

2016 EU-wide Stress Test Final Methodology and Templates

European Banking Authority

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Introduction

The EBA published on February 2016 the final methodology and templates to be considered in the EU-wide stress test to be carried out in early 3Q 16

Introduction

The EBA is required, in cooperation with the European Systemic Risk Board (ESRB), to initiate and coordinate Union-wide stress tests to assess the resilience of financial institutions to adverse market developments.




Objective

- To provide a **common analytical framework** to consistently compare and assess the resilience of EU banks to shocks and to challenge the capital position of EU banks.



Exercise

- The exercise is based on a common methodology internally consistent and relevant scenarios, and a set of templates to capture starting point data and stress test results to allow a rigorous assessment of the banks in the sample.
 - The **common methodology** defines how banks should calculate the stress impact of the common scenarios and also sets constraints for the bottom-up calculations.
 - The **guidance** aims at providing banks support for performing the EU-wide stress test although it does not cover the quality assurance process of possible supervisory measures.
 - The **templates** are used for collecting data from the banks as well as for publicly disclosing the outcome of the exercise. 

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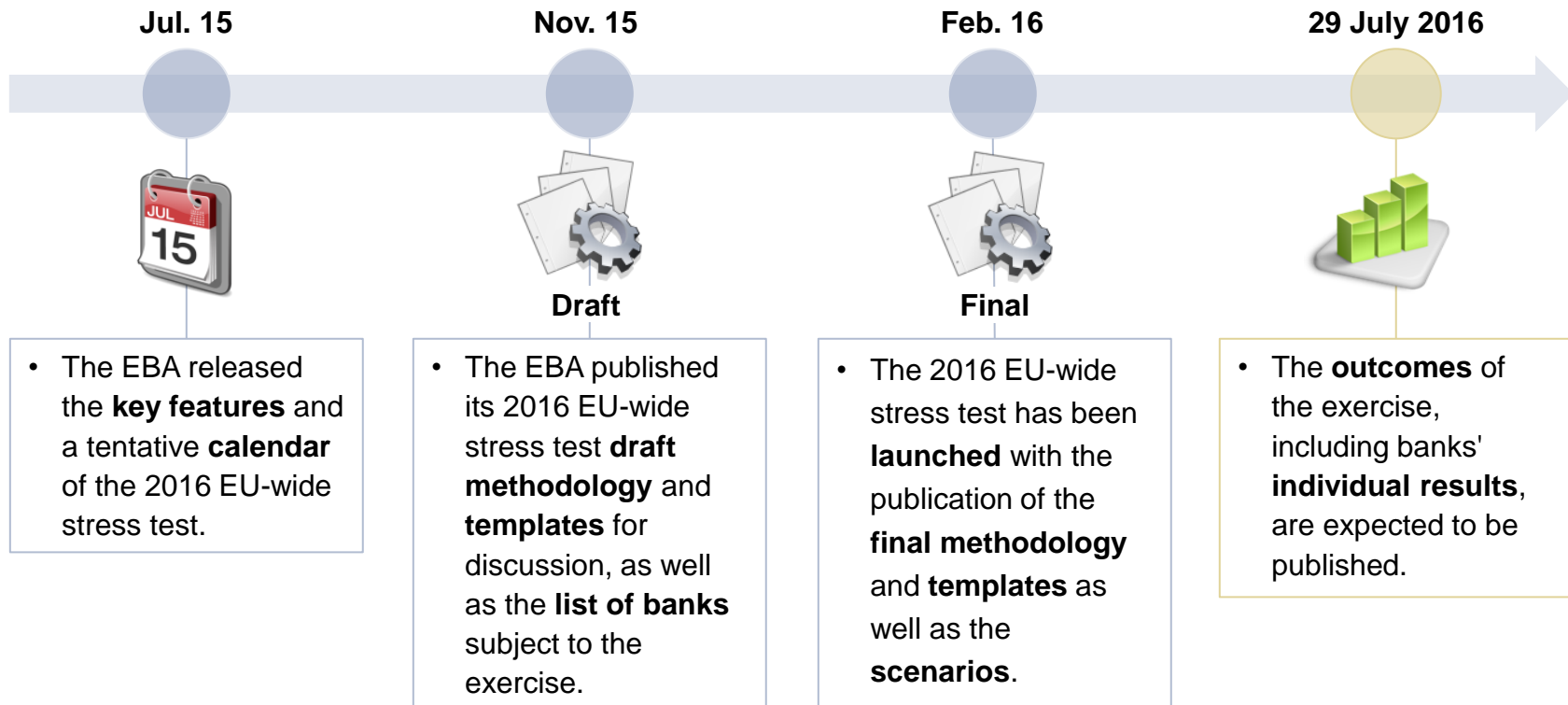
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Main aspects of the exercise

Calendar

The EU-wide stress test began in February 2016 and the outcomes of the exercise are expected to be published by 29 July 2016

Calendar

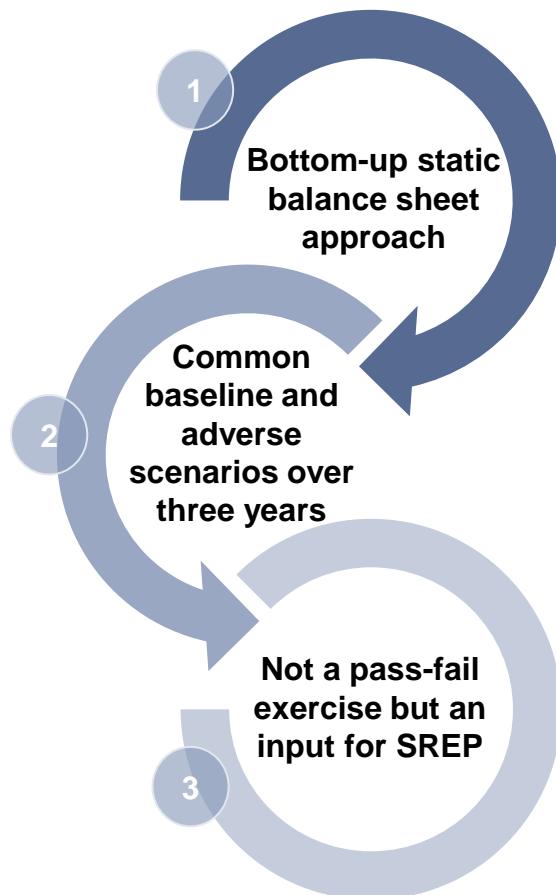


Main aspects of the exercise

Key aspects

The 2016 stress test will use a **bottom-up static balance sheet approach** and a **common baseline and adverse scenario** although, unlike 2014 stress test, this is not a **pass-fail exercise**

Key aspects



- The 2016 exercise will be conducted by banks following a **bottom-up** and a **static balance sheet approach**.
- Bank's projections will be subject to **conservative constraints** that will be included in the EBA methodology.
- Banks under **restructuring** are subject to the **same assumptions**, including the static balance sheet assumption.

- The stress test will be based on **common baseline** and **adverse scenarios**.
- The time horizon of the exercise will be **2016-2018** based on data as of end-2015.

- The 2016 exercise will **not be a pass-fail exercise**, i.e. no capital threshold is defined.
- It will be an **import input for the 2016 SREP** under the responsibility of competent authorities (CAs).
- For this purpose all main regulatory capital ratios will be assessed including **fully loaded ratios** and the **leverage ratio**.

Main aspects of the exercise

Sample of banks

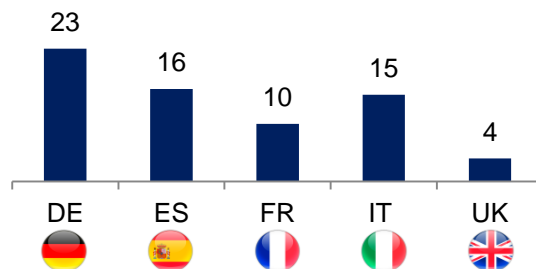
The stress test will cover 51 EU banks, which broadly cover 70% of the national banking sector in each EU Member State and Norway

Sample of banks

2014 sample of banks

- **123 banking groups** across the EU and including Norway.
- Covering more than **70%** of total EU banking assets.

Number of banks subject to the exercise in the main countries



2016 sample of banks

- **51 EU banks** will participate in the 2016 Stress Test methodology (37 from SSM countries).
- Selection criteria: hold a minimum of **€30 billion¹** in assets.
- CAs could include **additional institutions** in their jurisdiction if they have a minimum of **€100 billion** in assets.
- Banks subject to mandatory **restructuring plans** agreed by the EC could be included in the sample by CAs if they were assessed to be near the completion of the plans.

Number of banks subject to the exercise in the main countries



1. The threshold is consistent with the criterion used for inclusion in the sample of banks reporting supervisory reporting data to the EBA, as well as with the SSM definition of a significant institution

Main aspects of the exercise

Process

The EU-wide stress test involves close cooperation between the EBA, the CAs and the ECB, as well as the ESRB and the European Commission (EC)

Process

Responsible authority

Specific tasks



EC



EBA



CAs



- Develop the **macroeconomic adverse scenario** and any risk type specific shocks linked to this scenario.
- Cooperation: EBA, EC and NCAs.
- Supply the **macroeconomic baseline scenario**.
- **Coordinate** the exercise. Cooperation: ECB (in case of SSM countries).
- Host a **central question and answer facility**.
- Act as a **data hub** for the final dissemination of the common exercise.
- Provide common **EU-benchmarks** to CAs.
- Publish the results on a bank-by bank basis.
- Convey to banks the **instructions** on how to complete the exercise.
- Assume the **quality assurance process**.
- Conduct the **supervisory reaction function**.
- Possibility, under CAs responsibility, to run the EU-wide stress test on extended samples, and to carry out additional **national stress tests**. Moreover, CAs shall communicate the stress test **results** to those banks outside the EU-wide sample.

Main aspects of the exercise

Scenarios - Baseline

The baseline scenario has been designed by the European Commission taking into account the projections provided by the EC Autumn 2015 forecast

Baseline scenario

Main features

- **Competent authority:** the EC is the responsible of the baseline scenario design.
- **2015-2017 variables:** the Autumn 2015 forecast¹ published by the EC provides the stress test baseline scenario for 2015-2017 most variables and the remaining variables have been determined through a model-based approach to technical approaches.
- **2018 variables:** have been determined through a model-based approach to technical approaches. It has also applied to projections for house prices for the period 2015 to 2018.

2015-2017 projections¹

	Real GDP			Employment			Inflation		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
EA*	1.6%	1.8%	1.9%	0.9%	0.9%	1.0%	0.1%	1.0%	1.6%
EU*	1.9%	2.0%	2.1%	1.0%	0.9%	0.9%	0.0%	1.1%	1.6%

* European Union (UE) and Euro Area (EA).

- In the calculation of these projections, it has been considered several factors: a fall in oil prices, a accommodative monetary policy and a weak value of the euro, among others.

House prices' projections 2015-2018

- Similar to the EU-wide stress test exercise of 2014, the house prices projection over the scenario horizon was constructed using an **error-correction model** estimated on an EU Member States panel. The model used **5 variables:** the inflation-adjusted house price index, total population, the real residential investment, the real disposable income per capital and the real long-term interest rate.

Main aspects of the exercise

Scenarios - Adverse

The adverse scenario has been designed by the European Systemic Risk Board (ESRB) for variables such as real GDP, unemployment, inflation, interest rate and asset prices in order to estimate the potential adverse impact on profit generation and capital

Adverse scenario

Main features

- **Competent authority:** the ESRB is in charge of the adverse scenario design.
- **Period covered:** 3 years, from 1Q16 to 4Q18.
- **Main systemic risks¹:** an abrupt reversal of compressed global risk premia, weak profitability prospects for banks and insurers, rising of debt sustainability concerns in the public and non-financial private sectors, and prospective stress in a rapidly growing shadow banking sector.

2016-208 projections²

		Real GDP			Unemployment			Inflation		
		2016	2017	2018	2016	2017	2018	2016	2017	2018
EA*		-1.0%	-1.3%	0.6%	11%	11.7%	12.4%	-0.9%	-0.1%	0.1%
UE*		-1.2%	-1.3%	0.7%	9.9%	10.8%	11.6%	-0.9%	-0.2%	-0.2%
		Interest I/t			RPP**			CPP**		
		2016	2017	2018	2016	2017	2018	2016	2017	2018
EA*		2.1%	2.4%	2.3%	-7.3%	-2.3%	0.1%	-4.5%	-5.7%	-1.5%
UE*		2.2%	2.5%	2.4%	-7.7%	-2.9%	-0.6%	-5.6%	-6.7%	-3.5%

- The projections to the adverse scenario variables reflect the 4 systemic risks identified by the ESRB.
- Additionally to the ratios exposed, the ESRB has also provided the deviation level of these variables from the projections determined by the EC in the baseline scenario.

* European Union (EU) and Euro Area (EA).
 ** Residential property prices (RPP) y Commercial property prices (CPP).

Main aspects of the exercise

The stress test results as an input for SREP

Additional information on how the results of the 2016 EU-wide stress will inform the SREP has been provided by the EBA. It is required to use a capital guidance to cover potential shortfalls in own funds based on the outcomes of the stress test

Stress test results as an input for SREP

Quantitative results

- They should be used to assess whether the quantity and composition of available own funds would allow under the assumed scenarios an institution to meet:
 - The **total SREP capital requirement (TSCR)**.
 - The impact on the **Overall Capital Requirements (OCR)**.
- The incorporation of such results into the SREP will involve:
 - **Discussion between CAs and institutions** on the quantitative impact of the stress test and the management actions that may offset some of the impact of the adverse scenario.
 - **Net impact assessment** of the stress test on the institution's forward looking capital plans and its capacity to meet applicable own funds requirements (e.g. TSCR).
 - **Identification of capital shortfalls** leading to potential breaches of applicable own funds requirements revealed by the stress tests. CAs can employ capital guidance to address their concerns.
 - **Some changes** may be requested to the institutions' capital plan, such as restrictions on dividends, among others.
 - **Additional supervisory monitoring metrics** in the form of capital guidance may be included above the combined buffer requirement, taking into account all available capital.

Monitoring of capital guidance

- The CAs will **monitor the capital guidance** and the way it is integrated into institutions' risk management and capital planning processes. If the qualitative or the quantitative outcomes do not meet the requirements set in the SREP assessment, CAs should revise the conclusions; or should update the SREP assessment and review the TSCR, respectively.

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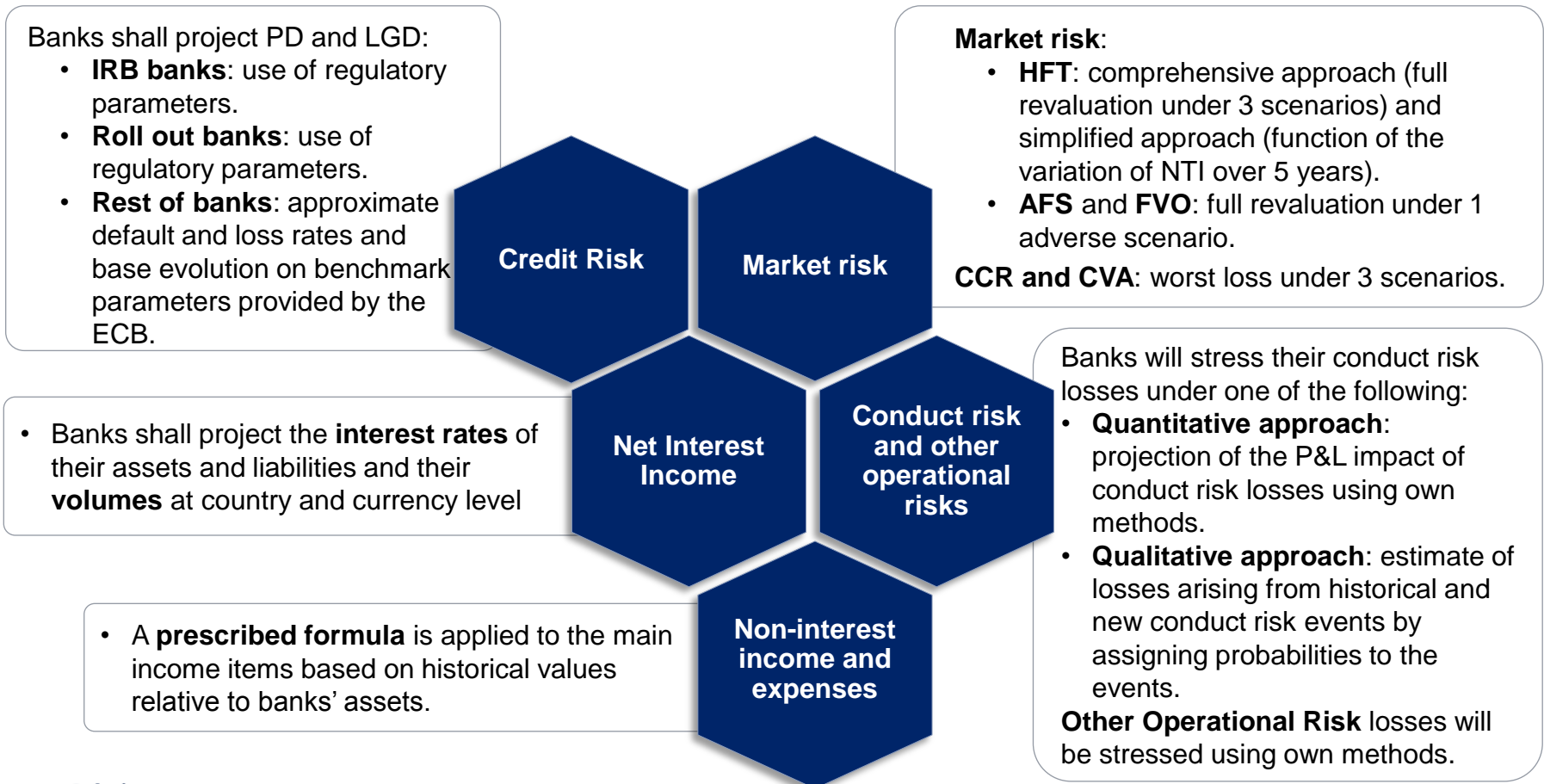
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Methodology by risk type

Overview

The EU-wide stress test is primarily focused on the assessment of the impact of risk drivers on the solvency of banks, i.e. credit risk, market risk, counterparty credit risk, CVA, net interest income, conduct risk, operational risk and non-interest income and expenses

Elements subject to stress test



Methodology by risk type

Credit risk



Banks are required to assess their credit risk impact on both the capital available (via impairments and thus the P&L) and the risk exposure amount for positions exposed to risks stemming from the default counterparties

Credit risk

Scope

- **P&L**: covers all counterparties and all positions (including sovereign positions) exposed to risks stemming from the default of a counterparty. CCR¹ exposures and fair value positions are excluded.
- **REA²**: covers the CRR scope for credit risk (securitisations, CCR and fair value positions included).

Impact on P&L and OCI²

- Banks should use data from **internal models** based on stressed **point-in-time PD and LGD** parameters and **grade migration**.
- The additional impact for old defaulted assets is based on **worsening LGD**.
- Banks with significant foreign currency exposures are required to make explicit projections for **FX loans**.
- There are prescribed loss parameters for **sovereign exposures**.

Impact on REA³

- Banks should adhere to **CRR requirements** based on stressed regulatory risk parameters.

Constraints

- No **negative impairments** are permitted.
- The **coverage ratio** for non-defaulted assets cannot decrease.
- The end of 2015 level of REA serves as a **floor** for the total REA for defaulted and non-defaulted exposures in both scenarios, and separately for aggregate IRB and STA portfolios.
- Regarding **securitisation** exposures, the end of 2015 level of REA serves as a floor for the total REA separately for aggregate IRB and STA portfolios.

1. Counterparty Credit Risk 3. Risk Exposure Amount
2. Other Comprehensive Income 4. Point in time



Methodology by risk type

Market risk, counterparty credit risk and CVA

The impact of market risk on Available For Sale (AFS) and Fair Value Option (FVO) positions is to be assessed via full revaluation whereas on the Held-For-Trading (HFT) category can be used a comprehensive approach (revaluation) or a simplified one

Market risk, counterparty credit risk and CVA

Scope

- **P&L:** covers HFT, AFS and FVO positions (including sovereign positions in these portfolios), hedge accounting portfolios designated to hedge positions assessed at FV, all positions for which CVA is calculated and positions subject to CCR.
- **REA:** covers the CRR scope for market risk and CVA.

Impact on P&L and OCI

- Banks shall use their own projections for **Net Trading Income (NTI)** before the impact of the market risk shock under the comprehensive approach for HFT.
- **Full revaluation of the HFT portfolio** for comprehensive approach NTI. The overall impact is given by the worst loss across the three scenarios (macroeconomic adverse and two historical scenarios).
- **Revaluation of AFS/FVO positions** for the macroeconomic adverse scenario only.
- Consistent valuation of hedging positions for AFS/FVO.
- Maximum CVA across the three market risk scenarios.
- For each of the three scenarios, banks have to assume the default of the two most vulnerable counterparties within their top ten largest.

Impact on REA

- Constant REA for **STD approaches**.
- Constant **VaR** in the baseline scenario and replaced by **SVaR** in the adverse scenario.
- Stressed **IRC** and **CVA** capital requirements
- Constant all price risks (APR) in the baseline and scaled in the adverse.

Constraints

- Prescribed **simplified approach (SA)** based on historical NTI volatility for HFT.
- **NTI starting value** prescribed as the minimum of the average across the last 2,3, and 5 years.
- **NTI projections** before loss impact capped by 0.75% of the starting value.
- Simplified approach serves as **floor** for the impact of the **comprehensive approach**.
- Prescribed **haircuts** for AFS/FVO sovereign positions.
- REA for IRC and CVA floored by the **increase for IRB REA**.

Methodology by risk type

Net Interest Income



Banks may use their own methodology and their existing Assets Liability Management (ALM) systems and Earnings at Risk (EaR) models to project their net interest income

Net Interest Income

Scope

- All **interest-earning or interest-paying positions** across all accounting categories, including not only instruments subject to amortized cost measurement but also those subject to fair value measurement, such as HFT, AFS, FVO positions and hedge accounting instruments.

Impact on P&L and OCI

- Banks may use their **own methodology to project NII** based on the re-pricing of their portfolio, together with their projections for risk-free reference rates and margins both under the baseline and adverse scenario.

Constraints

- Interest **expenses cannot decline** under the adverse scenario.
- The **net interest margin** and **NII cannot increase** under the baseline or the adverse scenario.
- No **income on defaulted assets** under the adverse scenario, except income from discount unwinding (capped by the 2015 value and a constraint depending on the changes in provisions and defaulted exposure).
- Under the adverse scenario, the **margin paid** on interest-bearing liabilities cannot increase less than the higher between a proportion of the increase in the sovereign spreads of the country of exposure and the same proportion applied to the increase of an idiosyncratic component, derived from the impact on banks' wholesale funding rate of a rating downgrade.
- The interest expenses of **re-priced liabilities** cannot decline under the adverse scenario.
- The margin on re-priced assets is **capped** by the starting value.
- No methodological constraints are imposed on the **reference rate of newly originated instruments**.



Methodology by risk type

Conduct risk and other operational risk

Banks shall project the P&L impact of losses arising from conduct risk and other operational risks, using when relevant, their internal models

Conduct risk and other operational risk

Scope

- **P&L:** impact of potential future losses arising from conduct risk and other operational risk.
- **REA:** CRR scope for operational risk.

Impact on P&L and OCI

- Banks shall project the P&L impact of losses arising from these risks using their **own estimations**.
- For **Conduct risk** losses, institutions will apply the **qualitative approach** when they report any historical material conduct risk event during the period 2011-15 or if the competent authority deems it necessary. All remaining banks will apply the **quantitative approach**.
- When banks are unable to provide historical data, losses shall be calculated as a function of **gross earnings** (the relevant indicator) as fall back approach.

Impact on REA

- Banks may use their **own projections** for AMA, basic approach and standard approach.

Constraints

- Losses from **new non-material conduct risk events** are subject to a **floor**, computed in the baseline scenario as the average of the historical non-material conduct risk losses reported by the bank during the 2011-2015 period for non-material events only, and applying a stress multiplier to the average in the adverse scenario.
- Losses from **other operational risks** are subject to a **floor** computed in the baseline scenario as the average of the historical losses 2011-2015 period, and applying a stress multiplier to the average in the adverse scenario.
- Capital requirements for operational risk cannot fall below the 2015 value.

Methodology by risk type

Non-interest income and expenses



Banks shall use their own methodology for project their non-interest income and expenses not covered by credit risk, market risk or operational risk for the baseline and adverse scenario

Non-interest income and expenses

Scope

- **P&L:** the projections of non-interest income and expenses exclude any P&L positions and capital impacts covered in the approaches for credit risk, market risk, operational risk or net interest income.

Impact on P&L and OCI

- Banks may use their **own estimates** but subject to constraints for specific P&L items.
- Market risk methodology and macroeconomic shocks applied for **real estate assets** and defined benefit pension plans.

Constraints

- For dividend and net fee and commission income, the **ratio of net income over total assets** has to remain constant at the 2015 level in the baseline scenario, and it shall be the minimum between this ratio in 2015 and the average of the two years with the smallest ratios that occurred over the last five years in the adverse scenario.
- **Administrative expenses and other operating expenses** cannot fall below the 2015 value, unless an adjustment for one-offs is permitted.
- Common **tax rate of 30%** is applied.
- **No impact** is assumed for realised gains or losses, negative goodwill, foreign exchange effects
- **Other operating income** is capped at the 2015 value.
- For **dividends paid:** pay-out ratio based on publically declared dividend policies. If no policy is available the pay-out ratio in the baseline is the maximum of 30 % and the median of the pay-out ratios in profitable years 2011-2015; in the adverse the same amount of dividends is assumed (0 accepted for loss making banks).

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Annex 1

List of covered banks

AT	Erste Group Bank AG Raiffeisen-Landesbanken-Holding GmbH	FR	BNP Paribas Crédit Agricole Group Société Générale BPCE Confédération Nationale du Crédit Mutuel La Banque Postale
BE	KBC Group NV Belfius Banque SA	HU	OTP Bank Nyrt.
DE	Deutsche Bank AG Commerzbank AG Landesbank Baden-Württemberg Bayerische Landesbank Norddeutsche Landesbank Girozentrale Landesbank Hessen-Thüringen Girozentrale NRW.BANK Volkswagen Financial Services AG DekaBank Deutsche Girozentrale	IE	The Governor and Company of the Bank of Ireland Allied Irish Banks plc
DK	Danske Bank Nykredit Realkredit Jyske Bank	IT	Unicredit SpA Intesa Sanpaolo SpA Banca Monte dei Paschi di Siena SpA Banco Popolare - Società Cooperativa Unione di Banche Italiane Società Cooperativa per Azioni
ES	Banco Santander S.A. Banco Bilbao Vizcaya Argentaria S.A. Criteria Caixa Holding BFA Tenedora de Acciones S.A. Banco Popular Español S.A. Banco de Sabadell S.A.	NL	ING Groep N.V. Coöperatieve Centrale Raiffeisen-Boerenleenbank B.A. (RABO) ABN AMRO Group N.V. N.V. Bank Nederlandse Gemeenten
FI	OP-Pohjola osk	NO	DNB Bank Group
		PL	Powszechna Kasa Oszczednosci Bank Polski SA Nordea Bank - group Svenska Handelsbanken - group
		SE	Skandinaviska Enskilda Banken - group Swedbank - group
		UK	HSBC Holdings Plc Barclays Plc The Royal Bank of Scotland Group Public Limited Company Lloyds Banking Group Plc



Annex 2

Adverse scenario – Main risks to financial stability

Specific macro-financial shocks have been considered when determining the main systemic risks of the adverse scenario

Main risks to financial stability

Systemic Risks	Financial and economic shocks
1 An abrupt reversal of compressed global risk premia, amplified by low secondary market liquidity	<ul style="list-style-type: none">• Rising long-term interest rates and risk premia in the United States and other non-EU advanced economies.• Global equity price shock.• Increase in the VIX volatility index and spillover to emerging market economies.• Foreign demand shocks in the EU via weaker world trade.• Exchange rate shocks.• Oil and commodity price shocks.
2 Weak profitability prospects for banks and insurers, amid incomplete balance sheet adjustments	<ul style="list-style-type: none">• Investment and consumption demand shocks in EU countries.• Residential and commercial property price shocks in EU countries.
3 Rising of debt sustainability concerns in the public and non-financial private sectors, amid low nominal growth	<ul style="list-style-type: none">• Country-specific shocks to sovereign credit spreads.• Shocks to corporate credit spreads.
4 Prospective stress in a rapidly growing shadow banking sector, amplified by spillover and liquidity risk	<ul style="list-style-type: none">• EU-wide uniform shock to interbank money market rates.• Shocks to EU financial asset prices.• Shocks to financing conditions in EU countries (via shocks to household nominal wealth and user cost of capital).



Annex 3

Templates (1/2)

Compared to the 2014 exercise, some templates have been significantly modified, others are introduced for the first time and other templates only show minor changes in format. Overall, banks shall submit 27 CSV templates and 9 transparency templates

Templates			
Template set	Topic	Template name	Description
CSV ¹	Credit risk	CSV_CR_T0	Credit risk – Starting point
CSV	Credit risk	CSV_CR_SCEN	Credit risk – Scenarios (projection for credit risk losses)
CSV	Credit risk	CSV_CR_REA	Credit risk – Risk exposure amount
CSV	Credit risk	CSV_CR_SEC_SUM	Securitisations – Summary
CSV	Credit risk	CSV_CR_SEC_STA	Securitisations – Standardised approach (risk exposure amount)
CSV	Credit risk	CSV_CR_SEC_IRB	Securitisations – IRB except exposures under Supervisory Formula (risk exposure amount)
CSV	Credit risk	CSV_CR_SEC_IRB_SF	Securitisations – IRB Supervisory Formula (risk exposure amount)
CSV	Credit risk	CSV_CR_SEC_OTHER	Securitisations – Other positions (look through) (risk exposure amount)
CSV	Market risk, CCR losses and CVA	CSV_MR_SUM	Market risk – Summary
CSV	Market risk, CCR losses and CVA	CSV_MR_SA	Market risk – Simplified approach
CSV	Market risk, CCR losses and CVA	CSV_MR_CA	Market risk - Comprehensive approach, HFT portfolio excluding AFS and FVO economic hedging items when treated separately
CSV	Market risk, CCR losses and CVA	CSV_MR_CCR	Market risk – Counterparty defaults
CSV	Market risk, CCR losses and CVA	CSV_MR_CVA	Market risk – CVA
CSV	Market risk, CCR losses and CVA	CSV_MR_AFS_HEDG	Market risk – Non-sovereign AFS within hedge accounting portfolios
CSV	Market risk, CCR losses and CVA	CSV_MR_AFS_FVO_OTHER	Market risk – AFS / FVO non-sovereign - except hedge accounting portfolios
CSV	Market risk, CCR losses and CVA	CSV_MR_SOV	Market risk – Sovereign
CSV	NII	CSV_NII_SUM	NII summary
CSV	NII	CSV_NII	NII calculation
CSV	Conduct risk and other operational risk	CSV_OR_GEN	Conduct and other operational risk losses
CSV	Conduct risk and other operational risk	CSV_OR_CON	Material conduct risk losses
CSV	REA	CSV_REA_SUM	Risk exposure amount summary
CSV	REA	CSV_REA_STA	Risk exposure amount – standardised approach floor
CSV	REA	CSV_REA_IRB	Risk exposure amount - IRB approach floor
CSV	REA	CSV_REA_MR_CVA_SA	Risk exposure amount market risk and CVA (Simplified Approach)
CSV	REA	CSV_REA_MR_CVA_CA	Risk exposure amount market risk and CVA (Comprehensive Approach)
CSV	Non-interest income and expenses / P&L	CSV_P&L	Evolution of P&L
CSV	Capital	CSV_CAP	Capital

Minor changes² between 2014 and 2016 stress tests

Significant differences³ between 2014 and 2016 stress tests

New templates in 2016 stress test

1. Calculation Support and Valuation.
2. Changes in cells' format, data breakdown, etc.

3. In general, further data required within each template

Annex 3

Templates (2/2)

Compared to the 2014 exercise, some templates have been significantly modified, others are introduced for the first time and other templates only show minor changes in format. Overall, banks shall submit 27 CSV templates and 9 transparency templates

Templates			
Template set	Topic	Template name	Description
Transparency	N/A	TRA_SUM	Summary adverse/baseline scenario (stress test results)
Transparency	Credit risk	TRA_CR	Credit risk (loss projection)
Transparency	Credit risk	TRA_CR_SEC	Credit risk - Securitisations (risk exposure amount projection)
Transparency	Market risk, CCR losses and CVA	TRA_MR_SOV	Market risk - Sovereign (exposures starting point)
Transparency	REA	TRA_REA	Risk exposure amount (projection)
Transparency	Non-interest income and expenses / P&L	TRA_P&L	P&L (projection)
Transparency	Capital	TRA_CAP	Capital (projection)
Transparency	N/A	TRA_NPE	Information on performing and non-performing exposures (historical)
Transparency	N/A	TRA_FORB	Information on foreborne exposures (historical)
Total CSV		27	
Total TRA		9	

Minor changes¹ between 2014 and 2016 stress tests

Significant differences² between 2014 and 2016 stress tests

New templates in 2016 stress test

1. Changes in cells' format, data breakdown, etc.
2. In general, further data required within each template

