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IMPLEMENTACIJA IFRS 9 U BANKAMA I MAKROEKONOMSKI SCENARIJI - NEKI METODOLOŠKI ASPEKTI

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Rezime

Međunarodni standard finansijskog izveštavanja 9 (International Financial Reporting Standard 9 - IFRS) predstavlja još jednu u nizu inicijativa na globalnom nivou preduzetu u cilju saniranja posledica globalne svetske ekonomske i finansijske krize kao i prevencije budućih negativnih dešavanja do kojih može da dovede neadekvatno priznavanje i iskazivanje kreditnih gubitaka banaka. IFRS 9 predstavlja i važan zaokret u pogledu na tradicionalno računovodstvo obzirom da se umesto koncepta nastalih kreditnih gubitaka uvodi koncept očekivanih kreditnih gubitaka. Ovaj zadatak tradicionalno i konzervativno računovodstvo ne može da ispuni bez uključivanja makroekonomskih modela procene odnosno makroekonomskih scenarija. Ovaj rad ima za cilj da ukaže ne neke specifične metodološke osnove u makroekonomskim analizama i prognozama kao inpute u računovodstvenom obuhvatanju i prikazivanju očekivanih kreditnih gubitaka.

Ključne reči: IFRS 9, makroekonomski scenario, očekivani kreditni gubitak

JEL: F42, G21, M41

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IFRS 9 IMPLEMENTATION IN BANKS AND MACROECONOMIC SCENARIOS - SOME METHODOLOGICAL ASPECTS

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Summary

The International Financial Reporting Standard 9 - IFRS is another one in the series of global level initiatives undertaken with a view to fixing the consequences of the global economic and financial crisis, and preventing the future negative developments caused by inadequate recognition and presentation of credit losses on the part of banks. The IFRS 9 also represents a significant shift in relation to traditional accounting, given that it introduced the concept of expected credit losses to replace the concept of occurred credit losses. This task cannot be fulfilled by the traditional and conservative accounting without involving the macroeconomic assessment models, i.e. macroeconomic scenarios. This paper aims to highlight some specific methodological rudiments in macroeconomic analyses and forecasts as inputs for the accounting recognition and presentation of expected credit losses.

Keywords: IFRS 9, macroeconomic scenario, expected credit loss

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Uvod

Recentna iskustva svetske ekonomske i finansijske krize ukazala su na značaj koji neblagovremeno priznavanje kreditnih gubitaka ima na finansijski rezultat banke. Finansijski rezultat iskazan kroz finansijske izveštaje banaka podloga je za donošenje odluka značajnog broja subjekata nezavisno od toga da li se radi o akcionarima ili kreatorima ekonomske i finansijske politike. Uzroci odnosno posledica svetske ekonomske i finansijske krize najčešće se u ovom smislu iskazuju kao too little to late princip, odnosno da je do priznavanja nastalih gubitaka dolazilo prekasno ili nedovoljno. To je bio i povod za inicijativu o transformaciji pravila utvrđenih Međunarodnim računovodstvenim standardom 39 (International Accounting Standard 39 - IAS) koga je zamenio IFRS 9. Suštinska razlika u ovoj izmeni svodi se na to da više nije neophodno da se kreditni gubitak desi kako bi se priznao već se unapred procenjuje verovatnoća njegovog nastanka. Do ove suštinske promene dolazi zbog uočenih slabosti IAS 39 u delu odloženog ili odgođenog priznavanja gubitaka po kreditima ili drugim finansijskim instrumentima odnosno do njegovog priznavanja tek kada je potpuno jasno da se gubitak desio. Mada, potrebno je reći da se ni prema IAS 39 nije moralo čekati na priznavanje gubitaka ali to se u realnosti dosta činilo iz različitih razloga, a posebno zbog uticaja koji je takva računovodstvena primena imala na rezultat banke. Upravo u cilju adekvatne i pravovremene informacije svim korisnicima finansijskih izveštaja banaka pokrenuta je inicijativa za poboljšanjem odnosno unapređenjem sistema finansijskog izveštavanja. Iako je inicijativa za izmenu ovog standarda finansijskog izveštavanja potekla još 2008. godine nju je tek sredinom 2014. godine zvanično usvojio i objavio Međunarodni bord za računovodstvene standarde (International Accounting Standards Board - IASB) uz prethodne konsultacije sa svim zainteresovanim stranama. Evropska unije je usvojila Regulativu 2016/2067 (Commission Regulation 2016/2067 of 22 November 2016 amending Regulation No 1126/2008 adopting certain international accounting standards in accordance with Regulation 1606/2002 of the European Parliament and of the Council as regards International Financial Reporting Standard 9) koja takođe u svom uvodnom delu ukazuje da je usvajanje i implementacija IFRS 9 odgovor na inicijativu G20 u pogledu uvođenja novog modela priznavanja gubitaka koji će biti zasnovan na budućim očekivanjima.

IFRS 9 - zahtevi i očekivanja

Koncept IFRS 9 se zasniva na revidiranom sistemu klasifikacije i vrednovanja finansijske imovine kao i konceptu ispravke vrednosti. Očekuje se da će primena IFRS 9 uticati na povećanje izdvajanja banaka za rezervisanja usled ranijeg priznavanja kreditnih gubitaka. Rok za primenu IFRS 9 u bankama je 1. januar 2018. godine, s tim da je implementacija moguća i dozvoljena i pre toga roka. Prema studiji European Banking Authority iz novembra 2016. godine, vodeći uticaj primene IFRS 9 na poslovanje banaka će biti izražen kroz povećanje rezervisanja, u proseku za 18% u odnosu na dosadašnja rezervisanja prema IAS 39. Takođe, pokazatelj adekvatnosti osnovnog akcijskog kapitala CET 1 (Common Equity Tier 1) će zabeležiti pad od 59 baznih poena do čak 75 baznih poena za oko 80% učesnika u anketi EBA ali se veruje da ovi gubici mogu biti i značajniji (EBA, 2016).

IFRS 9 osim toga što isporučuje novi zahtev ka konceptu očekivanih kreditnih gubitaka uvodi takođe i fazno merenje, odnosno inicijalnu ili fazu 1 gde se računa gubitak za godinu dana i naknadnu odnosno drugu fazu gde se vrši računanje odnosno merenje očekivanog kreditnog gubitka tokom trajanja celog životnog veka sredstva pri čemu treba da prikaže promene u kreditnom riziku u svakom izveštajnom periodu odnosno da ih prikaže ukoliko je došlo do njegovog značajnog pogoršanja. Na ovaj način neminovno će doći do veće volatilnosti odnosno fluktuacije u iznosima rezervisanja i to u veoma kratkim vremenskim intervalima, čak i na kvartalnom nivou. Ovakav način vrednovanja kreditnog rizika podrazumeva, takođe, i da će biti potrebno mnogo više podataka i informacija kako bi se u kontinuitetu pratila, obračunavala i merila izloženost po osnovu kreditnog rizika. Ovakve informacije se, prema standardu i

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Introduction

The recent experiences of the global economic and financial crises highlighted the significant effect that the untimely recognition of credit losses has on the financial result of banks. The financial result presented in the banks' financial statements serves as the foundation for decision-making of a large number of subjects, shareholders and economic and financial policy makers alike. The causes and consequences of the global economic and financial crisis are thus most often explained by the "too little too late" principle, suggesting that the recognition of occurred losses was either too late or insufficient. This was what triggered the initiative for the transformation of the rules defined by the International Accounting Standard 39 - IAS 39, which was replaced by the IFRS 9. The crucial difference introduced by this change is that it is no longer necessary for a credit loss to occur in order to be recognized. Instead, the probability of its occurrence is being assessed in advance. This essential change was introduced due to the detected shortcomings of the IAS 39 in the section referring to the postponed or delayed recognition of losses in respect of loans or other financial instruments, i.t. their recognition only after it is completely clear that the loss actually occurred. To be fair, it is necessary to underline that even according to the IAS 39 one did not have to wait to recognize the losses, but this was frequently done in reality for various reasons, especially due to the effect that such accounting implementation had on the bank's results. With the aim of adequate and timely information for the users of financial statements of banks, the initiative was launched to improve and upgrade the financial reporting system. Although the initiative for the amendment to this financial reporting standard was launched back in 2008, it was not officially adopted until mid-2014, when it was published by the International Accounting Standards Board - IASB following the relevant consultations with all stakeholders. The European Union adopted the Commission Regulation 2016/2067 of 22 November 2016 amending Regulation No. 1126/2008 adopting certain international accounting standards in accordance with Regulation 1606/2002 of the European Parliament and of the Council as regards International Financial Reporting Standard 9, whose introductory segment refers to the adoption and implementation of the IFRS 9 as a response to the G20 initiative for the introduction of a new loss recognition model which would be based on future expectations.

IFRS 9 - Requirements and Expectations

The IFRS 9 concept is based on the revised system of classification and valuation of financial assets, and on the concept of impairment. The IFRS 9 implementation is expected to facilitate the increased allowances on the part of banks due to the earlier recognition of credit losses. The deadline for the IFRS 9 implementation in banks is 1 January 2018, but the implementation is possible and allowed before that time. According to the study conducted by the European Banking Authority in 2016, the major impact of the IFRS 9 implementation on the banks' operations will be in the form of increased allowances, by 18% on average in comparison with the allowances so far pursuant to the IAS 39. Moreover, the Common Equity Tier 1 (CET 1) will record a decline by 59 basis points reaching as much as 75 basis points for about 80% of the respondents within the EBA study, although it is believed that these losses may be even more significant (EBA, 2016).

In addition to introducing a new requirement in the form of expected credit losses, the IFRS 9 also introduces stage by stage measurement, i.e. the initial or stage 1 when the losses are calculated for one year, and the subsequent or stage 2 when the expected credit losses are measured and calculated during the entire lifetime of an instrument. This is aimed at recording the changes in credit risk in each reporting period, i.e. recording any considerable deterioration in this respect. Thereby, it is inevitable to have higher volatility, i.e. fluctuation in the amounts of allowances even in rather short time intervals, for instance at the quarterly level. Such a method of credit risk assessment also implies the necessity for much more data and information so that the credit risk exposures could be continuously monitored, measured and calculated. According to the standards and

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prema Regulativi Evropske unije 2016/2067, moraju pribaviti bez dodatnog i prevelikog truda i po razumnim troškovima, a obavezno moraju uključiti istorijske, tekuće i očekivane informacije.

Prilikom merenja očekivanog kreditnog gubitka banke moraju da vode računa o tome da na svaki izveštajni datum ispituju da li je nakon početnog priznavanja došlo do znatnog povećanja kreditnog rizika i to na način da se samerava rizik od neispunjenja obaveza na izveštajni period sa rizikom od neispunjenja obaveze na datum početnog ili inicijalnog priznavanja i to koristeći razumne podatke dostupne bez nepotrebnih troškova ili napora (Regulativa EU 2016/2067, 5.5.9). Pri tome, očekivani kreditni gubitak ne treba da predstavlja ni najbolji ni najlošiji scenario već treba da pokaže verovatnoću da će se kreditni gubitak desiti ili se neće desiti (IFRS Summary, 19). Međutim, u Regulativi kao i u IFRS 9 ne propisuju se posebne metode merenja niti makroekonomskih scenarija već je to ostavljeno samim bankama u zavisnosti od niza faktora kako internog tako i eksternog karaktera.

Više podataka i bolji podaci - preduslov efikasnosti IFRS 9

Za računanje odnosno merenje kreditnih gubitaka IFRS 9 kao ni Regulativa 2016/2067, kao što je pomenuto, ne propisuju posebne metode, one mogu biti razvijene interno ili eksterno. Međutim, IFRS 9 ukazuje da će karakteristike modela zavisiti od raspoloživosti informacija kao i da što je duži vremenski horizont to će se povećavati i zahtevi za kvalitetom i kvantumom informacija, posebno istorijskih informacija koje će biti osnova za predviđanje budućih dešavanja. Ovo je posebno važno obzirom da su istorijske informacije osnova za izradu modela očekivanih ili projektovanih kreditnih gubitaka ali uz oprez da istorijski podaci moraju biti prilagođeni i da odražavaju relativno dostojno tekuće ili očekivane uslove poslovanja. Očekivani kreditni gubitak se ažurira u svakom izveštajnom periodu sa novim informacijama i promenama u očekivanjima čak i ako nije u međuvremenu došlo do značajnog povećanja kreditnog rizika. Da bi banka na vreme uočila i prepoznala uslove

koji dovode do pogoršanja kreditnog rizika odnosno mogućeg statusa difolta potrebno je da sagleda, prvo, raspoložive informacije o konkretnom finansijskom proizvodu, drugo, da faktore koji mogu predstavljati sistem ranog upozorenja identifikuje i uključi u analize kreditnog rizika, da prikupi informacije i na nivou grupe proizvoda i na nivou pojedinačnog proizvoda sa svim njihovim karakteristikama, da blagovremeno uključi u analizu promene ekonomskih uslova na nacionalnom ili lokalnom nivou koji mogu uticati na jedan broj klijenata ili na jedan ili više proizvoda banke kao i čitav niz drugih informacija od značaja za blagovremeno prepoznavanje uslova u kojima dolazi do povećanja kreditnog rizika. Obično ovakvi uslovi prethode situaciji u kojoj je kredit već došao u problematičnu fazu odnosno kada je postao nenaplativ. Sve ove i mnoge druge informacije čiji će obim zavisiti i od same banke odnosno njenog poslovnog modela, klijenata i slično, je potrebno kontinuirano pratiti i ažurirati kako bi se na vreme prepoznao kreditni difolt i izvršilo bilansno uvažavanje odnosno povećanje rezervisanja za tog klijenta čak i ako je bio uredan u inicijalnoj fazi procene. Prema IFRS 9 analiza kreditnog rizika mora biti multifaktorska i holistička odnosno relevatnost jednog faktora u analizi i posebno u odnosu na relevantnost drugih faktora koji se koriste zavisiće od vrste proizvoda, karakteristika finansijskog instrumenta i od karakteristika samog klijenta. Analiza rizika neće uvek biti moguća i relevantna na pojedinačnom nivou pa IFRS 9 uvažavajući tu činjenicu nudi i mogućnost procene na agregatnoj osnovi odnosno na osnovi grupe ili podgrupe proizvoda ili finansijskih instrumenata što je ostavljeno bankama na odlučivanje (Regulativa EU 2016/2067, 5.5.1). Ovaj uslov insistira da se za potrebe određivanja značajnog povećanja kreditnog rizika i priznavanja rezervacija za umanjenje vrednosti na grupnoj osnovi finansijski instrumenti mogu grupisati prema zajedničkim obeležjima kreditnog rizika. Primeri zajedničkog obeležja bi uključivali, na primer, vrstu instrumenta, ocenu kreditnog rizika, vrstu osiguranja, datum početnog priznavanja, preostali rok dospeća, delatnost i slično (Regulativa EU 2016/2067, 5.5.5).

Standard, takođe, ukazuje i na to da bez

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the EU Regulation 2016/2067, such information must be procured without any undue effort and at a reasonable cost, and they must include historical, current and expected information.

When measuring the expected credit losses, at each reporting date, the banks must assess whether the credit risk on a financial instrument has increased significantly since initial recognition, by comparing the risk of a default occurring at the reporting date with the risk of a default occurring at the date of initial recognition and by considering reasonable information available without undue cost or effort (EU Regulation 2016/2067, 5.5.9). Thus, the expected credit loss should not be either the best or the worst scenario, instead reflecting the probability of a credit loss occurring or not occurring (IFRS Summary, 19). However, neither the Regulation nor the IFRS 9 prescribe any special measurement methods or macroeconomic scenarios, leaving them to the banks to define depending on a series of internal and external factors.

More Data and Better Data - Prerequisite for the IFRS 9 Efficiency

As mentioned above, no special calculation and measurement methods are prescribed either by the IFRS 9 or the Regulation 2016/2067, but they can be developed internally or externally. However, the IFRS 9 suggests that the model characteristics will depend on the availability of information, and that the longer time horizons will imply higher requirements in terms of the quality and quantity of information, especially historical information, serving as the basis for the forecasts of future developments. This is particularly important given that historical information is the basis for developing the models of expected or projected credit losses, with a certain amount of caution as the historical data must be adjusted and reflecting in a relatively reliable manner the current or expected business conditions. The expected credit loss is being updated at each reporting date to reflect the new information and changed expectations even if there has been no considerable increase in credit risk in the meantime. For a bank to be able to timely detect and recognize the conditions leading to

aggravated credit risk and potential defaults, it must, first of all, consider the available information about the particular financial product, secondly, identify all factors that may serve as the early warning signs and integrate them into its credit risk analyses, collect the information at the product group level and individual product level with all its characteristics, conduct an analysis involving the changes in economic conditions at the national or local level that might affect a number of clients or one or many products of the bank, along with a series of other information significant for a timely detection of conditions leading to increased credit risk. Such conditions typically precede the situation when the loan already entered the non-performing stage, i.e. became uncollectable. All these and many other types of information, whose scope depends on the bank and its business model, clients, etc., must be continuously monitored and updated in order to enable a timely detection of credit default and balance sheet recognition, i.e. the increase of allowances for the concerned clients, even if they were regular in the initial assessment stage. According to the IFRS 9 the credit risk analysis must be multifactorial and holistic, which means that the relevancy of a single factor in the analysis, especially in relation to other used factors will depend on the type of product, characteristics of the financial instrument and characteristics of a particular client. The risk analysis will not always be possible and relevant at the individual level and the IFRS 9 acknowledges this fact by offering the possibility of assessment at the aggregate level, i.e. at the level of a group or subgroup of products or financial instruments, as the banks decide for themselves (EU Regulation 2016/2067, 5.5.1). This condition insists that for the purpose of determining a considerable increase of credit risk and recognizing the allowances for impairment at the group level, the financial instruments can be grouped according to their common credit risk features. The examples of common features include, for instance, type of instrument, credit risk assessment, type of insurance, date of initial recognition, time to maturity, field of activity, etc. (EU Regulation 2016/2067, 5.5.5).

The standards also prescribe that, regardless

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obzira na koji način banka ispituje znatno povećanje kreditnog rizika postoji oboriva pretpostavka do je došlo do znatnog povećanje kreditnog rizika nakon početnog priznavanja ako je dospeće ugovornih plaćanja prekoračeno za više od 30 dana. Ova pretpostavka je oboriva iz razloga što banka može dokazati i suprotno odnosno da nije došlo do pogoršanja kreditnog rizika ukoliko klijent kasni više od 30 dana ali uz prezentaciju razumnih i utemeljenih informacija dostupnih bez nepotrebnih troškova (Regulativa 2016/2067, 5.5.11).

Dakle, uvažavajući preporuke IASB i Regulative 2016/2067, osim već navedenog, za adekvatnu i blagovremenu procenu kreditnog rizika mogu biti uzete u obzir i sledeće informacije:

- značajne promene pokazatelja kreditnog rizika kao posledice promene kreditnog rizika od inicijalnog priznavanja, uključujući ali ne ograničavajući se na kreditni raspon ukoliko bi taj ili sličan instrument bio odobren na datum izveštavanja,
- ostalih promena kamatnih stopa ili uslova postojećeg finansijskog instrumenta koji bi bili drugačiji u slučaju novog izdavanja na dan izveštavanja kao što su preciznije obaveze, povećani iznosi osiguranja plaćanja ili jemstava ili veća pokrivenost prihoda usled promene kreditnog rizika finansijskog instrumenta nakon početnog priznavanja,
- značajne promene spoljnih tržišnih pokazatelja kreditnog rizika za određeni ili sličan finansijski instrument sa istim očekivanim rokom trajanja,
- značajne promene eksternog kreditnog rejtinga finansijskog instrumenta, stvarna ili očekivana,
- sniženje internog kreditnog rejtinga dužnika ili smanjenje ocene ponašanja klijenta koja je upotrebljena za procenu kreditnog rizika, stvarnog ili očekivanog. Interni kreditni rejtinzi i unutrašnja ocena ponašanja pouzdaniji su kada su upoređeni sa eksternim rejtingom i podržani studijama o statusu neispunjavanja obaveza,
- nepovoljne promene u uslovima poslovanja, finansijskih ili ekonomskih, nezavisno od toga da li su tekuće ili očekivane, a koji bi mogli uzrokovati značajne promene sposobnosti dužnika za pokriće njegovih

dugovanja kao što je stvarno ili očekivano povećanje kamatnih stopa ili stvarno ili očekivano značajno povećanje stope nezaposlenosti,
- značajne promene u poslovnim rezultatima dužnika, nezavisno od toga da li je reč o tekućim ili očekivanim vrednostima, kao što je, na primer, nedostatak obrtnog kapitala, smanjenje kvaliteta imovine, povećanje leveridža, smanjenje likvidnosti, problemi i promene u upravljačkoj i organizacionoj strukturi i slično,
- značajno povećanje kreditnog rizika ostalih finansijskih instrumenata istog dužnika,
- značajne negativne promene u regulatornom, privrednom ili tehnološkom okruženju dužnika koje uzrokuju značajnu promenu kreditne sposobnosti dužnika za izmirenje obaveza kao što je, na primer, pad potražnje za proizvodima koje dužnik prodaje zbog tehnoloških promena,
- značajne promene u vrednosti osiguranja, kvaliteta jemstava ili finansijske potpore zavisnih preduzeća i mnogih drugih informacija i podataka koji mogu biti korišćeni u svrhe merenje povećanja kreditnog rizika klijenta, a radi vrednovanja odnosno merenje i blagovremenog priznavanja ispravke vrednosti u bilansu banaka odnosno adekvatnog prikazivanja kreditnog rizika.

Makroekonomski scenariji - neki metodološki aspekti

Potreba i zahtevi za makroekonomskim scenarijima u bankama jesu samo aktuelizovani novim računovodstvenim pravilima po IFRS 9 ali svakako ne predstavljaju novosti niti u regulatornim zahtevima niti u samim potrebama banaka da bolje predvide ekonomske uslove i u skladu sa tim prilagode svoje strategije i poslovne modele. Ekonomske prognoze i upotreba različitih metoda za predviđanje bliske ili dalje budućnosti imanentna je želji banaka da bolje upravljaju rizikom posebno u delu koji se zasniva na finansijskim proizvodima duže ročnosti. Ovaj segment rada banaka je bio do pre nekoliko godina u pretežnoj dominaciji rada na finansijskim tržištima ali se u poslednje vreme posebno nakon svetske ekonomske i

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of the way in which a bank assesses significant increases in credit risk, there is a rebuttable presumption that the credit risk has increased significantly since initial recognition when contractual payments are more than 30 days past due. A bank can rebut this presumption demonstrating that the credit risk has not increased significantly even though the contractual payments are more than 30 days past due, if the bank has reasonable and supportable information that is available without undue cost (Regulation 2016/2067, 5.5.11).

Therefore, by acknowledging the recommendations of the IASB and the Regulation 2016/2067, in addition to the above mentioned an adequate and timely credit risk assessment may also take into account the following information:

- Significant changes of the credit risk indicators as a consequence of the credit risk changes since the initial recognition, including but not limiting to the credit spread if that or similar instruments are granted at the reporting date;
- Other changes in interest rates or terms of the existing financial instruments that would be different in the case of a new issuing at the reporting date, such as the more precisely defined liabilities, increased payments of insurance premiums or pledges, or higher coverage of income due to the changed credit risk of a financial instrument after the initial recognition;
- Significant changes of external market indicators of credit risk for a specific or similar financial instrument with the same expected lifetime;
- Significant changes of external credit rating of a financial instrument, actual or expected;
- Downgraded internal credit rating of a debtor, or a lower grade for a client's creditworthiness than the one used for the assessment of credit risk, actual or expected. Internal credit ratings and internal creditworthiness assessments are more reliable when compared with the external rating and supported by the studies on the status of default.
- Unfavorable changes in business conditions, financial and economic, regardless of whether they are current or expected, that

could cause some considerable changes in the debtor's ability to honor his debts, such as an actual or expected increase in interest rates or an actual or expected increase of the unemployment rate;

- Significant changes in the debtor's business results, regardless of whether these are current or expected values, such as, for instance, a shortage of working capital, reduced quality of assets, increased leverage, problems and changes in the management and organizational structure, etc.
- Significant increase of the credit risk of other financial instruments of the same debtor;
- Significant negative changes in the regulatory, economic or technological environment of the debtor, causing a substantial change in the debtor' creditworthiness and ability to honor his liabilities, such as, for instance, a drop in demand for products sold by the debtor, as a result of the technological development;
- Significant changes in the value of insurance, quality of pledges or financial support of dependent companies, and many other pieces of information that can be used for the purpose of assessing the increased credit risk of a client, with the aim of measurement and timely recognition of impairments in the bank's balance sheets, i.e. the adequate presentation of credit risk.

Macroeconomic Scenarios - Some Methodological Aspects

The needs and requests for macroeconomic scenarios in banks have been brought back into focus with the new accounting rules according to the IFRS 9, although they are nothing new in terms of regulatory requirements or the needs of banks to better anticipate economic conditions, thereby adjusting their strategies and business models. Economic forecasts and usage of various methods for anticipating foreseeable or distant future are immanent to the banks' aspiration for a better risk management, especially in the segment related to the financial products of longer maturities. Until a few years ago, this segment of banking operations was predominant at the financial markets, but recently, and especially after the

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finansijske krize sve više premešta u domen ekonomskih analiza odnosno razvoja poslova ekonomskih analitičara u bankama koji imaju za zadatak da prate ukupna ekonomska kretanja, dakle ne ograničavajući se samo na finansijske indikatore, odnosno da modeliraju pretpostavke budućih kretanja u celoj ekonomiji i njihov efekat na poslovanje banke. Često se u stručnim radovima ističe da će poslovi ekonomskih prognoza biti neophodan faktor uspeha banke i da se radi o veštinama koje će biti sve više prisutne u savremenom bankarskom poslovanju. Pojašnjenja radi, ovi poslovi se ne isrpljuju samo na izradi makroekonomskih scenarija već uključuju i vrlo ozbiljan deo predviđanja i analize rizika pojedinog sektora ili delatnosti u okviru sektora i slično, što nas približava zahtevima IFRS 9 odnosno upotrebljivosti makroekonomskih scenarija za koncept očekivanog kreditnog gubitka. Ove analize su krucijalne ne samo za procenu rizika klijenta ili pojedinačnog sektora već i za rezultate poslovanja banke obzirom da inputi iz makroekonomskog scenarija odlučujuće utiču na proces migriranja iz faze 1 u fazu 2 odnosno posledično na iznose rezervisanja, a time i rezultat banke. Poslovni rezultat banke i njegova volatilnost će, između ostalog, zavisiti od postavke modela koji je osnova za izradu makroekonomskog scenarija. Sam standard ne navodi posebne zahteve za izradu makroekonomskih scenarija niti insistira na određenom broju tih scenarija. Standard navodi da procena očekivanih kreditnih gubitaka mora odražavati nepristrasan odnos na temelju verovatnoće koja se određuje ocenjivanjem nekoliko mogućih ishoda što čak ne mora biti složena analiza niti analiza koja će obavezno biti utemeljena na ekonometrijskim modelima.

U nekim slučajevima dovoljna je izrada jednostavnog modela bez potrebe za brojnim i detaljnim simulacijama scenarija. Na primer, na temelju verovatnoće moguće je razumno proceniti iznos prosečnih kreditnih gubitaka velike grupe finansijskih instrumenata koje imaju zajednička obeležja rizika. U nekim drugim slučajevim će, pak, za određene ishode možda biti potrebno utvrditi scenarije sa određenim iznosom i vremenom novčanih tokova, kao i procenu verovatnoće tih ishoda. U takvim situacijama standard navodi da

očekivani kreditni gubici odražavaju najmanje dva ishoda (Regulativa EU 2016/2067, B.5.5.42).

Dakle, IFRS 9 dozvoljava da kvalitativne i nestatističke informacije mogu biti dovoljne kako bi se utvrdilo da li finansijski instrument ispunjava merilo za priznavanje rezervacija za umanjenje vrednosti u iznosu koji je jednak kreditnim gubicima tokom celog perioda trajanja proizvoda. Ovaj zahtev upućuje na to da nije nužno informacije obraditi u statističkom modelu ali da je to, s druge strane, neophodno ukoliko se radi o specifičnoj vrsti rizika ili posebnim uslovima, ekonomskim pre svega, a koji mogu biti bitno različiti od uslova inicijalnog priznavanja. Na temelju nekih istraživanja o toku implementacije IFRS 9 ukazuje se da nedostatak informacija neophodnih za primenu koncepta očekivanih gubitaka predstavlja jednu od najznačajnih prepreka za adekvatnu pripremu banaka (EBA, 2016; EFRAG 2015).

Trenutno većina banaka ne poseduje gore navedene informacije koje se zahtevaju standardom pa će neizbežno morati da urede sistem kreditnih i drugih informacija, u tome posebno makroekonomskih, kako bi bile u stanju da odgovore izazovima očekivanih kreditnih gubitaka prema IFRS 9. To znači ne samo izradu internih modela odnosno prilagođavanje internih modela u cilju određivanja očekivanih kreditnih gubitaka u narednih godinu dana ili u celom životnom ciklusu proizvoda, dakle informacija koje banka može da prikupi interno, već i da počne da prikuplja druge neophodne informacije ukoliko ih već ne poseduje. Iako standard insistira da se podaci prikupe uz razuman trud i troškove to ipak neće uvek biti moguće.

U nekim okolnostima banka bez nepotrebnih troškova i napora ne može doći do razumnih podataka za merenje očekivanih kreditnih gubitaka tokom veka trajanja po pojedinim instrumentima. U tim okolnostima se kreditni gubici priznaju na grupnoj osnovi uzimajući opet u obzir iscrpne i detaljne podatke o kreditnim rizicima. Ovi opsežni i isrpni podaci o kreditnim rizicima moraju sadržati ne samo podatke o prekoračenju dospeća, nego i sve važne podatke o kreditnim rizicima, uključujući i makroekonomske podatke o budućim događajima, s ciljem utvrđivanja

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global economic and financial crisis, it started shifting into the field of economic analyses, i.e. the development of operations of economic analysts in banks, whose task is to follow the general economic trends, without limiting themselves to financial indicators, thereby modeling the assumptions of future trends in the economy and their effects on the bank's operations. The scientific papers often underline that the economic forecasts will become an indispensable factor of a bank's success, and that these skills will become increasingly present in the contemporary banking business. For the sake of clarification, these operations do not end with the preparation of macroeconomic scenarios, but also include a rather serious section of forecasting and analyzing the risks of individual sectors or activities within a sector, etc., which brings us closer to the IFRS 9 requirements, and the usability of macroeconomic scenarios for the concept of expected credit loss. These analyses are crucial not only for the assessment of risk incurred by a client or individual sector, but also for the bank's business results given that the inputs from macroeconomic scenarios have a decisive effect on the process of migrating from stage 1 to stage 2, and, consequently, on the amounts of allowances, hence the bank's business result. The bank's business result and its volatility will, among other things, depend on the set up of the model which is the basis for preparing macroeconomic scenarios. The standard itself does not specify any special requirements for the preparation of macroeconomic scenarios, nor does it insist on a certain number of such scenarios. The standard states that the assessment of expected credit losses must reflect an unbiased approach based on probability which is determined by assessing several potential outcomes. This, however, does not have to be a complex analysis or an analysis necessarily based on econometric models.

In some cases, it is enough to prepare a simple model with no need for numerous and detailed scenario simulations. For instance, based on probability it is possible to reasonably assess the amount of average credit losses regarding a large group of financial instruments with the common risk features. In some other cases, however, certain outcomes will perhaps

require the scenarios with specific amounts and cash flows, as well as the assessment of probability of those outcomes. For such situations, the standard prescribes that the expected credit losses reflect at least two outcomes (EU Regulation 2016/2067, B.5.5.42).

Thus, the IFRS 9 allows for qualitative and non-statistical information to be sufficient when determining whether a financial instrument fulfils the criterion for recognizing impairment allowances in the amount equal to the credit losses during the entire lifetime of a product. This requirement suggests that it is not obligatory to process the information in a statistical model but that this is, on the other hand, necessary if facing a specific type of risk or special conditions, first of all economic conditions, which may considerably differ from the conditions of initial recognition. Based on some studies about the course of the IFRS 9 implementation, it has been observed that the lack of information necessary for the application of expected losses concept stands as one of the most significant obstacles for the adequate preparation of banks (EBA, 2016; EFRAG, 2015).

At the moment, most banks do not possess the above stated information required by the standard, which means that they will inevitably have to regulate their systems of credit and other, especially macroeconomic, information, in order to be able to face the challenges of expected credit losses according to the IFRS 9. This implies not only the preparation of internal models, i.e. the adjustment of internal models with the aim of determining the expected credit losses in the forthcoming year or during the entire lifecycle of a product (thus, the information that a bank is able to collect internally), but also the commencement of collecting other necessary information if not already available. Although the standard insists that the data be collected at reasonable effort and cost, this will not always be possible.

In some circumstances, without undue cost and effort it is impossible for banks to collect the reasonable data for measuring the expected credit losses during the lifetime of certain instruments. In such circumstance, the credit losses are recognized on a group basis, taking into account the detailed and comprehensive credit risk data. These wide-

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značajnog povećanja kreditnog rizika nakon početnog priznavanja na nivou pojedinačnog instrumenta. Standard ne definiše ni značajno uvećanje kreditnog rizika već je to ostavljeno da sama banka odredi, a to će zavisiti opet od primenjenog modela makroekonomskog scenarija. Banka u tom slučaju mora dokazati odnosno dokumentovati šta smatra značajnim uvećanjem kreditnog rizika. Obzirom na to kao i da standard ne propisuje posebne zahteve za izradu modela, preporučuje se izrada sopstvenih modela ekonomskih scenarija koji će, što je i razumljivo, uzimati u obzir karakteristike pojedinačne banke, njenih klijenata, averzije prema riziku, različitog nacionalnog ili lokalnog ambijenta i mnogih drugih faktora. Primera radi, u radovima domaćih autora date su neke specifične odrednice kreditnog rizika u Republici Srbiji imajući u vidu strukturu ekonomije i bankarskog sektora, uticaj evroizacije u bankarskom sistemu i tako dalje (Jović, 2017). Dakle, te i mnoge druge faktore je potrebno imati u vidu prilikom izrade makroekonomskog scenarija obzirom da ni standard ne propisuje univerzalno i jedinstveno rešenje. Takođe, standard ukazuje, napomenuto je to već, da je prihvatljiv i kvalitativan i kvantitativan pristup podacima u proceni očekivanih kreditnih gubitaka čime se dopušta da sama banka odredi svoj pristup i da bude u mogućnosti da ga dokumentuje. Kada je u pitanju broj makroekonomskih scenarija, standard ukazuje da bi trebalo biti bar dva ali je moguće uvažiti i veći broj scenarija ukoliko to specifične okolnosti nalažu ili ukoliko, primera radi, to nalaže utvrđena linearnost u odnosima između makroekonomskih uslova i kreditnih gubitaka. Usled toga, potrebno je utvrditi postojanje ili odsustvo ovakve veze. Banke mogu koristiti neke od tehnika regresije, jednostruke ili višestruke, kao na primer vektorski autoregresioni model (VAR model) koji u dobroj meri može da aproksimira analizu dinamičkih odnosa između promenljivih u modelu i dosta je zastupljen u makroekonomskim istraživanjima danas. I pored izvesnih nedoumica koje može izazvati, VAR model predstavlja dobro rešenje obzirom da uvažava dinamički karakter promenljivih u sistemu i to kako svake promenljive pojedinačno tako i u odnosu na ostale promenljive u sistemu. Banke

mogu koristiti i druge metode ili kombinacije metoda za izradu makroekonomskih scenarija. Primera radi, vremenske serije ili sve češće korišćen Delphy metod zasnovan na panelu ili pulu tržišnih učesnika. Izbor adekvatnog metoda za izradu makroekonomskih scenarija zavisi od banke i njenih internih potreba i mogućnosti ali i od raspoloživosti i pouzdanosti podataka, posebno kada su u pitanju modeli zasnovani na vremenskim serijama. Ono što je važno, posebno kod izbora modela i zavisno od kvaliteta i kvantuma raspoloživih informacija, je da model mora da uvaži promene i u realnoj ekonomiji i u bankarstvu, u tome i relativne promene u njihovim odnosima koje se javljaju usled tehnoloških promena, finansijskih inovacija, političkih ili socijalnih faktora.

Analiza ključnih indikatora

Budući da je većina podataka koje banka upotrebljava u makroekonomskom scenariju izvedena odnosno predstavlja proizvod nadležnih državnih organa ili agencija, to se ona mora osloniti na njihovu tačnost i pouzdanost uvažavajući i česte promene u metodama iskazivanja ili prikupljanja podataka. Obzirom da se radi o inputu na koji banka ne može da utiče, a koji ima značajno dejstvo na postavku i rezultate modela, neophodno je prilikom ocenjivanja modela imati u vidu ne samo postavljene hipoteze već i validaciju ulaznih podataka koje treba u što češćim rokovima preispitivati u cilju utvrđivanja postojanosti ne samo u odnosu na posmatranu varijablu već i u odnosima sa drugim varijablama koje banka koristi, a na koje, takođe, ne može da utiče. Najčešće korišćeni indikatori u modelima se zasnivaju na bruto domaćem proizvodu, inflaciji, kamatnim stopama na finansijskom tržištu i stopama nezaposlenosti. Ovi podaci moraju biti dopunjeni i mikroekonomskim podacima, pre svega, na nivou sektora. U oba slučaja važi da u procesu validacije modela treba imati u vidu ne samo izbor indikatora već i njihove respektivne vrednosti odnosno da li će se primeniti apsolutne ili relativne veličine, da li će se projekcije zasnivati na projektovanom ili ostvarenom bruto domaćem proizvodu, koji metod obračuna BDP će biti uzet u obzir i čitav niz drugih otvorenih pitanja. Takođe,

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ranging and exhaustive data on credit risks must encompass not only the data on default, but also all important data about credit risks, including the macroeconomic data on future events, with the aim of detecting any significant increases in credit risk following the initial recognition at the level of individual instruments. The standard does not define a credit risk increase, leaving it to the banks to define it for themselves, which process will depend on the applied macroeconomic scenario model. In that case, a bank must prove and document what it considers to be a significant increase of credit risk. Bearing this in mind, as well as the fact that the standard does not prescribe any particular requirements for the model preparation, the banks are advised to develop their own models of economic scenarios that will, understandably, take into account the characteristics of individual banks, their clients, risk aversion, different national or local environment and many other factors. For example, the papers of domestic authors provide some specific determinants of credit risk in the Republic of Serbia given the structure of its economy and its banking sector, the impact of euroization in its banking sector, etc. (Jović, 2017). These and many other factors must be taken into account during the preparation of a macroeconomic scenario given that the standard does not prescribe the universal and unique solution. Moreover, as already mentioned, the standard suggests that it is acceptable to apply both the qualitative and quantitative approach to data in assessing the expected credit losses, which allows the bank to define its own approach and be able to document it. When it comes to the number of macroeconomic scenarios, the standard suggests that there should be at least two of them, but it is possible to acknowledge a larger number of scenarios as well if required by the specific circumstances or if, for instance, imposed by the defined linear relation between the macroeconomic conditions and credit losses. Therefore, it is necessary to establish whether there is such a relation or not. The banks may resort to some of the regression techniques, simple or multiple ones, such as the vector autoregression (VAR) model, which can, to a large degree, approximate the analysis of dynamic relations between the variables

in the model and is quite frequently used in macroeconomic research of today. Despite the certain dilemmas it can cause, the VAR model is a good solution given that it acknowledges the dynamic character of the system variables, both each variable independently and in relation to the other variables within the system. Nevertheless, the banks can use other methods or combinations of methods to design macroeconomic scenarios. For instance, the time series analysis or the increasingly popular Delphy method based on a panel or a pool of market participants. The choice of the adequate method for the preparation of macroeconomic scenarios depends on the bank and its internal needs and possibilities, but also on the availability and reliability of data, especially when it comes to the models based on the time series. What is particularly important in choosing a model, and depends on the quality and quantity of available information, is that the model must acknowledge the changes in real economy and banking, including the relative changes in their relationship due to the technological changes, financial innovations, political and social factors.

Key Indicators Analysis

Given that the majority of data used by the banks in their macroeconomic scenarios is derived, i.e. the product of the competent state bodies or agencies, the banks must rely on their accuracy and reliability, taking into account the frequent changes in the methods of presenting or collecting the data. Since this is the input that the banks cannot have any impact on, but which significantly affects the set up and the results of their model, in assessing the model it is necessary to take into account not only the established hypotheses but also the validation of entry data that must be frequently reexamined in order to check their validity in relation to the observed variable and in relation to other variables used by the bank that cannot be affected either. The indicators most frequently used in models are based on gross domestic product, inflation, interest rates on the financial market and unemployment rates. These data must be combined with macroeconomic data, first of all, at the sector

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za izbor indikatora potrebno je voditi računa o frekvenciji objavljivanja podataka kao i da li se uzima tok ili stanje određenog indikatora. Za izradu makroekonomskih scenarija će biti obavezno uzeto u razmatranje i kretanje stranih direktnih investicija i spoljnotrgovinskih odnosa zbog uticaja koji ovi indikatori imaju na devizni kurs koji u visoko evroziranoj zemlji, kakva je i naša, pokazuje visoku korelaciju sa nastankom difolta odnosno kreditnim gubicima. Dakle, u metodološkom smislu, makroekonomski scenariji treba da odražavaju karakteristike sistemskog rada u okviru koga treba posebno voditi računa na izbor indikatora, izbor vremenskog horizonta, izbor jednog ili više modela predviđanja, kvalitet, izvore i frekventnost objavljivanja i prikupljanja podataka, validaciju i kontinuirano praćenje efikasnosti modela i njegove implementacije za procenu očekivanih kreditnih gubitaka prema IFRS 9.

Zaključak

Imajući u vidu zahtev promene u računovodstvenom obuhvatanju očekivanih kreditnih gubitaka jasno proizilazi da će prelaz sa IAS 39 na IFRS 9 prouzrokovati čitav niz efekata na svim nivoima banke. Banke u Evropi su najviše pažnje usmerile na tehnička i metodološka pitanja posebno kako implementirati forward looking makroekonomske scenarije u postojeće modele i procese i sa posebnom pažnjom evaluiraju kako će ti makroekonomski scenariji uticati na strateško poziciju banke, a ne samo na procene na pojedinačnom nivou.

Da bi odgovorila tim izazovima banka mora da izvrši fundamentalne promene u svom poslovnom modelu, a te promene će zadesiti sve sektore u banci (upravljanje sredstvima, corporate, retail, računovodstvo, rizike, IT, itd). Banke će, u cilju implementacije IFRS 9, biti primorane da izvrše reviziju svoje poslovne politike sa stanovišta uticaja koji primena IFRS 9 može imati na profitnu maržu odnos profitabilnost banke, na procese analize kreditnog rizika, analize sektora u kojima posluje većina klijenata i njihove koncentracije u portfoliju, moguće izmene kreditnih uslova, uvođenje novih proizvoda, diferenciranje cenovne politike odnosno pažljivijeg određivanja cenovne politike u odnosu na ročnost i rizičnost klijenta (sektor u kome posluje, kvalitet kolaterala, vrsta proizvoda) itd. IFRS 9 će, osim predugovorne faze, zahtevati i kontinuiran monitoring po odobrenom plasmanu, korišćenje indikatora ranog upozorenja (kod pojedinačnog klijenta ili u sektoru), kontinuiranu proveru pokazatelja poslovanja koji mogu ukazivati na pogoršanje likvidnosti ili kreditne sposobnosti dužnika i slično. Sumirajući sve navedeno može se sa velikom pouzdanošću tvrditi da zahtevi implementacije IFRS 9 predstavljaju značajan izazov za banke i njihovu poslovnu politiku. Standard ne samo da predstavlja nov pristup u računovodstvenom obuhvatanju očekivanih kreditnih gubitaka već implicitno nameće potrebu za celokupnom promenom u upravljanju portofolijom objedinjavajući u tom procesu gotovo čitavu organizacionu strukturu banke.

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level. In both cases the model validation process must focus not only on the choice of indicators but also their respective values, i.e. whether they will be presented in absolute or relative terms, whether the projections will be based on the projected or achieved gross domestic product, which method of GDP calculation will be taken into account and a series of other open questions. Moreover, when choosing indicators, it is necessary to take into account the frequency of data publication, as well as the information about whether the bank examines a flow or a cross-section of a certain indicator. In designing macroeconomic scenarios the banks must also examine the trends in foreign direct investments and foreign trade relations, due to the impact that these indicators have on the FX rate, which in a highly euroized country, such as Serbia, indicates a high correlation with the occurrence of default, i.e. credit losses. Thus, methodologically speaking, the macroeconomic scenarios should reflect the characteristics of systemic work with particular attention being paid to the selection of indicators, selection of the time horizon, selection of one or several prediction models, quality, sources and frequency of publication and collection of data, validation and continuous monitoring of the model's efficiency and its implementation in terms of the assessment of expected credit losses according to the IFRS 9.

Conclusion

Bearing in mind the requested change in the accounting treatment of expected credit losses, it is clear that the transfer from the IAS 39 to the IFRS 9 will cause a series of effects for the banks at all levels. The banks in Europe directed their attention to the technical and methodological issues, especially how to implement the forward-looking macroeconomic scenarios into the existing models and processes, carefully evaluating how macroeconomic scenarios will affect the bank's strategic position, instead of just assessing the effects at the individual level.

In order to respond to these challenges, the banks must implement some fundamental changes into their business models, these changes involving all of their sectors (treasury, corporate, retail, accounting, risks, IT, etc.). With a view to implementing the IFRS 9, the banks will be forced to revise their business policies from the perspective of effects that the IFRS 9 implementation may have on their profit margin, i.e. profitability, the credit risk analysis, the analyses of the sectors in which the majority of clients are operating and their concentration in the portfolio, the potential changes in credit conditions, introduction of new products, differentiation of price policy, i.e. a more carefully defined pricing policy in relation to maturity and riskiness of each client (its sector of operation, collateral quality, type of product), etc. In addition to the pre-contractual stage, the IFRS 9 will also require continuous monitoring after the granted product, along with the usage of early warning indicators (for individual clients or per sector), continuous monitoring of business indicators that might suggest aggravated liquidity or creditworthiness of the debtor, etc. Summing up the above, we can claim with high certainty that the requirements of the IFRS 9 implementation pose a serious challenge before the banks and their business policy. Not only does the standard represent a new approach to the accounting treatment of expected credit losses but it explicitly imposes the need for the overall changes in portfolio management, involving in this process almost the entire organizational structure of a bank.

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Literatura / References

1. Cohen B., Edwards G., (2017). The New Era of expected credit loss provisioning. BIS Quarterly Review. March 2017. str. 39-54

2. Chen S., Ranciere, R., (2017). Financial information and macroeconomic forecast. IMF Working Paper WP/16/251. December 2016

3. Commission Regulation 2016/2067 of 22 November 2016 amending Regulation No 1126/2008 adopting certain international accounting standards in accordance with Regulation 1606/2002 of the European Parliament and of the Council as regards International Financial Reporting Standard 9

4. Czajor P. (2016). Wpływ modelu utraty wartości aktywów finansowych na obraz sytuacji finansowej banków oraz jednostek o niefinansowym profilu działalności. Studia Ekonomiczne Zeszyty Naukowe Uniwersytetu Ekonomcznego w Katowicach br.285. str.59-68

5. Diebold F.X. (1998). The Past, Present and Future of Macroeconomic Forecasting. Journal of Economic Perspectives br.12. str. 175-192

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6. European Banking Authority. (2017). Opinion of the European Banking Authority on transitional arrangements and credit risk adjustments due to the introduction of IFRS 9. March 2017

7. European Banking Authority. (2017). Report on results from the EBA Impact Assessment of IFRS 9. November 2016

8. European Financial Reporting Advisory Group. (2015). IFRS 9 Financial instruments. Results of the pre-endorsement questionnaire follow up to the fields-tests conducted by EFRAG in 2012 and 2013. August 2015

9. Ernst and Young. (2014). Impairment of Financial Instruments under IFRS 9

10. IFRS. (2015). Transition Resource Group for Impairment of Financial Instruments. Incorporation of forward looking scenarios. December 2015

11. IFRS. (2014). IFRS 9 Financial Instruments - Summary. July 2014

12. Jović Ž. (2017). Determinants of credit risk - the case of Serbia. Ekonomic Annals Volume LXII No.212. Januar-March 2017. Economic Faculty Belgrade, str.155-183

13. Moody's Analytics Risk Perspectives. (2017). Probability - Weighted Outcomes Under IFRS 9: A Macroeconomic Approach. ed.Barnaby Black, Glenn Levine, Juan M. Licari. Moody's. March 2017

14. Moody's Analytics. (2016). UK Macroeconomic Outlook Alternative Scenarios. Moody's. August 2016