*Original Paper*

# Towards a More Stable Banking Financial Position

# COVID-19 Impacts and IFRS 9 Post-Model Practices

# "Management Overlays"

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*Abstract*

*In the repercussions of the latest worldwide financial crisis that have occurred due to the corona virus reasons (COVID-19); unprecedented stressful economic conditions prevailed, coupled with significant recessionary waves reasoned of the worldwide imposed strict lock downs that have adversely affected most of the economic sectors across the globe. Based on such adverse conditions, and as banks were used to calculate their Expected Credit Losses (ECLs) within the provisioning systems (IFRS 9); the forward looking projections embedded at the banks models fell short to predict the COVID-19 hit, as well as objectively reflect the widely spread governmental rescue plans, such as payment holidays and moratoria schemes. Consequently, and based on such unprecedented challenges, new risk management practices—Management Overlays—have risen to help in terms of overcoming such a systemic uncertainty situation that added more hurdles with regard to banks models and forecasting powers. The researcher is discussing how banks can start using the management overlays, or post-model adjustments, according to each and every bank's portfolio composition, trends, and stress testing outcomes, where risks and uncertainties cannot be adequately reflected in existing models, until the global regulators (e.g., central banks, and external auditing bodies), as well as the main research and rating agencies can reach and agree on the new set of the updated macroeconomic indicators that can be utilized globally, and per region, reflecting the new era post COVID-19, and supporting in building the new robust IFRS 9 models across the world effectively. Therefore, management overlays can play such a vital role in terms of fortifying the stability of the banking system through: ascertaining the adequacy of the banking provisioning systems, and guaranteeing the sufficiency of holding appropriate*

*capital levels for confronting such an adverse and unprecedented situation of the COVID-19 pandemic, as well as similar situations in the future.*

*Keywords*

*covid-19 pandemic, coronavirus, IFRS 9, management overlays, post-model adjustment, banks provisioning systems, banking system stability*

## 1. Introduction

The latest worldwide financial crises that have started in Q1-2020 due to the corona virus reasons, known under the name of COVID-19, have gotten out the questions as to the financial related models that are utilized by the global institutions, their forecasting risks, complexities and limitations. The economic slowdown, which started earlier in the first quarter of the year 2020, brought about the crash of the international markets reasoned of the wide spread global lock downs that accompanied the COVID-19 starting cycle.

The International Monetary Fund (IMF, 2020) has projected a global negative growth at (4.9%) in 2020, adding that the forecast indicated an unprecedented decline in the global activity due to the COVID-19 pandemic, with assurance that there was a higher than usual degree of uncertainty around this forecast (figure 1). The pandemic rapidly intensified in a number of emerging and developing economies, necessitated stringent lockdowns and resulted in larger disruptions to activities and economic sectors than ever forecasted.
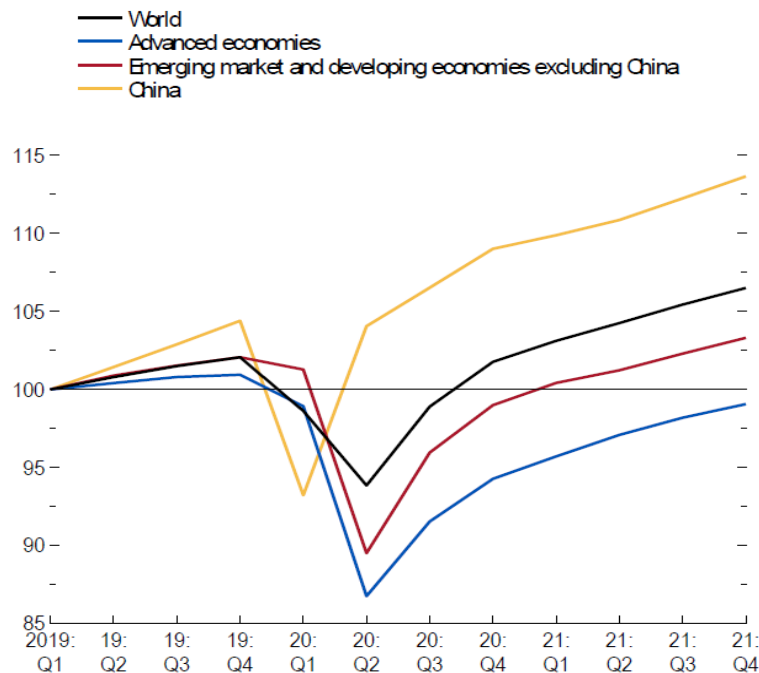


Figure 1. Quarterly World GDP. IMF (2020)

Globally, lockdowns were at their most intense and widespread from about April 2020 onwards, and sill proceeding with different severity levels until Q2-2021. As economies have gradually reopened, mobility has picked up in some areas but still remains low compared to pre-virus levels, accompanied with a catastrophic hit to the global labor market. Some countries (e.g., in Europe) have contained the fallout with short term work schemes. Nonetheless, according to the International Labor Organization, the global decline in working hours in Q1-2020 compared to Q4-2019 was equivalent to the loss of 130 million full time jobs (IMF, 2020).

Accordingly, a total number of 1,287 of S&P ratings were on a downgrade warning either with negative outlooks where a move might take two years, or on credit watch with negative implications where the risk is almost immediate (figure 2). S&P analysis has shown that almost two-thirds of issuers face downgrade potentials due to the unprecedented challenges posed by COVID-19 related containment measures (Reuters, 2020). Fitch has also downgraded a record of 33 sovereign ratings in the first half of the year 2020, adding that the agency is not done yet as the coronavirus pandemic pummels government finances. James McCormack, Fitch's global head of sovereign ratings, said that the agency has placed the credit ratings of 40 countries or sovereign entities on a "negative" outlook, which means that those ratings have the potential to be downgraded (CNBC, 2020).
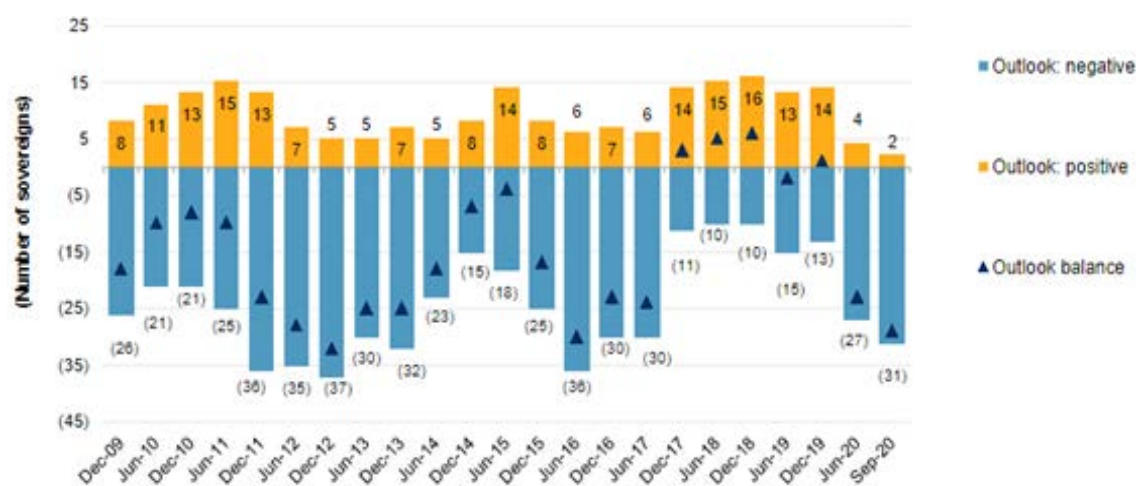


Figure 2. Global Sovereign Rating Outlook Balance. Source S&P (2020).

The crises have spotted down the increasing needs for the improvement of new modelling systems and rules due to the fact that such existing models were not capable enough to effectively forecast the prevailed crises, neither their adverse impacts, or even the span at which those impacts can extend. Methodologies used to build such models, as well as their prediction powers have shown considerable variations than the actual situation of the lending environment, which by turn has raised many questions and limitations about the methodologies being utilized at such models, in specific the provisioning models like the IFRS 9.

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The COVID-19 crisis has brought a new scenario within the banking sector, showing regulators implementing new sets of dispensations and payment holidays to save their markets during lock downs, besides accepting some exceptional rules with regard to the IFRS 9 implementations according to the new payment moratoria introduced structures without dragging the attention towards borrowers downgrades, and the advice of new risk management practices, the Management post-model adjustments known as Management Overlays in specific, to monitor and enhance the financial strength of banks, hence, improving the banking system stability during such unprecedented crises.

Setting the proper and effective methodologies of the provisioning systems has a direct impact on the bank's: capital ratio assessments, the frameworks of capital planning over medium to long terms, the accurate capital adequacy ratios needed to support strategies, as well as plans and objectives of banks during the mentioned time intervals.

Provisions represent funds that are placed aside by a bank to cover normal and anticipated losses in the future. In other words, they represent a liability of probabilistic timing and amount (probabilistic approach). Banks use provisions to account for potential loan defaults and expenses, to ensure that they are presenting an accurate assessment of their overall financial health, by turn helps to set the proper and effective plans for: assessing the facilities rating(s) and growth levels, capital ratios, study and assess banks' frameworks of capital planning over medium to long terms, determine the accurate capital adequacy ratios needed to support strategies and assets growth during the mentioned time intervals, and by turn assure the adequate profitability and sustainability levels for the bank confidently (no surprises). In addition, to plan properly for any needed corrective actions, to react proactively towards any deviations from the level of required assets growth (and/or accompanied target provision levels), and safely cover expected loss levels (figure 3). Moreover, the economic capital (capital including additional buffers) represent the main shock absorbing resort towards any unexpected crises without affecting the financial stability of the bank or its competency level within the market(s) it is functioning within, ending with the positive and stable impact on its reputation. Therefore, those main two financial stability resorts (provisions and economic capital) represent the main shelters for banks against any expected, as well as none expected losses that banks might face, keeping in mind the end goal to bring down the risk during any economic and financial turmoil periods to the acceptable levels and according to each and every bank's risk appetite criteria and tolerable thresholds.
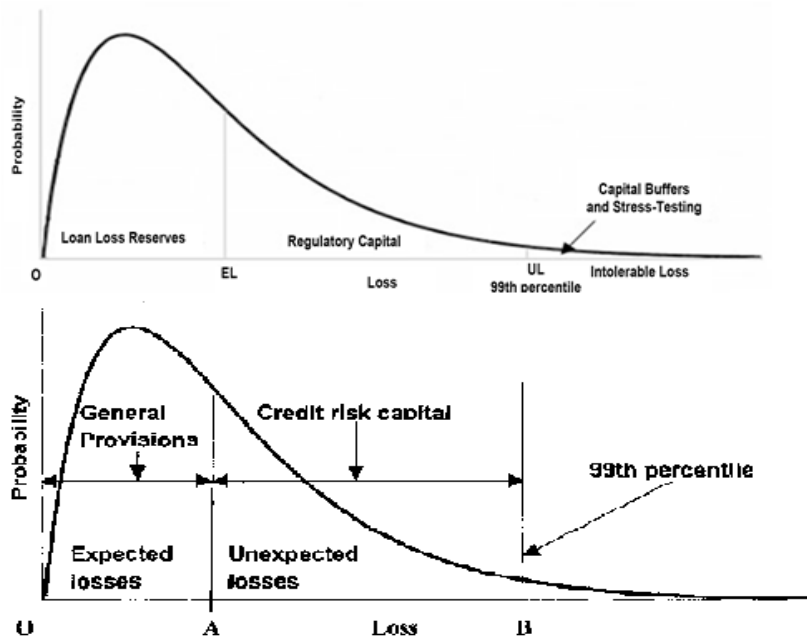
Figure 3. Bank Credit Loss Distribution. Source Durrani (2013).

The International Financial Reporting Standard number 9 (IFRS 9) sets out a framework for determining the amount of Expected Credit Loss (ECL) that should be recognized. It requires that lifetime ECLs should be accounted for when there is a Significant Increase in Credit Risk (SICR) on a financial instrument. However, it does not direct towards the exact basis on which banks should determine forward looking scenarios to consider when estimating ECLs.

Versus the previously implemented IAS 39, the IFRS 9 requires provisions to account for current, as well as forward looking risks. There has been a substantial debate with regard to the adequacy of capturing and utilization of the macro-economic factors especially during any deteriorating conditions. Banks estimating ECLs under the IFRS 9 often use a three phases process: i) develop judgements and anticipations about the future, ii) apply those judgements/anticipations to statistical models that are developed based on historical relationships, and iii) use relevant data to feed into these models. This process often involves statistical modelling in a more detailed and comprehensive manner as being compared to other accounting estimates, which increases the challenges for the IFRS 9 implementation. Extreme economic and stressful conditions, like COVID-19, coupled with uncertainty around the duration of the pandemic, besides the increasing probabilities for potential relapses, effects of government support and what recovery shall look like; all shed the lights towards the forward-looking judgmental challenges due to the highly degree of uncertainty. At the same time, historical relationships between key utilized model variables might no longer hold, and comparable economic conditions might not have existed in the past reasoned of the existing unprecedented pandemic situation across the globe. To assess any Significant Increase in Credit Risk (SICR), the IFRS 9 requires that banks assess changes in the risk of default occurring over the expected lifetime of a financial instrument. Both the assessment

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of SICRs and the measurement of ECLs are required to be based on reasonable and supportable information that are available to the bank without undue cost or effort.

The COVID-19 pandemic has dominated the agenda of banks during the year 2020 onwards, as well as a considerable number of significant economic sectors that are experiencing adverse shifts. The use of historical data in risk modelling, stress testing and portfolio allocation has been questioned and criticized within the crises due to the fact that they fundamentally differ than previous economic stresses across history and were not able to forecast the severity of the crises adequately. Normally, banks use to stress their models against linked parameters, for instance to GDP growth, oil prices, inflation and unemployment rates. For the severe recession that has started in Q1-2020; these models predicted dramatic increases in loan defaults and losses, in fact post the crises occurrence. However, the expected increases in defaults and losses have not yet fully materialized due to the visible government support measures and payment moratoria that econometric models normally do not capture.

In this exploratory research paper, the researcher shall discuss how management adjustments/overlays can be effectively used to buffer against forward-looking uncertain performance indicators of assets portfolios. The study shall rely mainly on data extracted from the European market and the asymmetric impact of COVID-19 on different industry sectors. This is for two reasons: i) the better disclosure standards in Europe with regard to the COVID-19 impacts, and related information transparency as being compared to other regions across the globe, ii) the Euro Zone being the biggest trader to the Middle East (oil and none oil exporting countries), North Africa (MENA) and Egypt in specific; which, all combined, represent one of the main economic hubs across the globe. In addition to the direct proportionate economic dependency between both regions (EU and MENA), as well as encompassing developed and developing countries that can help in optimizing banks asset quality levels and management override practices during such a stressful and unprecedented situation.

## 2. Statement of the Research Study Problem and Objectives

According to Andrea Enria, the Chair of the ECB Supervisory Board, he mentioned that delayed recognition and poor management of deteriorating asset quality could easily clog up bank balance sheets with non-performing loans for a fairly long period of time, making it more difficult for the banks to support viable customers and underpin a faster economic recovery (ECB, 2020).

Every crisis is unique in terms of its root causes, and challenges. The global financial crisis of the year 2009 revealed severe deficiencies in the analysis of subprime mortgages and related structured securities. The COVID-19 pandemic resulted in unprecedented lockdowns and disruptions to the global economic activities, combined with governments fast intervention measures to mitigate the economic impact of the pandemic as being compared to the 2009 global financial crises. The situation has resulted in steep economic recessions across the world post stable or even declining corporate insolvencies and loan defaults prior to the pandemic start in Q1-2020. All in a sudden, credit models have started to predict large increases in non-performing loans based on the stressed situation. Many

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credit portfolio managers wondered how to react to this apparent model failure that were not able to predict the forward looking measures efficiently which is against the main objective of the IFRS 9 standard objective, and how to best stir the bank's balance sheet through these challenging times. Naturally given the circumstances, the European banking supervisors paid close attentions to the asset performance, deteriorating asset quality levels, and impacts on banks' capital ratios. The Single Supervisory Mechanism specified the priorities for the year 2021 as follows: i) focus on credit risk management, ii) operations, and iii) monitoring and reporting. Credit portfolio managers must identify, measure and mitigate the impacts of credit risk, as well as assess the bank's operational capacity and effectiveness to proactively manage any expected increase in distressed borrowers whether in good times or mainly at stressful periods.

Furthermore, the ECB placed particular emphasis on the banks capacities to identify any deterioration in asset quality at an early stage, as well as on the banks abilities to continue taking the necessary actions towards appropriately manage loan arrears and non-performing loans. As an overview, the following steps towards an optimal banks' balance sheets can be normally advised:

- Data preparation and comprehensiveness. Identify the minimum data set required for an objective impact analysis. This includes data extract mainly from finance and risk functional areas, as well as operational data like adequate skillsets and manpower needed. For corporate borrowers, up-to-date financials as well as market prices from the loan, bonds, and equity markets are important.

- Continuous monitoring of actual loan performance, borrowers' behavior and ongoing collateral values (LGDs) proper evaluation, including the use of government support programs and payment moratoria. In addition to interactive reporting of watch list, forbearance and workout exposures including the monitoring of detailed recovery cash flows (detailed non-performing loans—NPLs—analysis and appropriate handling strategies).

- Flexible reports generation to compare actual versus predicted performance from existing or newly adjusted models. The use of flexible and simple alternative practices that are easier to adjust and explore than traditional implementations during crises.

- Combine risk model predictions, expert views (mainly for objective management overlays utilization), and market valuations to quantify the impact on the future balance sheets including risk and return trade-off profiles of all relevant portfolio segments. Include the relevant regulatory changes from the prudential backstop and Basel accords.

- Finally, to use management adjustment overlays for facing any unprecedented stressful situation and following appropriate governance and disclosure standards.

In brief, COVID-19 has had an enormous adverse impacts on the international economy. Unfortunately, the same has also negatively affected companies and private individuals, by turn banks. The IFRS 9 is supposed to be unbiased and forward looking in terms of banks calculating their ECLs. The main challenges as a reflection for this adverse situation are:

- The economic and credit outcome are highly uncertain;

- Loan loss practices and disclosure shall face significant scrutiny in the markets and will be subject of multiple regulatory interventions and debates;

- ECL models will cease working effectively. Expert judgement and post model adjustments shall represent a critical and essential alternative as there is no time or accurate relevant data to depend upon in rebuilding accurate models;

- Choice of scenarios, their probability of occurrence, and likely loss severity; will be a significant driver of staging and ECL outcomes reasoned of the high level of uncertainty;

- Identification of problematic facilities and lifetime deterioration under credit risk has turned to be more complex and more demands and pressures for more dynamic assessments and reporting;

- Control mechanisms for ECL levels and reporting will need to change to reflect the focus on different information sources and estimation techniques, in specific the utilization of Management Overlays, coupled with proper predictions according to each and every bank's objective assessment, and proper governance, whether in terms of approvals or public disclosures.

Therefore, this research paper shall spot the light on the COVID-19 challenges, together with its massive adverse impacts on the utilized IFRS 9 models reasoned of the unprecedented pandemic situation that was not accounted for at any model across the globe, and the increasing reliance need placed on management overlays (based on expert judgement) to derive expected credit losses during the uncertainty and challenging systemic period. Sample banks were used to show the utilization and disclosures of the management overlays, and how they allowed for the judgmental/overlay concept as a risk mitigation tool to overcome the adverse economic effects of the pandemic not fully captured by the models.

## 3. Research Study Hypothesis

H0: There is no significant relationship between the Banking System Stability and the Post Provisions Model Adjustments (Management Overlays).

H1: There is a significant relationship between the Banking System Stability and the Post Provisions Model Adjustments (Management Overlays).

Research Question:

What is the relationship (if any) between the Banking System Stability and the Post Provisions Model Adjustments (Management Overlays)?

## 4. Limitations of the Research Study

There are several limitations in this research study that should be taken into consideration for future researches. The research sample is limited to the selected research study banks. This is due to the difficulty faced in terms of data access, especially accurate and disclosed data post recent COVID-19 crises, and confidentiality reasons across the banking sector in specific data related to the internal banks provisioning systems and stress testing, of which the researcher has faced challenges to obtain the

required data for the research study, especially due to the COVID-19 reasons, for instance, data gathering during lock downs, and work from home practices accompanied with related mis-communication. Therefore, the sample was only limited to those banks that are included under this exploratory study. This has prevented the researcher from widening the sample across more study banks and risk measures that can be generalized in the future once the new set of worldwide macro-economic factors are marginally agreed upon between regulators, main research and credit rating agencies. It will not likely be possible to fully generalize the results based on these limitations, in specific revise models in the short term to capture all of these uncertainty factors as the overall systemic situation is not yet clear for implementing such changes. Therefore, banks can start using the practice concept of management overlays, or post-model adjustments, where risks and uncertainties cannot be adequately reflected in existing models, and according to each and every bank's portfolio breakdown, trends, stress testing outcomes and Probability of Default (PD) expectations. Expectations are high that such overlays will necessarily play a more important role and will be placed on a higher priority level in today's environment.

## 5. Literature Review

Statistical methods such as regressions, and decision trees are widely used by banks to model for credit risk. They all rely on the principle that patterns and behaviors from the past will likely repeat in the future. Models identify these patterns in historical data and use them for predictions. Much work has gone in the development of credit models using these methods to link credit risk measures such as the Probability of Default (PD) or Loss Given Default (LGD), and macroeconomic variables. The primary objective for regulators and banks to develop these models were to properly calculate regulatory capital charges under the internal ratings based approach, run supervisor stress test scenarios,

and mainly to calculate loan loss provisions under IFRS 9; all was to overcome the 2009 financial crises root causes and ensure the none catastrophic repetition. It appeared obvious that point-in-time (PiT) models predicting defaults based on the macro environment were not performing well during COVID-19 due to the previous raised unprecedency reasons (black swan).

Accordingly, and based on such a sever stressful situation: On March 27th, 2020, the International Accounting Standards Board (IASB, 2020) has released its statement outlining the views on the subject. Banks are needed to create gauges' dependent on the best accessible data about previous events, current circumstances and estimates of economic conditions. In evaluating forecast conditions, contemplations ought to be offered both with the impacts of COVID-19 and the huge government support measures being attempted. The IFRS 9 requires the use of judgements/anticipation, and permits banks to change their way to deal with calculating ECLs in various conditions. Various suppositions and linkages in which ECLs have been created or executed to date; may at this point do not reflect the current pandemic situation. Banks ought not keep on applying their current ECL philosophy precisely. For

instance, the extension of installment to obligors, ought not consequently trigger such facilities to have endured a SICR, for example to be downgraded from stage I to stage II.

Lockdown and social separating impacts should be reflected as far as the effect on macroeconomic drivers exists, and, eventually, on default rates. It will not almost certainly be feasible to update models in the present phase to catch all these variables where risks and vulnerabilities cannot be satisfactorily reflected in existing models. Expectations are high that management overlays will essentially assume a more significant gap filling at this area, and will be set on a higher need levels in the present climate.

The IFRS 9 models would translate the unprecedented and repeated lockdowns, travel bans, physical distancing measures and the resulting slump in economic activity into steep increases in loan defaults and bankruptcies. On the other hand, extensive government support measures have been successful in shielding households and companies from the worst consequences of the pandemic. While companies in the hardest hit economic sectors (e.g., tourism and aviation) have suffered dramatic reductions in total sales, the support measures thus far have prevented a new wave of bankruptcies and non-performing loans. Most credit models were not designed to capture the unprecedented relief measures as they had no precedent as is in the past.

In April 2020 during the lockdown of the first COVID-19 wave, predictions have shown an increasing trend of NPL ratios in Europe and the US, for 2020 and 2021 based on historical data and macro forecasts from the IMF. According to Moody's rating agency, the US saw a doubling of the corporate default rate from 1.5% in 2019 to 3.1% in 2020, the highest level since the financial crisis of 2009. Given the continued economic stress with renewed lockdowns in Q4-2020 and Q1-2021, the NPL ratios shall steadily start increasing eventually once the support measures are phased out. Nevertheless, banks have found that many of their credit models did not practically work well as expected during this crisis (Moody's, 2020).

The failure of macro-econometric time-series regression based models has motivated credit risk experts to explore other credit risk practices to overcome such challenges. Altman Z-score-style models use to predict corporate distress based on selected financial ratios. Z-score models have been proven to successfully discriminate between healthy and distressed borrowers across countries and industries (Altman, 2014). Banks internal rating models often include Z-score-like financial ratios which can help to identify companies that are more likely to survive during the current crisis. As they do not use the macroeconomic variables as an input, Z-score default models are considered more through-the-cycle (TTC) and less suitable for macroeconomic stress testing. In past recessions, broadly speaking, Z-score models kept their discriminatory power but they did not accurately predict the cyclical swings in default rates. Therefore, the pandemic situation has emphasized the importance of having other alternative mechanics and considering the current model limitations and data availability.

*5.1 Banks and IFRS 9 Implementation Post COVID-19*

An analysis was made by Deloitte in Q2-2020 as being one of the main external auditing and research firms across the globe, and being closely linked to the IFRS 9 implementations across the worldwide

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banking sector, whether from a know how provider through systems and model implementations, or being an external auditor for banks, corporation, and different regulatory bodies around the globe. The main objective of their analysis was to assess the COVID-19 effects on ECLs across the banking industry, with a selected sample of the Nordic and UK banks that reflect the COVID-19 impacts; whether due to the lock downs in Europe, or the impacts on oil prices based on the recessionary waves of the wide spread corona virus (Deloitte, 2020).

The main outcomes of Deloitte researchers' analysis have revealed that for the eight largest Nordic banks under the study, the change in ECLs (since Q4-2019) was wide increasing due to COVID-19 reasons. Some banks ECLs were impacted negatively due to the significant decrease in oil prices which is agreeing with the assumptions and conclusions of the researcher (figure 4) due to the recessionary waves. The impact of COVID-19 was visibly widespread; either no change in coverage ratios, e.g. SHB, or significant increases such as the case of Danske Bank. Balances in stage II increased for most banks, loans under stage III increased for 5 of the 8 sampled banks. In addition, that all banks have started using the expert credit judgments for their ECLs due to the uncertainty in the outlook that may be resolved once new macro-economic assumptions are set by regulators and research agencies, which are likely to cause future downgrades reasoned of the recessionary waves (Deloitte, 2020).



**Change in ECL**
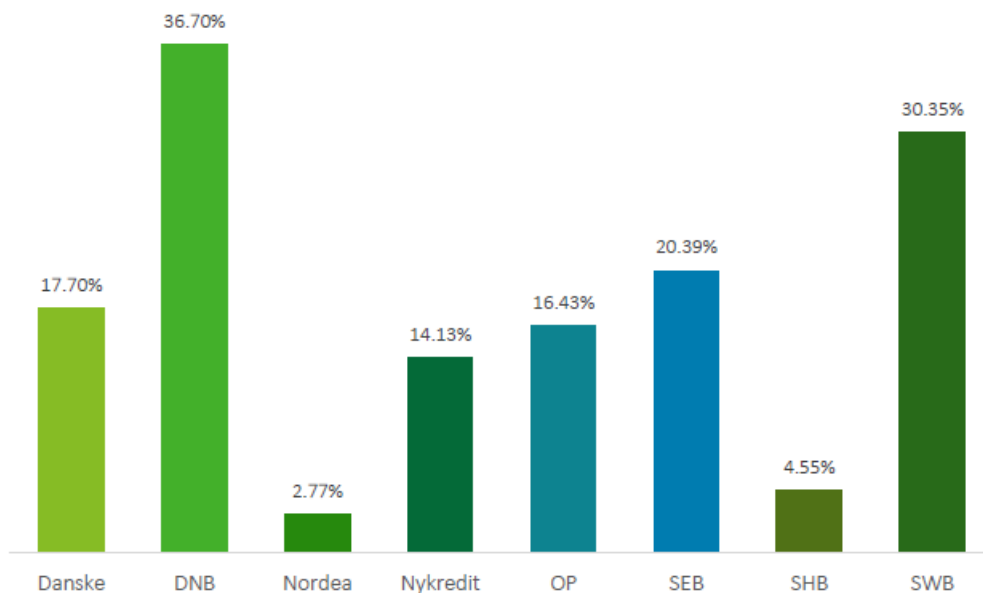
The **increase in provision was in a wide range** amongst the eight banks (from Nordea 2.77% to DNB 36.7%).

Figure 4. Changes in ECLs, Nordic Banks. Deloitte (2020).

The second sample was related to the UK banking sector that has witnessed an increasing trend in provisions across the board. The UK banks results for Q1-2020 have shown a significant increase at their provisioning charges reflecting a deterioration in the economic outlook drastically vs. Q4-2019. Banks, e.g., HSBC, have set expectations of further significant impairment charges to come, which should have been budgeted and accounted for at their IFRS 9 (figure 5). The first quarter of the year 2020 bank results were notable for the increase in provision charges reflecting a deterioration in the overall economic outlook. Besides, the similarity of increase in cost of risk versus Q4-2019 was striking.

The situation is reflecting the uncertainty vision of the bank, together with worries from the first wave of customer treatments when expires, potentially leading to big increases in ECLs in the future post the ending of government support periods, expected macro-economic downgrades that shall increase the economic severity hurdles due to Brexit burden adjustments, and all are agreeing with the assumptions and conclusions of the researcher.

Some banks, e.g., SAN, having started taking sector specific actions, while others, e.g., HSBC, Lloyds, have set their expectations of further significant impairment charge to come using the management overlays concept and this is interesting as IFRS 9 should have brought such forward their best view of losses which did not take place due to the outlook is too uncertain to book as yet, besides the regulators support.

| | BARC | HSBC | LLOY | RBS | SAN | SC |
|---|---|---|---|---|---|---|
| **Change in ECL** | | | | | | |
| **Total** | 27% | 20% | 25% | 15% | 15% | 7% |
| **Change in Stage 2** | | | | | | |
| **Total** | -13% | 18% | n/a | n/a | 20% | n/a |
| **Change in Coverage** | | | | | | |
| **Total** | 1% | 13% | 24% | 8% | 13% | 6% |
| **Change in cost of risk (annualised impairment charge / loans & advances) from 4Q19 to 1Q20** | | | | | | |
| **Total** | 4.0x | 4.4x | 4.4x | 4.3x | 3.1x | 4.2x |

Figure 5. Changes in ECLs, UK Banks. Deloitte (2020).

*5.2 Managing Performing and Non-Performing Exposures*

Based on the previous illustration, it is clear that banks shall start facing a new set of challenges regarding corporate borrowers' solvency, liquidity, and profitability. On the contrary, macro-based projections do not reflect the highly heterogeneous new impacts at different sectors. While telecommunication and online gaming sectors benefited, others like airlines and accommodation are steeply suffering dramatic reduction in sales. Historical financial statements, meanwhile, take time before they reflect the current impact on business and financials. Borrowers cash flow forecasts should reflect liquidity positions and associated financing needs due to negative cash flows and help identify which obligors shall not be able to repay debts according to agreed on schedules. Banks need more comprehensive sector-based detailed analysis for numerous purposes, such as: identifying the most exposed sectors and clients, proper projections of non-performing assets and rating migrations, and developing effective restructuring plans and asset disposals (NPLMarkets, 2021).

An important question in the prediction of the COVID-19 impact on credit risk is to understand how quickly the economy will return to its pre-crisis level. The recovery will also depend on how many obligors will suffer (e.g., stage II downgrade), or go bankrupt (e.g. stage III) due to the fall in sales and profitability levels. Bankruptcies have long lasting effects, prolonging the negative consequences of the economic shock. Therefore, the European policymakers have generally taken the view to provide whatever liquidity is required to keep the small, medium and large enterprises afloat (OECD, 2020).

Since the summer of 2020 a number of studies have emerged that aimed to predict the asymmetric impact of COVID-19 on Small and Medium Enterprises (SMEs), being the major contributing portion in GDPs in different economic sectors by directly estimating the corporate illiquidity or insolvency. In Italy, Carletti et al. (2020) used a sample of 81,000 Italian firms to forecast the drop in profits and the equity shortfall triggered by the COVID-19 lockdown. A 3-month lockdown generates an aggregate yearly drop in profits of about 10% of GDP, and 17% of sample companies become financially distressed. Distress is more frequent for SMEs as opposed to large corporates, for companies with high pre-COVID leverage, and more visible for some sectors, such as services sectors, and accommodation. On September 30th, 2020, the predicted increase in illiquid and insolvent companies in Italy were not yet been observed. Table 1 shows the annual flow of bad loans by borrower count and industry sector as reported by the Bank of Italy. It shows clearly the increasing trends in NPL ratios pre/post COVID-19.

| NACE Sector | NPL Ratio Dec 2019 | NPL Covid Factor | NPL Covid Ratio |
|---|---|---|---|
| A Agriculture, forestry and fishing | 6.7% | 1.43 | 9.7% |
| B Mining and quarrying | 6.5% | 2.88 | 18.7% |
| C Manufacturing | 6.0% | 1.97 | 11.9% |
| D Electricity, gas, steam | 2.4% | 1.21 | 2.9% |
| E Water supply | 3.5% | 1.00 | 3.5% |
| F Construction | 14.9% | 1.28 | 19.1% |
| G Wholesale and retail trade | 6.5% | 2.00 | 13.0% |
| H Transport and storage | 6.5% | 1.74 | 11.3% |
| I Accommodation and food services | 8.6% | 2.93 | 25.1% |
| J Information and communication | 3.0% | 1.59 | 4.8% |
| L Real estate activities | 3.1% | 1.50 | 4.7% |
| M Professional services | 4.6% | 1.84 | 8.4% |
| N Administrative and support services | 3.2% | 2.33 | 7.4% |
| O Public administration and defence | 1.0% | 1.00 | 1.0% |
| P Education | 4.5% | 2.77 | 12.4% |
| Q Human health services and social work | 2.9% | 1.45 | 4.2% |
| R Arts, entertainment and recreation | 7.7% | 2.82 | 21.8% |
| S Other services | 4.6% | 2.45 | 11.2% |

Table 1. SMEs NPL rates Across industries. EU.

For 17 countries in the EU, Gourinchas et al. (2020) estimated the impact of the COVID-19 crisis on SMEs business failures. They used a simple model of firm cost-minimization and measure each firm's liquidity shortfall during and after the COVID. The framework allowed for a rich combination of sectors aggregate supply, productivity, and demand shocks. Gourinchas et al. (2020) estimated a large increase in the failure rate of SMEs of nearly 9 percentage points, absent government support. Accommodation, Arts, Entertainment were among the most affected sectors with a near threefold increase in the NPLs ratio (Table 1).

In France, Guerini et al. (2020) simulated the impact of the COVID-19 crisis on corporate solvency using balance sheet data of one million French nonfinancial companies, assuming they shrink their production costs in the context of a sharp drop in demand. They found that the lockdown triggered an unprecedented increase in the share of illiquid and insolvent firms, with the former more than doubling relative to a scenario without COVID-19 (growing from 3.8% to more than 10%) and insolvencies increasing by 80% (from 1.8% to 3.2%). They found sectors such as hotels and restaurants, household services, and construction are the most vulnerable. At a country level, corporates have been impacted by COVID -19 with different degrees of severity. Table 2 shows the percentage of corporates reporting the impact of the COVID lockdowns in the six months prior to October 2020 as reported in the European SAFE survey. In most countries the majority of companies reported turnover and profit declines.

| SAFE October 2020: Net % increase past six months | Turnover | Labour cost | Other cost | Interest expense | Profit | Fixed investment | Inventories and WC | Number employees | Debt to asset |
|---|---|---|---|---|---|---|---|---|---|
| EU27 | -44% | 5% | 14% | 5% | -45% | -8% | -14% | -10% | 8% |
| Austria | -38% | 1% | -2% | -4% | -41% | -18% | -8% | -10% | 4% |
| Belgium | -39% | -4% | 9% | 0% | -34% | -12% | -9% | -14% | -5% |
| Bulgaria | -47% | 19% | 19% | 7% | -48% | -1% | -13% | -19% | 0% |
| Croatia | -57% | -1% | 9% | 3% | -49% | -17% | -6% | -18% | -8% |
| Cyprus | -51% | 11% | -3% | 1% | -58% | | -18% | -5% | 8% |
| Czech Republic | -38% | -1% | 16% | 2% | -40% | -7% | -11% | -10% | 1% |
| Denmark | -9% | 9% | -3% | 5% | -10% | 1% | 0% | -5% | -6% |
| Estonia | -24% | 2% | -8% | 5% | -34% | -20% | -8% | -10% | 1% |
| Finland | -22% | 13% | 9% | 2% | -18% | -7% | -5% | -7% | -7% |
| France | -54% | -1% | 25% | 5% | -51% | -11% | -17% | -7% | 13% |
| Germany | -37% | 6% | 8% | 2% | -40% | -13% | -13% | -11% | 0% |
| Greece | -59% | -3% | 11% | -1% | -66% | -11% | -29% | -6% | 13% |
| Hungary | -41% | -6% | 34% | 0% | -48% | 4% | -12% | -14% | 6% |
| Ireland | -62% | -21% | 10% | 1% | -55% | -11% | -19% | -23% | 2% |
| Italy | -56% | 2% | 11% | 6% | -56% | -11% | -18% | -7% | 19% |
| Latvia | -27% | 12% | 8% | 6% | -35% | 7% | -10% | -9% | -4% |
| Lithuania | -21% | 19% | 15% | 5% | -21% | 6% | -3% | -18% | 1% |
| Luxembourg | -25% | 8% | 8% | 2% | -40% | -10% | -11% | 3% | -3% |
| Malta | -64% | 8% | 11% | 4% | -70% | -20% | -21% | -13% | 10% |
| Netherlands | -32% | 18% | 7% | -6% | -30% | -1% | -8% | -2% | -4% |
| Poland | -42% | 32% | 50% | -5% | -39% | -4% | -10% | -6% | 2% |
| Portugal | -49% | 8% | 16% | 10% | -49% | -2% | -37% | -7% | 20% |
| Romania | -41% | 25% | 35% | 6% | -48% | -3% | -10% | -13% | 15% |
| Slovakia | -50% | 23% | 13% | 3% | -46% | -2% | -5% | -15% | 4% |
| Slovenia | -50% | -3% | -5% | -2% | -47% | -12% | -10% | -11% | -7% |
| Spain | -55% | -4% | 4% | 24% | -56% | -6% | -16% | -14% | 25% |
| Sweden | -22% | -22% | -8% | 0% | -25% | -10% | -13% | -12% | -3% |
| Albania | -50% | 32% | 30% | 19% | -56% | 4% | -3% | -7% | 9% |
| Bosnia and Herzeg. | -52% | 11% | 5% | 11% | -54% | -1% | 4% | -9% | -11% |
| Iceland | -32% | 37% | 44% | -21% | -45% | -15% | -11% | -22% | 5% |
| Kosovo | -47% | -2% | 10% | 18% | -77% | -13% | -4% | -33% | 36% |
| Montenegro | -61% | 4% | 10% | 13% | -66% | -11% | -14% | -15% | -8% |
| Serbia | -45% | 16% | 20% | 2% | -43% | -6% | -4% | 11% | 2% |
| North Macedonia | -53% | 16% | 25% | -2% | -57% | -4% | -4% | -8% | 4% |
| Turkey | -33% | 33% | 70% | 50% | -53% | -13% | -14% | -7% | 70% |
| United Kingdom | -50% | -8% | 13% | -10% | -42% | -15% | -18% | -32% | 0% |

Table 2. European SAFE survey, October 2020.

## 5.3 Management Overlays—Post Model Adjustments

Overlays is a term that can be utilized to depict a range of changes that are made external to the essential models. Sometimes, the term can allude to direct changes to address known model errors or information lacks. In others, the overlay is undeniably more abstract and judgmental. For instance, it some of the time alludes to the utilization of master credit judgment to address gaps in models, data, or both (for instance, as new hazards or vulnerabilities emerge). It can likewise allude to changes made to catch dangers and vulnerabilities which are not caught by the models since they were not intended to address them, for example COVID-19, or Brexit (PwC, 2020).

As the IFRS 9 impairment model main objective was to account for forward-looking parameters, banks are required to consider a range of possible future economic scenarios and their probabilities to calculate ECLs. The COVID-19 pandemic that started to visibly materialize in Q2-2020 onwards has had severe economic impacts across many jurisdictions as being compared to the situation on 31st December 2019. Many governments, central banks and economists have been revising their economic forecasts to try to capture the likely adverse impacts. This means that formulating future economic

scenarios post the widely spread coronavirus has been a particularly challenging task for all governments, regulators, research and rating agencies, as well as banks till date.

On March, 2020 the IASB has delivered a proclamation illustrating its perspectives regarding the matter. Banks are needed to create buffers dependent on the best accessible data about previous occasions, current conditions and estimates of future financial conditions. In surveying conditions, thought ought to be offered both with the impacts of COVID-19 and the critical government support measures being attempted (IASB, 2020).

The Basel Committee on Banking Supervision (BCBS, 2020) has also issued a clarification note focusing on the topic of "extraordinary support measures related to COVID-19" on 3rd April, 2020. The paper clarified the application of the BCBS Guidelines on Capital Adequacy under Basel II/III by banks in light of the extraordinary regulatory measures taken in response to the impact of COVID-19 as follows:

- Payment Deferrals:
  - ✓ Treatment of Non-Performing Assets: The committee has agreed that payment moratorium periods (public or granted by banks on a voluntary basis) relating to the COVID-19 outbreak can be excluded by banks from the number of Days Past Due (DPDs).
  - ✓ Capital Treatment: Basel regulations require banks to hold additional capital for loans categorized as past due or defaulted based on two criteria viz, DPDs or likeliness to pay credit obligations. BCBS has decided that the payment moratorium can be ignored for the purpose of the: DPD consideration of 90 days, and for likeliness to pay the bank may assess the likelihood to pay the rescheduled payments.
  - ✓ Forbearance: when borrowers accept the terms of a payment moratorium (public or granted by banks on a voluntary basis), or have access to other relief measures such as public guarantees. This should not automatically lead to the loan being categorized as forborne.
- IFRS 9 Provisioning:
  - ✓ Relief measures to respond to the adverse economic impact of COVID-19 such as public guarantees or payment moratoriums, granted either by public authorities, or by banks on a voluntary basis, should not automatically result in exposures moving from a 12 months ECL to a lifetime ECL measurement.
- Capital Relief:
  - ✓ For the regulatory capital treatment of ECLs, national regulatory bodies may apply the existing transitional arrangements, even if they were not initially implemented when banks first adopted the ECL model.
  - ✓ National regulators may permit banks to switch from the static approach to the dynamic one; in order to determine the transitional adjustment amount (even if they have previously switched the approach that they use).

✓ Banks should disclose: whether a transitional arrangement is applied, and the impact on the bank's regulatory capital and leverage ratios vs. the situation if the transitional arrangements were not applied.

Since they are inalienably critical, post-model adjustments require vigorous processes, adequate manpower and skillsets, proper assessments and techniques (such as stress testing reasonable assumptions and outcomes in light of the pandemic uncertainty and matching with the bank's portfolio composition, expected performance and deterioration levels), governance and internal controls, supported by transparent and proper disclosures. While frameworking overlays; the key sample aspects to consider include (PwC, 2020):

- What is the impediment that is being tended to, and why?
- How was the overlay measured, and utilized rationale?
- What are the basic presumptions, and how could they be created and upheld?
- What data sets were utilized, and how could it be resolved to be steady?
- How might the overlay be devoured after some time (for instance, through model redevelopment, new information opening up, or advance loan losses)?
- How might sensibility execution be checked (for instance, by utilizing back-testing, KPIs checking, and correlation with stress testing)?
- How the exposures to which the overlay relates be calculated at an adequately granular level?
- How have the staging ramifications of the overlay been tended to?
- Has a comprehensive process check of the ECL demonstrating measures been done, to guarantee that all potential model constraints which may show the requirement for an overlay have been thought of? For example: Is latest borrower data accessible?
- Is the staging methodology to decide SICR suitable?
- Have government help programs been properly mulled over?
- Has the overlay been checked, along with the complete ECL measures, to guarantee that there is no potential for twofold count? For example, considering any:
  - ✓ hierarchical changes previously fused by deteriorating economic gauges.
  - ✓ changes because of economic assumptions previously included inside probability of defaults.
  - ✓ assumptions regarding future losses embedded in historical data during model adjustment/calibration.
  - ✓ changes in accordance with DPDs data previously added for different uses.
- Governance:
  - ✓ Which committees (Board and/or Management levels) have provided inputs review or approval?
  - ✓ Which regulators (central banks and/or external auditors) have provided inputs or review?

Tending to and reporting these inquiries help to guarantee satisfactory cycles upfront and to forestall difficulties over the long haul as starting constraints (those bringing about the requirement for an overlay) are settled. As an example, among different difficulties, the shortfall of documentation may make it more tough to decide in future periods whether the overlay is as yet required.

Overlays may require extra disclosures, and they may affect others. For quarter period intervals, if there has been a huge change since the latest fiscal year end in the way to deal with assessing ECLs (regardless of whether because of changes in core models, overlays or something else), IAS 34 could require extra disclosures. These could incorporate revelations about sources of information, and assessment methods under IFRS 7 and IAS 1. The impact of overlays on disclosures that give data on a granular reason (for instance, by stage, industry, etc.) should be thoroughly considered to decide if and how the overlay is pushed down, or whether it is (or can be) introduced independently. Cautious thought of the disclosure impacts of overlays at a beginning phase may assist with giving important subtleties later on, and guarantee that potential intricacies are tended to.

The IASB has been firmly drawn in with numerous prudential and regulatory bodies in regards to the utilization of IFRS 9 and COVID-19 pandemic. A few regulators have effectively distributed direction remarking on the of IFRS 9 execution in the current climate (such as: The European Banking Authority, the European Central Bank, the Central Bank of Egypt, and the Central Bank of UAE) on a mean to help their business sectors regarding confronting a particularly distressing circumstance (black swan).

## 6. Data and Methodology

This section sets out the approach and methodology for the research study sample analysis. It displays how the significant COVID-19 impairment risks facing banks, such as: HSBC which represents one of the main global banking pillars, and Emirates NBD as one of the main regional banks in the Middle East, were recognized, and how Management Overlays were measured and implemented. In this exploratory research paper, the researcher shall discuss how management adjustments/overlays can be used to buffer against forward-looking uncertain performance indicators of assets portfolios.

*6.1 Conceptual Framework*

This research study examines the relationship between the Banking System Stability and the Post Provisions Model Adjustments (Management Overlays) The framework model is demonstrated in the following figure:
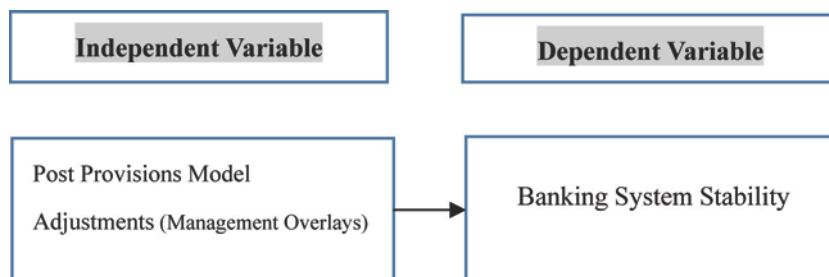
## 7. Results and Findings

The following section illustrates the study selected sample and in light of the previous highlighted research study limitations.

### 7.1 HSBC

The COVID-19 emergencies have put its shadows on the worldwide economy and unfavorably influenced the bank's clients and their performance. The future impacts of the crises stay unsure. The government support measures have tried to ease difficulties, given the fast speed of progress and critical operational requests (HSBC, 2020).

Government rules forced all throughout the planet to restrict the spread of COVID-19 brought about a sharp constriction in the worldwide economy during the year 2020 and onwards. Simultaneously, governments likewise made early strides intended to relax the degree of the harm to investment, labor markets and trade. The bank has depended on a central scenario used to ascertain impairment, accepted that economic actions will recuperate throughout 2021 onwards. In this situation, the recuperation will be upheld by a fruitful carry out of vaccination programs across key business territories, which, combined with successful non-pharmacological measures to contain the infection, will prompt a decrease in contaminations throughout the span of the following years (for example 2-3 years). Governments and state regulators shall keep on cooperating across the bank's critical business sectors to guarantee that customers get a proper degree of financial help until the overall stressful situation is facilitated. Such help is planned to guarantee that markets do not encounter unexpected, and difficult corrections. There is a serious level of vulnerability related with financial figures in the current climate and to the scenarios embedded at the bank's models. The level of vulnerability differs by business sectors, driven by country explicit patterns in the development of the pandemic and related policy reactions.

There is a material danger of a drop in the overall economic environment. The financial aftermath from the COVID-19 episode hazards expanding disparity across business sectors that have effectively experienced social distress. This will leave the weight on governments and national regulators to keep up or increment financial fiscal and monetary stimulus. After financial sectors endured a sharp fall in the beginning stages of the spread of COVID-19, they began to bounce back gradually, yet remain noticeably unstable. Governments and regulators in main economies have conveyed broad measures to help their neighborhood populaces. Measures executed by governments have included income support to families and financing aids to companies. National regulators measures have included slices cuts to policy rates, and funding markets. These actions were stretched out in nations where further influxes of the COVID-19 episode were inciting renewed government restrictions. Central banks relied upon to keep up record low loan rates for an extensive timeframe, and the debt weight of governments is required to rise.

The bank has started market explicit measures to help its clients through such stressful times. These included installment holidays, the deferring of specific charges, and liquidity help for organizations

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confronting market vulnerability and production network interruption. The bank is additionally working intimately with governments, and supporting public plans that emphasis on the economies generally affected by COVID-19. For example, in response to a written request from the PRA, the bank has cancelled the fourth interim dividend for 2019 of $ 0.21 per ordinary share, in addition to freezing interim dividend payments or accruals in respect of ordinary shares until the end of 2020 (HSBC, 2020).

Moreover, credit losses may increment reasoned of openness to vulnerable sectors of the economy like retail, hospitality, and aviation. The effect of the pandemic on the corporations related to these areas is uncertain and may prompt huge credit losses on explicit exposures, which may not be completely covered in ECL predictions. Furthermore, in the midst of stress, fraudulent actions are regularly more common, prompting possibly credit or operational failures. The huge changes in the economic drivers, client practices and government activities brought about by COVID-19 have physically affected the exhibition of financial applications and models. ECL model execution has been seriously affected, which has essentially expanded the dependence on post model adjustments/overlays in deciding the suitable coverage degrees of ECLs. The dependability of ECL models under these conditions has additionally been affected by the phenomenal reaction from governments to give an assortment of support bundles to help livelihoods and companies. Assumptions and estimates on which the models were assembled did not mirror these uncommon governmental support measures. The bank will keep depending on management overlays to screen credit executions against the degree of government backing and client help programs until the vulnerability position is cleared.

The impact of the pandemic, besides the uncertainty overall conditions reasoned of the corona virus may prompt significant credit misfortunes on explicit exposures, which may not be completely calculated in ECL predictions. Therefore, at 31$^{st}$ December 2020, the allowance for ECL has reached $15.7 billion with an increase of $ 6.3billion compared with 31$^{st}$ December 2019, as well as adjusted ECL as a percentage of average gross loans and advances to customers has reached 0.81%, compared with 0.25% in 2019. Based on the implemented risk and stability measures, the bank was able, as at 31$^{st}$ December 2020, to have the Common Equity Tier 1 ratio as 15.9%, Tier 1 ratio as 18.5% and Total Capital Adequacy ratio as 20.2%. The management overlays of the IFRS 9 models will proceed as the economic results of the COVID-19 crises become more clear in the future, economic situation standardize and credit losses happen (HSBC, 2020).

*7.2 Emirates NBD*

In the determination of Q1-2020 ECL, the bank has considered the potential impact, based on the best available information of the uncertainties caused by the COVID-19 pandemic and taking into account the economic support and relief measures of governments and central banks of the bank's key markets. The bank has also considered the notices issued by the Central Bank of UAE with regards to the Targeted Economic Support Scheme (TESS) and guidance issued by the International Accounting Standards Board on 27$^{th}$ March 2020 (IASB, 2020).

Under IFRS 9, loans are required to be moved from stage I to stage II if and only if they have been the subject to a SICR since origination (quantitative, and/or qualitative). The SICR occurs when there is a significant increase in the risk of a default occurring over the expected life of a financial instrument. The bank continued to assess borrowers for other indicators of unlikeliness to pay, taking into consideration the underlying cause of any financial difficulty and whether it is likely to be temporary as a result of COVID-19 or longer term (ENBD, 2020).

During the year 2020, ENBD has initiated a program of payment relief for its impacted customers by deferring interest/principal due for a period of one month to three months. These payment reliefs were considered as short term liquidity to address borrowers cash flow issues. The relief offered to customers may indicate a SICR. However, the bank believed that the extension of these payment reliefs do not automatically trigger a SICR and a stage migration for the purposes of calculating ECL, as these are being made available to assist borrowers affected by the COVID-19 outbreak to resume regular payments. At this stage sufficient information was not available to enable the bank to individually differentiate between a borrowers' short term liquidity constraints and a change in its lifetime credit risk.

Any changes made to ECL in order to estimate the overall impact of COVID-19 was subject to very high levels of uncertainty as only limited forward looking information was available on which to base those changes. The bank has previously performed historical analysis and identified key economic variables impacting credit risk and ECL for each portfolio and expert judgement has also been applied in this process. These economic variables and their associated impact on PD, EAD and LGD vary by financial instrument. Forecast of these economic variables (the base, upside and downside economic scenarios) were obtained externally on a quarterly basis.

In light of the current uncertain economic environment, the bank has re-assessed the scenarios weighting to reflect the impact of the current uncertainty in measuring the estimated credit losses, in addition of depending on the management expert judgements—overlays—to overcome the significant uncurtaining levels with regard to the forward looking measures (ENBD, 2020). In making estimates, the bank assessed a range of possible outcomes by stressing the previous basis (that includes upside, based case and downside scenarios) and changed the downside weightings through to 100%.

The bank compared the downside macroeconomic variables to indicative data received from an independent source and for some portfolios or sectors that have further stressed the ECL, before and after adding the management judgmental overlays. In addition to the above, the bank has applied industry specific account level adjustments for retail exposures with regards to specific industries whose employees are expected to be most impacted due to COVID-19 such as airlines, hospitality, retail and tourism. ENBD continued to individually assess significant corporate exposures to adequately safeguard against any adverse movements due to COVID-19 waves. The increase in the downturn weighting of the macroeconomic scenario and the management overlays result in an additional ECL of AED 878 million for the bank. The impact of such uncertain economic environment

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is judgmental and the bank will continue to reassess its position and the related impact on regular basis. Based on the implemented risk and stability measures, the bank was able, as at 31$^{st}$ December 2020, to have the Common Equity Tier 1 ratio as 15.0%, Tier 1 ratio as 17.4% and Total Capital Adequacy ratio as 18.5%.

## 8. Conclusions and Recommendations

This research study has checked the Post Provisions Model Adjustments (Management Overlays) and its effects on the Banking Stability levels. Fundamentally, the study has revealed the insight towards the visible connection between the Banking System Stability and the Post Provisions Model Adjustments (Management Overlays); fill any gap that emerges between the current and the focused hazard dimensions of the bank's provisioning system structure, and by turn emphatically influences the budgetary dependability and feasible development models of banks.

The outcomes of the COVID-19 crises on the IFRS 9 model execution and dependability brought about the requirement for needed upgraded checking tools and related post model changes. Significant changes to model parametric resources of data like GDP, oil prices, and unemployment rates have made the model outcomes problematic. Model execution constraints have been generally articulated for the IFRS 9 scorecards which compute expected credit losses. Therefore, more noteworthy dependence has been put on the management overlays dependent on judgements to determine expected credit losses.

The economic outlook for the next 2-3 years shall be highly impacted by the crisis, with a new set of economic (and loss) scenarios likely required. The eventual outcome is still uncertain, as it depends significantly on the cycle duration and severity spread of the coronavirus related lockdowns, and the effectiveness of government measures. The microeconomic impact for specific industries and sectors will vary through the crisis as can be seen within the research paper, driving variable credit risks which need to be captured at a granular level. Since credit model parameters are used in both the collective measurement of ECL and staging allocations; limitations in the credit risk models and changes to their relationship with the macro-economy will lead to reduced model performance effectiveness, and increase the limitations of the model use in the new world. Alternatively, banks' decision makers shall increasingly rely on post model adjustments to mitigate the mentioned uncertainty and address limitations as an alternative risk management practice.

New IFRS 9 models for portfolios that need the considerable model overlays during 2020 and onwards (until clear economic forecast are published, with acceptable confidence, by regulatory and research bodies) have been redeveloped, and implemented. Restricted new data was not accessible for the utilization in the recalibrations, consequently critical post-model changes were needed to consider the economic impacts of the pandemic not caught by the models. Factors specific to banks including: i) success in the adequately identification of risks they face especially the new set of risks post COVID-19 crises, ii) the incidence of loan losses or delinquencies and managing default risks (through

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account management, hedging and other techniques), iii) the ability to achieve financial and operational stability, investments and capital commitments, which may result in the failure to achieve any of the expected benefits of general banks set strategic priorities, iv) the IFRS 9 model limitations reasoned of the consequences of COVID-19 pandemic; have all shed the lights towards the adverse impacts of the models performance and usage which may require to hold additional capital levels, use alternative compensating controls, such as overlays and overrides according to each and every bank's portfolios/sub portfolios composition, trends and impacts, internal assessments and expectation levels, accompanied with proper forecasting and stress testing programs; to address model limitations, as well as changes to the judgements, estimates and assumptions utilized as a base for financial statements. All of which shall enhance the banking stability even during such stressful and unprecedented situation of COVID-19 pandemic (black swan).

In view of the same, early cautioning signals were thought about for appropriate risk management platforms, and additionally successful credit risk, and capital planning; intending to achieve the financial stability of banks, as well as to urge banks to sustain effective risk management processes, make a culture of awareness about the dangers that both drive and are driven by the business choices focusing on the financial consistency and quality, in addition to the steadiness of the bank's performance. In this manner, the research study has concluded that the provisioning estimates according to the implemented IFRS 9 rules (ECLs) were not able to: incorporates the proper recognizable estimation of each and every material risk(s) post COVID-19 start, and under various different possible scenarios (baseline, upside and downside, besides effective stress testing programs), acts as a fitting level of capital accessibility in relation to the bank's risk profile, the execution depends on the contextual understanding of all material risks with the target of ensuring the business value protection, strategic growth, further advancements of appropriate risk management processes, and building risk effective culture. For all of these main reasons: Management Overlays represented the rescue plan for overcoming such discussed model challenges, temporarily, until the overall uncurtaining situation is cleared out.

Finally:

- Effective risk management depends on, among other things, the ability through stress testing and proactive forecasting techniques to prepare for events that cannot be captured by the statistical models currently utilized used to effectively address financial, operational, legal, and regulatory challenges.

- Building effective and highly qualified risk calibers and expertise to be able to properly implement proactive risk measures, reporting and early warning signal mechanisms.

- Regulators and main research agencies to work jointly with banks (Risk Management, Risk Committees, Chief Executive Officers, Chief Risk Officers, Chief Economists, Chief Financial Officers, External Auditors and all dependent stakeholders—internal/external—according to each and every region's situation) on an

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objective view to reach a common and agreed upon set of macroeconomic indicators that can be utilized globally, and per region; to start the new era post COVID-19, and build the new stability IFRS 9 models across the world effectively.

- All should be accompanied by the appropriate development of effective data platforms, as well as adequate skillsets and manpower for robust implementation and solid future stability levels for the banking sector.

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