



# IFRS 9 Transition Report

April 2018

# Table of Contents

Introduction.....	3
IFRS 9 Implementation Program.....	3
Impact Analysis.....	4
Key Metrics.....	4
Classification and Measurement.....	4
Impairment.....	5
Classification and Measurement Implementation.....	5
Impairment Implementation.....	7
Model Descriptions.....	9
Collateral for Financial Assets Considered in the Impairment Analysis.....	11
Hedge Accounting.....	12
Reconciliation.....	13
Key Ratios.....	13
Impact on Regulatory Capital, RWA, and Leverage Exposure.....	13
Classification and Measurement.....	14
Impairment.....	15
Glossary.....	16
Imprint/Publication.....	18

## Introduction

In July 2014, the International Accounting Standards Board (IASB) issued the final version of International Financial Reporting Standard (IFRS 9) "Financial Instruments", which replaces International Accounting Standard 39, "Financial Instruments: Recognition and Measurement" (IAS 39). IFRS 9 introduces new requirements on how an entity should classify and measure financial assets, requires changes to the reporting of 'own credit' with respect to issued debt liabilities that are designated at fair value, replaces the rules under IAS 39 for impairment of financial assets and amends the requirements for hedge accounting. The standard also requires entities to provide users of financial statements with more informative and relevant disclosures. IFRS 9 is effective for annual periods beginning on or after January 1, 2018. The standard has been endorsed by the European Union (EU).

In October 2017, the IASB issued an amendment to IFRS 9 "Prepayment Features with Negative Compensation", which allows entities to measure particular pre-payable financial assets with so-called negative compensation (also known as two way break clauses) at amortized cost or at fair value through other comprehensive income if the prepayment amount substantially represents unpaid principal and interest and reasonable compensation. Reasonable compensation may be positive or negative. Prior to this amendment financial assets with this negative compensation feature would have failed the solely payments of principal and interest test and have been mandatorily measured at fair value through profit or loss. The amendment has been endorsed by the EU and is effective for annual periods beginning on or after January 1, 2019, with early adoption allowed, which Deutsche Bank will adopt in 2018.

The purpose of this report is to provide an overview of Deutsche Bank's implementation program, to describe the key aspects of the changes following the adoption of IFRS 9 with regards to classification and measurement and impairment as well as to provide an overview of the impact on key ratios, regulatory capital, Total Shareholders' Equity and Risk Weighted Assets (RWA) at Deutsche Bank. This report provides a movement analysis from IAS 39 reported numbers as included in the Deutsche Bank Annual Report 2017 to IFRS 9 numbers as adopted from January 1, 2018. The transition rules of IFRS 9 do not require a retrospective application to prior periods, accordingly the initial adoption effect is reflected in the opening balance of Shareholders' equity for the financial year 2018.

As a result of IFRS 9, Deutsche Bank has introduced changes to the financial statements presentation. These changes relate to specific line items in the consolidated income statement and consolidated balance sheet that are introduced within this transition report and will be used going forward to reflect the alignment with the new accounting categories under IFRS 9.

## IFRS 9 Implementation Program

Deutsche Bank has run a centrally managed IFRS 9 program, sponsored by the Group's Chief Financial Officer, which has included business functions and subject matter experts on methodology, data sourcing and modelling, IT processing and reporting. Overall governance of the program's implementation has been through the Group's IFRS 9 Steering Committee and has included representation from Finance, Risk and Chief Operating Office (COO). Guidance and training on IFRS 9 has been delivered across businesses and functions. The Group enhanced its governance environment over the new classification and measurement and impairment frameworks by implementing appropriate validation and control over new processes and significant areas of judgement. The implementation of specific process and business controls over this new framework will continue throughout 2018. Governance over the Expected Credit Loss (ECL) calculation process is shared between Finance and Risk. The Group has performed a final parallel run based on December 31, 2017 data.

# Impact Analysis

## Key Metrics

		IAS 39	IFRS 9	Impact
		Dec 31, 2017	Jan 1, 2018 <sup>1</sup>	
IFRS Total Shareholders' Equity	in € m	63,174	62,503	(671)
Common Equity Tier 1 capital fully loaded	in € m	48,300	47,907	(393)
Risk Weighted Assets	in € bn	344	345	0.5
Tier 1 Capital fully loaded	in € m	52,921	52,528	(393)
CET 1 Ratio fully loaded	in %	14.0	13.9	(13) <sup>2</sup>
Leverage Exposure	in € bn	1,395	1,395	(0.4)
Leverage Ratio fully loaded	in %	3.8	3.8	(3) <sup>2</sup>

<sup>1</sup> Pro forma

<sup>2</sup> In bps

The implementation of IFRS 9 as of January 1, 2018, led to a decrease of Deutsche Bank's Shareholders' equity of € 671 million including a tax benefit of € 199 million. Regulatory capital decreased by € 393 million due to a lower deduction of expected credit losses exceeding impairments for these exposures under the regulatory internal rating based approach (IRBA). Fully loaded CET 1 ratio decreased by 13 basis points, higher than earlier estimates due to refinements to the calculation of the impact of reducing the deduction for expected credit losses, and fully loaded Leverage Ratio is lower by 3 basis points.

Deutsche Bank decided not to apply transitional rules for calculating regulatory ratios pursuant to CRR Art. 473a. The report will therefore only refer to the full IFRS 9 impact.

## Classification and Measurement

The following table provides an aggregated overview of the impact of the changes to total assets under classification and measurement from IAS 39 as of December 31, 2017 to IFRS 9 as of January 1, 2018. For more details please refer to section Classification and Measurement in chapter 'Reconciliation' in this report.

in € m.	IAS 39	Reclassi- fications (ii)	Remeas- ure- ments (iii)	IFRS 9
	carrying amount 31 Dec 2017 (i)			carrying amount 1 Jan 2018 (iv=i+ii+iii)
Total Fair Value through Profit or Loss	636,970	32,041	(6)	669,004
Total Available for Sale	49,397	(49,397)	-	-
Total Fair Value through Other Comprehensive Income	-	57,671	(40)	57,631
Total Amortised Cost	780,721	(37,145)	(159)	743,417
Total Other <sup>1</sup>	11,566	(3,170)	230	8,626
<b>Total Asset balances affected by IFRS 9, Reclassifications and Remeasurements</b>	<b>1,478,654<sup>2</sup></b>	<b>0</b>	<b>24</b>	<b>1,478,678</b>

<sup>1</sup> Including Tax Assets and Financial Assets Held to Maturity.

<sup>2</sup> Excluding allowances for On- and Off-Balance Sheet positions affected by IFRS 9 as defined in the section below

## Impairment

The following table provides an aggregated overview of IAS 39 allowance for all debt instruments that are measured at amortized costs or fair value through other comprehensive income and off balance sheet lending commitments, including financial guarantees (referred to as On- and Off-Balance Sheet positions in the table below) as of December 31, 2017 to the IFRS 9 expected credit loss allowance as of January 1, 2018. For more details please refer to section Impairment in chapter 'Reconciliation' in this report.

in € m.	IAS 39 Allowance for On- and Off-Balance Sheet positions as at Dec 31, 2017 (i)	Changes due to reclassifications (ii)	Changes due to the introduction of the IFRS 9 ECL model (iii)	IFRS 9 Allowance for On- and Off- Balance Sheet Positions as at Jan 1, 2018 (iv=i+ii+iii)
Total Fair Value through Profit or Loss	-	-	-	-
Total Fair Value through Other Comprehensive Income	-	-	12	12
Total Amortised Cost	3,921	(65)	746	4,603
<b>Total On Balance Sheet Positions affected by IFRS 9 ECL Model</b>	<b>3,921</b>	<b>(65)</b>	<b>758</b>	<b>4,615</b>
Off Balance Sheet	285	-	(6)	280
<b>Total On- and Off Balance Sheet Positions affected by IFRS 9 ECL Model</b>	<b>4,207</b>	<b>(65)</b>	<b>753</b>	<b>4,894</b>

## Classification and Measurement Implementation

IFRS 9 requires the classification of financial assets to be determined based on both the business model used for managing the financial assets and the contractual cash flow characteristics of the financial asset (also known as SPPI). There was no change from IAS 39 to IFRS 9 for the classification and measurement of financial liabilities.

### Business Model

There are three business models available under IFRS 9:

- Hold to Collect - Financial assets held with the objective to collect contractual cash flows.
- Hold to Collect and Sell - Financial assets held with the objective of both collecting contractual cash flows and selling financial assets.
- Other - Financial assets held with trading intent or that do not meet the criteria of either "Hold to collect" or "Hold to collect and sell".

The assessment of business model requires judgment based on facts and circumstances at the date of the assessment. Deutsche Bank has considered quantitative factors (e.g., the expected frequency and volume of sales) and qualitative factors such as how the performance of the business model and the financial assets held within that business model are evaluated and reported to Deutsche Bank's key management personnel; the risks that affect the performance of the business model and the financial assets held within that business model, in particular, the way in which those risks are managed; and how managers of the business are compensated (e.g., whether the compensation is based on the fair value of the assets managed or on the contractual cash flows collected).

## Solely Payments of Principal and Interest (SPPI)

If a financial asset is held in either a Hold to Collect or a Hold to Collect and Sell business model, then an assessment to determine whether contractual cash flows are solely payments of principal and interest on the principal amount outstanding at initial recognition is required to determine the classification.

Contractual cash flows, that are SPPI on the principal amount outstanding, are consistent with a basic lending arrangement. Interest is consideration for the time value of money and the credit risk associated with the principal amount outstanding during a particular period of time. It can also include consideration for other basic lending risks (e.g., liquidity risk) and costs (e.g., administrative costs) associated with holding the financial asset for a particular period of time; and a profit margin that is consistent with a basic lending arrangement.

## Financial Assets at Amortized Cost

A financial asset is classified and subsequently measured at amortized cost, unless designated under the fair value option, if the financial asset is held in a Hold to Collect business model and the contractual cashflows are SPPI.

Under this measurement category, the financial asset is measured at fair value at initial recognition minus the principal repayments, plus or minus the cumulative amortization using the effective interest method of any difference between that initial amount and the maturity amount and adjusted for any impairment allowance.

## Financial Assets at Fair Value through Other Comprehensive Income

A financial asset shall be classified and measured at fair value through other comprehensive income (FVOCI), unless designated under the fair value option, if the financial asset is held in a Hold to Collect and Sell business model and the contractual cashflows are SPPI.

Under FVOCI, a financial asset is measured at its fair value with any movements being recognized in Other Comprehensive Income (OCI) and is assessed for impairment under the new ECL model. The foreign currency translation effect for FVOCI assets is recognized in profit or loss, as is the interest component by using the effective interest method. The amortization of premiums and accretion of discount are recorded in net interest income. Realized gains and losses are reported in net gains (losses) on financial assets at FVOCI. Generally, the weighted-average cost method is used to determine the cost of FVOCI financial assets.

It is possible to designate non trading equity instruments as FVOCI. However, this category is expected to have limited usage by the Group and has not been used to date.

## Financial Assets at Fair Value through Profit and Loss

Any financial asset that is held for trading or that does not fall into the Hold to Collect nor Hold to Collect and Sell business models shall be assigned into the Other business model and is measured at fair value through profit or loss (FVTPL).

Additionally, any instrument for which the contractual cash flow characteristics are not SPPI must be measured at FVTPL; even if held in a Hold to Collect or Hold to Collect and Sell business model.

Financial instruments are included in the Other business model and held for trading if they have been originated, acquired or incurred principally for the purpose of selling or repurchasing them in the near term, or they form part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short-term profit-taking. Trading assets include debt and equity securities, derivatives held for trading purposes, commodities and trading loans. Trading liabilities consist primarily of derivative liabilities and short positions.

## Financial Assets Designated at Fair Value through Profit or Loss

At initial recognition, Deutsche Bank may irrevocably designate a financial asset that would otherwise be measured subsequently at amortised cost or FVOCI, as measured at FVTPL, if such designation eliminates or significantly reduces a recognition and measurement inconsistency (i.e. accounting mismatch) that would otherwise arise from measuring assets or liabilities or recognizing the gains or losses on a different basis.

# Impairment Implementation

The impairment requirements of IFRS 9 apply to all debt instruments that are measured at amortized cost or FVOCI, and to off balance sheet lending commitments such as loan commitments and financial guarantees (hereafter collectively referred to as “Financial Assets”). This contrasts to the IAS 39 impairment model which was not applicable to loan commitments and financial guarantee contracts, as these were instead covered by International Accounting Standard 37: “Provisions, Contingent Liabilities and Contingent Assets” (IAS 37).

The determination of impairment losses and allowance moves from an incurred credit loss model whereby credit losses are recognized when a defined loss event occurs under IAS 39, to an expected credit loss model under IFRS 9, where provisions are taken upon initial recognition of the Financial Asset, based on expectations of potential credit losses at the time of initial recognition. Under IFRS 9, the Group first evaluates individually whether objective evidence of impairment exists for loans that are individually significant. It then collectively assesses loans that are not individually significant and loans which are significant but for which there is no objective evidence of impairment available under the individual assessment.

## Staged Approach to the Determination of Expected Credit Losses

IFRS 9 introduces a three stage approach to impairment for Financial Assets that are performing at the date of origination or purchase. This approach is summarised as follows:

- **Stage 1:** The Group recognizes a credit loss allowance at an amount equal to 12-month expected credit losses. This represents the portion of lifetime expected credit losses from default events that are expected within 12 months of the reporting date, assuming that credit risk has not increased significantly after initial recognition.
- **Stage 2:** The Group recognizes a credit loss allowance at an amount equal to lifetime expected credit losses (LTECL) for those Financial Assets which are considered to have experienced a significant increase in credit risk since initial recognition. This requires the computation of ECL based on lifetime probability of default (LTPD) that represents the probability of default occurring over the remaining lifetime of the Financial Asset. Allowance for credit losses are higher in this stage because of an increase in credit risk and the impact of a longer time horizon being considered compared to 12 months in Stage 1.
- **Stage 3:** The Group recognizes a loss allowance at an amount equal to lifetime expected credit losses, reflecting a Probability of Default (PD) of 100 %, via the recoverable cash flows for the asset, for those Financial Assets that are credit-impaired. The Group’s definition of default is aligned with the regulatory definition. The treatment of loans in Stage 3 remains substantially the same as the treatment of impaired loans under IAS 39 except for homogeneous portfolios as described below.

Financial Assets that are credit-impaired upon initial recognition are categorised within Stage 3 with a carrying value already reflecting the lifetime expected credit losses. The accounting treatment for these purchased or originated credit-impaired (POCI) assets is discussed further below.

## Significant Increase in Credit Risk

Under IFRS 9, when determining whether the credit risk (i.e., risk of default) of a Financial Asset has increased significantly since initial recognition, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes quantitative and qualitative information based on the Group’s historical experience, credit risk assessment and forward-looking information (including macro-economic factors). The assessment of significant credit deterioration is key in determining when to move from measuring an allowance based on 12-month ECLs to one that is based on lifetime ECLs (i.e., Stage 1 to Stage 2). The Group’s framework aligns with the internal CRM process and covers rating related and process related indicators which are discussed further in the section below on Model Descriptions.

## Credit Impaired Financial Assets in Stage 3

The Group has aligned its definition of credit impaired under IFRS 9 to when a Financial Asset has defaulted for regulatory purposes, according to the Capital Requirements Regulation (CRR) under Art. 178.

The determination of whether a Financial Asset is credit impaired focusses exclusively on default risk, without taking into consideration the effects of credit risk mitigants such as collateral or guarantees. Specifically, a Financial Asset is credit impaired and in Stage 3 when:

- The Group considers the obligor is unlikely to pay its credit obligations to the Group. Determination may include forbearance actions, where a concession has been granted to the borrower or economic or legal reasons that are qualitative indicators of credit impairment; or
- Contractual payments of either principal or interest by the obligor are past due by more than 90 days.

For Financial Assets considered to be credit impaired, the ECL allowance covers the amount of loss the Group is expected to suffer. The estimation of ECLs is done on a case-by-case basis for non-homogeneous portfolios, or by applying portfolio based parameters to individual Financial Assets in these portfolios via the Group's ECL model for homogeneous portfolios.

Forecasts of future economic conditions when calculating ECLs are considered. The lifetime expected losses are estimated based on the probability-weighted present value of the difference between 1) the contractual cash flows that are due to the Group under the contract; and 2) the cash flows that the Group expects to receive.

A Financial Asset can be classified as in default but without an allowance for credit losses (i.e., no impairment loss is expected). This may be due to the value of collateral. The Group's engine based ECL calculation is conducted on a monthly basis, whereas the case-by-case assessment of ECL in Stage 3 for our non-homogeneous portfolio has to be performed at least on a quarterly basis within our dedicated application.

## Purchased or Originated Credit Impaired Financial Assets in Stage 3

A Financial Asset is considered purchased or originated credit-impaired if there is objective evidence of impairment at the time of initial recognition (i.e., rated in default by Credit Risk Management, CRM). Such defaulted Financial Assets are termed POCI Financial Assets. Typically the purchase price or fair value at origination embeds expectations of lifetime expected credit losses and therefore no separate credit loss allowance is recognised on initial recognition. Subsequently, POCI Financial Assets are measured to reflect lifetime expected credit losses, and all subsequent changes in lifetime expected credit losses, whether positive or negative, are recognised in the income statement as a component of the provision for credit losses. POCI Financial Assets can only be classified in Stage 3.

## Write-Offs

The Group reduces the gross carrying amount of a Financial Asset when there is no reasonable expectation of recovery, which is materially unchanged compared to IAS 39. Write-offs can relate to a Financial Asset in its entirety, or to a portion of it, and constitute a derecognition event.

## Interest Income Calculation

For Financial Assets in Stage 1 and Stage 2, the Group calculates interest income by applying the Effective Interest Rate (EIR) to the gross carrying amount (i.e., without deduction for ECLs). Interest income for financial assets in Stage 3 is calculated by applying the EIR to the amortised cost (i.e., the gross carrying amount less the credit loss allowance). For Financial Assets classified as POCI only, interest income is calculated by applying a credit-adjusted EIR (based on an initial expectation of further credit losses) to the amortised cost of these POCI assets. As a result of the amendments to International Accounting Standard 1: "Presentation of Financial Statements" (IAS 1) following IFRS 9, the Group will present interest revenue calculated using the EIR method separately in the income statement.



## Model Descriptions

### Expected Credit Loss

#### Stage Determination

At initial recognition, Financial Assets which are not POCI are reflected in Stage 1. If there is a significant increase in credit risk, the Financial Asset is transferred to Stage 2. Significant increase in credit risk is determined by using rating-related and process-related indicators as discussed below. In contrast, the assignment of a financial instrument to Stage 3 is based on the status of the obligor being in default.

**Rating-Related Indicators:** Based on a dynamic change in counterparty PDs that is linked to all transactions with the counterparty, the Group compares lifetime PD at the reporting date, with expectations at the date of initial recognition. Based on historically observed migration behaviour and available forward-looking information, an expected forward rating distribution is obtained. A quantile of this distribution, which is defined for each counterparty class, is chosen as the threshold. If for the remaining lifetime the PD of a transaction given current expectations exceeds the PD of the relevant threshold rating, the Financial Asset is considered as significantly deteriorated. The thresholds used to determine Stage 2 indicators are determined using expert judgment and validated annually.

**Process-Related Indicators:** Process-related indicators are derived via usage of existing risk management indicators, which allow the Group to identify whether the credit risk of Financial Assets has significantly increased. These include obligors being added mandatorily to a credit watchlist, being mandatorily transferred to workout status, payments being 30 days or more overdue or in forbearance.

On an ongoing basis, as long as the condition for one or more of the indicators is fulfilled and the Financial Asset is not recognized as defaulted, the asset will remain in Stage 2. If none of the indicator conditions is any longer fulfilled and the Financial Asset is not defaulted, the asset transfers back to Stage 1. In case of a default, the Financial Asset is allocated to Stage 3. In the case that a previously defaulted Financial Asset ceases to be classified as defaulted, it transfers back to Stage 1 or Stage 2.

#### Expected Lifetime

The expected lifetime of a Financial Asset is a key factor in determining the lifetime expected credit losses. Lifetime expected credit losses represent default events over the expected life of a Financial Asset. The Group measures expected credit losses considering the risk of default over the maximum contractual period (including any borrower's extension options) over which it is exposed to credit risk.

Retail overdrafts, credit card facilities and certain corporate revolving facilities typically include both a loan and an undrawn commitment component. The expected lifetime of such on-demand facilities exceeds their contractual life as they are typically cancelled only when the Group becomes aware of an increase in credit risk. The expected lifetime is estimated by taking into consideration historical information and the Group's Credit Risk Management actions such as credit limit reductions and facility cancellation. Where such facilities are subject to an individual review by Credit Risk Management, the lifetime for calculating expected credit losses is 12 months. For facilities not subject to individual review by Credit Risk Management, Deutsche Bank applies a lifetime for calculating expected credit losses of 24 months.

### Forward-Looking Information

Under IFRS 9, the allowance for credit losses is based on reasonable and supportable forward looking information obtainable without undue cost or effort, which takes into consideration past events, current conditions and forecasts of future economic conditions.

To incorporate forward-looking information into Deutsche Bank's allowance for credit losses, the Group uses two key elements:

- As its base scenario, the Group uses the macroeconomic forecasts provided by its research department dbResearch. These forecasts cover a number of macroeconomic variables (e.g., GDP, unemployment rates and interest rates) and reflect dbResearch's view as to the most likely development of those variables, typically over a two year period and updated quarterly. In the absence of reliable economic forecasts, through-the-cycle rating migration matrices will be applied instead.
- This base scenario is then translated into a multiple scenario analysis by leveraging the Group-wide stress test environment. This environment generates the impact of a multitude of economic scenarios and is used as basis for deriving multi-year PD curves for different rating and counterparty classes, which are applied in the calculation of expected credit losses and in the identification of significant deterioration in credit quality of Financial Assets as described previously.

Rating migration matrices are applied to the portfolios in scope for IFRS 9 and are divided into the following counterparty classes: retail Germany, retail Spain, retail Italy, financial institutions, midcaps, corporates, and sovereigns.

The general use of forward-looking information, including macro-economic factors, as well as adjustments taking into account extraordinary factors, are monitored by the Group's Risk and Finance Credit Loss Provision Forum. In certain situations Credit Risk officers and senior management may have additional information in relation to specific portfolios to indicate that the distribution used by the stress testing framework is not appropriate. In such situations the Group would apply a judgmental overlay.

## Basis of Inputs and Assumptions and the Estimation Techniques

IFRS 9 does not distinguish between individually significant or not individually significant Financial Assets and as such the Group calculates expected credit losses for each Financial Asset individually. Similarly, the determination of the need to transfer between stages is made on an individual asset basis.

The Group uses three main components to measure ECL. These are PD, Loss Given Default (LGD) and Exposure at Default (EAD). The Group has leveraged existing parameters used for determination of capital demand under the Basel Internal Ratings Based Approach and internal risk management practices as much as possible to calculate ECL. These parameters are adjusted where necessary to comply with IFRS 9 requirements (e.g. use of point in time ratings and removal of downturn elements in the regulatory parameters). Incorporating forecasts of future economic conditions into the measurement of expected credit losses influences the allowance for credit losses for each stage. In order to calculate lifetime expected credit losses, the Group's calculation includes deriving the corresponding lifetime PDs from migration matrices that reflect economic forecasts.

The expected credit loss calculation for stage 3 distinguishes between transactions in homogeneous and non-homogeneous portfolios, and purchased or originated credit-impaired transactions. For transactions that are in Stage 3 and in a homogeneous portfolio, a similar approach as for Stage 1 and 2 transactions is taken. Since a Stage 3 transaction is defaulted, the probability of default is equal to 100 %. To incorporate the currently available information, the LGD parameters are modelled to be time-dependent, thus capture the time dependency of recovery expectation after default.

Below the estimation techniques for the input factors are described in more detail.

The one-year PD for counterparties is derived from our internal rating systems. The Group assigns a PD to each relevant counterparty credit exposure based at the 21-grade master rating scale for all of our exposure.

The counterparty ratings assigned are derived based on internally developed rating models which specify consistent and distinct customer-relevant criteria and assign a rating grade based on a specific set of criteria as given for a certain customer. The set of criteria is generated from information sets relevant for the respective customer segments including general customer behaviour, financial and external data. The methods in use range from statistical scoring models to expert-based models taking into account the relevant available quantitative and qualitative information. Expert-based models are usually applied for counterparties in the exposure classes "Central governments and central banks", "Institutions" and "Corporates" with the exception of those "Corporates" segments for which sufficient data basis is available for statistical scoring models. For the latter as well as for the retail segment statistical scoring or hybrid models combining both approaches are commonly used. Quantitative rating methodologies are developed based on applicable statistical modelling techniques, such as logistic regression.

One-year PDs are extended to multi-year PD curves using conditional transition matrices. The first step in the estimation process is the calculation of through-the-cycle (TTC) matrices, which are derived from a multi-year rating history. For the next two years, economic forecasts are available. These forecasts are used to transform the TTC matrices into point-in-time (PIT) rating migration matrices. The calculation of the PIT matrices is performed in the Group's stress testing environment, which is based on the Group's credit portfolio model dbCDE (Credit Default Engine). In dbCDE, macroeconomic variables are linked to the default and rating behaviour of counterparties. Macroeconomic forecasts are used for adjusting the distribution of the respective macroeconomic factors and, consequently, the rating migration matrices that define migration and default probabilities. The actual calculation of the adjusted migration matrices is based on the simulation of a high number of scenarios that are drawn from the distribution of the macroeconomic factors, i.e., the simulation scenarios are selected using statistical techniques and are randomly scattered around the macroeconomic forecast.

LGD is defined as the likely loss intensity in case of a counterparty default. It provides an estimation of the exposure that cannot be recovered in a default event and therefore captures the severity of a loss. Conceptually, LGD estimates are independent of a customer's probability of default. The LGD models ensure that the main drivers for losses (i.e., different levels and quality of collateralization and customer or product types or seniority of facility) are reflected in specific LGD factors. In our LGD models we assign collateral type specific LGD parameters to the collateralized exposure (collateral value after application of haircuts). Moreover, the LGD for uncollateralized exposure cannot be below the LGD assigned to collateralized.

The EAD over the lifetime of a Financial Asset is modelled taking into account expected repayment profiles. We apply specific Credit Conversion Factors (CCFs) in order to calculate an EAD value. Conceptually, the EAD is defined as the expected amount of the credit exposure to a counterparty at the time of its default. In instances where a transaction involves an unused limit, a percentage share of this unused limit is added to the outstanding amount in order to appropriately reflect the expected outstanding amount in case of a counterparty default. This reflects the assumption that for commitments the utilization at the time of default might be higher than the utilization under IAS 39. When a transaction involves an additional contingent component (i.e., guarantees) a further percentage share is applied as part of the CCF model in order to estimate the amount of guarantees drawn in case of default. The calibrations of such parameters are based on statistical experience as well as internal historical data and consider counterparty and product type specifics.

## Collateral for Financial Assets Considered in the Impairment Analysis

IFRS 9 requires cash flows expected from collateral and other credit enhancement to be reflected in the ECL calculation. The following key aspects with respect to collateral and guarantees are reviewed in this section:

- Eligibility of collateral, i.e. which collateral records should be used in the ECL calculation;
- Collateral evaluation, i.e. what collateral (liquidation) value should be used; and
- Projection of the available collateral amount over the life of a transaction.

### Eligibility and Evaluation of Collateral

The treatment and reflection of collateral for IFRS 9 purposes is in line with the general risk management principles, policies and processes of the Group. Hence, the eligibility and reflection of collateral must be based on the existing well-established processes and methodologies as applied for our internal EC model and the credit loss allowance calculation under IAS 39. That means at the reporting date the same collateral records and collateral (liquidation) values will be used for the IFRS 9 ECL calculation as used for the IAS 39 EL/EC model.

Eligibility and evaluation of collateral is based on risk management standards governed by the Group's Credit Risk Management policies. In particular, the Global Collateral Policy is designed to provide for appropriate collateral valuation processes that also include forward-looking components and the valuation is generally reviewed at least annually or on an event-driven basis, usually in connection with the annual credit review or the rating process.

### Valuation Process

The valuation of collateral is considered under a liquidation scenario. Liquidation value is equal to the expected proceeds of collateral monetization / realization in a base case scenario, wherein a fair price is achieved through careful preparation and orderly liquidation of the collateral. Collateral can either move in value over time (dynamic value) or not (static value). The dynamic liquidation value generally includes a safety margin or haircut over realizable value to address liquidity and marketability aspects.

The Group assigns a liquidation value to eligible collateral, based on, among other things:

- the market value and / or lending value, notional amount or face value of a collateral as a starting point;
- the type of collateral; the currency mismatch, if any, between the secured exposure and the collateral; and a maturity mismatch, if any;
- the applicable legal environment or jurisdiction (onshore versus offshore collateral);
- the market liquidity and volatility in relation to agreed termination clauses;
- the correlation between the performance of the borrower and the value of the collateral, e.g., in the case of the pledge of a borrower's own shares or securities (in this case generally full correlation leads to no liquidation value); the quality of physical collateral and potential for litigation or environmental risks; and
- a determined collateral type specific haircut (0 – 100 %) reflecting collection risks (i.e. price risks over the average liquidation period and processing/utilization/sales cost) as specified in the respective policies.

Collateral haircut settings are typically based on available historic internal and/or external recovery data (expert opinions may also be used, where appropriate). They also incorporate a forward-looking component in the form of collection and valuation forecast provided by experts within Risk Management. When data is not sufficiently available or inconclusive, more conservative haircuts than otherwise used must be applied. Haircut settings are reviewed at least annually.

## Projection of Collateralisation Over the Lifetime of a Transaction

The LTECL engine projects the level of collateralization for each point in time in the life of a Financial Asset. For the reporting date the LTECL engine uses the existing collateral distribution process applied for the EL/EC model for the allocation of collateral to Financial Assets to distinguish between collateralized and uncollateralized exposures.

The collateral distribution at the reporting date also forms the basis for projecting the future collateralisation. That means neither additional collateral distributions are performed nor additional collateral is considered at future points in time during the life of the transactions. For each point in time after the reporting date the LTECL engine then derives the expected collateral value during the life of the transactions as follows:

- If the outstanding exposure remains constant over the life of the Financial Asset, the LTECL engine also assumes that the level of collateralization remains unchanged for each point in time in the life of a Financial Asset.
- In case of partial collateralization in combination with a decreasing exposure over the life of the transaction (e.g. for amortizing term loans or annuity loans), the LTECL projects collateralization as follows:
  - for personal collateral the LTECL engine assumes that the relative level of collateralization remains stable over time. In that case the absolute exposure and collateral values decrease together over time.
  - for impersonal collateral the LTECL shall assume that the absolute collateral value remains constant. In that case the collateralized part of the exposure increases over time and consequently the exposure will be fully collateralised at some point.

Since collateral is reflected only as long as it is available, the collateral maturity date may be before the relevant maturity date of the transaction. Accordingly, the collateral value is set to nil after its maturity date, thereby increasing the share of the uncollateralized exposure.

## Hedge Accounting

IFRS 9 incorporates new hedge accounting rules that intend to better align hedge accounting with risk management practices. Generally, some restrictions under IAS 39 rules have been removed and a greater variety of hedging instruments and hedged items become available for hedge accounting. IFRS 9 includes an accounting policy choice to defer the adoption of IFRS 9 hedge accounting and to continue with IAS 39 hedge accounting. The Group has decided to exercise this accounting policy choice and did not adopt IFRS 9 hedge accounting as of January 1, 2018. However, the Group will implement the revised hedge accounting disclosures that are required by the IFRS 9 related amendments to IFRS 7 “Financial Instruments: Disclosures”.

# Reconciliation

## Key Ratios

Key Ratios	IAS 39 as of Dec 31, 2017	IFRS 9 as of Jan 1, 2018 <sup>1</sup>
CRR/CRD 4 fully loaded Common Equity Tier 1 ratio	14.0 %	13.9 %
CRR/CRD 4 fully loaded Leverage Ratio	3.8 %	3.8 %
CRR/CRD 4 Leverage Ratio according to transitional rules (phase-in)	4.1 %	4.1 %

<sup>1</sup> Pro forma

## Impact on Regulatory Capital, RWA, and Leverage Exposure

in € m.	Total shareholders' equity per accounting balance sheet	Common Equity Tier 1 capital fully loaded	Tier 1 Capital fully loaded
<b>Balance as of December 31, 2017</b>	<b>63,174</b>	<b>48,300</b>	<b>52,921</b>
IFRS 9 changes from	(870)	(870)	(870)
Classification and Measurement	(193)	(193)	(193)
Impairments	(677)	(677)	(677)
Tax effects from	199	199	199
Classification and Measurement	65	65	65
Impairments	134	134	134
IFRS 9 impact net of tax	(671)	(671)	(671)
Changes to regulatory deductions			
Negative amounts resulting from the calculation of expected loss amounts		278	278
<b>Balance as of January 1, 2018</b>	<b>62,503</b>	<b>47,907</b>	<b>52,528</b>

in € bn	Risk Weighted Assets	Leverage Exposure
<b>Balance as of December 31, 2017</b>	<b>344</b>	<b>1,395</b>
Changes from	0	(0)
DTA RWA / Change of Total Assets	1	(1)
SA RWA/ Lower Deductions	(0)	0
<b>Balance as of January 1, 2018</b>	<b>345</b>	<b>1,395</b>
Ratios as of December 31, 2017	14.0 %	3.8 %
Ratios as of January 1, 2018	13.9 %	3.8 %
Change in bps	(13)	(3)

## Classification and Measurement

The following table provides an overview of the impact of the changes to total assets under classification and measurement, excluding allowances for On- and Off-Balance Sheet positions, affected by IFRS 9.

in € m.	IAS 39 carrying amount Dec 31, 2017 (i)	Reclassifications (ii)	Remeasurements (iii)	IFRS 9 carrying amount Jan 1, 2018 (iv=i+ii+iii)
<b>Fair Value through Profit or Loss</b>				
From Available for Sale (IAS 39)	-	2,535	(3)	-
From Amortized Cost (IAS 39)	-	41,914	(3)	-
To Amortised Cost (IFRS 9)	-	(5,900)	-	-
To Fair Value through Other Comprehensive Income (IFRS 9)	-	(6,508)	-	-
<b>Total Fair Value through Profit or Loss</b>	<b>636,970</b>	<b>32,041</b>	<b>(6)</b>	<b>669,004</b>
<b>Fair Value through Other Comprehensive Income</b>				
From Available for Sale (IAS 39)	-	41,219	(104)	-
From Amortized Cost (IAS 39)	-	9,943	64	-
From Fair Value through Profit or Loss (IAS 39)	-	6,508	-	-
To Amortised Cost (IFRS 9)	-	-	-	-
To Fair Value through Profit or Loss (IFRS 9)	-	-	-	-
<b>Total Fair Value through Other Comprehensive Income</b>	<b>-</b>	<b>57,671</b>	<b>(40)</b>	<b>57,631</b>
<b>Amortised Cost</b>				
From Amortized Cost (IAS 39)	-	-	-	-
From Available for Sale (IAS 39)	-	5,642	24	-
From Fair Value through Profit or Loss (IAS 39)	-	5,900	(184)	-
To Fair Value through Other Comprehensive Income (IFRS 9)	-	(6,773)	-	-
To Fair Value through Profit or Loss (IFRS 9)	-	(41,914)	-	-
<b>Total Amortised Cost</b>	<b>780,721</b>	<b>(37,145)</b>	<b>(159)</b>	<b>743,417</b>
Tax Assets	8,396	-	230	8,626
Available for Sale (IAS 39)	49,397	(49,397)	-	-
Held to Maturity (IAS 39)	3,170	(3,170)	-	-
<b>Total Asset balances affected by IFRS 9, Reclassifications and Remeasurements</b>	<b>1,478,654</b>	<b>0</b>	<b>24</b>	<b>1,478,678</b>

## Impairment

The following table provides an overview of the impact of the changes to allowances for On- and Off-Balance Sheet positions affected by IFRS 9.

in € m.	IAS 39 Allowance for On-and Off- Balance Sheet positions as at Dec 31, 2017 (i)	Changes due to reclassifications (ii)	Changes due to the introduction of the IFRS 9 ECL model (iii)	IFRS 9 Allowance for On-and Off- Balance Sheet Positions as at Jan 1, 2018 (iv=i+ii+iii)
<b>Fair Value through Profit or Loss</b>				
From Available for Sale (IAS 39)	-	-	-	-
From Amortised Cost (IAS 39)	-	-	-	-
To Amortised Cost (IFRS 9)	-	-	-	-
To Fair Value through Other Comprehensive Income (IFRS 9)	-	-	-	-
<b>Total Fair Value through Profit or Loss</b>	-	-	-	-
<b>Fair Value through Other Comprehensive Income</b>				
From Available for Sale (IAS 39)	-	-	12	12
From Amortised Cost (IAS 39)	-	-	0	0
From Fair Value through Profit or Loss (IAS 39)	-	-	-	-
To Amortized Cost (IFRS 9)	-	-	-	-
To Fair Value through Profit or Loss (IFRS 9)	-	-	-	-
<b>Total Fair Value through Other Comprehensive Income</b>	-	-	12	12
<b>Amortised Cost</b>				
From Amortized Cost (IAS 39)	3,856	-	737	4,594
From Available for Sale (IAS 39)	-	-	-	-
From Fair Value through Profit or Loss (IAS 39)	-	-	9	9
To Fair Value through Other Comprehensive Income (IFRS 9)	10	(10)	-	-
To Fair Value through Profit or Loss (IFRS 9)	55	(55)	-	-
<b>Total Amortised Cost</b>	<b>3,921</b>	<b>(65)</b>	<b>746</b>	<b>4,603</b>
<b>Total On Balance Sheet Positions affected by IFRS 9 ECL Model</b>	<b>3,921</b>	<b>(65)</b>	<b>758</b>	<b>4,615</b>
<b>Off Balance Sheet</b>	<b>285</b>	<b>-</b>	<b>(6)</b>	<b>280</b>
<b>Total On- and Off Balance Sheet Positions affected by IFRS 9 ECL Model</b>	<b>4,207</b>	<b>(65)</b>	<b>753</b>	<b>4,894</b>

# Glossary

CCF – Credit Conversion Factor: converts an off balance sheet exposure to its credit exposure (Risk Weighted Assets) equivalent

dbCDE – Credit Default Engine: Deutsche Bank's credit portfolio model. It is a calculation kernel based on Monte-Carlo simulation that calculates loss distribution, risk contributions and capital for credit portfolios

CRM – Credit Risk Management: an independent credit approval and monitoring function in Deutsche Bank. It is an integral part of the Risk organisation

CRR – Capital Requirements Regulation: one of the two legal acts comprising the Capital Requirements Directives

DB – Deutsche Bank

EAD – Exposure-at-default: an estimation of the extent to which the bank may be exposed to the counterparty at the time of a default. The credit limit is directly correlated to the EAD

EC – Economic Capital: the amount of capital a company should have to support any risks it takes on

ECL – Expected Credit Loss: the value measure of the credit losses expected to result from default events that may occur during a specified period of time (i.e.; the value of all cash shortfalls)

EIR – Effective Interest Rate: interest rate on the financial asset after accounting for any fees applicable and compounding effect over time

EL – Expected Loss: the average loss of a credit facility or portfolio that is predicted by statistical analysis over a certain period of time

FVOCI – Fair Value through Other Comprehensive Income: Financial Assets held for a business model that is achieved by both collecting contractual cash flows and selling and that contain contractual terms that give rise on specified dates to cash flows that are solely payments of principal and interest, are measured at FVOCI

FVTPL – Fair Value through Profit and Loss: Financial Assets that do not meet the criteria for amortised cost or FVOCI are measured at FVTPL

IASB - International Accounting Standards Board: independent accounting standard setting body of the IFRS Foundation. It is responsible for developing the International Financial Reporting Standards (IFRS) and promoting the use and application of these standards

IRBA - Internal Ratings-Based Approach: approach that allows banks to use their own estimated risk parameters for the purpose of calculating regulatory capital

LGD – Loss Given Default: share of an asset that is lost if a borrower defaults

LTECL – Lifetime Expected Credit Loss: assessment of expected losses associated with default events that may occur during the life of a transaction, reflecting the present value of cash shortfalls over the remaining expected life of the transaction

OCI – Other Comprehensive Income: items that have an effect on the balance sheet amounts, but the effect is not reported on the company's income statement. Instead, these changes are reported on the statement of comprehensive income along with the amount of net income from the income statement

PD – Probability of Default: one parameter for the RWA and EL calculation. It is a measure for the likelihood that a loan will not be repaid and will fall into default. The PD is based on the counterparty rating of the borrower



PIT-matrices – Point-in-Time matrices: reflect actual migration and default behaviour in accordance with economic conditions

POCI – Purchased or Credit Impaired: A Financial Asset is considered purchased or originated credit-impaired (POCI) if there is objective evidence of impairment at the time of initial recognition (i.e., rated as in default by CRM). Such defaulted Financial Assets are termed POCI Financial Assets and are initially recognised at fair value

RWA – Risk Weighted Asset: total assets of the bank with the value of each asset adjusted by a factor that reflects its riskiness

SA – Standardized Approach: credit risk measurement techniques proposed under Basel II capital adequacy rules for banking institutions

SPPI – Solely Payments of Principal and Interest: one of the two required conditions for classifying an instrument at Amortised Cost

TTC-matrices – Through-the-Cycle-matrices: reflect the average migration and default behaviour within a credit cycle

# Imprint/Publication

Deutsche Bank  
Aktiengesellschaft  
Taunusanlage 12  
60262 Frankfurt am Main  
Germany  
Telephone: +49 69 910-00  
deutsche.bank@db.com

Investor Relations  
+49 800 910-8000  
db.ir@db.com

## Online

All publications relating to our financial reporting are available at:  
[www.db.com/annual-reports](http://www.db.com/annual-reports)

## Publication

Published on April 19, 2018.

## Cautionary statement regarding forward-looking statements

This report contains forward-looking statements. Forward-looking statements are statements that are not historical facts; they include statements about our beliefs and expectations and the assumptions underlying them. These statements are based on plans, estimates and projections as they are currently available to the management of Deutsche Bank. Forward-looking statements therefore speak only as of the date they are made, and we undertake no obligation to update publicly any of them in light of new information or future events.

By their very nature, forward-looking statements involve risks and uncertainties. A number of important factors could therefore cause actual results to differ materially from those contained in any forward-looking statement. Such factors include the conditions in the financial markets in Germany, in Europe, in the United States and elsewhere from which we derive a substantial portion of our revenues and in which we hold a substantial portion of our assets, the development of asset prices and market volatility, potential defaults of borrowers or trading counterparties, the implementation of our strategic initiatives, the reliability of our risk management policies, procedures and methods, and other risks referenced in our filings with the U.S. Securities and Exchange Commission. Such factors are described in detail in our SEC Form 20-F of March 16, 2018 under the heading "Risk Factors." Copies of this document are readily available upon request or can be downloaded from [www.db.com/ir](http://www.db.com/ir).



