poveren mandat prevoza. Razlog za to je, naravno, neophodnost procene i potvrde trenutka prijema robe na odredištu u odnosu na tražnju upravo te robe, budući da svako kašnjenje može biti praćeno penalima, odustanicom, ili nekim trećim merama za kompenzaciju štete koja je direktno prouzrokovana neodgovarajućim ili nesinhronizovanim logističkim elementima postupanja sa konkretnom porudžbinom robe.

U vremenu globalizacije, a na bazi brojnih statističkih pregleda i informacija, utvrđene su sledeće dominantne strukture finansiranja lanaca snabdevanja i to:

- *Platforme pod kontrolom kupaca – lidera u maloprodaji*
- *Bankarske platforme koje servisiraju odabrane klijente*
- *Multibankarske platforme, koje imaju brojne prednosti po osnovu svog statusa, uključujući mogućnosti pružanja usluga u brojnim traženim, egzotičnim valutama itd.*

Finansiranje kanala snabdevanja se globalno posmatrano najviše koristi u vezi sa plaćanjima u korist dobavljača iz maloprodaje, automobilske industrije, farmaceutske industrije, hemijske industrije te snabdevača energijom (struja, gas, grejanje i drugo).

Sledi prikaz odabranih ilustracija iz aktivnosti vodećih međunarodnih finansijskih institucija koje pružaju aktivnu stratešku i finansijsku podršku Republici Srbiji, javnim preduzećima, te privrednim subjektima. Primarni ciljevi se odnose na unapređenje nacionalne ekonomije, kao i uslova finansiranja projekata od značaja za unapređenje privrednog i finansijskog sistema, te podizanje životnog standarda stanovništva.

Evropska investiciona banka (eng. The European Investment Bank - EIB) je aktivna u regionu Zapadnog Balkana počev od 1977. godine. Do sada je ta institucija Srbiji pružila finansijsku podršku u vrednosti od 4,8 milijardi evra. Najznačajnija ulaganja su ostvarena u sledećim segmentima: infrastruktura (železnički, vazdušni i automobilski saobraćaj), mala i srednja preduzeća, industrija itd.

EIB je nedavno odobrio finansiranje u vrednosti od 20 miliona evra za firmu Forto (FreightHub GmbH) iz Berlina. Forto pruža usluge za pomorski, vazdušni i železnički prevoz tereta, bazirane na tehnološkoj platformi za logistiku, a sredstva iz kredita će uložiti u platformu za upravljanje lancem snabdevanja i dalje širenje tržišta. Predmetni kredit EU banke je podržan garancijom Evropskog fonda za strateška ulaganja (eng. The European Fund for Strategic Investments - EFSI), koji predstavlja središte Investicionog plana za Evropu.

Evropska banka za obnovu i razvoj (eng. European Bank for Reconstruction and Development – EBRD) se u Srbiji pre svega fokusira na jačanje uloge privatnog sektora, posebno u segmentu poljoprivrede, te jačanje bankarskog sektora, podršku unapređenju finansijskog posredovanja i energetske efikasnosti. Posebna pažnja se posvećuje postizanju funkcionalnih znanja korisnika sredstava o specifičnim modelima finansiranja, u koje, pored ostalih, svakako spada i finansiranje lanaca snabdevanja.

Kao primer direktne podrške sledi prikaz obraćanja Izvršnog direktora EBRD-a za Tursku, g. Arvida Tuerknera, predstavnicima vodećih turskih kompanija na nedavno održanom Samitu finansijskih direktora: „Zbog pandemije, lanci snabdevanja su ponovo pod pritiskom. Finansiranje u lancu snabdevanja može obezbediti niže troškove finansiranja i poboljšati poslovnu efikasnost, kako za kupce, tako i za prodavce. Za velike firme to je prilika za izgradnju održivih i otpornijih lanaca snabdevanja, a za mala i srednja preduzeća način za pristup stabilnom i obnovljivom finansiranju“. Finansiranje u ovom segmentu pruža zaštitu interesa učesnika u transakcijama, uz određene elemente finansiranja.

Posebno je značajno imati u vidu da su predmetni instrumenti finansiranja unificirani, što doprinosi sigurnosti učesnika u transakcijama.

Deutsche Bank AG sa sedištem u Frankfurtu spada u vodeće globalne banke. U najznačajnije aktivnosti ove banke spadaju poslovni aranžmani sa finansijskim institucijama i kompanijama na svim kontinentima. DB je specijalizovana za usluge u segmentu finansiranja trgovine (eng. Trade Finance), te razvoja i promocije tržišta specifičnih finansijskih instrumenata.

Dojče bank predstavlja tradicionalno veoma značajnog partnera finansijskih institucija, a posebno banaka u Srbiji. U najznačajnije usluge spadaju platni promet sa inostranstvom (eng. Cash Management), kao i poslovi podrške obavljanju najsloženijih spoljnotrgovinskih transakcija uz korišćenje najpouzdanijih instrumenata finansiranja trgovine (eng. Trade Finance), a to su pre svega dokumentarni akreditivi i bankarske garancije.

Tehnologija je veoma značajna za Dojče bank, jer samo tehnologijom se može postići cilj za pojednostavljenje rešenja za klijente, unapređenje efikasnosti i istovremeno održavanje inovativnosti. Dojče bank je učinila puno u segmentu razvoja modela za onboarding klijenata na platformu. Kao vodeća globalna banka za finansiranje lanaca snabdevanja, Dojče bank nastavlja sa investicijama u ovoj zoni u cilju podrške klijentima.

Dojče bank je nedavno osnovala program finansiranja lanca snabdevanja za najveću kompaniju u hemijskoj industriji na svetu. Radi se o kompaniji BASF koja, pored brojnih drugih tržišta, posluje i u Kini. Novo instalirano rešenje predstavlja prvo rešenje sa takvim performansama za jednu multinacionalnu hemijsku kompaniju u regionu Azija-Pacifik. Od potpisivanja do početka rada ovog tehnološkog rešenja prošlo je manje od 2 meseca. Uz pomoć tog rešenja, kompanija BASF i njeni partneri dobijaju pristup automatizovanim procesima. To uključuje usaglašavanje, saldiranje, predviđanje i praćenje transakcija, kao i niže transakcione troškove, što imajući u vidu ogroman obim prodaje, odnosno realizacije poslovnih aranžmana, direktno omogućava snižavanje ukupnih troškova.

Ovom prilikom je neophodno spomenuti aktivnosti **Međunarodne trgovinske komore** na pripremi, angažovanju ekspertskih timova, te utvrđivanju tehnika finansiranja lanaca snabdevanja u smislu preporuka za korišćenje takvih unificiranih instrumenata. Sledi prikaz odabranih instrumenata.

Finansiranje pre otpreme robe (eng. Pre-Shipment Finance) je proces u kojem postupak započinje postavljanjem potvrđene porudžbine od strane kupca na platformi banke. Dobavljač može na platformi aplicirati za kratkoročno finansiranje, uz uslov da je kupac dao svoju potvrdu porudžbine.

Finansiranje posle izvršene otpreme robe (eng. Post-Shipment Finance) pruža mogućnost da finansiranje inicira ili dobavljač ili kupac, naravno, uz međusobnu koordinaciju.

Finansiranje potraživanja (eng. Receivables Finance) otvara mogućnost prodaje potraživanja korporativnih klijenata svojoj banci, uz aranžiranje alternativnih finansiranja.

Činjenica je da obrnuti faktoring pruža brojne prednosti u odnosu na neke druge raspoložive instrumente. To potvrđuju i brojni statistički podaci, od kojih su neki predstavljeni u Svetskom izveštaju o finansiranju kanala snabdevanja za 2020 (World Supply Chain Finance Report), u izdanju specijalizovane firme BCR, London.

Shodno čl. 4 Zakona o bankama Republike Srbije („Službeni glasnik Republike Srbije“ br. 107/2005, 91/2010 i 14/2005) utvrđeni su poslovi koje može obavljati banka, među kojima, u kontekstu teme ovog teksta, posebno treba izdvojiti sledeće:

- 1) Depozitne poslove (primanje i polaganje depozita);*
- 2) Kreditne poslove (davanje i uzimanje kredita);*
- 3) Devizne, devizno-valutne i menjačke poslove;*
- 4) Poslove platnog prometa;*
- 7) Brokersko-dilerske poslove;*
- 8) Izdavanje garancija, avala i drugih oblika jemstva (garancijski posao);*
- 9) Kupovinu, prodaju i naplatu potraživanja (faktoring, forfeiting i dr.).*

Zakonom o faktoringu („Službeni glasnik Republike Srbije“ br. 62/2013 i 30/2018) V Obrnuti faktoring, **Član 18 je utvrđeno** da je obrnuti faktoring posebna vrsta faktoringa koji se ugovara između faktora i dužnika iz ugovora o prodaji robe ili pružanja usluga u zemlji i inostranstvu, na osnovu koga faktor, preuzimanjem faktura od dužnika, preuzima njegovu obavezu plaćanja prema poveriocima, a ima pravo naplate od dužnika u roku iz ugovora o prodaji robe ili pružanja usluga u zemlji i inostranstvu. Pri tome dužnik je u obavezi da obezbedi saglasnost poverioca za sprovođenje ovakve transakcije. Za svoj angažman banka ili firma koja pruža usluge obrnutog faktoringa naplaćuju svoju naknadu.

Napred navedeno upravo potvrđuje da su banke pravi izbor za konsultacije, preporuke i pregovore, te zaključenje ugovora o podršci svojim korporativnim klijentima u segmentu finansiranja lanca snabdevanja.

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Supply Chain Finance

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provided by
the author*

Summary: Supply channel financing or reverse factoring can be defined as the use of financial instruments and technologies to optimize the management of working capital and liquidity, which are linked to the supply chain. This type of transaction includes the following participants: the supplier, the buyer and the factor as an intermediary. Given the available expertise, professionally trained staff, structured experience, technical equipment and some other functionalities, banks are, as factors, ideal participants in supply chain financing.

The support provided by international financial institutions, some of which will be mentioned more specifically in the following text, can be a valuable opportunity to improve existing models, and to initiate new projects and install appropriate platforms, which would certainly benefit both clients and the banks themselves.

Keywords: reverse factoring, supply chain financing, banks as participants

JEL: G21, G29



One of the most important preconditions for the establishment and operation of a legal entity/entrepreneur is the provision of liquidity. Liquidity is the ability of a legal entity/entrepreneur to settle due obligations to suppliers and other creditors in a timely manner.

In addition to its own working capital, a legal entity/entrepreneur can also use funds from loans approved by one bank, by a group of banks (so-called syndicated loan) or by producers (so-called commodity loan). Under certain conditions, a legal entity/entrepreneur can use external sources of funds without the obligation to pay them back, such as: donations, subsidies and some others.

In practice, additional types of financing are often used: factoring, forfeiting and leasing, and alternative financing models, such as the increasingly popular crowdfunding.

Factoring is a financial instrument by which a factor finances a supplier/provider, based on the sale of goods and/or services on the domestic or foreign market. Depending on the applicable regulations of an individual country, factoring may be performed by banks and/or legal entities or companies registered for the provision of factoring services. The subject of factoring can be any existing or future overdue short-term monetary claim, full or partial, domestic or foreign, with a maturity of up to 180 days, usually.

Reverse factoring is increasingly common under the name Supply Chain Finance (SCF) or Supply Chain Management (SCM). This financing model can be defined as the use of financial instruments and technologies with the aim of optimizing the management of working capital and liquidity, which are connected to the supply chain, with the participation of: suppliers, clients, and intermediaries.

The essential advantage of this instrument is that the companies-buyers have the opportunity to settle their obligations to suppliers much earlier, which improves their existing business relationship with them, and which opens the possibility of contracting new business under more favorable conditions.

Reverse factoring, as well as standard factoring, necessarily includes three participants: the customer, the supplier, and the factor as the financier. The supplier can generally count on shortening the payment deadlines, as well as choosing the invoices that will be paid as a priority. An additional advantage of reverse factoring is that the factor can service a large volume of invoices, thus centralizing its activity. In such a system, the coordination of all information pertaining to the logistics of the transportation of goods is of special importance. Namely, the transport of goods is an extremely important and sensitive link in terms of the dynamics of movement of goods, and the reliability of information available to the supplier, the transport company or the logistics partner. Each of these participants has physical control over the goods for which they were entrusted with the mandate of transportation. The reason for this is, of course, the need to assess and confirm the moment the goods were received at the destination, in relation to the demand for those goods, since any delay may be accompanied by penalties, waivers, or some other measures to compensate for any damages directly caused by inappropriate or unsynchronized logistical elements of handling a specific order of goods.

In the era of globalization, and on the basis of numerous statistical reviews and information, the following dominant structures of supply chain financing have been identified, as follows:

- *Platforms under the control of customers - leaders in retail*
- *Banking platforms that service selected clients*
- *Multibank platforms, which have a number of advantages based on their status, including the ability to provide services in a number of sought-after, exotic currencies, etc.*

Supply chain financing is globally most used in connection with payments to suppliers from retail, automotive, pharmaceutical, and chemical industries, and energy suppliers (electricity, gas, heating, etc.).

The following is an overview of selected illustrative activities of leading international financial institutions that provide active strategic and financial support to the Republic of Serbia, public companies and economic entities. The primary goals are related to the improvement of the national economy, as well as the conditions for financing projects of importance for the improvement of the economic and financial system, and raising the living standard of the population.

The European Investment Bank (EIB) has been active in the Western Balkans since 1977. So far, that institution has provided financial support to Serbia in the amount of EUR 4.8 billion. The most significant investments were made in the following segments: infrastructure (railways, air and road transport), small and medium enterprises, industry etc.

The EIB recently approved €20 million in financing for Forto (FreightHub GmbH) in Berlin. Forto provides maritime, air and rail freight services, based on a logistics technology platform, and the loan funds will be invested in a supply chain management platform and further market expansion. The loan from the EU Bank is supported by the guarantee of the European Fund for Strategic Investments (EFSI), which is the center of the Investment Plan for Europe.

The European Bank for Reconstruction and Development (EBRD) in Serbia focuses primarily on strengthening the role of the private sector, especially in the agricultural segment, and strengthening the banking sector, supporting the improvement of financial intermediation and energy efficiency. Special attention is paid to achieving the functional knowledge of the beneficiaries of funds on specific financing models, which, among others, certainly includes supply chain financing.

An example of direct support is the speech of the EBRD Executive Director for Turkey, Mr. Arvid Tuerkner, to representatives of leading Turkish companies at the recent Summit of CFOs: "Due to the pandemic, supply chains are under pressure again. Supply chain financing can provide lower financing costs and improve business efficiency for both buyers and sellers. For large companies, it is an opportunity to build more sustainable and resilient supply chains, and for small and medium-sized enterprises, a way to access stable and renewable financing." Financing in this segment provides protection of the interests of participants in transactions, with certain elements of financing. It is especially

important to keep in mind that the financing instruments in question are unified, which contributes to the security of participants in transactions.

Frankfurt-based **Deutsche Bank AG** is one of the world's leading banks. The most important activities of this bank include business arrangements with financial institutions and companies on all continents. DB specializes in services in the segment of trade finance, and the development and promotion of specific financial instruments markets.

Deutsche Bank is traditionally a very important partner of financial institutions, especially banks in Serbia. The most important services include international payment transactions (Cash Management), as well as support activities for the most complex sex trade transactions using the most reliable instruments of trade finance (Trade Finance), which are primarily documentary letters of credit and bank guarantees.

Technology is very important for Deutsche Bank, because only technology enables the successful simplification of solutions for customers, while simultaneously improving efficiency and maintaining innovativeness. Deutsche Bank has done a lot in the segment of developing models for onboarding clients on the platform. As the leading global bank for financing supply chains, Deutsche Bank continues to invest in this zone in order to support customers.

Deutsche Bank has recently established a supply chain financing program for the world's largest company in the chemical industry. The company in question is BASF, and, in addition to numerous other markets, it also operates in China. The newly installed solution is the first solution with such performance for a multinational chemical company in the Asia-Pacific region. Less than 2 months passed from the signing to the implementation of this technological solution. With it, BASF and its partners gain access to automated processes. This includes reconciling, settling, forecasting and tracking transactions, as well as lower transaction costs, which in view of the huge volume of sales or realization of business arrangements directly enables the reduction of total costs.

It is, also, necessary to mention the activities of the **International Chamber of Commerce** in the preparation, engagement of expert teams, and the establishment of techniques for financing supply chains in terms of recommendations for the use of such unified instruments. The following is an overview of the selected instruments.

Pre-Shipment Finance, where the process begins with the placement of a confirmed order by the customer on the bank's platform. The supplier can apply for short-term financing on the platform, provided that the buyer has given their order confirmation.

Post-Shipment Finance provides the opportunity for financing to be initiated by either the supplier or the buyer, of course, with mutual coordination.

Receivables Finance opens the possibility of selling receivables of corporate clients to your bank, with the arrangement of alternative financing.

The fact is that reverse factoring provides a number of advantages over some other available instruments. This is confirmed by numerous statistics, some of

which are presented in the World Supply Chain Finance Report 2020 published by the specialized company BCR, London.

According to Art. 4 of the Law on Banks of the Republic of Serbia ("Official Gazette of the Republic of Serbia" No. 107/2005, 91/2010 and 14/2005) defines the activities that can be performed by a bank, among which, in the context of the topic of this text, the following should be singled out:

- 1) deposit operations (receiving and placing deposits);*
- 2) credit operations (granting and taking out loans);*
- 3) foreign exchange, foreign exchange-currency transactions and exchange operations;*
- 4) payment operations;*
- 7) broker-dealer operations;*
- 8) issuing sureties, guaranties, backing guarantees and other warranties (guarantee operations);*
- 9) purchase, sale and collection of receivables (factoring, forfeiting, etc.).*

Law on Factoring ("Official Gazette of the Republic of Serbia" No. 62/2013 and 30/2018) V Reverse Factoring, Article 18 stipulates that reverse factoring is a special type of factoring that is contracted between the factor and the debtor, from the contract for the sale of goods or services in the country and abroad, and on the basis of which the factor, by taking over the invoice from the debtor, assumes its obligation to pay to creditors, and has the right to collect from the debtor, within the deadline from the contract of sale of goods or services, in the country and abroad. In doing so, the debtor is obliged to obtain the consent of the creditor for the implementation of such a transaction. For their engagement, the bank or company that provides reverse factoring services charges its fee.

The above just confirms that banks are the right choice for consultations, recommendations and negotiations, as well as the conclusion of contracts to support their corporate clients in the segment of supply chain financing.

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Razmišljanja o savremenoj međunarodnoj finansijskoj infrastrukturi

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Prikaz knjige: *BRETTON WOODS – ŠTA JE OSTALO? Konfuzija. Politički posredovane monetarne politike. Neizvjesnosti.*

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Recenzenti: prof. dr Radovan Kovačević, prof. dr Aleksandar Živković, dr Negoslav Ostojić.



Izuzetan životni, stvaralački i naučni opus dr Vuka Ognjanovića nastavljen je, na radost svih poklonika pisane reči, objavljivanjem knjige *Bretton Woods – Šta je ostalo? Konfuzija. Politički posredovane monetarne politike. Neizvjesnosti.* U ovoj knjizi prepoznamo dugogodišnju argumentaciju i ekonomski utemeljene osnove sistema, ali možemo pronaći i dobar deo novih i svežih promišljanja o promenama u međunarodnoj ekonomiji i finansijama s početka ovog veka. Pažljivom čitaocu, sasvim sigurno, neće promaći stranice koje upozoravaju na neizvesnost budućeg razvoja ekonomskih odnosa kao ni upozoravajući signali na moguće opasnosti koje će iz toga razvoja realno proizaći.

Autor, znalački, sa manirom vrhunskog ekonomskog stručnjaka, teoretičara i praktičara, ali i dugogodišnjeg neposrednog učesnika u konsultativnim i upravljačkim procesima globalne ekonomije ukazuje, predviđa i upozorava, ekstrapolirajući bazične ekonomske i društvene vrednosti na preko potrebne globalne ekonomske jednakosti, uravnotežen i održiv rast i razvoj kako razvijenih tako i zemalja u razvoju, ali i ciljeve smanjenja siromaštva i pozitivnog razvoja u svetu.

Ova knjiga i svojim naslovom, ali i pažljivo odabranom strukturom i tematski izdvojenim celinama, otvara krucijalna pitanja današnjih novčanih i trgovinskih odnosa u svetu, apostrofirajući neka nerešena, a reklo bi se suštinski bitna pitanja za međunarodne ekonomske odnose, posebno značajne za zemlje u razvoju. Upravo iz toga razloga, prikaz ovog izuzetnog dela i dajemo kao razmišljanja o

međunarodnoj finansijskoj infrastrukturi juče, danas i očekivanja za sutra. To je suština i autorovog izabranog prikaza nekih od elemenata kontroverzne istorije međunarodnih finansija, počevši od sedamdesetih godina proteklog veka, čija su dešavanja u svom punom kapacitetu obećavala svojevrsan novi konsenzus oko globalnog razvoja.

Autor se, stoga, sasvim opravdano pita koliko su i gde postavke iz Breton Vudsa poslužile kao orijentir za nešto kasnija dešavanja, pa i u dešavanja u modernom vremenu u kome živimo i svedoči o tim procesima, njihovom nastajanju, prepoznavanju potrebe i njene neophodnosti, angažovanju globalnih institucija za ciljeve jednakih mogućnosti ekonomskog rasta, smanjenja jaza u globalnom razvoju i siromaštva u svetu.

Bavljenje i razumevanje međunarodnih ekonomskih odnosa u savremenim uslovima nije i ne može biti ekskluzivitet samo onog dela stručne javnosti koji je neposredno uključen u međunarodnu trgovinu ili finansije. Naprotiv, u savremenim globalnim uslovima najširi krug stručnjaka i to ne samo ekonomske struke biva neizostavno deo tih procesa i odnosa. U tom cilju ovo naučno delo od čitaoca traži ekonomska znanja ali istovremeno pruža i nudi, što je dosta retko u stručnoj literaturi, i ono nešto više bez čega i primena naših saznanja neće biti efikasna niti pravovremeno upotrebljena. Taj doprinos i nesebično davanje čitaocima ne samo neiscrpnog znanja već i iskustva koje autor ima čini ovo delo izuzetno vrednim.

Sama struktura knjige je u osnovi prava istorija Breton Vudsa. Zapravo, knjiga odiše najaktuelnijim pitanjima međunarodnih finansijskih odnosa, zahvatajući praktično period od 75 godina. Na ukupno 228 stranica izdvaja se pet poglavlja koja nas na maestralan način uvode u svet međunarodnih institucija i međunarodnih odnosa, pružajući nam najznačajnije fragmente iz dogledne ekonomske istorije koji su odlučujuće uticali na današnju međunarodnu finansijsku infrastrukturu.

Autor dosta detaljno i sa velikim ličnim iskustvom predstavlja i ističe najvažnija pitanja razvoja tokom 75 godina istorije Breton Vudsa. Monografija kreće iz serioznih promišljanja o kontroverzama aktuelnih zbivanja u međunarodnim finansijama i o refleksijama međunarodne finansijske krize iz 2008. godine, a zatim se predstavlja praktična panorama istorije i sudbine Bretonvudskog sistema. Pokrivena su sva važnija dešavanja u međunarodnim finansijama. Tu su: dešavanja početkom sedamdesetih godina – napuštanje zlatnog dolarskog standarda i posledice tim tragom, pojava petrodolara, odnosno promocija nafte u svetu finansija, narastanje dugova zemalja u razvoju i pozivi da se organizuje nova međunarodna konferencija o novcu i finansiranju, te izveštaj Brantove komisije kao ohrabrenje za zemlje u razvoju, ukazivanje na nužnost reforme politika IBRD-ja i MMF-a i izuzetno važnu Deklaraciju OUN o razvoju iz 1989. godine, a zatim i na mukotrpno „rvanje“ zemalja u razvoju s Pariskim i London-skim klubom. Isto tako, s posebnom inventivnošću autor piše o kontraverzama globalizacije i liberalizacije, odnosno o trgovinskim sukobima velikih sila koje nije uspeo da smiri ni osnivanje Svetske trgovinske organizacije STO.

Kriza dugova zemalja u razvoju se nastavlja i u XXI veku, piše autor, i to krizom finansijskih tržišta u Jugoistočnoj Aziji ali i pozitivnom pojavom i osnivanjem Asocijacije BRIKS – Brazil, Rusija, Indija, Kina i Južnoafrička Unija, te i njene razvojne banke. Bretonvudski sistem sve intenzivnije bleđi, a formiranje evro-zone nije ništa drugo nego „rvanje s dolarom“ – i sve većim deficitima SAD,

ukazuje autor. Poslednja poglavlja ovog vrednog dela su kritička i analitička razmatranja o aktuelnoj situaciji u svetu međunarodnih finansija, i nekoj vrsti nostalgije za Bretonvudskim sistemom i potrebi njegove rehabilitacije. Najзад, autor u istraživačkom naporu daje predlog moguće koncepcije rehabilitacije ovog vrednog i za zemlje u razvoju korektnog finansijskog i monetarnog sistema otvorenog za podršku razvoju i smanjenju siromaštva u svetu.

Razmatranje pitanja celokupne međunarodne ekonomske strukture ne bi bilo moguće bez osvrta koji autor daje na ideje, postavke i kontraverze bretonvudskih institucija. Analizirajući domete institucija i mehanizama globalne finansijske infrastrukture, koji su postavljeni u prvim godinama posle Drugog svetskog rata, profesor Ognjanović zaključuje da su te ključne ideje Bretonvudskog Sistema bezmalo napuštene ili ozbiljno kompromitovane što je i vodilo tome da naporu u cilju izgradnje racionalnog pristupa održivom rastu i razvoju zemalja u razvoju nisu dali pozitivne rezultate. Autor zaključuje da je neophodno vratiti ugled i autoritet ključnim idejama Bretonvudskog Sistema ili bar opredeljujućim načelnim rešenjima za održiv rast i razvoj zemalja u razvoju. Pri tome se napominje da ovakva vrsta promišljanja nije moguća bez dubinske i temeljne analize svih globalnih procesa koji su zadesili svetsku ekonomiju i promena koje su zatim usledile izazivajući sve češće i ozbiljnije globalne potrebe i krize.

Zapitan i ozbiljno zabrinut za stanje i perspektive međunarodnih finansija, autor ukazuje da problemska sinteza dešavanja u međunarodnom ekonomskom, te posebno u monetarnom sistemu, tokom druge polovine XX i prvih decenija XXI stoleća neće moći da izbegne odgovore na kontroverze sekularne stagnacije, na sistemске rizike i stanja zdravlja finansijskog sektora u kompleksu makroprudencijalnih politika i prakse. A u tom projektu, nastavlja autor dalje, međunarodni monetarni i finansijski sistem, tj. izazovi monetarne i fiskalne politike, te i politike upravljanja tokovima kapitala, deviznim kursovima i kontrolom kapitala, ne mogu dugo ignorisati stanje i perspektive ruiniranih tržišta zemalja u razvoju i tržišta u nastajanju. Zato, kroz koncept pozitivne analize, autor upozorava da se ne mogu zatvarati oči pred promenama koje su nastale i koje dolaze, niti se ti novi odnosi i pojave mogu stavljati u stare teorijske šeme i postulate o ekonomskom sistemu koji više ne postoji. Ono što je potrebno, zaključuje autor, jeste da se bez predrasuda analizira svaka novina u oblasti čovekovog „ostvarivanja“, da se uz kritičko anticipiranje afirmišu koristi od budućih promena te i novih čovekovih pozitivnih potreba.

Ovakvim konstatacijama i zaključcima koji vode koristima za čoveka u krajnjem ishodištu, autor snažno naglašava potrebu da finalni rezultat svih napora na unapređenju međunarodne finansijske infrastrukture upravo treba da bude poboljšanje kvaliteta života. Boljim poznavaoциma životnog i naučnog opusa profesora Ognjanovića ovakvi stavovi su poznati, ali je snažan utisak, da se u ovom delu, možda i jasnije i vidljivije nego pre, ide i korak dalje, ostavljajući, pri tom, svakom čitaocu priliku da se zamisli i da svoj sud o budućnosti ne samo ekonomije i međunarodnih finansija nego i naše civilizacije u celini.

Nesumnjivo, monografija će biti zanimljiva svim onim ljudima i poslenicima finansija i bankarstva koji prate zbivanja u međunarodnim finansijama i bankarskom svetu, a i studentima na višim, visokim i doktorskim studijama.

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Thoughts on Modern International Financial Infrastructure

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Book review: *BRETTON WOODS – WHAT IS LEFT? Confusion. Politically Mediated Monetary Policies. Uncertainties.*

Author: Vuk Ognjanović PhD, European Center for Peace and Development at the UN University for Peace, Belgrade, 2020.

Reviewers: prof. Radovan Kovačević, PhD, prof. Aleksandar Živković, PhD, Negoslav Ostojić, PhD.

The extraordinary creative and scientific oeuvre of Vuk Ognjanović continued, to the delight of all aficionados of the written word, in his newly published book *Bretton Woods – What Is Left? Confusion. Politically Mediated Monetary Policies. Uncertainties*. This book features the recognisable, longstanding argumentation and the economically grounded system basics, as well as a prominent segment of new and fresh ruminations on the changes in the international economy and finances, from the turn of the century. A thorough reader will certainly not miss the warnings about the uncertainty of the future development of economic relations, nor the signals alerting to the possible dangers that such developments will realistically cause.

The author uses his know-how and the skills of an outstanding economic expert, in both theory and practice, as well as his extensive experience in consultative and managerial processes in global economics, to predict and warn by extrapolating core economic and social values onto necessary global economic equalities, balanced and sustainable growth, the progress of both the developed and the developing countries, and the goals of reducing poverty while stimulating positive growth in the world.

With its title, carefully organised structure and thematic segments, this book raises some crucial questions about the current monetary and trade relations in the world, by re-examining some unsolved questions that are fundamentally

important for international economic relations, of particular importance to developing countries. For this very reason, we here provide a review of this exemplary work, together with some thoughts on international financial infrastructure, as it was, as it is now, and as we predict it will be in the future. This is also the core of the author's chosen overview of some of the elements of controversial international finance history, starting from the 1970s, which was marked by events that fully promised a certain new consensus on global development.

For this reason, the author, justifiably, raises a question of whether the Bretton Woods stipulations had indeed served as guidelines for subsequent events and the events in the modern age in which we live, and he focuses on these processes, their origins, the identification of the need and its necessity, the engagement of global institutions towards the goal of equal economic growth possibilities, the reduction of the gap in global development and poverty world-wide.

Understanding and dealing with international economic relations in modern conditions cannot and should not be exclusive to the part of the expert public that is directly included in international trade or finance. On the contrary, in modern conditions, the widest circle of experts, and not only of economics, are irrefutably made part of these processes and relations. For this purpose, this scientific work requires the reader's knowledge in economics, while simultaneously providing knowledge on its own, which is rather rare in technical literature, and represents the additional step towards an efficient and timely implementation of our knowledge. Such a contribution and the selfless gift of not only boundless knowledge, but also the author's experience, to the readership makes this book extremely valuable.

The structure of the book itself is, in its base, the real history of Bretton Woods. Namely, the book poses the most relevant questions of international financial relations, covering a period of about 75 years. Its 228 pages are divided into five chapters that make a masterful introduction into the world of international institutions and international relations, giving the readers the key fragments from relevant economic history which have affected the current international financial infrastructure.

The author thoroughly and with a background of long personal experience presents and highlights the most important development questions, throughout the 75-year-long history of Bretton Woods. This monography sets off with serious thoughts on the controversies of current events in international finance and on the reflections concerning the international crisis of 2008, followed by a practical panorama of the history and fate of the Bretton Woods system. All important events in international finance are mentioned. This includes: the events from the early 1970s – abandoning the gold dollar standard and the subsequent consequences, the existence of the petrodollar, i.e. the promotion of oil in the world of finance, the growing debt of developing countries and the calls to establish a new international conference on money and financing, the Brandt Commission's Report as an encouragement to developing countries, noting the necessity of a reform in the IBRD's and IMF's policies, and the highly important UN Declaration on the Right to Development from 1989, and the

tribulations of the developing countries grappling with the Paris and London club. Likewise, the author infuses a certain inventiveness when writing about the controversies of globalisation and liberation, i.e. the trade conflicts of the big forces that could not be settled even by the establishment of the World Trade Organisation (WTO).

The debt crisis in the developing countries continues on in the XX century, notes the author, together with the financial markets crisis in Southeast Asia and the positive emergence and foundation of the BRICS Association – Brazil, Russia, India, China and the Union of South Africa, together with their development banks. The Bretton Woods system is dissolving more rapidly, and the formation of the eurozone is nothing more than “wrestling with the dollar” – and the ever-increasing deficit of the USA, states the author. The final chapters of this valuable work are critical and analytical contemplations on the current atmosphere in the world of international finances, and a certain type of nostalgia for the Bretton Woods system and the need for its rehabilitation. Finally, the author, in his research efforts, suggests a possible rehabilitation concept for this system – valuable financial and monetary system for developing countries, open for support to development and the reduction of poverty worldwide.

The consideration of the question of the entire international economic structure could not be possible without the author’s overview of the ideas, premises and controversies of the Bretton Wood institutions. By analysing the reach of the institutions and the mechanisms of the global financial infrastructure, which had been set in the years following the Second World War, professor Ognjanović concludes that the key ideas of the Bretton Woods system were essentially abandoned or seriously compromised, which resulted in the failure of the efforts to construct a rational approach to sustainable growth and the development of developing countries. It is also noted that these kinds of considerations cannot be possible without a thorough and detailed analysis of all global processes which the global economy has faced, and the changes that followed, causing ever more frequent and prominent global incidents and crises.

Intrigued and quite wary of the state and perspectives of international finances, the author points out that the problematic synthesis of events in the international economic (and particularly the monetary) system, in the later XX century and the early decades of the XXI century, will not be able to avoid answering the controversies of secular stagnation, system risks and the state of the financial sector’s wellbeing in the complex net of macroprudential policies and practices. The author goes further, explaining that, within the project, the international monetary and financial system, i.e. the challenges of the monetary and fiscal policy, as well as the management policies for the flow of capital, interest rates and capital control cannot keep ignoring the state and perspective of the ruined markets in developing countries and the emerging markets. Hence, using a positive analysis concept, the author warns that we cannot keep closing our eyes to the changes that have happened and that will keep coming, nor that such new relations and occurrences could be placed into old theoretic schemes and postulates about an economic system which no longer exists. What is necessary, the author concludes, is to analyse every new occurrence in society’s

“self-realisation”, without preconceptions, and to utilise critical anticipation to affirm the benefits of future changes and the society’s new positive needs.

With such constataions and conclusions that ultimately lead towards the benefit of the society, the author strongly highlights the need for the end result of all efforts towards the betterment of international financial infrastructure to be the improvement of the quality of life. To those familiar with the life and works of professor Ognjanović, these beliefs are not new, but the impression is that this book might be presenting them even more clearly and undoubtedly, pushing them even further, while leaving it for each individual reader to think and provide their stance on the future of not only the economy and international finances, but of our civilisation as a whole.

Undoubtedly, this monography will prove interesting to all those who work in finance or banking, and those who follow the current events in international finance and the world of banking, as well as to all graduate and postgraduate students.



BEOGRADSKA BERZA
BELGRADE STOCK EXCHANGE

Barometar / Barometer

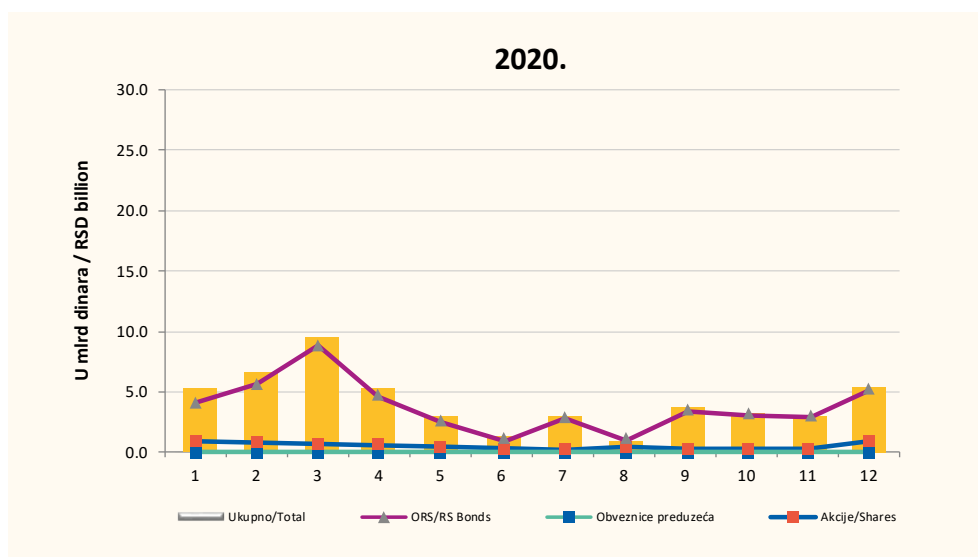
JANUAR 2020 – DECEMBER 2020. /
JANUARY 2020 – DECEMBER 2020

1. PROMET / TURNOVER

Mesec/Month	Listing	Open Market	Regulisano tržište/ Regulated market	MTP/MTF	Ukupno/Total	Broj transakcija/ Number of transactions
Decembar 2020	4.574.035.074	288.316.813,00	4.862.351.887	144.728.160,00	5.007.080.047	1.923,00
Novembar 2020	2.697.283.452	17.597.428,00	2.714.880.880	69.874.336,00	2.784.755.216	1.289,00
Oktobar 2020	2.767.941.193	116.908.135,00	2.884.849.328	63.331.505,00	2.948.180.833	1.463,00
Septembar 2020	3.451.939.927	10.300.290,00	3.462.240.217	41.511.949,00	3.503.752.166	1.009,00
Avgust 2020	769.981.610	25.293.837,00	795.275.447	23.454.407,00	818.729.854	1.167,00
Jul 2020	2.732.815.873	33.352.111,00	2.766.167.984	29.191.898,00	2.795.359.882	1.238,00
Jun 2020	1.284.277.059	61.939.404,00	1.346.216.463	18.295.881,00	1.364.512.344	1.862,00
Maj 2020	3.095.888.499	54.226.931,00	3.150.115.430	3.021.914,00	3.153.137.344	1.384,00
April 2020	5.307.696.037	103.385.875,00	5.411.081.912	11.449.781,00	5.422.531.693	1.039,00
Mart 2020	9.030.036.635	131.788.131,00	9.161.824.766	267.102.814,00	9.428.927.580	2.180,00
Februar 2020	5.854.541.955	538.203.366,00	6.392.745.321	80.558.729,00	6.473.304.050	1.718,00
Januar 2020	4.298.544.657	66.229.693,00	4.364.774.350	687.189.262,00	5.051.963.612	1.826,00
Ukupno 12 meseci / 12-Month Total*	45.864.981.971	1.447.542.014,00	47.312.523.985	1.439.710.636,00	48.752.234.621	18.098,00

*RSD

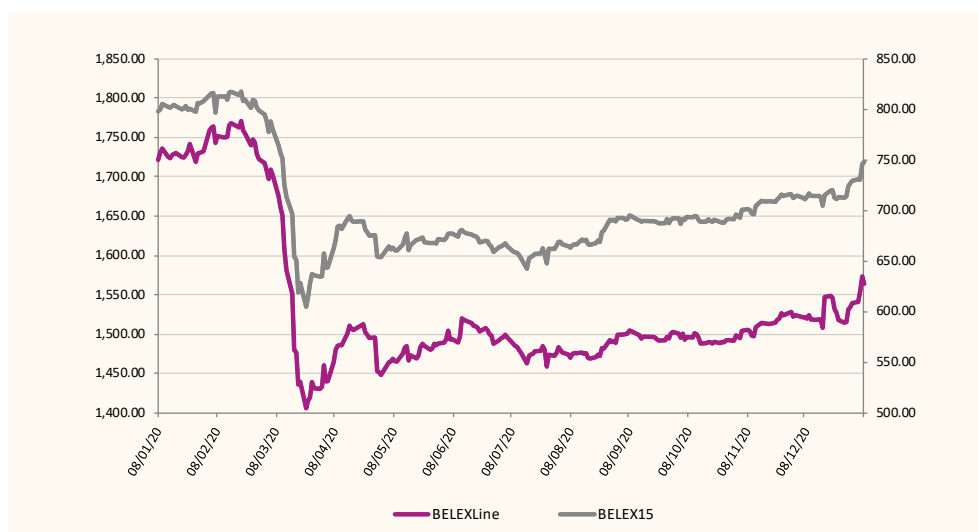
Grafikon / Graph 1: Promet / Turnover



2. INDEKSI / INDICES

		BELEX15	BELEXline
Januar/December 2020. January/December 2020	Poslednja vrednost / Last value	748,61	1.566,03
	Promena (abs) / Change (abs)	-53,08	-160,79
	Promena (%) / Change (%)	-6,62%	-9,31%
	Najviša vrednost / Maximum value	818,75	1.771,27
	Najniža vrednost / Minimum value	605,30	1.409,41
	Istorijski max / History maximum value	3.335,2	5.007,34
	Istorijski min / History minimum value	347,46	841,99
	Vrednost prometa / Value of turnover	2.785.521.311	3.172.349.950

Grafikon / Graph 2: Indeksi / Indices



**3. TRŽIŠNA KAPITALIZACIJA /
MARKET CAPITALISATION**

	Oktobar / October	Novembar / November	Decembar / December
Ukupna tržišna kapitalizacija/ Total market capitalisation	490.266.754	497.531.297	523.407.809
Regulisano tržište/Regulated Market	268.892.250	274.919.690	287.451.011
Listing	196.452.556	202.233.875	218.361.480
Prime Listing – akcije/ Prime Listing – shares	142.061.946	146.350.683	162.228.619
Standard Listing – akcije/ Standard Listing – shares	54.390.610	55.883.192	56.132.861
Open Market	72.439.694	72.685.816	69.089.531
MTP/MTF	221.374.504	222.611.607	235.956.798
BELEX15	238.698.001	245.220.384	259.508.617
BELEXline	247.940.551	254.500.091	268.818.211

*u hiljadama RSD / in RSD thousands

**4. UČEŠĆE STRANIH INVESTITORA /
FOREIGN INVESTORS PARTICIPATION**

	Učešće stranih investitora / Foreign Investors Participation		
Januar/Decembar 2020. January/December 2020	FIS	total	32,42%
		b-FIS	22,46%
		s-FIS	42,37%
	FIB		12,48%
	FIT		14,54%



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