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## Accounting Model for Impairment under IFRS 9 and its Impact on Loss Allowance

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**Abstract:**

**Purpose:** The presented study is aimed at examining the impact of the above amendment on the amount of loan loss allowances based on the financial statements of the study sample that focused on the largest banks in Europe, and the study also intends to highlight the components of the accounting model for impairment of financial instruments under IFRS 9 in addition to the proposed models calculate the probability of the default main parameter in equation of ECL.

**Approach/Methodology/Design:** This study used the casual relationship approach to describe the relationship between the variables of study based on the annual reports of the largest European banks, and the data analyzed by non-parametric statistics according to the result of the normality test.

**Findings:** First, the new amendment related to the impairment of financial instruments under IFRS 9 has no significant impact on the total amount of ECL for the largest banks in Europe. Second, there is no difference among banks in the same country in terms of the calculation of ECL. Third, there is a difference among European countries in the amount of loss allowances for loans. Finally, there is a difference in terms of the total assets and the total amount of loan loss allowances.

**Practical Implications:** The presented study provides significant results about the amount of loss allowances for largest banks in Europe that were less than expectations before the implementation for IFRS 9, which will have a significant impact for banks in particular and the economy as a whole in the case of compliance with real instruction for IFRS 9.

**Originality/Value:** Original study, and our findings have important for bank boards, executive managers in these banks, investors, and accounting standard-setting bodies.

**Keywords:** IFRS 9, IASB; Expected credit losses (ECL), Probability of default (PD), Loan loss allowances.

**JEL classification:** M41, G21, G23.

**Paper Type:** Research Article.

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## **1. Introduction**

The world during the last decade of the 21st century, witnessed technological progress in the banking industry, new financial instruments, and the opening of financial markets (Beatty and Liao, 2011; Laux, 2012). Despite these developments, there are some crises in the banking sector of developing or developed countries, which hurt the economies of these countries, where most of the countries that witnessed financial and economic crisis, the primary reasons behind the challenges were the problems of banks, and perhaps banking risks, especially credit risks (Gornjak, 2017). The best example is the financial crisis of 2008, which caused the bankruptcy of several major international financial institutions, the primary cause of which was the problem of mortgage loans that stemmed from the failure to take into account the main principles in risk management such as prudence and creditworthiness as the main condition for lending.

International financial reporting standards (IFRS) have become an indispensable reference and are accepted in more than 120 countries. IFRS is important to increase the transparency, accountability, and efficiency of financial information's for companies' especially large companies and financial institutions (PWC, 2016; Jorissen, 2017). There was a need to improve financial reporting of financial instruments, and the growing demand of users of financial statements for the elaboration of a new standard of financial instruments, which is clearer and simpler than IAS 39. Additionally, the financial crisis of 2008 had the greatest impact in highlighting the urgent need to issue a new standard for financial instruments. Following several suggestions and exposure drafts, the International Accounting Standards Board (IASB) after several suggestions and exposure was issued IFRS 9 in July 2014 and it became mandatory for implementation on 1 January 2018 (IASB, 2009).

IASB developed IFRS 9 in three phases: classification and measurement of financial assets and liabilities, impairment, hedge accounting. In 2009, IASB issued the first portion of IFRS 9 related to the classification and measurement of financial assets. The classification is based on the business model of the entity in terms of managing the asset and the contractual cash flow characteristics of the asset. The second phase is the impairment of financial instruments. This phase contains the fundamental change in this standard. The last phase is hedge accounting when an entity first applies IFRS 9, and it may choose to continue to apply the hedge accounting requirements of IAS 39, instead of IFRS9 requirements, this phase is optional (Hashim, Li, and O'Hanlon, 2016).

IFRS 9 is a standard that connects accounting with risk management activities. To raise the level of safety and reach a higher level of financial solvency for banks and the ability to meet potential risks, which is represented in the second phase the impairment of financial instruments is based on the expected loss rather than incurred loss in IAS 39.

Therefore, the main challenge banks had to face is the mechanism to find an appropriate accounting model for calculating the provision for loan losses based on expected credit loss. IFRS 9 did not determine a specific model for calculating expected credit losses, so financial institutions use different scenarios, estimations and methodologies to calculate expected credit losses, and it may result in a discrepancy in the formation of impairment allowances for these institutions. Therefore, the main research questions of the study are clear as the following:

- 1) Does the accounting model for impairment under IFRS 9 have an impact on the amount of loss allowance?
- 2) Is there a difference in the amount of loan-loss allowance among banks of the same country because of the model for impairment under IFRS 9?
- 3) Is there a difference among countries in the amount of loan-loss allowances for their banks resulting from the model of impairment under IFRS 9?

## **2. Literature Review**

In 2018, IFRS 9 became mandatory for application, therefore it is difficult to find previous studies on this standard, especially phase 2 - Impairment of financial instruments and thus the presented article is based mainly on the text of IFRS 9 that was issued by IASB, instructions for financial institutions and to the latest studies for the big four accounting firms (Deloitte, PwC, EY, and KPMG). In this section, the accounting model for impairment of financial instruments (financial assets and financial liabilities) is reviewed, in addition to the main three approaches for this phase.

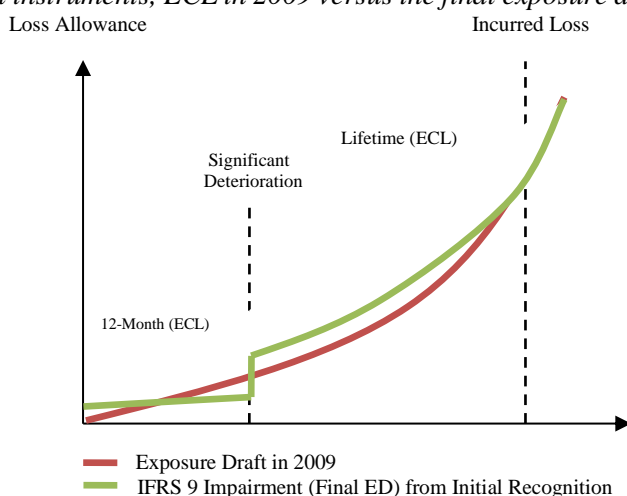
### **2.1 The Development of Impairment under IFRS 9**

IASB issued more than one draft regarding the impairment of financial instruments before the issuance of IFRS 9, where the first exposure draft was in 2009. This draft proposed an impairment model based on expected losses rather than on incurred losses, for all financial assets recorded at amortized cost. This draft based on the initial ECLs were to be recognized over the life of a financial asset, by including them in the computation of the effective interest rate when the asset was first recognized (Ernst & Young, 2018). Most of the comments on the first exposure draft involved it is the complexity and the major effects on the preparation of credit loss provision when recognizing the initial ECLs over the life of the financial instrument. Thus, IASB concluded that it was not suitable to recognize lifetime ECLs on initial recognition. To address the operational challenges while trying to reduce the effect of double-counting (Ernst and Young, 2018). IASB decided to pursue a dual-measurement model that would require an entity to recognize the following: a portion of the lifetime ECLs from initial recognition as a proxy for recognizing the initial ECLs over the life of the financial asset and the lifetime ECLs when credit risk had increased since initial recognition (Ernst and Young 2014; IASB, 2009).

After IASB issued the first exposure draft, the Financial Accounting Standards Board (FASB) in 2011 proposed the development of an alternative to credit losses for financial instruments. At the end of 2012, FASB decided that ECLs will be calculated over the life from initial recognition for financial asset, but in 2013 IASB issued the third exposure draft to FASB about the final amendments of expected credit losses (ECL).

The third exposure draft that was issued in March 2013, proposed that entities should recognize a loss allowance at an amount equal to 12-month credit losses for a financial assets that have significantly deteriorated in credit since their initial recognition, and lifetime ECLs once there had been a significant increase in credit risk (Ernst & Young 2014; IASB, 2013). Therefore, because of this draft, entities would be able to distinguish between significant and non-significant credit risk for financial instruments and recognize the expected credit losses rather than incurred loss in IAS 39.

**Figure 1.** Financial instruments, ECL in 2009 versus the final exposure draft in 2013



**Source:** IASB, 2013.

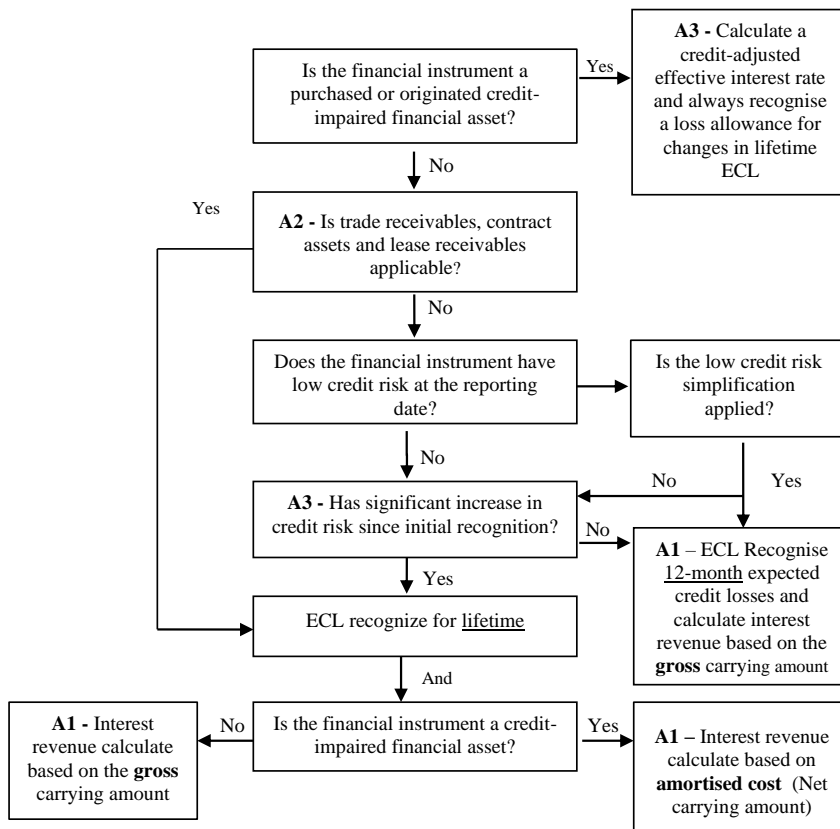
As we can see in Figure 1 the difference between the levels of ECL based on the first exposure draft for impairment of financial instruments in 2009 and the final exposure draft that was issued in 2013. In 2014, IASB added some amendments to the third exposure draft of impairment of financial instruments in addition to the important guidelines to help in calculation and implement the expected credit loss, which is considered one of the most important phases in IFRS 9. In July 2014, the original text of IFRS 9 was issued after the completion of all amendments (Beatty and Liao, 2014; Novotny, 2016).

IFRS 9 has the scope of phase 2 - Impairment of Financial Instruments included on financial assets measured at amortized cost, and financial assets measured at fair value through other comprehensive income (FVOCI) plus trade receivables, lease receivables under IFRS 16, and contract assets under IFRS 15. In addition to financial guarantees contracts and loan commitments within financial liabilities that are measured through amortized cost or FVOCI.

## 2.2 Impairment Approaches for ECL Measurement

Financial instruments have many differences in their classifications, due dates, and the level of credit risk, therefore, IASB addressed the impairment of financial instruments through three approaches: The general approach (A1), Simplified approach (A2), and Purchased or originated credit-impaired approach (A3). Figure 2 illustrates the algorithm for the three main approaches in phase 2 under IFRS 9.

**Figure 2.** ECL measurement and recognition



*Source: Ernst & Young, 2018.*

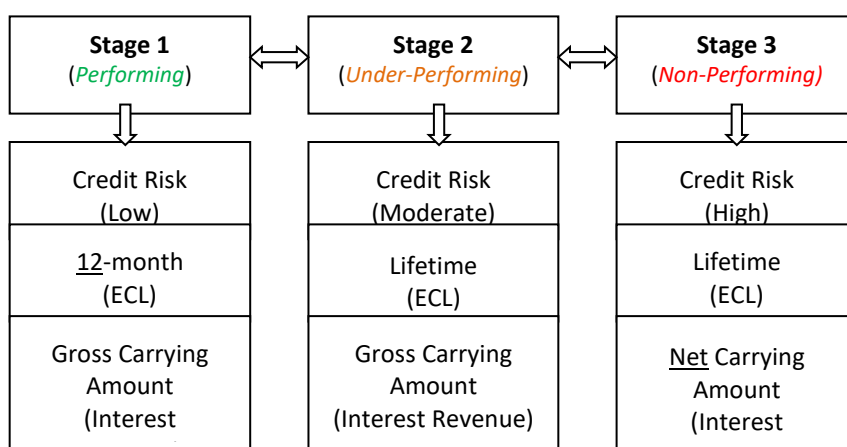
As we can see in Figure 2 how to recognize the expected credit losses based on three approaches and three stages that are within the general approach, the difference

between these stages is the level of credit risk if significant or not, in addition to the financial instrument a credit-impaired financial asset or not. In the following parts, we will show the difference in these approaches.

### 2.2.1 General approach

This approach covers the financial assets that are measured at amortized cost, which also loans provided by banks, which are considered to be the largest percentage of their total assets. Therefore, the general approach is the widely used by the entities, especially financial institutions, although, according to the IASB, and based on IFRS 9 it is not mandatory to implement a specific approach, entities may apply any approach related to the business model and classification of their financial instruments. The general approach depends on dividing the increase in credit risk into significant and non-significant through three stages, each stage differs from the other stages in the mechanism of recognition and measurement of expected credit losses and interest revenue. Figure 3 shows the stages of the general approach.

**Figure 3.** The general approach for impairment under IFRS 9



*Source:* Deloitte, 2013.

#### - Stage 1:

This stage includes financial assets within the balance sheet and off-balance sheet accounts that did not have a significant increase since the initial recognition of the financial instrument or that have low; credit risk at the date of preparing the financial statements, credit risk is low if the default risks are low, the customer has the ability in the short term to meet his obligations, the bank does not expect fundamental changes in economic indicators such as unemployment, inflation and interest rates (Onali and Ginesti, 2014; Edwards, 2016). Expected credit loss in this stage is based on the probability of default that may occur within 12 months from the balance sheet date of the financial statements, and interest revenues based on the gross carrying amount.

- *Stage 2:*

Includes the financial assets within the balance sheet and off-balance sheet accounts that faced a significant increase in their credit risks since their initial recognition, but that has not reached the stage of default yet, due to the lack of objective evidence confirming the occurrence of default. The expected credit is calculated for the lifetime of the financial assets or financial liabilities and represents the expected credit loss resulting from the probability of default during the remainder of the life of the financial instrument, and the credit interest in this stage based on the gross carrying amount (Cohen and Edwards, 2017).

- *Stage 3:*

Includes the financial assets within the balance sheet and off-balance sheet accounts that involve credit-impaired (O'Hanlon, 2013). This phase also depends on a forward-looking vision based on an estimate of the probability of default through the weighted average of three scenarios (cure, restructure, and liquidation). When the borrower pays his obligations or past dues and the loan transfer to performing it is the cure scenario. The restructure scenario is based on the negotiation between the lender and the borrower about how to restructure the loan. The last scenario is a liquidation scenario that is happen when the loan is written off and the lender sells the collaterals. The expected credit loss is calculated for the lifetime of the financial instrument, and the amount of the expected loss is determined after calculating three scenarios for the potential cash flows, regarding measure and recognize the interest revenue are based on the net carrying amount. One of the main indicators of moving to the third stage is the presence of customer bankruptcy and a significant decrease in economic indicators (Ernst & Young, 2018).

### ***2.2.2 Simplified approach***

The entity has a policy choice to apply either the simplified approach or the general approach for all trade receivables or contract assets that result from transactions within the scope of IFRS 15, and that contain a significant financing component under IFRS 15, lease receivables that result from transactions that are within the scope of IAS 17 and IFRS 16 (when applied). The policy choice may be applied separately to trade receivables, contract assets, finance, and operating lease receivables (Ernst & Young, 2014; IFRS 9, 2014). In this approach ECL is calculated to the lifetime of the financial instrument, due to the focus of the simplified approach on trade receivables or contract assets that are due in one year, so the amount of expected credit loss for 12-month is the same lifetime. The simplified approach might help entities that do not have the capabilities to apply the general approach this approach in a manner consistent with their capital and financial instruments, and the IASB strives to develop it constantly.

### ***2.2.3 Purchased or originated credit-impaired financial asset approach***

In the case of this approach for financial assets are purchased or originated credit impaired. The accounting treatment is the same under IAS 39, to calculate interest

revenue for the financial assets in this approach, the holder of the financial asset should apply the credit-adjusted effective interest rate (EIR) to the amortized cost from initial recognition and recognize a loss allowance for changes in lifetime expected credit losses and no allowance is recorded for 12-month ECLs for financial assets that are credit-impaired on initial recognition. The rationale for not recording a 12-month ECL allowance for these assets is that the losses are already reflected in the fair values at which they are initially recognized (Ernst & Young, 2018). This approach is less used than the previous approaches, and IFRS 9 focuses on the impairment of financial instruments on the general approach.

### 2.3 Measurement and Components of ECL Modeling

The common method for ECL that depends mainly on the probability of default, but on the other hand, there are other methods such as the credit loss rate method that depends mainly on historical data (Bushman and Williams, 2015) In the following is the common formula for ECL and the next subchapters will deal with components of this formula in deeply:

$$ECL = \sum PD\% \times LGD\% \times EAD \quad (1)$$

where: PD: probability of default; LGD: loss given default; EAD: exposure at default.

#### 2.3.1 Probability of default (PD)

The probability of default is an estimation of the likelihood of default (Bruche and Gonz, 2010). Probability of default is the key component in the formula of expected credit losses and the most difficult parameter to calculate because it depends on estimations of many factors, indicators that are related to the economy and the customer. According to IFRS 9, the first stage the probability of default of financial instruments should be calculated for the next 12 months from the date of the financial statements based on the general approach. While in the second and third stages, the probability of default on the remaining lifetime of the financial instrument is taken into consideration as of the date of the financial statements (Glasserman, 2000; Soderstrom; 2007; Marshall, 2015).

The probability of default is usually used by the largest banks based on special or internal models. Thus, the following are the most frequently applied models for calculating the probability of default PIT & TTC, Merton model, and transition matrix model:

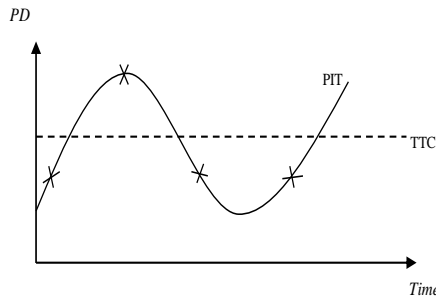
#### ***A- Point-in-time (PIT) & Through the cycle (TTC):***

The probability of default in PIT is calculated at a given time and period of probability that is short or less than one year. PIT depends on available information about the client in addition to the current economic indicators, therefore, this approach has high volatility and sensitivity (Brkovic, 2017). The TTC approach relies on information about the client and macroeconomic indicators, for long periods and often 5 years.



TTC takes the worst-case scenario, therefore, this approach is less volatile and sensitive (Brkovic, 2017). According to Basel instructions, the probability of default should be calculated based on through the cycle, while IFRS 9 requires to measure the probability of default based on point-in-time, therefore, each approach has advantages and disadvantages. In Figure 4, the difference between PIT and TTC is presented.

**Figure 4.** Point-in-time (PIT) vs Through the cycle (TTC)



*Source: Deloitte, 2014.*

As we can see in Figure 4, high volatility in the probability of default (PD) based on the cycle of PIT due to the probability of default in this approach is calculated based on the current situation for borrower and macroeconomic indicators. The dashed straight line represents the through the cycle (TTC), this approach is based on the weighted average probability of default for borrower and macroeconomics in several points of time, therefore, we can see that PD in TTC fixed or less volatility comparing with PIT (Ghasmi, 2016). The best approach between them depends on the data available and the cost of obtaining that data.

**B- Merton model:**

In 1973, three economists (Fisher Black, Merton Robert, Myron Scholes) economists have provided the Black-Scholes Model one of the most important models in modern financial theory, which is still widely used in determining the prices of financial securities and solving the problem of options prices (Bushman and Williams, 2012). This model assumes that the price of the assets that are largely traded follows a geometric movement with constant fluctuation (Finger, 2000).

$$E_0 = A_0 N(d_1) - L_e^{-rt} N(d_2)$$

with,

$$d_1 = \frac{\ln(A_0/L) + (r + \sigma_A^2/2) T}{\sigma_A \sqrt{T}}$$

and,

$$d_2 = d_1 - \sigma_A \sqrt{T}$$

$$PD = N(-d_2) \tag{2}$$

where:  $E_0$ : value of equity (today);  $A_0$ : value of asset (today);  $L$ : value of liability (book Value);  $N$ : normal distribution;  $r$ : risk-free rate;  $e$ : exponential term;  $\sigma_A$ : standard deviation of asset (volatility);  $T$ : time horizon;  $PD$ : probability of default.

Merton model is based on the balance sheet, the volatility of asset ( $\sigma_A$ ) and normal distribution ( $N$ ) to estimate the probability of default. Through this model, the entity can assess the capability of repaying its obligations. This model is used by insurance companies and banks, but these institutions face some limitations in this model like the complexity when they have repayments more than a single time the relationship between the market value of an asset today ( $A_0$ ) and market value of the asset at the date  $t$  ( $A_e$ ) will be more complex.

### ***C- Transition matrix model:***

The transition matrix is one of the models that many depend on terms of calculating the probability of default based on external information (Jafry and Schuermann, 2004). The big three credit rating agencies are Standard and Poors (S&P), Moody's and Fitch Group (Gebhardt, 2016). These agencies evaluate the risks related to debt issuance, whether for companies or governments. It allows the ability of the issuer to meet the payment of the interest and principal of the debt. The most important indicators of the creditworthiness are the ratings issued by these agencies, but after the global financial crisis in 2008, rating agencies faced criticisms because of the credit rating of mortgages, and consequently, they employ more stringent procedures in assessing the risks (Utzig, 2010; Chatham, Larson and Vietze, 2010).

There are different categories of rating according to each agency, but at the same time, these agencies have the same grades, which are investment, speculative and default (Beerbaum and Piechocki, 2016).

Therefore, if the probability of default an entity within the investment is low and increases the opportunity to issue bonds or debt instruments with the lowest interest rates, then if it transfers to other grades the entity will raise the interest rate that means that the cost of financing will increase, and indicates that probability of default will increase as well. Table 1 illustrates the probability of default and global corporate average transition rates (Standard and Poor's, 2019).

Table 1 showing the rate of transition for ratings within one year, for example, the probability that AAA rating will remain after one year at the same level is 87.03%, the probability of default after one year is 0%. On the other hand, CCC/C rating 43.64% the probability of stay in the same rating after one year and the probability of default is 27.08%. This probability that issued by S&P represents the period from 1981 to 2019 based on historical data.

**Table 1.** Probability of default and global corporate average transition rates (1981-2019) (%)

From/to	AAA	AA	A	BBB	BB	B	CCC/C	Default
AAA	87.03	9.08	0.53	0.05	0.11	0.03	0.05	<b>0.00</b>
AA	0.49	87.21	7.74	0.48	0.05	0.06	0.02	<b>0.02</b>
A	0.03	1.66	88.42	5.04	0.27	0.11	0.02	<b>0.05</b>
BBB	0.01	0.09	3.37	86.32	3.51	0.44	0.10	<b>0.16</b>
BB	0.01	0.03	0.11	4.73	77.80	6.57	0.54	<b>0.61</b>
B	0.00	0.02	0.07	0.16	4.76	74.78	4.47	<b>3.33</b>
CCC/C	0.00	0.00	0.11	0.19	0.58	12.96	43.64	<b>27.08</b>

Source: Standard and Poor's, 2019.

### 2.3.2 Loss Given Default (LGD)

LGD estimates the rate of loss arising on default, it is the difference between expected cash flows that are due and the expected amount from collaterals divided by exposure at default (Ernst & Young, 2014). To calculate LGD, the entities should consider and evaluate the amount of collaterals and all recoveries that can be used to recover the outstanding in the case irregularity of cash and the amounts expected to be obtained such as the liquidation of the collaterals, cure or restructure. Thus, it should be evaluated based on the present value in addition to determining the expected time to cure the credit or liquidation of the collaterals (Harris, Khan & Nissim, 2018). LGD estimation has to be available for all periods that are part of the lifetime horizon, the most methods are used to estimate the percentage of loss given default: recovery rate, market LGD, asset pricing model and workout LGD (KPMG, 2017). The following formula is related to LGD through recovery rate:

$$LGD = 1 - \text{Recovery Rate}$$

$$\text{Recovery Rate} = \frac{\text{Collateral}}{\text{Outstanding Debt}} \quad (3)$$

Rate of loss given default which is calculated by (1 - Recovery Rate). For example, if the recovery rate was 70%, the LGD equal 30%. Therefore, if the total debt instrument is \$5 million, the collateral is \$3.5 million and estimated LGD equal \$1.5 million. On the other, LGD under the foundation approach for Basel instructions is 45% for financial institutions and 40% in other institutions (Ghasmi, 2016).

EAD is one of the key parameters for the expected credit loss formula. It can be seen as an estimation of the extent to which the financial entity may be exposed to a counterparty in the event of a default and at the time of the counterparty's default (PWC, 2018; Nadia and Rosa, 2014). Based on the requirements of IFRS 9, the exposure at default represents the outstanding balance at that time of default in addition to unused credit limits or unutilized portion based on the internal study for the bank, and if there is not available study about loans ceiling, all ceiling for the loan

should be taken. The following equations show how to the exposure at default is calculated in future commitments based on credit conversion factors (KPMG, 2017):

$$EAD = ACD + (ACU \times CCF)$$

$$CCF = \frac{EDD - ESP}{LSP - ESP} \quad (4)$$

where: EAD: exposure at default; ACD: amount of current drawn; ACU: amount of current undrawn; CCF: credit conversion factors %; EDD: exposure at date of default; ESP: exposure at Start of period; LSP: limit at start of period.

This formula contains exposure at default (EAD) is the sum of two axes to determine the exposure at default (EAD). The first axis is ACD it depends on the current outstanding balance for a borrower, the second axis is ACU this amount it depends on the credit rating for a borrower that given by the lender based on credit analysis, finally multiply amount of ACU by credit conversion factor % this rate determined through instructions for Basel or by the above equation, the main parameters of CCF rate are exposure at date of default, exposure at start of period and limit at start of period, these parameters are based on historical data.

Exposures for funded loans are calculated based on the outstanding balance, but in the case of non-funded loans such as a letter of guarantee and letter of credit, it is more complicated to comparing with funded loans because the unutilized portion should be founded by credit conversion factors (CCF).

On the other hand, the credit loss rate method is a method for calculating expected credit losses that do not include the probability of default. This approach is based on historical data and requires separation of changes that occur in the risk of default and the changes that occur in other factors affecting the expected credit losses, such as collateral (Cummings and Durrani, 2016). This method has many different mathematical ways of calculating ECL. The following formula is one of the commonly used in this method:

$$ECL = (ALR\% + UAR\% \times CLA) + CLA$$

$$ALR\% = \frac{\text{Sum of Historical CLR}}{\text{Number of CLR}}$$

$$CLR = \frac{\text{Credit Loss} - \text{Recovery Amounts}}{\text{Portfolio of Credit}} \quad (5)$$

where: ALR: average loss rate; UAR: upward adjustment rate; CLA: current loss allowance; CLR: credit loss rates.

UAR this rate based on internal information and estimates of top management for expected credit losses for 12 month or lifetime according to the stages in the general approach.

IFRS 9 allowed entities to adopt other methods in which the probability of default is not included as a main component of the calculation, therefore, the entity can adopt any method of calculation according to the types of financial instruments according to the nature of the data available to it and the entity's ability to operate and manage the components of the calculation process. The entity mustn't spend additional efforts or high costs resulting from the adoption of this method, provide justifications for choosing the method and must adhere to the method chosen (Hronsky, 2010; Huian, 2012). The IASB does not oblige entities to use a specific formula to calculate expected credit losses. Rather, the entity must adopt a method that is consistent with the principles specified in IFRS 9, and in a manner consistent with risk management systems adopted by the entity (Gruenberger, 2012). The board of directors must approve the calculation method, notify the entity, and persist in the approved method. Prior approval must be obtained for any subsequent amendments to the calculation method, and these instructions do not require the entity to adopt a specific methodology for calculating the expected credit losses.

## 2.4 Accounting Treatment for Impairment under IFRS9

The accounting treatment is the most important part that has a direct impact on the financial statements, therefore, it must comply with accounting standards and ensure the accuracy in terms of the recording of financial transactions. There are many categories of the accounting treatment of financial instruments (BDO, 2019).

The presented article shows the accounting treatment for impairment of financial assets at amortized cost under IFRS 9 based on the general approach, which contains three stages, as shown in Table 2:

**Table 2.** Accounting treatment for impairment of financial assets under IFRS 9 (Example)

Stage	ECL ( $EAD \times PD \times LGD$ )	Impairment Journal Entry	Interest Revenue
Stage 1 (Year 1)	\$900 \$200,000 * 1% * 45% (ECL for 12-month)	Dr. Impairment Loss \$900 Cr. Loss Allowance \$900	\$16,000 (\$200,000 * 8%) Based on Gross Carrying Amount
Stage 2 (Year 2)	\$18,000 \$200,000 * 20% * 45% (ECL for Lifetime)	Dr. Impairment Loss \$17,100 Cr. Loss Allowance \$17,100 (\$18,000 - \$900)	\$16,000 (\$200,000 * 8%) Based on Gross Carrying Amount
Stage 3 (Year 3)	\$63,000 \$200,000 * 70% * 45% (ECL for Lifetime)	Dr. Impairment Loss \$45,000 Cr. Loss Allowance \$45,000 (\$63,000 - \$18,000)	\$10,960 (\$200,000 - \$63,000) * 8% Based on Net Carrying Amount

Source: Own study.

Table 2 shows the journal entries for impairment and how to measure interest revenue based on the general approach in the following example, ABC Bank lends \$200,000 to Company XD for 5 years at 8% interest; in the first year ABC Bank estimates that the probability of default in the next 12 months is 1%; PD over the remaining life of the loan will increase to 20% because there is a decline in macroeconomic indicators and Company XD estimated some problems. In the third year, ABC bank estimates PD is 70% over the life of the loan; recovery rate is 55%, therefore, LGD is 45%, through Table 2 we can see the journal entries for each stage and by this example, we summarize the main issues are mentioned in this chapter.

### **3. Materials and Methods**

The research methodology is one of the most important steps of scientific research regardless of the purpose of the research (Johnson, 2004). Research design is one of the main axes of the research methodology, therefore, quantitative, and causal research design will be more suitable for this study. The casual relationship approach can be described between the variables and testing the derived hypotheses for new cases. The population of the study will be the listed financial institutions in Europe, the target population is the banking sector, and the sample of the study is the 18 biggest banks in Europe by total assets, as shown in Table 3 sample construction.

Besides the secondary sources, this study will use the audited annual reports for the fiscal years 2017 and 2018 to compare one year before and on year after the date of mandatory IFRS 9 and examine the impact of the accounting model for impairment under IFRS 9 on the amount of loss allowance for these banks. The analysis was performed by using IBM SPSS Statistics 25, and MS Office Excel 2013.

The examination covers 7 countries (United Kingdom, France, Spain, Germany, Netherland, Italy, and Switzerland), and as we can see in Table 3 the number and ratio of banks for each country that are within the largest 50 banks in Europe. In the last column, the selected banks are the biggest ones, such as HSBC, BNB Paribas, Banco Bilbao, Deutsche Bank, ING Group, UniCredit SpA, and UBS Group.

### **4. Results and Discussion**

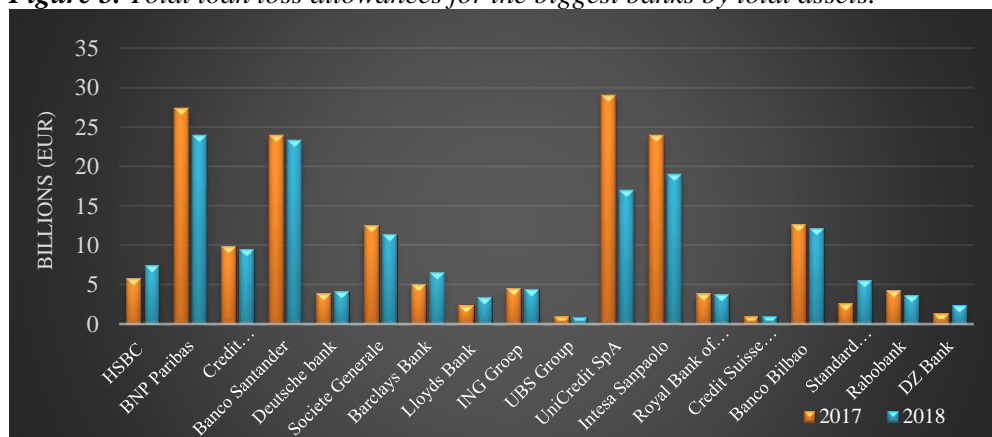
Based on the audited annual reports for 2017 and 2018 of the largest banks in Europe, and after analysis these reports the answer to the first question in this study that the impact of the accounting model for impairment of financial instruments under IFRS 9 that there are no big differences in the amount of loan loss allowance between 2018 and 2017 (we can see it in the two columns for the same bank in figure 5). There are many reasons for the insignificant effect. Large banks have good credit ratings and good clients and thus the probability of default will be low, on the other hand, these banks do not implement appropriate methodology with this standard for fear of reducing the net profits, especially since there is no obligation in applying the specific methodology in calculating the expected credit losses.

**Table 3. Sample construction**

Countries Selected	Target Population Largest 50 Banks by Country in Europe		Sample		
	Number of the banks within the largest banks in Europe	%	Number of banks selected	%	Banks Selected
United Kingdom	6	12%	5	10%	HSBC
					Barclays
					Lloyds Bank
					Royal Bank of Scotland
					Standard Chartered
France	6	12%	3	6%	BNP Paribas
					Credit Agricole Group
					Societe Generale
Spain	5	10%	2	4%	Banco Santander
					Banco Bilbao
Germany	7	14%	2	4%	Deutsche Bank
					DZ Bank
Netherland	3	6%	2	4%	ING Group
					Rabobank
Italy	4	8%	2	4%	UniCredit SpA
					Intesa Sanpaolo
Switzerland	4	8%	2	4%	UBS Group
					Credit Suisse Group
Total	35	70%	18	36%	-

Source: Own study.

**Figure 5. Total loan loss allowances for the biggest banks by total assets.**



Source: Own editing based on audited annual reports 2017 and 2018.

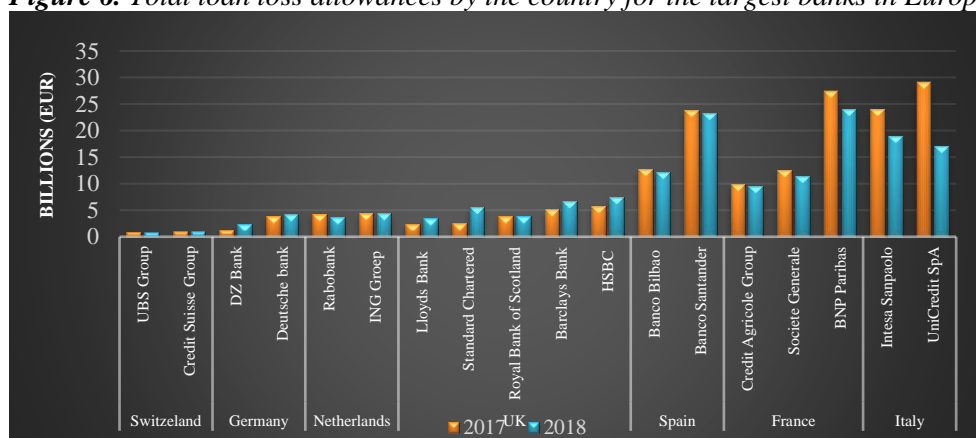
We can see in Figure 5 the total amount of the loan loss allowances by total assets are presented, which shows the high variance between of these banks and Unicredit Bank

was the largest in the amount of loan loss allowances and the lowest in the sample was UBS Bank in Switzerland in this sample.

Figure 6 shows the total amount of loss allowances for loans by country. The second question of this study based on the analysis of the results, it was found that there is no significant difference among the banks in the amount of loan loss allowances in the same country except for France and Spain, where the ratio of the variance between the banks is large than the ratio of the variance between the banks in other countries.

Regarding the third question of this study about the level of difference among European countries in terms of the calculation of expected credit losses and relying on the financial statements of the banks in these countries, there is a variance among countries, since Italy, France and Spain have the largest, while the United Kingdom, Germany and Norway are within the normal level, Switzerland is the lowest.

**Figure 6.** Total loan loss allowances by the country for the largest banks in Europe.



**Source:** Own editing based on audited annual reports 2017 and 2018.

## 5. Conclusion

The presented study focuses on phase two in IFRS 9 is the expected credit loss in the future, not the incurred loss. Consequently, this requires an increase in the allowances for loans more than in previous years to increase the efficiency of banks in managing the risk of default despite the possibility of declining net profits. However, at the same time, this will contribute to the stability of the banking sector, increase the confidence of shareholders, and increase its profits in the long term. Further research includes extending our study to find out about the direct causes of big difference in the amount of loss allowance for loans and what is the most appropriate model in calculating the probability of default one of the key parameters in ECL. The financial sector and most of the other sectors are witnessing an unprecedented exceptional situation due to the Covid-19 pandemic, we don't know how long it will continue and what its impact on the loss allowances, banking sector and economy as a whole, therefore, this type of systematic risks deserve further the future studies.



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