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Milan Lazarević

Pavlović International
Bank ad Bijeljina
milan.lazarevic@
pavlovic-banka.com

FINANSIJSKI BENČMARKING U BANKARSTVU

Prevod
obezbedio
autor

Rezime

Finansijski *benčmarking* (BM) predstavlja tehniku naprednog upravljanja sa ciljem da se utvrde razlike u finansijskim performansama, tzv. gepovi, u odnosu na konkurenciju. On predstavlja integralni deo celokupnog procesa benčmarkinga čija upotreba podrazumeva identifikaciju zaostataka za entitetom, koji imaju funkciju referentne vrednosti, kako bi se našli načini za njihovo prevazilaženje. Primena finansijskog BM-a je prikazana na primeru bankarske industrije Srbije. Pri tome, primenjena je particiona klasterizacija (grupisanje) u cilju formiranja homogenih grupa iz kojih su odabrani lideri za poređenje. Analiza je urađena na osnovu racio pokazatelja za prethodnih pet godina (period 2010 - 2014. godina) čime se postiže prostorna i vremenska dimenzija poređenja. Nakon poređenja racio pokazatelja u bankarskoj industriji i nefinansijskim korporacijama, izvršena je njihova adaptacija uzimajući u obzir specifičnosti poslovanja banaka. Prikazane su koristi koje proističu iz procesa upotrebe finansijskog BM-a, ali i ograničenja imajući u vidu da mnogi bitni indikatori nisu javno dostupni.

Ključne reči: finansijski benčmarking, finansijska analiza banaka, racio analiza u bankarstvu, analiza performansi, bankarsko tržište Srbije, klasterizacija

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FINANCIAL BENCHMARKING IN BANKING

Milan Lazarević

Pavlović International
Bank ad Bijeljina
milan.lazarevic@
pavlovic-banka.com

Translation
provided by
the author

Summary

Financial benchmarking (BM) is a technique of advanced managing with a view to establishing differences in financial performances, the so called gaps, compared to the competition. It represents an integral part of the overall benchmarking process the use of which involves identification of the backlogs in relation with an entity that has the function of the reference value, with the aim to find ways to overcome them. The use of financial BM is illustrated on the example of Serbian banking industry. In this process, we applied the partitioning clustering (grouping) in order to form homogenous groups from which the leaders are selected for comparison. The analysis was done on the basis of ratios for the past five years (period 2010 - 2014), which, thus, covered spatial and temporal dimensions of comparison. Following the comparison of ratios in the banking industry and non-financial corporations, their adaptation was performed taking into account the particularities of banks' operations. The benefits arising from the use of financial BM process are shown, but also the limitations considering that many important indicators are not publicly available.

Keywords: financial benchmarking, financial analysis of banks, ratio analysis in banking, performance analysis, Serbian banking industry, clustering

JEL: D53, G21

Uvod

Disciplina *benčmarkinga* (BM - metod poređenja vrednosnih kriterijuma) podrazumeva sistematično poređenje performansi entiteta ili njihovih delova (funkcija, aktivnosti i procesa) sa respektabilnim konkurentima, posebno sa liderom. Osnovni cilj nije samo rutinska identifikacija razlika, već je fokus na tome da se uočene razlike analitički obrazlože što bi omogućilo njihovo prevazilaženje. Poređenje sa konkurencijom na tržištu, odnosno poređenje sa boljim od sebe je u funkciji daljeg napredovanja. Težnja ka primarnoj poziciji podstiče proaktivni razvoj i evoluciju u smeru superiornih poslovnih performansi.

Izlazni proizvod BM-a bi trebala da bude najbolja poslovna praksa sa kojom se vrši poređenje. Ovo podrazumeva skeniranje ukupnog poslovanja lidera u delatnosti u kojoj se ostvaruju operativne aktivnosti. Zbog specifičnih internih i eksternih faktora, preslikavanje te poslovne prakse je nemoguće i neprikladno što iziskuje njenu adaptaciju na postojeće uslove entiteta koji vrši poređenje. Ovde se može napraviti analogija BM-a sa poznatim ekonomskim fenomenom tzv. slobodnog jahača (*free rider*) jer se na određeni način pokušava iskoristiti nečija poslovna praksa, bez ikakve nadoknade.

Finansijski BM je okosnica celokupnog procesa ukupnog BM-a zato što su kvantitativni pokazatelji vrlo lako uporedivi. Njihova standardizovanost u ovom postupku dolazi do izražaja čime se mogu pronaći gepovi (jazovi) koji postoje između performansi. Bankarstvo je grana koja je izuzetno podložna poređenju jer su banke po svojoj prirodi otvorene institucije čije se poslovanje pomno prati od strane mnogih stakeholdera čiji je broj značajno veći u odnosu na bilo koje druge učesnike na tržištu. S tim u vezi, zanimljivi su radovi koji opisuju BM indikatora banaka na osnovu GRA - *Grey Relation Analysis* čiji je cilj da odredi ključne indikatore poslovanja u smislu da se smanji njihov broj tako što će se iz pula indikatora koji opisuju određeni segment poslovanja odabrati samo oni koji su najreprezentativniji. Cilj je smanjiti opseg analize i fokusirati se samo na ključne indikatore. Osim toga, GRA omogućuje rangiranje entiteta, odnosno, u ovom slučaju banaka, prema odabranim kriterijuma (Chie-Ta & Yun-Shan, 2006)(Chie-Ta & Yun-Shan, 2006)na način koji je veoma sličan internom rangiranju svojih komitenata koje banke vrše u procesu upravljanja kreditnim rizikom. Iako su u radu prikazane specifičnosti finansijskog BM-a u bankarstvu, njegova primena sa „tehničkog" aspekta se ne razlikuje kada su u pitanju proizvodne firme i kada su u pitanju firme koje pripadaju sektoru usluga što je slučaj sa bankama.

U *drugom delu* rada je objašnjen finansijski BM kao integralni deo sveukupnog BM procesa. U sklopu toga su prezentovane specifičnosti finansijske analize banaka sa posebnim fokusom na adaptibilnost njihove racio analize na korporativne entitete. *Treći deo* predstavlja ključno poglavlje u kojem se primenjuje koncept BM-a na bankarsko tržište Srbije. Najpre se vrši segmentacija tržišta sa ciljem konstrukcije peer grupa u okviru koje se vrši selekcija lidera. Oni imaju ulogu repernih objekata na osnovu kojih se utvrđuju gepovi performansi. Poslednji, *četvrti deo*, služi za sumiranje svih zaključaka proisteklih iz analize rada.

Finansijski benčmarking

Proces BM-a ima svoje kvantitativne i kvalitativne aspekte. Nezaobilazan korak u komparativnom poređenju predstavljaju merljivi elementi zbog svoje standardizovanosti i objektivnosti. U prvom redu to su finansijski parametri jer oni na najbolji način obezbeđuju pomenutu standardizovanost i objektivnost. Uloga finansijskog BM-a je upravo da se identifikuju razlike koje postoje između entiteta jer su one najuočljivije kroz finansijske pokazatelje. On predstavlja sredstvo a ne cilj jer služi kao pomoćna aparatura koja pomaže da se otkriju slabosti interne prirode, sa jedne strane, dok, sa druge strane, ukazuje na prednosti koje poseduje subjekt sa kojim se vrši poređenje. Funkcija finansijskog BM-a je da postavi temelj za ostvarivanje ultimativnog cilja BM-a, a to je konstantno poboljšanje poslovanja sa zadatkom postizanja superiornih performansi konkurencije uz težnju da se u dugom roku preuzme pozicija lidera. Polazeći od toga, kao neophodan postupak se javlja racio analiza sa svojom tzv. prostornom dimenzijom jer je u pitanju poređenje između entiteta, dok nju

Introduction

The discipline of benchmarking (BM) implies a systematic comparison of the performance of entities or their parts (functions, activities or processes) against the respectable competitors, especially with the leader. The main objective is not just a routine identification of differences, the focus instead being on providing analytical arguments enabling the observed differences to be overcome. Comparison with the competitors on the market or comparison with those better than yourself is in the function of further progress. Striving for the primary position encourages proactive development and evolution in the direction of superior business performance.

The output product of BM should be the best business practice with which comparison is being done. This involves the scanning of the overall business of the leaders in the sector in which the operational activities are implemented. Due to the specific internal and external factors, the mirroring of such business practice is impossible and inappropriate which requires its adaptation to the existing conditions of the entity performing the comparison. Here we can make an analogy of BM with the well-known economic phenomenon of a *free rider* because, in a certain way, there is an attempt to exploit someone's business practices free of charge.

Financial BM is the backbone of the entire process of total BM because quantitative indicators are easily comparable. In this procedure, their standardization comes to prominence making it possible to detect the gaps between performances. Banking is a branch extremely susceptible to comparison because banks are by their nature open institutions whose business is closely monitored by many stakeholders whose number is significantly higher than in any other market participant. What is interesting in this regard are the works which describe BM indicators of banks based on GRA - *Gray Relation Analysis* whose objective is to determine the key performance indicators in terms of reducing their number by selecting from the pool of indicators which describe a particular segment only those which are most representative. The aim is to reduce the scope of the analysis and focus only on the key indicators. Furthermore, GRA enables rating of entities, or in our case banks, according to the selected criteria (Chie-Ta & Yun-Shan, 2006) in

a manner that is very similar to the internal rating of the clients that the bank made in the process of its credit risk management. Although the specifics of the financial BM in banking are presented in the paper, its application from the technical aspect is no different when it comes to manufacturing firms and companies that belong to the service sector such is the case with banks (Whymark, 1998).

The *second part* of the paper explains financial BM as an integral part of the overall BM process. The specificities of financial bank analysis are presented with a special focus on the adaptability of their ratio analysis to corporate entities. The *third section* presents the key chapter in which the concept of BM is applied to the Serbian banking industry. Market segmentation is primarily done with the aim of constructing peer groups from which the leaders will be selected. They have the role of referential objects in respect of which the gaps among performances are determined. The last, *fourth part*, serves to summarize all the conclusions resulting from the analysis in the paper.

Financial benchmarking

BM process has both quantitative and qualitative aspects. An unavoidable step in the comparison are the measurable elements due to their standardization and objectivity. These are primarily financial parameters because they provide the best way for the mentioned standardization and objectivity. The role of financial BM is to identify differences that exist among entities because they are most conspicuous through the financial indicators. Financial BM represents the means not the goal because it serves as an auxiliary apparatus which helps to detect internal weaknesses on the one hand, while, on the other hand it points to the benefits of the subject with which the comparison is done. Financial BM's function is to establish the foundation for the achievement of the ultimate BM goal, and that is continuous improvement of business with the task of achieving superior performance of the competition with the aspiration to take over the position of the leader in the long run. Starting from that, the necessary procedure is the ratio analysis with its spatial dimension because it poses a comparison between entities, while it

dopunjuje i tzv. vremenska dimenzija, jer je neophodno i praćenje finansijskih pokazatelja u naznačenim intervalima da bi se sagledao efekat trenda. Pomenutim postupkom se preduzeće na određeni način „otvara" i postaje sve više esktrovertno u smislu da pojačava svoju pažnju na okruženje u kojem posluje. Time se stvara proaktivna kultura koja se postavlja kao jedan od imperativa opstanka na tržištu (Mohamed, 1994) (Mohamed, 1994).

Osnovni rezultat finansijskog BM-a je gep (razlika, jaz) između parametara koje se porede. Njegova veličina govori kolika je udaljenost konkurenata jer se pruža informacija o razlikama između njihovih finansijskih pokazatelja. Osnovna svrha BM-a je da se prevaziđe taj gep čime se entitet približava najboljoj poslovnoj praksi i vrši evoluciju svog poslovanja. Usavršavanje performansi uz pomoć primene BM pristupa podrazumeva učenje od drugih, što opet upućuje na razumevanje sopstvenog i tuđeg poslovanja, adaptiranje tuđih ideja i rešenja i njihovo implementiranje.

Specifičnosti analize finansijskih izveštaja banaka

Finansijska institucija, a naročito banka, ima drugačije mehanizme funkcionisanja u odnosu na klasične korporativne entitete. Njena dinamičnost poslovanja dovodi do toga da se principi finansijske analize moraju modifikovati uvažavajući ulogu finansijskog intermedijatora. Upravo ta specifičnost nalaže da se vizura finansijske analize mora adaptirati. Komparacija strukture osnovnih finansijskih izveštaja banaka i korporacija je prikazana u ilustraciji ispod:

Osnovna razlika između banaka i korporacija u strukturi aktive je ta da kod banaka dominira finansijska aktiva, u vidu kredita i hartija od vrednosti, dok kod preduzeća ova vrsta aktive ima sekundarni značaj jer je za obavljanje njihove delatnosti potrebna prevashodno materijalna imovina. Princip razvrstavanja pozicija bilansa stanja banaka su dijametralno suprotni. Za pozicije aktive koristi princip opadajuće likvidnosti, za razliku od preduzeća koja koriste princip rastuće likvidnosti. Za pozicije pasive vezuje se princip rastuće ročnosti, suprotno od pasive preduzeća koja je izražena kroz princip opadajuće ročnosti. To znači da se kod preduzeća prvo iskazuje kapital, potom slede dugoročna rezervisanja i dugoročne obaveze da bi na kraju ostale kratkoročne obaveze. Kod banaka je situacija obrnuta, jer se na prvom mestu iskazuju kratkoročne obaveze, najvećim delom u formi kratkoročnih depozita, za kojima slede dugoročne obaveze, najvećim delom u formi oročenih depozita, dugoročna rezervisanja i tek na kraju dolazi kapital. Iz uporedne analize sledi da bilans stanja banaka u svom fokusu ima likvidnost, zbog sigurnosti deponenata, dok bilans stanja korporacija u svom fokusu ima solventnost. Interakcija između te dve perspektive je očigledna zbog toga što solventnost reprezentuje likvidnost na dugi rok.

Specifičnost poslovanja banaka ostavlja svoje posledice i na bilans uspeha jer plasmani banke u kredite i HoV najviše donose prihode od kamata koji su za banku analogni prihodima od prodaje preduzeća. Sa druge strane, izvori u vidu depozita nose sa sobom najviše rashode od kamata dok su kod preduzeća dominantni nabavna vrednost prodate robe, troškovi materijala i troškovi zarada u zavisnosti od toga da li ono pripada sektoru trgovine, proizvodnje ili usluga.

Ilustracija 1: Komparacija strukture osnovnih finansijskih izveštaja banaka i korporacija

BILANS STANJA			
AKTIVA		PASIVA	
Banka	Korporacija	Banka	Korporacija
Princip opadajuće likvidnosti Dominacija finansijske imovine (krediti i HoV)	Princip rastuće likvidnosti Dominacija materijalne imovine	Princip rastuće ročnosti Visok finansijski leverage	Princip opadajuće ročnosti Manji finansijski leverage (veće učešće sopstvenog kapitala u izvorima)
BILANS USPEHA			
RASHODI		PRIHODI	
Banka	Korporacija	Banka	Korporacija
Rashodi od kamata	Nabavna vrednost prodate robe (trgovinska delatnost) Troškovi materijala (proizvodna delatnost) Troškovi zarada (uslužne delatnosti)	Prihodi od kamata	Prihodi od prodaje robe (trgovinska delatnost) i/ili učinaka (proizvodnja i usluge)

is complemented by the temporal dimension as it is also necessary to monitor the financial indicators in the signified intervals to gauge the effect of the trend. In a certain way, by adopting the mentioned procedure the company opens up and becomes increasingly extroverted in the sense that it increases the attention it pays to the operating environment. This creates a proactive culture that is set as one of the imperatives of survival in the market (Mohamed, 1994).

The main result of financial BM is the gap between the compared parameters. Its value indicates the distance between competitors because it provides information about the differences among their financial indicators. The main purpose of BM is to overcome the gap whereby the entity approaches its best business practice and makes the evolution of its business. Perfecting the performance with the assistance of the BM approach implies learning from others, which again leads to the understanding of one's own and other people's business, adapting other people's ideas and solutions and their implementation.

Specifics of the analysis of banks' financial statements

A financial institution, especially a bank, has a different mechanism of functioning compared to classical corporate entities. Its business dynamics leads to the fact that the principles of financial analysis must be modified respecting the role of financial intermediaries. It is precisely this specificity that implies that the finance analysis perspective must be adapted. The comparison of the basic financial reports' structure of banks and corporations is shown below:

The main difference between banks and corporations in terms of asset structure is that the dominant form in banks are financial assets, i.e. loans and securities, while in companies this asset class has a secondary significance because the performance of their activities primarily requires tangible assets. The principles of classification of balance sheet items are diametrically opposed. For asset positions banks use the principle of declining liquidity, unlike companies which use the principle of increasing liquidity. Linked to the liability positions of banks is the principle of increasing maturities, unlike the companies' liabilities which are expressed in the form of declining maturities. It means that in companies first expressed is capital, followed by long-term provisions and long-term liabilities and ultimately short-term liabilities. In banks the situation is reversed, because they first express short-term liabilities, for the most part in the form of short-term deposits, followed by long-term liabilities, mostly in the form of time deposits, long term provisions and at the end comes capital. The comparative analysis indicates that the balance sheet of banks in its focus has liquidity, for the safety of depositors, while the balance sheet of corporations in its focus has solvency. The interaction between these two perspectives is obvious because solvency represents liquidity over the long term.

The specificity of bank business leaves its consequences on the income statement as well because bank placements in loans and securities mostly bring revenues from interest which is for banks analogous to the income from sale of companies. On the other side, sources in the form of deposits carry with them the highest

Illustration 1: Comparison of the basic finance reports' structure of banks and corporations

BALANCE SHEET			
ASSETS		LIABILITIES	
Bank	Corporation	Bank	Corporation
The principle of declining liquidity The dominance of financial assets (loans and securities)	The principle of increasing liquidity The dominance of material assets	The principle of growing maturity High financial leverage	The principle of declining maturity Smaller financial leverage(greater participation of own capital in sources)
INCOME STATEMENT			
EXPENSES		REVENUES	
Bank	Corporation	Bank	Corporation
Interest expense	Cost of goods sold (commercial activity) Costs of materials (production activity) Costs of salaries (service industry)	Interest income	Sales of goods (commercial activity) and/or effects (production and services)

Selekcija parametara (finansijskih pokazatelja)

Primena racio analize, kao osnovnog stuba finansijske analize, mora biti modifikovana jer se ona zbog različitih karakteristika banaka ne može na prost način preslikati iz korporativnih finansija. Svi pokazatelji moraju uvažiti te karakteristike jer, u suprotnom, mogu uputiti na pogrešan zaključak njegove korisnike. Uz sva poznata ograničenja racio analize, dodatna opreznost mora biti prisutna u bankarstvu jer je čitav mehanizam funkcionisanja banke određen drugačijom filozofijom poslovanja što utiče na različitu upotrebu pojedinih racio pokazatelja.

Svi rezultati poslovanja se najbolje i najefikasnije iskazuju kroz racio pokazatelje. To njih čini veoma pogodnim za uporedbu u finansijskom BM-u. Njihova priroda, koja podrazumeva eliminisanje efekta veličine kroz iskazivanje relativnih odnosa, omogućava da se entiteti poređenja svedu na istu osnovu uz direktnu uporedivost (White i saradnici, 2003). Primena u bankarstvu se u tom delu ni po čemu ne razlikuje od one u korporativnim finansijama. Zbog toga su racio pokazatelji osnovni deo i srž finansijskog BM-a bez kojih bi čitav proces bio nezamisliv.

nju karakteristična dva lanca poslovanja: odnos prema komitentima, na strani aktive, i odnos prema deponentima, na strani pasive. Upravo je to razlog što su konvencionalni parametri aktivnosti besmisleni, međutim, postoji parametar koji je jako bitan u bankarstvu, i može se upotrebiti kao surogat za pokazatelje aktivnosti, a to je prosečna aktiva po zaposlenom radniku. On se dobija kao količnik ukupne neto bilansne aktive i ukupnog broja zaposlenih radnika banke što daje kvalitetnu informaciju o efikasnosti poslovanja i upotrebi ljudskih resura koji su osnovni faktor i imaju poseban značaj u bankarstvu. Analogno periodu naplate potraživanja od kupaca kod korporacija, u bankarstvu se princip efikasnosti naplate izražava kroz procenat dospelih potraživanja u ukupnom portfoliju jer taj pokazatelj označava fluidnost novčanog toka iz osnovne operativne aktivnosti banaka a to je plasiranje kredita.

Modifikacija *pokazatelja likvidnosti* postoji u tom delu što se obrtna imovina banke sastoji skoro isključivo od monetarne aktive jer su zalihe praktično isključene u njenom poslovanju. Sa druge strane, kratkoročne obaveze se sastoje isključivo iz depozita. Osnovni postulat normalnog funkcionisanja banke je njena likvidnost prema deponentima,

Ilustracija 2: Racio analiza u bankarstvu (uporedna analiza sa korporativnim finansijama)

Pokazatelji likvidnosti	• Fokus na pokriću depozita, odnosno na sigurnosti deponenata • Obrtna imovina je većinski u monetarnom obliku
Pokazatelji aktivnosti	• Najveće izmene u odnosu na "klasičnu" racio analizu (odsustvo prihoda od prodaje) • Neprimenjivi konvencionalni pokazatelji
Pokazatelji profitabilnosti	• Većina pokazatelja poznata iz korporativnih finansija se može primeniti (DuPont analiza je osnov) • Pojedini parametri koji su imanentni samo bankama: neto kamatni prihod, spred i ukupna efikasnost
Pokazatelji finansijske strukture	• Ista funkcija kao kod korporativnih finansija • Specifčnosti zbog drugačije strukture i konstrukcije bilansa banaka
Tržišni pokazatelji	• Identični sa korporativnim pokazateljima

Generalno, sve poznate racio grupe pokazatelja se mogu primeniti u bankarstvu s tim što je najveća promena kod *pokazatelja aktivnosti* koji nemaju isti značaj kao kod korporacija i njihova uloga je znatno izmenjena. Pokazatelj koji je jedan od najznačajnijih u finansijskoj analizi korporacija, prosečni period naplate potraživanja prema kupcima, je totalno neupotrebljiv u bankarstvu. To isto važi i za prosečni period vezivanja zaliha i plaćanja obaveza prema dobavljačima jer su oni zanemarljivi u poslovanju banke. Drugim rečima, gotovinski ciklus kod preduzeća se u mnogome razlikuje u odnosu na banku jer su za

odnosno sposobnost blagovremene isplate depozita prilikom dospeća ili na njihov zahtev. Zbog toga se većina pokazatelja likvidnosti i svode na pokrivenost depozita u odnosu na neku veličinu na strani aktive. Likvidnost je još više dobila na značaju nakon poslednje svetske finansijske krize jer je uviđeno da je taj segment bio zapostavljen u pogledu supervizije poslovanja banaka. Zbog toga je kao odgovor nastao Bazel III koji jasno propisuje dva nova racia likvidnosti: LCR - *Liquidity Cover Ratio* i NSFR - *Net Stable Funding Ratio*.

Pokazatelji profitabilnosti imaju istu

interest expense while at companies dominate the costs of goods sold and costs of salaries depending on whether the concerned company belongs to the sector of trade, production or services.

Selection of parameters (financial indicators)

The application of ratio analysis, as the basic pillar of financial analysis, has to be modified because due to the different characteristics of banks it cannot be simply replicated from corporate finance. All indicators must respect these characteristics, because otherwise they can lead the consumers to the wrong conclusion. In addition to the known limitations of ratio analysis, additional caution must be present in banking because the whole mechanism of the bank's functioning is governed by a different business philosophy which affects the different usages of certain ratios.

All business results are best and most efficiently shown through ratio indicators. This makes them very suitable for comparison in financial BM. Their nature, which implies the elimination of the size effect by demonstrating the relative relationship, provides that the compared entities are reduced to the same basis with direct comparability (White, Sondhi, & Fried, 2003). Application in banking in this part does not differ from that in corporate finance. Therefore, financial ratios are a fundamental part and the core without which the whole process would have been unthinkable.

of the most important indicators in financial analysis of corporations, i.e. the average period of collection of receivables from customers, is totally useless in the banking industry. The same goes for the average period of inventory turnover and accounts payable because they are insignificant in the bank's operations. In other words, the cash cycle of a corporation is very different in relation to a bank because there are two chains of business characteristic for a bank: its relation towards the clients, on the assets side and its relation towards the depositors, on the liabilities side. This is the actual reason why conventional parameters of activity are meaningless; however, there is a parameter which is very important in banking and can be used as surrogate for activity indicators, i.e. the average assets per employee. It is calculated as the quotient of the total net balance sheet assets and the total number of employees which provides quality information on the business efficiency and use of human resources which represent the basic factor and have special significance in banking. Analogously to the period of collection of customers' receivables, the efficiency principle in banking is expressed through the percentage of due receivables in the total portfolio because that indicator marks the fluidity of cash flow from basic operational activity of banks, i.e. lending.

Modification of *liquidity indicators* is reflected in the fact that the bank's working capital consists almost exclusively of monetary

Illustration 2: Ratio analysis in banking (comparative analysis of the corporate finance)

Liquidity ratios	• Focus on the coverage of deposits, i.e. the safety of depositors • The majority of current assets are in monetary form
Activity ratios	• The biggest changes in relation to the classical ratio analysis (the absence of income from the sale) • Inapplicable conventional indicators
Profitability ratios	• Most indicators known from corporative finance can be applied (DuPont analysis is basic) • Certain parameters which are immanent only to banks: net interest income, spread and overall efficiency
Financial structure ratios	• Same function as in corporate finance • Specifics due to the different structure and construction of banks' balance sheets
Market ratios	• Identical to corporate indicators

All known ratio groups can be applied in banking generally, and the biggest change is in respect of *activity indicators* that do not have the same meaning as in the case of corporations and their role is significantly changed. One

assets, because inventories are practically excluded in its operations. On the other hand, short-term liabilities consist exclusively of deposits. The fundamental postulate of the normal bank's functioning is its liquidity to the

funkciju kao kod korporacija pri čemu se kao sveobuhvatna agenda prihvata DuPont analiza razlaganja ukupnog rentabiliteta. Ekskluzivno za bankarstvo su prisutna još tri pokazatelja:

kao otvorena akcionarska društva čijim akcijama se aktivno trguje na berzi. Na taj način je njihovo poslovanje dodatno prikazano investicionoj javnosti i drugim zainteresovanim stakeholderima.

Prethodna racia su većinom preuzeta iz korporativnih finansija i za njihov obračun su dovoljne informacije iz bilansa stanja i bilansa uspeha. Oni daju dobru osnovu za finansijsku

Tabela 1: Pokazatelji profitabilnosti imanentni isključivo bankarstvu

Pokazatelj	Način obračuna	
Neto kamatna marža (margina)	$$\frac{Neto\ kamatni\ prihod}{Zarađivačka\ aktiva} = \frac{Prihodi\ od\ kamata - Rashodi\ od\ kamata}{Investicije\ u\ HoV + Neto\ krediti\ i\ lizing}$$	
Spread	$$\frac{Prihodi\ od\ kamata}{Zarađivačka\ aktiva} - \frac{Rashodi\ od\ kamata}{Kamatno\ osetljive\ obaveze}$$	
Ukupna efikasnost	$$\frac{Nekamatni\ prihod}{Nekamatni\ rashod}$$	

Neto kamatna marža i spread imaju funkciju da opišu celokupno operativno poslovanje banke jer odražavaju na indirektan način ALM koncept simultanog upravljanja aktivom i pasivom. Oni uzimaju u obzir i aktivnu stranu, u pogledu upravljanja plasmanima, i pasivnu stranu, u pogledu upravljanja izvorima banke. Treći pokazatelj, ukupna efikasnost, ima za cilj da izmeri mogućnosti banke da generiše nekamatni prihod radi pokrivanja nekamatnih rashoda.

Pokazatelji finansijske strukture takođe treba da, kao kod korporativnih entiteta, opišu kompletnu strukturu bilansa stanja sa posebnim akcentom na njegove izvore (pasivu). Ovde treba imati u vidu da je bankarstvo po svojoj prirodi visoko-finansijski zavisno i da se uobičajeni korporativni pokazatelji i njihove referentne vrednosti ne mogu u potpunosti primeniti. Iako je tendencija supervizijske regulative pre krize išla u smeru upotrebe složenih i tehnički zahtevnih metoda za obračun adekvatnosti kapitala, evidentno je da se poslednjim bazelskim promenama ide u pravcu pojednostavljenja obračuna. Plod takvog načina razmišljanja je i pokazatelj finansijske poluge čiji je cilj da ograniči prekomerno oslanjanje na zaduživanje u bankarstvu kako bi se minimiziralo preuzimanje rizika u potrazi za većim prinosom.

T*ržišni pokazatelji* su identični kao kod korporacija s tim što oni dobijaju još više na značaju jer banke u većini slučajeva funkcionišu

analizu banaka. Međutim, postoje pojedini pokazatelji koji su karakterisitični samo za njih jer se ne mogu primeniti u drugim sferama. Ultimativni pokazatelj finansijske stabilnosti banke je stopa adekvatnosti kapitala i ona predstavlja odnos između regulatornog kapitala, koji je obračunska kategorija i ne može se u potpunosti izračunati na osnovu knjigovodstvenih informacija, i rizikom ponderisane aktive, koja takođe predstavlja obračunsku kategoriju. On je nastao kao posledica činjenice da je za bankarsko poslovanje karakteristično pojačano prisustvo rizika, pre svega finansijske prirode, koji se moraju uzeti u obzir prilikom opisivanja finansijske strukture.

Druga bitna različitost banaka u odnosu na korporacije je to što njihovo finansijsko stanje i poslovanje najviše zavisi od kvaliteta portfolija koji se eksplicitno i uzima u obzir prilikom obračuna adekvatnosti kapitala jer se aktiva različito ponderiše u odnosu na svoj procenjeni nivo rizičnosti. Usko vezan za kvalitet portfolija je i mehanizam ispravki vrednosti, odnosno obezvređenja finansijske aktive, kao fond rezervi za buduće potencijalne i već identifikovane gubitke. Rezerve za kreditne gubitke predstavljaju srž poslovanja u bankarstvu i odraz uspešnosti njenog upravljanja gde ključnu ulogu imaju kreditni rizici. Zbog toga je pokazatelj pokrivenosti ukupnog portfolija ili portfolija loših plasmana (engl. non-performing) ispravkama vrednosti veoma bitan pokazatelj finansijskog zdravlja

depositors, i.e. the ability of timely payment of deposits upon maturity or upon request. That is why most of liquidity indicators boil down to the coverage of deposits in relation to an item on the asset side. Liquidity significance has increased even more after the latest global financial crisis because it turned out that this segment was neglected in terms of supervision of bank operations. As a response, Basel III was created, which clearly prescribes two new liquidity ratios: LCR - *Liquidity Coverage Ratio* and NSFR - *Net Stable Funding Ratio*.

Indicators of profitability have the same function as in corporations, with the DuPont analysis of the decomposition of total profitability being accepted as the comprehensive agenda. Exclusively for banking there are three other indicators:

cannot be fully applied. Even if the tendency of supervisory regulations before the crisis goes in the direction of complex and technical demanding methods for capital adequacy calculation, it is evident that the changes in the last Basel go in the direction of calculation simplification. The result of such thinking is the leverage ratio whose goal is to limit over-reliance on debt in banking in order to minimize taking risks in search of a higher yield.

Market indicators are identical as in corporations but they get more on their significance because in most cases banks function as open shareholding companies whose shares are actively traded on the market. In that way their business is shown additionally to the investment public and other interested stakeholders.

Table 1: Profitability indicators which are immanent exclusively in banking

Indicator	Calculation
Net interest margin	$$\frac{Net\ interest\ income}{Earnings\ asset} = \frac{Interest\ income - Interest\ expense}{Investment\ securities + Net\ loans\ and\ leasing}$$
Spread	$$\frac{Interest\ income}{Earnings\ asset} - \frac{Interest\ expense}{Interest - bearing\ liabilities}$$
Overhead efficiency	$$\frac{Noninterest\ income}{Noninterest\ expense}$$

(Saunders & Cornett, 2012)

Net interest margin and spread have the function to describe total operative business of the bank as they indirectly reflect the concept of simultaneous asset and liability management. They also take into consideration the asset side, in terms of the management of placements and the liabilities side, in terms of the management of bank sources. The aim of the third indicator, overhead efficiency, is to measure the bank's abilities to generate non-interest income and to cover non-interest expenses (Saunders & Cornett, 2012, p. 400).

Financial structure indicators should also, as in the case of corporate entities, describe the complete structure of the balance sheet with the particular emphasis on its sources. We should bear in mind here that banking is in its nature highly financially dependable and the usual corporate indicators and reference values

Previous ratios are mostly taken from corporate finance and for their calculation it is enough to take the information from the balance sheet and income statement. They give a solid foundation for the financial analysis of the banks. However, there are individual indicators that are characteristic only for them because they cannot be applied in other spheres. The ultimate indicator of a bank's financial stability is the capital adequacy rate and it represents a relation between regulatory capital, which is a billing category and cannot be calculated on the basis of accounting information and risk-weighted assets that also represent a billing category. It was made as a consequence of the fact that the banking business is characteristic for the increased presence of risk, mostly of financial nature, which must be considered during the description of the financial structure.

The second important difference in relation to corporations is that their financial condition and business depends mostly from the portfolio

banke. Kvalitet portfolija se još odražava i kroz pomenuti odnos dospelih potraživanja u ukupnim potraživanjima što daje automatski sliku o tome sa kojim stepenom uspešnosti su plasirana sredstva.

Sve pomenute specifičnosti su uzete u obzir od strane regulatornog tela koje u on i off-site superviziji primenjuju tzv. CAMELS sistem što je akronim za skraćenu analizu sledećih aspekata finansijske stabilnosti:

U te svrhe, regulatori u SAD su razvili izveštaj *Uniform Bank Performance Report* - UBPR koji na sistematičan način prikazuje aspekte poslovanja banke analogno kriterijumima CAMELS rejtinga.

UBPR predstavlja odličnu osnovu za primenu finansijskog BM-a u bankarstvu SAD-a jer su u njemu sadržane prosečne vrednosti pokazatelja za tzv. peer grupu kao i percentil u kojem se nalazi pokazatelj konkretne banke. Pri tome, putem portala FFIEC (www.ffiec.gov)

Ilustracija 3: CAMELS rejting (Izvor podataka FDIC - *Federal Deposit Insurance Corporation*)

Skraćenica	Naziv	Faktori
C	Capital Adequacy (kapitalna adekvatnost)	Najvažniji segment poslovanja banke koji je neophodan da bi se primenilo načelo kontinuiteta poslovanja jer je održavanje adekvatnog nivoa kapitala njegov ultimativni preduslov. Neophodno je uporediti kapital sa prirodom i veličinom rizika sa kojima se banka suočava kao i odrediti sposobnosti menadžmenta da upravlja tim rizicima.
A	Asset quality (kvalitet aktive)	Rejting kvaliteta aktive odražava količinu postojećih i potencijalnih kreditnih rizika u kreditnom i investicionom portfoliju, druge nepokretnosti u vlasništvu, i ostale aktive, kao i vanbilansnih transakcija. Sposobnost menadžmenta da identifikuje, meri, prati i kontroliše kreditni rizik se takođe ogleda ovde. Procena kvaliteta aktive treba da razmotri adekvatnost rezervi za kreditne gubitke i odmeri izloženost prema drugoj ugovornoj strani, emitentu ili dužniku u defaultu prema stvarnim ili impliciranim dogovorima.
M	Management (rukovođenje)	Sposobnost menadžmenat da identifikuje, meri, prati i kontroliše rizike poslovanja u bankarstvu. Viši menadžment je odgovoran za razvoj i implementaciju politika i procedura kojima se sprovodi ukupna strategija banke.
E	Earnings (profitabilnost)	Obim i trend zarađivačke sposobnosti banke kao i kvalitet ukupnih prihoda uz posebnu napomenu o tome da li oni potiču iz operativnih aktivnosti. Naglašava se perspektiva kreditnih rizika u pogledu povećanih rezervi za kreditne gubitke kao i tržišni rizici u pogledu neadekvatnih usklađenosti kamatno osetljivih pozicija koje mogu prouzrokovati povećani kamatni rizik.
L	Liquidity (likvidnost)	Tekuća i buduća pozicija likvidnosti uz adekvatnost politika u pogledu upravljanja izvorima. Moguće posledice i reakcije u uslovima finansijskog stresa kao i perspektive ispunjenja svih finansijskih obligacija uz zahtev da se dodatna likvidnost ne obezbeđuje uz visoku cenu izvora.
S	Sensitivity to market risk (osetljvost na tržišne rizike)	Uticaj promena tržišnih varijabli (kamatne stope, devizni kursevi, cene berzanskih roba i kotacije na tržištima kapitala) koje imaju negativno dejstvo na prihode i/ili ekonomsku vrednost banke. Ovde se takođe ocenjuje sposobnost menadžmenta u svim fazama upravljanja rizicima - identifikacija, merenje, praćenje i kontrola - uz poštovanje principa proporcionalnosti.

CAMELS rejting sistem je osnova procesa Jednoobraznog rejting sistema finansijskih institucija (*The Uniform Financial Institutions Rating System* - UFIRS), u prvom redu banaka, koji je nastao u SAD-u 1979. godine kada je prihvaćen od strane *Federal Financial Institutions Examination Council* - FFIEC uz dodatne modifikacije i revizije koje su pratile razvoj finansijske industrije. Većina supervizora u svetu je prihvatila principe CAMELS rejtinga koji podrazumeva da se na osnovu *on* i *off site* kontrola određuje jedan od pet nivoa skale za svaki od pomenutih šest kriterijuma pri čemu prvi nivo označava najbolju ocenu a poslednji, peti nivo, označava najgoru ocenu u respektivnom segmentu. Ukupni odnosno tzv. kompozitni rejting (rang) se određuje na osnovu svih kriterijuma pri čemu se vrši ponderacija na osnovu njihove važnosti koji takođe ima pet nivoa sa identičnom skalom.

su dostupni izveštaji za peer grupe i njihove vrednosti. Na taj način menadžment može da odredi poziciju svoje banke u odnosu na okruženje i uvidi svoje nedostatke koje ima za konkurencijom. UBPR je sveobuhvatan a u isto vreme i koncizan izveštaj čijom upotrebom se mogu doneti kvalitetni analitičarski zaključci jer je prikazano celokupno poslovanje banke sa svim njegovim bitnim aspektima pri čemu je fokus na njenom rizičnom profilu.

Bankarsko tržište Srbije

Trenutno bankarsko tržište Srbije čini 30 banaka sa aktivnim dozvolama za rad izdatim od strane NBS-a. Prethodne tri godine je prisutan trend njegovog ukrupnjavanja usled propasti pojedinih banaka čime se smanjio broj učesnika na tržištu. Ti procesi su bili neminovni

quality which is explicitly considered during the calculation of capital adequacy because the asset is differently weighted in relation to its estimated level of risk. Closely related to portfolio quality is the value correction mechanism, i.e. loss of value of financial assets, as a reserve fund for the future potential and already identified losses. Provisions for loan losses represent the essence of the banking business and the reflection of its success in managing where credit risks have the key role. Therefore, the coverage ratio of the total portfolio or portfolio of bad loans (non-performing) to loan loss provisions is a very important indicator of the bank's financial health. Portfolio quality is also reflected through the mentioned relation of past due claims in relation to the total claims which automatically indicates to what degree the resources have been successfully placed.

All mentioned specifics are taken into consideration by regulatory bodies which, in their on and off-site supervision, apply the so-called CAMELS system which is an acronym for short analysis of the following aspects of financial stability:

System (UFIRS), primarily for the banks, which originated in the USA in 1979 when it was accepted by the *Federal Financial Institutions Examination Council* - FFIEC with additional modifications and revisions that followed the financial industry's development. Most of the supervisors in the world accepted the CAMELS rating principle which implies that, on the basis of the on and off-site controls, it determines one of the five levels in a scale for each of the six mentioned criteria where the first level marks the best and the last level the worst grade in the respective segment. The total or the so-called composite rating is determined based on all criteria and the weighting is performed based on their importance that also has five levels with the identical scale. For those purposes, regulators in the USA developed the *Uniform Bank Performance Report* - UBPR which in a systematical manner shows bank business aspects analogously to the CAMELS rating criteria.

UBPR represents an excellent base for applying financial BM in the USA banking because it contains the average indicator values for the so-called peer group as well as the percentile in which the indicator of a

Illustration 3: CAMELS rating (source of information FDIC - *Federal Deposit Insurance Corporation*)

Abbreviation	Title	Factors
C	Capital Adequacy	The most important segment of bank business which is essential for applying the principle of an on-going concern because maintenance of an adequate capital level is its ultimate pre-condition. It is necessary to compare capital with nature and size of the risk the bank is faced with, as well as to determine management abilities to manage those risks.
A	Asset quality	Rating of asset quality reflects the quantity of existing and potential credit risks in loan and investment portfolio, the others properties owned, and other assets, as well as off-balance sheet transactions. Ability of management to identify, measure, monitor and control credit risk is also reflected here. The estimation of asset quality ought to consider adequacy reserves for loan losses and measure the exposure toward other counterparties or debtors in default to real or implied agreements.
M	Management	Ability of management to identify, measure, monitor and control banking business risks. Higher management is responsible for development and implementation of politics and procedures by which total bank strategy is conducted.
E	Earnings	Volume and trend of the bank's earning ability as well as the quality of total income with a special note as to whether they come from operational activities or not. Perspective of credit risk is emphasized in terms of increased reserves for loan losses as well as market risks in terms of inadequate adjustments of interest sensible positions which can cause the increased interest risk.
L	Liquidity	Current and future liquidity position with adequate politics regarding the sources management. Possible consequences and reactions in financial stress conditions as well as perspectives of fulfillment of all financial obligations with the request not to provide additional liquidity with high prices of sources.
S	Sensitivity to market risk	The influence of the changing market variables (interest rates, exchange rates, prices of market goods and listing on capital markets) which have a negative effect on incomes and/or economic value of the bank. Here is also estimated management ability in all phases of risk management-identification, measure, following and control- with respect of the proportional principle.

The CAMELS rating system is the foundation of the *Uniform Financial Institutions Rating*

particular bank is placed. Therefore, the peer group reports and their values are available on

s obzirom na visoku koncentraciju i pojačanu konkurenciju koja je sve više prisutna. Ovome su posebno podložne banke sa većinskim domaćim kapitalom koje u tim uslovima teško mogu da opstanu na tržištu.

Grupisanje (klasterizacija)

Da bi se izvršilo validno poređenje banaka u Srbiji, odnosno primenio postupak finansijskog BM-a, neophodno je prethodno segmentirati tržište sa ciljem formiranja relativno homogenih grupa unutar kojih se vrši poređenje. Pomenuti postupak se naziva klasterizacija i on predstavlja sredstvo za tzv. „sečenje" osnovnog skupa na manje grupe.

Finansijski BM ima najveću upotrebnu vrednost ako se koristi za poređenje sa neposrednim konkurenatima. Poređenje sa liderom predstavlja idealizaciju procesa koji može doneti koristi ali je sigurno da ima manju upotrebnu vrednost jer je za određeni entitet, u ovom slučaju banku, prvi korak da bude bolji od konkurenata koji su neposredno ispred njega po ostvarenim performansama. Ponavljanje postupka vodi ka konstantnom napredovanju u odnosu na konkurenciju i ostvarenja ultimativnog cilja - dostizanja liderske pozicije u grani. Zbog toga se i upotrebljava klasterizacija da bi se pronašle grupe unutar kojih se može izvršiti adekvatno poređenje u smislu finansijskog BM-a. Svi privredni subjekti, pa tako i banke, se najbolje porede ako su približno iste veličine. Dok se za nivo poslovanja korporacija uzima obim realizacije, odnosno visina prihoda od prodaje koji suštinski determinišu njegovu veličinu poslovanja, u bakarstvu tu ulogu ima veličina ukupne bilansne aktive jer se pretpostavlja da ona na najbolji način odražava veličinu i kompleksnost banke i usko je vezana sa tzv. principom proporcionalnosti koji u bankarskom rečniku znači da se pojedini propisi i praksa poslovanja primenjuju u zavisnosti od njene veličine. To je i ključni parametar koji regulatori imaju u vidu prilikom ocenjivanja efekta banke kroz njen sistemski značaj (*Sistematically Important Financial Institutions*) odnosno sagledavanje

uticaja sistemskog rizika propasti pojedine banke na celokupno tržište. Taj kriterijum je i odabran kao pokazatelj na osnovu kojeg se radi klasterizacija bankarskog tržišta Srbije čime se obezbeđuje pravilno formiranje grupa za poređenje.

Kao osnova su uzeti podaci o ukupnoj aktivi na datum 31.12.2014. godine jer je to poslednji datum za koji su dostupni zvanični godišnji finansijski izveštaji. Oni su prikazani u grafikonu ispod dok je detaljna lista sa punim nazivom banaka prikazana u Dodatku A:

Grafikon 1: Veličina svih banaka na tržištu Srbije - ukupna aktiva u 000 RSD
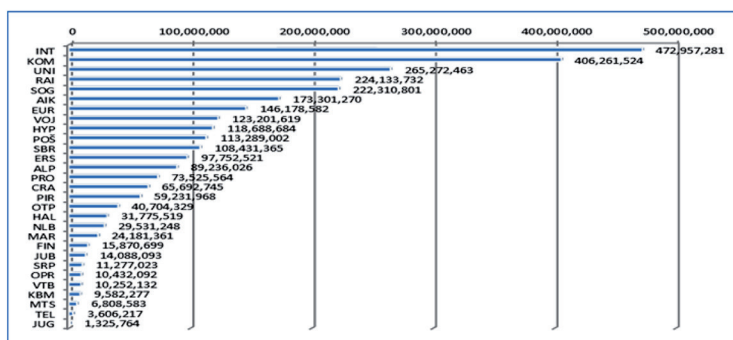
Izvor podataka: Narodna Banka Srbije

Ukoliko poređamo sve banke po veličini (nisu prikazani podaci za *Mira Bank* jer je ona dobila dozvolu u 2015. godini i još nije otpočela svoje operativne aktivnosti) u rastućem redosledu i iskažemo ih u vidu histograma sa jednakom osnovom od 50 milijardi RSD, primećuje se izražena visoka asimetrija udesno jer postoji veliki broj manjih banaka koje posluju na tržištu (čak 45% banaka ima aktivu ispod 50 milijardi RSD, dok 90% banaka ima aktivu ispod 250 milijardi RSD) i nekoliko banaka, tačnije dve, koje imaju izrazito visoku vrednost aktive u odnosu na preostale učesnike na tržištu. Zbog toga je potrebno uraditi dodatnu transformaciju podataka da bi se napravila bolja podloga za konačnu statističku obradu i dobili validniji rezultati. Pomenuta transformacija se ogleda u tome da se koriste logaritmovane vrednosti, pošto je u pitanju pozitivna asimetrija, koje na određeni način nivelišu postojanje velikih razlika između originalnih podataka. Dobijena empirijska distribucija je sada znatno bliža normalnoj raspodeli u odnosu na inicijalnu i predstavlja bolju osnovu za inpute koji se koriste u postupku klasterizacije.

the FFIEC website (www.ffiec.gov). In that way the position of the bank can be determined by the management regarding the environment and shortcomings which they have against the competition. UBPR is a comprehensive and at the same time concise report whose use can bring high-quality analytical conclusions given that they show the total bank business with its all significant aspects, while focusing on its risk profile.

Serbian banking industry

The current Serbian banking industry consists of 30 banks with active operating licenses issued from the National Bank of Serbia. In the last three years there has been a merging trend due to the collapse of some banks, which consequently decreased the number of market participants. Those processes were inevitable having in mind the high concentration and tougher competition which has been increasingly present. Banks with majority domestic capital are especially exposed to this and they can hardly survive on the market in these conditions.

Clustering

In order to compare banks in Serbia in a valid way, i.e. to apply the procedure of financial BM, it is essential to previously segment the market with the aim of forming relatively homogeneous groups within which comparing can be conducted. The mentioned procedure is called clustering and it represents a means for dividing the basic set into smaller groups.

Financial BM has the greatest utilization value if it is used for comparison with the direct competitors. A comparison with the leader represents an idealization of the process that can bring benefits but has less utilization value because it is for particular entity, in this case a bank, and the first step is to be better than the competitors which are ahead according to their realized performances. Repeating of the procedure leads to the constant progress in relation to

the competition and to the achievement of the ultimate goal-gaining leader position in the sector. Because of that, clustering is used in order to find groups within which an adequate comparison can be done in terms of financial BM. All economic entities, including banks, are best compared if they are about the same size. While at the corporate business level one takes the volume of realization, i.e. the level of sale incomes which essentially determines its business size, in banking one takes the size of the total balance sheet assets, because it is assumed that it best reflects the size and complexity of the bank and that it is closely related to the proportionality principle which in the bank's jargon means that specific regulations and business practices are applied depending on its size. This is the key parameter that regulators have in mind during the estimation of bank effects in terms of its system significance (*Systematically Important Financial Institutions*) regarding the overview of the systemic risk impact that the collapse of a particular bank could have on the total market. That criterion is chosen as an indicator and based on it clustering of the Serbian banking industry is conducted, thereby ensuring that adequate groups are formed for comparison.

Data on total assets as of 31st December 2014 are taken as a base, as it is the last date with the available official annual financial reports. They are shown in the chart below while a detailed list with full bank names is presented in Appendix A:

Chart 1: Size of all banks on the Serbia market - total assets in 000 RSD
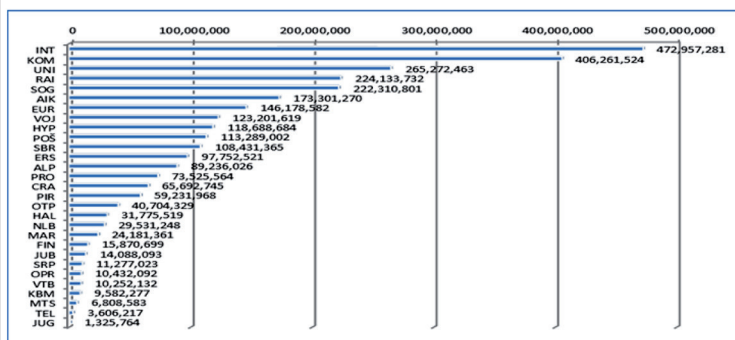
Source: National Bank of Serbia

If we rank all banks by size in the increasing order (information for *Mira Bank* is not shown as it got a license in 2015 and it still did not

Grafikon 2: Histogram originalnih podataka
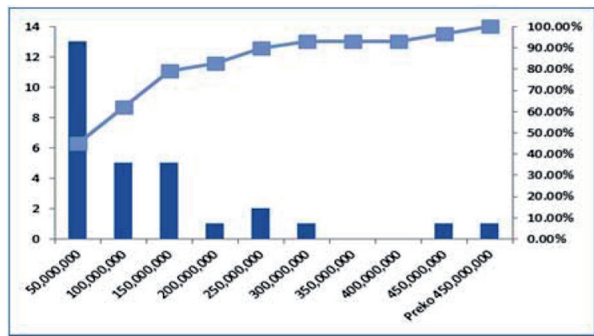
Grafikon 3: Histogram logaritmovanih podataka

Ilustracija 5: Particiono grupisanje

Postoje dva osnovna tipa klasterizacije (grupisanja): hijerarhijska i particiona. Hijerarhijska podrazumeva da dolazi do prelivanja i kumulacije između klastera (grupa) dok particiona u svojoj osnovi ima striktnu segmentaciju osnovnog skupa i pojedinačni članovi ne smeju biti razvrstani u više grupa.

Ilustracija 4: Hijerarhijsko grupisanje
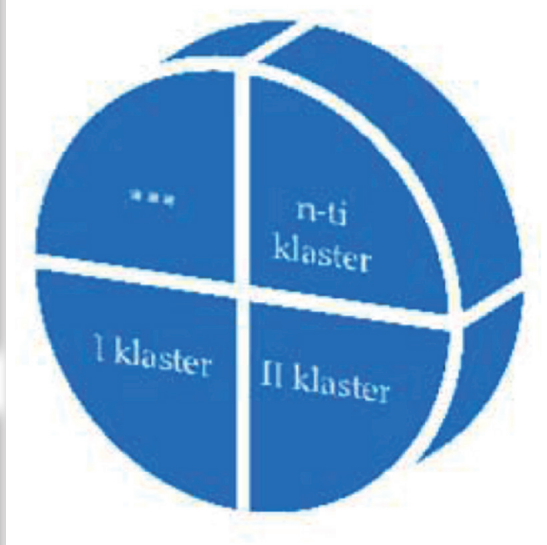
S obzirom da je cilj određivanje subjekata bankarskog tržišta kao relativno homogenih celina koje će služiti za finansijski BM, unutar njih, kao logičan pristup se nameće particiono grupisanje koja će napraviti jasne grupe za poređenje. Njen osnovni pravac je tzv. *K-means* grupisanje koje, kao i svi ostali postupci klasterizacije, raspoređivanje grupa vrši na osnovu određene mere (ne)sličnosti. Ta mera (ne)sličnosti se u najvećem broju slučajeva svodi na *Euklidsku razdaljinu* koja se između dva vektora $x = (x_1, x_2, ... x_p)$ i $y = (y_1, y_2, ... y_p)$ definiše na sledeći način (Rencher, 2002) (Rencher, 2002):

$$d(x, y) = \sqrt{(x - y)'(x - y)} = \sqrt{\sum_{j=1}^{p} (x_j - y_j)^2}$$

Sama definicija Euklidske razdaljine u svojoj osnovi ima određivanje distance između dve tačke u n-dimenzionom Euklidskom prostoru na način da se razlike između njih kvadriraju čime se izbegava potiranje pozitivnih i negativnih vrednosti i svodi udaljenost na istu ravan razmatranja. Algoritam grupisanja se zasniva upravo na toj meri koja daje informaciju o međusobnoj udaljenosti između tačaka skupa i pomaže u njihovom grupisanju u smislu da tačke unutar klastera budu bliže jedna drugoj a udaljenije od tačaka iz drugih klastera.

Primena k-means podrazumeva donošenje diskrecione odluke o tome na koliko grupa se želi da podeli osnovni skup. Pošto je predmet posmatranja bankarska industrija u Srbiji koja

start its operational activities) and put them in a histogram with the equal base of 50 billion RSD, we will notice the evident high asymmetry on the right because there is a large number of smaller banks that operate on the market (even 45% of banks have assets bellow 50 billion RSD, while 90% of banks have assets bellow 250 billion RSD) and a few banks, two to be precise, that have the extremely high asset value compared to the remaining market participants. Because of that, additional data transformation needs to be done in order to establish a better foundation for the final statistic processing and to get more valid results. The mentioned transformation is reflected in using logarithmic values, as positive asymmetry is concerned, which in a certain way levels the big differences between the original data. The obtained empirical distribution is now much closer to the normal distribution with respect to the initial one, and represents a better basis for inputs used in the process of clustering.

Chart 2: Histogram - original data
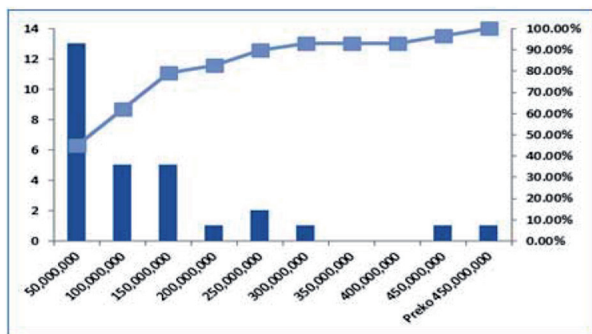
Chart 3: Histogram - logarithmic data
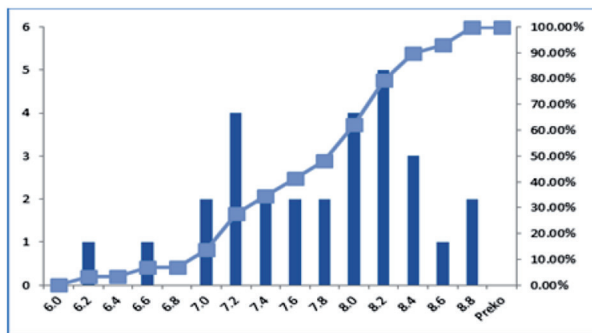
There are two main types of clustering: the hierarchical and the partitioning. The hierarchical implies that it tends to spill over and accumulate between clusters while the partitioning in its base has a strict segmentation of the basic set and individual members should not be classified into several groups.

Illustration 4: The hierarchical clustering
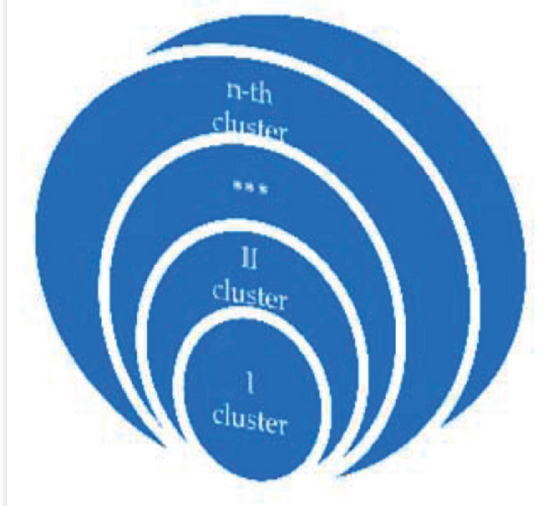
Illustration 5: The partitioning clustering
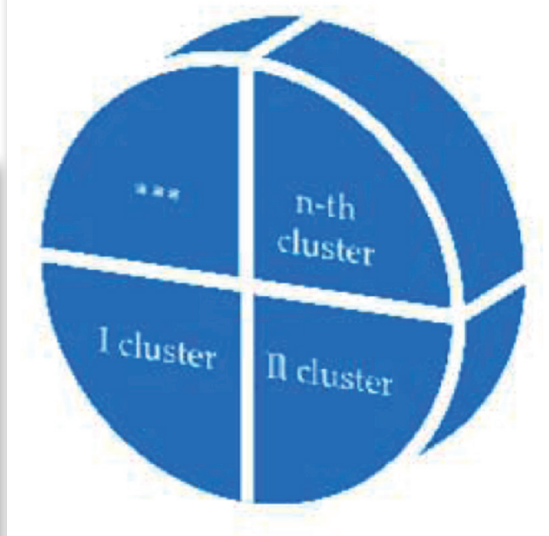
As the goal is to organize the subjects on the bank market as relatively homogenous units which will serve for financial BM, partitioning clustering imposes itself as a logical approach that will make clear groups for comparison. Its basic form is *K-means* clustering which, as well as other clustering procedures, organizes the groups based on certain measure of (non) similarity. That measure of (non)similarity in most of cases comes to *Euclid distance* which between two vectors $x = (x_1, x_2, ... x_p)$ and $y = (y_1, y_2, ... y_p)$ and is defined in the following way (Rencher, 2002):

$$d(x, y) = \sqrt{(x - y)'(x - y)} = \sqrt{\sum_{j=1}^{p} (x_j - y_j)^2}$$

broji 29 učesnika, određeno je da se on podeli na 5 grupa jer bi manji broj doveo do velikih raspona unutar grupa dok bi njihov veći broj bio neupotrebljiv u daljoj analizi. Bitan aspekt je i odabir početnih tačaka na osnovu kojih će početi obračun Euklidskih razdaljina i sam proces pridruživanja pojedinih banaka svakom segmentu. Zbog toga što je lista napravljena na osnovu gradacijskog kriterijuma u opadajućem redosledu, od najveće ka najmanjoj banci, kao polazna osnova su uzete prvih 5 tačaka, odnosno prvih pet banaka po veličini ukupne neto aktive koje su prevedene u logaritamske vrednosti, jer se pravi 5 grupa. Na osnovu te baze je urađen proračun putem STATA 13 programskog paketa kojim je urađeno konačno grupisanje bankarskog tržišta Srbije:

je period 2010 - 2014. godine, ali su korišćeni i podaci za 2009 godinu bilansa stanja zbog potrebe da se obračunaju prosečne vrednosti pojedinih pozicija u 2010. godini. Napominjemo da je kao sveobuhvatni rezultat predstavljen rezultat pre poreza pošto informacije o neto rezultatu, koji uključuje i efekat poreza, nije bila dostupna pre 2014. godine. Dodatni problem predstavlja promena bilansne šeme odnosno izmena obrazaca zvaničnih finansijskih izveštaja koja je usledila u 2014. godini na osnovu *Odluke o obrascima i sadržini pozicija u obrascima finansijskih izveštaja za banke* koja je počela da se primenjuje od 31.12.2014. godine. Zato je bilo neophodno mapiranje pozicija koje je prikazano u Dodatku B zajedno sa katalogom indikatora i načinom njihovog obračuna. Svi indikatori su

Tabela 2: Grupisanje (klasterizacija) bankarskog tržišta Srbije

I grupa	II grupa	III grupa	IV grupa	V grupa
• INT - lider grupe	• UNI - lider grupe	• EUR - lider grupe	• PIR - lider grupe	• FIN - lider grupe
• KOM	• RAI • SOG • AIK	• VOJ • HYP • POŠ • SBR • ERS • ALP • PRO • CRA	• OTP • HAL • NLB • MAR	• JUB • SRP • OPR • VTB • KBM • MTS • TEL • JUG

Konstrukcija homogenih (peer) grupa i analiza GAP-ova

Urađena klasterizacija predstavlja osnovu za konstruisanje homogenih grupa koje su reprezentativne za primenu finansijskog BM-a. Osnovni cilj segmentacije je postignut činjenicom da se upoređuju banke koje su slične veličine jer se samo na taj način validno može uraditi poređenje. Svaka homogena grupa ima svog lidera koji je označen kao banka koja ima najveću ukupnu neto aktivu u sklopu grupe kojem pripada.

Podaci su preuzeti sa sajta Narodne banke Srbije (www.nbs.rs) jer su sistematično prikazani finansijski izveštaji (bilansi stanja i uspeha) svih banaka koje imaju aktivnu dozvolu za obavljanje svoje delatnosti. Prikazani podaci su nerevidirani što znači da može biti određenih odstupanja u odnosu na zvanične s tim što su te korekcije neznatne i ne mogu uticati bitno na proračun pokazatelja. Primenjena je racio analiza za prethodnih pet godina. Analiziran

obračunati isključivo na osnovu informacije iz bilansa stanja i bilansa uspeha, osim informacije o broju radnika koja je bazirana na revizorskim izveštajima i internet stranicama konkretnih banaka. Ograničavajuća je okolnost što nisu javno dostupni podaci o nekvalitetnoj aktivi (nenaplativim potraživanjima), dospelim obavezama i pokazateljima adekvatnosti kapitala (rizikom-ponderisane aktive kao i konstituentima Tier I/II kapitala) koji bi znatno poboljšali analitičku vrednost. Međutim, finansijski BM-a i racio analiza se rade isključivo na zvaničnim finansijskim izveštajima. Izmenom forme bilansa stanja više se ne iskazuju zasebno kolone bruto, ispravka i neto čime se gubi informacija o odnosu između bruto i neto vrednosti kredita gde bi se videlo učešće ispravki vrednosti u njima. Prikazana aktiva po zaposlenom takođe se odnosi na 000 RSD. Tržišni pokazatelji nisu uzeti u razmatranje zbog nerazvijenog sekundarnog tržišta.

U nastavku teksta prikazani su rezultati

Euclid distance definition in its base has a determining distance between two points in n-dimensional Euclid space in such a way that the disparities between them are squared, thus avoiding the suppression of positive and negative values and reducing the distance at the same level of consideration. Clustering algorithm is based on that measure which gives a piece of information about the mutual distance between the points of the set and helps their grouping in the sense that points within the cluster are close to each other and further away from the points from other clusters.

K-means application implies the enactment of a discretionary decision on the issue of how many groups it wants to divide the basic set into. As the subject of observation is the Serbian banking industry which counts 29 participants, it is determined to divide it into five groups because a smaller number would lead to a large range within groups while a bigger number would be useless in further analysis. An important aspect is the selection of starting points based on which we will begin the calculation of Euclid distance and the process of joining individual banks to each segment. Because the list is made based on gradation criteria in the descending order, from the biggest bank to the smallest one, as the starting point we took the first five spots, i.e. the top five banks by the size of the total net assets which are translated into logarithmic values given that there are 5 created groups. Based on this calculation, using the STATA 13 software package, we performed the final clustering of the Serbian banking industry.

Construction of homogenous peer groups and analysis of GAPs

After clustering is done it represents the basis for the construction of homogenous groups which are representative for the application of financial BM. The main goal of segmentation is achieved with the fact that banks of similar size are compared, because this is the only way to perform a valid comparison. Each homogenous group has its leader which is marked as the bank with the highest total net assets within the group to which it belongs.

The data are taken from the site of the National Bank of Serbia (www.nbs.rs) because financial reports are systematically presented (balance sheet and income statement) of all banks which have active licenses for performing their operations. The exposed data are not revised which means that certain deviation regarding official data can occur but those corrections are minor and they cannot have significant influence on the calculation of indicators. Ratio analysis for the previous five years was applied. We analyzed the data from 2010 to 2014, but also used the data from 2009 balance sheets because of the need to calculate average values of individual positions in 2010. We hereby underline that as the comprehensive result we presented the result before taxes since the information on net result, which includes the effect of taxes, was not available before 2014. An additional issue is the change of balance sheet scheme, i.e. the changing of forms of official finance reports which occurred in 2014 according to the *Decision on Forms and Content of Bank Financial Reports* which came into effect on

Table 2: Clustering of the Serbian banking industry

I cluster	II cluster	III cluster	IV cluster	V cluster
• INT - group leader	• UNI - group leader	• EUR - group leader	• PIR - group leader	• FIN - group leader
• KOM	• RAI	• VOJ	• OTP	• JUB
	• SOG	• HYP	• HAL	• SRP
	• AIK	• POŠ	• NLB	• OPR
		• SBR	• MAR	• VTB
		• ERS		• KBM
		• ALP		• MTS
		• PRO		• TEL
		• CRA		• JUG

the 31st December 2014. This is why the mapping of positions was necessary as it is shown in

racio analaze svih grupa s tim što su za drugu, treću, četvrtu i petu grupu prikazani podaci za manji broj godina zbog tehničkih ograničenja. Konstrukcija i proračun klastera je urađena na osnovu autorovog iskustva, preuzetih pokazatelja iz literature kao i pokazatelja koja su sastavni deo UBPR izveštaja.

Ovakav pristup podrazumeva primenu tzv. konkurentskog BM-a jer se porede konkurenti iz iste delatnosti (*within industry*). Osnovna prednost BM-a unutar iste delatnosti je što procesi imaju slične ciljeve i transfer poslovnih praksi bi trebalo da bude relativno jasan. Prikazani pristup omogućuje primenu racio pokazatelja za analizu bankarske industrije, u cilju dobijanja indikatora rezultata (RIs - *result indicators*) koji predstavljaju intermedijarno sredstvo do pronalaska tzv. ključnih indikatora performansi (KPIs - *key performance indicators*) u procesu upravljanja. Naglašavanje i eksploatisanje KPIs treba da dovede do znatnog poboljšanja na tržištu (Parmenter, 2007).

Prvu grupu čine dve najveće banke, INT i KOM, čija aktiva prelazi 400 milijardi RSD i one imaju apsolutnu dominaciju na tržištu. INT predstavlja lidera celokupnog bankarskog tržišta i naravno da njeni pokazatelji trebaju da služe kao osnova u ovom klasteru. Očigledno je da KOM ima zaostatak u vidu gepa performansi za INT u analiziranom periodu prema svim aspektima s tim što je on blago smanjen u 2014. Profitabilnost je niža, ROA kod KOM je skoro uvek ispod 1,5% dok je kod INT to slučaj samo u prošloj godini. Međutim, prošle godine je KOM po prvi put imao veći ROE usled veće finansijske zavisnosti (leverage) i posledično većeg multiplikatora sopstvenih sredstava (KOM 5,72 vs INT 4,41 u prošloj godini). KOM bi u procesu finansijskog BM-a trebalo da prepozna da njeno simultano upravljanje aktivom i pasivom (koncept upravljanja ALM - *Asset-Liability Management*) nije toliko dobar kao kod INT i da bi tu trebalo pronaći prostor za napredak jer je kamatni raspon konstantno

Tabela 3: Analiza performansi I grupe (izvor podataka: autorove kalkulacije)

I GRUPA	2014		2013		2012		2011		2010	
	INT	KOM	INT	KOM	INT	KOM	INT	KOM	INT	KOM
POKAZATELJI LIKVIDNOSTI										
Gotovina i GE/depoziti	0.43	0.32	0.28	0.37	0.29	0.35	0.34	0.35	0.25	0.32
Krediti/depoziti	0.74	0.57	0.87	0.74	0.86	0.77	0.86	0.77	0.91	0.77
Zarađivačka aktiva/depoziti	0.90	0.86	1.00	0.96	0.97	0.94	0.96	0.89	0.98	0.86
POKAZATELJI AKTIVNOSTI										
Aktiva po zaposlenom	156,350	139,801	140,586	122,608	131,886	108,460	122,601	91,161	116,221	82,512
Ukupna efikasnost	0.70	0.51	0.74	0.49	0.73	0.54	0.67	0.53	0.65	0.64
Obrt ukupne aktive	8.69%	7.10%	9.61%	8.04%	10.37%	8.63%	10.71%	8.70%	10.48%	9.24%
Kamatni prihodi/ukupna aktiva	6.18%	5.51%	7.04%	6.41%	7.78%	6.71%	8.27%	6.79%	7.98%	6.73%
Nekamatni prihodi/ukupna aktiva	2.51%	1.58%	2.57%	1.63%	2.59%	1.92%	2.44%	1.91%	2.50%	2.51%
POKAZATELJI PROFITABILNOSTI										
R O A	1.58%	1.24%	2.19%	1.33%	2.56%	1.53%	2.85%	1.49%	2.54%	1.21%
R O E	6.95%	7.07%	9.76%	7.35%	12.09%	8.78%	15.53%	9.26%	15.79%	8.17%
Profitna marža	18.14%	17.41%	22.81%	16.59%	24.66%	17.66%	26.56%	17.10%	24.19%	13.10%
Neto kamatna marža	6.69%	5.04%	6.37%	5.51%	6.64%	5.35%	6.96%	5.52%	7.29%	5.11%
Spread	6.80%	5.33%	6.41%	5.69%	6.78%	5.72%	7.09%	6.09%	7.64%	6.26%
POKAZATELJI FINANSIJSKE STRUKTURE										
Multiplikator sopstvenih sredstava	4.41	5.72	4.45	5.51	4.73	5.76	5.46	6.23	6.23	6.75
Učešće zarađivačke aktive u uk. aktivi	65.36%	69.17%	75.04%	67.85%	74.30%	68.86%	71.79%	67.06%	77.17%	67.35%
Učešće stalne imovine u ukupnoj aktivi	1.54%	2.29%	1.94%	2.45%	2.04%	2.47%	1.83%	2.94%	1.94%	2.85%
Umanjenje fin. sredstava/ ukupna aktiva	2.04%	0.71%	1.66%	0.83%	1.33%	0.48%	1.13%	0.50%	1.31%	0.61%
Umanjenje fin. sredstava/ krediti	3.44%	1.45%	2.53%	1.54%	2.00%	0.85%	1.63%	0.85%	1.96%	1.04%
Ukupne obaveze/ukupna aktiva	77.75%	82.88%	76.85%	82.14%	78.21%	81.53%	79.50%	83.93%	84.05%	83.95%
Ukupne obaveze/kapital	3.50	4.84	3.32	4.60	3.59	4.42	3.88	5.22	5.27	5.23

Appendix B together with the catalogue of the indicators and the way of their calculation. All indicators are calculated exclusively based on the information from balance sheets and income statements, except for the information on the number of employees that is based on audit reports and the Internet pages of specific banks. The limiting circumstances are that the information on troubled assets, due receivables and indicators of capital adequacy (risk weighted assets as to constituents Tier I/II of Capital) are not available to the public which would significantly improve the value of our analysis. However, financial BM and ratio analysis are conducted exclusively based on the official financial reports. By changing the form of balance sheets, the gross, correction and net columns are no longer presented separately which causes a loss of information about the ratio between gross and net loan value which could indicate the impairment values. The shown assets per employee are also expressed in 000 RSD. Market indicators are not taken into consideration because of the undeveloped secondary market.

Further in the paper, the ratio analysis results of all clusters are shown, but for the 2nd, 3rd, 4th and 5th cluster the information is presented for a smaller number of years because of the technical limitations. Construction and cluster calculation is done based on the author's experience, including the indicators from the literature (Saunders & Cornett, 2012) as well as the indicators contained in the UBPR report.

This approach implies the use of competitive BM because competitors from the same sector are compared (within industry). The main advantage of BM within the same sector is that processes have similar goals and transfer of business practices ought to be relatively clear (Stapenhurst, 2009, p. 92). The presented approach allows the use of ratio indicators for the banking industry analysis in order to get RIs - *result indicators* which represent an intermediary means until the discovery of KPIs - *key performance indicators* in the managing process. Emphasizing and exploiting of KPI ought to lead to some significant improvements on the market (Parmenter, 2007).

Table 3: Performance analysis - I cluster (source: author's calculations)

I CLUSTER	2014		2013		2012		2011		2010	
	INT	KOM	INT	KOM	INT	KOM	INT	KOM	INT	KOM
LIQUIDITY INDICATORS										
Cash / deposits	0.43	0.32	0.28	0.37	0.29	0.35	0.34	0.35	0.25	0.32
Loans / deposits	0.74	0.57	0.87	0.74	0.86	0.77	0.86	0.77	0.91	0.77
Earning assets / deposits	0.90	0.86	1.00	0.96	0.97	0.94	0.96	0.89	0.98	0.86
ACTIVITY INDICATORS										
Assets per employee	156,350	139,801	140,586	122,608	131,886	108,460	122,601	91,161	116,221	82,512
Overhead efficiency	0.70	0.51	0.74	0.49	0.73	0.54	0.67	0.53	0.65	0.64
Asset utilization	8.69%	7.10%	9.61%	8.04%	10.37%	8.63%	10.71%	8.70%	10.48%	9.24%
Interest income / total assets	6.18%	5.51%	7.04%	6.41%	7.78%	6.71%	8.27%	6.79%	7.98%	6.73%
Non-interest income / total assets	2.51%	1.58%	2.57%	1.63%	2.59%	1.92%	2.44%	1.91%	2.50%	2.51%
PROFITABILITY INDICATORS										
R O A	1.58%	1.24%	2.19%	1.33%	2.56%	1.53%	2.85%	1.49%	2.54%	1.21%
R O E	6.95%	7.07%	9.76%	7.35%	12.09%	8.78%	15.53%	9.26%	15.79%	8.17%
Profit margin	18.14%	17.41%	22.81%	16.59%	24.66%	17.66%	26.56%	17.10%	24.19%	13.10%
Net interest margin	6.69%	5.04%	6.37%	5.51%	6.64%	5.35%	6.96%	5.52%	7.29%	5.11%
Spread	6.80%	5.33%	6.41%	5.69%	6.78%	5.72%	7.09%	6.09%	7.64%	6.26%
INDICATORS OF FINANCIAL STRUCTURE										
Equity multiplier	4.41	5.72	4.45	5.51	4.73	5.76	5.46	6.23	6.23	6.75
Participation earning assets in total assets	65.36%	69.17%	75.04%	67.85%	74.30%	68.86%	71.79%	67.06%	77.17%	67.35%
The share of fixed assets in total assets	1.54%	2.29%	1.94%	2.45%	2.04%	2.47%	1.83%	2.94%	1.94%	2.85%
Impairment financial assets / total assets	2.04%	0.71%	1.66%	0.83%	1.33%	0.48%	1.13%	0.50%	1.31%	0.61%
Impairment financial assets / loans	3.44%	1.45%	2.53%	1.54%	2.00%	0.85%	1.63%	0.85%	1.96%	1.04%
Total liabilities / total assets	77.75%	82.88%	76.85%	82.14%	78.21%	81.53%	79.50%	83.93%	84.05%	83.95%
Total liabilities / equity	3.50	4.84	3.32	4.60	3.59	4.42	3.88	5.22	5.27	5.23

niži što smanjuje profitnu stopu. Ona je jedan od dva osnovna stuba pokretanja prinosa na aktivu, dok je drugi, obrt ukupne aktive takođe manji za prosečno 2%. INT prema iskazanim pokazateljima ima jaču kapitalnu bazu što je vidljivo po manjem učešću obaveza u ukupnim izvorima.

Primetno je da aktiva po zaposlenom značajno zaostaje za INT (139 mil RSD KOM naspram 152 mil KM INT u prošloj godini) iako se ovaj parametar značajno poboljšava u

prethodnom periodu pošto se broj zaposlenih kod KOM smanjuje tokom prethodne tri godine (sa 3.101 u 2010. godini na 2.906 u 2014. godina). Očigledno je da se ovaj segment poslovanja mora poboljšati i pojačati upravljanje ljudskim resursima. Potencijalni model organizacione šeme KOM mogao bi biti sličan INT i njenoj unutrašnjoj organizaciji koja podrazumeva divizioni model. Optimizacija kadrova je deo poslovanja u kome bi evidentno mogli da se poboljšaju rezultati.

Tabela 4: Analiza performansi II grupe (izvor podataka: autorove kalkulacije)

II GRUPA	2014				2013				2012			
	UNI	RAI	SOG	AIK	UNI	RAI	SOG	AIK	UNI	RAI	SOG	AIK
POKAZATELJI LIKVIDNOSTI												
Gotovina i GE/ depoziti	0.20	0.41	0.25	0.34	0.27	0.40	0.29	0.35	0.20	0.30	0.23	0.40
Krediti/depoziti	0.81	0.73	0.89	0.63	0.75	0.84	0.91	0.74	0.87	0.95	1.03	0.75
Zarađivačka aktiva/depoziti	1.08	0.90	1.03	0.99	1.00	0.98	0.99	1.06	1.04	1.11	1.09	1.01
POKAZATELJI AKTIVNOSTI												
Aktiva po zaposlenom	243,593	137,085	161,212	272,915	240,873	120,101	158,134	275,591	241,621	109,245	149,100	305,648
Ukupna efikasnost	0.70	0.64	0.49	0.52	0.73	0.76	0.52	0.53	0.75	0.80	0.55	0.97
Obrt ukupne aktive	8.03%	9.02%	8.28%	7.53%	8.27%	10.23%	8.54%	8.76%	8.87%	10.47%	8.81%	10.49%
Kamatni prihodi/ ukupna aktiva	6.33%	6.34%	6.51%	6.39%	6.68%	6.91%	6.76%	7.71%	7.20%	6.87%	6.67%	8.63%
Nekamatni prihodi/ukupna aktiva	1.70%	2.69%	1.77%	1.14%	1.59%	3.31%	1.79%	1.05%	1.67%	3.60%	2.14%	1.86%
POKAZATELJI PROFITABILNOSTI												
R O A	2.20%	2.72%	0.08%	1.16%	1.49%	3.04%	-0.57%	0.82%	2.23%	3.11%	0.06%	2.70%
R O E	10.74%	10.41%	0.52%	3.61%	7.68%	11.01%	-3.60%	2.47%	11.17%	11.08%	0.34%	8.26%
Profitna marža	27.34%	30.13%	0.96%	15.39%	18.05%	29.72%	-6.71%	9.34%	25.10%	29.70%	0.67%	25.69%
Neto kamatna marža	5.12%	7.95%	5.17%	6.12%	5.12%	7.71%	4.89%	6.61%	5.27%	6.97%	4.63%	8.08%
Spread	5.02%	8.05%	5.16%	6.05%	5.05%	7.63%	4.78%	6.44%	5.12%	6.81%	4.49%	8.23%
POKAZATELJI FINANSIJSKE STRUKTURE												
Multiplikator sopstvenih sredstava	4.89	3.83	6.59	3.11	5.14	3.62	6.29	3.01	5.02	3.56	5.77	3.06
Učešće zarađivačke aktive u uk. aktivi	83.36%	66.69%	78.38%	67.46%	77.63%	68.42%	75.22%	67.53%	82.33%	75.58%	80.85%	65.29%
Učešće stalne imovine u ukupnoj aktivi	0.79%	2.27%	1.07%	6.38%	0.81%	2.60%	1.12%	6.50%	0.88%	2.84%	1.24%	6.25%
Umanjenje fin. sredstava/ ukupna aktiva	1.20%	1.14%	2.08%	1.91%	2.02%	1.45%	2.74%	2.63%	1.47%	1.00%	1.72%	2.32%
Umanjenje fin. sredstava/krediti	1.99%	2.02%	3.04%	4.25%	3.19%	2.35%	3.78%	5.50%	2.14%	1.65%	2.36%	4.64%
Ukupne obaveze/ ukupna aktiva	79.17%	75.08%	84.74%	69.33%	79.95%	72.58%	84.90%	66.21%	81.19%	72.19%	83.21%	67.44%
Ukupne obaveze/ kapital	3.80	3.01	5.55	2.26	3.99	2.65	5.62	1.96	4.32	2.60	4.96	2.07

The first cluster consists of two largest banks, INT and KOM, whose assets are over 400 billion RSD and which have achieved the absolute domination on the market. INT represents the leader of the overall banking industry and of course its indicators should serve as the basis in this cluster. Obviously, KOM has a backlog in the form of gap performances for INT in the analyzed period, according to all aspects, which is slightly diminished in 2014. Profitability is lower; ROA at KOM is almost always under 1.5%, while at INT it was the case only in the past year. However, last year KOM had bigger ROE for the first time due to the higher leverage and consequently larger equity multiplier (KOM 5.72 vs. INT 4.41 in the last year). In the financial BM process KOM should recognize that its simultaneous asset and liability management is not that good as it is at INT and that it should find some room for progress since the interest spread is constantly lower, which diminishes the profit rate. It is one of the two fundamental pillars which originate return on assets while the second, assets utilization, is also lower on average by 2%. According to the observed indicators INT has a stronger capital base which is reflected in the lower share of liabilities in total resources.

It is noticeable that assets per employee significantly fall short after INT (139 million RSD KOM against 152 million KM INT in the last year) even though this parameter has improved remarkably in the previous period as the employees number at KOM decreased during the previous 3 years (from 3,101 in 2010 to 2,906 in 2014). It is obvious that this business segment must be improved and reinforcement of human resources management should be done. Potential model of KOM organization scheme could be similar to INT as well as its internal organization which implies a division model. Optimization of the personnel is part of the business in which results can significantly improve.

Table 4: Performance analysis - II cluster (source: author's calculations)

II CLUSTER	2014				2013				2012			
	UNI	RAI	SOG	AIK	UNI	RAI	SOG	AIK	UNI	RAI	SOG	AIK
LIQUIDITY INDICATORS												
Cash / deposits	0.20	0.41	0.25	0.34	0.27	0.40	0.29	0.35	0.20	0.30	0.23	0.40
Loans / deposits	0.81	0.73	0.89	0.63	0.75	0.84	0.91	0.74	0.87	0.95	1.03	0.75
Earning assets / deposits	1.08	0.90	1.03	0.99	1.00	0.98	0.99	1.06	1.04	1.11	1.09	1.01
ACTIVITY INDICATORS												
Assets per employee	243,593	137,085	161,212	272,915	240,873	120,101	158,134	275,591	241,621	109,245	149,100	305,648
Overhead efficiency	0.70	0.64	0.49	0.52	0.73	0.76	0.52	0.53	0.75	0.80	0.55	0.97
Asset utilization	8.03%	9.02%	8.28%	7.53%	8.27%	10.23%	8.54%	8.76%	8.87%	10.47%	8.81%	10.49%
Interest income / total assets	6.33%	6.34%	6.51%	6.39%	6.68%	6.91%	6.76%	7.71%	7.20%	6.87%	6.67%	8.63%
Non-interest income / total assets	1.70%	2.69%	1.77%	1.14%	1.59%	3.31%	1.79%	1.05%	1.67%	3.60%	2.14%	1.86%
PROFITABILITY INDICATORS												
R O A	2.20%	2.72%	0.08%	1.16%	1.49%	3.04%	-0.57%	0.82%	2.23%	3.11%	0.06%	2.70%
R O E	10.74%	10.41%	0.52%	3.61%	7.68%	11.01%	-3.60%	2.47%	11.17%	11.08%	0.34%	8.26%
Profit margin	27.34%	30.13%	0.96%	15.39%	18.05%	29.72%	-6.71%	9.34%	25.10%	29.70%	0.67%	25.69%
Net interest margin	5.12%	7.95%	5.17%	6.12%	5.12%	7.71%	4.89%	6.61%	5.27%	6.97%	4.63%	8.08%
Spread	5.02%	8.05%	5.16%	6.05%	5.05%	7.63%	4.78%	6.44%	5.12%	6.81%	4.49%	8.23%
INDICATORS OF FINANCIAL STRUCTURE												
Equity multiplier	4.89	3.83	6.59	3.11	5.14	3.62	6.29	3.01	5.02	3.56	5.77	3.06
Participation earning assets in total assets	83.36%	66.69%	78.38%	67.46%	77.63%	68.42%	75.22%	67.53%	82.33%	75.58%	80.85%	65.29%
The share of fixed assets in total assets	0.79%	2.27%	1.07%	6.38%	0.81%	2.60%	1.12%	6.50%	0.88%	2.84%	1.24%	6.25%
Impairment financial assets / total assets	1.20%	1.14%	2.08%	1.91%	2.02%	1.45%	2.74%	2.63%	1.47%	1.00%	1.72%	2.32%
Impairment financial assets / loans	1.99%	2.02%	3.04%	4.25%	3.19%	2.35%	3.78%	5.50%	2.14%	1.65%	2.36%	4.64%
Total liabilities / total assets	79.17%	75.08%	84.74%	69.33%	79.95%	72.58%	84.90%	66.21%	81.19%	72.19%	83.21%	67.44%
Total liabilities / equity	3.80	3.01	5.55	2.26	3.99	2.65	5.62	1.96	4.32	2.60	4.96	2.07

Lider druge grupe predstavlja UNI sa ukupnom aktivom od 265 milijardi RSD (2,2 milijarde EUR prema kursu na dan 31.12.2014. godine). Međutim, ostvareni rezultati ukazuju da najbolje performanse u skoro svim segmentima poseduje RAI. Ono na šta bi RAI trebalo da obrati pažnju, kao pratilac u ovoj grupi, je poboljšanje upotrebe ljudskih resursa s obzirom da je aktiva po zaposlenom skoro dvostruko manja u odnosu na UNI. S druge strane, primenjujući postupak finansijskog BM-a RAI bi trebalo da bude oprezna jer je možda upravo veći broj zaposlenih uzrok ostvarivanja dobre profitabilnosti (profitna stopa iznosi 30% a neto kamatna marža iznad 7%). SOG bi trebalo da obrati posebnu pažnju jer je jedini u grupi imao negativno poslovanje u 2013. usled povećanih izdvajanja rezervi za kreditne gubitke koji su iznosili 5,8 milijardi RSD i bile su veće za 72% u odnosu na prethodnu godinu.

Visoka izdvajanja za kreditne gubitke mogu da imaju dvojako značenje. One podrazumevaju ili loše upravljanje kreditnim rizikom ili, potpuno suprotno, sugerišu na opreznost rukovodstva banke. SOG bi prema tome trebalo da preispita svoje politike i procedure upravljanja kreditnim rizikom kao i primenjene interne modele rejtinga jer su njegova izdvajanja za kreditne gubitke veća u odnosu na ostale učesnike klastera u prethodne dve godine, ukoliko se posmatra njihova proporcija u odnosu na prosečnu aktivu, koja je iznad 2%. AIK bi svoj napredak trebao da traži u efikasnijoj upotrebi aktive jer je njen obrt konstantno opadao u prethodnih pet godina (sa 12,6% na 5,6%). To je povezano i sa niskim učešćem zarađivačke aktive koja kod AIK iznosi 67%, a ona je kod lidera čak preko 83%. Situacija kod učešća stalne imovine je potpuno suprotna jer AIK ima učešće od preko 6% dok je ona kod lidera ispod 1%.

Tabela 5: Analiza performansi III grupe (izvor podataka: autorove kalkulacije)

III GRUPA	2014								
	EUR	VOJ	HYP	POŠ	SBR	ERS	ALP	PRO	CRA
POKAZATELJI LIKVIDNOSTI									
Gotovina i GE/depoziti	0.35	0.39	0.36	0.31	0.34	0.25	0.22	0.20	0.27
Krediti/depoziti	0.86	0.66	0.98	0.41	0.88	0.75	0.77	1.03	0.88
Zarađivačka aktiva/depoziti	1.04	0.75	1.25	0.84	1.03	0.95	0.97	1.04	0.90
POKAZATELJI AKTIVNOSTI									
Aktiva po zaposlenom	96,044	72,217	154,342	64,114	*	98,541	85,230	82,243	71,874
Ukupna efikasnost	0.39	0.38	0.51	0.78	0.56	0.50	0.35	0.39	0.45
Obrt ukupne aktive	8.34%	8.25%	6.95%	13.34%	7.73%	9.50%	8.71%	11.36%	8.97%
Kamatni prihodi/ukupna aktiva	6.76%	6.24%	4.94%	7.51%	5.96%	6.89%	6.73%	9.14%	6.10%
Nekamatni prihodi/ukupna aktiva	1.59%	2.01%	2.01%	5.82%	1.76%	2.62%	1.97%	2.22%	2.87%
POKAZATELJI PROFITABILNOSTI									
R O A	-1.75%	0.13%	-0.73%	0.28%	1.55%	0.17%	0.20%	3.34%	0.10%
R O E	-5.84%	0.77%	-3.19%	2.02%	7.19%	1.14%	1.45%	20.14%	0.77%
Profitna marža	-20.93%	1.58%	-10.54%	2.13%	20.07%	1.78%	2.25%	29.40%	1.13%
Neto kamatna marža	6.92%	6.17%	3.96%	6.54%	5.88%	6.28%	5.94%	8.78%	5.79%
Spread	6.83%	6.90%	3.34%	7.68%	5.72%	6.54%	6.01%	8.72%	6.10%
POKAZATELJI FINANSIJSKE STRUKTURE									
Multiplikator sopstvenih sredstava	3.35	5.91	4.36	7.12	4.64	6.74	7.42	6.03	7.57
Učešće zarađivačke aktive u uk.aktivi	71.05%	62.31%	75.71%	69.34%	73.92%	77.78%	77.70%	80.04%	74.22%
Učešće stalne imovine u ukupnoj aktivi	3.91%	4.15%	1.81%	3.62%	0.76%	1.13%	4.03%	3.72%	2.59%
Umanjenje fin. sredstava/ukupna aktiva	4.20%	0.60%	1.84%	2.32%	1.65%	1.87%	0.75%	0.02%	0.50%
Umanjenje fin. sredstava/krediti	7.11%	1.07%	2.96%	6.63%	2.43%	3.07%	1.21%	0.02%	0.71%
Ukupne obaveze/ukupna aktiva	69.83%	83.99%	76.75%	84.60%	78.56%	85.00%	86.96%	83.44%	87.19%
Ukupne obaveze/kapital	2.31	5.24	3.30	5.49	3.66	5.67	6.67	5.04	6.81

The leader of the second cluster is UNI with total assets of 265 billion RSD (2.2 billion EUR according to the exchange rate as of December 31, 2014). However, the achieved results point out that the best performances in almost all segments are achieved by RAI. What RAI should pay attention to, as the follow-up in this group, is the improvement of human resources utilization, because assets per employee are almost twice lower compared to UNI. On the other side, applying the procedure of financial BM, RAI should be careful because larger number of employees could be the cause of realization of good profitability (profit margin is 30% and net interest margin above 7%). SOG should pay special attention because it was the only one in the cluster that had a negative result in 2013 due to the increased allowance for loan losses which amounted to 5.8 billion RSD, thus being by 72% higher in comparison to the previous year. High

allocations for loan losses can have the double meaning. They can either imply the bad credit risk management or completely the opposite; they can suggest caution on the part of the bank's top management. Accordingly, SOG would re-examine its politics and procedures of managing credit risk as well as its applied internal rating models because its allowance for loan losses is larger in relation to other cluster participants in the previous two years if their proportion is observed in relation to the average assets, which is above 2%. AIK should search its progress in the more efficient usage of assets because its turnover has been on the constant decline in the previous five years (from 12.6% to 5.6%). It is related to the low participation of earning assets which is 67% at AIK and over 83% at the leader. The situation with the share of fixed assets is completely opposite since AIK has the share of over 6% while the leader has less than 1%.

Table 5: Performance analysis - III cluster (source: author's calculations)

III CLUSTER	2014								
	EUR	VOJ	HYP	POŠ	SBR	ERS	ALP	PRO	CRA
LIQUIDITY INDICATORS									
Cash / deposits	0.35	0.39	0.36	0.31	0.34	0.25	0.22	0.20	0.27
Loans / deposits	0.86	0.66	0.98	0.41	0.88	0.75	0.77	1.03	0.88
Earning assets / deposits	1.04	0.75	1.25	0.84	1.03	0.95	0.97	1.04	0.90
ACTIVITY INDICATORS									
Assets per employee	96,044	72,217	154,342	64,114	*	98,541	85,230	82,243	71,874
Overhead efficiency	0.39	0.38	0.51	0.78	0.56	0.50	0.35	0.39	0.45
Asset utilization	8.34%	8.25%	6.95%	13.34%	7.73%	9.50%	8.71%	11.36%	8.97%
Interest income / total assets	6.76%	6.24%	4.94%	7.51%	5.96%	6.89%	6.73%	9.14%	6.10%
Non-interest income / total assets	1.59%	2.01%	2.01%	5.82%	1.76%	2.62%	1.97%	2.22%	2.87%
PROFITABILITY INDICATORS									
R O A	-1.75%	0.13%	-0.73%	0.28%	1.55%	0.17%	0.20%	3.34%	0.10%
R O E	-5.84%	0.77%	-3.19%	2.02%	7.19%	1.14%	1.45%	20.14%	0.77%
Profit margin	-20.93%	1.58%	-10.54%	2.13%	20.07%	1.78%	2.25%	29.40%	1.13%
Net interest margin	6.92%	6.17%	3.96%	6.54%	5.88%	6.28%	5.94%	8.78%	5.79%
Spread	6.83%	6.90%	3.34%	7.68%	5.72%	6.54%	6.01%	8.72%	6.10%
INDICATORS OF FINANCIAL STRUCTURE									
Equity multiplier	3.35	5.91	4.36	7.12	4.64	6.74	7.42	6.03	7.57
Participation earning assets in total assets	71.05%	62.31%	75.71%	69.34%	73.92%	77.78%	77.70%	80.04%	74.22%
The share of fixed assets in total assets	3.91%	4.15%	1.81%	3.62%	0.76%	1.13%	4.03%	3.72%	2.59%
Impairment financial assets / total assets	4.20%	0.60%	1.84%	2.32%	1.65%	1.87%	0.75%	0.02%	0.50%
Impairment financial assets / loans	7.11%	1.07%	2.96%	6.63%	2.43%	3.07%	1.21%	0.02%	0.71%
Total liabilities / total assets	69.83%	83.99%	76.75%	84.60%	78.56%	85.00%	86.96%	83.44%	87.19%
Total liabilities / equity	2.31	5.24	3.30	5.49	3.66	5.67	6.67	5.04	6.81

Jedna od najvećih grupa je treća grupa sa devet banaka čija se aktiva kreće u rasponu od 65 do 150 milijardi RSD. Njen lider je EUR ali su rezultati koje je ova banka postigla tokom 2014. veoma loši i performanse su se drastično pogoršale zbog naglog skoka izdvojenih rezervacija (ispravki vrednosti) koje su se više nego udvostručile (rast od 117%) u odnosu na prethodnu godinu čime je izražen gubitak od preko 2,6 milijardi RSD. Zbog toga bi ostali učesnici klastera više trebali da obrate pažnju na one pripadnike koji ostvaruju superiornije performanse. U tom pogledu se kao reper za poređenje nametnuo prvi učesnik narednog klastera, a to je AIK, jer bi poređenje sa EUR u uslovima ostvarenja takvih rezultata bilo besmisleno.

Zbog velikog broja učesnika teško je uraditi finansijski BM za sve njih, jer je u pitanju najveća grupa sa čak devet učesnika, i pojedinačne analize bi zahtevale detaljniji pristup. Zaključak koji bi se mogao izvesti je da su kod većine banaka pokazatelji profitabilnosti znatno lošiji u odnosu na AIK zbog manje profitne marže. Učesnici ove grupe takođe bi trebalo da obrate pažnju na značajno slabije pokazatelje finansijske strukture jer su pokazatelji vezani za odnos obaveza i ukupne pasive/kapitala konstantno nepovoljniji. Osim toga, primetna je izrazito lošija upotreba ljudskih resursa jer je evidentno da aktiva po zaposlenom znatno zaostaje za AIK-om.

Tabela 6: Analiza performansi IV grupe (izvor podataka: autorove kalkulacije)

IV GRUPA	2014					2013				
	PIR	OTP	HAL	NLB	MAR	PIR	OTP	HAL	NLB	MAR
POKAZATELJI LIKVIDNOSTI										
Gotovina i GE/ depoziti	0.29	0.35	0.33	0.30	0.35	0.34	0.34	0.36	0.37	0.36
Krediti/depoziti	1.16	0.94	0.89	0.47	0.75	1.17	1.20	0.83	0.34	0.77
Zarađivačka aktiva/depoziti	1.20	1.09	0.90	0.88	0.75	1.21	1.32	0.86	0.72	0.77
POKAZATELJI AKTIVNOSTI										
Aktiva po zaposlenom	117,992	60,753	82,534	70,145	78,767	105,027	46,135	86,486	69,756	72,074
Ukupna efikasnost	0.60	0.42	0.58	0.22	0.26	0.57	0.39	0.55	0.25	0.21
Obrt ukupne aktive	8.24%	11.02%	7.89%	8.29%	7.34%	7.74%	9.05%	7.83%	7.03%	7.10%
Kamatni prihodi/ ukupna aktiva	5.63%	7.77%	5.73%	5.89%	5.97%	5.14%	6.28%	5.91%	5.31%	5.92%
Nekamatni prihodi/ukupna aktiva	2.61%	3.26%	2.16%	2.40%	1.37%	2.60%	2.77%	1.92%	1.71%	1.18%
POKAZATELJI PROFITABILNOSTI										
R O A	-2.27%	0.29%	-0.84%	-6.32%	-2.33%	-1.67%	-11.91%	-0.38%	-24.14%	-1.99%
R O E	-9.60%	0.94%	-5.70%	-38.31%	-13.57%	-8.67%	-46.26%	-2.51%	-130.35%	-10.49%
Profitna marža	-27.58%	2.64%	-10.69%	-76.25%	-31.77%	-21.56%	-131.60%	-4.84%	-343.50%	-28.03%
Neto kamatna marža	4.17%	9.19%	5.28%	5.46%	5.37%	2.52%	6.42%	4.71%	2.99%	4.07%
Spread	3.51%	8.89%	5.63%	6.26%	6.44%	1.81%	5.32%	5.05%	3.91%	4.73%
POKAZATELJI FINANSIJSKE STRUKTURE										
Multiplikator sopstvenih sredstava	4.23	3.24	6.76	6.06	5.82	5.20	3.88	6.62	5.40	5.27
Učešće zarađivačke aktive u uk. aktivi	78.41%	71.09%	70.84%	69.68%	60.36%	75.60%	72.95%	68.19%	58.29%	60.99%
Učešće stalne imovine u ukupnoj aktivi	1.19%	4.60%	2.54%	3.76%	7.90%	1.32%	6.03%	2.40%	3.97%	3.89%
Umanjenje fin. sredstava/ukupna aktiva	3.73%	1.75%	2.93%	1.38%	1.75%	1.51%	11.58%	2.12%	20.93%	0.25%
Umanjenje fin. sredstava/krediti	5.02%	2.76%	4.33%	4.35%	2.88%	2.16%	19.49%	3.14%	60.82%	0.38%
Ukupne obaveze/ ukupna aktiva	72.57%	69.52%	85.15%	82.34%	84.29%	80.13%	68.65%	85.24%	84.38%	81.35%
Ukupne obaveze/ kapital	2.65	2.28	5.74	4.66	5.37	4.03	2.19	5.78	5.40	4.36

One of the biggest clusters is the third one with nine banks whose assets range from 65 to 150 billion RSD. Its leader is EUR but the results that this bank achieved during 2014 are very bad and performances became drastically worse due to the sudden jump of loan provisions that more than doubled (growth by 117%) in relation to the last year which resulted in the loss of over 2.6 billion RSD. Therefore, the other cluster participants should pay attention to those participants who achieve better performances. Accordingly, the first participant of the next cluster, i.e. AIK, imposed itself as the benchmark for comparison, because the comparison to the EUR under these conditions would be meaningless.

Due to the large number of participants it is hard to do financial BM for all of them, because it is the largest group with nine participants and individual analysis would require a more detailed approach. The conclusion that can be reached is that most banks' profitability indicators are significantly worse comparing to AIK because of the smaller profit margin. Participants of this group should also pay attention to the weaker indicators of financial structure because the indicators related to liabilities and capital have been constantly unfavorable. Besides, it was noticed that the utilization of human resources has worsened, because it is evident that assets for employees significantly fall behind in AIK.

Table 6: Performance analysis - IV cluster (source: author's calculations)

IV CLUSTER	2014					2013				
	PIR	OTP	HAL	NLB	MAR	PIR	OTP	HAL	NLB	MAR
LIQUIDITY INDICATORS										
Cash / deposits	0.29	0.35	0.33	0.30	0.35	0.34	0.34	0.36	0.37	0.36
Loans / deposits	1.16	0.94	0.89	0.47	0.75	1.17	1.20	0.83	0.34	0.77
Earning assets / deposits	1.20	1.09	0.90	0.88	0.75	1.21	1.32	0.86	0.72	0.77
ACTIVITY INDICATORS										
Assets per employee	117,992	60,753	82,534	70,145	78,767	105,027	46,135	86,486	69,756	72,074
Overhead efficiency	0.60	0.42	0.58	0.22	0.26	0.57	0.39	0.55	0.25	0.21
Asset utilization	8.24%	11.02%	7.89%	8.29%	7.34%	7.74%	9.05%	7.83%	7.03%	7.10%
Interest income / total assets	5.63%	7.77%	5.73%	5.89%	5.97%	5.14%	6.28%	5.91%	5.31%	5.92%
Non-interest income / total assets	2.61%	3.26%	2.16%	2.40%	1.37%	2.60%	2.77%	1.92%	1.71%	1.18%
PROFITABILITY INDICATORS										
R O A	-2.27%	0.29%	-0.84%	-6.32%	-2.33%	-1.67%	-11.91%	-0.38%	-24.14%	-1.99%
R O E	-9.60%	0.94%	-5.70%	-38.31%	-13.57%	-8.67%	-46.26%	-2.51%	-130.35%	-10.49%
Profit margin	-27.58%	2.64%	-10.69%	-76.25%	-31.77%	-21.56%	-131.60%	-4.84%	-343.50%	-28.03%
Net interest margin	4.17%	9.19%	5.28%	5.46%	5.37%	2.52%	6.42%	4.71%	2.99%	4.07%
Spread	3.51%	8.89%	5.63%	6.26%	6.44%	1.81%	5.32%	5.05%	3.91%	4.73%
INDICATORS OF FINANCIAL STRUCTURE										
Equity multiplier	4.23	3.24	6.76	6.06	5.82	5.20	3.88	6.62	5.40	5.27
Participation earning assets in total assets	78.41%	71.09%	70.84%	69.68%	60.36%	75.60%	72.95%	68.19%	58.29%	60.99%
The share of fixed assets in total assets	1.19%	4.60%	2.54%	3.76%	7.90%	1.32%	6.03%	2.40%	3.97%	3.89%
Impairment financial assets / total assets	3.73%	1.75%	2.93%	1.38%	1.75%	1.51%	11.58%	2.12%	20.93%	0.25%
Impairment financial assets / loans	5.02%	2.76%	4.33%	4.35%	2.88%	2.16%	19.49%	3.14%	60.82%	0.38%
Total liabilities / total assets	72.57%	69.52%	85.15%	82.34%	84.29%	80.13%	68.65%	85.24%	84.38%	81.35%
Total liabilities / equity	2.65	2.28	5.74	4.66	5.37	4.03	2.19	5.78	5.40	4.36

Četvrta grupa se sastoji od banaka koje beleže sve lošije rezultate i oni su posebno izraženi u prethodne dve godine. Jedino je OTP iskazao u 2014.g. pozitivan rezultat dok su sve ostale članice (PIR, HAL, NLB i MAR) poslovale sa gubitkom. U njemu se nalaze institucije koje evidentno gube korak za većim bankama jer se sve više udaljavaju od njih. Zbog toga je neophodno sprovesti finansijski BM kako bi se utvrdili uzroci ovako loših performansi. Lider ovog klastera je PIR koji se, prema aktivi po zaposlenom (jedini imaju aktivu iznad 100 mil RSD) kao i visokom učešću zarađivačke aktive značajno razlikuju od ostalih članova. Međutim, on ne bi bio svrsishodan za poređenje jer su iskazani rezultati u prethodnim godinama izrazito loši. Zbog toga je bolji izbor poređenje sa prvim narednim učesnikom iz III klastera a to je CRA.

Najveći nedostaci proističu iz potrebe za visokim rezervacijama što ukazuje na loše upravljanje kreditnim rizikom. Evidentno je da je samo OTP unapredio poslovanje u prošloj godini i njegovi rezultati su bolji nego kod CRA. Svi ostali imaju velikih problema sa profitabilnošću što je izraženo kroz negativne profitne stope. Takođe, problemi postoje i u procesu upravljanja imovinom i obavezama (ALM) jer su pokazatelji neto kamatne marže i spreda nepovoljniji.

Tabela 7: Analiza performansi V grupe (izvor podataka: autorove kalkulacije)

V GRUPA	2014								
	FIN	JUB	SRP	OPR	VTB	KBM	MTS	TEL	JUG
POKAZATELJI LIKVIDNOSTI									
Gotovina i GE/depoziti	0.33	0.69	0.60	0.24	0.37	0.39	0.74	1.82	1.27
Krediti/depoziti	0.93	0.60	0.08	0.98	0.84	0.56	0.54	0.12	1.09
Zarađivačka aktiva/ depoziti	0.93	0.66	0.61	1.00	0.84	0.73	0.66	1.06	1.09
POKAZATELJI AKTIVNOSTI									
Aktiva po zaposlenom	52,379	110,930	38,357	43,467	144,396	42,213	42,289	25,944	12,276
Ukupna efikasnost	0.32	0.37	0.00	0.08	0.37	0.45	0.46	0.09	0.57
Obrt ukupne aktive	12.84%	6.33%	5.74%	16.39%	8.54%	10.14%	8.00%	6.87%	12.84%
Kamatni prihodi/ukupna aktiva	10.13%	4.71%	5.59%	15.72%	6.96%	6.88%	4.73%	3.99%	4.59%
Nekamatni prihodi/ ukupna aktiva	2.71%	1.62%	0.16%	0.67%	1.59%	3.26%	3.27%	2.88%	8.25%
POKAZATELJI PROFITABILNOSTI									
R O A	0.37%	-4.15%	-81.51%	1.68%	-0.61%	-2.49%	-19.39%	-19.20%	0.03%
R O E	1.70%	-11.39%	-514.16%	11.00%	-6.06%	-14.94%	-78.08%	-45.43%	0.04%
Profitna marža	2.90%	-65.50%	-1418.78%	10.27%	-7.13%	-24.56%	-242.54%	-279.59%	0.23%
Neto kamatna marža	10.00%	7.90%	2.77%	14.07%	5.11%	7.16%	4.99%	16.66%	23.43%
Spread	10.28%	9.24%	7.23%	14.09%	6.00%	8.50%	6.68%	19.34%	22.90%
POKAZATELJI FINANSIJSKE STRUKTURE									
Multiplikator sopstvenih sredstava	4.56	2.74	6.31	6.54	9.95	6.00	4.03	2.37	1.19
Učešće zarađivačke aktive u uk. aktivi	70.96%	40.99%	40.59%	76.28%	68.84%	54.60%	43.95%	27.45%	16.51%
Učešće stalne imovine u ukupnoj aktivi	2.73%	9.59%	14.12%	4.05%	0.69%	6.22%	4.06%	18.71%	6.72%
Umanjenje fin. sredstava/ ukupna aktiva	1.09%	4.52%	50.64%	1.09%	1.46%	2.55%	17.86%	-6.03%	-1.85%
Umanjenje fin. sredstava/ krediti	1.58%	12.52%	174.92%	1.48%	2.11%	6.51%	50.08%	-68.40%	-10.01%
Ukupne obaveze/ukupna aktiva	77.88%	64.79%	82.94%	84.93%	87.39%	82.02%	73.31%	56.67%	17.24%
Ukupne obaveze/kapital	3.52	1.84	4.86	5.64	6.93	4.56	2.75	1.31	0.21

The fourth cluster consists of banks that have been recording increasingly poor results, which has been particularly prominent in the last two years. Only OTP recorded a positive result in 2014 while all other members (PIR, HAL, NLB and MAR) had negative results. There are institutions which evidently lose pace with bigger banks because they grow apart from them. This is why it is necessary to implement financial BM to establish causes of such bad performances. Leader of this cluster is PIR that according to assets per employee (only one has assets over 100 billion RSD) as well as according to the high participation of earning assets, significantly differs from the other members. However, it would not be appropriate for comparison because the results shown in the previous years are extremely bad. Therefore, a better choice is the comparison with the first subsequent participants from the third cluster, i.e. CRA.

The biggest shortcomings come from the need for high provisions which points to the bad credit risk management. It is evident that only OTP advanced its business in the last year and its results are better than those at CRA. All others have big profitability issues which are reflected in the negative profit rate. Another existing problem is in the ALM process because the indicators of net interest margin and spread are unfavorable.

Table 7: Performance analysis - V cluster (source: author's calculations)

V CLUSTER	2014								
	FIN	JUB	SRP	OPR	VTB	KBM	MTS	TEL	JUG
LIQUIDITY INDICATORS									
Cash / deposits	0.33	0.69	0.60	0.24	0.37	0.39	0.74	1.82	1.27
Loans / deposits	0.93	0.60	0.08	0.98	0.84	0.56	0.54	0.12	1.09
Earning assets / deposits	0.93	0.66	0.61	1.00	0.84	0.73	0.66	1.06	1.09
ACTIVITY INDICATORS									
Assets per employee	52,379	110,930	38,357	43,467	144,396	42,213	42,289	25,944	12,276
Overhead efficiency	0.32	0.37	0.00	0.08	0.37	0.45	0.46	0.09	0.57
Asset utilization	12.84%	6.33%	5.74%	16.39%	8.54%	10.14%	8.00%	6.87%	12.84%
Interest income / total assets	10.13%	4.71%	5.59%	15.72%	6.96%	6.88%	4.73%	3.99%	4.59%
Non-interest income / total assets	2.71%	1.62%	0.16%	0.67%	1.59%	3.26%	3.27%	2.88%	8.25%
PROFITABILITY INDICATORS									
R O A	0.37%	-4.15%	-81.51%	1.68%	-0.61%	-2.49%	-19.39%	-19.20%	0.03%
R O E	1.70%	-11.39%	-514.16%	11.00%	-6.06%	-14.94%	-78.08%	-45.43%	0.04%
Profit margin	2.90%	-65.50%	-1418.78%	10.27%	-7.13%	-24.56%	-242.54%	-279.59%	0.23%
Net interest margin	10.00%	7.90%	2.77%	14.07%	5.11%	7.16%	4.99%	16.66%	23.43%
Spread	10.28%	9.24%	7.23%	14.09%	6.00%	8.50%	6.68%	19.34%	22.90%
INDICATORS OF FINANCIAL STRUCTURE									
Equity multiplier	4.56	2.74	6.31	6.54	9.95	6.00	4.03	2.37	1.19
Participation earning assets in total assets	70.96%	40.99%	40.59%	76.28%	68.84%	54.60%	43.95%	27.45%	16.51%
The share of fixed assets in total assets	2.73%	9.59%	14.12%	4.05%	0.69%	6.22%	4.06%	18.71%	6.72%
Impairment financial assets / total assets	1.09%	4.52%	50.64%	1.09%	1.46%	2.55%	17.86%	-6.03%	-1.85%
Impairment financial assets / loans	1.58%	12.52%	174.92%	1.48%	2.11%	6.51%	50.08%	-68.40%	-10.01%
Total liabilities / total assets	77.88%	64.79%	82.94%	84.93%	87.39%	82.02%	73.31%	56.67%	17.24%
Total liabilities / equity	3.52	1.84	4.86	5.64	6.93	4.56	2.75	1.31	0.21

Najmanje banke, čije je učešće na tržištu izuzetno nisko i imaju aktivu ispod 20 milijardi RSD, čine petu grupu. Njegov lider je FIN. Ostali učesnici ove grupe bi trebali da teže njegovim performansama ukoliko žele da ostvare napredak u svom poslovanju kao i da održe kontinuitet poslovanja, budući da su mnoge banke iz ove grupe potkapitalizovane čime je ugrožen njihov opstanak. FIN je prošle godine prvi put izašao iz zone negativnog poslovanja zahvaljujući boljem upravljanju imovinom i obavezom što je rezultiralo vraćanju spreda i neto kamatne marže na nivo iznad 10% što je u rangu rezultata iz 2010. U ovoj grupi se izdvaja OPR koji ima većinu pokazatelja boljih od lidera.

Zaključak

Finansijski BM predstavlja tehniku koju bi moderno rukovodstvo trebalo da koristi prilikom donošenja svojih odluka, bilo strategijskog ili operativnog karaktera. On služi kao pomoćno sredstvo čiji je primarni cilj identifikacija slabosti koju pojedini subjekti imaju u svojim poslovnim performansama. Zbog toga je celokupni proces BM-a nezamisliv bez njegovog finansijskog dela. Primena finansijskog BM-a u bankarskoj industriji ima za cilj da ilustruje sve specifičnosti banaka, koje se kao finansijski posrednici, značajno razlikuje od nefinansijskih korporacija. Zbog toga je

bila neophodna modifikacija racio analize kao osnovnog stuba za poređenje performansi.

Za validnu primenu finansijskog BM-a je potrebno prvo odrediti subjekte u odnosu na koje se vrši poređenje. Identifikacija *peer* grupe u bankarskoj industriji Srbije može odrediti putem klasterizacije, odnosno konstrukcije relativno homogenih celina. Klasterizacija je particionog tipa zbog toga što treba obezbediti jednoznačno razvrstavanje bez preklapanja i kumuliranja članova klastera.

Zbog specifičnosti bankarske industrije, razvijen je CAMELS rejting sistem, za analizu rizičnosti poslovanja banaka. Dodeljivanje kreditnog rejtinga banaka zasniva se na podacima sveobuhvatnog izveštajnog sistema kao što je UBPR. Kako bi se unapredio analitički kapacitet van centralnih banaka, neophodno je da regulatorna tela i/ili udruženja banaka , na osnovu repozitorijuma finansijskih izveštaja banaka, prošire skup indikatora finansijke stabilnosti banaka koji bi bio javno dostupan. Na taj način bi se još više podstakao finansijski BM što bi uticalo na veću konkurentnost od koje bi svi imali koristi.

Dalje istraživanje bi moglo ići u smeru uključivanja indikatora koji trenutno nisu javno dostupni, kao što su stopa adekvatnosti kapitala, pokrivenost nenaplativih potraživanja ukupnim rezervama i učešće dospelih u ukupnim potraživanjima, što bi unapredilo analizu.

The smallest banks whose participation on the market is extremely low and their assets are under 20 billion RSD, make the fifth cluster. Their leader is FIN. Other group members should strive to match its performances if they want to achieve progress in business as well as to keep business continuity as many banks from this group are under-capitalized which jeopardizes their survival. Last year FIN for the first time came out of the negative business zone thanks to its improved asset liability management which resulted in returning spread and net interest margin on the level above 10% which is in range with the 2010 results. In this group, OPR stands out since it has most indicators better than the leader.

Conclusion

Financial BM represents a technique which modern management should use during the decision making process, either the strategic or operational ones. It serves as an aid whose primary goal is the identification of weaknesses that particular subject has in its business performance. Therefore, the overall BM process is unthinkable without its financial part. Usage of financial BM in the banking industry has a goal to illustrate all specifics of banks, which as finance intermediators significantly differ from non-finance corporations. This is why the ratio analysis modification was necessary as the basic foundation for comparison.

For valid application of financial BM, we first need to determine the subjects in relation to which the comparisons are conducted. Identification of peer groups in the Serbian banking industry can be determined by clustering, i.e. construction of relatively homogeneous units. Clustering is of partitioning type because it should provide unique classification without overlapping and aggregation of the cluster members.

Due to the specification of the banking industry, the CAMELS rating system is developed for the analysis of bank business risk. Giving credit rating of banks is based on data overall report system such as UBPR. In order to advance analytical capacity out of the central banks, it is necessary that regulatory bodies and/or bank associations based on a repository of financial bank reports expand the collection of indicators for bank financial stability which would be available to public. In that way financial BM would be even more encouraged and would thus exert an influence on increasing competition from which everyone can benefit.

Further research could go in the direction of including indicators which are currently not publicly available, such as capital adequacy, coverage of NPL to total reserves and participation of past due receivables which would improve the analysis.

DODATAK A: Lista banaka

Zvanični naziv banke	Skraćeni naziv Banke	Ukupna neto aktiva - u 000 RSD (31.12.2014.)
Banca Intesa a.d. Beograd	INT	472.957.281
Komercijalna banka a.d. Beograd	KOM	406.261.524
Unicredit Bank Srbija a.d. Beograd	UNI	265.272.463
Raiffeisen banka a.d. Beograd	RAI	224.133.732
Société Générale banka Srbija a.d. Beograd	SOG	222.310.801
Agroindustrijska komercijalna banka AIK banka a.d. Niš	AIK	173.301.270
Eurobank a.d. Beograd	EUR	146.178.582
Vojvođanska banka a.d. Novi Sad	VOJ	123.201.619
Hypo Alpe-Adria-Bank a.d. Beograd	HYP	118.688.684
Banka Poštanska štedionica a.d. Beograd	POŠ	113.289.002
Sberbank Srbija a.d. Beograd	SBR	108.431.365
Erste bank a.d. Novi Sad	ERS	97.752.521
Alpha Bank Srbija a.d. Beograd	ALP	89.236.026
ProCredit Bank a.d. Beograd	PRO	73.525.564
Crédit Agricole Banka a.d. Novi Sad	CRA	65.692.745
Piraeus Bank a.d. Beograd	PIR	59.231.968
OTP banka Srbija a.d. Novi Sad	OTP	40.704.329
Halkbank a.d. Beograd	HAL	31.775.519
NLB banka a.d. Beograd	NLB	29.531.248
Marfin Bank a.d. Beograd	MAR	24.181.361
Findomestic banka a.d. Beograd	FIN	15.870.699
JUBMES banka a.d. Beograd	JUB	14.088.093
Srpska banka a.d. Beograd	SRP	11.277.023
Opportunity banka a.d. Novi Sad	OPR	10.432.092
VTB Banka a.d. Beograd	VTB	10.252.132
KBM Banka a.d. Kragujevac	KBM	9.582.277
mts banka a.d. Beograd	MTS	6.808.583
Telenor banka a.d. Beograd	TEL	3.606.217
Jugobanka Jugbanka a.d. Kosovska Mitrovica	JUG	1.325.764

Appendix A: List of banks

The official name of the bank	Short name of the Bank	Total net assets - in 000 RSD (31.12.2014)
Banca Intesa a.d. Beograd	INT	472.957.281
Komercijalna banka a.d. Beograd	KOM	406.261.524
Unicredit Bank Srbija a.d. Beograd	UNI	265.272.463
Raiffeisen banka a.d. Beograd	RAI	224.133.732
Société Générale banka Srbija a.d. Beograd	SOG	222.310.801
Agroindustrijska komercijalna banka AIK banka a.d. Niš	AIK	173.301.270
Eurobank a.d. Beograd	EUR	146.178.582
Vojvođanska banka a.d. Novi Sad	VOJ	123.201.619
Hypo Alpe-Adria-Bank a.d. Beograd	HYP	118.688.684
Banka Poštanska štedionica a.d. Beograd	POŠ	113.289.002
Sberbank Srbija a.d. Beograd	SBR	108.431.365
Erste bank a.d. Novi Sad	ERS	97.752.521
Alpha Bank Srbija a.d. Beograd	ALP	89.236.026
ProCredit Bank a.d. Beograd	PRO	73.525.564
Crédit Agricole Banka a.d. Novi Sad	CRA	65.692.745
Piraeus Bank a.d. Beograd	PIR	59.231.968
OTP banka Srbija a.d. Novi Sad	OTP	40.704.329
Halkbank a.d. Beograd	HAL	31.775.519
NLB banka a.d. Beograd	NLB	29.531.248
Marfin Bank a.d. Beograd	MAR	24.181.361
Findomestic banka a.d. Beograd	FIN	15.870.699
JUBMES banka a.d. Beograd	JUB	14.088.093
Srpska banka a.d. Beograd	SRP	11.277.023
Opportunity banka a.d. Novi Sad	OPR	10.432.092
VTB Banka a.d. Beograd	VTB	10.252.132
KBM Banka a.d. Kragujevac	KBM	9.582.277
mts banka a.d. Beograd	MTS	6.808.583
Telenor banka a.d. Beograd	TEL	3.606.217
Jugobanka Jugbanka a.d. Kosovska Mitrovica	JUG	1.325.764

DODATAK B: Mapiranje pozicija finansijskih izveštaja i katalog indikatora

BILANSA STANJA			AOP - 2014 godina	AOP do 2014 godine
AKTIVA			0020	014
A	GOTOVINA I GOTOVINSKI EKVIVALENTI		0001+0007	001+002
	I	Gotovina i sredstva kod centralne banke	0001	001+002
	II	Plasmani bankama	0007	
B	ZARAĐIVAČKA AKTIVA		0003+0004+0005+0006+0009+0010+0008	003+004+005
	I	Ulaganja u HoV	0003+0004+0005+0006+0009+0010	005
	II	Krediti i finansijski lizing	0008	003+004+007
C	STALNA IMOVINA		0013+0014+0015	008+009
	I	Nematerijalna ulaganja	0013	008
	II	Nekretnine, postrojenja i oprema	0014	009
	III	Investicione nekretnine	0015	
D	OSTALA AKTIVA		002+0011+0012+0016+0017+0018+0019	006+010+011+012
	I	Investicije	0011+0012	006
	II	Odložena poreska sredstva	0017	011
	III	Stalna sredstva namenjena prodaji	0018	010
	IV	Ostala sredstva	0002+0016+0019	012
PASIVA			0424	120
A	OBAVEZE		0414	112
	I	Obaveze po osnovu HoV	0401+0402+0403+0406+0407	104
	II	Depoziti i primljeni krediti	0404+0405	101+102+103+105
	III	Rezervisanja	0409	106
	IV	Obaveze po osnovu sredstava namenjenih prodaji	0410	109
	V	Odložene poreske obaveze	0412	110
	V	Ostale obaveze	0408+0411+0413	107+108+111
B	KAPITAL		0422	119
	I	Akcijski kapital	0415-0416	113
	II	Neraspoređeni dobitak/gubitak	0417-0418	117-118
	III	Rezerve	0419	114+115
	IV	Nerealizovani gubici po osnovu HoV	0420	116
VANBILANS				121

APPENDIX B: Mapping the position of financial statements and a catalogue of indicators

BALANCE SHEET			AOP - 2014	AOP until 2014
ASSETS			0020	014
A	CASH AND CASH EQUIVALENTS		0001+0007	001+002
	I	Cash and balances with central banks	0001	001+002
	II	Placements with banks	0007	
B	EARNING ASSETS		0003+0004+0005+0006+0009+0010+0008	003+004+005
	I	Investments in securities	0003+0004+0005+0006+0009+0010	005
	II	Loans and financial leasing	0008	003+004+007
C	FIXED ASSETS		0013+0014+0015	008+009
	I	Immaterial assets	0013	008
	II	Property, plant and equipment	0014	009
	III	Investment property	0015	
D	OTHER ASSETS		002+0011+0012+0016+0017+0018+0019	006+010+011+012
	I	Investments	0011+0012	006
	II	Deferred tax assets	0017	011
	III	Fixed assets held for sale	0018	010
	IV	Other assets	0002+0016+0019	012
LIABILITIES AND CAPITAL			0424	120
A	LIABLITIES		0414	112
	I	Liabilities for securities	0401+0402+0403+0406+0407	104
	II	Deposits and loans	0404+0405	101+102+103+105
	III	Reservations	0409	106
	IV	Liabilities based on assets intended for sale	0410	109
	V	Deferred tax liabilities	0412	110
	V	Other liabilities	0408+0411+0413	107+108+111
B	CAPITAL		0422	119
	I	Share capital	0415-0416	113
	II	Undistributed gain / loss	0417-0418	117-118
	III	Reserves	0419	114+115
	IV	Unrealized losses based on securities	0420	116
OFF-BALANCE SHEET				121

BILANS USPEHA			AOP - 2014 godina	AOP do 2014 godine
	I	Prihodi od kamata	1001	201
	II	Rashodi od kamata	1002	202
A	NETO KAMATNI PRIHOD (RASHOD)		1003 ili 1004 (1001-1002)	203 ili 204 (201-202)
	I	Prihodi od naknada i provizija	1005	205
	II	Rashodi od naknada i provizija	1006	206
B	NETO PRIHOD PO OSNOVU NAKNADA I PROVIZIJA		1007 ili 1008 (1005-1006)	207 ili 208 (205-206)
C	NETO PRIHOD (RASHOD) PO OSNOVU HARTIJA OD VREDNOSTI		1009-1010+1011-1012+1013-1014+1015-1016	209-210+211-212+213-214+228-229
D	NETO PRIHOD (RASHOD) PO OSNOVU KURSNIH RAZLIKA		1017-1018	219-220
	I	Ostali poslovni prihodi	1021+1019	215+217+221+222
E	NETO PRIHOD (RASHOD) PO OSNOVU UMANJENJA OBEZVREĐENjA FINANSIJSKIH SREDSTAVA I KREDITNO RIZIČNIH VANBILANSNIH STAVKI		1022-0123	223-224
F	UKUPAN NETO POSLOVNI PRIHOD (RASHOD)		1023-1024	
	I	Troškovi zarada	1026	225
	II	Troškovi amortizacije	1027	226
	III	Ostali rashodi	1028+1020	216+218+227
G	DOBITAK (GUBITAK) PRE POREZA		1029 ili 1030	230 ili 231
	I	Porez na dobitak	1031	236
	II	Dobitak (gubitak po osnovu odloženih poreza)	1032-1033	237-238
H	DOBITAK (GUBITAK) NAKON POREZA		1034 ili 1035	234 ili 235 (-232 +233)
	I	Neto dobitak (gubitak) poslovanja koje se obustavlja	1036-1037	232-233
I	REZULTAT PERIODA - DOBITAK (GUBITAK)		1038-1039	239 ili 240

INCOME STATEMENT			AOP - 2014	AOP until 2014
	I	Interest income	1001	201
	II	Interest expense	1002	202
A	NET INTEREST INCOME		1003 ili 1004 (1001-1002)	203 ili 204 (201-202)
	I	Income from fees and provisions	1005	205
	II	Expense from fees and provisions	1006	206
B	NET GAIN (LOSS) FROM FEES AND PROVISIONS		1007 ili 1008 (1005-1006)	207 ili 208 (205-206)
C	NET GAIN (LOSS) FROM SECURITIES		1009-1010+1011-1012+1013-1014+1015-1016	209-210+211-212+213-214+228-229
D	NET GAIN (LOSS) FROM FOREIGN EXCHANGE DIFFERENCES		1017-1018	219-220
	I	Other operating income	1021+1019	215+217+221+222
E	NET GAIN (LOSS) FROM PROVISIONS FOR LOAN LOSSES AND OTHER IMPAIRMENT OF FINANCIAL ASSET		1022-0123	223-224
F	NET OPERATING GAIN (LOSS)		1023-1024	
	I	Salaries and employee benefits	1026	225
	II	Amortization of fixed assets	1027	226
	III	Other expenses	1028+1020	216+218+227
G	GAIN (LOSS) BEFORE TAXES		1029 ili 1030	230 ili 231
	I	Tax	1031	236
	II	Gain (loss) from deferred taxes	1032-1033	237-238
H	GAIN (LOSS) AFTER TAXES		1034 ili 1035	234 ili 235 (-232 +233)
	I	Net gain (loss) from discontinued operations	1036-1037	232-233
I	COMPREHENSIVE RESULT		1038-1039	239 ili 240

Grupa pokazatelja	Racio	Način obračuna
Likvidnost	Gotovina i GE/depoziti	-
	Krediti/depoziti	-
	Zarađivačka aktiva/ depoziti	-
Aktivnost	Aktiva po zaposlenom	$\dfrac{Ukupna\ aktiva}{Broj\ zaposlenih}$
	Ukupna efikasnost	$\dfrac{Nekamatni\ prihod}{Nekamatni\ rashod}$
	Obrt ukupne aktive	$\dfrac{Ukupni\ operativni\ prihod}{Prosečna\ aktiva}$
	Kamatni prihodi/ukupna aktiva	-
	Nekamatni prihodi/ ukupna aktiva	-
Profitabilnost	R O A	$\dfrac{Rezultat\ pre\ poreza}{Prosečna\ aktiva}$
	R O E	$\dfrac{Rezultat\ pre\ poreza}{Prosečni\ kapital}$
	Profitna marža	$\dfrac{Rezultat\ pre\ poreza}{Ukupni\ operativni\ prihod}$
	Neto kamatna marža	$\dfrac{Neto\ kamatni\ prihod}{Prosečna\ zarađivačka\ aktiva}$
	Spread	$\dfrac{Kamatni\ prihod}{Prosečna\ zarađivačka\ aktiva} - \dfrac{Kamatni\ rashod}{Prosečne\ kamatne\ obaveze}$
Finansijska struktura	Multiplikator sopstvenih sredstava	$\dfrac{Prosečna\ aktiva}{Prosečni\ kapital}$
	Učešće zarađivačke aktive u ukupnoj aktivi	$\dfrac{Zarađivačka\ aktiva}{Ukupna\ aktiva}$
	Učešće stalne imovine u ukupnoj aktivi	$\dfrac{Stalna\ imovina}{Ukupna\ aktiva}$
	Umanjenje (obezvređenje) finansijskih sredstava/ ukupna aktiva	$\dfrac{Umanjenje\ (obezvređenje)\ finansijskih\ sredstava}{Prosečna\ aktiva}$
	Umanjenje (obezvređenje) finansijskih sredstava/ krediti	$\dfrac{Umanjenje\ (obezvređenje)\ finansijskih\ sredstava}{Prosečni\ krediti\ i\ lizing}$
	Ukupne obaveze/ukupna aktiva	-
	Ukupne obaveze/kapital	-

Group indicators	Ratio	The method of calculation
Liquidity	Cash / deposits	-
	Loans / deposits	-
	Earning assets / deposits	-
Activity	Assets per employee	$\dfrac{Total\ asset}{Number\ of\ employees}$
	Overall efficiency	$\dfrac{Noninterest\ income}{Noninterest\ expense}$
	Asset utilization	$\dfrac{Total\ operating\ income}{Total\ assets}$
	Interest income / total assets	-
	Noninterest income / total assets	-
Profitability	R O A	$\dfrac{Income\ before\ taxes}{Average\ total\ assets}$
	R O E	$\dfrac{Income\ before\ taxes}{Average\ total\ equity\ capital}$
	Profit margin	$\dfrac{Income\ before\ taxes}{Total\ operating\ income}$
	Net interest margin	$\dfrac{Net\ interest\ income}{Average\ earnings\ assets}$
	Spread	$\dfrac{Interest\ income}{Average\ earnings\ assets} - \dfrac{Noninterest\ income}{Avegrage\ interest-bearing\ liabilities}$
Financial structure	Equity multiplier	$\dfrac{Average\ total\ assets}{Average\ total\ equity\ capital}$
	Participation earning assets in total assets	$\dfrac{Earnings\ assets}{Total\ assets}$
	The share of fixed assets in total assets	$\dfrac{Fixed\ assets}{Total\ assets}$
	Impairment financial assets / total assets	$\dfrac{Impairment\ financial\ assets}{Average\ total\ assets}$
	Impairment financial assets / loans	$\dfrac{Impairment\ financial\ assets}{Average\ loans\ and\ leasing}$
	Total liabilities / total assets	-
	Total liabilities / equity	-

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