CREDIT LOSS ESTIMATES USED IN IFRS 9 VARY WIDELY,

SAYS BENCHMARKING STUDY

U.S BANKS PREPARING for CECL implementation can learn from banks that have already implemented IFRS 9. Similarly, IFRS 9 institutions implementing the rule this year should know that credit loss estimates of banks can vary significantly. Regulators and auditors will eventually focus on those differences and push for greater consistency.

BY DANIELA THAKKAR

A BENCHMARKING STUDY by Global Credit Data indicates differences in credit loss estimates among the IFRS 9 institutions surveyed about their practices. The study also quantifies the differences according to the methodologies the banks used to make their credit loss estimates. U.S. banks preparing for

CECL implementation, as well as IFRS 9 institutions, will find the results of this study useful.

Conducted in the fourth quarter of 2017, the study found that credit loss estimates varied significantly from institution to institution and that the main drivers for this variability lie in the different methodologies, data sources, and assumptions used to derive point-in-time probabilities of default, loss given default, multiyear probability-of-default curves, and expected lifetime (maturity) for revolving facilities. These differences occurred even though the surveyed banks based their estimates on a common macroeconomic forecast and were provided with detailed specifications (for example, a given maturity, a fixed loan-to-value ratio, a predetermined industry) for each hypothetical borrower to be assessed.

The impact of these factors on estimated credit losses varies by country. For large corporate customers, the variability factor was 12 on average and 15 in the U.K. In other words, one bank estimated a 12-month expected credit loss (ECL)[1] that is 12 times higher than another bank's ECL estimate for the same hypothetical borrower.

The variability factor is calculated by taking the highest ECL per borrower provided by a bank and dividing it by the lowest value provided by a bank.

For example, let's assume a portfolio of three hypothetical borrowers, each in a different country. Let's further assume that two banks deliver their ECL for those borrowers:

Bank A:
- Borrower 1 (U.K.): 10 basis points.
- Borrower 2 (U.S.): 20 basis points.
- Borrower 3 (Netherlands): 30 basis points.

Bank B:
- Borrower 1 (U.K.): 50 basis points (= higher than Bank A).
- Borrower 2 (U.S.): 10 basis points (= lower than Bank A).
- Borrower 3 (Netherlands): 6 basis points (= lower than Bank A).

In this case, the variability factor for the U.K. would be 50bp/10bp = 5, for the U.S. the factor would be 2, and for the Netherlands the factor would be 5. On average, the variability factor for this portfolio would be 4.

Other significant findings are as follows:
- Under IFRS 9 and CECL, banks are required to use their own macroeconomic forecast, which further increases the variability between banks, especially on lifetime ECL. For large corporates (that is, corporates with a consolidated turnover of more than 50 million EUR), the variability factor increases to 15 times on average, while in the U.K. the factor increases to 28 times.

- IFRS 9 requires banks to bucket their customers into different risk categories if they have experienced a "significant increase in credit risk since origination." Banks differ in the number of downward notches that trigger a movement of the borrower from Stage 1, where 12-month ECL is calculated, to Stage 2, where a lifetime ECL is calculated. The difference results from the various methodologies that banks have developed for their quantitative triggers. For example, those methodologies could be based on IFRS 9 lifetime PD versus purely ratings-based notches.

- Banks' 12-month ECL, which estimates the borrower's risk of default in the next 12 months, is naturally lower than the bank's lifetime ECL estimate. The study showed that, on average, the lifetime ECL for a five-year corporate loan is about 10 times higher than the 12-month ECL. However, looking at the variation between banks, the study indicates that banks' estimates vary more for the 12-month ECL than for the lifetime ECL. The variability factor for 12-month ECL is, on average, 12 times versus 10 times for the lifetime ECL.

Background

Following the 2008 financial crisis, the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) worked jointly to develop a forward-looking approach to account for credit losses. Both organizations intended to address concerns raised by a wide range of stakeholders.

In 2013 the methodologies of the two organizations split, and they issued separate but similar rules requiring banks to include reasonable and supportable forecasts in their credit loss estimates.

IASB published IFRS 9 in July 2014 with implementation required in 2018. FASB issued the current expected credit losses (CECL) rule in June 2016, setting an effective implementation date of 2020 for SEC-registered banks and 2021 for others.
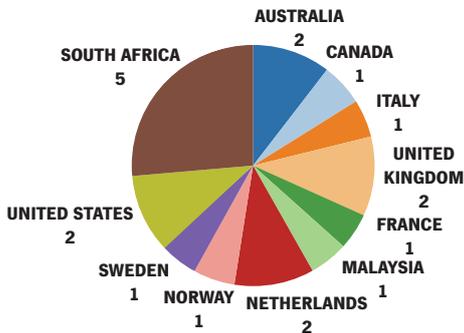
Source: Global Credit Data 2017 - IFRS 9 Benchmarking Study Report 2017 (Public report, December 22, 2017).

These rules represent a major shift in accounting rules for banks that once relied on past events and current conditions to estimate credit losses. Implementation entails cross-functional changes to the end-to-end reserving process for financial assets measured at amortized cost (including bank loan books).

About the Study

Global Credit Data (GCD) is a not-for-profit initiative to help banks measure their credit risk. Owned by more than 50 banks around the globe, GCD runs the world's largest wholesale bank loan databases, covering various Basel II asset classes (large corporates, banks, SMEs, and specialized lending) and market segmentations such as C&I loans, commercial real estate, and asset-based lending.

In the fourth quarter of 2017, GCD conducted a benchmarking study based on a hypothetical portfolio to support its member banks as they entered the final phase of IFRS 9 implementation: the calibration and validation of models, as well as the setting up of an end-to-end parallel run and preparing final disclosures. GCD is the first organization to perform a hypothetical portfolio study of banks' estimates of credit losses using IFRS 9.

The study was designed to allow the 19 participating banks from around the globe to compare their final model parameters and functionality anonymously

FIGURE 2: LARGE CORPORATES
Variability of Stage 1 ECL under common scenario (1/2)

BENCHMARKING STUDY RESULTS
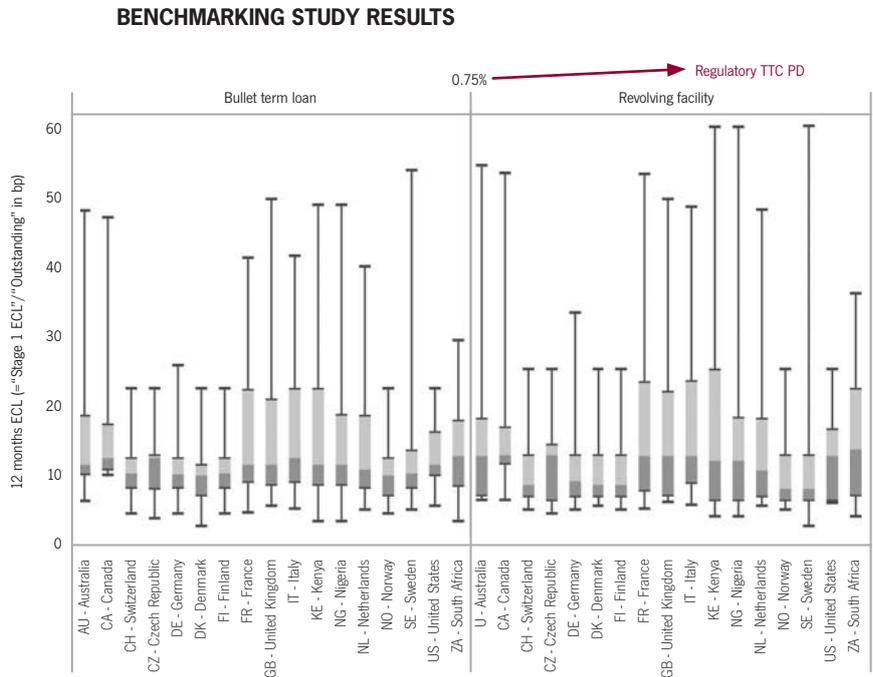
FIGURE 2 IS A BOX PLOT GRAPH that represents the Stage 1 ECL estimate of a bank defined as "12-month ECL under the assumption the borrower has not experienced a significant increase in credit risk since origination." The value provided by banks (in EUR) is divided by the given outstanding (in EUR) and expressed in basis points. (See "How to Read Box Plot Graphs," at right.)

- Banks' Stage 1 ECL estimates for those borrowers differ between 2 and 59 basis points, depending on the facility type and country.
- The variability between banks varies by country, with Italy showing the most variation driven by one outlier.
- All but two banks estimate a slightly higher 12-month ECL for a revolving facility than for a bullet term loan.
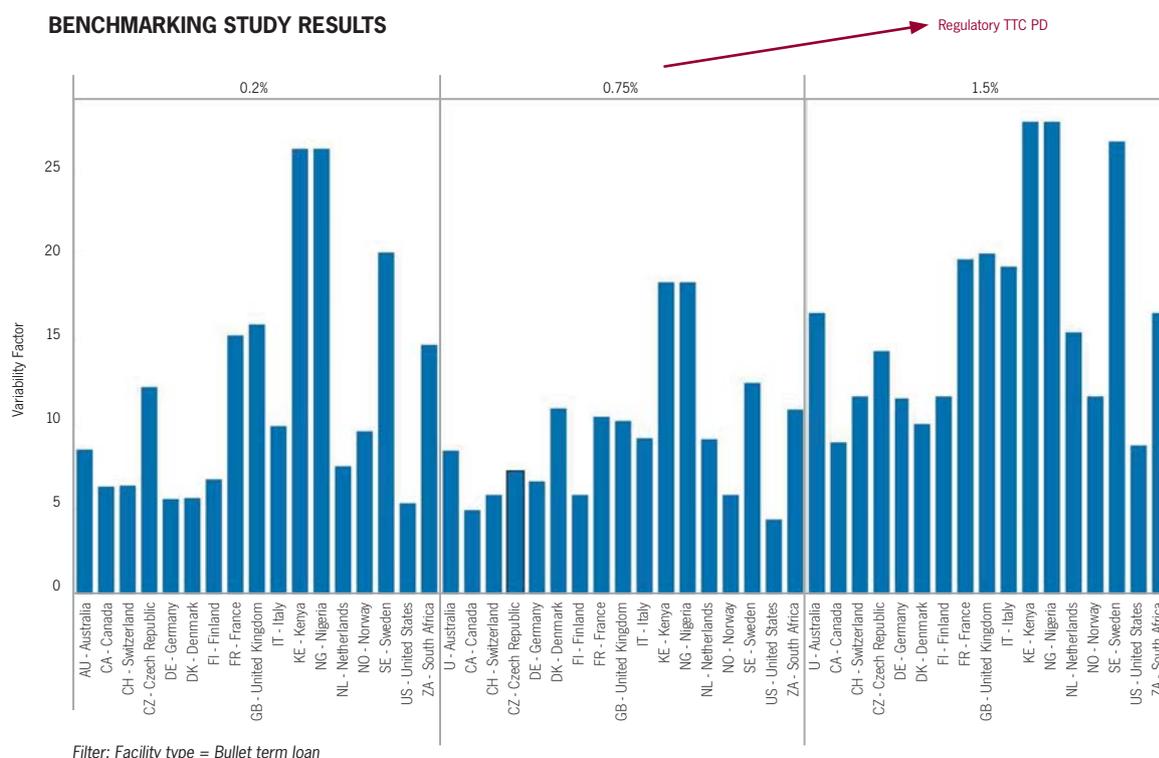
HOW TO READ BOX PLOT GRAPHS
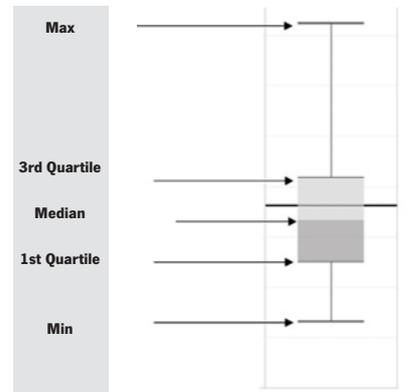
Source: Global Credit Data 2017 - IFRS 9 Benchmarking Study Report 2017 (Public report, December 22, 2017).

with peers, as indicated in Figure 1. Participating banks are also able to identify the reason for those differences by tracking back to detailed components.

The study is based on a hypothetical portfolio and compares the 12-month ECL, lifetime ECL, point-in-time probability of default (PiT PD), and loss given default (LGD) for secured and

unsecured loans. Each borrower in the hypothetical portfolio is defined by a certain set of variables chosen because they might impact the credit loss estimate. For example, the variables of an individual borrower would likely include the operating industry, maturity of the loan, type of loan, and collateral type. The following hypothetical borrowers

FIGURE 3: LARGE CORPORATES
Variability of Stage 1 ECL under common scenario (2/2)

BENCHMARKING STUDY RESULTS

Filter: Facility type = Bullet term loan

Source: Global Credit Data 2017 - IFRS 9 Benchmarking Study Report 2017 (Public report, December 22, 2017).

were chosen to be widely representative of a major part of GCD member banks' portfolios:

- 51 hypothetical borrowers in retail banking (mortgages).
- 101 hypothetical borrowers in wholesale corporate banking (SME).
- 102 hypothetical borrowers in wholesale corporate banking (large corporates).
- 19 hypothetical borrowers in specialized lending (income-producing real estate).
- 21 hypothetical borrowers in specialized lending (ship finance).

To isolate variances arising from differing macroeconomic forecasts, banks also provided ECL estimates using a common scenario assumption that required institutions to calculate ECL with perfect hindsight. To be concrete, banks were asked to use the actual values of their macroeconomic drivers from 2012 to 2016 as their forward-looking macroeconomic forecast.

Not all banks provided estimates for all hypothetical borrowers. On average, GCD has about eight to 10 banks' ECL estimates for a specific hypothetical borrower. (GCD returned data on a specific hypothetical borrower only if it had at least three estimates for that borrower.)

This article summarizes the main findings for the large corporate asset class, defined as exposure to corporates with a consolidated turnover of more than 50 million EUR.[2] In the United States, this asset class would be mostly recognized as C&I loans.

Large Corporates / C&I loans
Variability of Stage 1 ECL under a Common Scenario
For large corporates, the study focused on unsecured facilities for 102 hypothetical borrowers, differing in their regulatory PD (0.2%, 0.75%, 1.5%), country of risk (17 countries where GCD members mostly operate), and facility type (bullet loan ver-

sus revolving facility). The regulatory PD was given as a starting point, summarizing the creditworthiness of a borrower. Figure 3 shows the variation in "Stage 1 ECL" between countries for all hypothetical borrowers with a regulatory PD of 0.75% under the common scenario assumption.

The variation shown in Figure 3 is similar for hypothetical borrowers with different regulatory through-the-cycle probabilities of default (TTC PDs):

- PD = 0.2%: Stage 1 ECL differs between 0.4 and 17 basis points.
- PD = 0.75%: Stage 1 ECL differs between 2 and 59 basis points.
- PD = 1.5%: Stage 1 ECL differs between 3 and 118 basis points.

Figure 3 shows the variation in ECL between banks by calculating a variability factor per hypothetical borrower (= maximum value over all banks divided by the minimum value over all banks) under the common scenario assumption.

FIGURE 4: LARGE CORPORATES
Variability of the 12-month PD and LGD—Common Scenario

BENCHMARKING STUDY RESULTS

Variability of 12-month PD and LGD—Common scenario assumption

Regulatory TTC PD

PIT PD < Regulatory TTC PD   PIT PD > Regulatory TTC PD
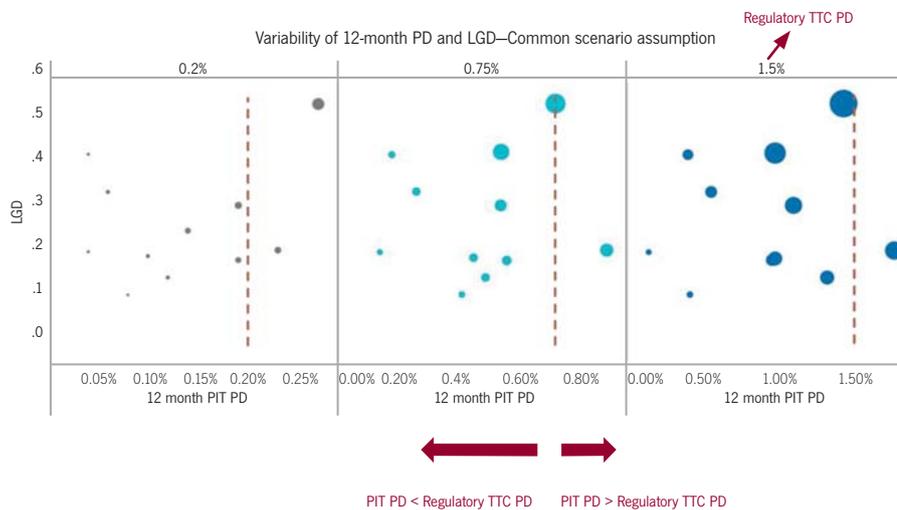
Filter: UK, Facility type = Bullet term loan
The size of the dots represents the 12-month ECL.

Source: Global Credit Data 2017 - IFRS 9 Benchmarking Study Report 2017 (Public report, December 22, 2017).

The variability factors differ between 4 and 28, depending on the country and PD. This variability means that the ECL of a specific bank is, for example, 28 times higher than the ECL of another bank for the same hypothetical borrower. On average, for all hypothetical borrowers in the large corporate asset class, the variability factor is 12.

Variability of the 12-month PD and LGD Using the Common Scenario
Banks typically use different methodologies, data sources, and assumptions to model LGD and PD, so some variability in their Stage 1 ECL is expected. However, the magnitude of the variability among the study participants is surprising.

In a recent survey that included in-depth discussion about the methodologies that banks use to determine PiT PD, GCD learned that most are using the regulatory TTC PD as the starting point for their modeling. That's why we chose to provide banks with the TTC PD as the starting point in this benchmarking survey.

Figure 4 shows the variation between banks for a specific hypothetical borrower

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BANKS TYPICALLY USE different methodologies, data sources, and assumptions to model LGD and PD, so some variability in their Stage 1 ECL is expected.

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in the U.K. The unsecured manufacturing industry borrower has a bullet term loan with a remaining legal maturity of five years. The variability is as follows:

- For a TTC PD of 0.2%, the PiT PD differs between 0.04% and 0.27%.
- For a TTC PD of 0.75%, the PiT PD differs between 0.14% and 0.89%.
- For a TTC PD of 1.5%, the PiT PD differs between 0.15% and 1.75%.

- The LGD values differ between 15% and 57%.

The other hypothetical borrowers show a similar variability. This variability results not from a different economic outlook, but rather from each bank's default history in a specific country, the techniques they used to create their PiT PD models, or the different assumptions they used in their modeling and data preparation.

Figure 4 also demonstrates that, under the common scenario assumption, most banks assume a lower PiT PD than the regulatory TTC PD provided for each hypothetical borrower (0.2%, 0.75%, 1.5%). A reason for the lower PiT PD assumptions could be that banks include a certain "margin of conservatism" in their regulatory TTC PDs, which they remove for provisioning purposes. It's also possible that banks may consider the current economic circumstances as being more positive than the long-term average.

Variability of Stage 2 ECL under a Common Scenario
When moving from a 12-month horizon to the lifetime horizon, as required for Stage 2 assets, banks' ECL estimates increase while the variability between the banks' estimates decreases.

Under our common scenario assumption, banks' Stage 2 ECL varies accordingly:
For a TTC PD of 0.2%...
- between 4.6 and 176 basis points (bullet term loan).
- between 0.27 and 54 basis points (revolving loan).
For a TTC PD of 0.75%...
- between 14.6 and 379 basis points (bullet term loan).
- between 1.9 and 197 basis points (revolving loan).
For a TTC PD of 1.5%...
- between 23 and 637 basis points (bullet term loan).
- between 3.3 and 390 basis points (revolving loan).

Figure 5 shows the variability between countries for a hypothetical borrower

with a regulatory PD of 0.75%. The ECL in this portfolio study is generally higher for bullet term loans than for revolving loans because we required participants to assume a remaining legal maturity of five years for the bullet term loans and one year for the revolving facilities. Some banks have different ECL estimates for each country, while others apply the same ECL to countries in the same region (for example, within Europe or Africa).

Note that the variability between banks differs by country and facility type. On average, the variability factor between banks is 10—and slightly lower than for the Stage 1 ECL under the common scenario, which has an average of 12.

Multiyear PD Curves
Another important driver for the difference between banks' credit loss estimates is the difference in their multiyear PD curves.

The chart on the left side of Figure 6 shows the difference in PiT PD curves for one specific hypothetical borrower in the U.K. with a regulatory PD of 0.75%. The unsecured borrower in the manufacturing industry has a bullet term loan with a remaining maturity of five years under the common scenario assumption. When the banks' own scenario set is applied, similar differences can be found for all hypothetical borrowers with different facility types and regulatory PDs.

Banks vary in the one-year PiT PD and in the steepness of the curve, which can be measured, for example, as five-year PiT PD / one-year PiT PD. This PD curve multiplier is plotted on the right-side chart of Figure 6 and shows that banks have multipliers ranging from 3 to 46.

Methodological Modeling Choices and Supervisory Expectations
In building their framework for IFRS 9 or CECL, institutions choose from a range of credit risk modeling approaches (see box on the next page). Credit risk professionals understand the assumptions required by the various modeling methods, as well as their advantages and limitations. Most institutions are already

FIGURE 5: LARGE CORPORATES
Variability of Stage 2 ECL under common scenario

BENCHMARKING STUDY RESULTS
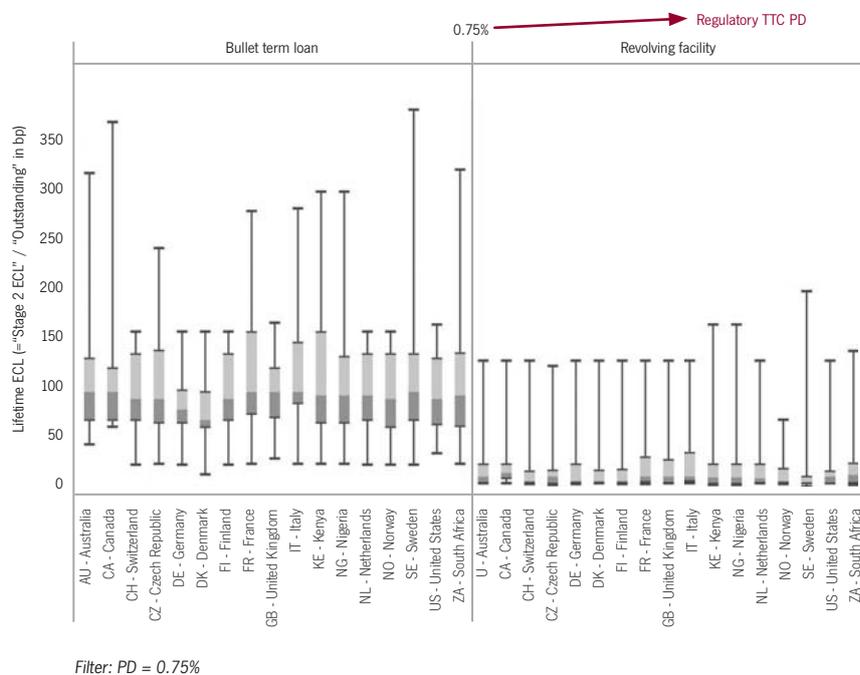
Filter: PD = 0.75%

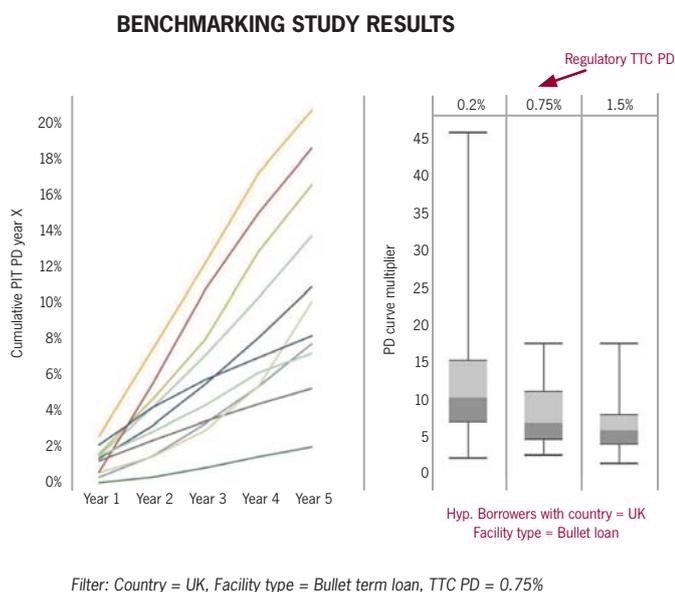Source: Global Credit Data 2017 - IFRS 9 Benchmarking Study Report 2017 (Public report, December 22, 2017).

using those methodologies in their stress-testing frameworks and/or economic capital calculations. Now they are refining them for use in their IFRS 9 / CECL impairment calculation as the accounting standards require a lifetime perspective on the financial instruments under expected market conditions. Stress testing, however, focuses on the expected loss in the next two to three years under the assumption of extreme market conditions.

Modelers make many decisions as they choose among methodologies, not only for the general framework but for the individual components of that framework. Since the models contain a high level of uncertainty, considerable variability between banks is to be expected. The modeling development process includes testing various approaches and benchmarking the results against each other. Little overall market insight currently exists as to how the different modeling approaches, data sources, and assumptions affect the final ECL number.

In the last years, many accounting and consulting firms have run surveys on the breadth of possible methodologies that institutions can use to determine expected credit losses under IFRS 9. In 2016, the world's six largest accounting networks under the auspices of the Global Public Policy Committee (GPPC) issued a paper offering guidance to institutions regarding the implementation of accounting for expected credit losses. The guidance aims to promote high-quality implementation of IFRS 9, which it says has the potential to benefit many stakeholders.

The organization cautions that a low-quality implementation based on approaches that are not fit for this purpose can risk undermining confidence in the financial results of banks. Meanwhile, the banking regulators, including the Basel Committee on Banking Supervision (BCBS), have issued guidance documents to ensure a high-quality implementation (see https://www.bis.org/bcbs/publ/d350.pdf).

BENCHMARKING STUDY RESULTS

Filter: Country = UK, Facility type = Bullet term loan, TTC PD = 0.75%

APPROACHES TO CREDIT RISK MODELING

Institutions choose from a range of credit risk modeling approaches in building their framework for IFRS 9 or CECL. Each approach has strengths and limitations:

- **Top-down loss model.** These models employ a simple historical charge-off rate (gross or net charge-offs divided by outstanding exposure or commitments). Its look-back period varies according to the robustness of observations and the modeling objective. It may use regression of charge-off rates to macroeconomic variables for certain business uses.
- **Vintage loss models.** These models use a cumulative estimate of defaults or losses from the origination date over the life of the loan. The average of many historical vintages is reflected in the baseline curve. For any segment experiencing above or below average losses, modelers may apply a scaling mechanism.
- **Roll rate or transition rate models.** These models estimate migration from an existing delinquency/rating state to another delinquency/rating state, or directly to default. These can be simple ratio-based rolls or rating to default, or they can be more dynamic flow models or full rating transitions. Some models may incorporate macroeconomic regression of delinquency rolls or rating transitions. They usually incorporate separate severity/LGD models.
- **Loan-level default and severity models.** These models predict default probability (PD = probability of default) and/or loss severity (LGD = loss given default) using loan-level characteristic data that can be tied to macroeconomic forecasts.

Clearly, implementation of IFRS 9 and CECL is a long journey, but it will ultimately lead to new risk measurement methods. Investors as well as regulators will want a range of acceptable practices so they can properly analyze loss projections. Those practices will be determined by either the industry or the standard setters.

Recommendations for IFRS 9 and CECL Institutions

Now is the time to begin benchmarking current expected credit losses. Regulators and auditors require both IFRS 9 and CECL institutions to regularly validate their credit loss estimates, and benchmarking is an integral part of that validation process. U.S. institutions should benchmark early to avoid surprises later. In many jurisdictions, regulators require validation even before implementation (see the BCBS guidance).

When building and refining your models, consider these recommended steps:
- Benchmark all levels of your models (data, assumptions, and methodologies). The GCD study shows that the

variability between banks exists. Regulators and auditors will eventually question that variability further.
- Perform a sensitivity analysis to determine what drives the final ECL value. This analysis is key, especially given the enormous possible choices you have in modeling ECL.
- Engage in peer discussions. Your benchmarking should be based on facts, not on rumors about what other banks may be doing.
- Follow the review of your CECL and IFRS 9 calculations with an internal discussion on the appropriateness of the bank's assumptions and other variables that contributed to your result.

CECL and IFRS 9 represent groundbreaking changes for the financial services industry. As institutions develop more precise methods for improving future credit loss estimates, you can expect regulators and auditors to focus on differences and push for greater consistency. Benchmarking your calculations now will surely enhance your institution's credit loss forecasts going forward.

GCD will conduct this benchmarking study again in 2018, both for the IFRS 9 and for the CECL framework. Institutions that would like to participate in this study should contact the author of this article (Daniela.Thakkar@global creditdata.org). ®

Daniela Thakkar is methodology and membership executive at Global Credit Data, which is headquartered in The Netherlands. She can be reached at Daniela.Thakkar@globalcreditdata.org. A powerpoint detailing the results of this benchmarking study is available on the Global Credit Data website, www.globalcreditdata.org.

Notes
1. IFRS 9 has three distinct stages. The majority of IFRS 9 banks will fall into Stage 1, where the estimation of 12-month ECL is required. Only Stage 2 and Stage 3 require a lifetime perspective. CECL does not distinguish between different stages and requires a lifetime perspective for all assets.

2. Consolidated turnover is the turnover of the total (corporate) group and not of one individual legal entity.