UDK:339.13.017:368:330.341.44:303.2:311.141:316.009.168:368.031 (497.11)
DOI: 10.5937/TokOsig2104009S

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ANALIZA TRŽIŠNE KONCENTRACIJE U SEKTORU OSIGURANJA REPUBLIKE SRBIJE

PREGLEDNI RAD

Apstrakt

Analiza i merenje nivoa koncentracije na tržištu osiguranja bitni su zato što omogućavaju sagledavanje trenutnog stanja na posmatranom tržištu, kao i sagledavanje promena koje bi mogle da se dogode u budućnosti. Predmet istraživanja rada jeste analiza nivoa koncentracije na tržištu osiguranja Republike Srbije kroz prizmu dva pokazatelja: racija koncentracije (CR) i Herfindal-Hiršmanovog indeksa koncentracije (HHI), za vremenski raspon od 2014. do 2020. godine. Rezultati istraživanja pokazali su prisustvo koncentracije na domaćem tržištu osiguranja.

Ključne reči: koncentracija, tržište osiguranja Republike Srbije, racio koncentracije, Herfindal-Hiršmanov indeks koncentracije.

I. Uvod

Tržišna koncentracija jeste jedna od najznačajnijih mera konkurentnosti privrede, s obzirom na to da je održavanje niskog nivoa koncentracije važan preduslov za njeno efikasno funkcionisanje. Stoga je analiza nivoa koncentracije, kao i proučavanje i usavršavanje metoda i tehnika koje omogućavaju merenje nivoa koncentracije na tržištu, veoma važan zadatak.² Analiza nivoa koncentracije u pojedinim

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Rad je primljen: 27. jula 2021.

Rad je prihvaćen: 4. avgusta 2021.

² Dalibor Tomaš, „Lorencova kriva kao pokazatelj tržišne koncentracije u sektoru osiguranja Republike Srbije“, *Financing* br. 4 (2), 2013, str. 22.

privrednim sektorima ima velik značaj za analizu odnosa između konkurenata i uticaja koji svako od njih ima na krajnje korisnike, na privrednu granu i privredu u celini.³

Sektor osiguranja je značajan za funkcionisanje privrednog sistema jedne zemlje, ne samo sa stanovišta sigurnosti i zaštite od različitih vrsta rizika, već i sa stanovišta uticaja na ukupan ekonomski rast i razvoj, kao i na unapređenje funkcionisanja celokupnog finansijskog tržišta.⁴ Koncentracija sektora osiguranja posmatra se kroz konkurenciju koja postoji između osiguravajućih društava koja posluju na tržištu osiguranja.

Analiza konkurencije i konkurentne pozicije ključna je stvar za tržišni uspeh svakog osiguravajućeg društva.⁵ Na tržištu osiguranja Republike Srbije trenutno posluje 20 društava za (re)osiguranje. Poslovima osiguranja bavi se 16 društava, a samo poslovima reosiguranja četiri društva. U Republici Srbiji se, posmatrano od 2014. godine do 2020. godine, uočava tendencija smanjenja broja osiguravajućih društava, s napomenom da se broj u prethodne tri godine nije menjao. Predmet istraživanja ovog rada jeste, upravo, analiza nivoa koncentracije na tržištu osiguranja Republike Srbije, kroz prizmu dva pokazatelja koji se koriste za merenje nivoa koncentracije: racija koncentracije (CR) i Herfindal-Hiršmanovog indeksa koncentracije (HHI). Cilj rada je da se na osnovu analize dobijenih rezultata pruži odgovor na pitanje da li nivo koncentracije na domaćem tržištu osiguranja ugrožava njegovu konkurentnost.

Rad je strukturiran kroz tri dela. Nakon uvodnog dela, u prvom delu će biti učinjen osvrt na relevantnu literaturu u segmentu pozitivnih/negativnih implikacija koncentracije osiguravajućih društava na konkurentnost sektora osiguranja. U drugom delu će biti prikazani osnovni pokazatelji koji se koriste za analizu nivoa koncentracije na tržištu: racio koncentracije (CR) i Herfindal-Hiršmanov indeks koncentracije (HHI). U trećem delu rada posebna pažnja biće posvećena analizi nivoa koncentracije na tržištu osiguranja Republike Srbije u periodu od 2014. do 2020. godine. Na kraju rada biće sublimirane ključne činjenice i izneti zaključci.

II. Pregled relevantne literature

Koncentracija se može definisati kao stanje u kome je ukupan obim prodaje ili ponude na jednom tržištu koncentrisan na manji broj tržišnih subjekata.⁶ Praćenje i merenje nivoa koncentracije u svakom sektoru privrede potrebno je kako bi kreatori ekonomske politike mogli na vreme da uoče narušavanje tržišnih postulata,

³ Milan Kostić, „Analiza koncentracije ponude u sektoru osiguranja Srbije“, *Industrija* br. 37(2), 2009, str. 59.

⁴ D. Tomaš, str. 22.

⁵ Boris Marović, Vladimir Njegomir, Dragan Marković, „Competition in insurance markets of the region of former Yugoslavia“, *Ekonomika preduzeća*, br. 61(5–6), 2013, str. 354.

⁶ Slobodan Aćimović, Miomir Jakšić, Marko Bačković, Božidar Cerović, Branko Medojević, *Ekonomski rečnik*, Beograd: Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu, 2006, str. 327.

i da shodno tome preduzmu neophodne mere,⁷ a sve to u cilju izbegavanja oblika nesavršene konkurencije koji se mogu javiti u vidu monopolskih, duopolskih ili oligopolskih struktura na tržištu.⁸ Visok nivo koncentracije dovodi do smanjenja tržišne konkurentnosti. Ali valja napomenuti to da savršena konkurencija u finansijskom sektoru nije tržišno održiva, iz razloga što se ugrožavaju profitne marže finansijskih institucija, što se javlja problem asimetričnosti informacija i povećava moralni hazard, i što se povećava nivo pasivnih stopa u bankarskom sektoru s ciljem privlačenja što većeg broja klijenata.⁹

Takođe, jedan deo naučne javnosti navodi da visok udeo stranog vlasništva u ukupnoj bilansnoj sumi i premiji osiguranja može predstavljati velik problem za razvoj ekonomije u nerazvijenim regionima (primer, Republika Srbija), dok drugi deo naučne javnosti smatra da ulazak stranih osiguravajućih društava na finansijsko tržište ima pozitivan efekat na konkurenciju.¹⁰ Shodno tome, postavlja se pitanje opravdanosti ulaska stranih investitora na tržište osiguranja u finansijski nerazvijenim zemljama. Prema ranijim studijama, postoji nekoliko ključnih prednosti za ulazak stranih investitora, i to su: razvoj životnog osiguranja, poboljšanje korporativnog upravljanja i upravljanje rizicima u poslovanju, poboljšanje kvaliteta usluga, uvođenje novih i visokokvalitetnih paketa usluga, povećanje zdravstvene konkurencije, jačanje transparentnosti poslovanja, prenosa tehnološkog i menadžerskog znanja i pojava spoljnih izvora finansiranja.¹¹ Posmatrano prema vlasničkoj strukturi kapitala, na kraju 2020. godine, od 20 osiguravajućih društava koja posluju u Republici Srbiji, 15 je u većinskom stranom vlasništvu.¹²

Što se tiče sektora osiguranja Republike Srbije, njega karakteriše srednja koncentracija ponude. Istraživanja su pokazala da na domaćem tržištu trenutno postoji grupa od nekoliko osiguravajućih društava koja su lideri i imaju značajan udeo na ukupnom tržištu,¹³ te je stoga u sektoru osiguranja prisutna oligopolska tržišna struktura.¹⁴ Praćenjem nivoa ograničenosti ili koncentracije ponude na trži-

⁷ D. Tomaš, str. 22.

⁸ Maja Filipović, Vladislava Avramović, Željko Račić, „Analiza nivoa koncentracije aktive u bankarskom sektoru Republike Srbije“, *Škola biznisa*, br. 2/2016, str. 112.

⁹ Maja Dimić, *Analiza nivoa koncentracije u bankarskom sektoru i u sektoru osiguranja u zemljama Centralne i Istočne Evrope*, doktorska disertacija, Beograd: Univerzitet Singidunum, 2015, str. 134.

¹⁰ Maja Dimić, Lidija Barjaktarović, Olja Arsenijević, Polona Šprajc, Janez Žirovnik, „Measuring the Concentration of Insurance Sector – the Case of Southeastern European Countries“, *Organizacija* br. 51 (1), 2018, str. 52.

¹¹ M. Dimić, L. Barjaktarović, O. Arsenijević, P. Šprajc, J. Žirovnik, str. 52.

¹² Narodna banka Srbije, Sektor osiguranja u Srbiji – Kvartalni izveštaj za 2020. godinu, Beograd: Narodna banka Srbije, 2021, https://nbs.rs/export/sites/NBS_site/documents/osiguranje/izvestaji/izv_IV_2020.pdf, pristupljeno 15. 7. 2021.

¹³ Tijana Kaličanin, Edin Hanić, „The competitiveness of insurance market in Serbia“, *Business and applied economics – book of abstracts* (urednici: Ivana Domazet i Jovan Zubović), 2018, str. 196.

¹⁴ M. Dimić, str. 102.

štu osiguranja Republike Srbije sagledava se ponašanje osiguravajućih društava i njihov odnos prema krajnjim korisnicima. Od stepena ograničenosti jednog tržišta zavisi i mogućnost korisnika da biraju društvo čije će usluge koristiti. U slučaju visoke koncentracije i velike ograničenosti tržišta izbor korisnika je drastično sužen.¹⁵

Viši nivoi koncentracije na tržištu osiguranja utiču na smanjenje njegove finansijske stabilnosti,¹⁶ u skladu sa stavom „koncentracija – krhkost“.¹⁷ Stoga je kontrola i regulisanje nivoa koncentracije od strane nadležnih organa od izuzetne važnosti za normalno funkcionisanje tržišta, kao i za adekvatno zadovoljenje potreba krajnjih korisnika.

III. Pokazatelji kojima se meri koncentracija na tržištu

Velik broj pokazatelja koristi se za merenje nivoa tržišne koncentracije. U najznačajnije pokazatelje tržišne koncentracije spadaju: ratio koncentracije; Herfindal-Hiršmanov indeks koncentracije, Lorencova kriva, Džini koeficijent, koeficijent entropije, sveobuhvatni indeks industrijske koncentracije, Hannah & Kay indeks, Hall-Tideman-ov indeks, Hause indeks.¹⁸ Za potrebe ovog rada razmatrane su vrednosti dva pokazatelja: ratio koncentracije (CR) i Herfindal-Hiršmanov indeks koncentracije (HHI).

Ratio koncentracije (CR) je pokazatelj koji se najčešće koristi za merenje nivoa koncentracije na tržištu, i pokazuje učešće n najvećih osiguravajućih društava na tržištu osiguranja. Formula za izračunavanje ovog pokazatelja je sledeća:¹⁹

$$CR_n = \sum_{i=1}^n X_i$$

gde je:

X_i – pojedinačno tržišno učešće i -tog osiguravajućeg društva.

¹⁵ M. Kostić (2009), str. 61.

¹⁶ Muhammed Altuntas, Jannes Rauch, „Concentration and financial stability in the property-liability insurance sector: global evidence“, *Journal of Risk Finance*, br. 18(3), 2017, str. 284.

¹⁷ Jeungbo Shim, „An Investigation of Market Concentration and Financial Stability in Property – Liability Insurance Industry“, *The Journal of Risk and Insurance*, br. 84(2), 2017, str. 567.

¹⁸ Ksenija Dumičić, Anita Pavković, Josipa Akalović-Antić, „Mjerenje koncentracije u bankama u Republici Hrvatskoj“, *Zbornik Ekonomskog fakulteta u Zagrebu* (urednik: Anita Pavković), br. 10 (2), Zagreb, 2012, str. 121.

¹⁹ Ljubodrag Savić, „Tržišne strukture u jugoslovenskoj industriji“, *Industrija*, br. 26 (1–4), 2000, str. 4.

Pojedinačno učešće i -tog osiguravajućeg društva dobija se na sledeći način:²⁰

$$X_i = \left(\frac{q_i}{Q} \right) 100$$

gde je:

q_i – ponuda i -tog osiguravajućeg društva,

Q – ponuda cele grane.

Ovaj pokazatelj se često naziva i CR5, zato što se ratio koncentracije odnosi na pet vodećih osiguravajućih društava koja posluju na tržištu osiguranja. U sledećoj tabeli date su referentne vrednosti ovog pokazatelja.

Tabela 1. Referentne vrednosti racija koncentracije

Vrednost CR indeksa	Nivo koncentracije na tržištu
CR = 0%	Savršena konkurencija (nema koncentracije tržišta)
CR < 25%	Nisko koncentrisana tržišta
25% < CR < 50%	Umereno koncentrisana tržišta
CR > 50%	Visoko koncentrisana tržišta
CR = 100%	Monopol (potpuna koncentracija tržišta)

Izvor: Maja Filipović, Vladislava Avramović, Željko Račić, „Analiza nivoa koncentracije aktive u bankarskom sektoru Republike Srbije“, *Škola biznisa* br. 2/2016, str. 114; Maja Dimić, *Analiza nivoa koncentracije u bankarskom sektoru i u sektoru osiguranja u zemljama Centralne i Istočne Evrope*, doktorska disertacija, Beograd: Univerzitet Singidunum, 2015, str. 120.

Prednost, a ujedno i glavni nedostatak ovog pokazatelja jeste njegova jednostavnost. Ratio koncentracije pokazuje ukupno tržišno učešće pet najvećih osiguravajućih društava, ali ne uvažava disperziju tih učešća između njih samih. Takođe se javlja i problem tržišnog učešća ostalih osiguravajućih društava, jer njihovo tržišno učešće, iako malo, utiče na koncentraciju celokupne ponude.²¹ Da bi se izbegli nedostaci racija koncentracije, u analizi se koristi Herfindal-Hiršmanov indeks koncentracije.

Herfindal-Hiršmanov indeks koncentracije (HHI) daje potpunu informaciju o nivou koncentracije na određenom tržištu, uzimajući u obzir učešće svih kompanija i uvažavajući postojanje razlika u veličini tržišnog učešća između konkurenata.²²

²⁰ Milan Kostić, „Merenje koncentracije ponude grane“, *Ekonomski horizonti*, br. 10 (1), 2008, str. 92.

²¹ Boris Begović, Rajko Bukvić, Boško Mijatović, Marko Paunović, Robert Sepi, Dragor Hiber, *Antimonopolska politika u SR Jugoslaviji*, Beograd: Centar za liberalno-demokratske studije, 2002, str. 34.

²² Lorena Škuflić, Fran Galetić, Branimir Gregurić, „Liberalization and Market Concentration in the Insurance Industry: Case of Croatia“, *Economic Review: Journal of Economic and Business*, br. 9(2), str. 66.

Predstavlja sumu kvadrata tržišnog učešća svih finansijskih institucija na tržištu po osnovu zajmova, bilansne sume, kredita, ostvarenog profila, depozita, prikupljene premije osiguranja i slično.²³ Formula za izračunavanje ovog pokazatelja je sledeća:²⁴

$$HHI = \sum_{i=1}^n (X_i^2)$$

pri čemu je:

n – ukupan broj osiguravajućih društava,

X_i – tržišno učešće i -tog osiguravajućeg društva u sektoru.

Vrednost HH indeksa se kreću u rasponu od 0 do 10.000. U narednoj tabeli prikazane su referentne vrednosti HH indeksa i u skladu s tim različiti nivoi koncentracije na tržištu.

Tabela 2. Referentne vrednosti Herfindal-Hiršmanovog indeksa koncentracije

Vrednost HHI indeksa	Nivo koncentracije na tržištu
HHI < 1.000	Nekoncentrisano tržište
1.000 < HHI < 1.800	Srednje koncentrisano tržište
1.800 < HHI < 2.600	Visoko koncentrisano tržište
2.600 < HHI < 10.000	Veoma visoko koncentrisano tržište
HHI = 10.000	Monopolski koncentrisano tržište

Izvor: Boris Begović, Rajko Bukvić, Boško Mijatović, Marko Paunović, Robert Sepi, Dragor Hiber, *Antimonopolska politika u SR Jugoslaviji*, Beograd: Centar za liberalno-demokratske studije, 2002, str. 35.

Osnovna prednost korišćenja Herfindal-Hiršmanovog indeksa u odnosu na racio koncentracije ogleda se upravo u činjenici da se u razmatranje uzima tržišno učešće svih entiteta na tržištu. Međutim, najveći nedostatak ogleda se u izostavljanju iz analize onih tržišnih učesnika čije je tržišno učešće ispod 1%.²⁵ Ipak, navedeno ograničenje ne predstavlja značajnu prepreku primene, tako da se danas HH indeks smatra pouzdanim indikatorom merenja tržišne koncentracije na svim tržištima.²⁶

²³ M. Dimić, str. 122.

²⁴ Oz Šaj, *Industrijska organizacija – teorija i primena*, Beograd: Ekonomski fakultet Univerziteta u Beogradu, 2005, str. 172.

²⁵ Vlastimir Vuković, „Tržišna koncentracija domaćih banaka“, *Finansije*, br. 1–6, 2006, str. 9.

²⁶ M. Dimić, str. 122.

IV. Analiza nivoa koncentracije u sektoru osiguranja Republike Srbije

Analiza nivoa koncentracije u sektoru osiguranja Republike Srbije u ovom radu obuhvata vremenski raspon od 2014. do 2020. godine. Istraživanje je podeljeno na dva dela, koji obuhvataju izračunavanje koncentracije pomoću gorenavedenih pokazatelja. U Tabeli 3. dat je pregled kretanja broja osiguravajućih društava u sektoru osiguranja Republike Srbije, za period od 2014. godine do 2020. godine.

**Tabela 3. Broj osiguravajućih društava u sektoru osiguranja
Republike Srbije od 2014. do 2020. godine**

Godina	Broj osiguravajućih društava
2014.	25
2015.	24
2016.	23
2017.	21
2018.	20
2019.	20
2020.	20

Izvor: Narodna banka Srbije, Sektor osiguranja u Srbiji – Kvartalni izveštaj za period od 2014. godine do 2020. godine (Arhiva), Beograd: Narodna banka Srbije, 2015–2021, <https://nbs.rs/sr/finansijske-institucije/osiguranje/izvestaj/>, pristupljeno 15. 7. 2021.

U prvom koraku analize izračunate su vrednosti CR5 (ratio koncentracije pet najvećih osiguravajućih društava), i to prema ukupnoj ostvarenoj premiji, prema ostvarenoj premiji životnog osiguranja i prema ostvarenoj premiji neživotnog osiguranja osiguravajućih društava. Dobijene vrednosti prikazane su u tabelama 4, 5 i 6.

**Tabela 4. Ratio koncentracije (CR5) prema ukupnoj ostvarenoj premiji
u periodu od 2014. do 2020. godine**

Godina	Ukupno prvih 5 osiguravajućih društava (mlrd RSD)	Ukupna ostvarena premija (mlrd RSD)	CR5 (%)
2014.	53,1	69,4	76,5%
2015.	61,6	80,9	76,1%
2016.	66,8	89,1	75,0%
2017.	71,9	93,1	77,2%

Godina	Ukupno prvih 5 osiguravajućih društava (mlrd RSD)	Ukupna ostvarena premija (mlrd RSD)	CR5 (%)
2018.	78,4	99,9	78,5%
2019.	83,6	107,5	77,7%
2020.	85,2	109,9	77,5%

Izvor: Narodna banka Srbije, Sektor osiguranja u Srbiji – Kvartalni izveštaj za period od 2014. godine do 2020. godine (Arhiva), Beograd: Narodna banka Srbije, 2015–2021, <https://nbs.rs/sr/finansijske-institucije/osiguranje/izvestaj/>, pristupljeno 15. 7. 2021.

Tabela 5. Racio koncentracije (CR5) prema ostvarenoj premiji životnog osiguranja u periodu od 2014. do 2020. godine

Godina	Ukupno prvih 5 osiguravajućih društava (mlrd RSD)	Ukupna ostvarena premija životnog osiguranja (mlrd RSD)	CR5 (%)
2014.	13,8	15,3	90,2%
2015.	16,8	18,7	89,8%
2016.	19,0	21,3	89,2%
2017.	18,2	24,1	75,5%
2018.	19,8	24,4	81,1%
2019.	20,9	25,6	81,6%
2020.	21,8	27,7	78,7%

Izvor: Kalkulacija autora prema: Narodna banka Srbije, Sektor osiguranja u Srbiji – Kvartalni izveštaj za period od 2014. godine do 2020. godine (Arhiva), Beograd: Narodna banka Srbije, 2015–2021, <https://nbs.rs/sr/finansijske-institucije/osiguranje/izvestaj/>, pristupljeno 15. 7. 2021.

Tabela 6. Racio koncentracije (CR5) prema ostvarenoj premiji neživotnog osiguranja u periodu od 2014. do 2020. godine

Godina	Ukupno prvih 5 osiguravajućih društava (mlrd RSD)	Ukupna ostvarena premija neživotnog osiguranja (mlrd RSD)	CR5 (%)
2014	43,1	53,4	80,7%
2015	49,1	61,6	79,7%
2016	52,1	66,0	78,9%
2017	57,5	70,4	81,7%
2018	62,2	76,1	81,7%
2019	66,0	82,5	80,0%
2020	66,7	83,8	79,6%

Izvor: Kalkulacija autora prema: Narodna banka Srbije, Sektor osiguranja u Srbiji – Kvartalni izveštaj za period od 2014. godine do 2020. godine (Arhiva), Beograd: Narodna banka Srbije, 2015–2021, <https://nbs.rs/sr/finansijske-institucije/osiguranje/izvestaj/>, pristupljeno 15. 7. 2021.

U drugom koraku analize izračunate su vrednosti HH indeksa (Herfindal-Hiršmanov indeks koncentracije) prema ukupnoj ostvarenoj premiji, prema ostvarenoj premiji životnog osiguranja i prema ostvarenoj premiji neživotnog osiguranja. Dobijene vrednosti prikazane su u Tabeli 7.

**Tabela 7. Herfindal-Hiršmanov indeks koncentracije u sektoru osiguranja
Republike Srbije za period od 2014. do 2020. godine**

Godina	HHI ukupna ostva- rena premija	HHI ostvarena premija životnog osiguranja	HHI ostvarena premija neživotnog osiguranja
2014.	1.431	1.924	1.668
2015.	1.496	2.092	1.738
2016.	1.424	2.029	1.715
2017.	1.470	1.395	1.773
2018.	1.533	1.629	1.725
2019.	1.474	1.615	1.643
2020.	1.464	1.449	1.647

Izvor: Kalkulacija autora prema: Narodna banka Srbije, Sektor osiguranja u Srbiji – Kvartalni izveštaj za period od 2014. godine do 2020. godine (Arhiva), Beograd: Narodna banka Srbije, 2015–2021, <https://nbs.rs/sr/finansijske-institucije/osiguranje/izvestaj/>, pristupljeno 15. 7. 2021.

Prosečna vrednost koeficijenta CR5 svedoči da se sektor osiguranja Republike Srbije može opisati kao visoko koncentrisan. Vrednosti CR5 su iznad 70%, tako da stanje na tržištu osiguranja Republike Srbije ozbiljno pretilo da ugrozi konkurenciju. Dobijene vrednosti HHI indeksa u sve tri posmatrane kategorije (ukupna ostvarena premija osiguranja, ostvarena premija životnog osiguranja, ostvarena premija neživotnog osiguranja) govore u prilog činjenici da je tržište osiguranja Republike Srbije srednje koncentrisano, sa izuzetkom ostvarene premije životnog osiguranja u 2014, 2015. i 2016. godini, kada su vrednosti HH indeksa koncentracije prelazile graničnu vrednost od 1.800, i kada je taj segment tržišta osiguranja pokazivao visoku koncentrisanost.

V. Zaključak

Na osnovu analize pokazatelja racija koncentracije (CR) i Herfindal-Hiršmanovog indeksa koncentracije (HHI), mogu se doneti sledeći zaključci. Prema dobijenim vrednostima racija koncentracije pet najvećih osiguravajućih društava, može se zaključiti da je tržište osiguranja Republike Srbije visoko koncentrisano i ozbiljno pretilo narušavanju konkurencije. Vrednost HH indeksa koncentracije, kao potpunijeg pokazatelja koncentracije i konkurencije, govori u prilog tome da je tržište osiguranja Republike Srbije srednje koncentrisano. U Republici Srbiji je

2020. godine poslovalo 20 osiguravajućih društava, što je za pet manje nego 2014. godine. Nivo koncentracije rezultat je konsolidacije, restrukturiranja ili ulaska osiguravajućih društava na tržište osiguranja ili njihovog izlaska, razvijenosti tržišta, kao i razvijenosti celokupnog finansijskog tržišta. Imajući u vidu tendenciju smanjenja broja osiguravajućih društava na tržištu osiguranja Republike Srbije (iako se u prethodne tri godine broj nije menjao), kao i vrednosti pokazatelja koncentracije, u budućnosti se može očekivati dalja tendencija smanjenja broja osiguravajućih društava, čime će pitanje analize i praćenja nivoa koncentracije i konkurencije postati sve značajnije.

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UDK:339.13.017:368:330.341.44:303.2:311.141:316.009.168:368.031 (497.11)
DOI: 10.5937/TokOsig2104009S

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ANALYSIS OF MARKET CONCENTRATION IN THE INSURANCE SECTOR OF THE REPUBLIC OF SERBIA

REVIEW ARTICLE

Abstract

Analysis and measurement of concentration in insurance market is important since it allows for the estimation of the actual state in the relevant market and/or the assessment of changes that could occur in the future. The subject of this research is the analysis of the level of concentration in the insurance market of the Republic of Serbia through the prism of two indicators: concentration ratio (CR) and Herfindal-Hirschman concentration index (HHI), for the time period as of 2014 to 2020. The results of the research revealed the concentration presence in the local insurance market.

Key words: *concentration, insurance market of the Republic of Serbia, concentration ratio, Herfindal-Hirschman concentration index.*

I. Introduction

Market concentration is one of the most important measures of industrial competitiveness, given that maintaining a low level of concentration is an important prerequisite for an industry's efficient functioning. Therefore, the analysis of concentration levels, as well as the study and enhancement of methods and techniques that enable the measurement of concentration levels in the market presents a very important task². The analysis of the level of concentration in individual economic sectors

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Paper received on: 27 July 2021

Paper accepted on: 4 August 2021

² Dalibor Tomaš, "Lorencova kriva kao pokazatelj tržišne koncentracije u sektoru osiguranja Republike Srbije", *Financing* No. 4 (2), 2013, pp. 22.

is of huge significance for analysing the relationship between competitors and the impact of each of them upon the end users, the industry and the overall economy.³

The insurance sector is important for the functioning of a country's economic system, not only from the aspect of safety and protection against various types of risks, but also from that of an impact on the overall economic growth and development, as well as improving the functioning of the entire financial market.⁴ The concentration on the insurance sector is observed through the competition between insurance companies operating in the insurance market.

Analysis of competition and competitive position is key for success of any insurance company on the market.⁵ There are currently 20 (re) insurance companies operating in the insurance market of the Republic of Serbia. Sixteen (16) companies engage in insurance business and only four companies engage in reinsurance business. Observed in the period 2014 to 2020, there has been a tendency to reduce the number of insurance companies in the Republic of Serbia, with a notice that this number has not changed in the previous three years. The subject of this paper is the analysis of concentration levels in the insurance market of the Republic of Serbia, through the prism of two indicators used to measure concentration levels: concentration ratio (CR) and Herfindal-Hirschman concentration index (HHI). The aim of this paper is to provide an answer to the question of whether the level of concentration in the local insurance market compromises its competitiveness, based on the analysis of the obtained results. The paper is structured in three parts. After the introduction, the first part reviews the relevant literature in the segment of positive / negative implications of the concentration of insurance companies on the competitiveness of the insurance sector. The second part presents the basic indicators for analyzing the market concentration levels: concentration ratio (CR) and Herfindal-Hirschman concentration index (HHI). In the third part of the paper, special attention has been paid to the analysis of the level of concentration in the insurance market of the Republic of Serbia in the period from 2014 to 2020. At the end of the paper, there is a summary and presentation of the key facts.

II. Review of Relevant Literature

Concentration can be defined as a situation where the total volume of sales or supply in one market is concentrated around a small number of market entities.⁶

³ Milan Kostić, "Merenje koncentracije ponude grane", *Ekonomski horizonti*, No. 10 (1), 2008, pp. 92.

⁴ D. Tomaš, pp. 22.

⁵ Boris Marović, Vladimir Njegomir, Dragan Marković, "Competition in insurance markets of the region of former Yugoslavia", *Ekonomika preduzeća*, No. 61(5–6), 2013, pp. 354.

⁶ Slobodan Ačimović, Miomir Jakšić, Marko Bačković, Božidar Cerović, Branko Medojević, *Ekonomski rečnik*, Beograd: Publishing Center of the Faculty of Economics in Belgrade, 2006, pp. 327.

Monitoring and measuring the level of concentration in each sector of the economy is a prerequisite for economic policy makers to be able to detect deviations of the market postulates in time and, accordingly, take the necessary measures,⁷ all in order to avoid forms of imperfect competition that may occur in the form of monopolies, duopoly or oligopolistic structures in the market.⁸ A high level of concentration leads to a decrease in the market competitiveness. Nevertheless, it should be noted that perfect competition in the financial sector is not feasible on the market, due to the threat to profit margins of financial institutions, the problem of information asymmetry and increased moral hazard, as well as the increase in passive rates in the banking sector to attract a larger number of clients.⁹

Furthermore, a part of the scientific public states that a high share of foreign ownership in the total balance sheet amount and insurance premium can be a major problem for economic development in underdeveloped regions (example, the Republic of Serbia), while another part of the scientific community believes that foreign insurance companies entering the financial market have a positive effect on competition.¹⁰ Consequently, the question arises as to the justification of foreign investors entering the insurance market in financially underdeveloped countries. According to the previous studies, there are several key advantages when it comes to the entry of foreign investors, namely: development of life insurance, improvement of corporate governance and business risk management, improvement of service quality, introduction of new and high quality service packages, increased health competition, strengthening business transparency, transfer of technological and managerial knowledge and the emergence of external sources of funding.¹¹ Observed by the ownership structure of capital, at the end of 2020, out of 20 insurance companies operating in the Republic of Serbia, 15 had a majority foreign ownership.¹²

The insurance sector of the Republic of Serbia is characterized by a medium concentration of insurance proposal. Research has shown that there is currently a group of several insurance companies in the domestic market that are leaders and

⁷ D. Tomaš, pp. 22.

⁸ Maja Filipović, Vladislava Avramović, Željko Račić, "Analiza nivoa koncentracije aktive u bankarskom sektoru Republike Srbije", *School of business*, No. 2/2016, pp. 112

⁹ Maja Dimić, *Analysis of concentration levels in the banking sector and in the insurance sector in Central and Eastern Europe*, doctoral dissertation, Belgrade: Singidunum University, 2015. pp. 134.

¹⁰ Maja Dimić, Lidija Barjaktarović, Olja Arsenijević, Polona Šprajc, Janez Žirovnik, "Measuring the Concentration of Insurance sector – the Case of Southeastern European Countries", *Organizacija* No. 51 (1), 2018, pp. 52.

¹¹ M. Dimić, L. Barjaktarović, O. Arsenijević, P. Šprajc, J. Žirovnik, pp. 52.

¹² National Bank of Serbia, Insurance Sector in Serbia - Quarterly Report for the year 2020, Belgrade: National Bank of Serbia, 2021, https://nbs.rs/export/sites/NBS_site/documents/osiguranje/izvestaji/izv_IV_2020.pdf, accessed on 15. 7. 2021.

have a significant share in the total market.¹³ Therefore, there is an oligopolistic market structure in the insurance sector.¹⁴ By monitoring the level of limited or concentrated offer in the insurance market of the Republic of Serbia, we have considered the behaviour of insurance companies and their attitude towards the end users. The degree of market limitation affects the opportunity for the users to choose the company the services of which they will use. In the case of high concentration and great market constraints, the choice of users is drastically narrowed.¹⁵

Higher levels of concentration in the insurance market reduce its financial stability,¹⁶ in line with the "concentration - fragility" attitude.¹⁷ Therefore, it is extremely important that the competent authorities control and regulate the level of concentration for the normal functioning of the market, as well as for the adequate fulfilment of the needs of end users.

III. Indicators Measuring Market Concentration

A large number of indicators are used to measure the levels of market concentration. The most significant indicators of market concentration include: concentration ratio, Herfindal-Hirschman concentration index, Lorentz curve, Gini coefficient, entropy coefficient, comprehensive industrial concentration index, Hannah & Kay index, Hall-Tideman index, Hause index.¹⁸ For the purposes of this paper, the values of two indicators were considered: concentration ratio (CR) and Herfindal-Hirschman concentration index (HHI). Concentration ratio (CR) is the indicator most commonly used to measure the level of concentration in the market and it reveals the participation of largest insurance companies in the insurance market. The formula for calculating this indicator is as follows:¹⁹

$$CR_n = \sum_{i=1}^n X_i$$

¹³ Tijana Kalićanin, Edin Hanić, "The competitiveness of insurance market in Serbia", *Business and applied economics – book of abstracts* (editors: Ivana Domazet and Jovan Zubović), 2018, pp. 196. 2018, pp. 195–197.

¹⁴ M. Dimić, pp. 102.

¹⁵ M. Kostić (2009), pp. 61.

¹⁶ Muhammed Altuntas, Jannes Rauch, "Concentration and financial stability in the property-liability insurance sector: global evidence", *Journal of Risk Finance*, No. 18(3), 2017, pp. 284.

¹⁷ Jeungbo Shim, "An Investigation of Market Concentration and Financial Stability in Property – Liability Insurance Industry", *The Journal of Risk and Insurance*, No. 84(2), 2017, pp. 567.

¹⁸ Ksenija Dumičić, Anita Pavković, Josipa Akalović-Antić, "Mjerenje koncentracije u bankama u Republici Hrvatskoj", *Proceedings of the Faculty of Economics in Zagreb* (editor-in-chief: Anita Pavković), No. 10(2), Zagreb, 2012, pp. 121.

¹⁹ Ljubodrag Savić, "Tržišne strukture u jugoslovenskoj industriji", *Industrija*, No. 26 (1–4), 2000, pp. 4.

Where:

X_i – individual market share of the i -th insurance company.

Individual market share of the i -th insurance company is reached at as follows:²⁰

$$X_i = \left(\frac{q_i}{Q} \right) 100$$

Where:

q_i – proposal i -th insurance company,

Q – proposal of the branch.

This indicator is often called CR5, since the ratio of concentration relates to five leading insurance companies that operate in the insurance market. The table below reveals the reference values of this indicator.

Table 1. Reference values of the concentration ratio

Value of CR index	Level of concentration on the market
CR = 0%	Perfect competition (no market concentration)
CR < 25%	Low concentrated markets
25% < CR < 50%	Moderately concentrated markets
CR > 50%	Highly concentrated markets
CR = 100%	Monopoly (complete market concentration)

Source: Maja Filipović, Vladislava Avramović, Željko Račić, "Analysis of the level of asset concentration in the banking sector of the Republic of Serbia", *School of Business* no. 2/2016, pp. 114; Maja Dimić, *Analysis of concentration levels in the banking sector and in the insurance sector in Central and Eastern Europe*, doctoral dissertation, Belgrade: Singidunum University, 2015, pp. 120.

The advantage and, simultaneously, the major disadvantage of this indicator is its straightforwardness. The concentration ratio reveals the overall market share of the five largest insurance companies, but does not take into account the mutual dispersion of such shares. There is also the problem of market share of other insurance companies, since it, though minor, affects the concentration of the entire offer²¹. To avoid the disadvantages of concentration ratios, the Herfindal-Hirschman concentration index is used in the analysis.

The *Herfindal-Hirschman concentration index (HHI)* provides for the complete information on the level of concentration in a particular market, taking into account the participation of all companies as well as actual variations in the size of the market

²⁰ Milan Kostić, "Merenje koncentracije ponude grane", *Ekonomski horizonti*, No.10 (1), 2008, pp. 92.

²¹ Boris Begović, Rajko Bukvić, Boško Mijatović, Marko Paunović, Robert Sepi, Dragor Hiber, *Antimonopolska politika u SR Jugoslaviji*, Belgrade: Center for Liberal-Democratic Studies, 2002, pp. 34.

share between competitors²². This ratio represents the sum of the squares of market share of all financial institutions present on the market, on the basis of loans, balance sheet total, loans, realized profile, deposits, collected insurance premiums and the like.²³ The formula for calculating this indicator is as follows²⁴

$$HHI = \sum_{i=1}^n (X_i^2)$$

where:

n - total number of insurance companies,

Xi - market share of the i-th insurance company in the sector.

The value of the HH index ranges from 0 to 10,000. The table below presents the reference values of the HH index and, accordingly, the different levels of market concentration.

Table 2. Reference values of Herfindal-Hirschman concentration index

Value of HHI index	Level on concentration on the market
HHI < 1,000	Unconcentrated market
1,000 < HHI < 1,800	Medium concentrated market
1,800 < HHI < 2,600	Highly concentrated market
2,600 < HHI < 10,000	Very highly concentrated market
HHI = 10,000	Monopoly concentrated market

Source: Boris Begović, Rajko Bukvić, Boško Mijatović, Marko Paunović, Robert Sepi, Dragor Hiber, Antimonopoly Policy in FR Yugoslavia, Belgrade: Center for Liberal-Democratic Studies, 2002, pp. 35.

The main advantage of using the Herfindal-Hirschman index as compared to the concentration ratio reflects in the fact that it considers the market share of all entities in the market. However, the major drawback reflects in the omission from the analysis of those market participants whose market share is below 1%²⁵. However, this limitation does not represent a significant obstacle to implementation, so that today the HH index is considered a reliable indicator of measuring market concentration in all markets.²⁶

²² Lorena Škuflić, Fran Galetić, Branimir Gregurić, "Liberalization and Market Concentration in the Insurance Industry: Case of Croatia", *Economic Review: Journal of Economic and Business*, br, 9(2), pp. 66.

²³ M. Dimić, pp. 122.

²⁴ Oz Šaj, *Industrijska organizacija – teorija i primena*, Beograd: Faculty of Economics of the University in Belgrade, 2005, pp. 172.

²⁵ Vlastimir Vuković, "Market Concentration of Local Banks", *Finansije*, No. 1 – 6, 2006, pp. 9.

²⁶ M. Dimić, pp. 122.

IV. Analysis of the Level of Concentration in the Insurance Sector of the Republic of Serbia

The analysis of the level of concentration in the insurance sector of the Republic of Serbia in this paper covers the time frame from 2014 to 2020. The research is split into two parts, which include the calculation of the concentration using the above indicators. Table 3 provides an overview of the fluctuations in the number of insurance companies in the insurance sector of the Republic of Serbia, for the period from 2014 to 2020.

Table 3 Number of insurance companies in the insurance sector of the Republic of Serbia for the period from 2014 to 2020

Year	Number of insurance companies
2014	25
2015	24
2016	23
2017	21
2018	20
2019	20
2020	20

Source: National Bank of Serbia, Insurance Sector in Serbia - Quarterly Report for the period from 2014 to 2020 (Archive), Belgrade: National Bank of Serbia, 2015–2021, <https://nbs.rs/sr/finansijske-institucije/insurance/report/>, accessed on 15 July 2021.

In the first step of the analysis, the values of CR5 (concentration ratio of the five major insurance companies) were calculated, with regard of total premium earned, the earned life insurance premium and the earned non-life insurance premium of insurance companies. The obtained values are presented in the Tables 4, 5 and 6 below.

Table 4. Concentration ratio (CR5) with regard to total premium earned in the period from 2014 to 2020

Year	Total for first 5 insurance companies (RSD billion)	Total earned premium (RSD billion)	CR5 (%)
2014	53.1	69.4	76.5%
2015	61.6	80.9	76.1%
2016	66.8	89.1	75.0%

Year	Total for first 5 insurance companies (RSD billion)	Total earned premium (RSD billion)	CR5 (%)
2017	71.9	93.1	77.2%
2018	78.4	99.9	78.5%
2019	83.6	107.5	77.7%
2020	85.2	109.9	77.5%

Source: National Bank of Serbia, Insurance Sector in Serbia - Quarterly Report for the period from 2014 to 2020 (Archive), Belgrade: National Bank of Serbia, 2015–2021, <https://nbs.rs/sr/finansijske-institucije/insurance/report/>, accessed on 15 July 2021.

Table 5. Concentration ratio (CR5) with regard to life insurance premium earned in the period from 2014 to 2020

Year	Total for first 5 insurance companies (RSD billion)	Total earned life premium (RSD billion)	CR5 (%)
2014	13.8	15.3	90.2%
2015	16.8	18.7	89.8%
2016	19.0	21.3	89.2%
2017	18.2	24.1	75.5%
2018	19.8	24.4	81.1%
2019	20.9	25.6	81.6%
2020	21.8	27.7	78.7%

Source: author's calculation according to: National Bank of Serbia, Insurance Sector in Serbia - Quarterly Report for the period from 2014 to 2020 (Archive), Belgrade: National Bank of Serbia, 2015–2021, <https://nbs.rs/sr/financial-institutions/insurance/report/>, accessed on July 15, 2021.

Table 6. Concentration ratio (CR5) with regard to non-life insurance premium earned in the period from 2014 to 2020

Year	Total for first 5 insurance companies (RSD billion)	Total earned non-life premium (RSD billion)	CR5 (%)
2014	43.1	53.4	80.7%
2015	49.1	61.6	79.7%
2016	52.1	66.0	78.9%
2017	57.5	70.4	81.7%
2018	62.2	76.1	81.7%
2019	66.0	82.5	80.0%
2020	66.7	83.8	79.6%

Source: author's calculation according to: National Bank of Serbia, Insurance Sector in Serbia - Quarterly Report for the period from 2014 to 2020 (Archive), Belgrade: National Bank of Serbia, 2015–2021, <https://nbs.rs/sr/financial-institutions/insurance/report/>, accessed on July 15, 2021.

In the second step of the analysis, the values of the HH index (Herfindal-Hirschman concentration index) were calculated according to the total premium earned, life insurance premium earned and according to the non-life insurance premium earned. The obtained values are presented in the Table 7.

Table 7. Herfindal-Hirschman concentration index in the insurance sector of the Republic of Serbia for the period from 2014 to 2020

Year	HHI total premium earned	HHI total life premium earned	HHI total non-life premium earned
2014	1,431	1,924	1,668
2015	1,496	2,092	1,738
2016	1,424	2,029	1,715
2017	1,470	1,395	1,773
2018	1,533	1,629	1,725
2019	1,474	1,615	1,643
2020	1,464	1,449	1,647

Source: author's calculation according to: National Bank of Serbia, Insurance Sector in Serbia - Quarterly Report for the period from 2014 to 2020 (Archive), Belgrade: National Bank of Serbia, 2015–2021, <https://nbs.rs/sr/financial-institutions/insurance/report/>, accessed on July 15, 2021.

The average value of the CR5 coefficient indicates that the insurance sector of the Republic of Serbia can be described as highly concentrated. CR5 values are above 70%, so that the situation on the insurance market of the Republic of Serbia seriously threatens to compromise competition. The obtained values of the HHI index in all three observed categories (total insurance premium earned, life insurance premium earned, non-life insurance premium earned) speak in favour of the fact that the insurance market of the Republic of Serbia is moderately concentrated, with the exception of 2014, 2015 and 2016 earned life insurance premium, with the values of the HH concentration index in excess of the threshold value of 1,800, and with this segment of the insurance market having shown high concentration.

V. Conclusion

Based on the indicator analysis of concentration ratios (CR) and Herfindal-Hirschman concentration index (HHI), the following conclusions can be drawn, as follows. According to the obtained values of the concentration ratios of the five largest insurance companies, it can be concluded that the insurance market of the Republic of Serbia is highly concentrated and seriously threatens to compromise the competition. The value of the HH concentration index, as a more complete indicator of concentration and competition, speaks in favour of the fact that the insurance

market of the Republic of Serbia is moderately concentrated. In 2020, there were 20 insurance companies operating in the Republic of Serbia, which means five less than in 2014. The level of concentration is the result of consolidation, restructuring or entry of insurance companies into the insurance market or their exit from the market, market development and/or the development of the entire financial market. Given the tendency to reduce the number of insurance companies in the insurance market of the Republic of Serbia (although the number has not changed in the previous three years) and/or considering the value of concentration indicators, we can expect a further reduction tendency of the number of insurance companies, whereby the analyzing and monitoring of the concentration and competition levels will gain on importance.

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Translated by: **Bojana Papović, Grad. Philol.**