The Implementation of IFRS 9 in Gulf Banks:
A Comprehensive Analysis

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Abstract

Since 2014, the IFRS 9 has been the focus of the attention of many scholars across disciplines. The futuristic prediction of bank loan provision via a flexible ECL model has been observed as a game changer from the prior models offered in IAS 39. This study has two objectives; the first is to examine the impact on loan loss provisions (LLP), nonperforming loans (NPL), and the impairment loan losses (ILL) after the IFRS 9 in gulf banks. The second is to capture any variation in LLP, NPL, and ILL before and after IFRS9. The study used the two-way fixed effect model (TWFE) estimation and the DiD approach to attain its objectives. 54 gulf banks were selected from the periods between 2012 and 2020. The results indicate that LLP has significantly increased after the transition to IFRS 9, while the NPL has significantly decreased. The results did not capture a significant change in ILL after IFRS9 implementation. The results also indicate more consistency in LLP and NPL reporting after implementing the ECL model adopted in IFRS9. The study concluded that ECL model outcomes are in tandem with prior observation worldwide and pointed out some improvement opportunities for the future.

1. Introduction

The aftermath of the global financial crisis has put accounting rules under the spotlight. The G20 and other legislators called for more modern standards that can provide a complete and timely acknowledgment of credit losses, improving the level of loss-absorbing allowances and better responsiveness to information related to credit risk. The result was rare and direct cooperation between the IASB and the FASB to modify the prior approach used to incur and record the loss on loans (Pucci & Skærbæk, 2020). IFRS 9 final revision was approved in July 2014 and forced in 2018.

The provision for an impairment allowance against the amortized cost of financial assets is one of the most

significant changes brought by IFRS 9 where any change in the allowance is reflected in the profit and loss. Moreover, IFRS 9 requires banks to base their estimates for their ECL model on factors that are not included in their conventional prior models. Previously, IAS 39 used to allow postponing the recognition of asset impairment under the various model. In fact, the criticism of IAS 39 went beyond this issue as many practitioners and researchers have pointed out that IAS 39 is complex, comes with a pro-cyclical effect on loan provision, does not reflect the nature of the business, and hinders timely decision-making (e.g., Morais, 2020; Bouvatier & Lepetit, 2012). More importantly, IAS 39 measurements outcomes struggle to provide meaningful comparability results between banks (Clinch et al., 2019; Catuogno & Allini, 2011)

Therefore, IFRS 9 arrives at high expectations with many issues at stake that have been under scrutiny by researchers (Jassem et al., 2021). Hence, this study sets forth two objectives regarding the expected outcomes of post-IFRS 9. The first is to determine the impact of the mandatory application of IFRS 9 on loan provision, NPL, and impairment loan loss on gulf banks. The second is to explore any difference in terms of ECL model outcomes and whether the introduction of ECL has resulted in a more

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or less consistent reporting of loan provision, impairment loss, and NPL between gulf countries compared to prior models.

To achieve these objectives, the study collected data from 53 gulf banks during the period 2012–2020 with a total number of 477 years of observations. The researcher applied the TWFE estimate (Abuaddous et al., 2014) to investigate the impact of IFRS 9 implementation on gulf banks. The model outcome is expected to clarify whether the implementation of IFRS 9 has caused any significant variation in terms of loan provision, impairment loss, and NPL.

Consequently, this study has two main contributions to the body of knowledge. The first is to investigate the effect of implementing IFRS 9 in Gulf countries' banks from accounting and policy-making perspectives by considering variables that cover both dimensions. Second, the study intends to observe the consistency of these variables throughout the years as an outcome of the ECL models.

The rest of the study is organized as follows; the next section provides the theoretical background of the IFRS 9 and the ECL model. Then the study describes in detail the panel data and pre-estimation statistics. After that, the study examines the main findings of the TWFE estimations to answer the study's hypothesis. Finally, the last section concludes the remarks and suggests some future research directions.

2. Literature Review

2.1. IFRS 9 in Context

IAS 39 requires the recognition of a loan loss when the financial assets have significant evidence of impairment. Principles of loans are usually classified under sub-categories according to their quality; the lower quality loans were more prone to default and impairment. This treatment relied on historical information to recognize the loan loss. The provision for loans was usually established in practice based on the Discounted Cash Flow (DCF) or Migration Model (MM) method (Chen et al., 2022; Beerbaum, 2020).

The criticism for IAS 39 has boosted after the financial crisis. There were many calls for upgrading the accounting rules for better and timely recognition of credit loss and provisioning. The most notable weakness in the IAS 39 rule is supported by overwhelming evidence regarding a pro-cyclical effect on loan provision, which tends to be stimulated during an economic upswing while deteriorating its impact during a rescission (Buesa et al., 2020; Taylor & Goodhart, 2006). Moreover, complex accounting procedures under the IAS's framework have hindered consistent application (Cascino & Gassen, 2015). Comparability obstacles are

also noted due to the diverse options provided under the IAS 39. The (too late_too little) of LLP has also impacted the decision-making process (Gornjak, 2017). Moreover, accounting reporting is not in tandem with the nature of business activities (Duh et al., 2012).

Coming into force in 2018, the IFRS 9 final revision was already approved in July 2014. One of the primary objectives for developing the IFRS 9 is to enhance the comparability between banks. The rule stipulates less number of accounting portfolios to classify financial assets and establish a standardized method to measure the value of adjusting loans for all financial instruments which are not recognized at their fair value. Accordingly, banks are mandated to calculate their expected loss on credit within a timeline of 12 months and up to the entire residual life of the credit if a potential sign of deterioration has been observed. This Future outlook was absent in IAS 39, which only depends on historical information for credit loss modeling. Hence, IFRS 9 dictates banks conduct assessments of macroeconomic factors (eg; GPD, Unemployment rate, mortgage rate, inflation, households, etc.) and then project the impact of various predicted scenarios.

Above and beyond this unified approach, IFRS 9 is expected to counter the pro-cyclical effect found in prior rules. In addition, the classifications of financial instruments are reduced and simplified with more straightforward calculations. Chen et al. (2022) argued that the recognition of impaired credit card business and the provision for impairment of assets have improved under IFRS 9 compared to IAS 39. However, some recent evidence suggests that IFRS 9 does not come without problems (Mora, 2022). The absence of a structural framework for the ECL model had led to improper use of datasets which resulted in uncertain predictions in some banks (Witzany & Pastiranová, 2021). This may hinder comparability, increases volatility in impairments (Novotny-Farkas, 2016), and reduces the stability of banks. Moreover, some researchers are concerned about the existence of pro-cyclicality and volatility of impairments under IFRS 9 (Buesa et al., 2020). While others claim that the FASB has more flexibility for measuring the ECL for amortized cost compared to IFRS (Buesa et al., 2020). Pastiranová and Witzany (2021) suggested that the new standard leads to increased volatility of LLP in the Czech banking sector. Their findings supported Lukeš (2019)'s findings which argue that IFRS 9 implementation has resulted in a decrease in the value of financial assets in Czech banks by approximately 0.8% between 2017 and 2018.

Overall, the impact of IFRS 9 on banks is still a heated subject. Ibrahimi (2019) conducted a cross-country analysis to investigate the association between provisioning and the change of NPL after applying IFRS 9 and found that provisioning and NPL appeared to negatively correlate with the incurred loss model in IAS 39. This indicates a smooth

shifting towards the ECL paradigm from the prior models. Moreover, he argues that countries which require a more forward outlook insight for LLP are less impacted by the transition process than countries that tolerate smoothing activities for LLP. This view was supported by some studies held at European banks, which have argued that there is an existing tension between authorities and the IFRS 9 acting in the opposite direction regarding the level of NPL (Bolognesi et al., 2020; Dib et al., 2021). Nevertheless, the overall effect was an increase in the ILL and NPL, which largely accounted for the IFRS 9 implementation (Bolognesi et al., 2020).

The axiom that LLP will increase under IFRS 9 implementation is based on the inclusion of stage 1 recognition into the model. This is also supported by prior findings, as Tominac and Vašiček (2018) argue that the new rule will increase the Croatian banks' credit risk and default rate recognition significantly. They, however, do not expect any difficulty in absorbing those losses. Similarly, Dib et al. (2021) spot an increase in LLP in Lebanese banks after implementing IFRS 9. Suriez and Sanche Serrano (2018) have noted that stage 3 recognition and the IAS 39 are fundamentally similar in terms of providing evidence for provisioning. However, IFRS 9 provides earlier provisioning for the NPL as transitioning the exposures from stage 1 to stage 2 will increase the impairment loss. This impact is also early noted under the IASB, as a survey conducted by Deloitte (2016) shows that the new IASB model for impairment is believed to increase the ILL by 25%.

Interestingly, Casta et al. (2019) argued that the level of LLP under the new rules is subject to the bank's incentive on how the treatment will impact the bank's retained earnings. This call for further investigation of the earning management opportunities that usually go along with any application of new standards (Abuaddous et al., 2014). In this regard, Gomaa et al. (2019) conducted a stimulation for the ECL models and found an increase in managers' ability to take advantage of the forward-looking information. Recently, Magdalena and Martani (2021) found no significant difference in LLP and discretionary loan loss provisions after the EU bank adopts IFRS 9.

2.2. ECL Models

As mentioned above, one main reason for developing the IFRS 9 is to increase comparability between banks, an issue that IAS 39 struggled to achieve. Early adoption may come with some struggles (Novotny-Farkas, 2016; Oberson, 2021). However, the years that follow have put the IFRS 9 implementation under serious test with COVID-19 and political instability (Barnoussi et al., 2020). The pandemic has revealed that the high volatility at macroeconomic levels caused by this event along with governmental decisions such as curfew, reduced working hours, and stops and

go decisions, have made the ECL data of banks highly valuable information (Breeden, 2020). Especially in terms of the ability for the users of financial statements to compare between banks during those events.

The mentioned challenges have forced banks to base their estimates for their ECL model on factors that are not included in their conventional prior models, and the support measures were not reflected in the banks' historical records. Therefore, this weakens the predictive power of losses, leading to significant adjustments and overlays for the upcoming years (Breeden, 2020; Thijs & Bobker, 2020). Thus, it was notable that the conventional indicators used in prior ECL models are not adequate for predicting future trends, nor can they adjust for rapid volatility (Hung et al., 2021).

Comparing banks' ECL relied on several indicators. Those indicators are subject to change and update as the topic is still in progress (Brito & Júdice, 2022). In general, the cost of the risk ratio, coverage ratio, balance sheet view, and proportion of exposures are among the most adopted indicators. The cost-of-risk ratio allows the comparability between banks with different sizes and portfolios and shows the dynamic of the year (Korzeb & Niedziółka, 2021). The coverage ratio is the level of ECL allowance divided by the gross loans. In addition, the split between performing (stage 1 and stage 2) and NPL (credit-impaired loans under IFRS9 with high coverage ratio) show the changes between the transition and prior periods. Finally, the proportion of exposures classified in stage 2 indicates any significant deterioration observed.

The bank business mix is another essential factor for comparison. Banks with a different mix of products have different risks and sensitivity, which will result in different provisioning (Yang, 2017). For example, loans like mortgages attract fewer provisions compared to unsecured lending which attracts more provisioning with more sensitivity toward economic volatility. Moreover, the economic environment varies between countries which also necessitates distinguishing between banks that are active outside their border from local banks.

Despite that, the banks detailed disclosures might seem similar on the surface; however, they are often heterogeneous in practice and detailed (Lejard et al., 2021). The lack of a unified presentation or granularity for the ECL models can seriously hinder any comparison attempt. Some reports suggest that the IFRS 7 grouping of financial instruments and Pillar 3 base of standardization can provide a good starting point.

Another challenge for implementing the ECL model among banks is counting on economic scenarios. The traditional parameters such as GDP, the total change in house price inflation, average central bank base rate, and total change in commercial real estate price are widely

considered (Groff & Mörec, 2021; Ertan, 2021). In their models, banks are making their estimates by weighting those inputs to generate their expectations under different scenarios. However, the absence of standardized procedures can generate two types of problems. The first is the time frequencies of estimation that do vary between banks. For example, GDP can be estimated on yearly, quarterly, or five years bases which will result in a significant variation on the ECL estimation even though they are using the same input. Moreover, the volatility of the input in response to economic scenarios can also severely impact the time frequencies of estimation (Yang, 2017; Groff & Mörec, 2021). The second is the weighting of economic scenarios for similar input, which can substantially change the impact of the economic assumption.

Overlays or post-model adjustments in IFRS 9 have some promising implications. When they are properly determined and reversed, they can strongly indicate the improvements needed for the banks' ECL model (Quagli et al., 2021). However, the recent pandemic has exposed some serious deficiencies which resulted in unrealistic high default rates and led to high and significant adjustments to estimate the losses expected during the crisis (Barnoussi et al., 2020). The main reason for this high estimate can refer to the fact that most of the ECL models have relied on traditional input, which has to act outside the intended boundaries. Another reason is the uncounted governmental support during the pandemic when predicting the natural correlation between GPDs, other key economic variables, and future losses. For example, government support may mitigate loan default rates in the short run but may be hiding a misleading default suppression effect leading to a wave of defaulted loans (Engelmann, 2021). In general, transparency is the key to proper disclosure of overlays to enable a proper conclusion.

Finally, Sensitivity disclosures are very important to the users of financial statements as they give the amount of judgment involved. Despite the uncertainty of the situation, banks are required to provide information under different economic scenarios and to change the weighting of an existing scenario to show the outcomes. Ceteris paribus is the single analysis conducted by changing a single input in the ECL model (upward and downward) to count out for effect. While the multifactor sensitivity analysis is conducted by changing the weight of many key inputs simultaneously to see the total effect (after counting the effect of non-linearity). Comparability challenges for sensitivity analysis can arise from the fact that the bank did not include the overlays in the model (Awasthi, 2019). In other words, the overlays are constructed outside of the model while the sensitivity is only calculated on the model output. Hence, the sensitivity analysis could not show the effect on ECL of a change in probability weighting, stage 3 assets, and off-balance sheet disclosures as they are included and excluded constantly.

In general, the outcome of applying IFRS 9 is still an area of investigation. In this regard, the researcher expects that gulf banks, under their unique economic setting, motivate further investigation. To achieve this purpose, the study adopts three main variables which are directly impacted by IFRS 9. LLP and ILL are direct indicators for accounting procedures, while NPL is more reluctant to the chosen policies by the banks (Bholat et al., 2018). Those variables can provide a grander view of the impact of IFRS 9 on gulf banks. Hence, we generate three hypotheses to improve understanding of IFRS 9 impact on gulf banks:

H1: There is no significant change in loan provision after applying IFRS 9 in gulf banks.
H2: There is no significant change in NPL after applying IFRS 9 in gulf banks.
H3: There is no significant change in impairment loan loss after applying IFRS 9 in gulf banks.

3. Research Methods and Materials

The researcher conducting this study uses gulf banks' data collected manually from their annual reports during the period 2012–2020. We excluded several banks which were established, liquidated, or merged during the covered period. The final sample was 53 banks from the six gulf countries and was distributed as follows (Saudi Arabia 10 banks, Bahrain 10 banks, UAE 10 banks, Kuwait 10 banks, Qatar 7 banks, and Oman 6 banks) with a total number of 477 years observations. We use the gulf banks for the following reasons. First, gulf countries have been involved in an intergovernmental, political, and economic union since 1981, which moves toward introducing a single currency under central banks. Although the process is still under negotiation, there are some serious attempts to set the ground for such a union which can only be achieved by integrating the banking sector. The second is that gulf countries share similar cultural, geopolitical, language, and socio-economic systems. Thus, we expect that this similarity will be reflected in their ECL models allowing for better and clear comparison.

Hence, we first summarize and discuss the descriptive results in Table 1. Next, we test the panel data model validity from various aspects to select the best estimation model.

Table 1 shows the results of 477 years of observations for 53 Gulf banks. The average and the median for LLPs are around ($M = 4.3\%$, Mdn = 3.6%, and SD = 3.5%) of total loans. While NPLs are ($M = 3.6\%$, Mdn = 2.5%, SD = 3.8%), which indicates that the coverage ratio is around 120% and 144%, respectively, signifying a sound economic position for gulf banks. ILL for loans results set at ($M = 1\%$, Mdn = 0.4 %, SD = 1.4%) for the last nine years, indicating a strong economy with good internal policies for loans recovery. The table also shows

a considerable difference between the mean and the median for those three variables, which indicates that the data are skewed to the right. Other controlled variables data are less distorted as the mean and median are at a low difference. The bank's average size was calculated by extracting the natural logarithm of the total assets. Other common ratios such as ROE, debt ratio, and Common Equity Tier 1(CET1) are laid in the comfort zone in terms of their soundness. This enhances the general belief that gulf banks are sound (World Bank, 2021).

Table 2 shows the Pearson correlation matrix, which examines the correlation coefficients between the studied variables. The matrix indicates that LLP has a significant positive correlation with ILL, NPL, and CET1, whereas ROE, debt ratio, and size have a significant negative correlation with provisioning. Similar outcomes are observed for the correlation between ILL and NPL with the rest of the variables. In general, the results do not indicate collinearity issues as all the coefficients between any pairs of variables are set below (0.5). Multicollinearity test is also conducted through the variance inflation factor (VIF), and the results show the absence of multicollinearity among the dataset with a mean of 1.2 (min = 1.07, max = 1.47).

The study conducts three different tests for robustness (Fisher-type, Levin–Lin–Chu, and Harris–Tzavalis) which assume common unit root processes among cross-sectional units. Table 3 shows that the results using the individual effects show that all variables are stationary.

Table 1: Summary of Statistics

Variable	Obs	Mean	Median	Min	Max	Std. Dev.
size	477	16.44721	16.85849	9.781591	20.74797	2.310256
roe	477	0.0995882	0.1057862	−0.2236268	0.3160308	0.0655898
debtr	477	0.6124293	0.6397449	0.0500418	1.626947	0.1827376
LLP	477	0.0429659	0.0360574	0	0.2880974	0.0352301
ILL	477	0.009874	0.0049073	0	0.1625512	0.0142863
NPL	477	0.0364547	0.0251325	3.97e-08	0.4161118	0.0385657
CET1	477	0.1995199	0.181	0.08	0.63	0.0700229

Table 2: Pearson Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) LLP	1.000							
(2) ILL	0.284***	1.000						
(3) NPL	0.426***	0.205***	1.000					
(4) CET1	0.309***	0.166***	0.194***	1.000				
(5) debtr	−0.363***	−0.072	−0.168***	−0.202***	1.000			
(6) size	−0.210***	−0.145***	−0.198***	−0.299***	0.176***	1.000		
(7) roe	−0.291***	−0.294***	−0.296***	−0.214***	0.081*	0.441***	1.000	
(8) ifrs	0.086*	0.087*	0.001	0.007	−0.007	0.064	−0.192***	1.000

Note: ***, ** and * Indicates significant at 1%, 5% and 10% level of significance based on *t*-statistics.

Table 3: Unit Root Test

Variable	Obs	Fisher	LLC	HT
size	477	257.8366***	−7.7748***	−1.0306
roe	477	221.3886***	−1.6171**	−7.0566***
debtr	477	213.3616***	−11.5993***	−9.5314***
LLP	477	216.6474***	−7.0247***	−4.1364***
ILL	477	370.2009***	−9.9224***	−15.1353***
NPL	477	477.4301***	−37.6299***	−5.0455***
CET1	477	240.0369***	−8.1229***	−2.2481***

Note: ***, ** and * Indicates significant at 1%, 5% and 10% level of significance based on *t*-statistics.

4. Results and Discussion

To test the study hypotheses, the author investigates the impact of applying IFRS9 in gulf banks by applying the two-way fixed effect estimation for panel data. The fact that all variables in the study received the treatment at the same time (2018) allows for the TWFE estimation to observe the change by fixing the time variable. The difference in different setups for a yearly time series can then be captured via this model. The author reported the two-way fixed model for all outcomes and the random effect for only those models that did not reject Hausman's (1978) null hypotheses. The reason for this treatment is that the Hausman test is powerful when the fixed-effect model provides results that are statistically different from random effects. Moreover, the flexibility provided in the fixed effect comes from not imposing any assumption regarding the distribution of the unobservable (Sheytanova, 2015). Hence, the following models were developed:

$$\mathrm{LLP}_{it} = \beta_0 + \beta_1(\mathrm{ifrs})_{I,t-1} + \beta_2(\mathrm{debtr})_{I,t-1} + \beta_3(\mathrm{roe})_{I,t-1} \\ + \beta_4(\mathrm{CET1})_{I,t-1} + \beta_5(\mathrm{size})_{I,t-1} + \mu_{it} + \mathcal{K}_t + \varepsilon_{it} \quad (1)$$

$$\mathrm{NPL}_{it} = \beta_0 + \beta_1(\mathrm{ifrs})_{I,t-1} + \beta_2(\mathrm{debtr})_{I,t-1} + \beta_3(\mathrm{roe})_{I,t-1} \\ + \beta_4(\mathrm{CET1})_{I,t-1} + \beta_5(\mathrm{size})_{I,t-1} + \mu_{it+} \mathcal{K}_t + \varepsilon_{it} \quad (2)$$

$$\mathrm{ILL}_{it} = \beta_0 + \beta_1(\mathrm{ifrs})_{I,t-1} + \beta_2(\mathrm{debtr})_{I,t-1\ t} + \beta_3(\mathrm{roe})_{I,t-1} \\ + \beta_4(\mathrm{CET1})_{I,t-1} + \beta_5(\mathrm{size})_{I,t-1} + \mu_{it+} \mathcal{K}_t + \varepsilon_{it} \quad (3)$$

Where:
$\mathrm{LLP}_{it}, \mathrm{NPL}_{it}, \mathrm{ILL}_{it}$ = represents the dependent variable
ifrs_{it} = explanatory variable
$\mathrm{debtr}_{it} + \mathrm{roa}_{it} + \mathrm{eqtoas}_{it} + \mathrm{size}_{it} + \mathrm{age}_{it} + \mathrm{gpd}_{it}$ = control variables
β_0 = constant term
μ_{it} = fixed effect
$\mathcal{K}_t$ = time variable
ε_{it} = error term

As stated above, the LLP, NPL, and ILL are the dependent variables. IFRS9 is a binary independent variable (1 = is the period covered by mandatory application of IFRS9, 0 = otherwise). We controlled the ROE, Debt ratio, CET1, and bank size. Moreover, the time variable was fixed in the model by creating a dummy variable for each year separately. The results for the TWFE model and the two-way random effect model are presented in Tables 4 and 5, respectively.

The results demonstrate the impact of introducing IFRS 9 on LLP, NPL, and ILL. The study used the (xtreg) command in Stata without the robust or clustering options (see Appendix). Table 4 shows the results of the TWFE

estimation for the three models. The fixed time effects also appear in the middle section of the table which represents the difference between each pair of years throughout time. The last section in Table 4 includes five post-model estimations. The *F* test for the time variable assumes that the coefficients in the time series are equal to each other. The results indicate that LLP and NPL have both been subjected to change over time. In addition, the study followed Wursten's (2018) procedure for detecting Serial correlation and Heteroskedasticity in fixed-effects panel models. The results indicate that the models are well defined, and the outcome is properly fitted within the model.

Table 5 shows the results of NPL and ILL in a two-way random effects estimation as both models did not reject the Hausman test. The difference between the fixed and random models is very slight and can be interpreted similarly for both models. The outcomes show an increase in the LLP post-IFRS 9 implementation. This increase was statistically significant and rejected the first null hypothesis. In general, the results agree with the prior studies that post-IFRS9 will lead to a natural increase in provisioning caused by the early timing of estimation for the credit risk (Tominac & Vašiček, 2018; Suriez & Sanche Serrano, 2018; Gomaa et al., 2019; Bolognesi et al., 2020).

The middle section of Table 5 indicates the absence of statistically significant differences after 2018, which was not the case pre-IFRS 9. This suggests more consistent reporting of LLP post to IFRS 9. Moreover, prior studies argued about inconsistent reporting for the LLP during the transition period due to the implementation of the ECL model (Lejard et al., 2021). We observed an opposite trend in gulf banks as the increase in LLP during the transition period was carried out smoothly without a significant change. This result agrees with the early findings suggested by Albanna (2019), who interviewed some senior managers in UAE banks and argued that provisions under IFRS 9 are not expected to increase dramatically in UAE since banks are implementing new strategies to overcome this increase.

Table 4 also shows a statistically significant decrease in NPL post-IFRS 9, which rejects the second hypothesis. This finding is consistent with Ibrahimi (2019), who predicted similar interaction and trends for LLP and NPL in countries with similar settings to our sample. Moreover, the results support prior literature findings regarding an existing tension between authorities and the IFRS 9 acting in the opposite direction regarding the level of NPL (Bolognesi et al., 2020; Dib et al., 2021).

Similarly, the middle section of Table 4 indicates statistically significant differences for the period before 2018. The period after 2018 did not indicate any significant variation which suggests a more consistent reporting of NPL post to IFRS 9. This trend was also captured in prior studies such as (Ibrahimi, 2019). NPL can be sensitive to

Table 4: TWFE Estimations

	LLP	NPL	ILL
IFRS	0.021***	−0.018**	−0.001
ROE	−0.039**	−0.101***	−0.05***
Debtr	−0.06***	−0.035**	−0.003
CET1	−0.085***	0.029	−0.015
Size	−0.024***	−0.002	−0.001
Time Fixed Effect (DID)			
2012b	0	0	0
2013	0.001	−0.007	−0.002
2014	0.005	−0.017***	−0.002
2015	0.008**	−0.018***	−0.001
2016	0.011***	−0.02***	−0.002
2017	0.011***	−0.018***	0.002
2018	−0.003	0.003	0.003
2019	−0.003	0.004	0.003
2020	−0.001	0	−0.002
Constant	0.491***	0.104	0.035
Model Post-Estimation			
H0: All $\lambda_t = 0$ (*F* test)	0.0495**	0.0296**	0.4342
Hausman 1978 chi2	39.83***	5.25	4
R-squared	0.177	0.096	0.071
Heteroskedasticity-robust	0.193	0.214	0.277
LM-test	0.27	0.150	0.229

Note: ***, ** and * Indicates significant at 1%, 5% and 10% level of significance based on *t*-statistics.

management and governmental agendas. For example, the effort toward reducing the NPL in gulf countries can be observed back in 2016 as more restricted bank policies were forced in 2018 (El-Chaarani, 2019; Albanna, 2019).

Finally, the results for the ILL were not significant which indicates that the transition to IFRS 9 has not resulted in a significant change in ILL reporting. Ślązak and Skwarzec (2022) argued that the magnitude of ILL recognition relies on the incorporated information in the ECL model. While Bolat et al. (2018) predict an increase in ILL activities before IFRS 9 "cliff" to overcome provisioning complexity in the ECL model. Hence, the current results can only be perceived as an observation rather than an explanation for the current status of the ILL. The magnitude of the transition between stage 1 and stage 2 of the ECL model should be furtherly investigated to provide a better explanation.

Table 5 also shows that debt ratio and ROE have a significant negative effect on LLP. Those results are in tandem with the body of knowledge (Singh et al., 2021; Tangngisalu et al., 2020). For example, an inverse relationship is well documented for ROE and debt ratio on LLP, as more provisioning signals an increase in impairment loss activities while debt ratio indicates the quality of debt which also inversely correlate with provision. Following a similar logic, we captured the same significant inverse effect for the debt ratio and ROE on NPL, while no significant effect was detected with the CET1. Finally, the results of ILL have captured a similar trend to those found in provisioning and NPL, a negative and significant relation between ROE was detected while other control variables did not indicate a significant relationship.

Table 5: Two-Way Random Effect Estimations

Two-Way Random Effect Panel-Data Estimation		
	NPL	**ILL**
IFRS	−0.014**	0
ROE	−0.301**	−0.176***
Debtr	−0.029**	−0.002
CET1	0.05	0.01
Size	−0.002	−0.001
Time Effect		
2012b	0	0
2013	−0.006	−0.001
2014	−0.017***	−0.002
2015	−0.018***	0
2016	−0.019***	−0.001
2017	−0.017***	0.002
2018	0.001	0.002
2019	0.001	0.002
2020	0.002	0
Constant	0.092***	0.02*
Model Post-Estimation		
H0: All λ t = 0 (F test)	0.0054***	0.5474
R-squared	0.117	0.078
Breusch and Pagan LM test	0.00***	0.00***

Note: ***, ** and * Indicates significant at 1%, 5% and 10% level of significance based on *t*-statistics.

5. Conclusion

The IFRS 9 is a response to the heavy criticism of the IAS 39 after the global financial crisis. The most notable change was the introduction of the ECL models, which provide a forwards looking for credit loss modeling. The standard also aims at avoiding surprises and enhancing bank stability in case of crisis by setting their prediction based on macro-economic indicators, stress analysis, and business models. Prior studies have focused on many aspects of the aftermath of IFRS 9 implementation. Accordingly, this study has two main objectives; the first is to determine the impact of the mandatory application of IFRS 9 on LLP, NPL, and ILL on gulf banks. The second is to observe the consistency of these variables throughout the years.

The study focuses on gulf countries from the period between 2012 to 2020 by collecting data from 53 gulf banks. I find a significant increase in LLP and a significant decrease in NPL consistent with prior findings (Tominac

&Vašiček, 2018; Suriez & Sanche Serrano, 2018; Gomaa et al., 2019; Bolognesi et al., 2020). However, the absence of a significant relation between ILL and the implementation of IFRS 9 raises some questions regarding the proper implementation of the ECL model in gulf countries, as other studies and reports captured a significant increase in ILL after the transition to IFRS 9.

In addition, the results indicate that banks in gulf countries have a successful progenitive collaboration to absorb the impact of IFRS 9 implementation collectively. We find evidence that LLP and NPL were organized in tandem between gulf countries throughout the years. Moreover, those activities are well reflected on the ECL models outcome as gulf banks showed some consistency in recognizing LLP and NPL.

As in all research, this study is subject to some limitations. The first is that we proxy the outcome of the ECL model through the model outcome without considering the macro-economic indicators for each bank. Second, the estimation model used in this study is subject to some limitations

despite controlling many factors. The model was established based on the assumption that the transition to IFRS 9 carries a major role in the movement of LLP, NPL, and ILL without considering other macroeconomics. Thus, generalizing the results out of the model should be treated with caution. Hence, the results only provide a preliminary view of the impact of IFRS 9 since the implementation period started in 2018.

The study contributes to the body of knowledge in several aspects. The first is that this study is among the first to statistically measure the effect of the transition to IFRS 9 in gulf banks. Moreover, the study has captured some early signs of the ECL model outcome in gulf banks which is rarely reported in the literature. Future research should focus on assessing the adopted methodology to create the ECL model in gulf countries. Policymakers are also advised to make the legislative process more flexible and in tandem with IFRS 9 implementation.

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Appendix

Study Variables

Variable	Index	Symbol	Definition
Independent Variable	Loan Provision	LLP	Loan provisions divided by total loans
	Non-performing loan	NPL	Non-performing loans divided by total loans
	Impairment loss	ILL	Impairment loss divided by total loans
Explanatory Variable	IFRS 9	IFRS	Binary variable (1 = is the period covered by mandatory application of IFRS9, 0 = otherwise)
Control Variable			
	Bank size	size	Natural logarithm of total assets
	Return on Assets	ROA	net income / average total assets
	Common equity capital	CET1	Tier 1 capital
	Debit ratio	debtr	total liabilities / total shareholders' equity