



Adverse scenario for the 2021 EU-wide insurance sector stress test coordinated by the European Insurance and Occupational Pensions Authority

This document presents the adverse scenario that insurance undertakings are required to use in the 2021 EU-wide stress-testing exercise coordinated by the European Insurance and Occupational Pensions Authority (EIOPA). In accordance with its mandate, EIOPA, in cooperation with the European Systemic Risk Board (ESRB), initiates and coordinates the stress tests. The aim of such tests is to assess the resilience of financial institutions within EIOPA's remit to adverse developments. The tests are also aimed at contributing to the overall assessment of systemic risk in the EU financial system.

The insurance-specific components of the stress scenario (such as lapses, longevity and catastrophe events) are developed by EIOPA, while the ESRB, in collaboration with the European Central Bank (ECB), provides the adverse scenario for market stress. The adverse scenario describes shocks to key financial variables in a hypothetical situation triggered by the materialisation of risks to which the EU insurance sector is exposed. A stress test is a scenario-based analysis measuring how the insurance sector would fare given hypothetical adverse economic developments. Accordingly, the scenario should not be considered a forecast of the most likely negative shocks to the financial system.

The adverse scenario for the 2021 EU-wide insurance sector stress test builds on and closely follows the narrative of the adverse scenario developed for the 2021 EU-wide banking sector stress test.¹ The medium-term vulnerabilities arising from the coronavirus (COVID-19) pandemic and the low interest rate environment dominate the scenario. Elements of the scenario have been refined to reflect the nature of the insurance sector and the risks it faces, as well as the structure of its stress test.

Scenario variables include swap rates, bond yields and spreads, real estate prices and stock prices. The shocks to these variables are designed to be consistent with the narrative outlined below. The scenario horizon is one year, and all shocks are assumed to materialise instantaneously at the cut-off date without further evolution over the one-year horizon. The adverse scenario was designed by the ESRB's Task Force on Stress Testing in close collaboration with EIOPA and the ECB. It has benefited from input provided by EIOPA's Risk and Financial Stability Committee.

¹ See "[Macro-financial scenario for the 2021 EU-wide banking sector stress test](#)", ESRB, January 2021.



The scenario was approved by the ESRB General Board on 23 March 2021 and provided to EIOPA on 25 March 2021.

1 Main risks to the stability of the EU financial sector and calibration of the adverse scenario

The narrative of the adverse scenario for the EU-wide insurance stress test draws upon a subset of the main financial stability risks identified by the ESRB General Board to which the EU insurance sector is exposed. In the fourth quarter of 2020 the ESRB General Board stated that it *“continued to consider that the main source of systemic risk in the EU originates from the negative impact of the pandemic on economic activity that may give rise to widespread defaults in the private sector and their feedback effects on the financial system”*. It also noted that *“broad-based policy support measures have been essential to mitigate the impact of the crisis on households and firms as well as to contain a spillover from the non-financial private sector to the banking system. However, the longer the COVID-19 crisis lasts and the more severe its impact is on countries and economic sectors, the more pronounced the deterioration in asset quality will be”*.²

The narrative has also been informed by recent risk assessments by EIOPA and the ECB.

The adverse scenario is set against the background of the COVID-19 pandemic, which has shaped the EU financial and macroeconomic environment since March 2020. The unprecedented shock inflicted by COVID-19 in 2020 led to a sudden halt in economic activity and a sharp deterioration in short-term economic prospects. This was partly a reflection of the necessary containment measures taken. To mitigate the impact on the economy, governments implemented a number of support measures such as furlough schemes, statutory loan moratoria, government-guaranteed loans and direct grants. These complemented the monetary policy and prudential actions taken by the ECB and other EU central banks and supervisory authorities. Nevertheless, the unprecedented slowdown in the economy led to a decline in real GDP of 6.2% for the EU27, i.e. the EU countries excluding the United Kingdom, in 2020 compared with the previous year, as well as an increase of 1 percentage point in the unemployment rate between December 2019 and December 2020. The resulting medium-term vulnerabilities arising from the COVID-19 pandemic, together with the low interest rate environment, dominate the adverse scenario for the 2021 EU-wide insurance sector stress test.

² See [Press release of the ESRB General Board meeting of 18 December 2020](#).



The convention used in the calibration of adverse scenarios for EIOPA stress tests is one of “no policy change”, which also applies to the 2021 adverse scenario. This means that neither monetary policy nor fiscal policy reactions are assumed under the adverse scenario over and above what is embedded in baseline forecasts. Consequently, the developments assumed in the adverse scenario are more pronounced than would be the case if monetary or fiscal policymakers responded with mitigating actions or if existing COVID-19 support measures expiring during the scenario horizon were prolonged further.

The overall probability of materialisation of the market risk shocks depends on several factors, including the probabilities of the triggering events and their level of correlation. The market risk scenario has been calibrated on the basis of three simulations: one for equity prices, one for bond yields and one for swap rates. The “triggering probabilities” for these three simulations have been set at 1%, 2.25% and 35% respectively.³ Shocks to swap rates have a higher probability and thus consist of less extreme moves, which is due to interest rates being at a very low level on the reference date and to the ESRB judging a further steep and abrupt decline unlikely at this juncture. Based on the individual probabilities of the triggering events, the overall likelihood of the scenario ranges between 0.1% and 0.6% as correlation moves from 0.35 to 0.82.⁴ On top of these market risk shocks, the EIOPA stress test includes insurance-specific shocks (e.g. lapse rates, mortality risks) calibrated by EIOPA, which may add to the overall severity of the scenario.

2 A prolonged COVID-19 scenario in a “lower for longer” interest rate environment

In the adverse scenario, ongoing concerns about the possible evolution of the COVID-19 pandemic and its economic ramifications trigger adverse confidence effects worldwide and prolong the economic contraction. The accompanying worsening of economic prospects is reflected in a global decline in long-term risk-free rates from an already historically low level. The economic slowdown results in a sustained drop in GDP⁵ and leads to a substantial rise in the EU unemployment rate due to material business downsizing and corporate defaults over the scenario horizon. Together with high macroeconomic uncertainty, these developments have an adverse

³ See “**Technical note on the Financial Shock Simulator (FSS)**”, ESRB, February 2019, for an explanation of the ECB methodology used to calibrate the scenario.

⁴ The European Court of Auditors suggested in its **Special Report 29/2018** that EIOPA compute the overall probability of materialisation of the scenario. The computation of such an overall probability is an intricate process that requires a number of regulatory and behavioural assumptions to be made (including assumptions about lapse rates and the evolution of the ultimate forward rate). In addition, the computation is sensitive to assumptions regarding the dependence structure linking the various risk factors.

⁵ Over the three-year horizon of the EBA adverse scenario for the banking sector, GDP was forecast to contract by 3.6% both in the EU and in the euro area, corresponding to an average one-year contraction of approximately 1.2%.



impact on aggregate demand, consumer confidence and household debt servicing capacity. A protracted decline in asset prices further erodes household sector financial wealth and weighs on consumption growth.

The reassessment of market participants' expectations amid declining corporate earnings leads to an abrupt and sizeable adjustment of financial asset valuations. Market volatility spikes, asset return correlations increase, and borrowing costs surge on expectations of widespread non-financial corporate sector defaults. The shift in risk sentiment among market participants triggers significant capital outflows from emerging market economies, further exacerbating the slowdown in economic activity worldwide. A more protracted contraction in global growth has a sustained negative impact on EU exports, investment and consumption. This, alongside adverse domestic factors, puts further strain on the corporate sector, which endures a sharp contraction in profits, leading to significant downsizing of businesses and corporate insolvencies.

Corporate sector indebtedness, already at a high level, paired with the sharp decline in profits, exerts pressure on corporate sector balance sheets. Increasing concerns about the sustainability of corporate debt leads to a widening of corporate credit spreads and a tightening of credit standards, limiting corporates' access to funding for their investments and operations. The impact on the different sectors is asymmetrical, with the hardest-hit sectors being those that are most severely affected by the containment measures (e.g. travel, air transport, accommodation services, food, and film and media) and those that experience sharp reductions in supply capacity (e.g. sectors engaged in labour-intensive manufacturing, such as textiles and apparel, or those depending strongly on global value chains, such as automotives).

A slowdown in residential property market activity leads to significant price corrections. Lower income and higher unemployment make it challenging for homeowners to service their mortgages, especially in an environment where policy support is absent. This results in significantly higher mortgage defaults, which exerts downward pressure on residential real estate prices. Tighter financial conditions, depressed economic activity and a negative economic outlook, marked by an inversion of the yield curve, amplify the impact of the initial shock. As a consequence, residential real estate prices decline by 8.4% at the EU level.

Structural changes in commercial real estate demand, exacerbated by COVID-19, trigger a sharp repricing of commercial real estate. The commercial real estate sector faces particularly adverse conditions. An unparalleled decline in demand for property from certain industries as a result of significant changes in spending habits and business organisation, marked by an increase in remote working and a shift to e-commerce, leads to an abrupt and sustained drop in commercial real estate market activity and strong price corrections over the scenario horizon. The commercial real estate market experiences substantial repricing, which leads to a decline of 17.4% in commercial property prices at the EU level.

The worsening of economic prospects is reflected in a global decline in long-term risk-free interest rates from an already historically low level, with nominal short and long-term risk-free rates remaining below zero in the EU. In the euro area, one-year euro swap rates decline by 33 basis points while ten-year euro swap rates drop by 63 basis points. Similarly, in the rest of the



world, the negative outlook for the real economy in an environment of low interest rates leads to either an inversion or a flattening of yield curves.

The economic contraction weakens countries' fiscal positions. Despite the low level of risk-free interest rates, a resurfacing of concerns about the sustainability of public debt amid weakening domestic demand leads to significant increases in credit risk premia on sovereign bonds, especially in high-spread economies. On average, across EU countries, ten-year sovereign bond yields increase by 28 basis points.

In a similar vein, corporate profitability is severely undermined by the downturn, which leads to debt sustainability concerns and to widespread insolvencies of non-financial corporations. As a consequence, corporate bond yields in the EU increase on average by between 71 and 269 basis points depending on the sector and credit rating of the issuer. This increase in non-financial corporate financing costs is reflected in a rise in the user cost of capital, which in turn has a negative impact on investment.

Despite the low level of interest rates, the severity of the contraction in both global and EU economic activity under the adverse scenario leads to a significant repricing of equity. Stock prices fall abruptly, dropping by 45% in the EU, by 43% on average in other advanced economies and by 50% in emerging economies. Similarly, other assets are subject to severe revaluations. Across EU markets, prices of private equity, hedge funds, real estate investment trusts (REITs) and commodities decline on average by 45%, 45%, 51% and 40% respectively.



1 Annex: Detailed tables⁶

1.1 Swap rates

Shocks to swaps (basis points)													
Currency	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	25Y	30Y	35Y	40Y	50Y
EUR	-33	-33	-35	-41	-49	-63	-81	-90					
BGN	-17	-28	-41	-63	-77	-109	-162	-215					
CZK	-16	-41	-57	-79	-87	-113	-96						
DKK	-20	-20	-23	-31	-41	-75	-65	-87					
PLN	-47	-59	-71	-92	-114	-146	-184	-193					
SEK	-19	-22	-27	-40	-53	-73							
AUD	-13	-18	-28	-47	-72	-108	-142	-156	-162	-163			
CAD	-11	-16	-26	-49	-67	-89	-117	-130	-134	-133			
CHF	-14	-16	-20	-31	-44	-60	-77	-82	-79				
CNY	-49	-50	-51	-53	-55	-58							
GBP	-17	-23	-30	-43	-54	-70	-83	-90	-92	-92	-92	-90	-86
HKD	-16	-19	-26	-43	-62	-88	-112						
JPY	-10	-10	-10	-11	-13	-19	-31	-41	-48	-54			
KRW	-21	-32	-42	-57	-64	-72	-73	-68					
MXN	-56	-68	-80	-105	-130	-167	-172	-178					
NOK	-35	-42	-55	-78	-95	-112							
NZD	-13	-16	-22	-39	-59	-84	-117	-136					
SGD	-20	-24	-30	-51	-71	-93	-106	-107					
USD	-10	-11	-15	-34	-56	-83	-108	-121	-126	-129	-127	-125	-118
ZAR	0	-22	-56	-135	-219	-315	-400						

⁶ "Hong Kong" refers to Hong Kong SAR.



1.2 Sovereign bonds

Shocks to yields

Shocks to government bond yields (basis points)							
Country or region	1Y	2Y	5Y	10Y	15Y	20Y	30Y
Austria	4	4	7	10	11	12	13
Belgium	23	24	28	31	33	34	35
Bulgaria	26	26	28	29	30	31	31
Cyprus	44	47	57	68	73	79	81
Croatia	84	85	86	87	87	88	88
Czech Republic	18	19	19	20	20	20	20
Denmark	3	3	4	5	6	7	7
Estonia	25	28	37	46	50	55	57
Finland	1	1	2	3	4	4	4
France	0	0	0	0	0	0	0
Germany	0	0	0	0	0	0	0
Greece	83	95	135	177	198	219	230
Hungary	40	42	47	52	55	58	59
Ireland	3	5	15	25	30	35	37
Italy	73	75	81	88	91	95	96
Latvia	23	26	36	46	51	56	58
Lithuania	27	30	38	46	50	54	56
Luxembourg	0	0	1	1	1	2	2
Malta	34	36	42	48	51	54	56
Netherlands	0	1	3	5	6	7	8
Poland	25	25	28	31	32	33	34
Portugal	83	88	103	119	127	135	139
Romania	52	52	54	56	57	58	58
Slovakia	7	8	11	14	15	17	17
Slovenia	23	25	30	36	39	41	43
Spain	44	47	57	68	73	79	81
Sweden	0	0	1	1	2	2	2
Euro area (weighted averages)	20	21	25	29	31	33	34
EU (weighted averages)	20	21	25	28	30	32	33
Brazil	76	77	81	84	86	87	88
Iceland	12	13	15	18	19	20	21
Japan	0	0	1	1	1	2	2
Norway	4	4	6	9	10	11	11
Switzerland	0	1	4	6	7	8	9
United Kingdom	32	33	35	38	40	41	42
United States	20	20	23	25	27	28	29
Emerging markets	48	49	52	55	56	58	58
Other advanced economies	25	27	32	37	40	43	44



Shocks to spreads

Shocks to government bond spreads (basis points)							
Country or region	1Y	2Y	5Y	10Y	15Y	20Y	30Y
Austria	36	38	48	72	92	102	121
Belgium	56	57	68	94	114	124	144
Bulgaria	43	54	91	138	192	246	321
Cyprus	77	80	98	131	155	168	190
Croatia	86	93	121	151	157	164	170
Czech Republic	34	59	98	133	116	133	133
Denmark	23	24	35	81	71	93	102
Estonia	58	61	77	109	132	145	166
Finland	33	34	43	66	85	94	113
France	33	33	41	63	82	90	109
Germany	33	33	41	63	81	90	108
Greece	116	128	176	240	280	309	338
Hungary	61	74	123	201	259	270	280
Ireland	35	38	55	87	111	124	145
Italy	106	108	122	151	173	184	205
Latvia	56	59	77	109	132	146	167
Lithuania	60	63	78	109	131	144	165
Luxembourg	33	33	41	64	83	91	110
Malta	67	69	82	111	132	144	164
Netherlands	33	34	43	68	88	97	116
Poland	72	84	120	177	216	226	259
Portugal	116	121	144	182	208	224	247
Romania	94	97	135	179	212	229	245
Slovakia	40	41	51	76	96	106	126
Slovenia	56	58	71	99	120	131	151
Spain	77	80	98	131	155	168	190
Sweden	19	22	41	74	93	102	121
Euro area (weighted averages)	53	54	66	91	112	122	142
EU (weighted averages)	53	54	65	91	111	121	141
Brazil	125	135	163	209	211	213	214
Iceland	34	40	66	98	116	124	137
Japan	10	10	11	20	33	43	55
Norway	38	47	85	121	140	150	169
Switzerland	14	17	35	66	84	91	107
United Kingdom	49	56	78	108	123	131	133
United States	29	31	57	108	135	149	158
Emerging markets	58	60	86	137	164	178	187
Other advanced economies	35	37	66	120	148	163	173



1.3 Corporate bonds

Shocks to yields

Shocks to corporate bond yields (basis points)								
Country or region	Type	AAA	AA	A	BBB	BB	B	CCC
EU	<i>Financial</i>	79	94	109	123	172	220	269
	<i>Non-financial</i>	71	75	79	83	88	92	97
United Kingdom	<i>Financial</i>	94	109	124	138	187	235	284
	<i>Non-financial</i>	92	94	96	98	103	107	112
United States	<i>Financial</i>	54	65	87	110	141	173	205
	<i>Non-financial</i>	41	49	66	82	89	96	104
Emerging markets	<i>Financial</i>	131	146	161	175	274	322	321
	<i>Non-financial</i>	119	121	123	125	133	141	149
Other advanced economies	<i>Financial</i>	83	98	117	136	183	231	278
	<i>Non-financial</i>	75	80	88	96	102	109	104

Shocks to covered bond yields (basis points)				
Country or region	AAA	AA	A	BBB
EU	72	80	87	94
Asia	91	115	122	129
North America	41	54	61	69
Others	73	83	90	97

Shocks to residential mortgage-backed securities (basis points)				
Country or region	AAA	AA	A	BBB
EU	77	86	97	107
United Kingdom	79	88	99	110
United States	44	58	68	78
Asia	126	140	147	155
Emerging markets	126	140	147	155
Other advanced economies	67	77	88	98

1.4 Equity prices

Shocks to stock prices (%)	
Country or region	Shock
European Union	-45
Japan	-43
Norway	-44
Switzerland	-38
United Kingdom	-57
United States	-55
Emerging markets	-50
Other advanced economies	-43



1.5 Residential and commercial real estate prices

Shocks to real estate (%)		
Country or region	Residential	Commercial
Austria	-13	-13
Belgium	-14	-20
Bulgaria	-3	-12
Cyprus	-2	-10
Croatia	-7	-16
Czech Republic	-13	-22
Denmark	-11	-20
Estonia	-6	-13
Finland	-8	-21
France	-9	-18
Germany	-10	-17
Greece	-6	-13
Hungary	-8	-16
Ireland	-7	-18
Italy	-3	-17
Latvia	-6	-14
Lithuania	-3	-11
Luxembourg	-15	-18
Malta	-7	-12
Netherlands	-10	-20
Poland	-9	-16
Portugal	-11	-16
Romania	-2	-10
Slovakia	-9	-20
Slovenia	-8	-13
Spain	-7	-15
Sweden	-15	-22
Euro area (weighted averages)	-8	-17
EU (weighted averages)	-8	-17
Japan	-13	-17
Norway	-14	-23
Switzerland	-13	-17
United Kingdom	-13	-17
United States	-13	-17
Emerging markets	-13	-17
Other advanced economies	-13	-18

1.6 Other assets

Shocks to other assets (%)						
Private equity		Hedge funds		REITs		Commodities
EU	Global	EU	Global	EU	Global	
-45	-50	-45	-42	-51	-49	-40

