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Published in Slovak Republic
European Journal of Economic Studies
Has been issued since 2012.
E-ISSN: 2305-6282
2019, 8(2): 120-130

DOI: 10.13187/es.2019.2.120
www.ejournal2.com

Implementation Effects of "IFRS 9 Impairment Modelling for Financial Instruments" on Regulatory Capital Banks in Federation of Bosnia and Herzegovina

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Abstract

IFRS 9 introduces new impairment rules in order to respond to G20's complaint about the complexity and the lack of efficiency of the IAS 39 standard. According to (FASB, 2016) the main issue was a delayed recognition of credit losses on loans and other financial instruments, which resulted in the late recognition of credit losses. This new standard is mandatory from January 1th 2018. In this article, we'll investigate effects of the implementation of this new regulatory requirement on financial institutions in Bosnia and Herzegovina and compare them with effects they had in Croatia. By doing so we will be able to differ mentioned effects in EU countries with the countries that they claim to become EU members. Although, the new IFRS 9 impairment requirements is supposed to shift up the credit loss allowances of many banks and financial institutions, the effect appraisal will demonstrate that the effect is less critical than anticipated by the European Banking Authority in both EU or non-EU countries. The thesis will demonstrate that the implementation of the new IFRS 9 impairment requirements is supposed to shift up the credit loss allowances of many banks and financial institutions.

Keywords: credit risk, expected credit loss, fair value measurement, loan loss provisions, probability default.

1. Introduction

Novotny-Farkas stated the contrasts between the approaches to loan loss accounting, it is valuable to pick a benchmark to which accounting routines can be compared (Novotny-Farkas, 2016). Benston and Wall said a characteristic benchmark is the economic value of the loan, which ostensibly gives the most helpful data to primary users of financial statements, i.e., investors and bank supervisors (Benston and Wall, 2005). The economic value represents the present value of the expected cash flows from the borrower. Initially, when loans are recorded at their economic value, there is no need for a loan loss allowance because the contractual interest rate covers all expected losses over the life of the loan. Upon arrival of new information, the economic value of the loan should be adjusted for changes in the expectation of a borrower's default probability and changes in interest rates. Amid recession in 2008, the delayed recognition of credit losses on loans and other financial instruments was acknowledged as a weakness in the current accounting standards. Particularly, the existing model IAS 39 which was an 'incurred loss' model which delays the recognition of credit losses, until there is evidence of a trigger event. This was intended to confine an entity's ability to make saves that can be utilized to help profit amid hard times.

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Under the current incurred loss approach of IAS 39, banks have risk costs when there is 'objective evidence' that impairment have occurred. IAS 39 paragraph 59 provides a non-exclusive list of 'trigger events' that are indicators of impairment. Reporting entities are not permitted to fuse the effects of future events occurring after the balance sheet date, regardless of whether they are expected. General loan loss provisions for unspecified credit risks as permitted or required under a few residential accounting standards in Europe are not acknowledged under the IAS 39 rules. (Hoogervorst, 2014) said combined with an exceptionally prohibitive frame of mind towards advance loss provisioning, the utilization of the losses is recognized just before default occurs (i.e., too late). Basically, this implies advance loan losses are only considered when the Probability Default (PD) is close to 100 %. Accordingly, when bank has data accessible about future losses, the institution isn't permitted to fuse this data for accounting purposes. To figure the present estimation of expected losses that are esteemed to be caused the original effective interest rate must be utilized as the rebate rate. According to (Gebhardt, Novotny-Farkas, 2011), from the continuum of possible estimates of expected losses, incurred losses represent the lowest boundary. Preceding the financial crises, the two accounting authorities, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB), had effectively arranged to update and improve their respective standards on accounting for financial instruments. According to (Ančić, 2018) the context and the difference in the introduction of the new standard were:

- Procyclical nature of Fair Value (FV) evaluation, described as "system error" discovered shortly before (2007) and during the financial crisis (2008 and 2009). In the crisis, markets became inactive and it's becoming impossible to perform reliable market valuation of financial instruments. Depreciation induced relaxation of the FV evaluation. Where the valuation was possible, there was an accelerated depreciation of the financial assets/liabilities. During the crisis FV rating was suspended for selected financial instruments (enabled retrospective reclassifications financial instruments) because there was information asymmetry in the market,
- Lack of unambiguous and precise definition of fair values, within the IASB's previous framework. Undefined reliability of FV financial instruments in real terms. Definitions in certain IASB standards contain the condition of "normal market conditions". FV is essentially the hypothetical market price of financial instruments in idealized conditions. The reliability and objectivity of the FV estimation are reduced the hierarchy, while the research-analytical effort is growing. Market participants always understand FV financial instruments market relevance, they do not know how much the methodology of its determination is based in a case at reliable market prices,
- IAS 39 is basically a backward-looking standard. Standard request the proof of loss ("loss trigger") to reduce the value of financial instruments. Prudential regulators claim that standard allow banks to overestimate the profit and size of their assets. Balance of banks, which due to the heavy burden of overvalued assets were (due to very low leverage meters) insolvent, they were shown as healthy. The adoption of the IAS39 impairment model on the valuation of credit placements (through Loan Loss Provisioning) resulted in the late recognition of credit losses, that is, the significant downgrade of the quality of the portfolio ("too-little, too-late" problem).
- Excessive complexity of IAS39 standards. Difficulties in understanding, applying and interpreting the requirements of an existing standard. As results when testing the impairment of financial assets, banks used different events as evidence of impairment or treated the same events in different ways. There is an insufficient reduction in similar financial assets between different banks.

If we consider, all the mentioned differences and the differences that will be further explained in the continuation of the paper, between new and previous standard, it would be logically to expect that new IFRS 9 impairment requirements is supposed to shift up the credit loss allowances of many banks and financial institutions.

2. Literature review

IAS 39 "*Financial Instruments: Recognition and Measurement*" has been approved in December 1998 (applicable to the financial statements opened as of 1 January 2001). It was revised in October 2000 and December 2003. This last revision is applicable to the financial statements

with effect from 1 January 2005. IAS 39 follows IAS 32 "*Financial Instruments: Disclosure and Presentation*" to which it is related to. According to Obert the latter was approved in March 1995 and revised in December 1998, October 2000 and December 2003 (Obert, 2004). In November 2009, that the International Accounting Standard Board (IASB) and the Financial Accounting Standard Board (FASB), chose to introduce the new accounting standard because of demand done by the G20, investors, regulatory bodies and prudential experts in the improvement of the accounting requirements for financial instrument. The IASB in this way distributed an Exposure Draft (ED) "*Financial Instruments: Amortised Cost and Impairment*, which was a solitary arrangement of worldwide standard and proposed an impairment model dependent on losses rather than incurred losses, for every single financial asset recorded at amortised cost. The fundamental target of this draft was to determine standards for the estimation at amortized cost of financial assets and liabilities that will give valuable data to clients of financial reports for the assessment of the amounts, timing and uncertainty of their future cash flows. IASB said this ED likewise finishes and improves the standards by recognising, classifying, measuring, presenting and providing disclosures about financial assets and liabilities present in IAS 32 "*Financial Instruments: Presentation*", IAS 39 "*Financial Instruments: Recognition and Measurement*" and IFRS 7 "*Financial Instruments: Disclosures*" (IASB, 2009). According to Deloitte the fulfilment of the first phase of the project where connected directly to the suggestion of the G20 Leaders and other stakeholders to simplify accounting for financial instruments, but KPMG stated question often asked is whether the standard may be amended in the near future as result of the Boards efforts to achieve convergence ((Deloitte, 2009; KPMG, 2009). This model obliges entities to perceive expected credit loss (ECLs) over the lifetime of a financial asset since initial recognition, by incorporating these losses in the calculation of the effective interest rate (EIR). By utilizing this method, the loss allowance will be founded on the whole lifetime of the financial asset thus 'match' the recognition of credit losses. Resulting changes in credit loss expectations would be reflected in later adjustments to profit or loss based on the original EIR. According to IASB with this technique, two issues emerged (IASB, 2009):

- the Board was more in favour of a model that would differentiate the initial estimates of ECLs from the future changes in these estimates; and
- the Board was also worried about the operational difficulties and cost that the implementation of the model would generate. Because of these requirements, the IASB chose to make the distinction between the determination of the expected credit loss and the effective interest rate, which will prompt a different measurement of loss allowance for both ECL and EIR. The latter will not be adjusted for initial expected credit losses anymore. According to IASB this technique will diminish the operational cost that could emerge because of the enormous change in the implementation (IASB, 2009). In any case, there is still a few worries about this draft. The IASB is persuaded that discounting ECL by using the original EIR will generate a double-count of the ECL compute at initial recognition. Thus, the IASB presumed that distinguishing lifetime ECLs on initial recognition was not reasonable. According to EY the fundamental arrangement was along these lines to follow a dual-measurement model that would require an entity to recognise (EY, 2018: 7):

• "*A portion of the lifetime ECLs from initial recognition as a proxy for recognising the initial ECLs over the life of the financial asset and;*

• *The lifetime ECLs when credit risk has increased since initial recognition (i.e., when the recognition of only a portion of the lifetime ECLs would no longer be appropriate because the entity has suffered a significant economic loss*".

Deloitte stated after update regarding new requirements which address the problem of volatility in profit or loss arising from an issuer choosing to measure its own debit at fair value in January 2011, the FASB decided to develop an alternative expected credit loss model and realised a supplementary document on impairment (Deloitte, 2010). In December 2012, the FASB proposed an update, *Financial Instruments Credit Losses* that would require an entity to recognise a loss allowance for ECLs from initial recognition at an amount equal to lifetime ECLs. In March 2013, the International Accounting Standard Board (IASB) published its third Exposure Draft (ED); *Financial Instruments: Expected Credit Losses* (ED/2013/3), on impairment of financial assets, based on the common project with the FASB. This draft proposed that entities should recognise two different loss allowance or provision depending on the situation faced:

• For financial instrument that had not yet seen a significant increase in credit risk since initial recognition, entities should recognise an amount of loss allowance equal to 12-month ECLs;

• For financial instrument that had seen a significant increase in credit risk, entities should recognise a loss allowance equivalent to lifetime ECLs. According to EY this new model was designed for three specific purposes, namely to (EY, 2018: 7):

(a) "Ensure a more timely recognition of expected credit losses than the existing incurred loss model;

(b) distinguish between financial instruments that have significantly deteriorated in credit quality and those that have not; and

(c) better approximate the economic expected credit loss.".

In July 2014, the IASB finalised and released the impairment requirements after having read some arguments of the 2013 ED proposals. The aim of these changes was to provide additional clarifications and further guidance to help entities implement the proposed requirements. These changes resulted in the development of the final version of IFRS 9 *"Financial Instruments"*, which is effective since January 1, 2018. According to EY new standard brought together the classification and measurement, impairment and hedge accounting phases of the IASBs project to replace IAS 39 Financial instruments (EY, 2014). Onali and Ginesti conducted a survey conducted at 5400 companies showed positive market reaction to 13 announcement dates related to IFRS 9 (Onali, Ginesti, 2014).

IFRS 9 separates between three phases of credit risk. Stage 1 incorporates financial instruments with no huge increment in credit risk since initial recognition, or financial instruments that have low credit risk at reporting date. The largest piece of banks' performing loan portfolio will be delegated in Stage 1. For these assets, year Expected Credit Losses (ECLs) are perceived in profit or loss. Year ECLs are normal credit losses that outcome from default occasions that are conceivable inside a year after the reporting date. The recognition of year ECLs means to mirror that the yield on the instrument incorporates an arrival to cover those credit losses anticipated from when a financial instrument is first recognized. Stage 2 incorporates financial instruments with "significant deterioration in credit quality" since starting recognition, yet with no target proof of impairment. A noteworthy extent of financial assets that are right now revealed under the mark "Financial assets past due, but not impaired" in Bank financial statements would to a great extent fall into Stage 2 under IFRS 9. For Stage 2 resources lifetime ECLs must be perceived. This accounting treatment depends on the reason that an economic loss emerges when ECLs significantly exceed initial expectations. By perceiving lifetime ECLs following a huge increment in credit risk this economic loss is reflected in the fiscal summaries. At long last, Stage 3 contains financial instruments for which target proof demonstrates impairment at the reporting date. For Stage 3 assets, lifetime ECLs are perceived. Stage 3 credit exposures are like those considered to be separately impaired under IAS 39, while Stage 1 and 2 credit exposures will basically replace those exposures that are on the whole assessed for impairment under IAS 39. In this way, the acknowledgment of lifetime ECLs will happen sooner than under IAS 39, i.e., as of now when there is a huge increase in credit risk (Stage 2), yet before genuine default (Stage 3). At initial recognition, the loan loss allowance would be nil and in this manner developed over the life of a financial asset. This would viably 'match' the recognition of credit losses for that of the credit spread in the interest rates charged. This model would come nearest to the economic valuation of the loan (then again, actually changes in market interest rates would not be perceived). This model was seen as operationally excessively difficult, it has not been executed.

The IFRS 9 three-stage model results in a ventured profile when contrasted with the more continuous profile of the ED 2009 model. At first, the IFRS 9 demonstrate exaggerates the loan loss provisions, at that point – as credit risk (PD) increases – it downplays the loan loss allowance, and when deterioration in credit quality is esteemed significant, it again exaggerates the allowance. Deloitte stated new impairment requirements IFRS 9 "*Financial Instruments*" which are based on an expected credit loss model, indicates that an entity shall recognise a loss allowance for expected credit losses on the following (Deloitte, 2013):

• Financial assets (bank deposits, loans, debt securities and trade receivables) measured at amortised cost (AC);

• Financial assets mandatorily measured at fair value through other comprehensive income (FVTOCI);

• Lease receivables under IFRS 17 "*Leases"* or IFRS 16 "*Leases";*
• Contract assets under IFRS 15 "*Revenue from Contracts with Customers"*;
• Loan commitments that are not measured at fair value through profit or loss (FVTPL);
• Financial guarantee contracts that are not measured at fair value through profit or loss (FVTPL).

For financial instruments, it is necessary to determining the type of a particular financial instrument and adequate treatment in terms of IFRS 9, which are "full" and "partial".

Fair value is defined in the standard (IFRS 13, 2011: 6) "*Fair Value Measurement"*, as followed: *"The objective of a fair value measurement is to estimate the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions."* According to IFRS 13, fair value can be defined in different ways depending on the subject that we are working on. Fair value can also be defined as the asset and liabilities value of a subsidiary firm when its financial statements are consolidated with the parent company (IFRS 13, 2011). This accounting treatment is strange because original cost is used to value assets in most cases. When the parent company buys an interest from its subsidiary firm, the assets and liabilities of this branch are recorded at fair value. IFRS 13 stated the financial situation of the two companies, which in fact are one company, is also translated into its true value. Additionally, fair value can also be defined as a valuation method of assets (IFRS 13, 2013). Sometimes, executing a company valuation can be challenging for accountants (i.e. determine the fair value of an asset that is not active on the stock exchange). According to IFRS 13 in those cases, accountants usually use the discounted cash flows generated by the asset to determine its fair value (IFRS 13, 2013). The fair value of certain investments may also be based on the market value on which the security is traded. Market makers present in the stock exchange are providing a bid and ask price for each security. For instance, if the investment is a stock, the investor can thus sell the stock at the bid price to the market maker or buy the stock from the marker maker at the ask price. The most trustworthy method to determine an investment's fair value is therefore to list the security on an exchange. SY said the loss allowance will be measured by using the ECL calculation model (SY, 2017). As referenced already, lending institutions need to appreciate, figure and investigate the loss that may happen as result of lending to a company that may default, in particular, the expected credit loss (ECL) which is gotten by multiplying three of the following component, the probability of default (PD), the loss given default (LGD) and the exposure at default (EaD). Probability of Default (PD) is one of the primary key risk parameter vital for the evaluation of credit risk. It is characterized in the Capital Regulatory Requirement document (CRR) as the chance of default of a counterparty over a one year term or over outstanding time to maturity relying upon it is possible that we are applying individually the 1-year PD or the lifetime PD. Basically, this is the probability that a loan will not be repaid completely and will fall into default. Financial institutions need to register PD for each borrower by contemplating the credit history of the borrower and the idea of the investment. PD can be gotten by utilizing external ratings agencies, for example, Standard and Poor (S&P) or Moody's. Nonetheless, banks are still recommended to utilize internal rating methods. PD is expressed in a percentage of the total amount of the loan and can be ranged from 0 % to 100 %. To give an example, an organization A with a PD of 55 %, will be considered as less risky than an organization B with a 75 % PD, on the grounds that the organization A is less vulnerable to go into default than the organization B that is bound to be considered as risky (Risk Articles, 2017). Exposure at Default (EaD) is the second parameter for the evaluation of credit risk and shows the total sum that a bank or another financial institution is exposed to at the time of a credit's default, to be specific outstanding amount. It is estimation of the exposure at a future default date, considering expected varieties in the exposure after the reporting date, including reimbursements of principal and interest, and expected draw downs on committed facilities. Loss Given Default (LGD) is the third key parameter for the evaluation of credit risk. It expresses the percentage of a financial exposure that a bank or other similar institution may lose if a borrower goes into default. The LGD depends on the contrast between the contractual cash flows due and those that the bank would hope to get, including from any collateral. It tends to be gotten by registering the loan-to-value (LTV) which characterizes as the estimation of the asset purchased. This is the proportion of the credit amount to the amount of the collateral which is an assurance provide for the money lender by the borrower as security for reimbursement of an advance, to be relinquished in case of a default.

In the analysis of the effects of the implementation of IFRS 9 of the impairment model on the Bank in Federation of Bosnia and Herzegovina, we will use report made by Banking Agency of the Federation of Bosnia and Herzegovina (FBA) " Information in the banking system entities of the Federation of Bosnia and Herzegovina as of 31.12.2018 ". To compare the effects of the implementation of IFRS 9 in the Federation of Bosnia and Herzegovina with the situation in EU (Croatia), I will use report of the National Bank of Croatia „ Banks Bulletin No. 31". For an adequate analysis and presentation of the Classification of financial instruments and Components of credit risk and the valuation of financial instruments, we will use presentations "Implementation of IFRS 9 standards, Classification of financial instruments (2018)" from Mr. Stjepan Ančić CEO at Croatian company Op2m, which is specialized for financial analytics, business consultancy and project management.

3. Methodology and hypothesis

As per EBA after the production of the report on the primary European Banking Authority in 2016, with regards to the anticipated usage of IFRS 9 in the European Union (EU), the EBA propelled, in November 2016, the second phase of the exercise2 to acquire more information on some particular area as banks further build up their methodologies for the execution of IFRS 9 (EBA, 2017). The second EBA practice is increasingly centered and works around the targets of the main exercise, to be specific picking up a superior comprehension of the stage of preparation for the execution of the Standard, the evaluated effect of IFRS 9 on regulatory own funds, the cooperation between IFRS 9 and other prudential necessities, and usage issues identifying with IFRS 9. The example was like that in the principal exercise, comprising of around 50 organizations over the European Economic Area (EEA). The assessment result exhibits that the assessed increment of arrangements contrasted with the present dimensions of arrangements under IAS 39 is 13 % on average (18 % in the first exercise), and up to 18 % for 75 % of respondents (30 % in the first exercise for 86 % of respondents. To the extent the estimation of the total quantitative impact of IFRS 9, the results show that CET 1 are assessed to reduce, by 45 bps (59 bps reduction in the primary exercise), and by up to 75 bps for 86 % of respondents (75 bps diminishing in the main exercise for 79 % of respondents), because of the effect of the prerequisites of IFRS 9. It is assessed that absolute capital proportion will diminish, by and large, by 35 bps (45 bps abatement in the main exercise), and by up to 50 bps for 76 % of respondents (75 bps reduction for 79 % of respondents in the principal work out). Be that as it may, just like the situation when utilizing measurable measurements, it ought to be noticed that a portion of the appraisals identifying with the complete example of respondents were not the same as the previously mentioned evaluations. The main research question of my work is: How implementation of "IFRS 9 Impairment modelling for financial instruments" affects regulatory capital of Banks in the Federation of Bosnia and Herzegovina in general. Along main question, based on case study Bank data, or to be more precise Asset Class Segmentation of Corporate clients we will investigate Expected Credit Loss (ECL) of each client type impact on overall capital of the Bank. At long last we will compare final results/effects in first year of IFRS 9 implementation in Bosnia and Herzegovina and Croatia. According to the above hypotheses, a research framework would be built based on that. Firstly, I would test the relationship between Expected Credit Loss (ECL) and overall capital of the Bank (main Hypothesis) and as additional 11 researches questions Expected Credit Loss (ECL) of each client type impact on overall capital of the Bank. In order to do so, I will use statistical tool SPSS which is a widely used program for statistical analysis in social science. It is also used by market researchers, health researchers, survey companies, government, education researchers, marketing organizations, data miners, and others. I will use following statistics which is included in software: Descriptive statistics, Bivariate statistics: ANOVA, Correlation Prediction for numerical outcomes: Linear regression, Pearson correlation index.

4. Data analysis and commentary

The research is based on data analysis of the following reports as of 31.12.2017 and 31.12.2018 on capital adequacy and classification of assets from Federal Banking Agency: Form 1 – Table A, Form 1 – Table C, Form 2 – Table A1. Those reports are constituent's part of "Decisions on reports submitted by the Bank to the Banking Agency of the Federation of Bosnia and Herzegovina" ("Official Gazette of the Federation B&H", No: 103/17).

As a major aspect of this paper, the bank on which we will based our examination is a private bank situated in the Bosnia and Herzegovina. For reasons of secrecy, chosen bank will be called "the Bank". The Bank has been dynamic as a private bank for more than 20 years by offering services and products to private individuals and companies on all territory of Bosnia and Herzegovina. Since the Bank must stay unknown, we won't unveil additional data. The bank portfolio is consisted of financial instruments, for example, generally stocks, bonds and cash money. The Bank that we put together our examination (among others) has in its portfolio three distinctive assets classifications: corporate and government bond, retail credits, corporate credits. We have chosen to take corporate credits with the goal to complete investigation and ECL movements between 2013–2018, shown separately on all Asset Class Segmentation types of Corporate clients. In order to analyse capital changes we took all financial statements of subject Bank for period 2013–2018, from The Sarajevo Stock Exchange. To compare final results/effects in first year of IFRS 9 implementation in Bosnia and Herzegovina and Croatia we will use reports made by Banking Agency of the Federation of Bosnia and Herzegovina (FBA) on " Information in the banking system entities of the Federation of Bosnia and Herzegovina as of 31.12.2018 " and report from National Bank of Croatia „Banks Bulletin No. 31". The research model consists of two variables ECL (independent, multidimensional because it is measured using 3 dimensions (PD, LGD and EAD), and it is treated as one variable – independent and regulatory capital that is a dependent variable. The original plan was to do two Regressions analyses in the SPSS. The first one would be for the period 2013–2017 to show the effects of ECL which was calculated according to the earlier regulatory capital methodology, and the second for the period 2018 and we planned to check the effects of the ECL (calculated according to the new standard) on the regulatory capital with 72 (6 years) observations in total. In the second analysis, we have 12 observations (12 months in year 2018), which is consistent with the book Regression Modelling Strategies by (Harrell, 2015) sufficient for Regression analysis. Recommendations for further research: we will add that the same study and analysis is recommended to repeat after several years of application of IFRS 9 in order to have the most reliable proofs and evidence of ECL effects on Regulatory Capital. Before proceeding with the example, large bank are able to define the PD according to the type of clients and in that way obtain more precise data broken down by groups of clients. Bigger banks with more sophisticated risk – modelling and risk – management systems can opt for what Basel II calls the "internal rating – based approach", or IRB. The IRB enables a bank to utilize its own internal historic data to calculate the credit risk of its loans and investments. In "our" Bank, Corporate segment represents long-term partnerships with legal entities and services support in the field of market and investment banking, where institutional buyers (especially banks, insurance companies, asset management companies, central governments, regional governments) and group trading activities in focus. Based on Asset Class Segmentation, Corporate clients can be assigned with group specific type-code snippets clients. In the following table, we can see client types proposals according to the Asset Class Segmentation in the corporate segment:

Table 1. Asset Class segmentation in the corporate segment

0	Regional authority institutions
1	Local Large Companies
2	Corporate Middle Market
4	Banks
5	Insurance and Leasing
7	Brokers, Microcredit organizations
8	Group clients
9	Small enterprises
10	International Corporate Clients
11	Corporate Middle Market (Public enterprises, institutions, politic parties
12	Related legal entities
13	Central Government
14	Private Individuals

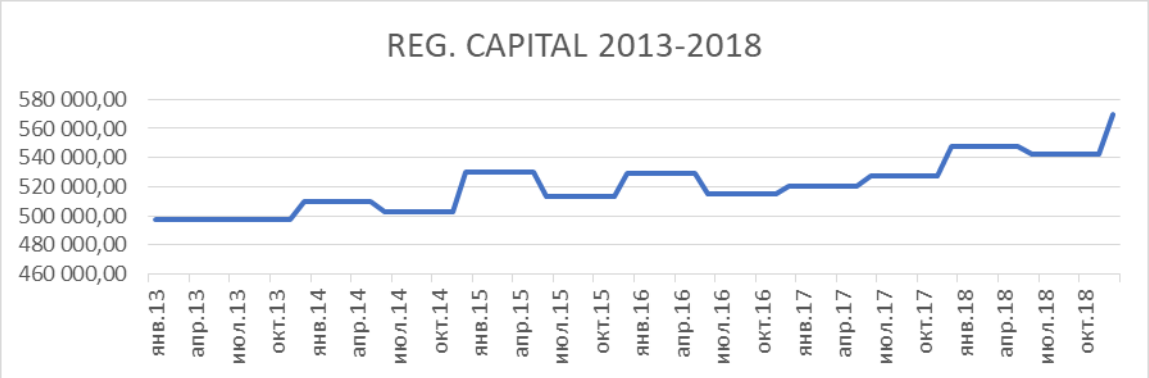

Fig. 1. Regulatory Capital in 000 BAM

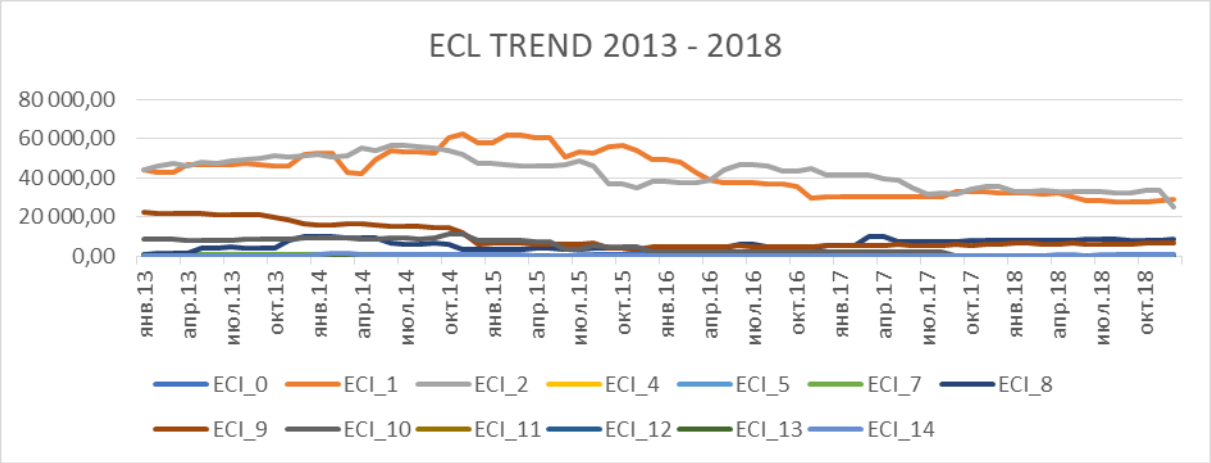

Fig. 2. ECL Trend 2013 – 2018 in 000 BAM

Table 2. Linear Regression Correlations

		REG. CAPITAL
Pearson Correlation	REG. CAPITAL	1.000
	ECI_0	.413
	ECI_1	-.503
	ECI_2	-.800
	ECI_3	.
	ECI_4	-.703
	ECI_5	-.553
	ECI_6	.
	ECI_7	-.797
	ECI_8	.401
	ECI_9	-.716
	ECI_10	-.757
	ECI_11	-.617
	ECI_12	-.388
	ECI_13	.538
	ECI_14	.256
	ECI_ALL	-.756

Pearson correlation index is mostly negative which support our thesis that the decrease in ECL initiate increase in Regulatory Capital, analogously increase in ECL would come down to a reduction in regulatory capital. The most important are the negligible correlations in the two largest independent variables ECL_1 Local Large Companies (-0,50) and ECL_2 Corporate Middle Market (-0,80). In contrast to this analysis, Regression Analysis of the Impact of ECL on Regulatory Capital in 2018 is positive in the largest exposures or amounts of ECL in groups: ECL 0 = Regional Authorities (0.71), ECL 5 = Insurance companies and leasing (0.84), ECL 2 = Corporate medium market (0.90). However, we can conclude that correlation between this two variables need to be negative which means that increase in ECL must reduce Regulatory Capital in addition we

will reject this analysis because the number of observed observations is insufficient. Previously mentioned is clearly indicated by the model summary with R and R2 at level 1 and Capital increase in 2018 is clearly initiated by some other factors which affect capital.

Table 3. Model Summary

Model Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.946	.894	.870	6056800.2284628

As can be seen from Table 3, the value of our R^2 is very high 0.894, which means that 89.4 % of the total variance in Regulatory Capital has been 'explained'.

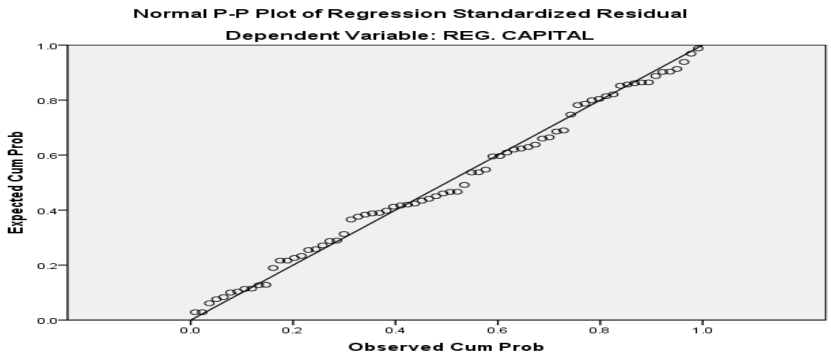

Fig. 3. Linear Regression Histogram

Our model is very accurate, there's a strong correlation between the model's predictions and its actual results. This means that it is possible to predict Regulatory Capital movement based on ECL trend.

5. Conclusion

The general conclusion is that the implementation of IFRS 9 did not have significant effects on the Bank in Federation Bosnia and Herzegovina (FB&H). In accordance with the "Information in the banking system entities of the Federation of Bosnia and Herzegovina as of 31.12.2018", the regulatory capital of the Banks in FB&H was reduced by approx. 90milion KM (approx. 45 million EUR), that accounted for 0.68 % of the total assets of credit institutions as at 31 December 2017. In the same time the total capital increased by 3 % compared to 2017 on 3 billion KM (approx.. 1,5 billion EUR). It should be noted that in this report, the regulator does not provide more information and explanations for these effects, such as the structure of the impairment of the balance sheet exposure in the portfolio that is subjected, divided by the impairment phases, the portfolio and the type of effects, the provision for off-balance sheet exposures, the change in fair value for assets which is measured at fair value, etc. Due to the lack of data, we will not be thrown away, but we think that the lack of a legal solution in this area greatly complicates the work of the regulator who will in the short term have to pass a legal solution by which how much is it possible to standardize IFRS 9 in the FB&H Banks. The implementation of IFRS 9 in the Bank, which was an example of the analysis, did not have the effect of reducing regulatory capital, which was successfully absorbed by a significant reduction in NPLs (bad loans) resulting in a continuous reduction in ECL throughout all observed periods, the profits paid indirectly and the lack of new regulations by regulators. It should be kept in mind that the Bank has implemented the IFRS 9 standard, high capital adequacy measured by the applicable regulatory methods, a high retained profit that evidently absorbed all the negative effects of new standard implementation. Proof of the claim that the implementation of the new standard didn't affect regulatory capital of this Bank, remains in date which shows there was no significant increase in the ECL, especially on the performance portfolio that included stage 1 and stage 2 where the increase in ECL was expected.

According to report from National Bank of Croatia „Banks Bulletin No. 31“ initial application of IFRS 9 in Croatian credit institutions resulted in losses in the amount of 1.4 billion HRK (approx 200 milion EUR) recorded directly in capital, of which the largest part of the amount was related to the increase in impairment values and provisions. The effect of applying the new standard was not negligible, but the banking system has been able to absorb this loss without difficulty. The major part of the negative impact of the initial application of IFRS 9 was on additional impairment of the balance sheet exposure in the portfolio to which they are subject the calculation of expected credit losses. It can be concluded that the effect of the initial application of IFRS 9 was not negligible, but that the same banking system was able to absorb this loss without difficulty. Indeed, the new standard did not lead to a reduction in regulatory capital banking system.

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