



2021 EU Wide Stress Test Our First Glance at Results

Highest capital depletion in stress history will not prevent the return of dividends and buybacks – Winners and Losers of Stress Test Results



July 2021

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Highlights

2021 Stress Test Results are out – Although results show highest capital depletion is stress history, given strong capital positions remaining buffers will allow increased dividends and paybacks for most banks



Stress Test Impacts

1

While 2021 stress test impacts increase compared to those experienced in last stress test 2018 ...

- Impact of 2021 stress tests shows average capital depletion (2020 CET1 to adverse) of 485bps, 91bps higher than depletion created by 2018 stress tests (394bps)
- Much higher depletion explained by more severe scenario and worse starting point due to Covid-19 impact
- As expected stress test results do not generate any major surprises and demonstrate strong capital resilience of the banking sector coming off Covid-19



Capital Distribution

2

...banks demonstrate strong resilience to weather a stress due to improved capital starting positions.

- No incremental capital needs as capital actions pre-empted for banks (BMPS) falling below the 5.5% CET1 minimum threshold
- Capital flexibility measured as the buffer between CET1 after stress test and minimum threshold of 5.5% increases to 466 from 455bps in 2018
- New Pillar 2 guidance approach will bucket banks into 4 areas and create a stronger link between stress test capital depletion and dividend and buyback decisions
- Report shows winners and losers after application of new P2G rule



Summary by Country

3

Countries most impacted are those with least income generation capabilities to offset capital depletion generated by severe scenario

- Worst 5 countries by CET1 depletion:
 - Denmark: -651bps
 - Ireland: -607bps
 - Italy: -559bps
 - Germany: -558bps
 - France: -555bps
- Best 5 countries by CET1 depletion:
 - Poland: -112bps
 - Norway: -252bps
 - Spain: -290bps
 - Sweden: -299bps
 - Hungary: -303bps



Stress Tests Going Forward

4

Climate Risk Stress Test on 2022, and expecting material changes on 2023 Capital Stress Tests

- The Climate Risk stress test will arrive in 2022 expected to be very comprehensive and detailed, including three main modules (questionnaire, climate metrics and bottom-up stress test). It will require major bank preparation.
- Next capital stress test exercise in 2023 is expected to bring material new features: (i) supervisory run with top-down stress test view using simplified assumptions, (ii) banks run with bottom-up dynamic approach aligned to ICAAP and (iii) comparative results from both views



Section **1** | Stress Test Impacts



1. Stress Test Impacts

2021 stress test capital depletion increased compared to depletion observed in last stress test 2018 (485bps vs. 394bps Fully Loaded).

- Impact of 2021 stress tests shows average capital depletion (2020 CET1 fully loaded to adverse 2023) of 485 bps, 90bps higher than depletion created by 2018 stress tests (394bps)

Capital Depletion	All Banks	European G-SIBs	Worst 3 Countries 	Best 3 Countries 	Worst 3 Banks 	Best 3 Banks 
CET Fully Loaded Adverse	-485bps	-489bps	Denmark, Ireland and Italy	Poland, Norway and Spain	Banca Monte dei Paschi, BNG and La Banque Postale	Lämförsäkring, Polska and Bankinter

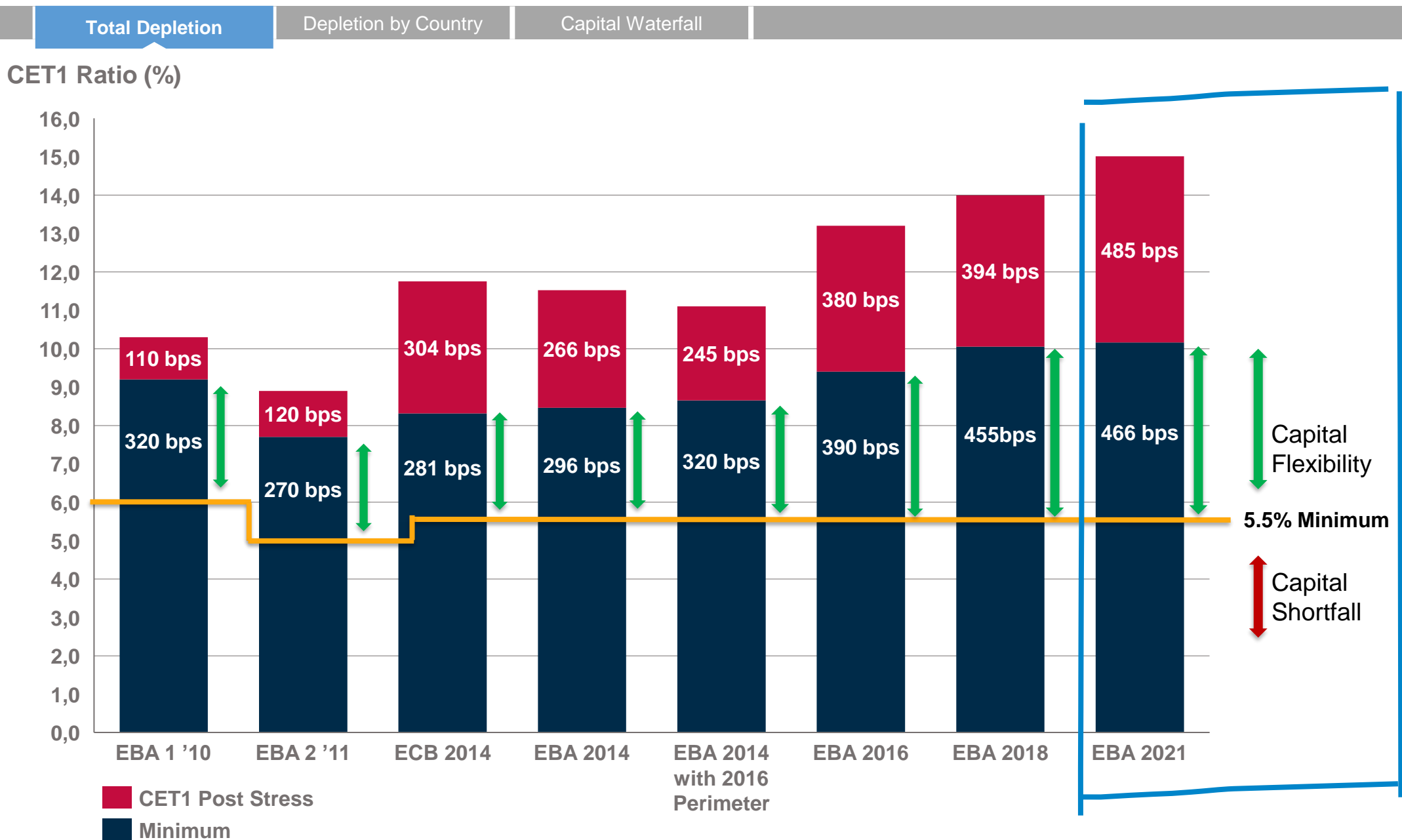
- European G-SIBs display average capital depletion of 489 bps in line with total average
- Worst 3 capital depletion countries measured on fully loaded basis (measured as Adverse CET1 depletion 2020-2023) are Denmark, Ireland and Italy. Top 3 countries are Poland, Norway and Spain.
- Worst 3 capital depletion banks measured on fully loaded basis (Banca Monte dei Paschi, BNG and La Banque Postale)
- Best 3 capital depletion banks measured on fully loaded basis (Lämförsäkring, Polska and Bankinter)

- Much higher depletion explained by a more severe scenario and worse starting point due to the impact of Covid-19. By main driver of CET1 depletion:

- Credit Risk: -423 bps
- Market Risk (inc. CCR): -102 bps
- Conduct & Other Op. Risk: 68 bps
- NII & NFCI: impact of 176 bps and 73 bps respectively, measured as lower capital formation respectively compared to constant SP

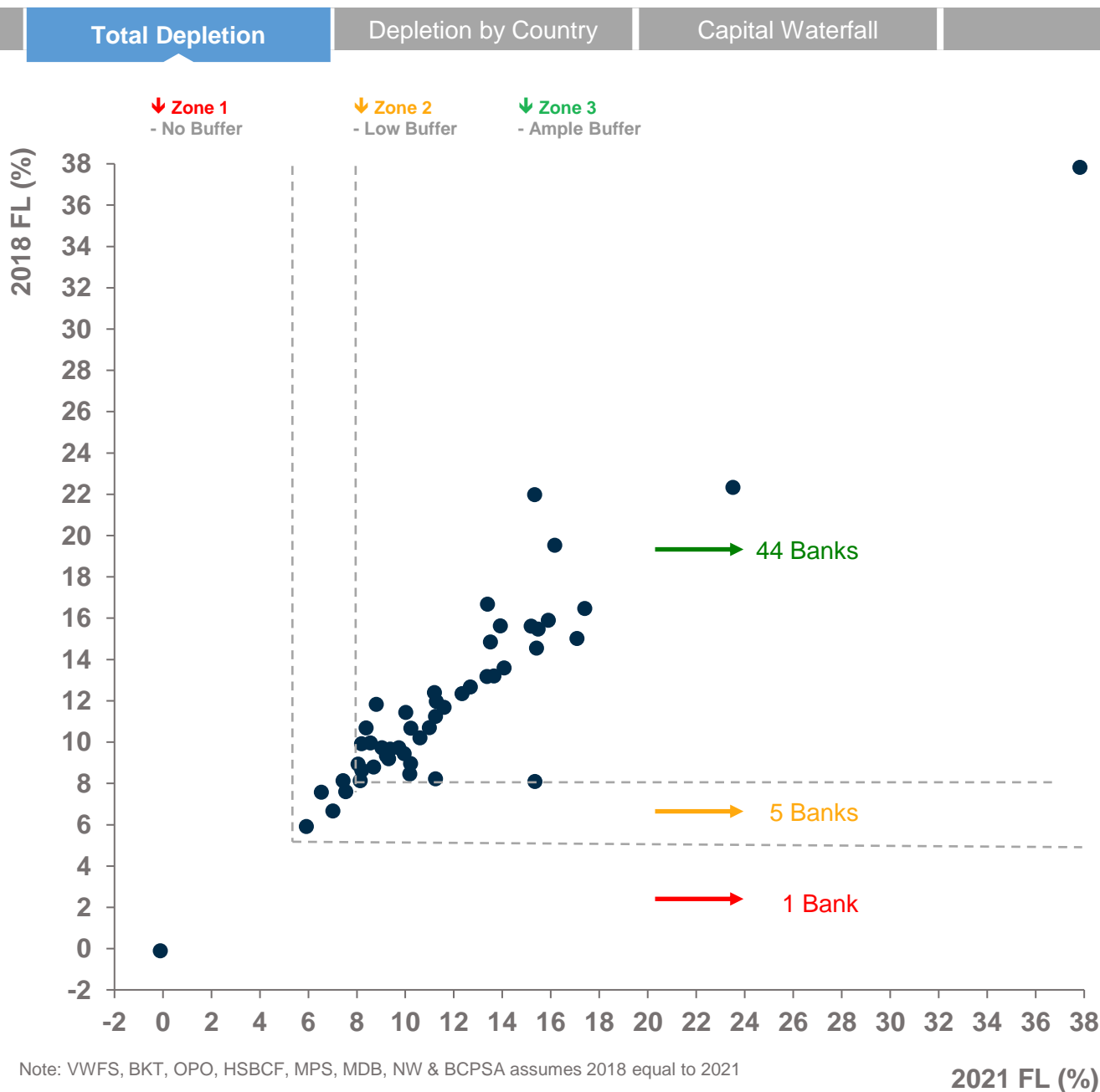
1. Stress Test Impacts

2021 stress test impact shows much higher capital depletion compared to ST'18 (measured as 2020 CET1 to adverse FL) (485bps vs. 394bps). Capital flexibility however presents better results (466bps vs. 455bps).



1. Stress Test Impacts

Capital flexibility has improved as compared to ST'18 due to a higher CET1 starting point level. Only 1 bank falls below 5.5% (Banca Monte dei Paschi) and 5 banks ends with low levels of buffer



- Overall, highest capital depletion in stress test history (CET1 decline of 485bps, 91bps higher than in 2018).
- In addition, results show much higher dispersion among banks, from 80 bps of Länförsäkringar Bank to 996 of Banca Monte dei Paschi.
- Banca Monte dei Paschi results in a no buffer zone due to its capital depletion, and 5 banks end the 2023 adverse CET1 within a low buffer zone (Deutsche Bank, Sabadell, Societe Generale, HSBC France and BPM)

1. Stress Test Impacts

Worst capital depletion banks on fully loaded basis are Banca Monte dei Paschi, BNG and La Banque Postale. Best capital depletion banks on fully loaded basis are Länförsäkring, Polska and Bankinter.

Total Depletion

Depletion by Country/Bank

Capital Waterfall

Country	Bank Name	EBA 2021 Stressed CET1 Depletion 2020-2023			EBA 2018 Stressed CET1 Depletion 2017-2020			Depletion Chg. 21 vs 18 (FL)
		Fully Loaded	Impact Bps	Qrt.	Fully Loaded	Impact Bps	Qrt.	
AT	Erste Group Bank AG		-401			-456		-55
AT	Raiffeisen Bank International AG		-462			-273		189
BE	Belfius Banque SA		-270	1st		-296		-25
BE	KBC Group NV		-351			-236	1st	114
DE	Bayerische Landesbank		-590			-592	4th	-2
DE	Commerzbank AG		-502			-341		162
DE	Deutsche Bank AG		-620			-576	4th	45
DE	DZ BANK AG		-489			-467		22
DE	Landesbank Baden-Württemberg		-643	4th		-536	4th	107
DE	Landesbank Hessen-Thüringen		-585			-608	4th	-23
DE	Volkswagen Financial Services AG		-262	1st		-		262
DK	Danske Bank		-673	4th		-532	4th	141
DK	Jyske Bank		-634	4th		-432		202
DK	Nykredit Realkredit		-631	4th		-484	4th	147
ES	Banco Bilbao Vizcaya Argentaria S.A.		-303	1st		-193	1st	110
ES	Banco de Sabadell S.A.		-548			-446		103
ES	Banco Santander S.A.		-258	1st		-141	1st	117
ES	Bankinter, S.A.		-104	1st		-		104
FI	Nordea Bank Abp		-369			-265		104
FI	OP Osuuskunta		-619			-		619
FR	BNP Paribas		-440			-288		152
FR	Groupe BPCE		-580			-445		135
FR	Groupe Crédit Agricole		-634	4th		-437		197
FR	Group Crédit Mutuel		-525			-405		120
FR	La Banque Postale		-916	4th		-494	4th	422
Total G-SIBs Weighted Avg.			-489			-390		99
Total EU Weighted Avg.			-485			-394		91

1. Stress Test Impacts

Worst capital depletion banks on fully loaded basis are Banca Monte dei Paschi, BNG and La Banque Postale. Best capital depletion banks on fully loaded basis are Länförsäkringar, Polska and Bankinter.

Total Depletion

Depletion by Country/Bank

Capital Waterfall

Country	Bank Name	EBA 2021			EBA 2018			Depletion Chg. 21 vs 18 (FL)
		Stressed CET1 Depletion 2020-2023			Stressed CET1 Depletion 2017-2020			
		Fully Loaded	Impact Bps	Qrt.	Fully Loaded	Impact Bps	Qrt.	
FR	Société Générale S.A.	<div><div></div><div></div></div>	-562		<div><div></div><div></div></div>	-363		198
FR	HSBC France	<div><div></div><div></div></div>	-667	4th	<div><div></div><div></div></div>	-		667
HU	OTP Bank Nyrt.	<div><div></div><div></div></div>	-303	1st	<div><div></div><div></div></div>	-246	1st	57
IE	Allied Irish Banks Group plc	<div><div></div><div></div></div>	-677	4th	<div><div></div><div></div></div>	-520	4th	157
IE	Bank of Ireland Group plc	<div><div></div><div></div></div>	-532		<div><div></div><div></div></div>	-468	4th	64
IT	Banca Monte dei Paschi di Siena S.p.A.	<div><div></div><div></div></div>	-996	4th	<div><div></div><div></div></div>	-		996
IT	Banco BPM S.p.A.	<div><div></div><div></div></div>	-622	4th	<div><div></div><div></div></div>	-453		169
IT	Intesa Sanpaolo S.p.A.	<div><div></div><div></div></div>	-466		<div><div></div><div></div></div>	-219	1st	248
IT	UniCredit S.p.A.	<div><div></div><div></div></div>	-592		<div><div></div><div></div></div>	-334		258
IT	Mediobanca - Banca di Credito F. S.p.A.	<div><div></div><div></div></div>	-478		<div><div></div><div></div></div>	-		478
NL	ABN AMRO Group N.V.	<div><div></div><div></div></div>	-418		<div><div></div><div></div></div>	-267		151
NL	Coöperatieve Rabobank U.A.	<div><div></div><div></div></div>	-679	4th	<div><div></div><div></div></div>	-390		289
NL	ING Groep N.V.	<div><div></div><div></div></div>	-443		<div><div></div><div></div></div>	-381		62
NL	N.V. Bank Nederlandse Gemeenten	<div><div></div><div></div></div>	-989	4th	<div><div></div><div></div></div>	-742	4th	246
NL	Nederlandse Waterschapsbank N.V.	<div><div></div><div></div></div>	-728	4th	<div><div></div><div></div></div>	-		728
NO	DNB Bank Group	<div><div></div><div></div></div>	-252	1st	<div><div></div><div></div></div>	-150	1st	102
PL	Polska Kasa Opieki SA	<div><div></div><div></div></div>	-98	1st	<div><div></div><div></div></div>	-144	1st	-46
PL	Powszechna Kasa Oszczednosci Bank SA	<div><div></div><div></div></div>	-120	1st	<div><div></div><div></div></div>	-30	1st	90
PT	Caixa Geral de Depósitos, SA	<div><div></div><div></div></div>	-288	1st	<div><div></div><div></div></div>	810	1st	-522
PT	Banco Comercial Português, SA	<div><div></div><div></div></div>	-406		<div><div></div><div></div></div>	-		406
SE	Skandinaviska Enskilda Banken - group	<div><div></div><div></div></div>	-357		<div><div></div><div></div></div>	-272		85
SE	Svenska Handelsbanken - group	<div><div></div><div></div></div>	-410		<div><div></div><div></div></div>	-307		103
SE	Swedbank - group	<div><div></div><div></div></div>	-217	1st	<div><div></div><div></div></div>	-260	1st	-43
SE	Länförsäkringar Bank AB (publ)	<div><div></div><div></div></div>	-80	1st	<div><div></div><div></div></div>	-		80
SE	SBAB Bank AB – group	<div><div></div><div></div></div>	-108	1st	<div><div></div><div></div></div>	-		108
Total G-SIBs Weighted Avg.		<div><div></div><div></div></div>	-489		<div><div></div><div></div></div>	-390		99
Total EU Weighted Avg.		<div><div></div><div></div></div>	-485		<div><div></div><div></div></div>	-394		91

1. Stress Test Impacts

Worst 3 capital depletion countries measured on fully loaded basis (measured as Adverse CET1 depletion 2020-2023) are Denmark, Ireland and Italy. Top 3 countries are Poland, Norway and Spain.

Total Depletion

Depletion by Country/Bank

Capital Waterfall

Country	Bank Name	EBA 2021			EBA 2018			Depletion Chg. 21 vs 18 (FL)
		Stressed CET1 Depletion 2020-2023			Stressed CET1 Depletion 2017-2020			
		Fully Loaded	Impact Bps	Qrt.	Fully Loaded	Impact Bps	Qrt.	
AT	Austria	<div><div></div><div></div></div>	-428		<div><div></div><div></div></div>	-383	4th	45
BE	Belgium	<div><div></div><div></div></div>	-321		<div><div></div><div></div></div>	-257		64
DE	Germany	<div><div></div><div></div></div>	-558	4th	<div><div></div><div></div></div>	-519	4th	38
DK	Denmark	<div><div></div><div></div></div>	-651	4th	<div><div></div><div></div></div>	-502	4th	149
ES	Spain	<div><div></div><div></div></div>	-290	1st	<div><div></div><div></div></div>	-189	1st	101
FI	Finland	<div><div></div><div></div></div>	-441		<div><div></div><div></div></div>	-326		116
FR	France	<div><div></div><div></div></div>	-555		<div><div></div><div></div></div>	-382		172
HU	Hungary	<div><div></div><div></div></div>	-303		<div><div></div><div></div></div>	-246	1st	57
IE	Ireland	<div><div></div><div></div></div>	-607	4th	<div><div></div><div></div></div>	-497	4th	111
IT	Italy	<div><div></div><div></div></div>	-559	4th	<div><div></div><div></div></div>	-304		255
NL	Netherlands	<div><div></div><div></div></div>	-533		<div><div></div><div></div></div>	-372		161
NO	Norway	<div><div></div><div></div></div>	-252	1st	<div><div></div><div></div></div>	-150	1st	102
PL	Poland	<div><div></div><div></div></div>	-112	1st	<div><div></div><div></div></div>	-73	1st	39
PT	Portugal	<div><div></div><div></div></div>	-353		-	-		-
SE	Sweden	<div><div></div><div></div></div>	-299	1st	<div><div></div><div></div></div>	-279		20
G-SIBs	Total G-SIBs Weighted Avg.	<div><div></div><div></div></div>	-489		<div><div></div><div></div></div>	-390		99
EU	Total EU Weighted Avg.	<div><div></div><div></div></div>	-485		<div><div></div><div></div></div>	-394		91

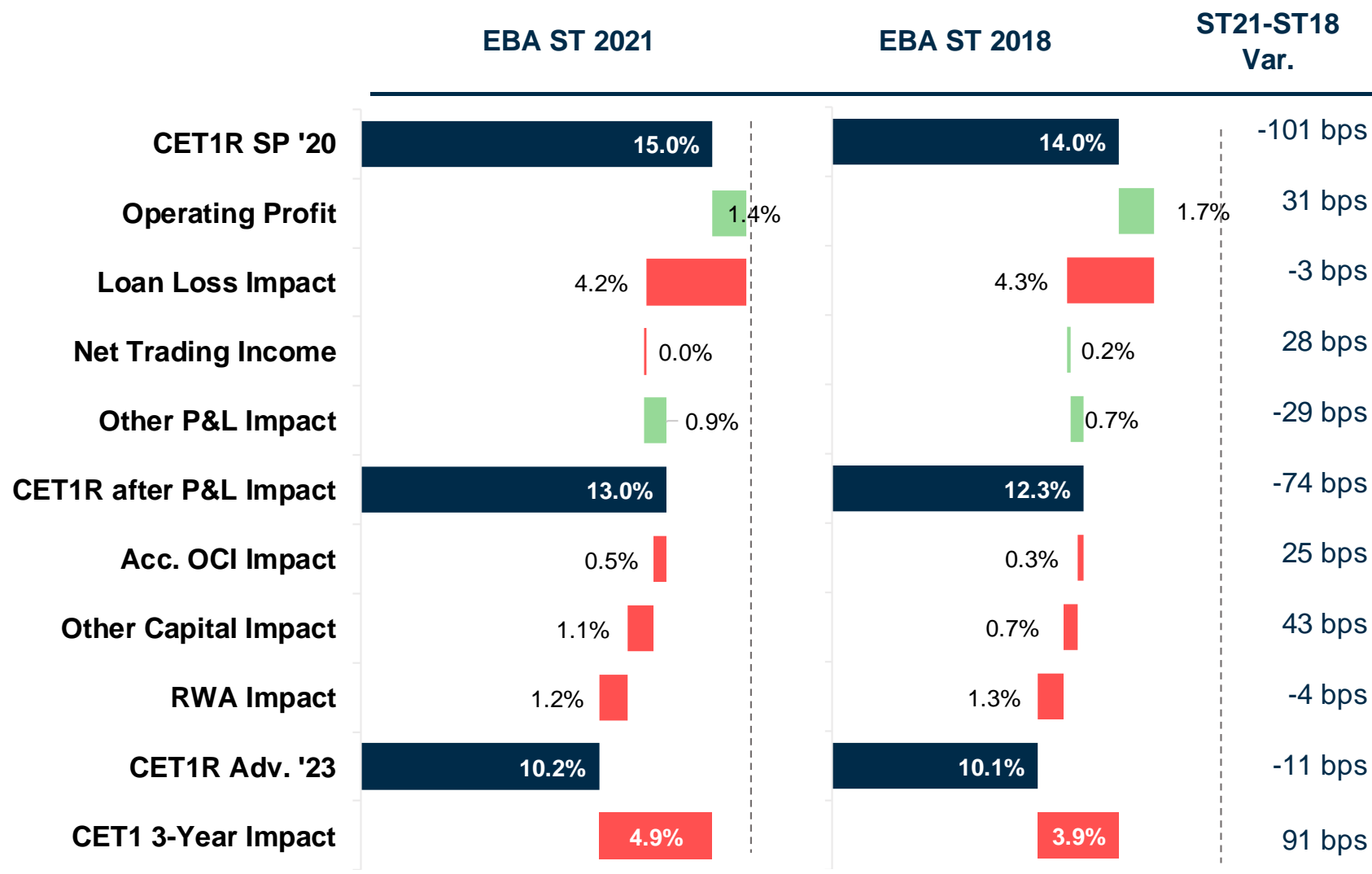
1. Stress Test Impacts

CET1 adverse depletion of 485bps (fully loaded) driven by loan losses (-420bps), Operating Profit (+140bps) and RWA impacts (-120bps). Compared to ST18, higher impact driven mostly by Operating Profit and NTI.

Total Depletion

Depletion by Country

Capital Waterfall



- Positive impact is interpreted as beneficial, while a negative impact is considered detrimental to capital



Section 2 | Potential for Capital Distribution – Dividends and Buybacks

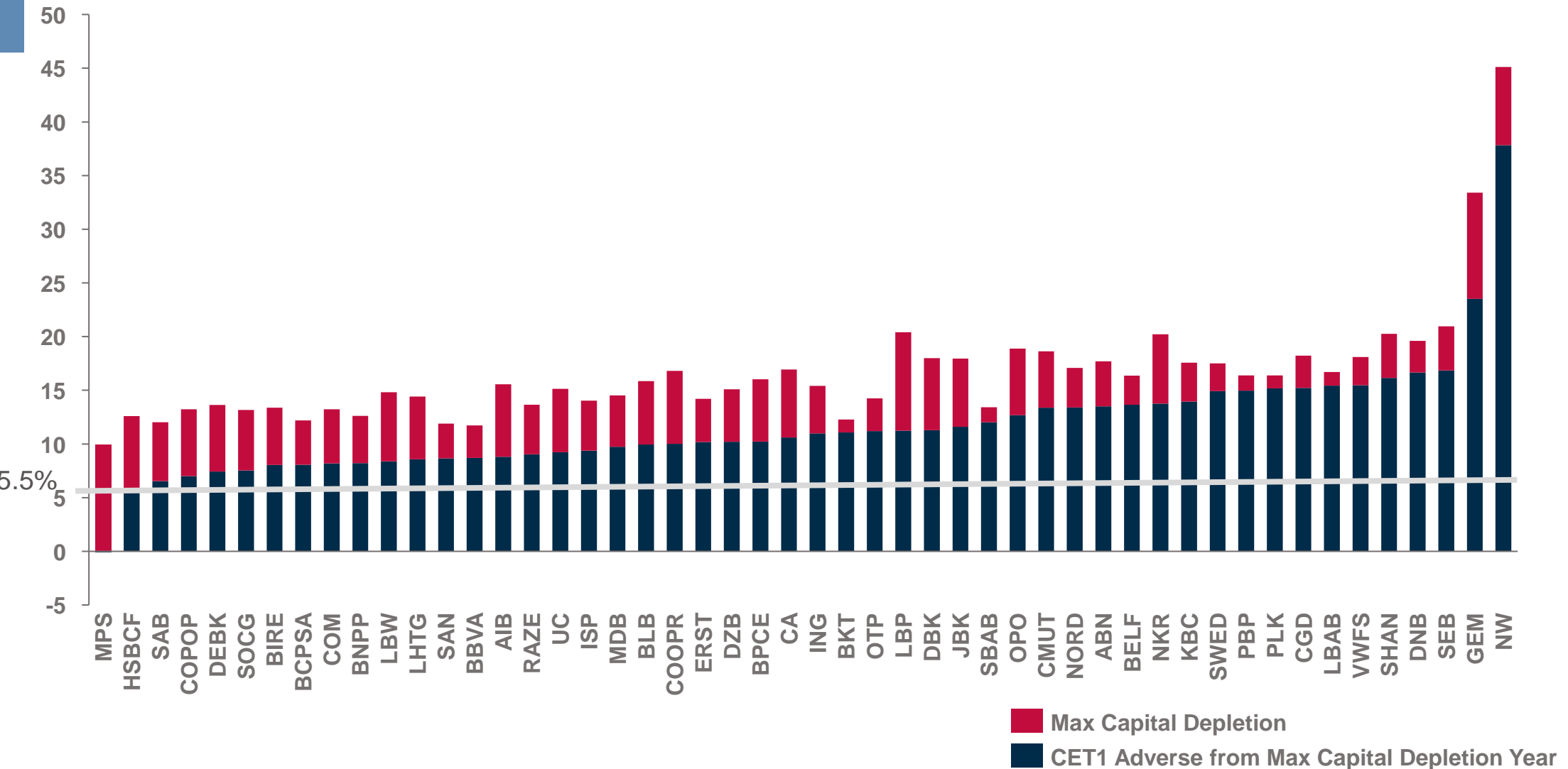


2. Potential for Capital Distribution - Dividends and Buybacks

No incremental capital needs as capital actions pre-empted for banks (BMPS) falling below the 5.5% CET1 minimum threshold.

Capital Flexibility

Pillar 2 Guidance



2. Potential for Capital Distribution - Dividends and Buybacks

When assessing a bank's capital trajectory and its distribution plans, supervisors will take a forward-looking view duly informed by the results of the 2021 stress test and new approach to calculate P2G.

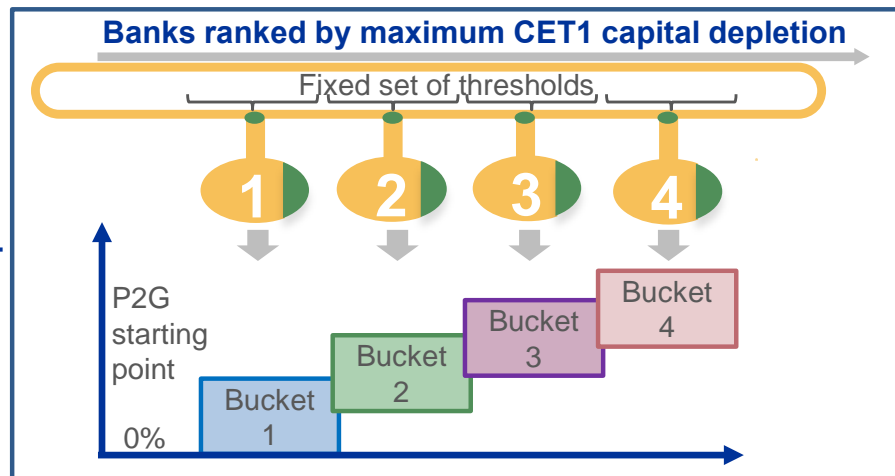
Capital Flexibility

Pillar 2 Guidance

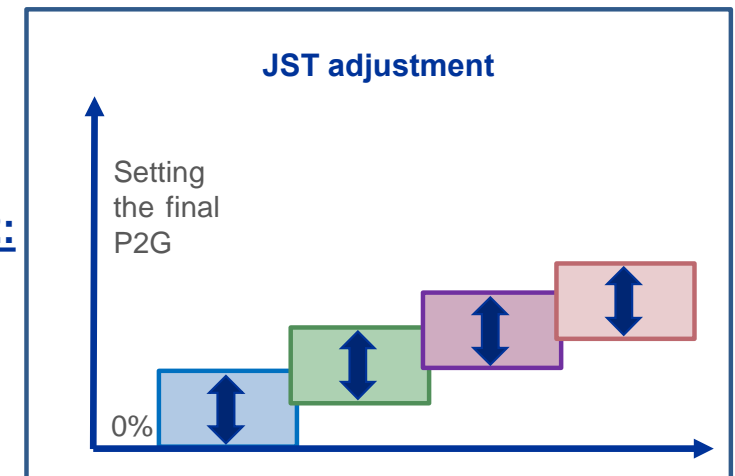
- P2G calculated from maximum capital depletion observed in CET1 adverse stress test multiplied by 25% calibration factor rounded up to the next 25bps

	Capital Depletion	P2G Range
• Bucket 1	0 to 3%	0 to 100bps
• Bucket 2	3% to 6%	50 to 200bps
• Bucket 3	6% to 9%	100 to 275bps
• Bucket 4	+ 9%	From 175bps

Step 1:



Step 2:



New methodology in line with recent EBA draft guidelines on SREP

- **Step 1:** identification of the institution in a bucket according to the maximum CET1 depletion in the supervisory stress test exercise. Buckets calibrated according to **recent supervisory experience, SSM risk tolerance and severity of the stress test exercise**.
- **Step 2** JSTs expert judgement to adjust the P2G to the idiosyncratic profile of the institution. Adjustment within the ranges of the corresponding bucket and exceptionally beyond the range of the relevant bucket, including for the last bucket.

Enhancements: level playing field, consistency, no floors, no cliff effects (overlapping P2G ranges), institution-specific adjustments, reasonable range of P2G outcomes including in cases of high capital depletion.

2. Potential for Capital Distribution - Dividends and Buybacks

New way of calculating P2G drives winners and losers in the dividend reset race.

Capital Flexibility

Pillar 2 Guidance

Bank Name	P2G Calculation				Capital Flexibility			
	Maximum CET1 Depletion (Bps)	P2G (Bps)	P2G Bucket (%)		CET 1 (%)	Total Capital Requirement (%)	Excess Capital (%)	Qrt.
Banca Monte dei Paschi di Siena S.p.A	996		250	From 1.75%	9.86%	13.50%	-3.64%	4th
N.V. Bank Nederlandse Gemeenten	989		250	From 1.75%	33.40%	12.75%	20.65%	1st
La Banque Postale	916		250	From 1.75%	20.40%	12.50%	7.90%	1st
Nederlandse Waterschapsbank N.V.	728		200	1% - 2.75%	45.10%	12.25%	32.85%	1st
Coöperatieve Rabobank U.A.	679		175	1% - 2.75%	16.81%	11.50%	5.31%	
Allied Irish Banks Group plc	677		175	1% - 2.75%	15.56%	12.75%	2.81%	
Danske Bank	673		175	1% - 2.75%	18.00%	14.32%	3.69%	
HSBC France	667		175	1% - 2.75%	12.58%	12.75%	-0.17%	4th
Nykredit Realkredit	647		175	1% - 2.75%	20.22%	12.70%	7.52%	1st
Landesbank Baden-Württemberg	643		175	1% - 2.75%	14.81%	11.50%	3.31%	
Jyske Bank	634		175	1% - 2.75%	17.94%	13.40%	4.55%	
Groupe Crédit Agricole	634		175	1% - 2.75%	16.94%	11.25%	5.69%	
Banco BPM S.p.A.	622		175	1% - 2.75%	13.23%	12.00%	1.23%	4th
Deutsche Bank AG	620		175	1% - 2.75%	13.63%	12.25%	1.38%	4th
OP Osuuskunta	619		175	1% - 2.75%	18.87%	12.00%	6.87%	
UniCredit S.p.A.	592		150	0.5% - 2%	15.14%	11.25%	3.89%	
Bayerische Landesbank	590		150	0.5% - 2%	15.85%	11.50%	4.35%	
Landesbank Hessen-Thüringen Giroze	585		150	0.5% - 2%	14.41%	11.25%	3.16%	
Groupe BPCE	580		150	0.5% - 2%	16.03%	11.25%	4.78%	
Société Générale S.A.	562		150	0.5% - 2%	13.16%	11.25%	1.91%	4th
Banco de Sabadell S.A.	548		150	0.5% - 2%	12.02%	11.75%	0.27%	4th
Bank of Ireland Group plc	532		150	0.5% - 2%	13.37%	11.75%	1.62%	4th
Group Crédit Mutuel	525		150	0.5% - 2%	18.62%	11.25%	7.37%	1st
Commerzbank AG	502		150	0.5% - 2%	13.22%	11.50%	1.72%	4th
DZ BANK AG Deutsche Zentral-Genos	489		125	0.5% - 2%	15.10%	11.00%	4.10%	

2. Potential for Capital Distribution - Dividends and Buybacks

New way of calculating P2G drives winners and losers in the dividend reset race.

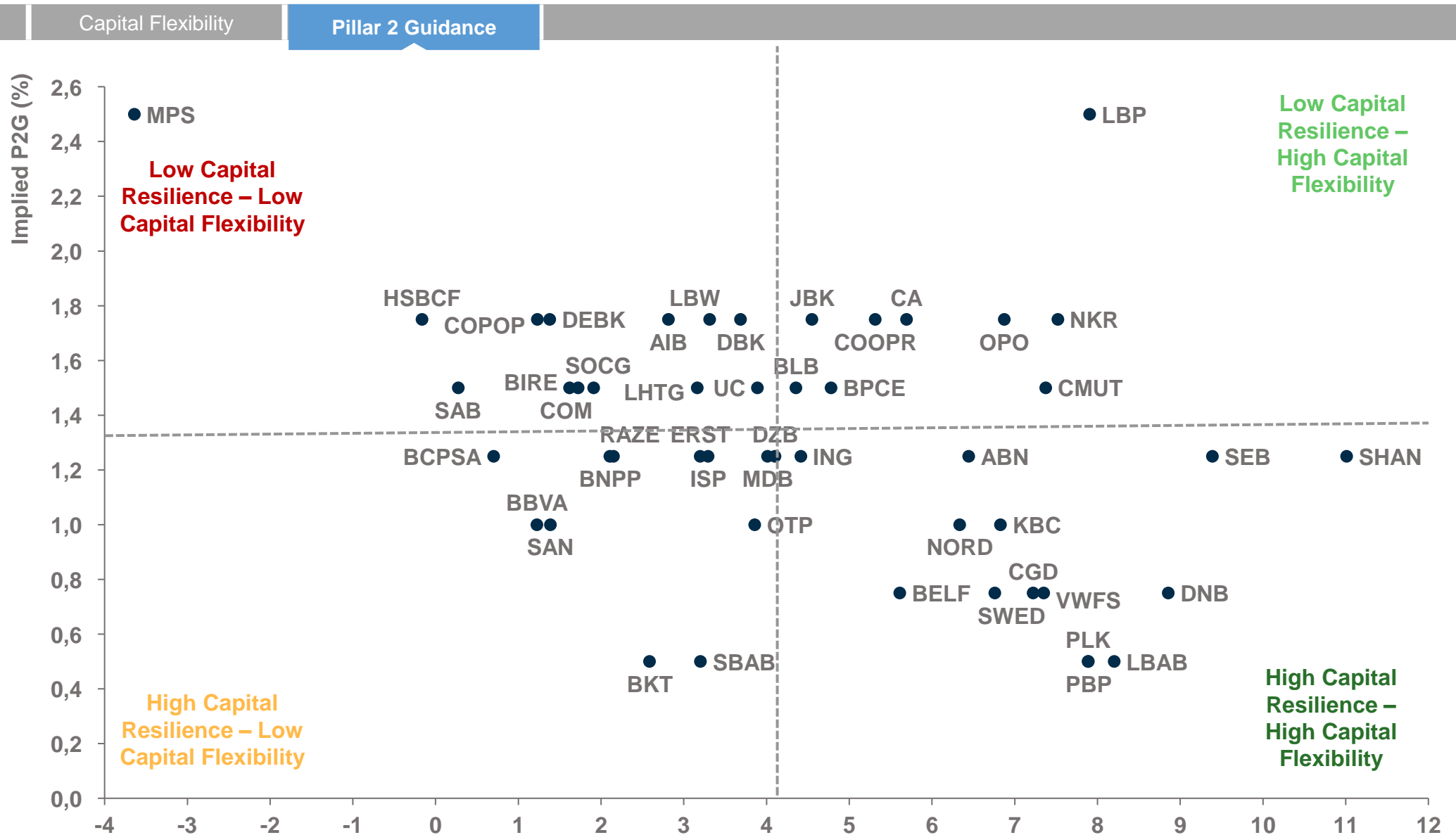
Capital Flexibility

Pillar 2 Guidance

Bank Name	P2G Calculation			Capital Flexibility			
	Maximum CET1 Depletion (Bps)	P2G (Bps)	P2G Bucket (%)	CET 1 (%)	Total Capital Requirement (%)	Excess Capital (%)	Qrt.
Mediobanca - Banca di Credito Finanziario	478	125	0.5% - 2%	14.51%	10.50%	4.01%	
Intesa Sanpaolo S.p.A.	466	125	0.5% - 2%	14.04%	10.75%	3.29%	
Raiffeisen Bank International AG	462	125	0.5% - 2%	13.65%	11.50%	2.15%	4th
ING Groep N.V.	443	125	0.5% - 2%	15.41%	11.00%	4.41%	
BNP Paribas	440	125	0.5% - 2%	12.61%	10.50%	2.11%	4th
ABN AMRO Group N.V.	418	125	0.5% - 2%	17.69%	11.25%	6.44%	
Banco Comercial Português, SA	413	125	0.5% - 2%	12.20%	11.50%	0.70%	4th
Skandinaviska Enskilda Banken - group	411	125	0.5% - 2%	20.97%	11.58%	9.39%	1st
Svenska Handelsbanken - group	410	125	0.5% - 2%	20.26%	9.25%	11.01%	1st
Erste Group Bank AG	401	125	0.5% - 2%	14.20%	11.00%	3.20%	
Nordea Bank - group	369	100	0.5% - 2%	17.08%	10.75%	6.33%	
KBC Group NV	362	100	0.5% - 2%	17.58%	10.75%	6.83%	
Banco Santander S.A.	324	100	0.5% - 2%	11.89%	10.50%	1.39%	4th
OTP Bank Nyrt.	303	100	0.5% - 2%	14.24%	10.38%	3.86%	
Banco Bilbao Vizcaya Argentaria S.A.	303	100	0.5% - 2%	11.72%	10.50%	1.22%	4th
Caixa Geral de Depósitos, SA	300	75	0% - 1%	18.22%	11.00%	7.22%	1st
DNB Bank Group	294	75	0% - 1%	19.60%	10.75%	8.85%	1st
Belfius Banque SA	270	75	0% - 1%	16.36%	10.75%	5.61%	
Volkswagen Financial Services AG	262	75	0% - 1%	18.10%	10.75%	7.35%	1st
Swedbank - group	257	75	0% - 1%	17.50%	10.74%	6.76%	
Powszechna Kasa Oszczednosci Bank	143	50	0% - 1%	16.39%	8.50%	7.89%	1st
SBAB Bank AB – group	140	50	0% - 1%	13.43%	10.23%	3.20%	
Länförsäkringar Bank AB (publ)	126	50	0% - 1%	16.70%	8.50%	8.20%	1st
Bankinter, S.A.	122	50	0% - 1%	12.29%	9.70%	2.59%	
Polska Kasa Opieki SA	121	50	0% - 1%	16.39%	8.51%	7.88%	1st

2. Potential for Capital Distribution - Dividends and Buybacks

New P2G calculations will drive dividend / stock buyback decisions going forward.



Max Capital depletion = EBA Peak to Trough. Total Capital Requirements = SREP Requirements + P2G
P2G calculation based on A&M estimates, measured as maximum CET1 * 0.25 (estimated factor), and rounded up to next 25 bps
Graphs divisions in banks distribution median
GEM & NW left out for visual purposes






Section **3** | Stress Tests Going Forward



New ECB's Climate Risk Stress Test will arrive in 2022

CR ST 2022 will test bank capabilities to evaluate climate risk in three modules, which will require major banks' preparation




Three Modules		Key Elements
ECB CR ST 2022	Questionnaire 	<ul style="list-style-type: none"> Goal: qualitative assessment of climate risk stress testing framework with 77 questions 11 areas including general use, governance and RAF, integration with strategy, methodology, scenarios, data, ICAAP, future plans, internal audit, parent company and bottom-up projections
	Climate Metrics Benchmarking 	<ul style="list-style-type: none"> Goal: benchmark banks' income reliance to transition risk sectors and financed GHG emissions Metric 1: Gross Interest and Fee Income from NFCs to cover 80% of income / max 5 countries Metric 2: Scope 1, 2 & 3 Emissions, Revenue and Loans for top 20 per sector non-SME corporates
	Bottom up Stress Test 	<ul style="list-style-type: none"> Bottom-up stress test projections for subset of banks under transition and physical risk scenarios 5 individual tests with different scope, metrics and horizons: 2 transition risk tests (one short term covering credit and market and one long term covering credit) 2 physical risk tests (one Drought & heat and one flood) and 1 operational & reputation risk test

Banks should prepare now. Climate risk is here to stay and should be taken as a strategic priority

		Priority	Actions
Areas for response	Data	HIGH	<ul style="list-style-type: none"> Big challenge to capture GHG scope 3 data for Corporates and EPC / NUTS 3 data for Mortgages & CRE. Some data gaps for NACE 2 breakdowns.
	Models	HIGH	<ul style="list-style-type: none"> Development of Transition Risk, Physical Risk and Operational Risk Models. Introduce dynamic projections over 30 year horizon for Transition Risk
	Scenario	LOW	<ul style="list-style-type: none"> Scenario guidance provided with some needs for scenario extension
	Climate Risk Framework		<ul style="list-style-type: none"> Need to develop and formalize climate risk framework, policy and procedures
	Other Documentation Industry Collaboration	MEDIUM	<ul style="list-style-type: none"> Need to develop comprehensive explanatory note for modules 1, 2 and 3 Explore industry collaboration for sharing of methods and data (e.g., Scope 3)

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Workstreams by Module and Template

Modules	Template	Data	Models	Scenarios	Other
Questionnaire 	M1 Questionnaire				Climate Risk Framework
Climate Metrics Benchmarking 	Metric 1	M2 Metric 1	Global Gross Income & Exposure Corp+SMEs per NACE 2		
	Metric 2	M2 Metric 2	Top 20 Corp GHG S1, S2 & S3 Emissions, Exposure & Income Data		Scope 3 Data
Bottom up Stress Test 	Test 1	M3 TR ST CR	Global Corporate+SME by NACE 2 Global Mortgage+CRE by EPC	Transition Risk Static Credit – 3 yr Baseline Disorderly	Explanatory Note & Supporting Documentation Industry Working Group / Benchmarking
		M3 TR ST MR	Global HFT Bond+Equity	Transition Risk Market – 3 yr Baseline Disorderly	
	Test 2	M3 TR LT OD CR	Global Corporate+SME by NACE 2 Global Mortgage+CRE by EPC	Orderly	
		M3 TR LT DO CR		Disorderly	
		M3 TR LT HH CR		Hot House	
	Test 3	M3 PR DH CR	EU Corporate+SME by NACE 2	Physical Risk 1yr – Drought & Heat Baseline Stress	
	Test 4	M3 PR FL CR	EU Mortgage+CRE by NUTS 3	Physical Risk 1 yr - Flood Baseline Stress	
	Test 5	M3 OR	Conduct OR 5yr history Physical OR 5yr history	3 yr Projection OR Models	
		M3 RR	Reputational 5yr history	Top 6 case studies	

New ECB's Climate Risk Stress Test will arrive in 2022

ECB's Climate Risk ST2022 – Deep Dive on Key Challenges

Data



- Availability of income data for Corporate and SME segments per NACE (sectorial classification)
- Availability of Scope 1, 2 and 3 emission data for all Corporates, at a counterparty level
- Access to Energy Performance Certificate (EPC) data across countries
- Project balance-sheet strategies, in line with banks' internal climate strategy (portfolio alignment)
- Availability to data on insurance companies and public natural disaster relief schemes
- Availability of historical data for operational and reputational events related to climate and split between conduct and physical risks

Modelling



- Develop credit risk models or approaches:
 - Credit Stress Test models by Industry and by EPC classification
 - Transition risk models
 - Physical risk models
 - Balance sheet projection models by region, asset class, EPC and industry
- Assess impacts (losses and recoveries) of new and known operational risk events related to climate
- Identify channel through which historical reputational event have the greatest impact on their income

Others

- Questionnaire: As-Is vs. To-be on submission date
- Documentation: develop explanatory note draft that includes details on calculation approaches for modules 2 & 3

New ECB's Climate Risk Stress Test will arrive in 2022

Comparing PRA CBES 2021 with ECB CR ST 2022 we can conclude that ECB's test is more ambitious



1	Scope	<ul style="list-style-type: none"> Participants: 7 banks and 11 insurance companies Transition and Physical risk with a focus on Credit Risk (market risk and operational risk not considered) 	<ul style="list-style-type: none"> Participants: ECB supervised banks with no bottom-up stress test for a smaller set of banks Transition and Physical risk with a focus on Credit Risk, Market risk for trading bond and equity positions (transition risk short term) and operational & reputational risks
2	Qualitative Evaluation	<ul style="list-style-type: none"> 6 assessment areas (in 78 questions for banks) including ST results and narrative, management responses, qualitative view of climate risks, climate risk management framework, action plans for improvements and quantitative methodologies used 	<ul style="list-style-type: none"> 11 assessment areas (in 77 questions) including general use, governance and RAF, integration with strategy, methodology, scenarios, data, ICAAP, future plans, internal audit, parent company and bottom-up projections Explanatory note covering results narrative and assumptions
3	Emission and Income Data	<ul style="list-style-type: none"> Not in scope of exercise justified by low maturity of climate emission metrics available 	<ul style="list-style-type: none"> In scope with two metrics: Metric 1 (Gross Interest and Fee Income from NFCs to cover 80% of income / max 5 countries); Metric 2 (Scope 1, 2 & 3 Emissions, Revenue and Loans for top 20 per sector non-SME corporates) Counterparty treatment Metric 2: at least 440 clients
4	Transition Risk	<ul style="list-style-type: none"> 30-year horizon with projections every 5 years Scope: All asset classes including mortgages, consumer, corporate, CRE and SMEs, government Risk types: only credit risk Counterparty treatment: at least top 100 clients NGFS scenarios 	<ul style="list-style-type: none"> Short term exercise (3 years) and long-term exercise (30-year horizon with projections every 10 years) Scope: Asset classes included are mortgages, corporate, CRE and SMEs (consumer or government not included) Risk types: Credit risk and market risk for trading book NGFS scenarios
5	Physical Risk	<ul style="list-style-type: none"> Event types: Drought & heat, flood, severe weather, sea level rise, tropical storm and wildfire events Horizon: 30 years 	<ul style="list-style-type: none"> Event types: Drought & heat and flood events Horizon: 1 years
6	Operational Risks	<ul style="list-style-type: none"> Not in scope 	<ul style="list-style-type: none"> Operational (conduct and physical events) and reputational risks included in scope

Capital Stress Tests Going Forward will bring new features in 2023

The future of stress testing (*approach subject to be reviewed due to Covid-19*)

FIRST VIEW: SUPERVISOR

Supervisors Run Top-Down Stress Test using Simplified Assumptions

1

- Based on a constrained bottom-up approach
- Banks provide input starting position data
- Supervisors apply their models, benchmarks and assumptions to calculate depletion and challenge banks' results

SECOND VIEW: BANK

Banks run Bottom-up Dynamic Run

2

- Banks run in parallel their internal models using supervisory scenarios and bank internal approaches to incorporate idiosyncratic factors
- Banks use dynamic business projections and internal models aligned to ICAAP
- Models subject to constraints to ensure comparability across banks

THIRD VIEW: RESULTS

Final Results

3

- 2 sets of results: Supervisor and Banks
- Supervisor results serve as the starting point for Pillar 2 guidance. P2G could be implemented by buckets, based on capital depletion
- Lighter quality assurance and much less data published from the supervisor view. However, similar level of granularity required as part of the banks' view results

Source: Speech by **Andrea Enria**, Chair of the ECB Supervisory Board and former Chair of the EBA, on November 2019

<https://www.bankingsupervision.europa.eu/press/speeches/date/2019/html/ssm.sp191127~2f9bdabff9.en.html>

Appendix 1

Scenarios Used

SUMMARY OF SCENARIOS - MACRO EU COUNTRIES



Mixed ST'21 scenario impacts vs. ST'20: much more severe scenarios for unemployment rate in most regions and less severe shocks for GDP, except for Netherlands and Italy. House Price Index shows much more severe impacts for some countries (e.g., Portugal or Spain), but less adverse for other jurisdictions.

Southern countries (Spain, Portugal, Italy and Greece) present overall the worst scenarios compared to ST'20, whereas Ireland and Sweden show much benign ones compared to the previous exercise.

	GDP (Net shock) ¹				Unemployment (Net shock) ¹				House Price Index (Net shock) ¹			
	ST 2021	ST 2020	Difference (bps)		ST 2021	ST 2020	Difference (bps)		ST 2021	ST 2020	Difference (bps)	
France	-343	-357		-15	413	243		+170	-1536	-1457		+78
Germany	-388	-500		-112	421	279		+142	-1849	-1510		+339
Greece	-357	-600		-243	560	314		+246	-987	-580		+407
Ireland	-302	-568		-266	431	536		-105	-1323	-1350		-27
Italy	-388	-369		+19	541	285		+255	-652	-902		-250
Netherlands	-427	-348		+79	596	424		+172	-1851	-2244		-393
Portugal	-445	-530		-84	415	257		+158	-2543	-1602		+941
Spain	-323	-377		-54	612	370		+242	-1697	-1186		+512
Sweden	-444	-644		-201	563	630		-67	-2756	-3185		-429
European Union	-356	-429		-72	474	377		+98	-1611	-1636		-25

Note: (1) Net shocks reflect the total adverse effect to the macroeconomic indicator from 2020 levels (3-year shock), measured as bps

SUMMARY OF SCENARIOS - MACRO NON-EU COUNTRIES

Mixed ST'21 scenario impacts vs. ST'20 also for non-EU countries: much more severe scenarios for House Price Index and much lower shock for Unemployment Rate.

Emerging market economies display materially higher shocks in GDP vs. ST'20, in contrast of UK, US and Turkey.

	GDP (Net shock) ¹			Unemployment (Net shock) ¹			House Price Index (Net shock) ¹		
	ST 2021	ST 2020	Difference (bps)	ST 2021	ST 2020	Difference (bps)	ST 2021	ST 2020	Difference (bps)
United Kingdom	-414	-454	-40	351	413	-62	-2328	-2443	-116
United States	-373	-484	-111	94	412	-317	-2328	-1878	+449
Turkey	-359	-589	-229	202	501	-299	-2328	-1878	+449
Norway	-326	-258	+68	215	265	-50	-2729	-2516	+213
LATAM	-503	-506	-3	187	458	-271	n.a.	n.a.	n.a.
Brazil	-457	-373	+85	246	449	-203	-2328	-1878	+449
Mexico	-455	-358	+97	250	378	-127	-2328	-1878	+449
Chile	-455	-424	+31	93	386	-293	-2328	-1878	+449

Emerging countries' FX show is higher than in ST'20 (27.1% vs. 24%), and depreciation assumed for the USD, GBP or NOK.

Turkey, US, UK and Norway FX shock significantly lower to the implied, whereas LATAM presents the opposite sign.

	FX (Net shock) ¹			Interest Rates Spread (implicit FX depreciation) ²			Interest Rate Disparity	
	ST 2021	ST 2020	Difference (pp)	ST 2021	ST 2020	Difference (pp)	ST 2021	ST 2020
United Kingdom	0.0	0.0	+0.0	2.6	3.3	-0.7	-2.6	-3.3
United States	0.0	0.0	+0.0	3.7	8.5	-4.8	-3.7	-8.5
Turkey	27.1	24.0	+3.1	37.2	68.7	-31.6	-10.1	-34.7
Norway	0.0	0.0	+0.0	3.4	5.4	-2.0	-3.4	-5.4
Brazil	27.1	24.0	+3.1	24.0	27.0	-3.0	+3.1	27.0
Mexico	27.1	24.0	+3.1	19.5	27.9	-8.4	+7.6	27.9
Chile	27.1	24.0	+3.1	19.5	27.9	-8.4	+7.6	27.9

Note: (1) Net shocks reflect the total adverse effect to the macroeconomic indicator from 2020 levels (3-year shock), measured as bps

Appendix 2

List of Banks in EBA 2021 ST

List of Banks in EBA 2021 ST

Name of Banks and their respective country

Code	Country	Bank Name
ERST	AT	Erste Group Bank AG
RAZE	AT	Raiffeisen Bank International AG
BELF	BE	Belfius Banque SA
KBC	BE	KBC Group NV
BLB	DE	Bayerische Landesbank
COM	DE	Commerzbank AG
DEBK	DE	Deutsche Bank AG
DZB	DE	DZ BANK AG
LBW	DE	Landesbank Baden-Württemberg
LHTG	DE	Landesbank Hessen-Thüringen
VWFS	DE	Volkswagen Financial Services AG
DBK	DK	Danske Bank
JBK	DK	Jyske Bank
NKR	DK	Nykredit Realkredit
BBVA	ES	Banco Bilbao Vizcaya Argentaria S.A.
SAB	ES	Banco de Sabadell S.A.
SAN	ES	Banco Santander S.A.
BKT	ES	Bankinter, S.A.
NORD	FI	Nordea Bank Abp
OPO	FI	OP Osuuskunta
BNPP	FR	BNP Paribas
BPCE	FR	Groupe BPCE
CA	FR	Groupe Crédit Agricole
CMUT	FR	Group Crédit Mutuel
LBP	FR	La Banque Postale

Code	Country	Bank Name
SOCG	FR	Société Générale S.A.
HSBCF	FR	HSBC France
OTP	HU	OTP Bank Nyrt.
AIB	IE	Allied Irish Banks Group plc
BIRE	IE	Bank of Ireland Group plc
MPS	IT	Banca Monte dei Paschi di Siena S.p.A.
COPOP	IT	Banco BPM S.p.A.
ISP	IT	Intesa Sanpaolo S.p.A.
UC	IT	UniCredit S.p.A.
MDB	IT	Mediobanca - Banca di Credito F. S.p.A.
ABN	NL	ABN AMRO Group N.V.
COOPR	NL	Coöperatieve Rabobank U.A.
ING	NL	ING Groep N.V.
GEM	NL	N.V. Bank Nederlandse Gemeenten
NW	NL	Nederlandse Waterschapsbank N.V.
DNB	NO	DNB Bank Group
PLK	PL	Polska Kasa Opieki SA
PBP	PL	Powszechna Kasa Oszczednosci Bank S/
CGD	PT	Caixa Geral de Depósitos, SA
BCPSA	PT	Banco Comercial Português, SA
SEB	SE	Skandinaviska Enskilda Banken - group
SHAN	SE	Svenska Handelsbanken - group
SWED	SE	Swedbank - group
LBAB	SE	Lämförsäkringar Bank AB (publ)
SBAB	SE	SBAB Bank AB – group

Appendix 2

A&M Authors

A&M Authors



Fernando de la Mora

Head of Financial Services

European Financial Services Risk & Regulatory Lead and expert in stress testing for US and European Banks

Responsible for A&M Spain and Portugal and coleader of the financial services practice in Europe

More than 25 years of experience in bank consulting, in the US and Europe

Expert in risk management, stress testing, capital and governance

Clients include global financial services firms, investment bank, regional banks, insurance companies, asset managers and hedge funds



Rocio Falcones

Senior Director

Over 13 years of experience in financial consulting and banking in the US, Spain and the UK

Led several risk and capital management projects for major European banks

Expert in stress testing, credit risk modeling, capital management and regulation

Experienced in credit Due Diligence for European financial institutions

Former Banco Santander and Bankinter



Roi Barreira

Associate

7 years of experience in regulation and banking prudential supervision.

Primary areas of concentration are capital management, risk analysis and regulatory advisory.

He spent three years within the Banking Supervision Unit of the Malta Financial Services Authority (MFSA).

His main responsibilities included risk assessments, evaluation of Internal Capital Adequacy Assessment Process (ICAAP), Supervisory Review and Evaluation Process (SREP).



Ivonne Cilio

Analyst

4 years of experience in banking analysis

Ms. Cilio' primary areas of concentration are risk and regulatory advisory.

Participated in several projects regarding the financial impact of COVID-19 and Climate Change in the Spanish Banking Sector.

Collaborated in projects related to EBA stress testing.

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