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Demystifying Expected Credit Loss (ECL)

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Foreword

The Reserve Bank of India (RBI) has announced the roadmap for adoption of the Indian Accounting Standards (Ind AS) that converges with the International Financial Reporting Standards (IFRS) from April 2018. Among the Ind AS standards, the standard on Financial Instrument: Ind AS 109 (similar to IFRS 9) significantly impacts financial services organisations.

Ind AS 109 introduces a requirement to compute Expected Credit Loss (ECL) on all financial assets, at the time of origination and at every reporting date. The new impairment requirement is set to replace the current rule based provisioning norms as prescribed by the RBI.

The new impairment provision becomes applicable in times of high NPA levels and stressed asset situation experienced in the banking sector. The new impairment provision would require both financial services entities and the regulator to take a closer look at the impact on capital planning, pricing and alignment to risk management.

Across the globe, a number of banks and financial institutions have recently intensified their implementation efforts on the new impairment requirements. The ECL norms are likely to result in enhanced provisions given that they apply to off balance sheet items such as loan commitments/financial guarantees also. The International Accounting Standards Board and other agencies have released various reports which includes some qualitative and quantitative observations of the impact assessment on new provisioning norms.

The introduction of the forward-looking ECL model aligns the provision on financial assets consistent with their economic value and is more proactive during an economic downturn. However, the three stage credit loss recognition that requires advanced credit risk modelling skills and high quality data, poses a new challenge to many banks.

Ind AS 109 lists down various risk components and its requirements for ECL modelling in order to be compliant but does not prescribe any fixed methodology. Internationally the central banks, expect the financial entities to implement advanced modelling techniques in order to arrive at a robust credit risk estimate.

Going forward, the ECL numbers are bound to find use across various decision-making processes in the financial institutions like loan origination, pricing of loans, Internal Capital Adequacy Assessment Process (ICAAP), capital planning evaluation of key performance indicators.

Decisions based on incorrectly designed or implemented methodology to compute and interpret expected credit loss may negatively affect financial entities. An inaccurate estimation of ECL can affect earnings adversely in the short run and result in loss of capital in the long run.

Through this publication, we aim to demystify the requirements of ECL under the new standard based on our experience. This report aims to help various stakeholders adopt a sound and market proven methodology to compute the expected credit loss.

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Introduction to the new impairment requirements in India

The Ministry of Corporate Affairs (MCA), Government of India had notified the Companies (Indian Accounting Standards) Rules, 2015 on 16 February 2015. Through its press release dated 18 January 2016, the MCA outlined the roadmap for implementation of International Financial Reporting Standards (IFRS) converged Indian Accounting Standards for banks, non-banking financial companies, select all India term lending and refinancing institutions and insurance entities.[1]

The Reserve Bank of India (RBI) subsequently through its circulars on the implementation of Indian Accounting Standard (Ind AS) dated 11 February 2016 and 4 August 2016, advised all scheduled commercial banks and financial institutions to comply with Ind AS for financial statements for accounting periods beginning from 1 April 2018 onwards, with comparatives from the periods ending 31 March 2018 or thereafter. Ind AS 109 Financial Instruments, which forms part of the Ind AS framework is similar to IFRS 9 as issued by the IASB which is effective from 1 January 2018.

The forward-looking ECL approach represents a regime shift in the banking industry, both globally and in India. The approach is significantly different from the current practice of provisioning under the Income Recognition Asset Classification and Provisioning (IRACP) norms as prescribed by the RBI.

The ECL model has been introduced to replace the incurred loss model, which was widely criticised for not recognising the credit losses at an early stage and underestimating the losses especially during economic downturns and financial crisis situations. The new impairment requirements for financial assets provides a forward-looking 'expected credit loss' framework which unlike the current regime, does not recognise losses based only upon a set of past and current information.

While IFRS 9 permits early adoption, the RBI has not permitted early adoption of Ind AS by banks and non-banking finance companies.[2]

Ind AS 109 does not specifically prescribe the use of any particular methodology for computing ECL. However, entities are expected to adopt sound and market acceptable methodologies which are in line with the size, complexity, and risk profile of the financial entity for computing ECL. This publication aims to demystify the approach for computing ECL while adopting the standard consistently across the board and meeting the global objective of publishing comparable financial statements.

1. Implementation of Indian Accounting Standards (IND AS) 11 February 2016.
2. Indian Accounting standard [Ind AS] 109 Financial Instruments

Overview of ECL requirements under Ind AS 109

Under Ind AS 109 Financial Instruments, financial assets are classified and measured on the following basis:

- Amortised Cost (AC);
- Fair Value Through Other Comprehensive Income (FVOCI)
- Fair Value Through Profit and Loss account (FVTPL)

Impairment model under Ind AS 109 applies to financial instruments as listed below[3]:

- Financial assets that are debt instruments measured at AC or FVOCI
- Loan commitments not measured at FVTPL
- Financial guarantee contracts issued in the scope of Ind AS 109 not measured at FVTPL
- Lease receivables in the scope of Ind AS 17.

However, investments in equity shares and financial instruments measured at FVTPL are out of the scope of ECL.

Approaches for computation[2]

Ind AS 109 does not prescribe a single method to measure ECL. The method used could vary based on the type of financial asset and information available.

The below mentioned approaches have been defined in the standard for recognising impairment losses:

The general approach

The objective of impairment requirements under the general approach is to recognise lifetime ECLs for all financial instruments for which there has been a significant increase in credit risk since origination. The assets which have not undergone any significant deterioration shall be recognised with only 12-month ECLs.

Purchased or originated credit impaired financial assets (POCI)

This approach is relevant only for purchased or originated financial assets that are, "credit impaired", at initial recognition. Initial recognition is generally at fair value / purchase price, and hence, no loss allowance recognised at initial recognition.

Under POCI, impairment is always measured on the basis of lifetime expected loss (EL) and the changes in lifetime EL since initial recognition is recognised as a loss allowance is in the P/L account.

Simplified approach

The simplified approach is mandatory for trade receivables without a significant financing component and optional for lease and trade receivables with a significant financing component. Under the simplified approach as well, there is no distinction between stage 1 (Initial recognition) and stage 2 (Significant increase in credit risk) and requires calculation of lifetime expected loss for each asset.

Given that financial services entities are impacted by the new impairment rules, simplification and identification of the ECL components are critical. Elements required for ECL computation are.

Segmentation

The impairment approach under Ind AS 109 requires financial entities to segment their portfolio based on their risk profiles.

Using a similar portfolio segmentation approach will help banks in generating synergies both in the short term and the long term.

As a first-level segmentation, banks can segment their portfolios into:

- Corporate loans (term loans, overdrafts, working capital loans, LC refinance loans)
- Retail loans (consumer, mortgage, vehicle and credit card)
- Agriculture loans (Kharif and Rabi crops)
- Investments (bank, sovereign and corporate)
- International banking division (loans to corporates overseas/other than domestic countries)
- Loans to banks and sovereigns.

Further, the possible segments for the corporate portfolio of a bank can be listed as below:

- Segmentation of borrowers based on different sectors
- Segmentation of borrowers based on exposure size
- Segmentation of borrowers based on tenure
- Segmentation of borrowers based on a customer

2. Indian Accounting standard (Ind AS) 109 Financial Instruments

group e.g. exposure to banks and financial institutions, exposures to sovereign enterprises (government), etc.

The retail portfolio shall be segmented by product types or pooled based on various individual and behavioural characteristics.

The possible segments for the retail (mortgage, vehicle, credit card and consumer loan) portfolio of a bank can be listed as below:

- Salaried/non-salaried/self employed
- Public/private sector employee
- Income group of the borrower
- Collateral coverage ratio of the facility
- Postal code/ zip code.

The objective of segmentation is to arrive at homogeneous groups of borrowers to determine default rates in a meaningful manner.

Staging

Under Ind AS 109 general approach, all financial instruments are allocated to stage 1 on initial recognition. However, if a significant increase in credit risk is identified at the reporting date compared with initial recognition, then an instrument is transferred to stage 2. If there is objective evidence of impairment, then the asset is credit-impaired and transferred to stage 3.

For financial assets in stage 1, the impairment has to be calculated based on defaults that are possible in the next 12 months, whereas for financial instruments in stages 2 and 3 the ECL calculation considers default events over the whole lifespan of an instrument. It is pertinent to note that entities should consider all the relevant factors for determining significant increase in credit risk as it may record higher provision if lifetime PD has been applied.

The differentiation between stages 1 and 2 is based on a relative approach, because it reflects the significance of the increase in credit risk since initial recognition of an instrument. In contrast, the assignment to stage 3 is based on an absolute threshold – i.e. the status of being credit-impaired.

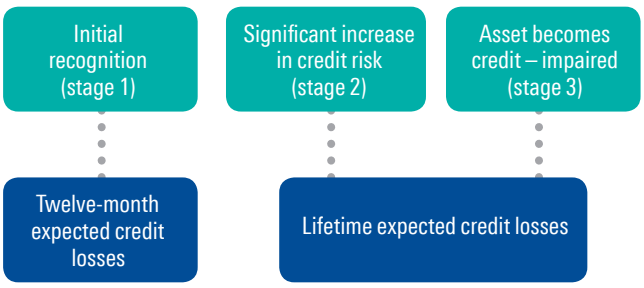
To determine whether there has been a significant increase in credit risk, Ind AS 109 requires a comparison of the risk of default estimated on initial recognition with the risk of default estimated at the reporting date, using the change in the risk of default occurring over the expected life of a financial instrument as an assessment tool. The comparison takes into account the impact of a decrease in maturity.

Ind AS 109 also states that in some cases, the change in the 12-month risk of default may be a reasonable approximation of the change in the lifetime risk of default. This can be considered unless circumstances indicate that lifetime assessment is necessary. To justify the use of the 12-month risk of default as a basis for assessment, a periodic review of its appropriateness should be performed.

To determine if the risk of default of a financial instrument has increased significantly since initial recognition, the current risk of default at the reporting date is compared with the risk of default at initial recognition. To make the assessment, the bank considers changes in the risk of default instead of changes in the amount of expected credit losses.

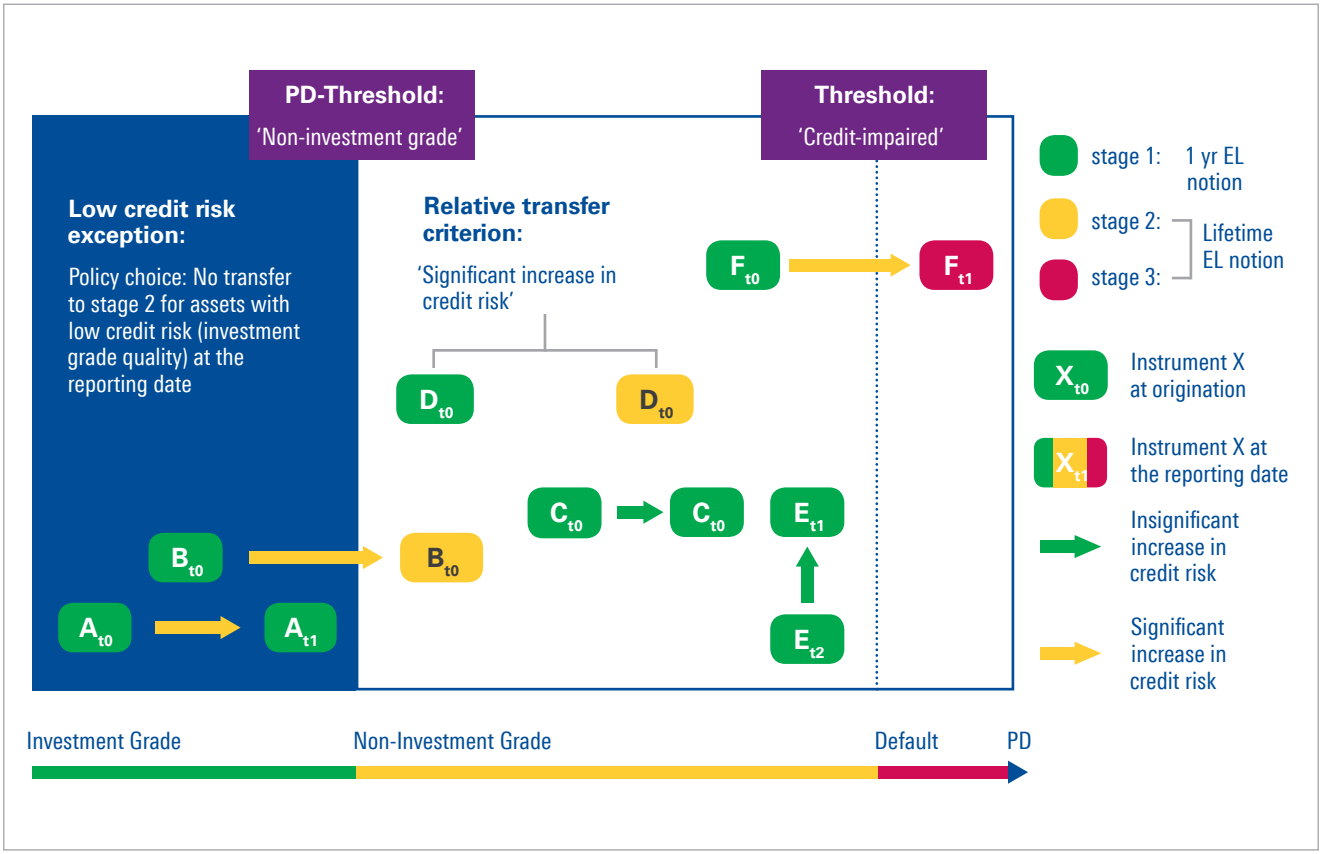
Assessment of whether there has been a significant increase in credit risk is required to be carried out at each reporting date. An asset can move into and out of the lifetime ECLs category based on the fact pattern.

The term 'significant increase' has not been defined in Ind AS 109. Determining if there has been a significant increase in credit risk requires considerable judgement of bank's risk management department.



Ind AS 109 Impairment model [3]

3. KPMG Global (In House developed)



Pictorial view of staging requirements under Ind AS 109 [3]

The assessment of whether there has been a significant increase in credit risk is made for a specific instrument rather than for a counterparty, since the quantum of change in credit risk may be different for different instruments transacted with the same party. Also, different instruments issued by the same counterparty may have had a different credit risk at initial recognition.

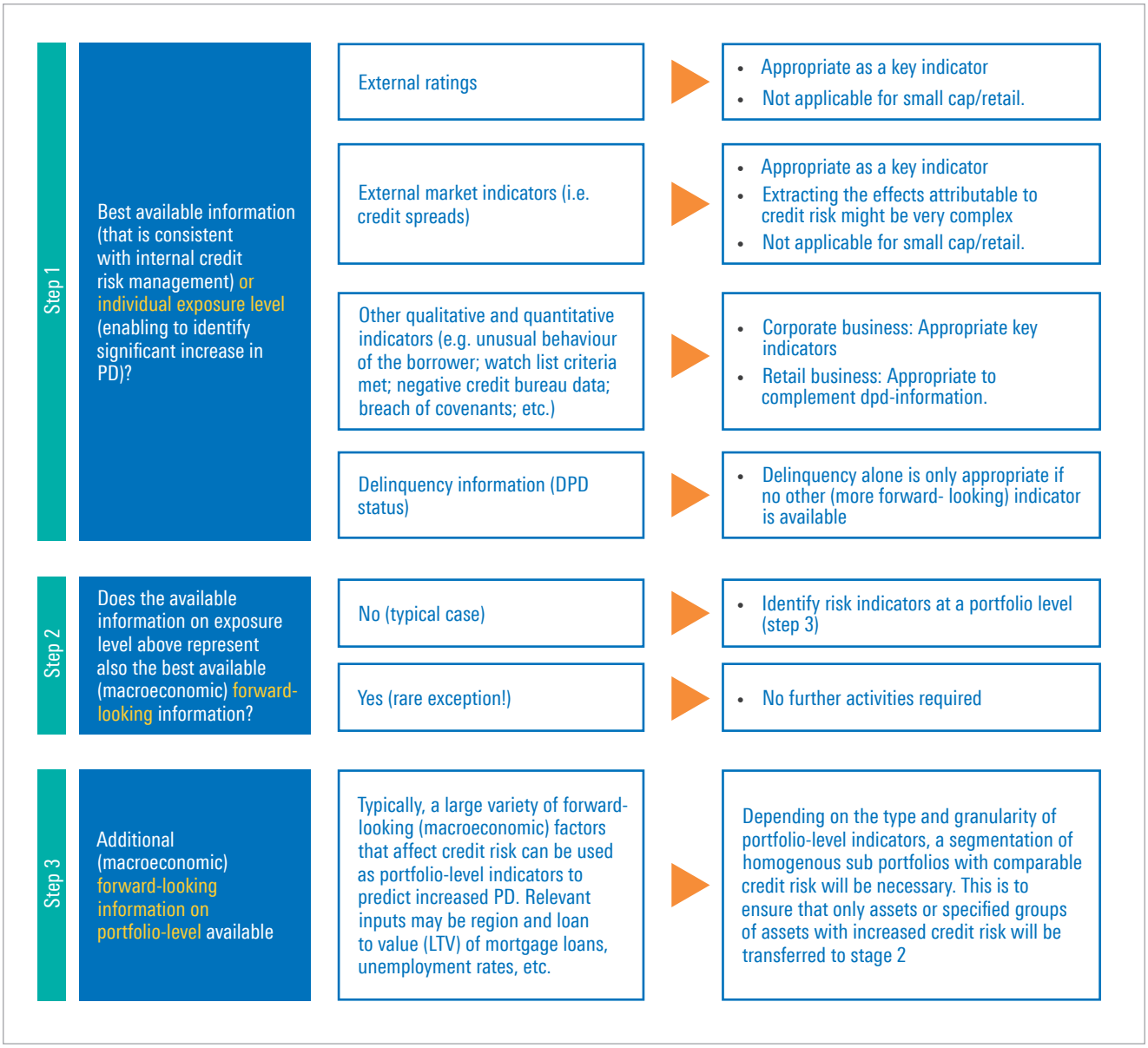
Ind AS 109 defines a rebuttable presumption to recognise lifetime expected credit losses for assets where payments are due for more than 30 days. This presumption is not an absolute indicator, but is presumed to be the minimum point at which lifetime expected credit losses should be recognised even when using forward-looking information. The presumption can be rebutted only if the bank has reasonable and supportable information demonstrating that even if contractual payments are more than 30 days past due, it does not represent a significant increase in credit risk.

If there has been a significant increase in credit risk since the initial recognition of a financial asset in scope, expected credit losses are measured at the reporting date as lifetime expected credit losses. The bank assumes that the credit risk on a financial instrument has not increased significantly since initial recognition if the financial instrument is determined to have low credit risk at the reporting date.

In case of corporate portfolio, the internal rating downgrades play a significant role in defining a deterioration in credit quality. It becomes a necessity to check whether the credit rating model is able to discriminate between a good and a bad borrower and whether ratings have been calibrated to the expected probability of default. In order to maintain the accuracy of the assignment of the internal credit ratings, banks should periodically validate their credit rating models based upon various statistical tests.

3. KPMG Global (In House developed)

Steps involved in identifying a staging criteria[3]



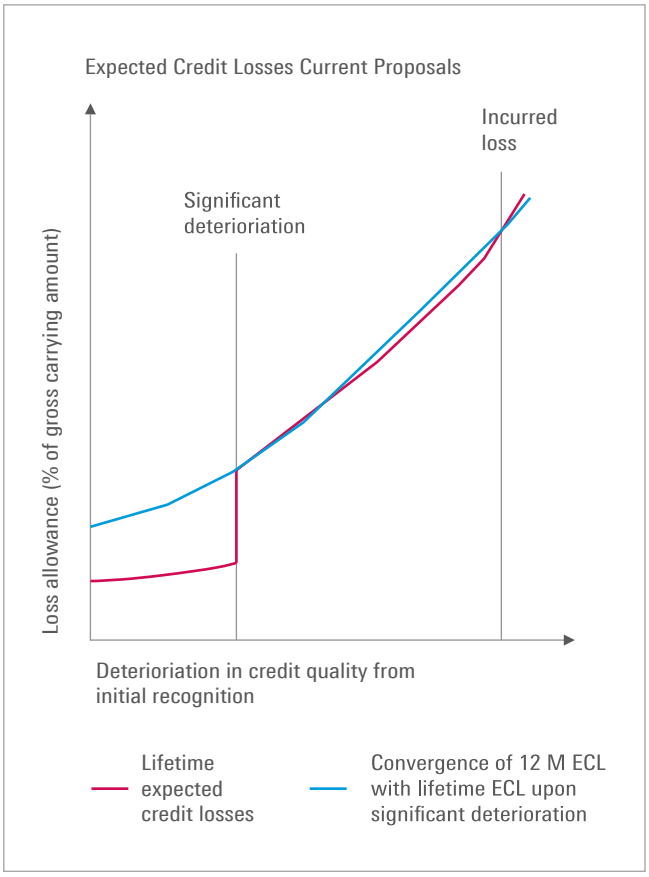
3. KPMG Global (In House developed)

Significant Increase In Credit Risk (SICR)

- To determine if the risk of default of a financial instrument has increased significantly since initial recognition, the current risk of default at the reporting date should be compared with the risk of default at initial recognition
- Assessment of whether there has been a significant increase in credit risk is required to be carried out at each reporting date. An asset can move into and out of the lifetime expected credit losses category based upon whether it has undergone a significant increase in credit risk
- Entities may also apply overlays to determine the significant increase in credit risk based on the forecasted macro-economic scenarios.

Exposures allocated under stage 1 are assigned a 12-month ECL whereas exposure allocated to stage 2 are assigned a lifetime ECL.

IAS 39 (Incurred) versus Ind AS 109 (Expected)[3]



The above figure depicts the difference between the incurred loss and expected loss model.

Possible SICR definitions may include the following:

- 30 days past dues
- A multiple notch internal rating downgrade as compared to original rating
- Facilities under 5/25 scheme, S4A
- Borrowers in a particular industry under stress
- Borrowers in a particular country/region under high political risk
- Borrowers who are part of a watch list
- Breach in financial/performance covenants.

3. KPMG Global (In House developed)

ECL parameters

ECL

ECL on financial assets is an unbiased probability weighted amount based out of possible outcomes after considering risk of credit loss even if probability is low.

ECL can be defined as the difference between cash flows due under the contract and cash flows that an entity expects to receive.

The modelling of Ind AS 109 compliant impairment requirements of a financial instrument is central to both the calculation of lifetime ECL and stage allocation.

The ECL formula can be defined as following:

$$ECL = \sum_{t=1}^{T} MPD_t * LGD_t * EAD_t * D_t$$

Hence the 12 months ECL or Lifetime ECL is calculated based on the following components:

- Marginal Probability of default (MPD)
- Loss given default (LGD)
- Exposure at default (EAD)
- Discount factor (D)

Probability of default (PD)

PD is defined as the probability of whether borrowers will default on their obligations in the future. For assets which are in stage 1, a 12-month PD is required. For stage 2 assets, a lifetime PD is required for which a PD term structure needs to be built.

Historical PD derived from a bank's internal credit rating data has to be calibrated with forward-looking macroeconomic factors to determine the PD term structure.

The forward-looking PD shall reflect the entities' current view of the future and should be an unbiased estimate as it should not include any conservatism or optimism.

The following list of methodologies can be used to generate forward-looking PD term structures:

- Markov chain model
- Parametric survival regression (Weibull model)
- Vasicek single factor model
- Forward intensity model on distance-to-default approach (public-listed firms)
- Pluto Tasche PD model (low/no default portfolio)

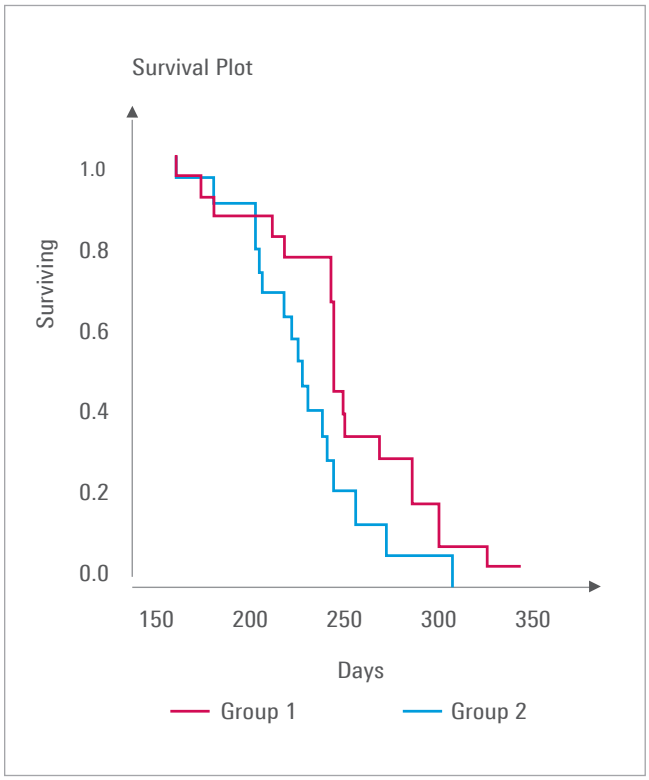
Markov chain model

The Markov chain model to build a PD term structure requires plotting of transition matrices till the lifetime of the asset.

Markov chain is built by matrix multiplication of PIT PDs. The chain is overlayed with credit index (representation of the economic conditions of that particular year) to derive forward-looking PDs. The transition matrices are then multiplied to compute the cumulative or lifetime PD over particular maturities. The matrix multiplication ensures movement of a performing loan to default over a period of time.

Parametric survival regression (Weibull Model)[4]

The principle of the parametric survival regression is to link the survival time of an individual to covariates using a specified probability distribution (generally Weibull distribution). The Weibull model is a well-recognised statistical technique for exploring the relationships between the survivals of the borrowers, a parametric distribution and several explanatory variables. In estimating the probability of default under the new standard the variables shall be the forward-looking macroeconomic factors. Once the parameters to the distribution and various explanatory variables have been established, forecasted point-in-time PDs can be derived for individual borrowers or certain segments collectively.



The survival plot analysis using parametric survival regression. [5]

4. XLSTAT Parametric survival regression model
5. KPMG India (In house analysis)

The survival plot modelled through Weibull parametric regression shows the survival probabilities of two different groups with number of days as explanatory variable. The survival probability of group 1 is higher as the days increase as compared to group 2 borrowers.

The survival probabilities are also dependent upon the confidence interval chosen.

Vasicek single factor model[6]

There are various PD modelling techniques which can be used in order to derive forward-looking PDs for the portfolios which do not have any internal default history. The Vasicek single factor model is popular generally for investment portfolio whereby external ratings with corresponding through the cycle (TTC) PDs are available from various rating agencies. The derivation of point in time PDs based upon the impact of relevant macroeconomic factors takes place through The Vasicek approach after incorporating the asset correlation.

The Vasicek model uses three inputs to calculate the PD for an asset class.

- TTC PD specific for an asset class
- Portfolio economic index over the interval (0,T) for which the PDs are estimated
- Lifetime PDs are calculated using the following Link Function #[6]:

$$f(PD,\rho,S_t) = \Phi\left(\frac{\Phi^{-1}(pd) - \sqrt{\rho}S_t}{\sqrt{1-\rho}}\right)$$

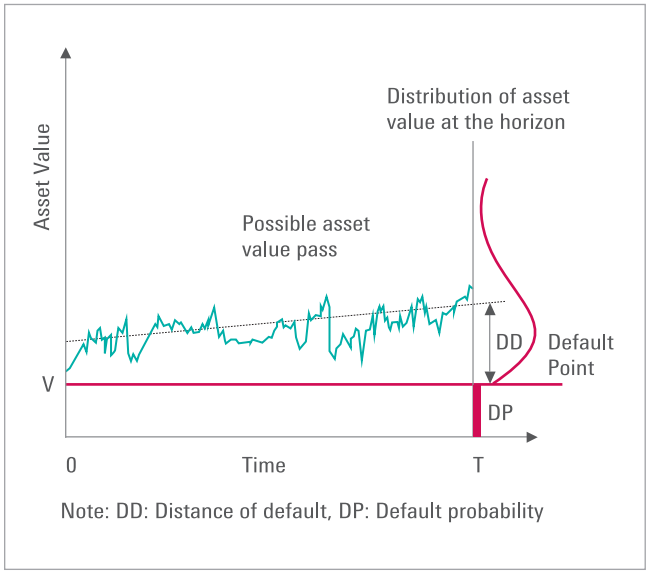
In the case of investments, we may obtain TTC PD's from S & P Default Study, Fitch or Moody's. Asset correlation (ρ) is calculated using Basel risk weight formula[7] i.e.

$$\rho = 0.12 * \frac{(1-e^{-50*pd})}{1-e^{-50}} + 0.24 * (1 - \frac{(1-e^{-50*pd})}{1-e^{-50}})$$

Forward intensity model on distance to default approach[8]

This methodology employs both market-based and accounting-based firm-specific attributes, as well as the macro-financial factors. The PD is based on the forward intensity model applied for corporate default prediction and uses a bottom-up approach to aggregate individual firms' behaviours into a portfolio's default profile. The PD by modelling the occurrences of default as Poisson processes, each with its own stochastic intensity. Forward intensities are the building blocks to generate a forward-looking PD term structure from one month up to five years.

The distance of default takes into account the following data points: asset value, default point, asset volatility, non-interest income and prediction period.



The above graph measures the default probability based upon the current asset value of the loan

Pluto Tasche PD model

The Pluto Tasche PD model is used to model low default portfolios based upon the assumption that the PDs increase as we move down the rating grades (best to worst) because the borrowers in the worse rating grades fall in the zone of rejection. The zone of rejection depends upon the confidence interval chosen.

With the decrease in the confidence interval, the range for rejection or defaults decrease, and hence, very few borrowers are in that range, thus decreasing the PDs as compared to a higher confidence interval.

With the varying confidence interval, the PDs might vary. Hence to remove such a variance, scaling can be instrumental.

The objective of scaling is to restrict the maximum number of defaults that will occur in a given portfolio based on either the historical average default rate or a management estimate of the same. The scaling factor will either pull up the PDs or push them down depending on the input of the number of borrowers and the average default rate.

Banks should ascertain that their rating models are well calibrated and validated from time to time to assure good discriminatory power across the rating grades, and should conclude that risk increases as we move down the rating grades in any model where Pluto Tasche is being used for PDs generation.

6. Centre for central banking studies – Handbook no 34 Modelling credit risk) 2015
7. Basel committee on banking supervision - International convergence of capital measurement and capital standards June 2006
8. Modelling default risk K.M.V LLC Peter J Crosbie and Jeffrey R. Bohn January 2002

Loss given default (LGD)

LGD is an estimate of the loss from a transaction given that a default occurs. Under Ind AS 109, lifetime LGDs are defined as a collection of LGD estimates applicable to different future periods.

LGD is one of the key components of the credit risk parameters based ECL model. In the context of lifetime ECL calculation, an LGD estimate has to be available for all periods that are part of the lifetime horizon (and not only for the case of a default within the next 12 months as under Basel II).

The LGD component of ECL is independent of deterioration of asset quality, and thus applied uniformly across various stages.

The following methodologies are widely used to estimate LGD:

- Workout LGD
- Market LGD
- Asset pricing model/Implied market LGD
- Market-based model.

Workout LGD

The set of estimated cash flows resulting from the workout and/or collections process (the loss of principal, the carrying costs of non-performing loans, e.g. interest income foregone and workout expenses like collection charges, legal charges) is properly discounted at the original EIR, and divided by the defaulted exposure gives the LGD estimate.

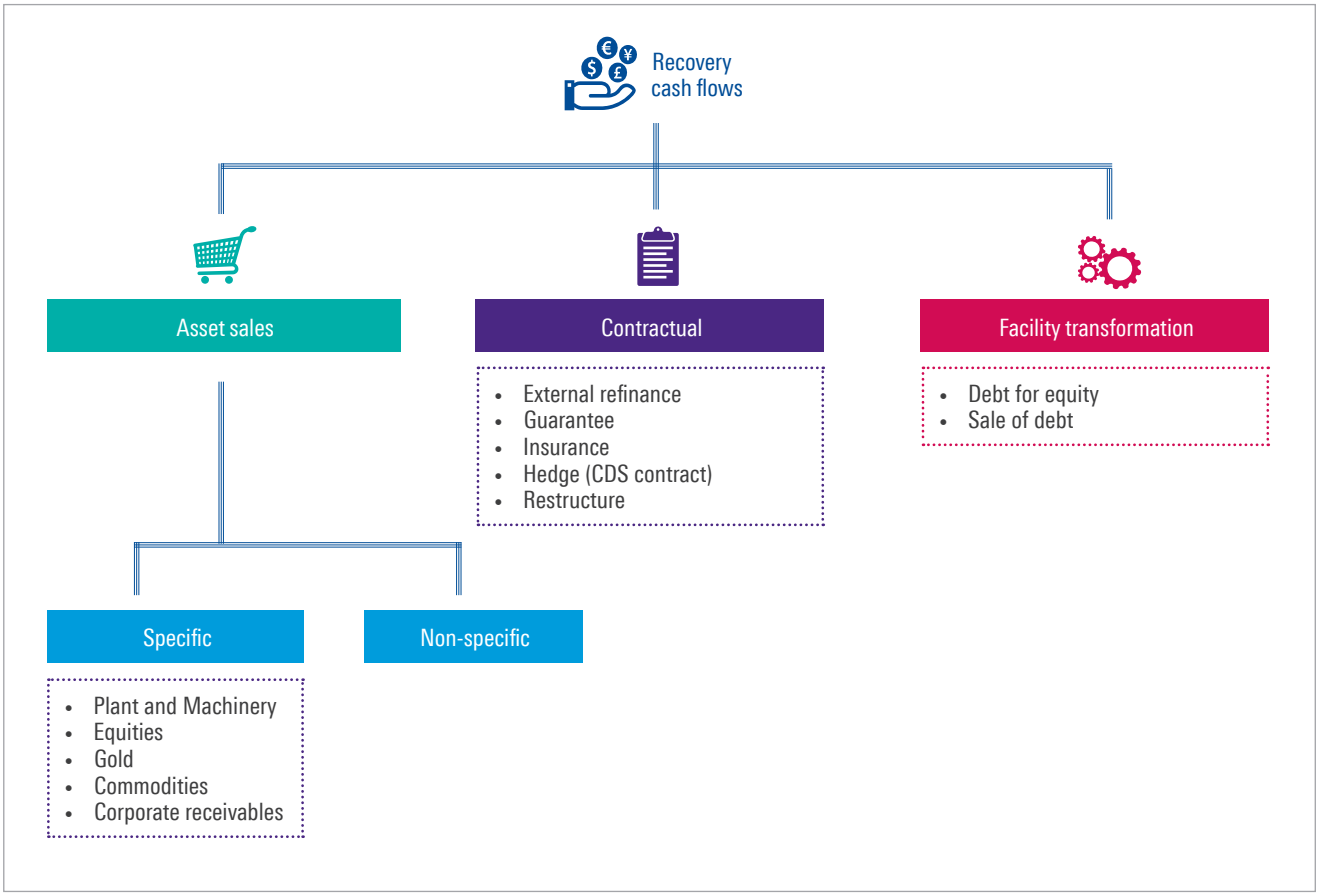
The data requirements for employing the workout LGD method are: date of default, exposure at default, post default classification (liquidation, restructure/refinance and cure), collateral indicator, collateral valuation, collateral allocation, unsecured recovery collection and recovery costs.

Market LGD

The difference between workout LGD and market LGD is that the latter is based on market prices of defaulted exposures trading on the stock exchange whereas the former is based on the internal recovery of the bank.

The recovery cash flows on a defaulted exposure in the worked out LGD method can be based on any of the following as depicted in the flow chart below:

- Asset sales (property, equities, fixed assets, gold, commodities)
- Contractual obligations (external refinance, guarantee, insurance)
- Facility transformation (debt for equity, sale of equity)



Flow diagram depicting the essence of workout LGD method

In case of a collateralised portfolio, account level LGD shall be estimated based on the collateral coverage after adjusting the collaterals with worked out haircuts. The bank shall have sufficient history of (before-to-after) sales collateral value to estimate the haircuts else market based data shall be used.

LGD for collateralised portfolios should be further combined with forward-looking valuation of collaterals based on the forecasted macroeconomic factors.

Banks where recovery data is not available due to data issues or zero default portfolios should converge their values to market-based estimates.

Asset pricing model/implied market LGD[9]

An entirely different approach one could take to obtain an estimate of LGD is to look at credit spreads on the non-defaulted risky bonds currently traded. The methodology applied is based on the hypothesis that when a corporate defaults, its contract can be considered as a potential investment contract. The discount rate must reflect the opportunity cost of this investment.

The spread above risk free bonds is a reflection of the expected loss percentage which can be segregated into LGD component once the PD values are known.

LGD estimate from external rating agencies

In case of no default history for certain portfolios like investments, banks and sovereigns market-based estimates of LGD from external rating agencies should be incorporated.

Exposure at default (EAD)

EAD is one of the key components for ECL computation. EAD can be seen as an estimation of the extent to which the financial entity may be exposed to a counterparty in the event of a default and at the time of the counterparty's default.

EAD modelling would require the ALM system of the bank to produce either contractual or behavioural cash flows till the lifetime of the loans.

Expected prepayments

EAD shall also be modelled based on historical prepayments and establishing relationships with a change in interest rates to forecast the prepayment factors in order to estimate the expected payments in future scenarios.

Funded exposures

For the funded/single drawdown exposures, the EAD modelling might not pose a challenge as compared to non-funded facilities.

The EAD for funded/single drawdown facilities shall be the actual outstanding of the loan. Also, the maturity of the loan shall be fixed as per the contractual terms.

Lifetime computations would require cash flow patterns for these type of loans.

Non-funded exposures

Credit conversion factors

Loan types with undrawn limits are expected to change the exposure over a period of time due to the available portion in the unutilised limit. This analysis of utilisation behaviour is particularly important for stage 2 assets as the drawdowns could be more at the time of stress or credit deterioration as compared to an asset under stage 1.

The drawdowns for unutilised portions is considered by applying credit conversion factors to compute the ECL.

Similarly, the conversion of issued letter of credit (LC) and letter of guarantee (LG) into an on-balance sheet item is also needed to be estimated in order to capture the devolvement behaviour of such no-fund based facilities and its impact on the ECL.

Exposures in which the bank provides future commitments, in addition to the current credit contain both on and off balance sheet values as an EAD component. The value of such an exposure with future commitments should look like:

EAD = Drawn line + credit conversion factor * undrawn credit line[7]

$$CCF = \frac{\text{Increase in exposure over the period}}{\text{Available funds at the start of the period}}$$

OR

$$CCF = \frac{\text{Exposure at date of default-exposure at start of the period}}{\text{Limit at start of period-exposure at start of the period}}$$

Life of revolving credit facilities

For credit facilities with defined maturity, contractual life can be taken as the maximum period for calculating lifetime losses but for the facilities which are revolving in nature and do not have pre-defined maturity, IASB in its February 2017 issue has advised to consider the below-mentioned factors in order to arrive at the behavioural life of such facilities:

- The period over which the entity was exposed to credit risk on similar financial instruments
- An entity should consider the impact of credit risk mitigation actions on the expected life of the exposure. An entity's credit risk management policy including the thresholds for taking credit risk management actions and the nature of those actions shall be a relevant factor
- An entity's ability to segment and stratify a portfolio into different sections of exposures that reflect the way

7. Basel committee on banking supervision - International Convergence of Capital Measurement and capital standards June 2006
9. Wharton Publications – what do we know about loss given default by Til Schuermann February 2004

those exposures are being managed though credit risk mitigation techniques is also a relevant factor

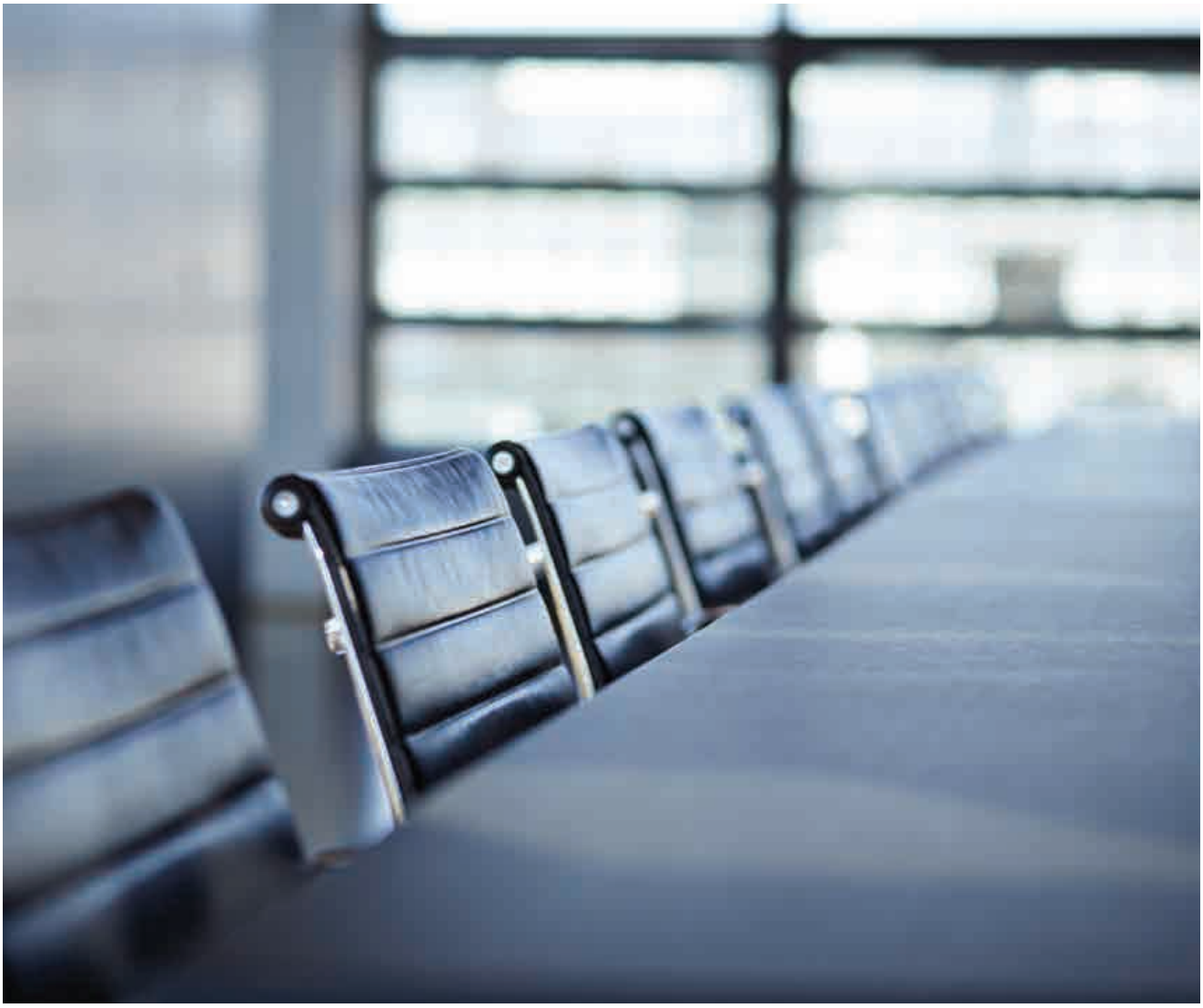
- The credit risk mitigation actions like cancellation of undrawn components removes the possibility for any further drawdowns, and may result in a different treatment of expected life for drawn and undrawn facilities
- Hence the expected life estimation depends upon the historical information and experience of similar financial instruments and also on the stage of the facility and any risk mitigation measures employed by the bank.

Effective interest rate

The expected credit loss shall be discounted using the original effective interest rate (taking into account the current interest rate of the facility and any fee income charged) in order to arrive at the present value of expected losses at the reporting date or ECL computation date. EIR might be calculated on account level or portfolio level depending upon the availability of data.

Probability weighted scenarios

ECL measurement under Ind AS 109 requires entities to model their ECL number as per the forward-looking scenarios taking into account every possibility of stressed and favourable economic conditions. The ECL should be a probability weighted number based upon an outcome of multiple scenarios. To build these scenarios, various ECL components (PD, LGD and EAD) can be altered to capture the most stressed and most favourable parameters over the historical period, and to compute ECL under different scenarios in order to arrive at probability weighted ECL.



Basel ECL model versus Ind AS 109 ECL model

In order to use the same parameters as modelled under Basel guidance, there is a need for certain adjustments to be applied to comply with Ind AS 109. A contrast between both the guidances is provided below:

Sr. No.	Particulars	Basel - IRB framework[7]	Ind AS 109 requirements	Extent of non-compliance/enhancements required
1.	PD estimation	12-months PD required for ECL computation	Lifetime PD and 12 months PD required for ECL computation	Lifetime estimate of PD in addition to 12 months PD
2.	PIT PD versus TTC PD	TTC PD to be estimated based upon long run average of past observed default rates.	Point in time (PIT) PD is required to be estimated based upon current and expected future conditions. The PIT PDs forecast should not reflect the management's current view of the future.	Basel estimates of PDs are based on the long run average of one year historical default rates. The Basel PDs tend to be TTC in nature and average out the cyclicality. The PDs to be used for Ind AS 109 purpose are point in time and depend upon the best available future and current information.
3.	Default definition	The default definition used in IRB approach of credit risk measurement is based on the RBI's IRACP norms and internal credit risk management practices.	The standard broadens the definition of default and requires consideration of various qualitative indicators (like financial covenants to define/alter default definition against the fixed regulatory norms).	The Banks shall define default definitions for various portfolios depending upon the risk characteristics and repayment behaviour of various asset types as against the fixed default definitions provided by regulator for NBFCs and banks.
4.	LGD and EAD Computation	Historical estimates are based upon fixed observation period is required to be estimated under Basel IRB approach.	Forward-looking estimates of LGD and EAD needs to be considered for computing ECL.	Appreciation / depreciation rates based on forward-looking adjustments need to be derived.
5.	Downturn LGD	The LGD attached to any particular exposure is maximum of the downturn LGD or long run default weighted average LGD.	The measurement of LGD is required to be unbiased and whether the component values are dependent on macro-economic factors and based on forward-looking factors. Recoveries net of direct cash collections to be computed.	LGD term structure should reflect future changes in collateral values LGD estimate should remove any downturn adjustments. Future cash flows for estimating LGD should be discounted using EIR.
6.	Floors	PD and LGD estimates for certain types of exposures are subject to prescribed regulatory floors. For example, regulatory LGD values used as a starting point.	No prescribed floors.	Use of floors prescribed under IRB would lead to a biased result. Hence no floor adjustment is required under Ind AS 109 purpose unless specified by the regulator as an override.
7.	EAD estimation	Exposure at default is an estimate of the amount outstanding (drawn amounts plus likely future drawdown of yet undrawn lines) if the borrower were to default over the next one year. The assumption of one year period for estimating EAD is to be considered under the Basel IRB approach.	For estimating lifetime ECL, the EAD model needs to reflect expected changes in balance outstanding over the lifetime of the financial instrument. EAD term structures shall be based on expected drawdown of commitments up to maturity. There is a need to consider interest and amortisation profiles of various asset types.	EAD term structures reflecting repayments and early settlements needs to be constructed to derive lifetime ECL.

7. Basel committee on banking supervision - International Convergence of Capital Measurement and capital standards June 2006

Sr. No.	Particulars	Basel - IRB framework[7]	Ind AS 109 requirements	Extent of non-compliance/enhancements required
8.	Discounting use of EIR	ECL under Basel is as of the computation date hence there is no need for discounting.	ECL is computed by estimating the timing of the expected cash shortfalls associated with defaults and discounting them using EIR. It is the rate that discounts estimated future cash payments or receipts through the expected life of the financial instrument to gross carrying amount of the financial asset or amortised cost of the financial liability. Financial service fees are to be considered as an integral part of EIR.	EIR should be estimated additionally for arriving at the present value of ECL.
9.	Eligible Collateral	IRB provides a list of eligible financial collaterals which can be considered for LGD computation.	No reference has been provided for the eligible financial collaterals that can be considered in ECL computation under Ind AS 109.	This broadens the scope of collaterals which could be considered for Ind AS purposes.
10.	Forward-looking information	IRB provides guidance on estimating expected loss based upon PD derived through simple/weighted average of the historical observed default rates. There are no forward looking measures used under Basel ECL model.	ECL computation requires appropriate selection of representative scenarios based on facts and circumstances capturing all reasonable and supportable information. Further, it should also take into account non - linear and asymmetric sensitivities related to key ECL drivers.	ECL computed under multiple scenarios should incorporate forward-looking information and should factor in non-linearity, if it exists.

7. Basel committee on banking supervision - International Convergence of Capital Measurement and capital standards June 2006

Key learnings from implementation

Given that the transition date of the financial instruments standard is 2018, banks have embarked upon the journey barring a few who have adopted the standard early, internationally.

The following are the learning outcomes which may be considered relevant for entities to make the implementation phase smooth and efficient as and when Indian banks adopt Ind AS 109:

Data

The financial entities which have undergone the transition from the Basel II standardised approach to advanced internal rating-based approach (AIRB) should have the base data available with them for modelling of ECL components. These entities can leverage on the same parameters after making the relevant adjustments required as per the standard. However, entities which are still under the standardised approach or foundation internal rating-based approach (FIRB) are likely to see gaps in data to modelling various ECL components.

The financial entities are required to conduct data gap analysis before starting the implementation process. Currently, many banks are in the process of upgrading their technology systems to incorporate certain changes in the data structure and include additional fields relevant for the computation, given the fact that it is a facility-by-facility assessment. During the implementation of Ind AS 109 there is going to be certain data field requirements which needs to be captured directly through the systems. For historical data, some smoothening techniques shall be applied to update the old information as it is not available from the system (like recovery data, prepayment data, borrower characteristics, products, industry data, geographical data, repayment schedule, etc.)

Therefore currently, entities would require to hold a provision to add certain fields and shall simultaneously start capturing the missing data after the gaps in required data has been identified.

Data cleansing and validation

The data required for ECL modelling should be correctly identified and cleansed before it is processed in the ECL engine as multiple sources of the same set of data exists within a bank.

Ideally, the source of the data shall be unified. The data to be used for ECL computation shall come from one IT system within the bank and shall pass through various validation checks by the respective owners of the data before being processed in the ECL engine.

Methodology perspective

Segmentation of portfolio

The granular segmentation of each portfolio based on the various risk characteristics can help the entities identify their loss/profit making portfolios. Different segments should have different ECL attributes (PD, LGD, prepayment factors and EAD) based on the level of risk involved, and therefore, the loss ratio should vary among various segments within the same portfolio.

Low/Zero default portfolios

Methodologies like the cohort approach, gross flow/net flow approach for PD computation are suitable only if significant default history exists for a particular portfolio. However, to tackle the low or zero default portfolios, more prudent estimates like Pluto Tasche method, scorecard-based logistic regression and single factor Vasicek model can be applied.

Master rating scale

Application of the master rating scale across banks is a vital component as it would help appropriately capture granularity and would also enable the bank to map the whole portfolio on one rating scale. This would standardise the staging methodology during implementation.

Consideration of minimum payment

In the case of credit card portfolios, banks allow minimum payments. This requires a detailed behavioural analysis of the portfolio which would be vital for classification during the staging exercise.

ECL on non-fund based facilities

Banks have applied different approaches to compute ECL on non-fund based facilities such as financial guarantees and loan commitments. The difference in approaches is on account of cancelable/non-cancellable undrawn loan facilities and use of either behavioural or regulatory CCF.

Rating model validation

The staging criteria for the corporate portfolio largely depends on the internal ratings assigned to the borrower based on various financial, industry, management and business characteristics. Hence, validating the accuracy of the ratings assigned to ensure the model is able to discriminate between good and bad borrowers and is able to predict defaults, is crucial for PD modelling. Although not explicitly mentioned in the standard, an annual review of internal credit rating models used by financial entities to rate their corporate portfolio becomes a key requirement for the new impairment approach.

Top management perspective

Management overlays

Management inputs for model override may be necessary where the model statistical outcome is outside the range of possible outcomes that arises from a review of the risk and business profile of the portfolio. While this is not expected on a frequent basis, but due to data environment and use of external sources, it may be possible that period-on-period ECL movement might seem to be volatile. Hence, a risk decomposition review

of the various credit portfolios is imperative. In such circumstances, any type of overrides of components like PD, LGD and EAD computed in the model are required to be approved by the respective authorities.

Below are some overrides that may be approved by the management and applied over and above the statistically computed ECL:

- **Staging of exposures –** Qualitative staging criteria (particular to sector, country, industry and borrower)
- **Qualitative overlay** of forward-looking PD term structure and LGD depending upon volatility in collateral values.

Such overrides are subject to back-testing and are temporary measures till the model is revalidated for use of external and statistical inputs.

MIS reporting requirements

The quantum of data involved in modelling ECL and its various components is large. The direct reporting of ECL to the top level management without decomposition of the risk factors might not result in correct interpretation of the loss number. Hence, the requirement of a MIS tool becomes necessary in order to rationalise the loss number by breaking down into different components for various segments of portfolios. Any decision points concerned with a portfolio should also involve analysis of the loss numbers based on PD, LGD and EAD.

Management concerns

- The volatility in the ECL due to movement of financial assets from stage 1 (12-month) to stage 2 (lifetime provisioning) and vice versa might adversely affect the profit and loss account, and thus might be a concern going forward.
- Apart from the earnings being adversely affected, the various capital ratios, on account of higher provisioning along with Basel III requirements might hit the entities badly. The capital planning process should undergo a change and might become a cause for concern for top management.
- Going forward, the ECL numbers will form an integral part of the banks ICAAP. The capital planning process is expected to undergo a change and might become a concern for top management. Hence, the capital planning /budgeting process should duly factor ECL numbers. The top management may also like to fix key performance indicators of departments or branches based on ECL estimates, indirectly signifying the credit quality.

Implementation challenges

The ECL modelling under Ind AS 109 requires a very large quantum of data to be processed and meaningfully interpreted. Accordingly, data availability, data accuracy, data validation and data reconciliation are aspects that need to be dealt with during the implementation phase as explained below:

Data availability

Data availability for the below listed elements might be a challenge:

- Month-on-month recovery data for computing LGD
- Cash flow amortisation schedule
- Lack of macroeconomic forecasts beyond five years
- Prepayment data (flag between a restructured account or actual closed account due to prepayment)
- Behavioural maturity of revolving loans (overdrafts loans converting to term loans with a specific maturity)
- Effective interest rate for off balance sheet items (conversion to on balance sheet from off balance sheet at an average interest rate)
- Estimation of cancellable undrawn limits that may be considered for computing ECL
- Data related to CCF for loan commitments
- Lack of synchronization with risk management practices on areas like segmentation and static pool loss curves.

Data accuracy

There can be multiple sources for the same data fields within a bank. Thus, testing data accuracy from multiple sources and which data to accept becomes a challenge for the bank.

Data validation

Ideally, the source of the data should be made one i.e. the entire data to come through one of the IT systems and before moving to the ECL processing engine shall pass through various validation checks by each department or the respective owner of the data.

Reconciliation with financial statement

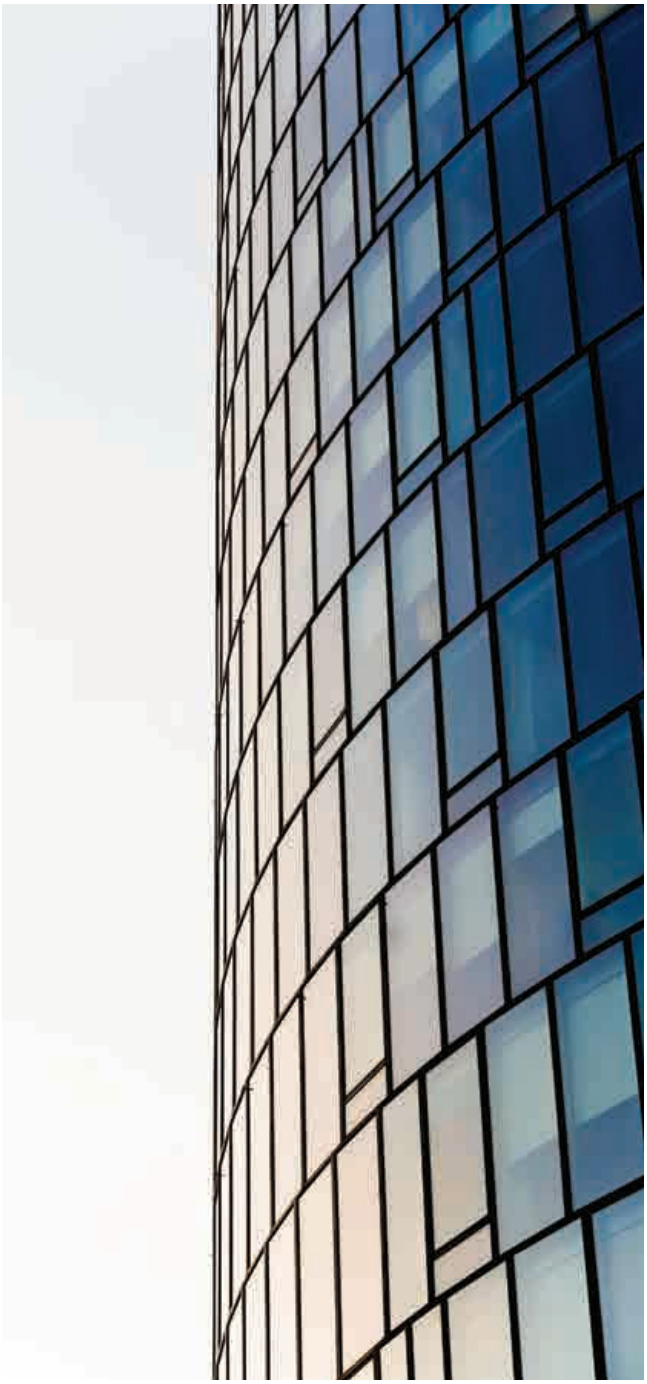
Due to the data being captured from multiple sources, the final exposure should reconcile with the bank's financial statement.

Coordination with various or multiple departments

The data involved in ECL modelling resides with various departments of a bank. For example, the internal ratings data would be available with risk the management department, recovery data would be available with the remedial department and exposure or portfolio data would be available with the finance department. Coordination between all departments must be maintained in order to smoothen the process.

Segmentation of portfolio

Conventional static pool approach of risk management which banks currently use to assess the risk, may not achieve segmentation of portfolio requirements for computation of ECL as per Ind AS 109. Risk teams at banks should consider segmenting the portfolios based on shared risk characteristics. Illustrative factors can be considered while assessing portfolio segmentation i.e. product category, industry/sector, geography, collateral enforceability and default status.



Potential next steps to address the implementation challenges

- **Evaluation of tactical versus strategic solution:** Financial entities should ensure that the selection of solution for the new impairment requirements is robust enough to handle all the MIS tasks and various other analysis needed to be performed for meaningful interpretation of the ECL numbers.

  A tactical solution is a quick fix, especially when there is an immediate requirement, and as compared to a strategic solution, which requires planning and time to go live. Both systems can be robust depending upon the portfolio size of the entity. Banks should conduct a cost-to-benefit ratio analysis and then select the one which best fits their needs.

- **Data management and governance practices:** Financial entities must ensure the sanctity of the data in the ECL model. Ensuring a single source of complete data and its validation across different owners/ departments with good governance framework can also help ensure data accuracy.

- **Knowledge transfer and rationalising ECL numbers:** Departments across a financial entity may face challenges in interpreting ECL numbers, and hence, knowledge transfer and the use of MIS tools to rationalise the loss number become an important aspect after Ind AS 109 implementation.

- **Data warehouse**: Banks shall adopt the concept of data warehouse in order to meet all the data requirements from a single source system.

Key decision points for the management to consider are tabulated below:

Sr. No.	Key considerations	Key activities to facilitate decisions/considerations
1.	What should be the basis of the stage allocation of financial assets for computation of ECL?	• Defining the significant increase in credit risk (SICR) criteria for various portfolios depending upon the risk characteristics is required for the stage allocation • Default definition for the various portfolios should be based upon the following criteria 1) Breach of covenants 2) 90 day rebuttable presumption.
2.	Segmentation of portfolio	• Considering similar risk characteristics, ratings, industry, product type, etc.
3.	PD modelling	• Management may choose to apply any generally acceptable approach for PD modelling (It is pertinent to note that point in time PD is required for the determination of ECL as per Ind AS 109).
4.	What are the key macro-economic factors that should be considered?	• In view of futuristic computations, a number of macroeconomic factors such as inflation, interest rates, currency fluctuations, GDP outlook, economic growth, unemployment, fiscal and monetary measures, money demand and supply etc. need to be considered. • It is pertinent to note that macroeconomic factors applied should be relevant to the underlying portfolio/assets for which ECL is required to be computed.
5.	Deciding the source of forward-looking information	• The bank may also source relevant data from market terminals like Bloomberg, Reuters, etc. • Data could also be sourced from various government agencies.
6.	Determining approach for estimating credit conversion factor (CCF) for off balance sheet products	• Consideration of expected future drawdown over the expected life of the asset based upon a credit conversion factor for computation of exposure for ECL calculations.
7.	Develop internal rating system	• Considering forward-looking and macro-economic factors • To be aligned with the external rating.

Role of various functions in determining ECL

The role of the risk management department

ECL modelling

The risk management department (RMD) has a major role in developing the ECL methodology based on the data available with the bank and sound market practices.

The RMD needs to fix the approaches for computing various ECL components (PD, LGD and EAD) in conjunction with other departments of the bank (finance, IT, remedial, and business) to arrive at a robust credit risk measure which reflects the credit quality of the bank and provide a cushion to sustain losses during times of high defaults and an environment that creates financial stress.

Suggest qualitative staging criteria

The risk management department in collaboration with the economic research department of the banks have a pivotal role to play after the implementation. The risk team must play a critical role in suggesting the override in the staging criteria to the management based on current and future economic conditions.

Another example of management overlay is to fulfil to operational risk wherein there is a delay in the rating of borrowers during an annual review. A re-rating and the previous rating based on last year's financials provides a positive outlook but the RMD might be aware that the opposite is a reality. Hence, they might like to downgrade the borrower and assign a lifetime of expected credit loss at the ECL reporting date.

Validation and calibration of ECL models

Statistical models used for forecasting purposes might deviate from the actual results and hence PD, LGD and CCF models needs back testing and recalibration based on the deviation shown from the actual values, for example, forecasted and actual PD must be compared, etc.

The role of the IT department

Conduct a gap analysis

The IT department of the bank along with the risk and finance team must conduct a detailed data gap analysis based on the Ind AS 109 modelling requirements in order to get a sense of the as-is position of the data available through the system.

Introduce fields into the IT System

Once the data gap analysis is completed, the IT department should try to capture the missing fields directly through CBS or risk, finance and treasury system.

The role of the finance department

Data reconciliations

The data for the portfolios on which the ECL has to be computed should be generated by the IT department but it should be processed in the ECL engine after it has been reconciled to the financial statements by the financial control department of the bank.

Disclosures requirements

The finance department should ensure that all the data fields required under the detailed disclosure requirement as laid down by the regulator are being captured and no manual intervention takes place outside of the ECL policy and procedures during the finalisation of financial statements.

Investor relations

As banks transition to Ind AS, it will be pertinent to conduct investor /analyst sessions to articulate the implications of ECL on earnings and other performance indicators.

The finance department needs to ensure the all the relevant information pertaining to the ECL methodology and the results are presented to investors and various stakeholders.

There should not be any scope for manual intervention/ adjustment while presenting the disclosures, and the information disclosed should be free from any bias and must help in decision making.

Areas of focus for those in charge of governance[12]

12. The implementation of IFRS 9 impairment requirements by banks- Global Public Policy Committee of representatives of the six largest accounting networks-17 June 2016

Governance and controls

ECL estimation is complex and inherently judgemental. It should be determined in a well-governed environment as the risk of material bias is involved in ECL estimation which will form part of financial statements.

Areas under governance and control should include:

- Timely monitoring of the progress of Ind AS 109 implementation plans and challenges faced by the entity. Reviewing the key decision and outputs on implementation of ECL
- Checking the consistency between assumptions and methodologies and business and risk management practices and strategies
- Setting out board recommendations for a governance and controls framework in the areas of data integrity, model validation and internal control
- Building key performance indicators (KPIs) relating to ECL estimation and forming a process for regular reporting of those KPIs.

Sophistication and proportionality

Implementation of ECL methodologies across a bank should be commensurate with the size, complexity, structure, economic significance and risk profile of a bank's exposures.

Application of Ind AS 109 is subject to the concept of materiality and it should be applied to all material portfolios.

A bank should consider the following factors in determining the level of sophistication in implementing Ind AS 109 ECL requirements for particular portfolios:

- Entity-level factors such as the listing and public interest entity status, extent of systemic risk posed by the bank, the level of volatility of historical credit losses and the total size of the balance sheet and off balance sheet items.
- Portfolio-level factors such as the size of the portfolio relative to the balance sheet, complexity of products in the portfolio, sophistication of other lending-related modelling methodologies (e.g. regulatory capital methodology), extent of data availability, level of historical and potential future credit losses.

Focus areas for Audit Committees

Decisions and interpretations of Ind AS 109

- A framework has been established to incorporate elements of key decisions, modelling, infrastructure, testing and parallel run to implement Ind AS 109 within allotted timelines
- Accounting judgements and interpretations used/to be used with adequate documentation
- Robust monitoring of key implementation choices over time to ensure appropriateness

Expected loss credit modelling

- Sophistication and appropriateness of methodology applied to different portfolios
- A methodology for assessment of 'significant increase in credit risk' and its appropriateness
- A framework to assess the coverage and appropriateness of forward-looking scenarios.

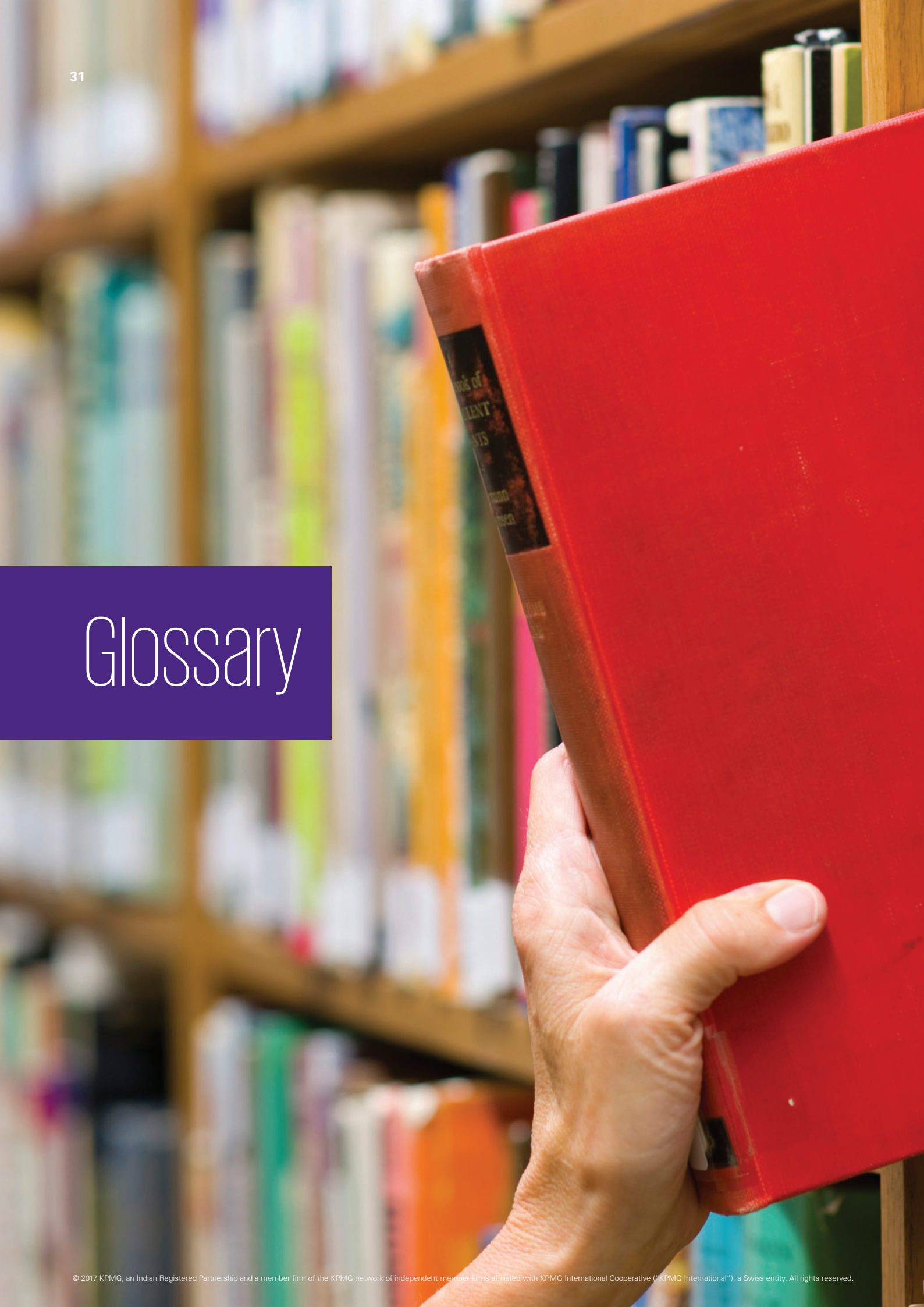
Systems and controls

- Assessment of potential changes required in existing systems, processes, data management and controls to comply with Ind AS 109
- Evaluate the steps that can be taken to test and document reporting processes and controls particularly those which were not in the ambit of audit earlier.

Transparency

- KPIs and management information reports have been established relating to ECL estimation and processes to support effective governance over key judgments
- The steps necessary to comply with Ind AS disclosure requirements and how they enable comparability.

Glossary



Abbreviation	Definition
12 M	12 months
AIRB	Advanced internal rating based
CBS	Core banking solution
CCF	Credit conversion factor
EAD	Exposure at default
ECL	Expected credit loss
EL	Expected loss
FIRB	Foundation internal rating based
FVOCI	Fair value through other comprehensive income
FVTPL	Fair value through profit and loss
GDP	Gross domestic product
IASB	International Accounting Standards Board
ICAAP	Internal capital adequacy assessment process
IFRS	International financial reporting standards
Ind AS	Indian accounting standards
IRACP	Income recognition and asset classification and provisioning
IT	Information technology
LGD	Loss given default
MIS	Management information system
P/L	Profit and loss
PD	Probability of default
PIT	Point in time
POCI	Purchased or originated credit impaired financial assets
RBI	Reserve Bank of India
SICR	Significant increase in credit risk
TTC	Through the cycle

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