



RISK ASSESSMENT OF THE EUROPEAN BANKING SYSTEM

DECEMBER 2022



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Contents

Abbreviations	8
Executive summary	10
Introduction	12
1. Macroeconomic environment and market sentiment	13
2. Asset side	23
2.1. Assets: volume and composition	23
2.2. Asset quality trends	33
3. Liability side: funding and liquidity	42
3.1. Funding	42
3.2. Liquidity	56
4. Capital	62
5. Profitability	69
6. Operational resilience	82
6.1. Operational resilience: general trends	82
6.2. Digitalisation and ICT-related risks	85
6.3. Financial crime risks	89
6.4. Other legal and reputational risks	91
7. Policy implications and measures	94
Annex I: Samples of banks	96
Annex II: Descriptive statistics from the EBA key risk indicators	100

List of Figures

Figure 1:	Main global Supply Chain indicators	13
Figure 2:	Dutch Title Transfer Facility (TTF) natural gas price	14
Figure 3:	Probability of recession in the euro area	16
Figure 4:	Annual rate of inflation by country (September 2022)	16
Figure 5:	Public deficit to GDP (left), general government gross debt to GDP (right) by country	17
Figure 6:	10-year sovereign yields of selected European countries	18
Figure 7:	Evolution of housing prices by country (left) and Stoxx Europe 600 Real Estate (right)	19
Figure 8:	Stock Market Indices (January 2021 = 100, left) and iTraxx Main and iTraxx Crossover (right)	19
Figure 9:	Euribor Rates (left) and EUR and USD swap curves (right)	20
Figure 10:	iBoxx banks: spread and yield	20
Figure 11:	Evolution of the euro against major world currencies (top), main emerging market currencies (centre) and selected non-eurozone currencies (bottom) (01/01/2021 = 100)	21
Figure 12:	Trend in asset composition (EUR tn), June 2015 to June 2022 (left), and growth in asset components, June 2021 to June 2022 (June 2021 = 100) (right)	24
Figure 13:	Growth in loans and advances by segment, June 2021 to June 2022 (June 2021 = 100) (left) and Volumes of loans and advances by segment (EUR trillion) (right)	25
Figure 14:	Loans and advances towards energy sector (EUR bn) and share of loans to energy sector to total NFC loans by bank (% , rhs) – June 2022	27
Figure 15:	Commodity financial assets held for trading and trading derivatives (EUR bn) and as a share of total derivative financial assets and total assets (% , rhs)	28
Figure 16:	YoY change in volumes for selected sectors (EUR bn, rhs; and % , lhs), and as % of total NFC loans (lhs) – June 2022	28
Figure 17:	Portfolios which banks expect to increase in volumes in the next 12 months	29
Figure 18:	Exposures to non-EEA counterparties by country of domicile (EUR tn) and YoY % change (rhs)	29
Figure 19:	Sovereign exposures as % of capital by country and by bank (5 th to 95 th percentile range) – June 2022	31
Figure 20:	Long-term OIS rates, 10-year EU GDP-weighted sovereign yield and Markit iBoxx EUR banks (percentages)	31
Figure 21:	Determination coefficient (r-squared (R ²), left) and correlation coefficient (right) (percentages)	32
Figure 22:	Sovereign debt to GDP ratios of selected countries	32
Figure 23:	Trends in EU weighted NPL ratio (%) and volumes (EUR bn) (left) and trends in NPL ratio by country (right)	33

Figure 24: NPL cumulative net flows by segment between December 2020 and June 2022 (EUR bn)	34
Figure 25: Evolution in stage allocation of EU banks of loans and advances at amortised cost over time	35
Figure 26: Transfers between impairment stages (EUR bn)	35
Figure 27: Allocation by country of loans and advances excluding cash balances by stages - June 2022	36
Figure 28: Trend in NPL ratios (left) and share of Stage 2 (right) by segment	36
Figure 29: EU accumulated impairments and provisions evolution (June 2021 = 100)	37
Figure 30: Trend in CoR by stage (left) (%) and % change quarter on quarter (QoQ) (right)	38
Figure 31: Evolution of accumulated provisions for performing loans by segment (June 2021 = 100)	38
Figure 32: Banks' expectations on possible deterioration in asset quality in the next 12 months by segment	39
Figure 33: Trends in loans under moratoria (EUR bn)	40
Figure 34: Trends in loans under PGS (EUR bn)	41
Figure 35: Breakdown of financial liabilities composition by country, June 2022	43
Figure 36: ECB lending to the euro area with focus on LTRO (EUR bn)	44
Figure 37: Loan-to-deposit ratio (weighted average) and loan-to-deposit ratio dynamics (trends in numerator and denominator; December 2014 = 100), over time	45
Figure 38: Funding instruments banks intend to focus on in the next 12 months	46
Figure 39: iTraxx financials (Europe, senior and subordinated, 5 years, bps)	46
Figure 40: Cash spreads of banks' debt and capital instruments (in bps)	47
Figure 41: Issuance volumes of EU banks' debt and capital instruments in the EU, Q1 - Q3 2020 - 2022 (in EUR bn)	48
Figure 42: Constraints to issuing subordinated instruments eligible for MREL	50
Figure 43: Average greeniums of selected banks and for different seniority groups of debt instruments between 1 August 2019 and 30 June 2022	52
Figure 44: Issuance volumes of green, social and sustainability bonds in the EU, Q1 - Q3 2020 - 2022 (EUR bn)	53
Figure 45: Definition of green used by banks for different loan segments	54
Figure 46: Main impediments for the further development of green retail loans (1-Not relevant, 5-Extremely relevant)	55
Figure 47: ESG related funding instruments already issued by banks	55
Figure 48: Share of banks having recognised a pricing benefit for the following instruments	56
Figure 49: Main components of the LCR as a share of total assets	57

Figure 50: Evolution gross outflow requirement (post-weights)	57
Figure 51: Banks' distribution of the LCR (median, interquartile range, maximum and minimum; left) and composition of liquid assets as of June 2021 (inner circle) and June 2022 (outer circle; right)	58
Figure 52: Evolution of the LCR by currency (EUR LCR, GBP LCR -, USD LCR; left) and dispersion of the LCR by currency (EUR LCR, GBP LCR, USD LCR; median, interquartile range, maximum and minimum; right)	59
Figure 53: Evolution of the cross-currency basis swaps	59
Figure 54: Net stable funding across EU countries (June 2022)	60
Figure 55: Net stable funding: distribution at bank level (median, interquartile range, maximum and minimum)	60
Figure 56: Components of the NSFR (ASF – left, RSF – right)	61
Figure 57: Capital ratios (lhs, transitional definitions) and Leverage ratio (rhs)	62
Figure 58: Leverage ratio exposure measure (EUR bn, fully phased-in definition) and exemptions	63
Figure 59: Average percentage of leverage ratio exposure measure exempted from Q2 2021 to Q1 2022	63
Figure 60: Leverage ratio buckets	63
Figure 61: Capital requirements	64
Figure 62: Share of main CET1 capital components	65
Figure 63: CET1 capital components (EUR bn)	65
Figure 64: Dividends and share buy-backs (in EUR bn) and payout ratio	66
Figure 65: RWA by type of risk (EUR tn)	67
Figure 66: RWA composition by type of risk (average 2014 to 2022) (left) and sources of RWA increase since June 2021 (right)	67
Figure 67: Credit risk exposures (left) and RWA (right) for selected exposure classes, excluding e.g., securitisation and equity (EUR tn)	68
Figure 68: IRB parameters	68
Figure 69: Contribution to the RoE of the main P&L items, calculated as a ratio to total equity (2021-2022)	69
Figure 70: RoE by country	69
Figure 71: NOI as % of equity by country (June 2022)	70
Figure 72: Contribution to NII (June 2021 to June 2022)	71
Figure 73: Share of loans repricing in the next 12 months (top) and average interest rate fixation periods for loans at origination (bottom) (% of responding banks)	72
Figure 74: Actions banks plan to take in relation to deposits (% of responding banks, top) and evolution of household and NFC deposit and lending rates (bottom)	73

Figure 75: Breakdown of fee and commission income (Jun-2022) and variation of its main components (June 2021 – June 2022)	74
Figure 76: CIR by country (June 2022)	75
Figure 77: Operating expenses as % of equity by countries (June 2022)	75
Figure 78: Annual variation in the number of employees	76
Figure 79: Breakdown of other administrative expenses as of June 2021 (inner circle) and June 2022 (outer circle)	76
Figure 80: Ratio of IT expenses to operating expenses and ratio of operating expenses to total equity (June 2022)	77
Figure 81: Primary measures banks are adopting to reduce operating expenses (% of responding banks)	77
Figure 82: Contributions to RF and DGS as percentage of equity (June 2022)	78
Figure 83: Impairments as percentage of total equity.	78
Figure 84: Planned treatment of COVID-19 overlays in banks' provisioning	80
Figure 85: Recognition of provisioning overlays for reasons other than COVID-19	80
Figure 86: Reasons behind the provisioning overlays for reasons other than COVID-19	81
Figure 87: Main drivers of operational risk as seen by banks	83
Figure 88: Number of new operational risk events and number of new IT risk events over time, 2014 – 2021: Total gross losses from operational risk events as a share of CET1	84
Figure 89: Total losses from operational risk as a share of CET1, by country, December 2021	84
Figure 90: Number of cyber-attacks that resulted or could have resulted in a “major ICT related incidence” in the first half of 2022	86
Figure 91: Level of involvement of banks with the application of the selected technologies	88
Figure 92: Applications of AI by banks, differentiated by AI methods and approaches	88
Figure 93: Proportion of banks that use different AI approaches	89
Figure 94: Expectations of ML/TF risk exposure related to specific product and business lines	90
Figure 95: Total payments for redress costs in the past 3 years as percentage of equity	92
Figure 96: Net changes in provisions for pending legal issues and tax litigation as a share of total assets by country (2021) and for the EU (2019-2021)	92

Abbreviations

ABS	asset-backed security	EBA	European Banking Authority
AI	artificial Intelligence	EC	European Commission
AML	anti-money laundering	ECB	European Central Bank
APIs	application programming interfaces	ECL	expected credit loss
ASF	available stable funding	EEA	European Economic Area
ASW	asset swap	EME	emerging market economies
AT1	Additional Tier 1	ENISA	EU Agency for Cybersecurity
BDIY	Baltic Dry Index	ESAs	European Supervisory Agencies
BIS	Bank for International Settlements	ESG	Environmental, Social and Governance
BLS	bank lending survey	ESI	economic sentiment indicator
bps	basis points	ESRB	European Systemic Risk Board
BRRD	Bank Recovery and Resolution Directive	ESTR	Euro short-term rate
BTAR	banking book taxonomy alignment ratio	EU	European Union
CAs	Competent Authorities	EuReCA	European reporting System for material CFT/AML weaknesses
CCyB	Countercyclical Capital Buffer	EURIBOR	Euro Interbank Offered Rate
CDS	credit default swap	EU-SCICF	pan-European Systemic Cyber Incident Coordination Framework
CEE	Central and Eastern European	FBE	forborne exposure
CET1	Common Equity Tier 1	FBL	forborne loan
CFT	countering the financing of terrorism	Fed	Federal Reserve
CG	central governments	FINREP	Financial reporting
CIR	cost-to-income ratio	GAR	green asset ratio
CoE	cost of equity	GDP	gross domestic product
CoR	cost of risk	GFC	global financial crisis
COREP	Common Reporting	GSCPI	Global Supply Chain Pressure Index
CPI	consumer price index	G-SIIs	Global Systemically Important Institutions
CRD	Capital Requirements Directive	HH	household
CRE	commercial real estate	HICP	harmonised index of consumer prices
CRR	Capital Requirements Regulation	HoldCo	holding company
CVA	credit valuation adjustment	HQLA	high-quality liquid assets
DDoS	Distributed Denial of Services	ICMA	International Capital Market Association
DeFi	Decentralised Finance	ICT	information and communication technology
DGS	deposit guarantee schemes	IEA	International Energy Agency
DORA	Digital Operational Resilience Act		

IFRS	International Financial Reporting Standard	P&L	profit and loss
IMF	International Monetary Fund	p.p.	percentage points
IO	international organisations	P2G	Pillar 2 Guidance
IPCC	Intergovernmental Panel on Climate Change	PD	probability of default
IRB	internal ratings based	PGS	public guarantee schemes
IRRBB	interest rate risk of the banking book	POCI	originated credit-impaired financial assets
IT	Information technology	PSD2	Payment Services Directive
ITS	implementing technical standards	PSPs	payment service providers
JRC	Joint Research Centre	PtB	price to book
LCR	liquidity coverage ratio	QoQ	quarter on quarter
LGD	loss given default	R2	r-squared
LTRO	long-term refinancing operation	RAQ	risk assessment questionnaire
LTV	loan-to-value	RAR	risk assessment report
MARS	Monitoring Agricultural ResourceS	RF	resolution funds
ML	money laundering	RoE	return on equity
MREL	minimum requirement for own funds and eligible liabilities	RRE	residential real estate
MRO	main refinancing operations	RSF	required stable funding
NCA s	National Competent Authorities	RWA	risk-weighted assets
NFC	non-financial corporate	SA	standardised approach
NFCI	net fee and commission income	SME	small and medium-sized enterprises
NII	net interest income	SNP	senior non-preferred senior
NIM	net interest margin	SRB	Systemic Risk Buffer
NLP	natural language processing	SREP	Supervisory Review and Evaluation Process
NOI	net operating income	T2	Tier 2
NPL	non-performing loan	TEM	total exposure measure
NSFR	net stable funding ratio	TF	terrorist financing
NTI	net trading income	TLTRO	targeted long-term refinancing operation
OCI	other comprehensive income	TPI	Transmission Protection Instrument
OCR	overall capital requirements	TREA	total risk exposure amount
OECD	Organisation for Economic Co-operation and Development	UK	United Kingdom
OIS	Overnight indexed swap	UNHCR	United Nations High Commissioner for Refugees
O-SIIs	Other Systemically Important Institutions	YoY	year on year

Executive summary

Gross domestic product (GDP) growth is slowing down with an increasing risk of recession. Before Russia's invasion of Ukraine, the rebound that the global economy experienced in 2021 was expected to continue, albeit at a slower pace. However, the latest economic projections point to a sharp slowdown and even to a technical recession in the European Union (EU) in winter.

Monetary policy normalisation has sped up amid high inflation. In late 2021, aggregate supply constraints coupled with the release of a pent-up demand fuelled by extraordinary fiscal and monetary stimulus generated some inflationary pressures. The Russian war of aggression against Ukraine and the subsequent energy crisis aggravated these trends and brought inflation to levels not seen since the 1980s. Central banks across the world have responded with faster-than-expected rises in rates that are weighing both on economic growth and on debt and equity valuations. Higher rates and lower disposable household income may also trigger a decline in house prices.

Demand for sustainable finance and Environmental, Social and Governance (ESG) products remains robust. ESG factors and risks are becoming increasingly important. Physical risks are increasing due to more frequent heatwaves, floods and droughts. This not only affects people's health and livelihoods but causes severe damage to property and critical infrastructure. Transition risk is also rising as further policy initiatives to reduce greenhouse gas emissions appear increasingly likely. The political will to shift energy sources towards renewables appears to have accelerated amid energy supply disruptions following the war in Ukraine. Overall, Russia's invasion of Ukraine has had significant economic, environmental and social impact in the EU.

Lending growth declined in the second quarter of 2022. From June 2021 to June 2022, asset volumes increased considerably driven by loans and advances and derivatives. Until the outbreak of the Russian war,

the economic recovery in the aftermath of the pandemic and the low – albeit increasing – interest rate environment boosted household and non-financial corporates (NFCs) demand for loans. However, after Russia's invasion of Ukraine, some lending segments such as residential mortgages registered a rather subdued growth as a result of rising rates and increasing uncertainty.

EU/European Economic Area (EEA) banks have increased their exposures to the energy sector. The increased price volatility in EU oil and gas markets created unprecedented liquidity needs for energy related firms earlier this year. Banks have been actively engaging with energy companies to provide them with a wide range of services to manage volatility in derivative energy markets. As a result, banks have significantly increased their overall exposures to the sector, both in terms of loans as well as derivatives. These exposures are concentrated with a small number of banks.

Early signs of asset quality deterioration. The non-performing loan (NPL) ratio continued a downward trend and its dispersion across banks tightened significantly. However, new NPL inflows increased substantially in the first half of 2022. The share of stage 2 loans stood at its highest level since implementation. Banks have increased provisions for performing loans. Nonetheless, the overall cost of risk (CoR) has fallen below pre-pandemic lows presumably because of still substantial NPL outflows and the release or the reallocation of unused COVID-19 provisioning overlays.

Banks funding costs are expected to increase further. Banks must repay substantial amounts of central bank loans until 2024. A number of banks will be able to rely on existing liquidity buffers – including central bank deposits – to pay back central bank loans. Some banks however may need to issue additional debt or increase deposits. It remains to be seen how costly replacing central bank funding will be. Meeting or refinancing minimum requirements for own

funds and eligible liabilities (MREL) could also prove a challenge for some banks.

Volatile markets may continue to challenge banks' ability to obtain market funding. Bank funding plans indicate that the shift in economic and monetary developments will reduce banks' liquidity coverage ratios (LCRs) and net stable funding ratios (NSFR) going forward. All banks in the sample have strong liquidity positions. Banks at the lowest end of the distribution also maintained ratios above regulatory requirements, with the lowest quartile standing at 155% (167% in June 2021) for the LCR and 126% (125% in June 2021) for the NSFR. The LCR in relevant foreign currencies is well below the average LCR, with e.g., the USD LCR standing at 88.2% (54% for the lowest quartile). In volatile markets, amid for instance widening cross currency swap basis, some banks might face challenges to obtain FX funding.

Banks continue to hold capital well above regulatory requirements - including Pillar 2 Guidance (P2G). Although it decreased during the last year, the average capital headroom was 4.65% in June 2022 versus 5.58% in June 2021. Despite this average headroom there are banks that are closer to respective requirements. This might not least create challenges for such banks going forward when they need to increase their capital amid a potentially worsening economic environment. The decline of the headroom during the last year is both due to declining capital ratios and – to a lesser extent – rising capital requirements. Increase in risk-weighted assets (RWA) outpaced capital generation and led to a 60 basis points (bps) decline in the average

Common Equity Tier 1 (CET1) ratio to 15.2%. Overall capital requirements (OCR) increased by 10 bps and stood at 9.30% in June 2022, still below pre-pandemic levels (10.1% in June 2019). On the leverage ratio, most banks in the sample have a buffer of more than 200 bps above the minimum requirement. However, 6% of the banks are within 100 bps above the minimum requirement.

It remains uncertain how bank profitability will evolve. Strong lending growth and higher net interest margins (NIM) helped increase banks' return on equity (RoE) year on year (YoY). As pandemic related restrictions on shareholder remuneration were lifted, banks are expected to return to pay-out ratios of around 50% – in line with the long-term average. The expected macroeconomic deterioration will likely result in slower lending growth and rising impairments, and higher inflation may increase operating costs. Lower GDP growth and rising rates could also result in lower fee income from asset management and payment services. Finally, banks that are more reliant on wholesale funding may face more rapid increases in funding costs.

Russia's invasion of Ukraine has increased operational risk. The increasing reliance of banks on digital solutions towards customers also affects the number and impact of information and communication technology (ICT)-related incidents. The significant number of EU- as well as international sanctions in response to the Russia's invasion of Ukraine increases the risk of implementation errors and circumvention risk. In addition, EU banks face substantial costs as they retreat from their Russian operations.



Introduction

This report describes the main developments of and trends in the EU/EEA banking sector between June 2021 and June 2022 and provides the European Banking Authority (EBA) outlook on the main risks and vulnerabilities. (1) As in 2021, the December 2022 risk assessment report (RAR) is published along with the EU/EEA-wide 2022 transparency exercise.

The RAR is based on qualitative and quantitative information collected by the EBA. The report's data sources are the following:

- EU/EEA supervisory reporting.
- The EBA risk assessment questionnaires (RAQ), addressed to banks and market analysts.
- Market intelligence as well as qualitative micro-prudential information.

The RAR builds on the supervisory reporting data that Competent Authorities (CAs) submit to the EBA on a quarterly basis for a sample of 161 banks from 30 EEA countries (131 banks at the highest EU/EEA level of consolidation from 26 countries). (2) Based on total assets, the sample at highest level of consolidation covers about 80% of the EU/EEA banking sector. In general, the risk indicators are based on an unbalanced sample of banks, whereas charts related to the risk indicator numerator and denominator trends are based on a balanced sample. (3) The text and figures in this report

refer to weighted average ratios unless otherwise indicated. (4)

The RAQ is conducted by the EBA on a semi-annual basis, with one questionnaire addressed to banks and another addressed to market analysts. (5) Answers to the questionnaires were provided by 60 European banks (Annex I) and 9 market analysts during August and September 2022. The report also analyses information gathered by the EBA from informal discussions as part of the regular risk assessments and ongoing dialogue on risks and vulnerabilities of the EU banking sector. The cut-off date for the market data presented in the RAR was around 31 October 2022, unless otherwise indicated.

Along with the RAR, the EBA is disclosing bank-by-bank data as part of the 2022 EU-wide transparency exercise for four reference dates (September 2021, December 2021, March 2022 and June 2022). The transparency exercise is part of the EBA's ongoing efforts to foster transparency and market discipline in the EU internal market for financial services, and complements banks' own Pillar 3 disclosures, as set out in the EU's Capital Requirements Directive (CRD). The sample in the 2022 transparency exercise includes 122 banks from 26 countries at the highest level of consolidation in the EU/EEA as of June 2022. (6) The EU-wide transparency exercise relies entirely on Common reporting (COREP)/ Financial reporting (FINREP) data submitted in accordance with EBA Guidelines EBA/GL/2020/07.

(1) With this report, the EBA discharges its responsibility to monitor and assess market developments and provides information to other EU institutions and the general public, pursuant to Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority) and amended by Regulation (EU) No 1022/2013 of the European Parliament and of the Council of 22 October 2013.

(2) Data as of the reporting date 30 June 2022. Following the United Kingdom's (UK's) departure from the EU, banks domiciled in the UK are no longer included in the figures based on supervisory reporting data. Liechtenstein and Norwegian banks implemented the reporting framework based on CRR2/CRD5 as of Q2 2022. To ensure comparability over time, EU/EEA aggregated figures do not include data for Liechtenstein and Norwegian banks, which are shown only in tables and charts with country breakdowns and only as of Q2 2022.

(3) Being an unbalanced sample, the number of reporting banks per country can display minor variations between quarters, which might accordingly affect quarterly changes in absolute and relative figures.

(4) There might be slight differences between some of the risk indicators covered in the Q2 2022 version of the EBA Risk Dashboard, and this report as a result of data resubmissions by banks. The annex to the risk dashboard also includes a description of the risk indicators covered in this report and their calculations. Further descriptions are available in the EBA's guide to risk indicators.

(5) The results of the RAQ are also published separately, together with the EBA's risk dashboard, on a semi-annual basis. These are published in RAQ booklets (latest published version is from spring 2022) and include explanations of the questionnaire and the analysis of the RAQ responses.

(6) The figures for the banks not participating to the EU Transparency exercise are disclosed in an aggregate manner and at the highest level of consolidation in the category "Other banks". This is to allow users to reconcile with the EBA's full population of EU/EEA largest institutions.

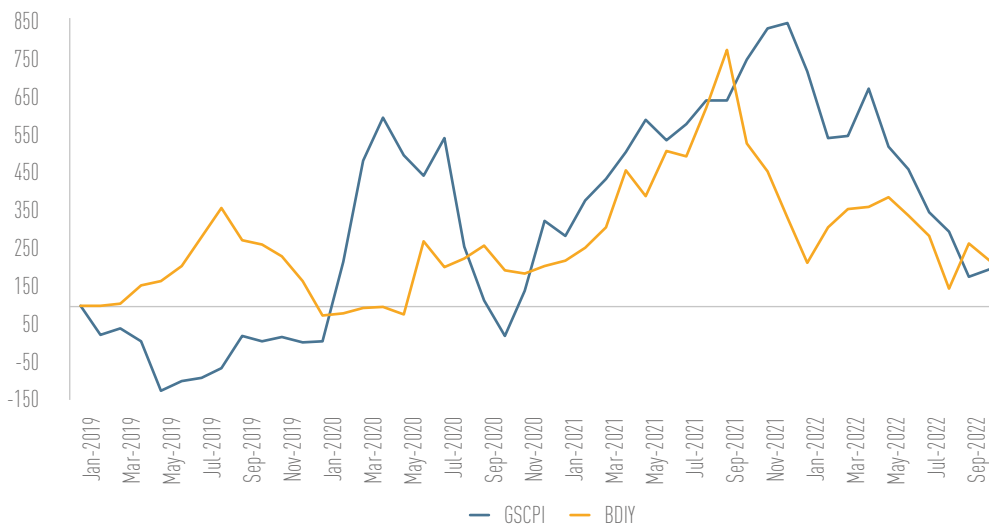
1. Macroeconomic environment and market sentiment

The Russian war of aggression against Ukraine has dented the economic recovery. COVID-19 vaccinations allowed to gradually reopen most of the economies in 2021, with China as a main exception. The remaining social distancing measures kept on affecting global supply chains. These aggregate supply constraints were coupled with the release of a pent-up demand that was also fuelled by extraordinary fiscal and monetary stimulus adopted in 2020 and 2021. Thus, inflationary pressures started to show up in late 2021.

Currently, COVID-19 barely affects the daily life in European countries. Successful implementation of COVID-19 vaccinations strategies has allowed to reduce mortality and hospitalisations. Accordingly, in 2022,

most of the countries have removed mobility and travel restrictions, and quarantines. Nonetheless, the risk of emergence of new COVID-19 variants cannot be completely ruled out. COVID-19-related measures in China, with regular lockdowns in key manufacturing and transport hubs for the global supply trade, have contributed to shipping congestions and shortages of commodities, intermediate products and raw materials, affecting the manufacturing sector in several countries. This was reflected for instance in supply chain related indicators such as the Global Supply Chain Pressure Index (GSCPI) or the Baltic Dry Index (BDIY). Nonetheless, these tensions have eased somewhat in 2022 amidst the economic slowdown (Figure 1).

Figure 1: Main global Supply Chain indicators
Source: Bloomberg, EBA calculations



Russia's invasion of Ukraine dented the macroeconomic outlook

The war has already provoked several thousand civilian and military casualties and the destruction of basic infrastructure in Ukraine. More than 7 million Ukrainians are recorded as refugees across Europe according to the United Nations High Commissioner

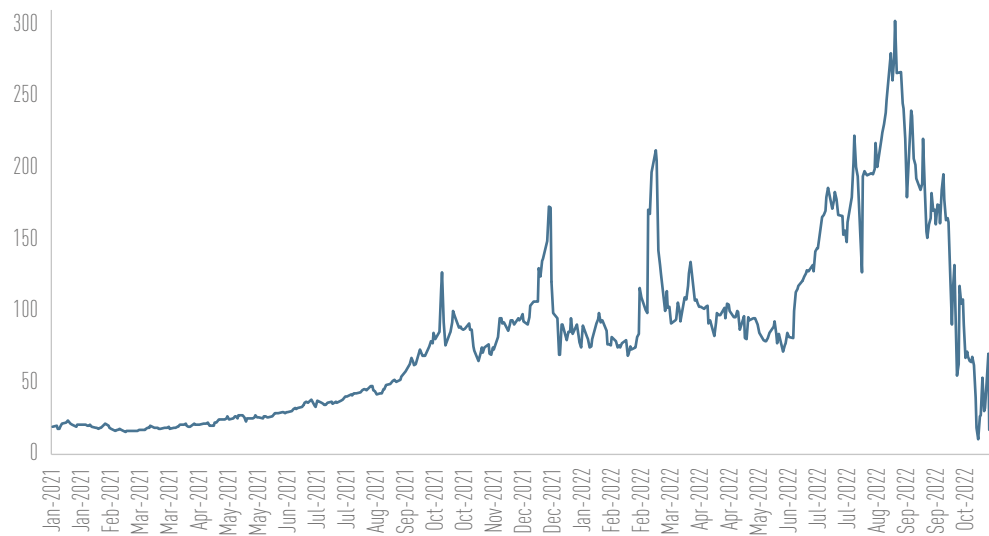
for Refugees (UNHCR).^[?] Russia's invasion of Ukraine has also caused economic turmoil by aggravating existing headwinds. The war is affecting energy and food markets, hence aggravating inflationary pressures, and weighing on economic growth. In addition, the uncertainty about the end of the war and its aftermath has deteriorated consumers and investors' confidence.

[?] See the UNHCR's coverage of the situation related to the Russian war.

Ukraine was a major producer of cereals, oil-seeds and meat and the EU, its major client. Russia was the fifth trading partner of the EU. It supplied construction materials, fertilisers, and, more importantly, fossil fuels. In 2020, Russian oil and natural gas represented 29% and 43%, respectively, of EU energy imports from third countries.^[8]

Gas prices rose to historic levels as a result of the disruption of gas supplies from Russia (Figure 2). Flows through Nord Stream 1, the pipeline that connects Germany to Russian gas supplies, were reduced since May and completely cut off in September. Nonetheless, prices normalised and volatility retreated in autumn, amidst prospects of economic deceleration and high storage levels in EU countries.

Figure 2: Dutch Title Transfer Facility (TTF) natural gas price
Source: Bloomberg, EBA calculations



The EU and its member states have taken steps to increase gas supply security, such as setting minimum storage obligations and implementing energy saving measures for the coming winter.^[9] EU storage facilities were close to 90% of their capacity as of end of September. However, the International En-

ergy Agency (IEA) estimated that, in the absence of Russian supply and without demand reductions, EU gas storage levels will be in a range between 5% and 20% in February. At these levels, there is an increasing risk of supply disruptions in the event of a late cold period according to the IEA.^[10]

[8] See the European Commission on "From where do we import energy?".

[9] Regulation of the European Parliament and of the Council amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage

[10] See IEA. Gas Market Report, Q4-2022, October 2022.

Box 1: Impact on banks of sanctions adopted in response to Russia's war of aggression against Ukraine

In 2022 the EU adopted eight packages of restrictive measures in relation to Russia's invasion of Ukraine. Banks had to adjust and amend their systems and controls swiftly to comply with these measures.

Sanctions imposed on Russia increase legal and reputational risks for banks. These risks include sanctions breaches as a result of banks' failure to implement and keep up-to-date effective company-wide screening systems and controls and measures to ensure compliance with import and export bans. They also include the risk of failing to take the steps necessary to prevent being used for the circumvention of sanctions.

Responses to the RAQ suggest that analysts consider the risk of non-compliance with financial sanctions as the third most relevant operational risk, just after cyber and conduct and legal risk (on banks' view on the same topic see Figure 87). RAQ results also show that more than 40% of the banks that responded to the questionnaire consider risks associated with customers' transactions received from, or sent to, jurisdictions that are subject to international sanctions as highly significant (close to 30% of the remaining respondents consider these risks to be significant). These

risks are increased where banks have significant exposure to Russian or Belarusian assets or customers, and where banks' anti-money laundering (AML)/countering the financing of terrorism (CFT) controls are not effective. In the absence of effective customer due diligence measures, which are a core component of AML/CFT controls, banks may be unaware who they are doing business with.

The EBA found that supervisory expectations and financial institutions' practices differ across Member States. This might lessen the effectiveness of the EU's targeted financial sanctions regime. It also makes sanction compliance more challenging for banks, in particular in cases where institutions are active across several member states.⁽¹¹⁾ A new mandate for the EBA to issue guidelines to payment services providers under the recast Fund Transfers Regulation will be key to addressing this challenge. The guidelines will be focused on the internal policies, procedures and controls crypto assets services providers should put in place to comply with Union and national restrictive measures.⁽¹²⁾

⁽¹¹⁾ Not least for this reason the review of banks' internal controls and governance frameworks in the context of sanctions was included in the EBA's 2023 European supervisory examination programme for prudential supervisors from October 2022.

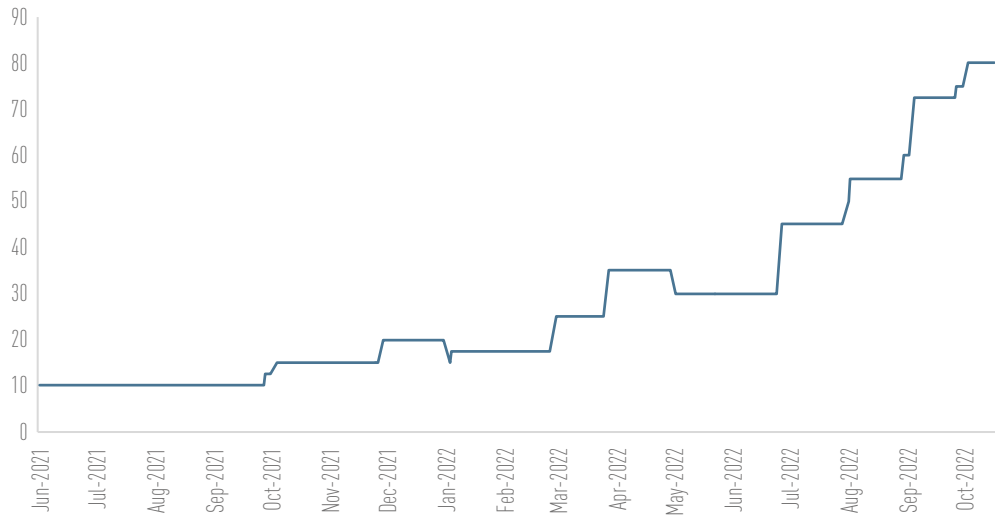
⁽¹²⁾ See European Council. Anti-money laundering: Provisional agreement reached on transparency of crypto asset transfers. June 2022.

Inflation has reached historical high levels and GDP growth has slowed down

GDP growth is slowing down with an increasing risk of recession (Figure 3). Before Russia's invasion of Ukraine, the global economy rebound in 2021 (6.0% real GDP annual growth according to the International Mon-

etary Fund (IMF)) was expected to continue, albeit at a slower pace. However, the IMF currently expects global GDP to grow by just 3.2% in 2022 and by 2.7% in 2023. This comes mainly on the back of global inflationary pressures – not least driven by the energy crisis in Europe – uncertainty around China's zero-COVID policy, and tighter monetary policies.

Figure 3: Probability of recession in the euro area
 Source: Bloomberg, EBA calculations



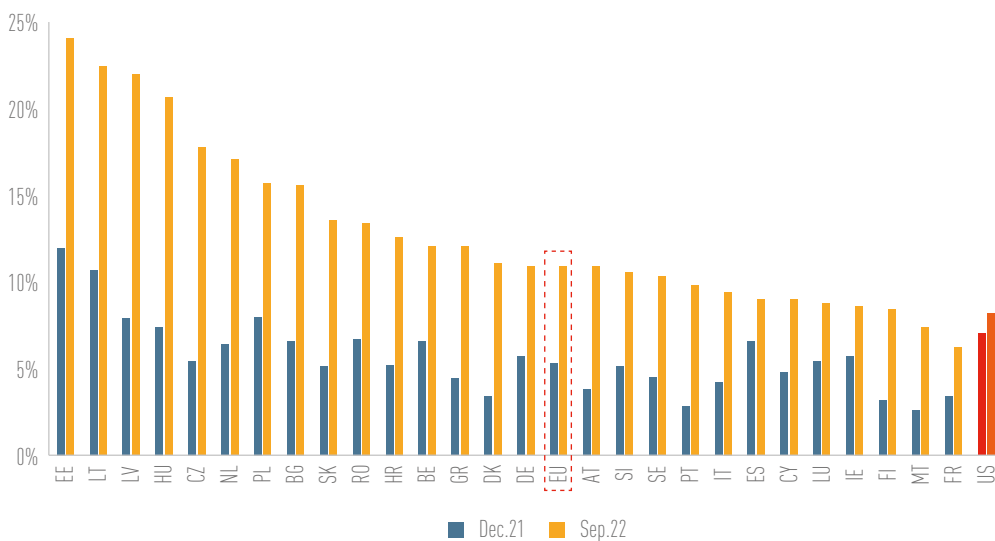
The European Commission (EC) Autumn 2022 Economic Forecast expects EU GDP to grow by 3.3% in 2022 and 0.3% in 2023. The growth in the first half of 2022 beat EC’s expectations given the easing of COVID containment measures. Nonetheless, a contraction is forecast in the fourth quarter due to the significant shifts in consumer and economic sentiment indicator (ESI). The contraction is expected to continue in the first quarter of 2023, with the EU experiencing a technical recession this winter, according to the EC.^[13]

Other major economies are also experiencing a significant slowdown. According to the IMF, the US GDP growth will decline from

5.7% in 2021 to 1.6% and 1% in 2022 and 2023 respectively. In China, the frequent lockdowns have taken a toll on the economy and GDP growth is expected to fall from 8.1% in 2021 to 4.4% and 4.9% in 2022 and 2023 respectively. According to the IMF, the Chinese slowdown might have a material impact on its real estate sector that could spill over to the domestic banking sector.

Inflation reached heightened levels. In September, the EU harmonised index of consumer prices (HICP) rose by 10.9% (annual rate of change) while the US consumer price index (CPI) increased by 8.2% (Figure 4).^[14]

Figure 4: Annual rate of inflation by country (September 2022)
 Source: Eurostat, US Bureau of Labor Statistics



^[13] See Autumn 2022 Economic Forecast, European Commission, November 2022.

^[14] See Eurostat’s HICP - monthly data, with last update as of 31 October 2022 and the US Bureau of Labor Statistics.

Inflation is likely to remain high in 2023. According to the Organisation for Economic Co-operation and Development (OECD), inflationary pressures are now visible beyond energy and food.^[15] For instance, tight labour markets are resulting in higher wages to mitigate the loss of purchasing power, and firms seem to be passing through higher energy and labour costs. The EC forecasts inflation rates for the EU of 9.3% and 7.0% by the end of this and next year, respectively, for the EU, while the OECD expects US inflation to stand at 3.4% in 2023.^[16]

Monetary and fiscal policies might cause fragmentation

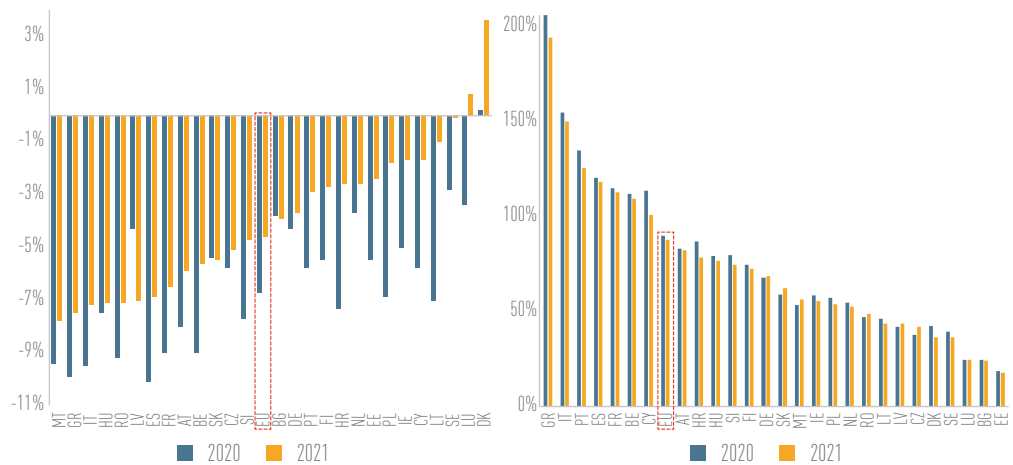
In response to high inflation, central banks across the world are tightening monetary policy faster than expected. In the euro area, in June, the European Central Bank (ECB) announced the end of net asset purchases as of 1 July 2022. It also increased interest rates by 0.5 percentage points (p.p.) in July (for the first time since 2011) and 0.75 p.p. in September and October; hence the rate of the main refinancing operations (MRO) has risen from 0% at the beginning of the year to 2%. The rate of the deposit facility entered positive territory in 2022 for the first time since 2014 and currently stands at 1.5%. In other EU/EEA countries, central banks also raised interest rates. For instance, the Swedish Central Bank first raised interest rates in May 2022. Since then, the official rate has increased from 0% to 1.75%. In Poland and Romania, the rise in interest rates started already in mid-2021. Only in 2022, rates in these jurisdictions have increased by 6 p.p. and 4.5

p.p., reaching 6.75% and 6.25%, respectively. The US Federal Reserve (Fed) started the year with a target range of 0%-0.25% for the federal funds rate. However, after its November meeting, the target range was already at 3.75% to 4%. Moreover, the Fed’s so-called “dot plot”, which the US central bank uses to signal its outlook for the path of interest rates, shows the median year-end projection for the federal funds rate, even higher, at a range of 4.25% to 4.5%.

Most EU/EEA governments still maintain large fiscal deficits. In 2020, lockdowns caused a material decline in fiscal revenues while measures to counteract the effects of the pandemic resulted in increased spending. Under this situation, the average EU fiscal deficit reached 6.8% of GDP with some countries like Spain and Greece reporting a fiscal deficit above 10%. As the health situation improved and economic activity normalised, fiscal deficits were gradually reducing. In 2021, the average EU fiscal deficit declined to 4.7%. However, the energy crisis resulting from the outbreak of the Russian war has led governments to embark on new spending programs. Nonetheless, inflation is also contributing to increase revenues. For 2022, the EC expects the average EU deficit to stand at 3.4%.^[17]

Despite persistent fiscal deficits, public debt-to-GDP ratios are declining due to an inflation-led increase in nominal GDP. In 2020, the average EU public debt-to-GDP ratio stood at 91.8% while in 2021, it declined to 90.3%. The EC expects it to decline to 86% in 2022. Nonetheless, several EU countries still show a ratio above 100% (Figure 5).^[18]

Figure 5: Public deficit to GDP (left), general government gross debt to GDP (right) by country
 Source: Eurostat, EBA calculations



[15] See the OECD Economic Outlook, Interim Report September 2022: Paying the Price of War.

[16] See the OECD Economic Outlook, Interim Report September 2022: Paying the Price of War and the Autumn 2022 Economic Forecast, European Commission, November 2022.

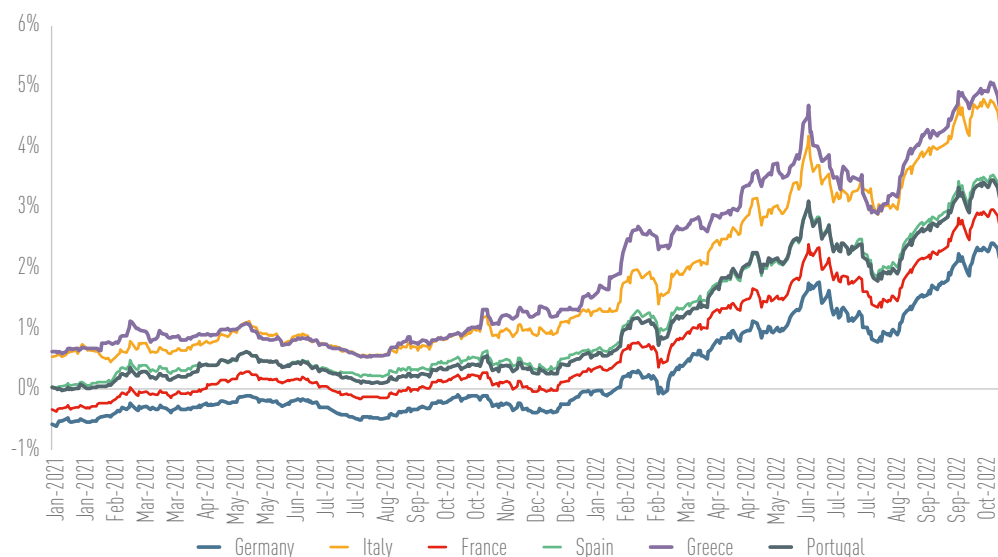
[17] See Autumn 2022 Economic Forecast, European Commission, November 2022.

[18] See Autumn 2022 Economic Forecast, European Commission, November 2022.

Some signs of financial fragmentation are visible. Public debt-to-GDP ratios have declined, and governments have locked in large share of their debt at long maturities and record-low rates. However, sovereign yields and spreads have widened materially in 2022. For instance, the spread between the 10-year Italian sovereign bond and its German equivalent widened to 215.4 bps in October 2022 from 105.4 bps in June 2021 (Figure 6). Such developments re-

sulted in the ECB's Transmission Protection Instrument (TPI) in July. The TPI allows the Eurosystem to make secondary market purchases of public and private debt issued in jurisdictions experiencing a deterioration in financing conditions not warranted by fundamentals. In order to benefit from the TPI, a country shall comply with the EU fiscal framework and shall not be subject to an excessive imbalance procedure, among other criteria.^[19]

Figure 6: 10-year sovereign yields of selected European countries
 Source: Bloomberg, EBA calculations



Tighter financial conditions and macroeconomic deterioration might affect real estate markets

Macroeconomic deterioration and monetary policy tightening have also resulted in tighter financing conditions. For instance, the Euro area bank lending survey (BLS) reveals that banks tightened their approval criteria for loans to firms and households amidst high uncertainty and less accommodative monetary policy.^[20]

Tighter financing conditions and a deteriorating macroeconomic outlook might particularly weigh on residential real estate (RRE) prices. Although higher construction

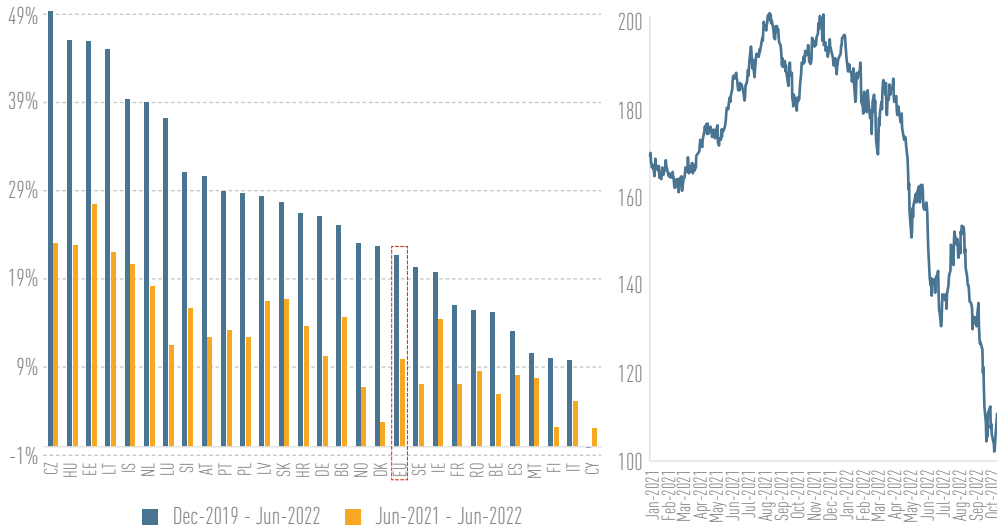
costs might prop up prices, factors affecting demand such as a slowdown in economic growth or higher borrowing costs might bring prices down. According to Eurostat data, between June 2021 and June 2022, EU housing prices rose by 10%, and the accumulated increase since December 2019 reached 22%, raising concerns for overheating real estate markets. Nonetheless, some national indices already show declines in housing prices.^[21] Moreover, the fall in real estate equity indices such as the Stoxx Europe 600 Real Estate might suggest an eventual price drop. This index has lost 39% since October 2021 (Figure 7) while the decline in the Stoxx Europe 600 was just 8% (Figure 8, right).

^[19] See more in the ECB's press release on the Transmission Protection Instrument.

^[20] See the ECB's Q3 results of the Euro area BLS, October 2022.

^[21] See, for instance, Sweden's home price slump worsens to reach double digits, Bloomberg, October 2022.

Figure 7: Evolution of housing prices by country (left) and Stoxx Europe 600 Real Estate (right)
 Source: Eurostat, Bloomberg, EBA calculations

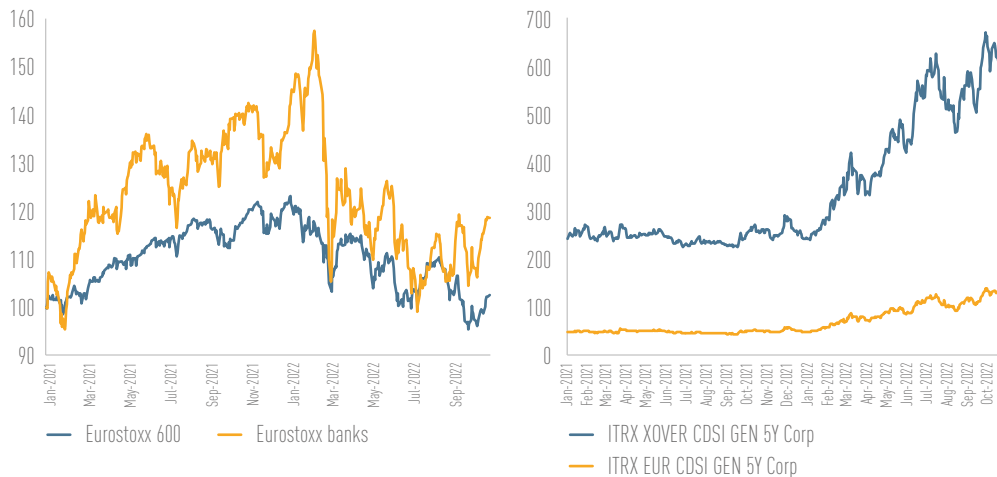


High market volatility amidst macroeconomic uncertainty and faster-than-expected monetary tightening

Rising rates and increasing macroeconomic uncertainty are causing financial turmoil. Equity markets have suffered a material decline. From June 2021 to October 2022, the Stoxx Europe 600 and the Euro Stoxx Banks dropped by 8% and 15%, respectively. On the

other hand, debt markets experienced a sharp repricing and spreads widened substantially. For instance, the credit default swap (CDS) spread for investment-grade (iTraxx Main) and sub investment-grade (iTraxx Crossover) of European corporates increased by 63 bps and 293 bps, respectively, from October 2021 to October 2022. Even more remarkable, the spread between the two indices widened by 230 bps (Figure 8, right).

Figure 8: Stock Market Indices (January 2021 = 100, left) and iTraxx Main and iTraxx Crossover (right)
 Source: Bloomberg, EBA calculations

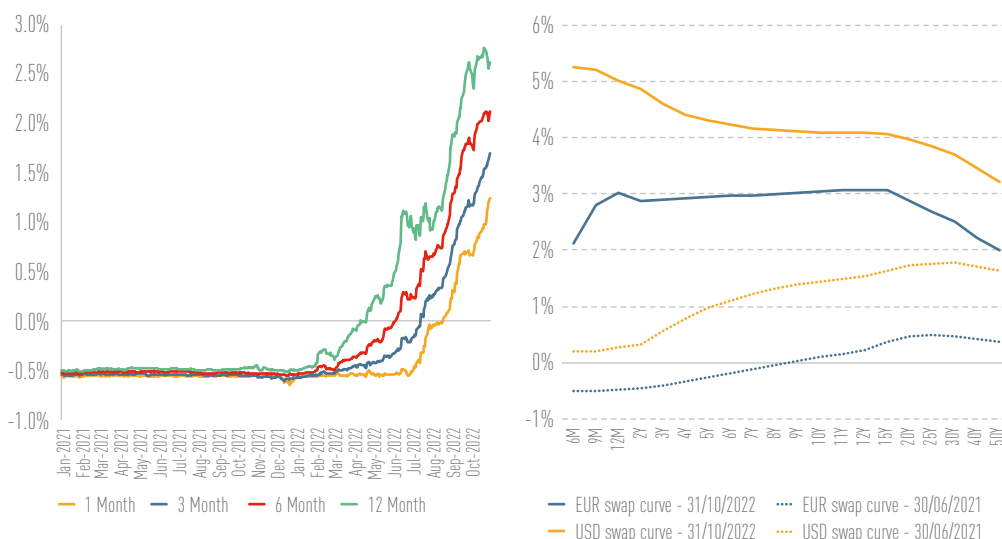


Rising rates have resulted in higher but flatter yield curves. Euro Interbank Offered Rates (Euribor) and swap rates have increased amid rising rates. However, a sharp

flattening in swap yield curves has also taken place. This might be an indication of recession and might limit the benefits of maturity transformation for banks (Figure 9).

Figure 9: Euribor Rates (left) and EUR and USD swap curves (right)

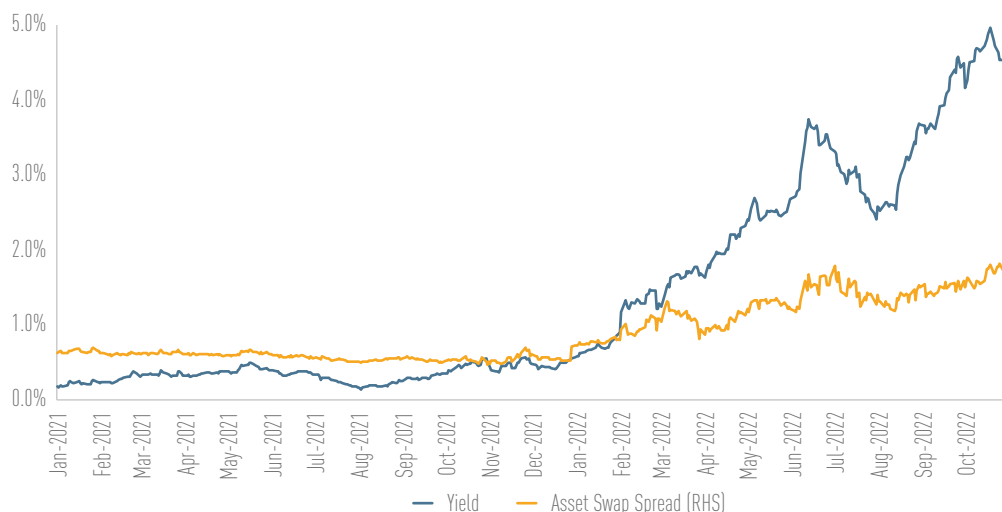
Source: Bloomberg, EBA calculations



Spreads of wholesale bank funding instruments have also increased in 2022. The yield of banks' funding instruments (iBoxx banks) started to increase in late 2021, and since then it has been on an upward trend, (+3.99

p.p. compared with October 2021). Similarly, the asset swap (ASW) spread has widened from 113.47 bps to 169.55 bps between October 2021 and October 2022 (Figure 10, see more in Chapter 3).

Figure 10: iBoxx banks: spread and yield
Source: S&P Market Intelligence, EBA calculations



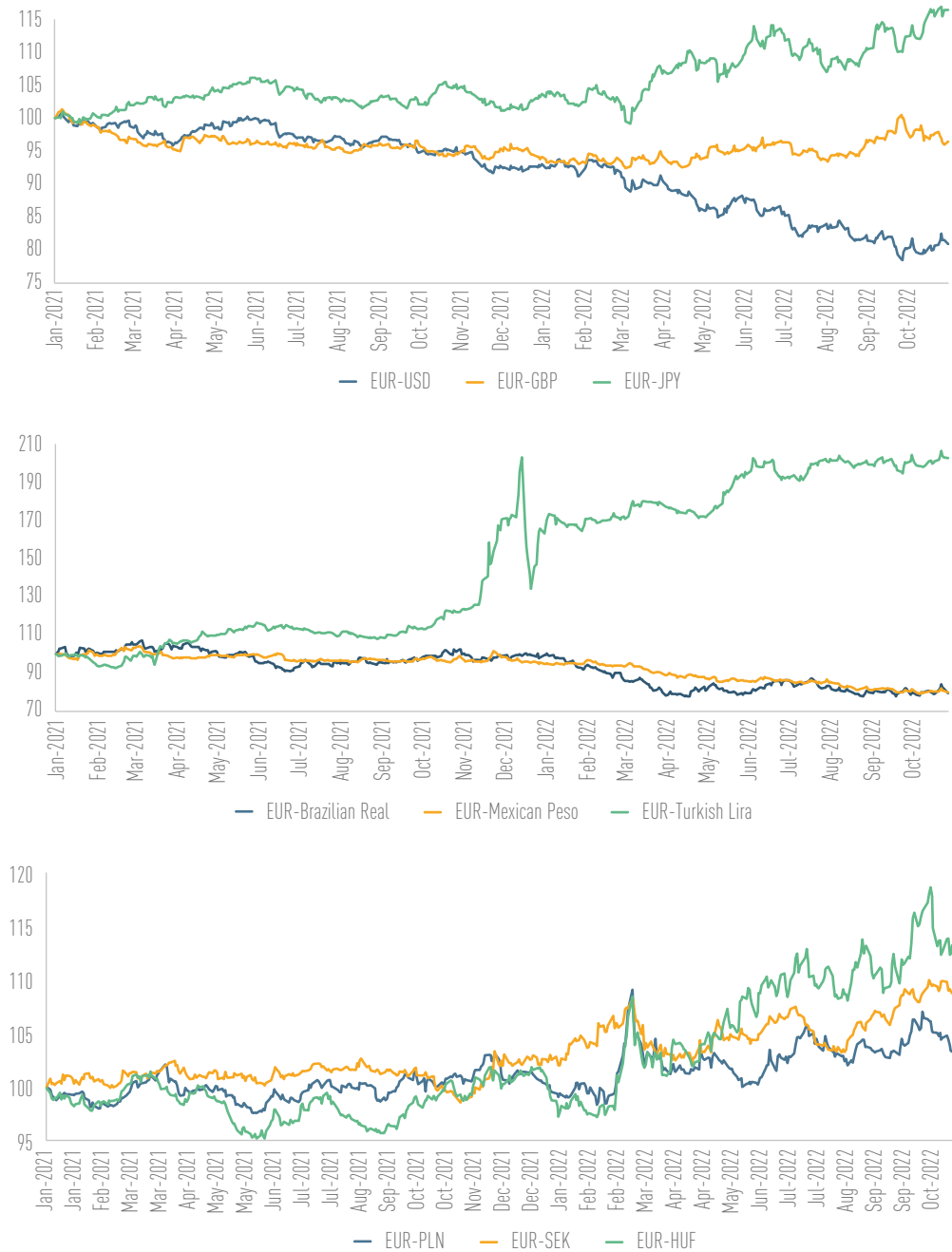
Monetary tightening has led to a sharp appreciation of the USD. The depreciation of other currencies such as the GBP has been even more acute not least due to political uncertainty. Non-Euro area currencies, in particular the HUF and the SEK have also depreciated against the Euro. For many emerging markets, the strength of the USD has resulted in a sharp tightening of financial conditions. According to the IMF, capital flows have not

recovered, and many low-income and developing economies remain in debt distress.⁽²²⁾ Therefore, tighter financing conditions could trigger widespread emerging market debt distress. Monetary tightening in developed economies might also force central banks in emerging market economies (EME) to raise rates to prevent major depreciations or currency outflows (Figure 11).

⁽²²⁾ IMF, World Economic Outlook: Countering the Cost-of-Living Crisis, October 2022

Figure 11: Evolution of the euro against major world currencies (top), main emerging market currencies (centre) and selected non-eurozone currencies (bottom) (01/01/2021 = 100)

Source: Bloomberg, EBA calculations



Climate-related risks are accelerating

The Intergovernmental Panel on Climate Change (IPCC) continues to warn about the dangerous and widespread disruptions that human-induced climate change is causing. ^[23] More intense heatwaves, droughts, and floods occur more frequently, affecting people’s health and livelihoods, as well as property and critical infrastructure, including energy and transportation systems.

The IPCC warns about four main risks for Europe: 1) an increasing number of heat-related deaths and people suffering from heat stress, 2) agricultural production losses in most areas, 3) water scarcity, and 4) damages to people and infrastructures from coastal and riverine areas due to increasing sea level and fluvial flooding.

Several climate-related incidents were observed in the EU/EEA economy in the summer of 2022. Coinciding with historical maximums of gas prices, water scarcity eroded energy production, by reducing the stored water volumes used for hydropower generation and to

^[23] See the IPCC’s Summary for Policymakers of the IPCC Working Group II report, Climate Change 2022: Impacts, Adaptation and Vulnerability, February 2022.

feed cooling systems for other power plants, hence aggravating the increase in energy prices. The shallow levels of many European rivers resulted in a reduced traffic and shipping loads along the Rhine, Danube, and Po, thus putting additional pressure on already strained supply chains. Looking at this summer's crops, yields of maize, soybean, or sunflower, among others, fell substantially below the average of last year, increasing the tensions in food prices.^[24]

^[24] See the Joint Research Centre's (JRC) [Monitoring Agricultural Resources \(MARS\)](#).

Following the outbreak of Russia's invasion of Ukraine, the EU faces difficult trade-offs to reduce dependency from Russian fossil fuels via the recent REPowerEU Plan, while avoiding economic damage and fulfilling its net-zero emission targets by 2050.^[25] Once energy security is guaranteed, the EU might need to accelerate the transition to net-zero. This might result in an increasing transition risk as strong policy actions might be needed to limit warming to below 2°C and to compensate for lost time.

^[25] See the EC, [REPowerEU Plan](#), May 2022.

Box 2: Banks' disclosures and climate risk assessment of assets

The realisation of climate risks could deteriorate the quality of the assets held on banks' balance sheets. However, it is currently uncertain whether and to what extent these risks are reflected in asset prices. For this reason, disclosure requirements, together with other regulatory initiatives, are fundamental to capture banks' respective risks and vulnerabilities. They would also support a more accurate valuation of banks' respective assets, and increase the availability and transparency of information on banks' exposure to climate risk, which would in turn help investors take more informed decisions.

Banks' exposures can be subject to physical climate events through their counterparties' activities, and through physical assets held on their balance sheets. Recent acute events, e.g., wildfires and floods across Europe, showed that climate-related physical risk can drive financial losses for banks. In addition to physical risk, banks' exposures to transition risk due to their lending and investment activities towards sectors that highly contribute to climate change, as well as the greenhouse gas emissions financed through these activities, must be closely monitored. Today, the transition risk that banks are facing is aggravated, specifically in the short-run due to the immediate impact of the current energy crisis, but also in the medium- and long-run given the political will and action to accelerate the transition towards renewable energy resources and a more sustainable economy. To this end, banks are expected to act timely to proactively manage these challenges.

In the coming months and years banks are expected to put more efforts in climate-re-

lated risk management and more broadly ESG risks management, as these risks are becoming increasingly a source of financial risk on their balance sheets. It is therefore crucial that information about these risks is disclosed to the markets to allow more accurate valuation of assets and better investment decisions.

The implementing technical standards (ITS) as regards the disclosure of ESG risks in accordance with Article 449a Capital Requirements regulation (CRR) address these aspects and require banks to disclose climate-related risks associated with their lending and investment activities from 2023, with the reference date as of end-December 2022, and their green asset ratio (GAR) and banking book taxonomy alignment ratio (BTAR) from 2024.^[26] This means that banks have already begun to identify and assess climate-related risks to their assets.

One of the aspects that banks are expected to start disclosing in their upcoming Pillar 3 reports is the alignment of their assets with international sustainability goals. Anecdotal evidence shows that market analysts have already started to proxy key metrics based on information from banks' existing public reports. These include, for example, banks' immovable property collaterals subject to physical risk events, current assets in high transition risk sectors, the impact of a disorderly transition scenario on banks' revenue and profits, as well as GAR levels for selected banks. The upcoming disclosure requirements will provide more comprehensive and more comparable information in that regard.

^[26] See EBA ITS on prudential disclosures on ESG risks in accordance with Article 449a CRR, January 2022.

2. Asset side

2.1. Assets: volume and composition

As economic activity normalised in the post-pandemic period, banks continued to face an increasing demand for loans that they have been able to match given their ample liquidity and available headroom of capital above respective requirements and P2G. Asset volumes increased considerably driven by loans and advances mainly towards NFCs during H2 2021. This year, the elevated uncertainty due to the Russian war and other geopolitical tensions, the energy crisis, high inflationary pressures as well as rising interest rates, started to weigh on economic growth (see Chapter 1). They have accordingly been reflected in the asset developments in the first half of the year. Risks for the EU banking sector remain high concerning exposures towards vulnerable and partially also overburdened borrowers, high concentration of risk in real estate markets for the banking sector, as well as concerning exposures towards the energy sector and energy intensive companies. Other vulnerabilities that may be revealed are linked to exposures in certain emerging markets and risks related to sovereign debt.

Loans and derivative asset exposures drove balance sheet expansion.

In June 2022, EU banks reported around EUR 27.7 tn of total assets, an increase of 5% from EUR 26.3 tn in June 2021. This was a result of a substantial increase in outstanding loans and advances by around EUR 0.9 tn (+6% YoY), and a considerable increase in derivatives EUR 0.4 tn (+29% YoY).

The economic recovery in the aftermath of the pandemic, the low - albeit already increasing in some countries - interest rate environment, boosted consumer and business spending and increased the demand for loans. On the supply side, programmes that incentivised banks to extend credit towards the real economy, such as the ECB's targeted long-term refinancing operations (TLTRO), as well as banks' low NIM, have allowed them

to expand their lending at least until March 2022.

The growth in outstanding loans and advances slowed down during the second quarter of 2022, following the rising uncertainty due to geopolitical tensions caused by Russia's invasion of Ukraine, higher than expected inflation, and additional supply chain constraints. At the same time banks increased their exposures towards derivatives. This was not only to manage the increased market risk (see Chapter 4) but as well as due to a significant expansion of operations and balance sheets of subsidiary entities of US banks as a result of the UK leaving the EU. The increase in derivative exposures is mostly recorded in Q2 2022.

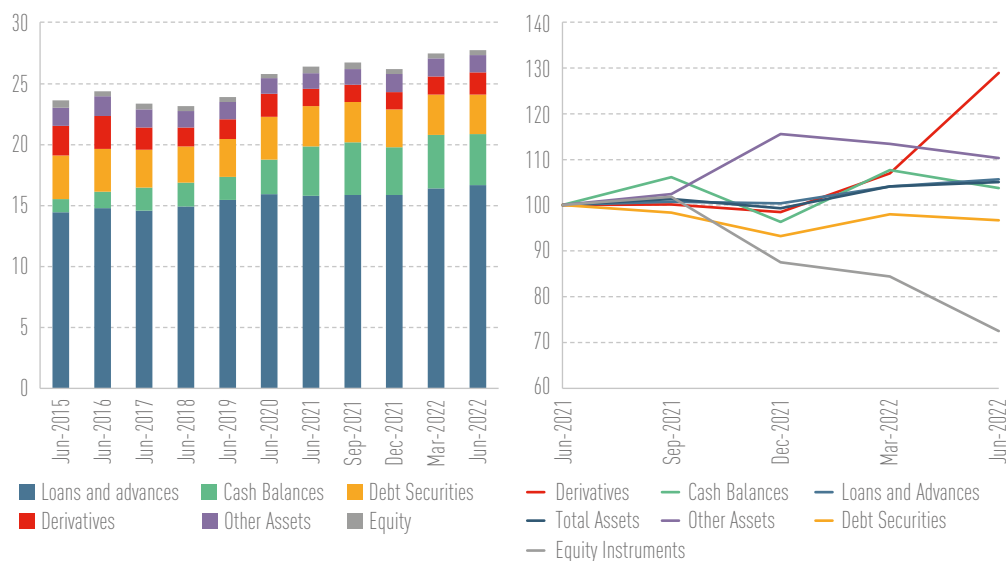
EU banks continued to pile up cash in their balance sheets, albeit at a substantially lower rate than during the pandemic. As of Q2 2022, banks reported EUR 4.2 tn of cash balances in their books, which represent a 4% increase YoY. However, during the second quarter of 2022, banks reduced their cash balances by more than EUR 150 bn (-4%).

Market turbulence and decline in equity prices since the beginning of the year presumably pushed down EU/EEA banks' equity holdings considerably compared to June 2021. Banks reported EUR 360 bn of equity holdings, down from EUR 490 bn in June 2021 (-27%). At the same time, the exposures in debt securities decreased by 3% or EUR 110 bn, and were reported at EUR 3.2 tn. However, compared to 2021 year-end figures, debt securities holdings increased by more than EUR 110 bn.

The asset composition has remained roughly stable over the past year, as the key change reported was the increase of derivatives against a decrease in equity holdings and debt securities. In June 2022, loans and advances accounted for the largest share of total assets (60%), followed by cash balances (15%), and debt securities (12%). Derivatives were up by 2 p.p. to 7% of total assets, while the share of other assets and equity holdings were just 5% and 1% of banks' total assets, respectively (Figure 12).

Figure 12: Trend in asset composition (EUR tn), June 2015 to June 2022 (left), and growth in asset components, June 2021 to June 2022 (June 2021 = 100) (right)

Source: Supervisory reporting data



In June 2022, close to 79% of banks' financial assets were measured at amortised cost, 17% were measured at fair value through profit and loss (P&L), and 4% were measured at fair value through other comprehensive income (OCI). Banks reported EUR 5.6 tn of fair valued financial assets, an increase in the share of level 2 financial assets (65.7% in June 2022 versus 59.6% in June 2021) as well as marginal increase in level 3 financial assets [5% in June 2022 versus 4.5% in June 2021]. This was against a decrease in the share of level 1 financial assets (29.4% in June 2022 versus 35.9% in June 2021), which is driven by the increase in derivatives.

EU banks extended credit across all segments

Following a rather subdued Q3 2021 in terms of asset growth, banks accelerated rapidly their balance sheet expansion on both loans towards NFCs and households starting in Q4 last year. EU banks' outstanding loans and advances increased by EUR 900 bn, of which EUR 600 bn were towards NFCs and households (EUR 390 bn, +7%, and EUR 210 bn, +3%, respectively compared to June 2021). Demand for loans was boosted as borrowers frontloaded their planned investments in expectation of future higher interest rates, and faced increased working capital needs due to inflation and supply chain disruptions. At the same time, similar to the behaviour at the outbreak of the pandemic, corporates may have accumulated precautionary liquidity amidst the outbreak of the Russian war and heightened uncertainty. Moreover, banks supported loan growth making use of their ample liquidity, which has also contributed to

improve their profitability given the historically low NIM.

The increase in outstanding loans and advances towards NFCs was mainly driven by loans towards large corporates (close to EUR 300 bn, +9% YoY). Banks also reported an increase of 4% in their outstanding loans towards Small and Medium Enterprises (SMEs). As of June 2022, more than EUR 2.5 tn of loans and advances were reported towards this segment, i.e., around 20% of the total loans towards NFCs and households.

Despite the effect of the pandemic on commercial real estate (CRE), EU/EEA banks increased their exposures to CRE by more than EUR 40 bn (+3% YoY) to EUR 1.36 tn. Asset quality of CRE exposures had not fully recovered from previous crises, and was additionally impacted by the pandemic. As a result, EU/EEA banks report a comparatively high NPL ratio for this segment (see Chapter 2.2). The impact of the pandemic was, however, not homogeneous across different types of CRE exposures. Some sub-segments such as data centres and warehouses even saw a positive effect, while sub-segments such as non-prime retail or offices were severely affected. There are also longer-term concerns stemming from structural changes related to increased use of tele-working and on-line shopping. These effects may be compounded by a worsening macroeconomic environment. The share of CRE loans to total loans towards NFCs and households varies considerably across jurisdictions (7% to 35%). Jurisdictions with smaller banking systems such as Bulgaria, Cyprus, Estonia, Latvia, or

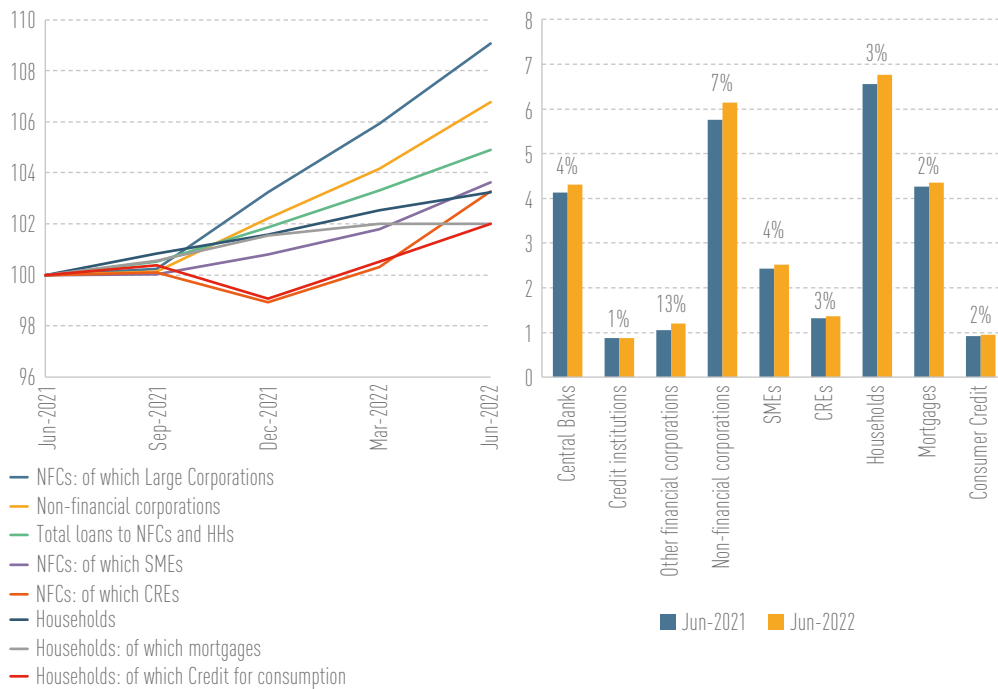
Lithuania, report a share of over 20% of CRE loans.

Until the year-end of 2021, loans towards households were driven by an increase in residential mortgages. Yet, since the beginning of the year, the growth in consumer credit has been the main driver of the increase in outstanding loans towards households. Loans collateralised by residential

mortgages increased by around EUR 65 bn (+1.5%) between June 2021 and December 2021. As expectations about increasing interest rates materialised, the growth in mortgage loans was rather muted in the first half of 2022 (EUR 20 bn, +0.5%). Mortgages still remain the largest portfolio of EU/EEA banks' (EUR 4.3 tn as of June 2022) while exposures towards consumer credit stood just around EUR 0.9 tn (Figure 13).

Figure 13: Growth in loans and advances by segment, June 2021 to June 2022 (June 2021 = 100) (left) and Volumes of loans and advances by segment (EUR trillion) (right)

Source: Supervisory reporting data



Box 3: RRE exposures of EU banks – risks and mitigants

In October 2022, the EBA published a note on RRE exposures that analyses vulnerabilities stemming from RRE exposures.

While there are clear differences across countries, mortgage loans often account for an important share of EU banks' assets and loan portfolios. As of June 2022, they accounted more than two thirds of loans towards households, and around one third of the total loans towards corporates and households. Although the increase in mortgage lending was rather muted in the first half of 2022, exposures towards loans for house purchase have been growing fast in recent years.

Given the size of EU banks' exposure in mortgage loans, developments in RRE markets are important for the European banking sector. House prices in the EU/EEA have been on the rise for some years. During 2021, double-digit growth rates in housing prices were recorded across many European countries (see Chapter 1), showing signs of overheating in some cases. These were a result of both demand side factors (e.g., low interest rates or institutional investors' search for yield behaviour) and supply side factors (e.g., lack of investment during previous years and increases in construction costs).

Following a period of fast rising housing prices, the worsening macroeconomic environment may adversely affect RRE mar-

kets going forward and there is risk for an abrupt drop. Borrowers' debt servicing capacity could be squeezed by the increase in energy costs, inflation, and by the rise in interest rates in variable rate loans. This could have an adverse effect on the asset quality of mortgage loans. In parallel, a potential decline in house prices would not only impair banks' collateral position in existing mortgage loans, but may also reduce consumer confidence that could create a spiral effect on slowing further the economic growth. This could further impair banks' balance sheets.

There are several mitigating factors for banks exposed to RRE. Enhancements to the regulatory framework have helped to ensure that banks apply prudent standards for the origination, risk management and monitoring of mortgage loans. In addition, many countries have introduced borrower- or capital-based macroprudential measures in the RRE market. Lower loan-

to-value ratios (LTV) were generally reported in recent years, albeit this is partly driven by the denominator effect (e.g. rising valuations). Borrowers have also made extensive use of loans at fixed interest rate, which will protect borrowers from a sudden surge in interest rates. The interest rate risk is transferred to the banks, which are in a better position to hedge interest rate risks.

Given the current level of downside risks stemming from RRE exposures, supervisors and banks should continue to closely monitor developments in the market and in mortgage portfolios. Early detection of debtors and exposures in distress, adequate provisioning policies, and timely recognition of loan losses remain important. Banks should continue to adhere to good underwriting standards. It is paramount banks to accurately classify risks and undertake timely impairment charges for loans that are impaired.

Increase in loans towards NFCs and households had a wide reach across countries. Member states reported solid growth rates which in some cases exceeded 10% for both loans towards corporates and households. The highest growth in loans was reported by countries in Central Eastern Europe (CEE). Nordic countries reported marginal growth rates in their outstanding loans towards corporates, while Swedish and Danish banks decreased their exposures towards households. Similarly, Cypriot and Greek banks continued their deleveraging and reported a decrease – albeit smaller compared to previous years – in their outstanding loans to both households and corporates.

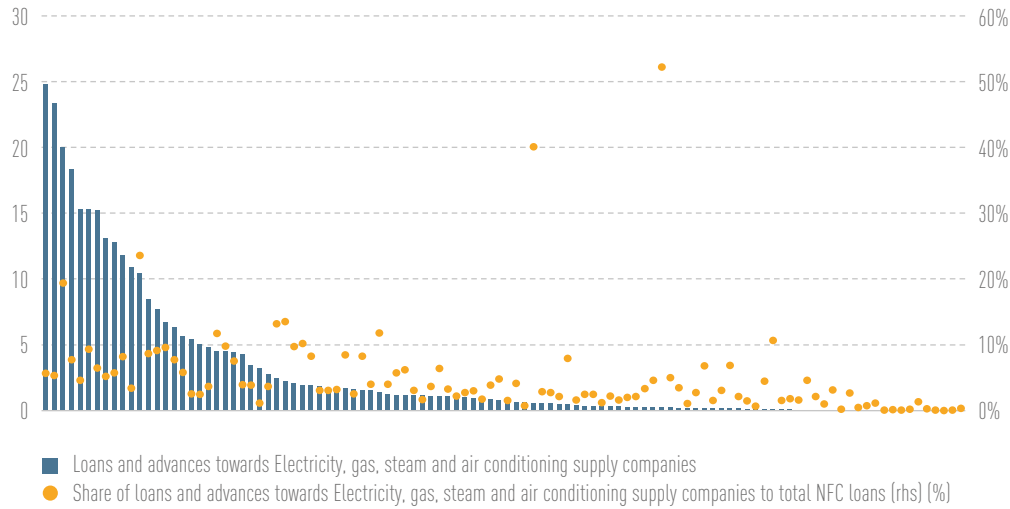
Banks increased their exposures towards energy related companies during the energy crisis

The Russian war triggered an energy crisis whose first signs had already been visible in late 2021. The increased volatility in gas and oil prices have created unprecedented liquid-

ity needs for energy related firms – for both producers and suppliers – for different reasons, including the challenge from higher purchase prices and at the same time fixed price client contracts and from the need to meet higher margin calls on their positions in the energy derivative markets (for both initial and variation margins). EU banks supported these firms by increasing loans and credit lines to this sector by almost EUR 50 bn (+18%) between June 2021 and June 2022. As of June 2022, EU banks had close to EUR 320 bn outstanding loans and advances towards energy companies (electricity, gas, steam, and air condition supply), representing just above 5% of total NFC loans. Loans towards energy companies are rather concentrated in a small number of banks. 10 banks hold more than 50% of the total loans, and the top 20 banks with the largest exposures towards the energy sector report more than 75% of the total loans towards the energy sector. These banks report at least EUR 5 bn of loans and advances towards the energy sector (Figure 14).

Figure 14: Loans and advances towards energy sector (EUR bn) and share of loans to energy sector to total NFC loans by bank (% , rhs) – June 2022

Source: Supervisory reporting data



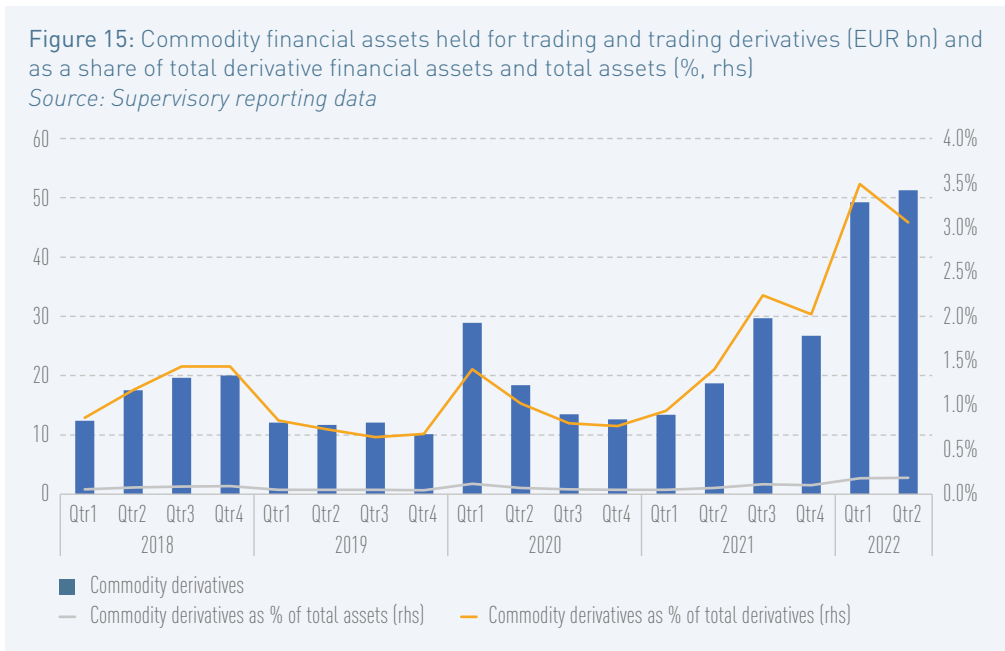
Box 4: Banks are also exposed to energy firms through derivative exposures

Large banks play a key role in the energy markets, both with derivative business and more broadly through the provision of credit and funding. Banks have been actively engaging with energy companies to provide them with a wide range of services to manage volatility in derivative energy markets. As a result, banks have significantly increased their overall exposure to the sector, not only in terms of loans but as well as derivatives.

As of June 2022, the carrying amount of financial assets held for trading, corresponding to derivative instruments held by EU/EEA banks for trading or hedging purposes was more than EUR 1.8 tn, or

close to 7% of their total assets. During the second quarter of the year, it had increased by more than EUR 300 bn (+20%). Nevertheless, the current derivative exposure is still below the average of the period between Dec-14 and Jun-22 (EUR 1.9 tn). Of these exposures only 3.5% is referenced to commodities (around EUR 50 bn). Energy derivatives form the main business within commodity derivatives. They are estimated to be more than 40% of the reported commodity derivatives.^[27] Based on supervisory reporting data, commodity derivative exposures are rather concentrated in a few banks. The biggest bank reported more than 40% of the total commodity derivative exposure, while the top 10 banks close to 90%. Yet just one bank had more than 5% of its total assets in commodity derivatives (Figure 15).

^[27] Estimation based on COREP data for banks using the standardised approach (SA) for market risk. Same information is not available for banks using Internal models.



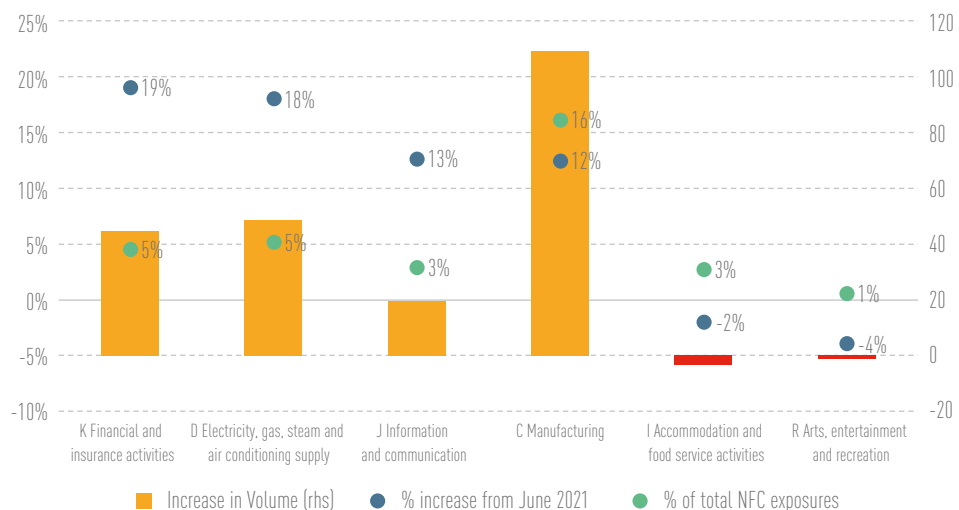
Outstanding loans and advances to sectors which in broad terms are considered energy intensive are significant for the EU/EEA banking sector (ca. EUR 2 tn, 35% of banks' total exposures towards NFCs). They include loans and advances towards sectors such as manufacturing (EUR 1tn), transport and storage (0.4 tn) or construction (EUR 0.3 tn). These sectors are followed by smaller exposures towards agricultural (EUR 0.2 tn) and mining and quarrying (EUR 0.1 tn).

Information and communication, manufacturing and financial sectors also benefited from strong banks' support

In the aftermath of the pandemic, the need for further technological advancement and the

increase in consumer spending created additional demand for loans to information and communication and to manufacturing. EU banks materially increased their exposures towards these sectors by +13% (EUR 20 bn), and +12% (EUR 110 bn) respectively. At the same time, banks also increased substantially their exposures towards financial and insurance companies by 19% (EUR 45 bn). On the contrary, outstanding loans towards sectors that were mostly affected by the pandemic, such as accommodation and food services activities or arts and entertainment reported a marginal decrease compared to last year as COVID-19 support programmes such as moratoria on loan repayments were phased out.

Figure 16: YoY change in volumes for selected sectors (EUR bn, rhs; and %, lhs), and as % of total NFC loans (lhs) – June 2022
 Source: Supervisory reporting data

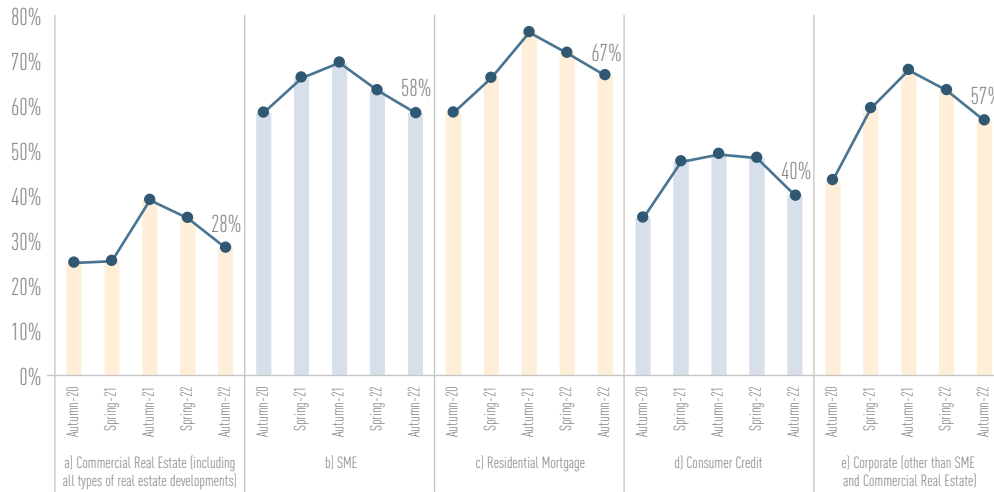


Banks plan to further increase exposures in corporate and mortgage loans

The demand for loans was on the rise driven by financing needs for working capital and inventories also due to inflationary pressures, according to ECB BLS. At the same time, banks tightened considerably their approval criteria for loans to firms and households as uncertainty is high and monetary policy is becoming less accommodative.^[28] Despite the uncertain macroeconomic environment,

according to the RAQ, most banks planned to increase their exposures towards NFCs – except CRE loans – and towards mortgages. This might indicate that favourable interest margins weigh more than banks’ concerns on macroeconomic uncertainty (see on this also Chapter 5). Nonetheless, the share of banks planning an increase in volumes was smaller than in previous surveys, reflecting to some extent concerns for materialisation of downside risks, and for instance similarly confirmed in the ECB’s BLS (Figure 17).

Figure 17: Portfolios which banks expect to increase in volumes in the next 12 months
Source: RAQ for banks



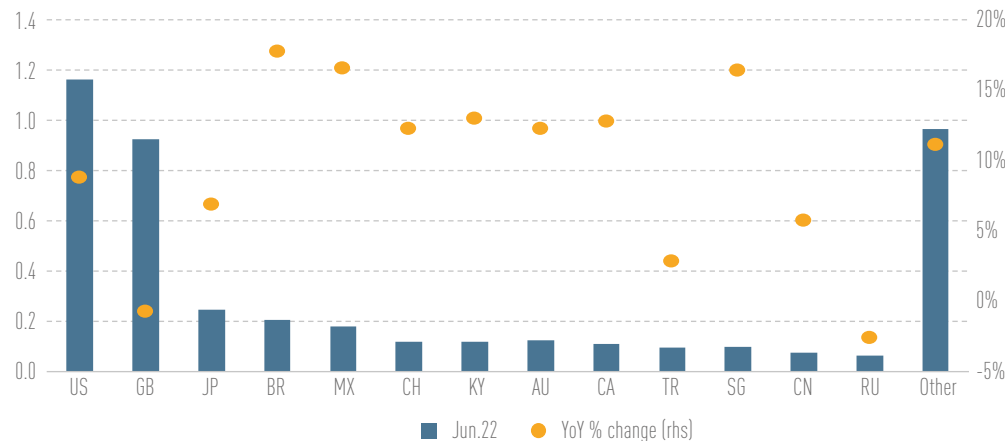
Rising geopolitical tensions could expose risks for exposures to non-EEA counterparties

The total exposure of EU/EEA banks towards non-EU/EEA domiciled counterparties stood at close to EUR 4.5 tn marking an increase of

close to EUR 330 bn (+8%) compared to June 2021. Yet this was still lower than the exposure reported two years ago (EUR 5 tn). The largest non-EEA counterparty of EU banks was the US with EUR 1.16 tn, followed by the UK (EUR 0.92 tn). Exposures to any other country did not exceed EUR 0.25 tn (Figure 18).

Figure 18: Exposures to non-EEA counterparties by country of domicile (EUR tn) and YoY % change (rhs)

Source: Supervisory reporting data



[28] See the ECB BLS – October 2022.

Banks' exposures to EME^[29] grew by 12% (+ EUR 90 bn) from June 2021 to June 2022 and were close to EUR 0.84 tn. The most important non-EEA counterparties were Brazil, Mexico, Turkey, China and Russia. In October, the IMF warned^[30] that in the current global setting, EMEs were more prone to downside risks (see also Chapter 1). Given the rising geopolitical tensions part of these exposures towards emerging markets may come under pressure and banks may be inclined to disengage from some regions, also due to the increasing onshoring of operations. In addition, rising inflationary pressures – and hyperinflation in certain cases – in these markets may cause a source of concern for banks as economic prospects are dented and income from these regions could be at risk.

Direct bank exposures to Russian counterparties are limited and will likely continue to decline. Since Russia's invasion of Ukraine, several banks have successfully exited or wound down their operations in Russia, while others are in the process of doing so. Overall, EU/EEA banks' exposures towards Russian counterparties decreased by 8% since the end of 2021. The substantial appreciation of the Russian Ruble against the Euro compared to the pre-war exchange rate has however increased the current Euro value of remaining exposures. This has reduced the overall decline in exposures due to bank exits from Russia. As of June 2022, the total exposures of EU banks towards Russian counterparties stood at EUR 65 bn – in many cases through subsidiaries. Many EU/EEA banks also have direct exposures at the head office level, typically from loans to NFCs. Banks' direct asset exposures to Russia and Ukraine are concentrated in a few countries and a limited number of banks. Austrian, French and Italian banks reported the highest volume of exposures towards Russian counterparts. Only Austrian and Hungarian banks reported more than 3% of their total exposures towards Russia and Ukraine.

Sovereign exposures are material for EU banks and could become a source of potential vulnerability

As of June 2022, EU banks reported around EUR 3.3 tn of total exposures towards sovereign counterparties^[31]. This is up by almost 5.4% from December 2021 (EUR 3.1 tn) and marginally higher than a year earlier. Given that half of these exposures are towards domestic sovereign debt and that sovereign debt levels continue to increase because of fiscal support programs provided during the pandemic and of the measures to tackle the challenges posed by the Russian war of aggression against Ukraine, namely in energy prices, the domestic sovereign-bank nexus remains a concern for the EU/EEA banking sector (see box on sovereign-nexus).

The largest share of sovereign exposures was measured at amortised cost (60%), followed by fair value through OCI (20%) and held for trading (20%). The share of amortised cost has been on constant rise as in June 2018 this was just 48%. At least 45% of the sovereign exposures had a maturity of at least 5 years, as of end June 2022, and 31% a maturity between 1-5 years. The high share of amortised cost, and long duration of this portfolio will delay any benefit due to rising rates and possible re-investments at higher rates. Nonetheless, longer durations of sovereign debt are likely to weigh on economic value measures of interest rate risk of the banking book (IRRBB). The lower share of fair valued sovereign exposures protects to some extent banks from abrupt price movements in sovereign yields (see Chapter 1 on sovereign yield moves).

As of June 2022, the sovereign exposure reported by EU/EEA banks were 217% of their equity. However, there was a wide divergence of this measure at both country level and bank-by-bank level (95th percentile = 712%). Banks in CEE and Southern Europe generally reported higher ratio of sovereign exposures to capital, while banks in Nordic countries reported on average a lower ratio (Figure 19).

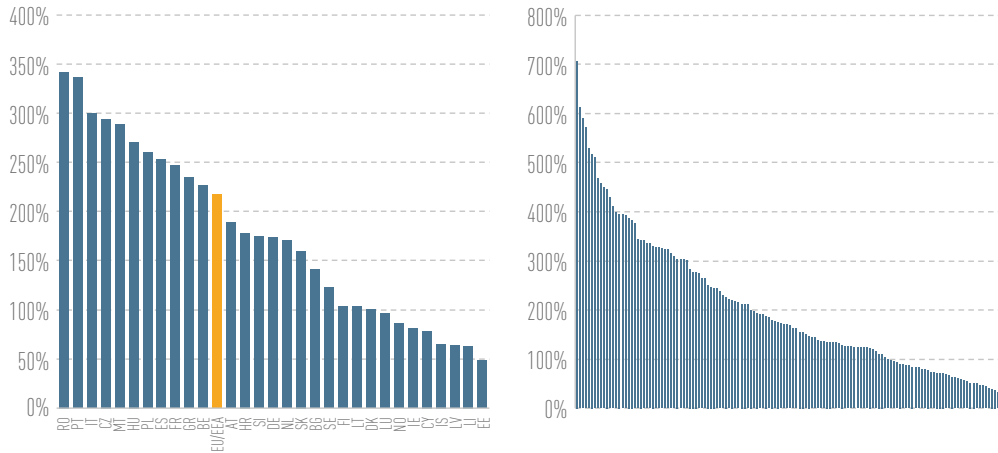
[29] In this analysis EMEs include the following countries: Argentina, Bangladesh, Brazil, Chile, China, Colombia, India, Indonesia, Malaysia, Mexico, Pakistan, Peru, Philippines, Russia, South Africa, Thailand, Turkey, Ukraine and Venezuela.

[30] See the IMF's *Financial Stability Report*, October 2022.

[31] Sovereign exposures cover all exposures to 'General governments' as defined in Annex V of ITS (e.g. central governments (CG), state or regional governments, and local governments, social security funds, and international organisations (IO)).

Figure 19: Sovereign exposures as % of capital by country and by bank (5th to 95th percentile range) – June 2022

Source: Supervisory reporting data



EU/EEA banks have also provided more than EUR 370 bn public guaranteed loans and advances. Since the risk is shared with the sovereign, these schemes have further strengthened the sovereign-bank nexus in the EU. This can also be reinforced by the common impact of banks and governments by economic activity. It is therefore impor-

tant to be cognisant of the strengthening of the sovereign-bank nexus, as post-pandemic vulnerabilities coupled with worsening macroeconomic environment may exacerbate sovereign exposures risk as sovereigns reach their limits.

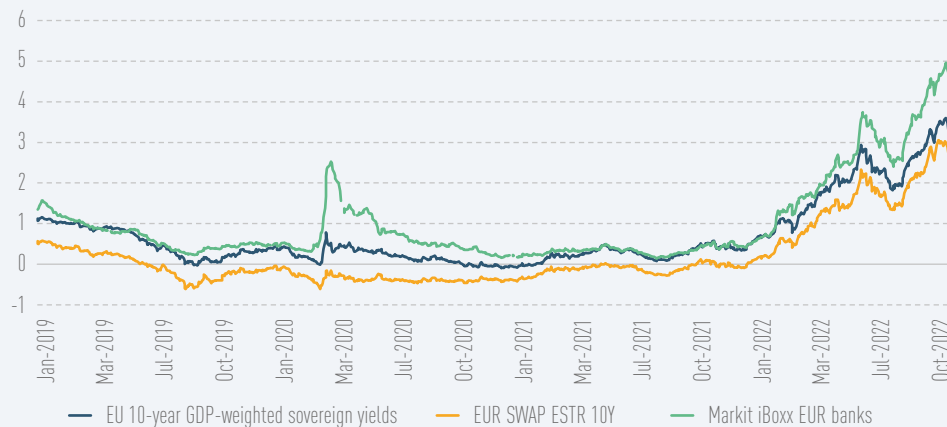
Box 5: Sovereign Bank Nexus

Bank funding costs depend on bank or banking-sector specific drivers as well as sovereign yields. The link between sovereign and bank yields implies that fiscal

policy developments and the perceived riskiness of sovereign bonds affect banks' funding costs. This is reflected in the strength of the link between sovereign and bank credit risk premia (Figure 20).

Figure 20: Long-term OIS rates, 10-year EU GDP-weighted sovereign yield and Markit iBoxx EUR banks (percentages)

Source: Bloomberg, Eurostat, IHS Markit ^[32], EBA calculations



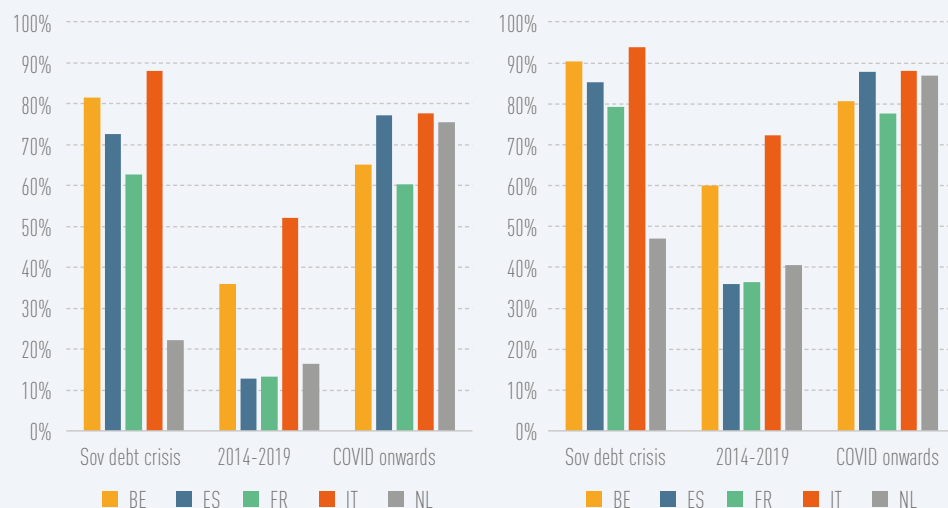
^[32] Related to IHS Markit in this chart and any further references to it in this report and related products, neither Markit Group Limited ("Markit"), its Affiliates or any third-party data provider makes any warranty, express or implied, as to the accuracy, completeness or timeliness of the data contained herewith nor as to the results to be obtained by recipients of the data. Neither Markit, its Affiliates nor any data provider shall in any way be liable to any recipient of the data for any inaccuracies, errors or omissions in the Markit data, regardless of cause, or for any damages (whether direct or indirect) resulting therefrom.

The following analysis takes a closer look at this nexus. Bank credit risk premia is measured by ASW spreads, while sovereign credit risk is measured as the difference between the 10-year sovereign yield of each country

and the 10-year German bond yield. The analysis shows that during times of crisis, correlations between sovereign and bank credit risk premia are significantly higher than during less eventful times (Figure 21).

Figure 21: Determination coefficient (r-squared (R²), left) and correlation coefficient (right) (percentages)

Source: Bloomberg, IHS Markit, EBA calculations (Sov debt crisis = sovereign debt crisis)

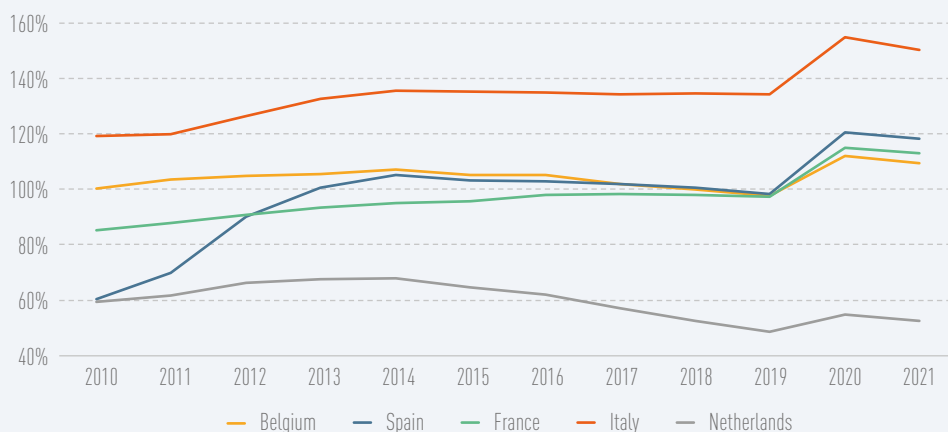


The higher correlation between sovereign and bank credit risk premia in crisis times appears in part to reflect differences in sovereign debt levels measured as the sov-

ereign debt to GDP ratio, with higher debt levels leading to higher risk premia correlations (Figure 22).

Figure 22: Sovereign debt to GDP ratios of selected countries

Source: Eurostat, EBA calculations



The Netherlands has the lowest debt to GDP ratio of the selected countries and shows the lowest correlation during the sovereign debt crisis. Italy, in contrast, with a higher debt to GDP ratio, clearly has a higher correlation during the sovereign debt crisis. Similarly, Spain, which experienced the biggest relative increase of their debt to GDP ratio during the sovereign debt crisis, shows an elevated correlation between

sovereign and bank credit risk premia. The Netherlands seems to be an exception during COVID-19 and onwards. Despite having a comparably low sovereign debt to GDP ratio, the correlation between bank and sovereign risk premia was as high as for the more indebted countries. This might still be – at least partially – explained by the temporary rise of the Dutch sovereign debt level during the COVID-19 crisis.

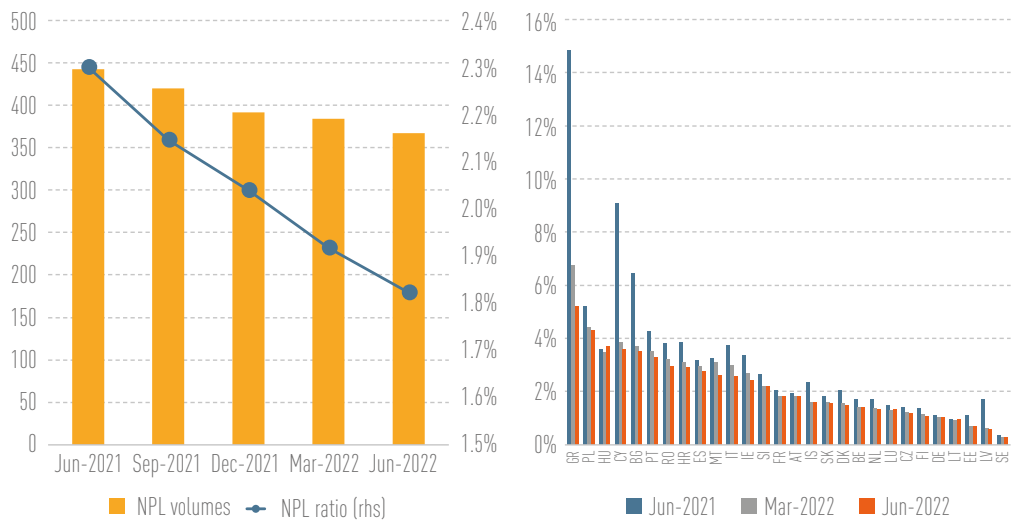
2.2. Asset quality trends

Expectations on rising credit risk due to the pandemic have not materialised and banks have written-back parts of their unused COVID-19 related provisions (see Box 10 on the application of COVID-19 and other types of overlays in provisioning). Support measures provided by governments helped presumably to cushion the economic impact, which was mainly concentrated in a few sectors. The worsening macroeconomic outlook does not yet seem to be fully reflected in banks' asset quality. Yet post-pandemic vulnerabilities are looming, and downside risks are rising. Higher interest rates driven by increased inflation combined with the prospect of slower economic growth, also as a result of the energy crisis, will likely put financial pressure on over-indebted borrowers.

NPLs continued their decreasing trend albeit at a slower pace

As of June 2022, EU/EEA banks reported NPLs of EUR 370 bn, or 1.8% of total loans (2.3% in June 2021). Banks reduced their NPLs by close to EUR 75 bn YoY. Forborne loans (FBL) amounted to EUR 350 bn or 1.7% of total loans, EUR 50 bn less than in June 2021. Although, a few banks reported an increase in NPLs, which was not least driven by exposures towards Russian counterparties, reductions in the volume of NPLs were mainly led by Italian and Greek banks... Banks domiciled in these countries accounted for around 60% of the total NPL reduction not least due to government backed securitisation schemes. As of June 2022, only Greek banks reported an average NPL ratio above 5%, having reduced it from 14.8% in June 2021. Hungarian banks were the only ones reporting a marginal increase in their NPL ratio, 9 bps (3.7% in June 2022), a result of 10% increase in the volume of NPLs partly reflecting the impact of the Russian war (Figure 23).

Figure 23: Trends in EU weighted NPL ratio (%) and volumes (EUR bn) (left) and trends in NPL ratio by country (right)
 Source: Supervisory reporting data



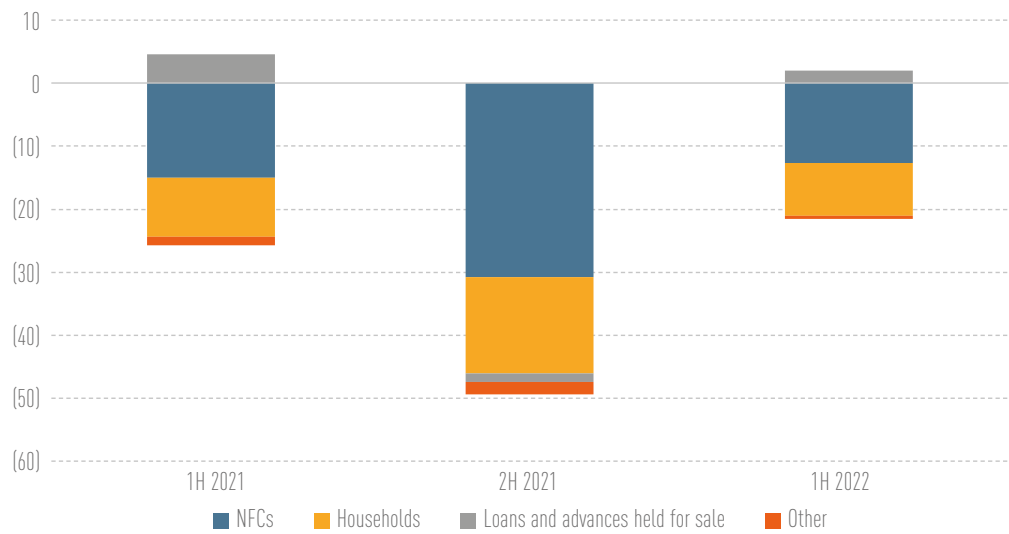
As a result of the broad trend in decreasing NPLs, the dispersion across banks tightened significantly. In June 2022, the 95th percentile was just above 5%, while a year earlier it had reached more than 9%. In addition, for the first time the NPL ratio is below 8% for all banks in the sample.

Banks have managed NPL flows well, yet there are some signs of stress

During the period between June 2021 and June 2022, EU banks reported NPL inflows of close to EUR 180 bn while NPL outflows al-

most reached EUR 250 bn. During the first half of the year, NPL inflows increased by close to 30% compared to the second half of last year, while NPL outflows were only 5% higher. EU banks reported NPL inflows of more than EUR 100 bn and outflows of more than EUR 120 bn in H1 2022. As a result, banks reported a net NPL outflow just below EUR 20 bn in H1 2022, which was considerably lower than EUR 50 bn reported in H2 2021. A sign of the direct impact of Russia's invasion of Ukraine is visible in the country-level data of NPL flows. CEE countries and France reported a net inflow of NPLs in the first half of the year (Figure 24).

Figure 24: NPL cumulative net flows by segment between December 2020 and June 2022 (EUR bn)
 Source: Supervisory reporting data



The share of Stage 2 loans has reached its highest level

Although NPL volumes are decreasing, the worsening macroeconomic environment due to the abrupt rise in inflation, increasing interest rates and the energy crisis coupled with heightened geopolitical uncertainty have amplified downside risks for economic growth (see Chapter 1). This is also affecting vulnerable households that need to allocate an increasing share of their budgets to food, energy, and debt repayments. Against this backdrop, debt servicing capacity, especially for highly indebted NFCs and households, might be severely impaired.

Signs of stress are already visible through the re-classification of loans towards stage 2. As of June 2022, banks had classified 9.5% of loans in stage 2, which is the highest level since the introduction of International Finan-

cial Reporting Standard (IFRS) 9. This came amid a strong loan growth, which increased the volume of Stage 1 loans (+5.4% YoY). The volume of stage 2 loans increased by 14%, and it stood at EUR 1.45 tn. This is mainly attributed to French and German banks, as they account for more than 80% of the increase in stage 2 loans. EU/EEA banks have substantially increased the share of stage 2 loans mainly due to migration of loans from stage 1 to stage 2. Banks migrated more than EUR 460 bn from stage 1 to stage 2, while they transferred less than EUR 290 bn from stage 2 to stage 1, in the first two quarters of 2022. The magnitude of the loan migration from Stage 1 to Stage 2 is only comparable to June 2020, at the outset of the pandemic. Movements between stage 2 and 3 or stage 1 and 3 were less significant and had less impact on the overall allocation of loans into stages (Figure 25 and Figure 26).^[33]

^[33] It needs to be added that there are also divergent accounting practices among banks in respect of impairments, which might also affect this analysis. See for instance the EBA’s monitoring report on IFRS 9 implementation by EU institutions from November 2021.

Figure 25: Evolution in stage allocation of EU banks of loans and advances at amortised cost over time

Source: Supervisory reporting data

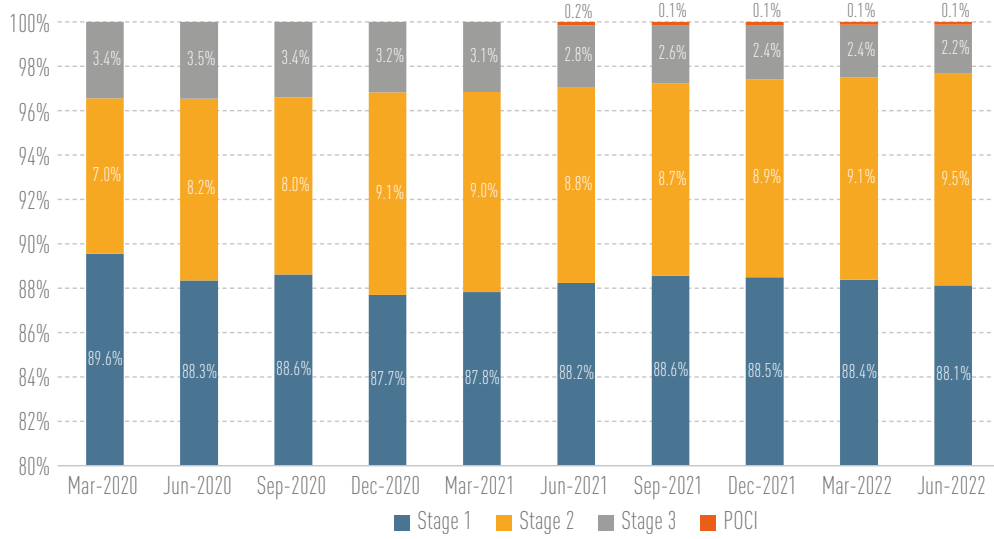
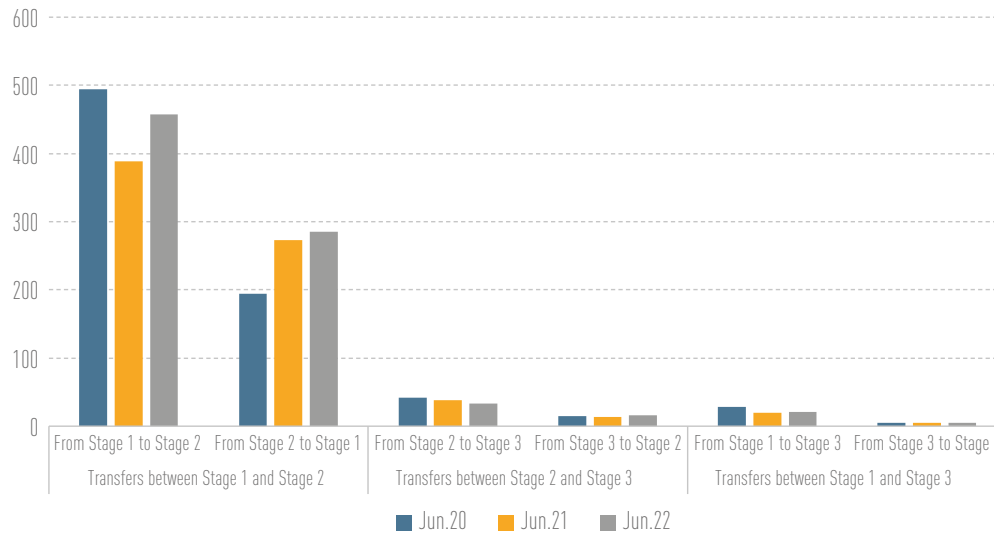


Figure 26: Transfers between impairment stages (EUR bn)

Source: Supervisory reporting data

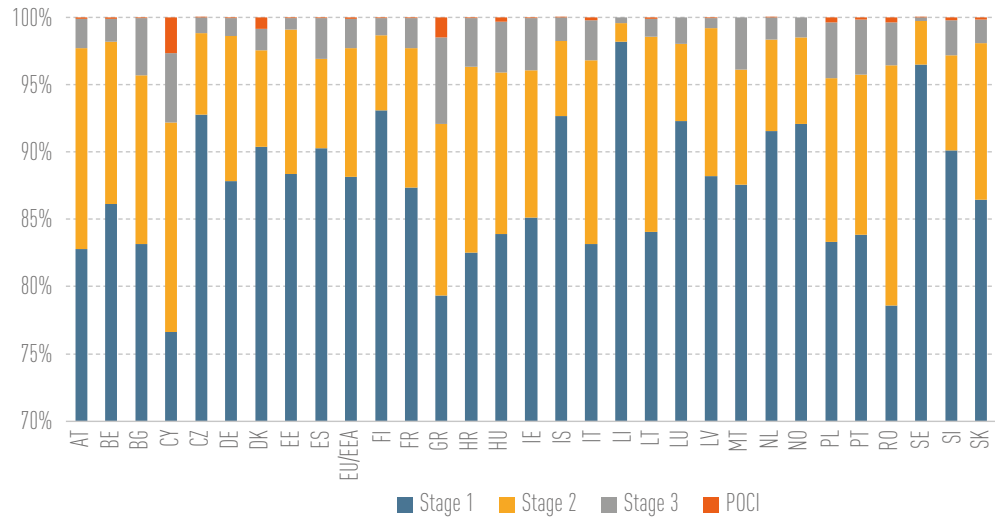


French and German banks reported an increase in their stage 2 allocation of 1.9 p.p. and 2.4 p.p. respectively compared to June 2021. Some smaller banking sectors reported a higher re-allocation of loans towards stage 2, such as Croatia (+3 p.p.) or Bulgaria

(+2.9 p.p.). As of June 2022, Romanian and Cypriot banks had the highest share of stage 2 loans (17.8% and 15.6% respectively), while Greek banks reported the highest share of stage 3 (6.4%) (Figure 27).

Figure 27: Allocation by country of loans and advances excluding cash balances by stages - June 2022

Source: Supervisory reporting data



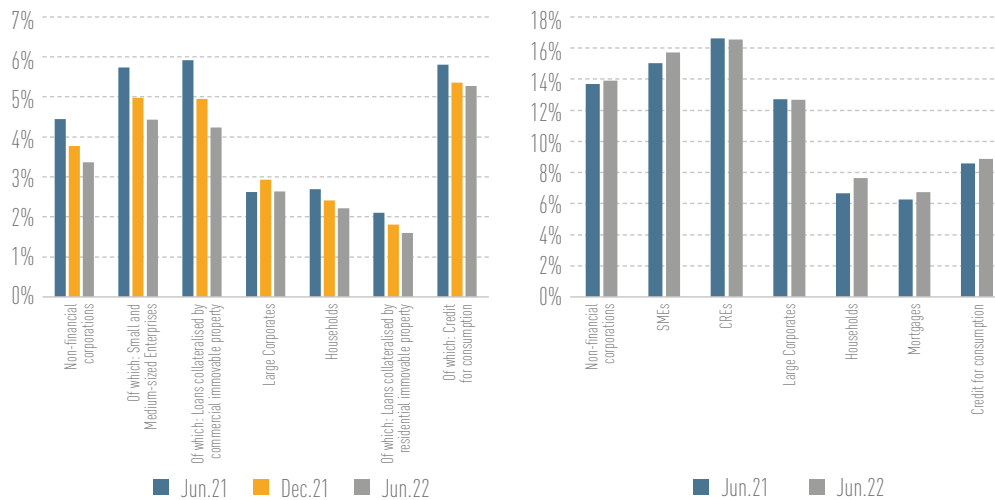
Signs of deterioration of asset quality are already visible across all segments

The decrease in NPLs compared to June 2021 was broad based across all segments, with the largest decrease in NFC loans. The NPL ratio for NFC loans was 3.4% in June 2022. The NPL ratios for small and medium-sized enterprises (SME) and CRE loans were above 4% and for large corporates just below 3%. The NPL ratio for SMEs and CREs decreased by more than 100 bps since June 2021. Still, loans towards CREs had the highest share of stage 2 loans (16.6%, stable over the last year), followed by loans towards SMEs (15.7% in June 2022 versus 15.0% in June 2021).

The NPL ratio for household loans was also lower (-50 bps to 2.2% in June 2022), albeit with a smaller reduction than NFC loans. The NPL ratio for households was significantly lower compared to the NFC segment (2.2% in June 2022 vs. 3.4% for NFCs), mainly due to the weight of NPL ratio for mortgages which is the lowest of all segments (1.6%). Banks have increased their allocation of household loans to stage 2 considerably. As of June 2022, banks allocated 7.6% of total household loans in Stage 2 (6.7% in June 2021) (Figure 28).

Figure 28: Trend in NPL ratios (left) and share of Stage 2 (right) by segment

Source: Supervisory reporting data



At the current juncture, households may postpone unsecured loan payments such as consumer credit (e.g., credit cards) either to meet rising living costs or to prioritise other secured obligations such as mortgage payments. Consumer credit is therefore one of the first portfolios that might show signs of stress. As of June 2022, they had the highest NPL ratio (5.3%) across all segments. This was also the only segment for which banks reported an increase in NPL volumes during Q2 2022 – albeit marginal – and a net NPL inflow during the first half of the year. Consumer credit accounted for around 15% of household loans and around 5% of total loans, yet net NPL inflows of this segment accounted for around 40% of the household NPL inflow and more than 15% of the total NPL inflow.

Real estate exposures are a cause of concern, not only due to their relevance for the EU/EEA banking sector, but also due to idiosyncratic risks associated with these sectors (see separate textbox on RRE exposure related risks in this chapter).⁽³⁴⁾ For CRE exposures, worsening macroeconomic environment, inflationary pressures, increasing interest rates as well as heightened uncer-

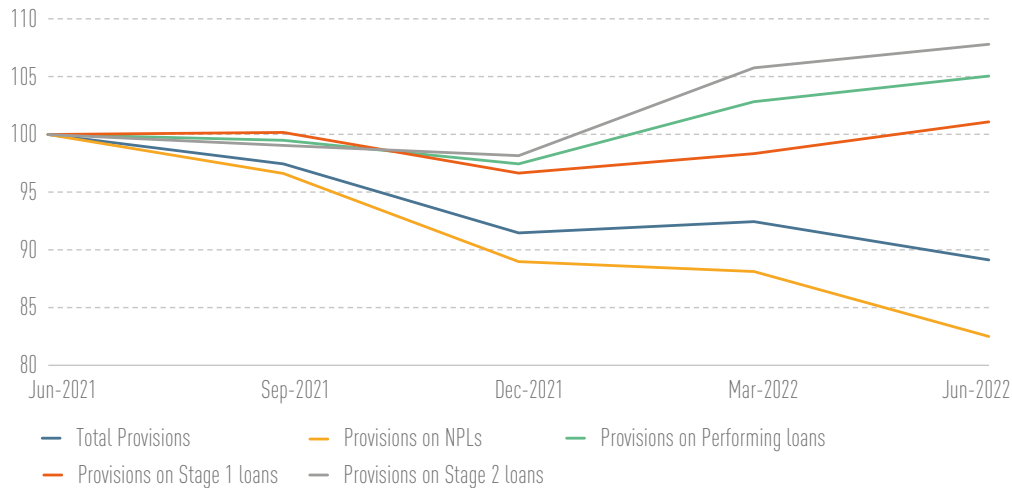
tainty come in addition to pandemic effects. A good part of CRE exposures such as offices and shopping malls that were highly impacted by social distancing measures implemented during the pandemic have not recovered fully. Notwithstanding the slower economic growth, structural changes in daily life such as increased use of teleworking mean that recovery for this segment could be slower.

Banks have increased their accumulated impairments reflecting the elevated macroeconomic uncertainty.

Banks recognised accumulated impairments close to EUR 250 bn, of which EUR 160 bn for NPLs. Although total provisions were down by 11% compared to June 2021, provisions for performing loans (stage 1 and stage 2) were up by 5% driven by the increase in stage 2 provisions (+8%). As of June 2022, the coverage ratio for NPL loans was 44% and 0.43% for performing loans. Despite the substantial increase in provisions for stage 2, coverage of stage 2 loans was lower compared to previous year (3.8% in June 2022 vs 4% in June 2021) (Figure 29).

Figure 29: EU accumulated impairments and provisions evolution (June 2021 = 100)

Source: Supervisory reporting data

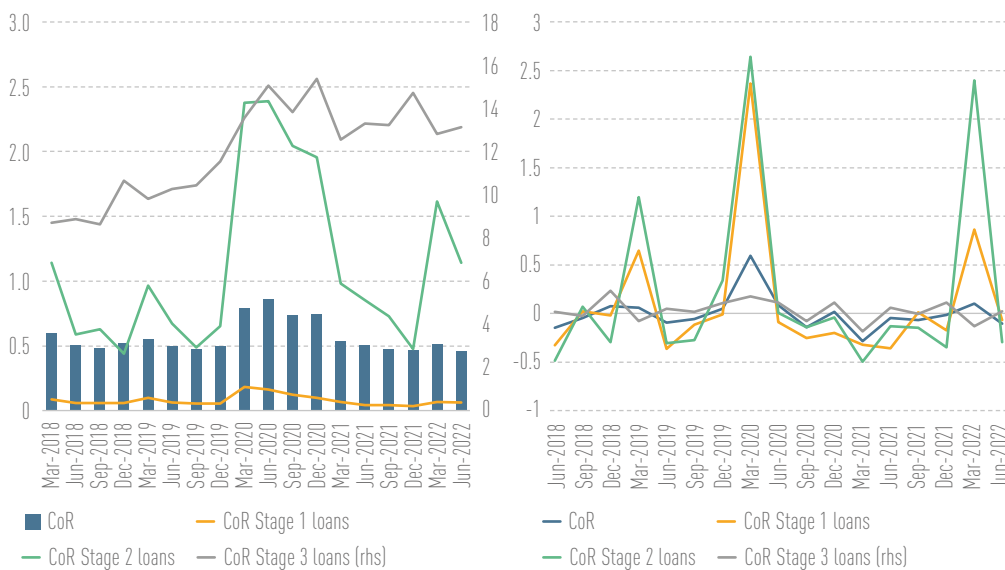


The CoR stood at 0.46%, the lowest point since respective data is available, and significantly below the peak of the pandemic (0.86% in June 2020). The CoR for stage 3 loans was 13.12%, while for stage 2 it stood at 1.14%. Compared to year-end data, the CoR of Stage 1 and Stage 2 loans have gone up, partly reflecting macroeconomic uncertainties mostly triggered by Russia's invasion of Ukraine.

Yet the CoR was marginally down because of a decrease in CoR of stage 3 loans (Figure 30). Furthermore, while in the autumn 2022 RAQ, 50% of the banks expected CoR between 0-25 bps, the rising uncertainties and the worsening of the macroeconomic environment might drive up CoR as banks take into account updated economic projections in their estimations of credit losses (see Chapter 5).

⁽³⁴⁾ See also the EBA's *Thematic note on Residential Real Estate Exposures: Risks and mitigants*.

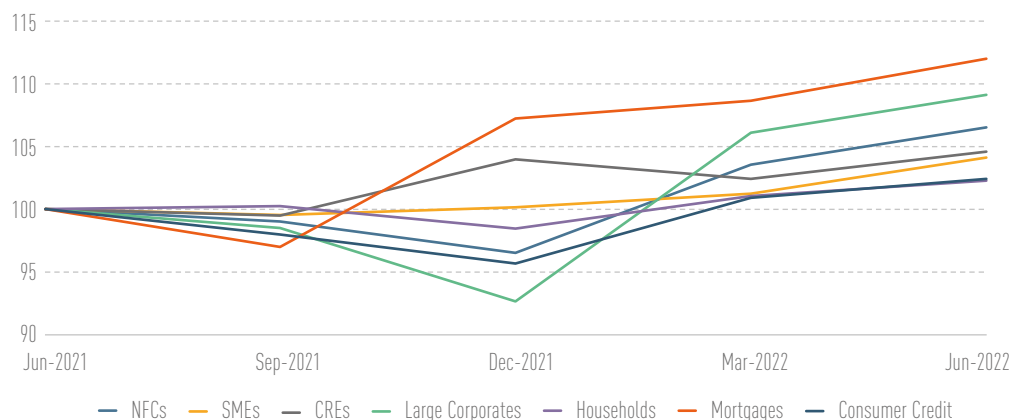
Figure 30: Trend in CoR by stage (left) (%) and % change quarter on quarter (QoQ) (right)
 Source: EBA supervisory reporting data



Although coverage ratios for NPLs did not materially change at segment level, there has been an increasing trend for provisions against performing loans towards CREs since the outbreak of the pandemic, which however was muted during the last year. Similarly, provisions of performing mortgage

loans have increased in the last six months. Since June 2021, banks increased their provisions for mortgage loans by 12%, the highest among all segments. This may reflect a change in the risk assessment of real estate loans (Figure 31).

Figure 31: Evolution of accumulated provisions for performing loans by segment (June 2021 = 100)
 Source: supervisory reporting data



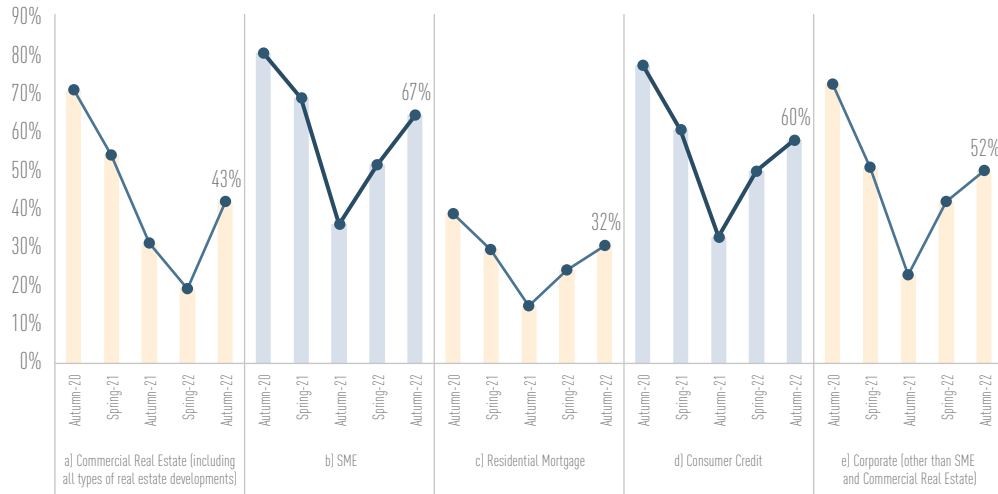
Banks' expectations for asset quality deterioration have changed

According to the results of the Autumn 2022 RAQ, more than half of the banks expect a deterioration in the asset quality in the following 12 months for SMEs and non-SMEs corporates and retail consumer credit. This

represents a U-turn in banks' responses compared to last year's survey. Banks were more pessimistic about SME exposures (around 2/3 of banks expected a deterioration in asset quality), while only a handful of banks expected an improvement in the asset quality in any of their portfolios (less than 5%; Figure 32).

Figure 32: Banks' expectations on possible deterioration in asset quality in the next 12 months by segment

Source: RAQ for banks



Banks should remain vigilant and acknowledge the looming economic and other risks in their assessments. This is similarly reflected in the EBA's supervisory examination programme for next year, which points to the elevated credit risk going forward.^[35] Banks need to assess borrowers' repayment capacity adequately. Early detection of debtors and exposures in distress, adequate provisioning policies and timely recognition of loan losses remain important. Forbearance measures

should be offered in line with EBA Guidelines on management of non-performing and forborne exposures (FBE).^[36] This means that the application of forbearance measures should carefully examine borrower's viability and avoid one-size-fits-all approaches. Following the wide application of loan moratoria during COVID-19, banks or member states may be inclined to introduce blanket moratoria. Banks should examine case-by-case the forbearance measures that are more suitable.

^[35] See the EBA's 2023 European supervisory examination programme for prudential supervisors from October 2022.

^[36] See the EBA's Guidelines on management of non-performing and forborne exposures from October 2018.

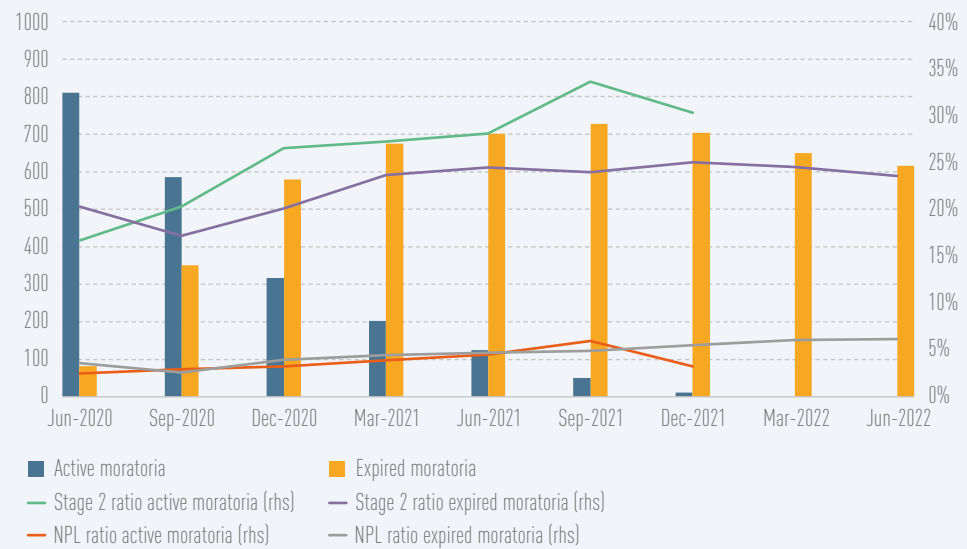
Box 6: COVID-19-related moratoria and public guarantee schemes (PGS) exposures – exit trends

During the pandemic, regulatory flexibility provided for the treatment of exposures with COVID-19-related measures, such as loan moratoria and PGS was used extensively by banks. For instance, EBA eligible moratoria reached more than EUR 800 bn

at their peak, shortly after their roll-out. However, this was also followed by a quick run-off, confirming the scope and use of the measure was of temporary nature to address borrowers’ short-term liquidity problems. By the end of 2021, active moratoria had nearly completely run-off. With loan repayments resuming, banks’ exposures towards loans with expired moratoria also started declining (Figure 33).

Figure 33: Trends in loans under moratoria (EUR bn) ⁽³⁷⁾

Source: Supervisory reporting data



Loans under moratoria were presumably primarily used by borrowers most hit by the pandemic. Banks quickly recognised the deterioration in their asset quality. They classified 16.7% in stage 2 already in Q2 2020. For comparison: the Stage 2 ratio for total loans and advances at amortised costs was 8.2% at that time, up from 7% in the previous quarter. As of June 2022, the Stage 2 allocation was substantially higher for loans that benefited of covid-19 related moratoria compared to total loans (23.6% vs 9.5% in Q2 2022). NPL ratios for loans with expired moratoria have also regularly reached higher levels than the overall average (6.2% as of Q2 2022). Country dispersion of moratoria usage has always been wide, as some economies rely more on Covid-19 hit industries. However, dis-

persion of the deterioration of asset quality has been limited across countries.

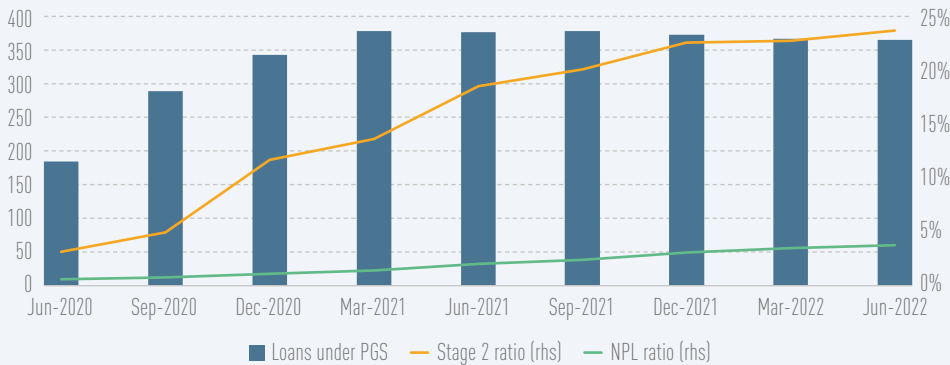
Although asset quality seems to have stabilised for loans with expired moratoria, political and economic uncertainty (see Chapter 1) may further impair the repayment capacity of borrowers with loans under expired moratoria, as pandemic related vulnerabilities are aggravated by inflation, rising rates and slower economic growth. This could induce an increase in default rates. In view of the heightened share of loans under Stage 2, there is no room for complacency as some of these loans may still further deteriorate and become non-performing.

⁽³⁷⁾ Data collected on moratoria may not be directly comparable across time given potential changes in sample size, as CAs may exercise the flexibility provided in the EBA Guidelines on reporting and disclosures to reduce or stop some specific reporting and disclosure requirements.

Loans subject to PGS have also been widely provided since the outbreak of COVID-19. Starting from EUR 184.4 bn in Q2 2020, they reached their peak of EUR 378.3 bn in Q3 2021 and have since then been on a slight decline (Figure 34). As of June 2022, EU banks reported EUR 365.1

bn loans subject to PGS, which is around 6% of their total NFC loans. They will presumably be on banks' balance sheets for several more years given their rather long maturities. Around 64% of these exposures had a maturity of 2 to 5 years, and 19% an even longer maturity, as of Q2 2022.

Figure 34: Trends in loans under PGS (EUR bn)
Source: Supervisory reporting data



For loans subject to PGS banks also reported subdued asset quality, like exposures under moratoria. Also, in this case this might not least be because they were presumably again most used by sectors that suffered most from the pandemic, such as hospitality. Their Stage 2 ratio rose from 3.1% in Q2 2020 to 23.7% in Q2 2022. Their NPL ratio showed a rising trend, albeit at a rather slow pace, increasing from 0.6% in Q2 2020 to 3.7% in Q2 2022. Even though indications are that PGS loans are

of lower asset quality the P&L impact of a further deterioration might be limited, because 76.6% of them are guaranteed by their respective sovereigns. Finally, PGS loans were mainly provided by banks in a few selected countries such as France, Italy and Spain. Banks in these three countries provided more than 95% of the total loans subject to PGS. The share of NPLs to total PGS loans reported by French and Spanish banks was higher than 4.5%, while for Italian banks it reached 1%.

3. Liability side: funding and liquidity

3.1. Funding

On the liability side of the balance sheet, trends observed in the last edition of the RAR broadly continued. Banks maintained their focus on customer deposits, which further increased in 2022. Central bank funding continued to be an important source of funding. Concerning market-based funding, issuance volumes were high with a growing focus on secured funding, although amid increasingly unfavourable market conditions during the course of 2022 and rising funding costs. The share of secured debt in the funding mix of banks was broadly stable between June 2021 and June 2022, as the decreasing trend of the previous 12 months came to end.

High utilisation of central bank funding

The importance and volume of central bank funding for banks increased significantly during the pandemic. In the euro area, improved conditions of the ECB's TLTRO-3 programme made it more attractive and had a positive impact on limiting market concerns about EU banks in the pandemic. In operations which took place from September 2019 until December 2021, euro area banks took up a total of EUR 2,339 bn of TLTRO-3 funds. Opportunities to reduce funding costs for participating banks amid favourable terms for TLTRO-3 were an important driver of high take-up volumes.

The largest share of TLTRO-3 funds was allotted in 2020 and 2021, and remains outstanding, with EUR 1,648 bn maturing in 2023, and EUR 590 bn in 2024.^[38] The interest rate on all outstanding TLTRO-3 operations remained at 50 bps below the average

rate applied in the Eurosystem's MRO until 23 June 2022 for banks whose eligible net lending by end 2021 reached the lending performance threshold.^[39] For participating banks, the interest rate thus remained at markedly negative rates, making the programme attractive to participate.

Next to reduced funding costs, interest earning opportunities for participating banks were another important driver for high TLTRO-3 take-up volumes. Banks that met lending targets could get a rate as low as the deposit facility rate minus 50 bps until June 2022, and at the deposit facility rate from then onwards. Interest earning opportunities grew since ECB monetary policy tightening started but in October 2022, the ECB decided to apply the average applicable key ECB interest rates from 23 November 2022, thus reducing opportunities.^[40]

A large amount of over EUR 2 tn of TLTRO-3 funds remaining on euro area banks' balance sheets and additional allotments of long-term refinancing operations (LTRO) and MRO funds underline the continued importance of central bank funding in banks' funding structures. In comparison, the usage of ECB funding facilities reached a high of EUR 900 bn in the global financial crisis (GFC), and approx. EUR 1.25 tn in the sovereign debt crisis of 2011/12. The strong focus on central bank funding is not least reflected in banks' financial liability composition. The share of other liabilities, which includes deposits from central banks, was at 21.5% in June 2022, higher than in June 2021 (20.4%), and well above the 16.8% seen in December 2019, when improved TLTRO-3 conditions were introduced (Figure 35).

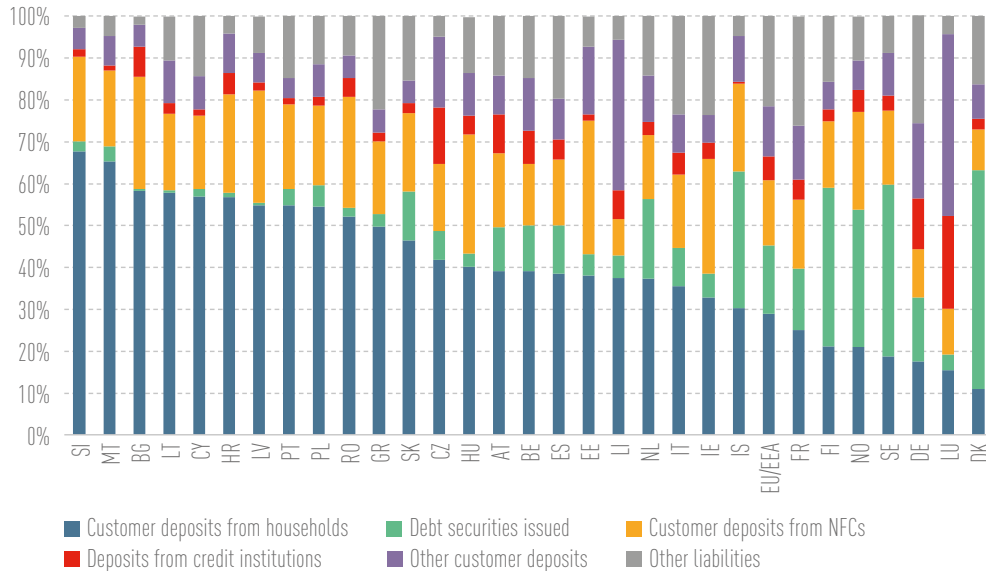
^[38] Based on ECB data. ECB data does not reflect early repayments.

^[39] At the average interest rate of the ECB's deposit facility calculated over the whole duration of the respective TLTRO III operation during the remainder of its duration. See [the ECB's TLTRO](#).

^[40] See [ECB recalibrates targeted lending operations to help restore price stability over the medium term](#), October 2022.

Figure 35: Breakdown of financial liabilities composition by country, June 2022

Source: Supervisory reporting data



Ample long-term funding facilities that central banks provided since the pandemic were an important factor in supporting market confidence in EU/EEA banks. Central bank funding continues to support banks by offering funding at low costs while prices for market-based funding rise, and in particular those banks facing some challenges to attain market-based funding at reasonable prices in a volatile market environment. Since durations of central bank funding usually are short- or medium-term, and long-term central bank funding is mostly phased out, it does not offer an appropriate and lasting alternative to debt securities issuance.

Continued relevance of central bank funding poses some structural challenges

Accordingly, the continuously growing relevance of central bank funding in banks' liability structures may pose structural challenges. After long-term central bank funding was provided for a significantly long period since the sovereign debt crisis of 2011, some banks may find it increasingly challenging to wean themselves off central bank funding as they have become increasingly reliant on this funding source.

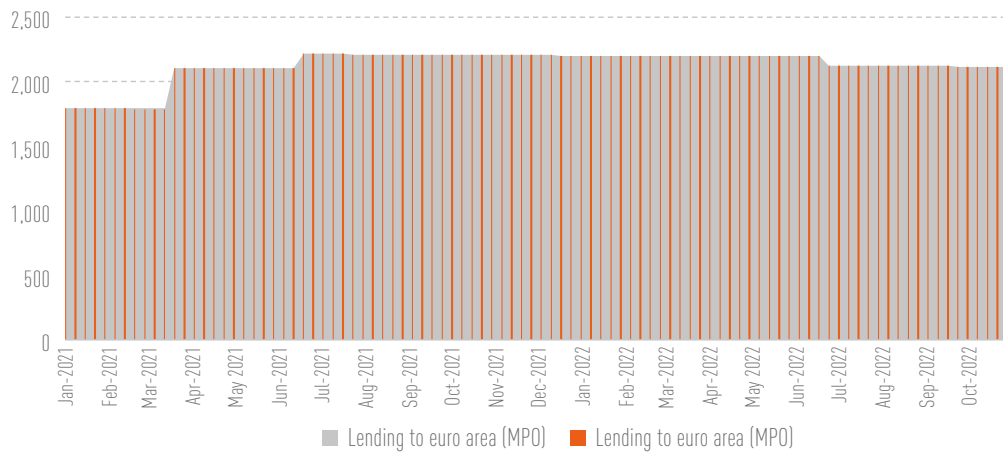
EU/EEA banks' funding plans indicate expectations that until 2024, the volume of matur-

ing TLTRO-3 will be four times higher than the volume of planned net debt securities issuances.⁽⁴¹⁾ While considerable amounts of TLTRO-3 attained were deposited at central banks in efforts to attain interest income at low risk, the funding plans do not yet explain how banks intend to replace a large share of TLTRO-3 funds they attained during the pandemic that was not deposited at central banks. In this regard, increased volumes of covered bond issued in 2022 compared to 2021 may indicate alternatives to central bank funding banks are attaining.

Yet with still relatively favourable, albeit declining, structural liquidity and short-term liquidity indicators (NSFR and LCR), many banks would have the opportunity to repay TLTRO-3 without having to fully replace it by market-based funding (see Chapter 3.2). In this regard, funding plans forecast declining NSFR and LCR, suggesting that banks may draw on their deposits eligible for liquidity ratios, including deposits at central banks, to repay parts of their TLTRO-3 funding taken up. The changed conditions for TLTRO-3 funding applicable as of November 2022 might also imply earlier repayments – not least through additional windows for prepayments the ECB provides – and as such earlier affect banks' liquidity indicators (on the changed conditions for TLTRO-3 see further above).

⁽⁴¹⁾ See the EBA 2022 Funding Plan Report.

Figure 36: ECB lending to the euro area with focus on LTRO (EUR bn) ⁽⁴²⁾
 Source: ECB, EBA calculations



Central bank funding is increasing asset encumbrance

High usage of central bank facilities has been an important driver of increasing encumbrance of assets until the beginning of 2022. The overall asset encumbrance ratio decreased from 29.1% in June 2021 to 28.7% in June 2022. Central bank funding is the main source of asset encumbrance, and more than half of central bank eligible assets and collateral were encumbered in June 2022 (51.8%), after a strong increase during the pandemic (44.7% in December 2019).

Contrary to central bank funding, the share of covered bonds and asset-backed securities (ABS) issued as a source of encumbrance continued its decreasing trend. It was at 18.2% for covered bonds and 1.2% for ABS, a decrease from 19.3% and 1.3%, respectively, in June 2021. This trend was observed since 2019. The trend might be explained by TLTRO-3 funding available until end-2021, which may have led many banks to substitute covered bond funding for cheaper central bank funding. A focus on the issuance of instruments eligible for MREL, which reduced the reliance on covered bond funding, may additionally explain the decreasing share of covered bonds and ABS as a source of encumbrance.⁽⁴³⁾ Going forward, the high volumes of covered bonds (see below) issued this year and the recent recalibration and upcoming maturity of TLTRO-3 might increase the relevance of the former versus the latter as a source of encumbrance.

Maturing TLTRO-3 might also lead to further declines in the encumbrance ratio. Yet this decline may be offset by higher covered bond is-

suance or by the negative effect of rising yields in collateral valuations. High encumbrance ratios might pose some prudential risks. As encumbrance subordinates unsecured creditors, they might demand higher spreads in stress situations. Increasing encumbrance ratios might also raise concerns among secured creditors that may apply larger haircuts on collateral, or make margin calls, or may demand higher overcollateralization levels, i.e., assets and collateral that institutions have to pledge relative to the matching liabilities.

Deposit base continues to increase

Deposit volumes continued to increase in 2022, with a combined volume growth of deposits from household and NFCs of over 3% in the first six months of the year. Deposit volumes grew by over 7.5% between June 2021 and June 2022. As regards types of deposits, deposit volumes from NFCs continued to increase since 2021, and the share of deposits from NFCs in total financial liabilities also slightly increased from 15.5% in June 2021 to 15.7% in June 2022 (Figure 35). A strong increase in the deposit volume from NFCs by 8.4% between June 2021 and June 2022 may be attributable to efforts of NFCs to maintain high liquidity positions against high uncertainties since the outbreak of the Russian war of aggression against Ukraine, and in a deteriorating economic environment.

While the share of household deposits in total financial liabilities slightly decreased from 29.3% to 28.9% between June 2021 and June 2022, the volume increased by 5.5%. This might be attributable to pandemic-restrictive measures in late 2021 and higher precautionary lending amid a deteriorating macroeconomic outlook. The Russian war of aggression against Ukraine did not directly impact the trend of deposit growth. Yet some

⁽⁴²⁾ LTRO includes TLTRO-3.

⁽⁴³⁾ See the EBA's report on asset encumbrance.

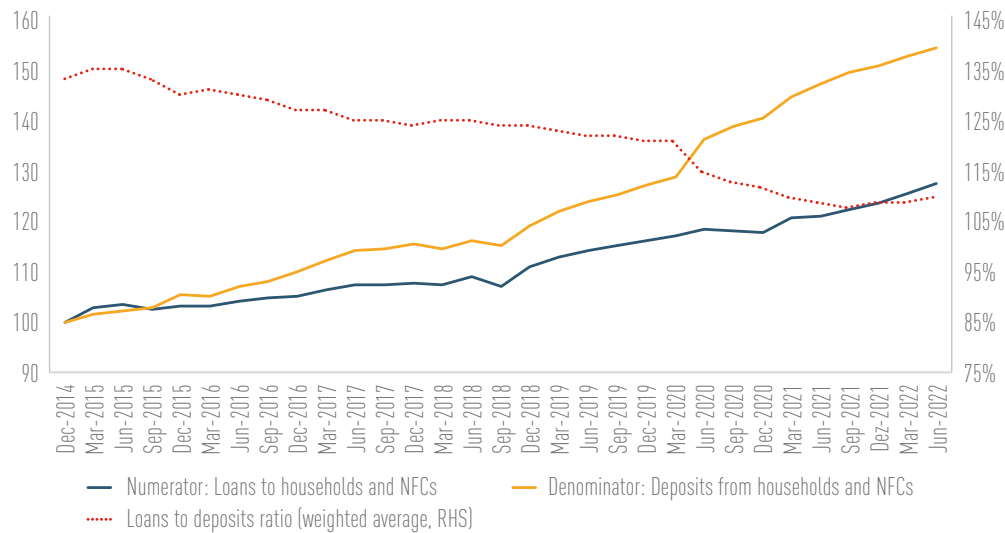
initial and temporarily volatility mostly in household deposits was observed in countries neighbouring Ukraine or with a relatively high share of Ukrainian residents when the aggression started.

The overall deposit growth was accompanied by an increase in deposit rates. As policy rates started to increase, deposit rates move away from negative or zero rates. Going forward, responses to the RAQ suggest that most banks intend to raise rates for household deposits (57%) and for NFC deposits (68%), in the environment of rising interest rates (see Figure 74 in Chapter 5). This would lead to an increase of funding costs and affect

banks' net interest income (NII) and as such profitability, given the high share of deposits in funding mixes, and while other cheap sources of funding, especially longer-term central bank funding, are no longer available.

The strong growth of loans to households and NFCs (see Chapter 2.1), which occurred at a faster pace than the growth of deposits, resulted in a slightly increasing loan-to-deposit ratio. It stood at 109.6% in June 2022 (108.9% in June 2021). Deposit growth of recent years supported banks' strategies to focus on more stable and cheaper sources of funding. This also supported them to maintain strong lending (Figure 37).

Figure 37: Loan-to-deposit ratio (weighted average) and loan-to-deposit ratio dynamics (trends in numerator and denominator; December 2014 = 100), over time
Source: Supervisory reporting data

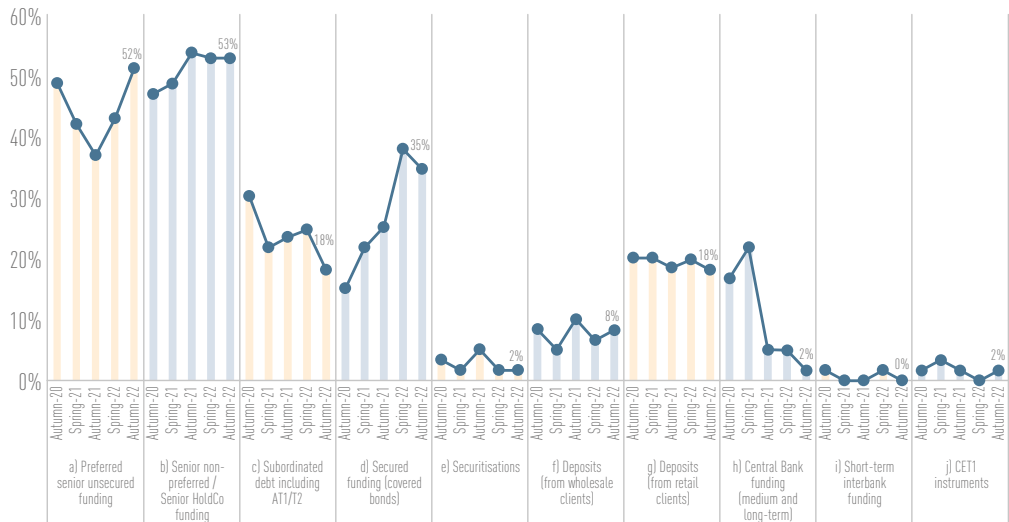


Reflecting the phasing out of TLTRO-3, the share of banks intending to attain more central bank funding has diminished to 2% in the latest RAQ. Attaining more senior unsecured funding, senior non-preferred funding, and secured funding (covered bonds) has more importance in banks' plans, according to the RAQ (Figure 38).

Banks' funding plans indicate that total deposit growth is expected to slow down, with an expected strong decrease of deposits from central banks driving an overall deposit decrease of 2.3% until 2024. Deposits from households and NFCs are expected to continue to increase until 2024.^[44] Yet funding plan data was submitted before the beginning of the Russian war and before rising policy rates, and might no longer fully reflect banks' plans.

[44] See the EBA 2022 Funding Plan Report.

Figure 38: Funding instruments banks intend to focus on in the next 12 months
Source: RAQ for banks



Repayments of maturing central bank exposures in 2022 potentially added to the decrease in bank liquidity positions (see Chapter 3.2). Funding plans indicate expectations of further decreasing liquidity positions, which is indicated by a large difference between planned debt instrument issuances and maturing TLTRO-3.

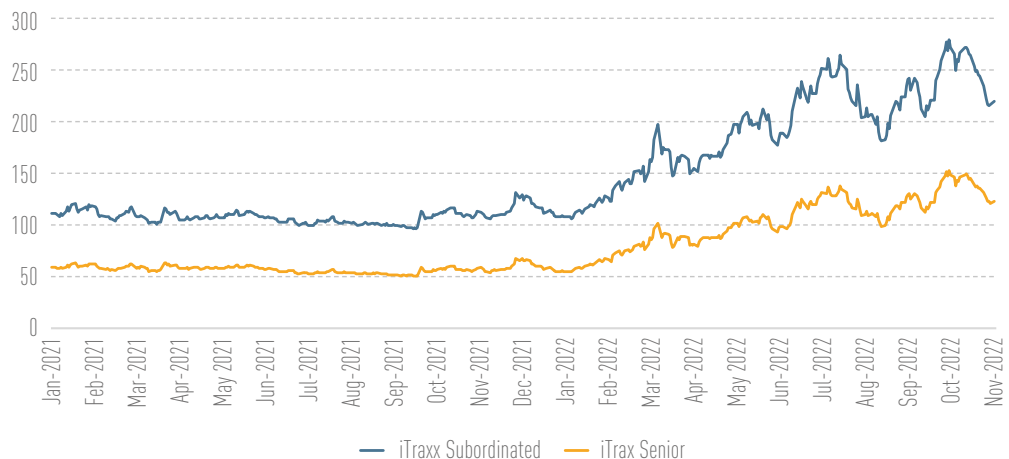
Spread and pricing trends: steady increase and heightened market volatility

Spreads of all market funding instruments have been on an increasing trend since autumn 2021, with periods of high volatility and spread fluctuations. A previous long-term trend of tightening spreads since the early stages of the pandemic in March 2020, with expectations of post-pandemic economic recovery, ended in the fourth quarter 2021 with a scaling back of wide-ranging fiscal and

monetary support. The Russian war of aggression against Ukraine with its wide economic and financial implications led to more pronounced spread widening. In the second half of 2022, spreads widening was more pronounced, and volatility was heightened. The beginning cycle of monetary tightening, high and more persistent inflation, and a deteriorating economic outlook supported the spread widening (see Chapter 1).

Along with the trend of widening spreads, bouts of high market volatility were observed throughout 2022, and financial markets were more volatile than in 2021. Funding markets this year continued to be susceptible to adverse news, in particular about Russia's invasion of Ukraine, as well as to political events and adverse economic news, especially to those related to inflation as well as energy and commodity prices (Figure 39).

Figure 39: iTraxx financials (Europe, senior and subordinated, 5 years, bps)
Source: Bloomberg, EBA calculations

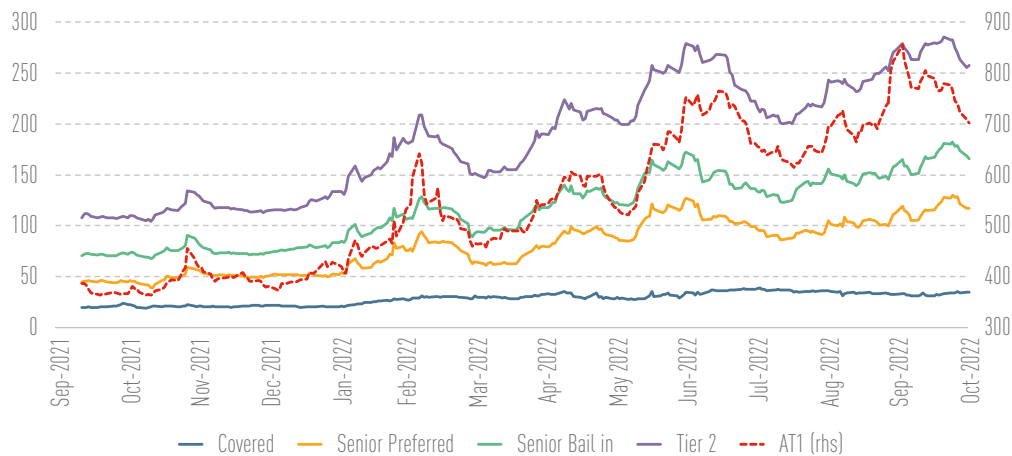


Interest rate volatility has also been substantial amid heightened market uncertainty about the future course of monetary policy. Volatility was highest in short-term interest rates, in particular at times of market uncertainty about timing and pace of monetary tightening. Short-term Euribor interest rates of durations of up to 12 months were negative until March 2022. They strongly increased with the announcement and implementation of monetary tightening with interest rate increases. Since August 2022 Euribor rates of all durations, including 12 months, were positive, and continued to increase since then (Figure 9).

Euribor rates are an important pricing indicator for other interest-rate related products, and their high volatility was not least reflected in high price volatility of bank funding instruments. The spreads of all different types of debt instruments have been on an overall upward trend for most of the year, with the largest increase observed in Tier 2 (T2) and in particular in Additional Tier 1 (AT1) instruments. High volatility was also an important factor for temporarily strongly reduced issuance volumes, as adequate pricing levels were difficult to identify for both issuers and investors (Figure 40).

Figure 40: Cash spreads of banks' debt and capital instruments (in bps)

Source: IHS Markit, EBA calculations



Spreads for bank funding instruments will presumably remain heightened amid high uncertainties about the path of inflation and a subdued economic outlook. Pricing for debt instruments and volatility of interest rates are also expected to remain elevated while monetary tightening continues. This may pose some challenges to attain market-based bank funding at reasonable pricing, as it is not least in such times particularly challenging to find periods and windows of opportunities to issue when pricing is most attractive.

Despite volatile market conditions primary funding remained high during 2022

Amid rather volatile interest rates and spreads at an overall widening trend since late February, banks nevertheless made use of episodes of spread tightening to issue higher volumes of unsecured debt. Primary funding market activity was very high in the beginning of 2022 when banks made use of a temporarily period of decreasing spreads to issue high volumes of unsecured debt instruments and speed up their funding plans for the year. Market conditions materially deteri-

orated and primary activity came to a temporarily halt with the beginning of the Russian invasion of Ukraine in late February 2022. But meaningful debt issuance activity across the capital stack resumed soon thereafter.

Since March, issuance of unsecured instruments continued at an overall high level, in spite of mostly unfavourable market conditions since then. The aggregate issuance volume of unsecured debt instruments was higher in the first nine months of 2022 than at the same time in 2021. Yet 2022 issuance activity was much less evenly distributed across the year than in 2021, with very high issuance activity in times of temporarily less volatility and contracting spreads, and low issuance activity in periods of volatile interest rates and wide spreads.

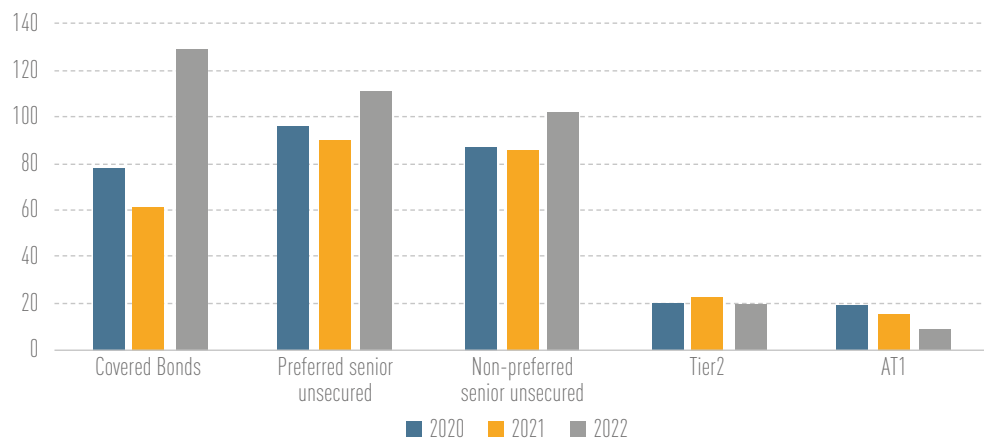
Generally, large and medium-sized banks have been able to issue instruments across the capital stack in 2022, although at increased pricing. Some challenges to issue instruments that are lowest ranked in the capital stack, such as AT1 bonds at reasonable pricing were nevertheless observed since Q3 2022. Smaller banks and banks with

heightened risk perceptions have also been able to issue unsecured debt since the start of Russia’s invasion of Ukraine, though at heightened pricing levels and mainly in periods of temporarily spread tightening. These banks also faced some additional challenges to issue subordinated and loss absorbing instruments at reasonable costs, and amid concerns about investor reception. There are also indications that banks had to offer higher new issuance premiums than in the past. Going forward, some challenges to issue such instruments are expected to continue, given heightened volatility in an increasingly adverse funding market environment. Rising interest rates and spreads for instruments across the capital ladder, but especially for debt ranked low in the capital stack, may pose additional challenges.

Continued focus on loss-absorbing instruments

Higher unsecured debt issuance volume in the first nine months of 2022 was mainly attributable to issuances of preferred senior unsecured debt and senior debt eligible for MREL, such as senior debt from holding companies (HoldCo) and senior non-preferred (SNP) debt. Issuance volume of subordinated instruments, in particular of T2 and AT1 capital instruments, was lower than in 2021. Eligibility for MREL, while offering price advantages for issuing banks compared to subordinated debt, was a key driver of higher issuance activity of unsecured instruments in 2022 (Figure 41).

Figure 41: Issuance volumes of EU banks’ debt and capital instruments in the EU, Q1 – Q3 2020 - 2022 (in EUR bn)⁽⁴⁵⁾
 Source: Dealogic, EBA calculations



Responses to the RAQ indicate that banks intend to continue with their unsecured funding activities in a broadly comparable pattern as observed in 2022. A majority of banks plans to focus on preferred senior unsecured funding, on senior non-preferred funding, and on senior holding company funding. The share of banks intending to focus on preferred senior funding has strongly increased to 52%, compared to 37% in autumn 2021 RAQ. Attaining subordinated debt instruments, including AT1 and T2 capital instruments, will be a less important focus in the next 12 months, with a decreasing relevance for both instrument types (Figure 38).

Bank funding plans confirm that banks plan for the strongest increase of issuance volumes of senior-non preferred instruments

and senior debt from holding companies until 2024. The same factors as this year, i.e., their eligibility for MREL, while offering price advantages for issuing banks, may explain a preference for these instruments. Contrary to medium-term expectations expressed in RAQ results, funding plans suggest that banks plan to increase capital instruments’ issuance of T2 and AT1 in the longer term.⁽⁴⁶⁾ This could be driven by needs to optimise the capital structure of those banks that have not yet attained their required minimum amounts of T2 and AT1 capital, especially since issuance volumes of these capital instruments were rather low in recent years. Amid rising interest rates in a volatile market environment with a negative economic backdrop, funding costs for all types of unsecured

⁽⁴⁵⁾ Based on publicly available market data which may not completely reflect all issuances of the different types of debt and capital instruments.

⁽⁴⁶⁾ See the [EBA 2022 Funding Plan Report](#). Funding plan data was submitted before the beginning of the Russian war and before rising policy rates, and might no longer fully reflect banks’ plans.

instruments across the capital ladder are expected to increase.

In the RAQ, analysts confirmed their expectations of a strong focus on senior non-preferred instruments and senior debt from holding companies, and 56% of analysts expect banks to focus on them in the next 12 months. Yet they expect less of a focus on preferred senior unsecured funding, but rather a continued focus on attaining retail deposits.

High volumes of covered bond issuance

Issuance volumes of covered bonds in the first three quarters of 2022 were substantially higher than in the same period in 2021. Already in the second half of 2021, covered bond issuance was on an increasing trend. Several factors might explain the high covered bond issuance volume in 2022. Volumes of maturing covered bonds have markedly exceeded those in 2021 and have driven new issuance needs. Many issuing banks also benefitted from opportunities to attain funding at lower costs than via unsecured funding in a volatile market environment. Covered bonds especially gained relevance for bank funding after opportunities to attain long-term central bank funding (TLTRO-3) at lower costs than by issuing covered bonds expired by the end of 2021. They also benefitted from inherent higher security for investors.

Going forward, prospects are for continued high covered bond issuance volumes. The share of respondents to the RAQ intending to attain more covered bonds in the next 12 months has increased to 35% (25% in autumn last year), and covered bonds may become a more relevant funding focus than deposits. Also banks funding plans indicate high covered bond issuance volumes in 2023 and 2024.^[47] Higher expected issuance volumes may partly be driven by the high volume of maturing covered bonds in the next two years.

Progressing towards attaining required amounts of MREL

A growing number of banks have already attained their required amounts of MREL-eligible instruments. On a preliminary basis^[48], the EBA estimates that 70 out of 245 resolution groups presented an external MREL shortfall of approximately EUR 33 bn against their end-state MREL targets as of December 2021. This is down by 42% compared to last year's quantitative report on MREL. For a common sample compared to the previous report, the figures are down by 100% for Globally Systemically Important Institutions (G-SIIs), 50% for Other Systemically Important Institutions (O-SIIs) and only 27% for other banks.

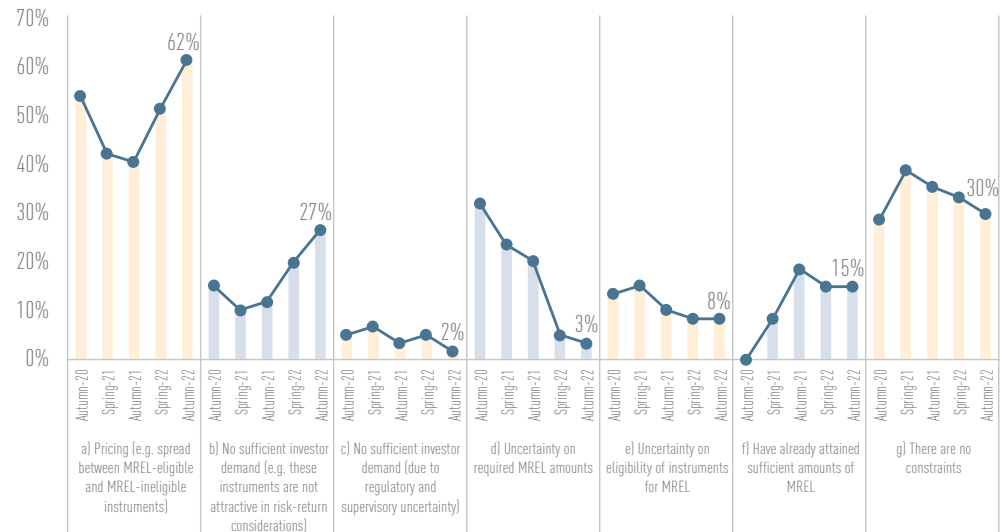
Some banks nevertheless still need to issue MREL-eligible debt to close shortfalls of required eligible amounts until 1 January 2024, the general deadline to comply with MREL requirements according to Bank Recovery and Resolution Directive 2 (BRRD). For O-SIIs, the group of banks that were most affected in number were those with assets below EUR 50 bn, as 73% of them have a shortfall (27 small banks out of a total of 37 small banks in the sample). However, the proportion of other banks with assets below EUR 50 bn that have a shortfall has improved compared to previous years. Only 19% of them have a shortfall at the end of 2021. Responses to the RAQ also indicate that only 15% of respondents have already attained enough MREL (Figure 42).

Significant issuance activity of eligible instruments has taken place since December 2021, and shortfalls of eligible amounts have continued to reduce since then. MREL requirements and BRRD 2 have largely removed most legal uncertainty, including the effective MREL eligibility criteria applied between jurisdictions, as well as uncertainty about the eligibility of certain instruments across jurisdictions. Accordingly, the share of RAQ respondents referring to supervisory uncertainty and uncertainty about the eligibility of instruments for MREL has mostly diminished (Figure 42).

^[47] See here and the following the [EBA quantitative MREL report](#), September 2022. It needs to be noted that the sample of banks used for resolution related reporting differs from the sample of banks for COREP and FINREP.

^[48] Updated MREL shortfall and impact assessment to be published early 2023.

Figure 42: Constraints to issuing subordinated instruments eligible for MREL
 Source: RAQ for banks



Market related factors constrain meeting MREL targets

Responses to the RAQ show that market related factors are the main constraint to issue MREL-eligible instruments. A majority of banks (62%) considers pricing as the main challenge to issue MREL eligible instruments, whereas 27% consider investor demand for eligible instruments as insufficient. The share of both factors constraining the issuance of MREL eligible instruments has increased strongly compared to previous iterations of the RAQ. Pricing challenges as constraint to issue MREL eligible instruments are expected to increase in an environment of rising interest rates and an adverse economic outlook. Investor demand might be affected further should the fundamental strength of banks, or investor perceptions about banks, weaken. Pricing challenges as a constraint to issue instruments eligible for MREL in 2022 mostly related to banks with weaker market perceptions and some medium-sized banks domiciled in countries more affected by the pandemic and sovereign debt concerns. Going forward, investor demand and pricing challenges might further affect

these banks and additionally other banks' ability to issue subordinated- and loss absorbing instruments at reasonable costs.

Responses to the RAQ on banks' intended funding focus confirm that the implementation of MREL requirements remains an important driver of funding strategies. Senior non-preferred and senior HoldCo funding is the most important funding source banks intend to focus on [53% agreement, Figure 38]. The MREL eligibility of senior preferred debt for some banks may also explain why a substantial share of banks (52%) planned to prioritise issuances of these instruments. As pricing is the main constraint to issuing MREL-eligible instruments, according to the RAQ (Figure 42), the price advantage offered by senior non-preferred and HoldCo funding – and senior preferred when eligible – compared to other instruments eligible for MREL may be an important driver of the further growing relevance of these funding sources. This is also reflected in a further decreasing share of banks intending to issue subordinated instruments, including T2 and AT1 instruments, going forward (18% agreement, Figure 38).

Box 7: MREL decisions reporting

Banks submitted their MREL decisions to the EBA based on the ITS on reporting.⁽⁴⁹⁾ The reporting covers decisions for 494 entities as of December 2021 for which resolution authorities set MREL above their own funds requirement, of which 337 are external MREL decisions and 157 internal MREL decisions. Also, the EBA has received the template for nearly 2,000 other small resolution and non-resolution entities that are subject to simplified reporting obligations with an MREL set at the level of own funds.

The overview of the decisions received – and the resolution strategies preferred for those entities – shows that, although the numbers of bail-in and transfer are almost the same, in terms of asset volumes, bail-in is the preferred strategy for most of the EU/EEA banking sector. For banks representing ca. 95% of total assets bail-in is the preferred strategy whereas transfer and liquidation are the preferred strategy for banks representing ca. 4% and 0.5% of to-

⁽⁴⁹⁾ Implementing Technical Standards on reporting of MREL decisions. Respective reporting is the basis for MREL related data in this chapter.

tal assets. This reflects the fact that resolution authorities tend to apply the bail-in strategy for larger banks.

MREL requirement as of December 2021

The MREL requirement for 245 banks reporting external MREL requirement was on average 22.6% of total risk exposure amount (TREA) (22.9% for G-SIIs, 22.8% for O-SIIs and 20.8% for other banks) with a combined buffer requirement of 3.3% of TREA (3.6% for G-SIIs, 3.1% for O-SIIs and 2.5% for other banks) that is applicable on top of the MREL requirement. This essentially reflects going concern MREL requirements. As a percentage of total exposure measure (TEM), the MREL requirement was 6.98% (7.21% for G-SIIs, 6.96% for O-SIIs and 5.89% for other banks). By resolution strategy, the average MREL requirement is set at a level of 22.8% for bail-in and 18.5% for transfer strategies, with combined buffer requirements of 3.3% and 2.7%, respectively. Other banks exhibit a lower MREL requirement than O-SIIs because most of them have been set a transfer strategy, which can mean a lower recapitalisation amount and thus a lower overall MREL.

Worsening market conditions also affected ESG bonds issuance by banks

ESG-labelled bonds, in particular green bonds, have become more important as a funding source for banks in recent years. The overall share of ESG bonds over total bank issuances has increased substantially from their inception. ESG bonds are becoming a common bank funding instrument. According to the RAQ, 75% of responding banks have already issued green bonds, 24% social bonds, and 13% green securitisations. However, in the first nine months of 2022, the issuance volume of ESG bonds in the EU did not increase further compared to the same period last year and was at a similar level of ca. EUR 52 bn (Figure 43). Of ESG-labelled bonds, the issuance volume of sustainability

bonds has strongly increased in 2022, whereas the volume of green bonds has decreased.

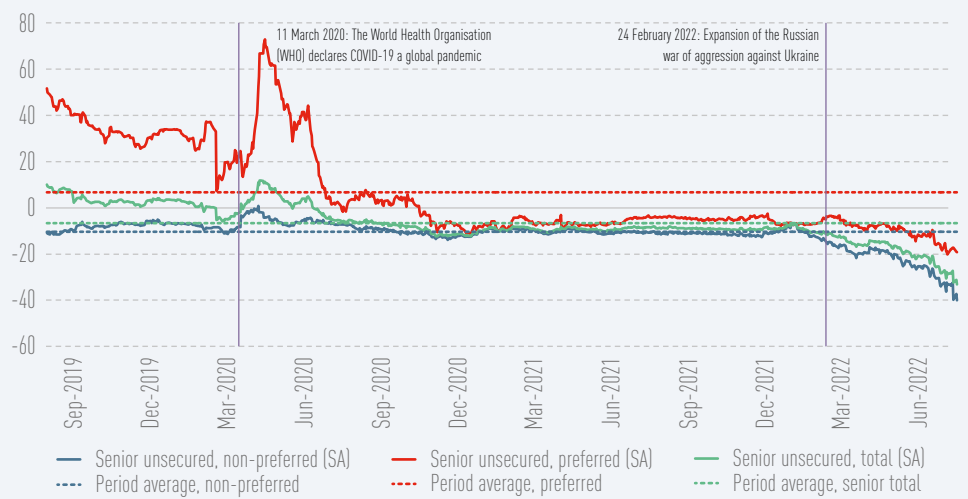
ESG bond issuance volumes slowed down in the second half of the year as funding market conditions deteriorated in a worsening economic outlook. Amid growing market volatility and uncertainty with rising prices for debt instrument, issuers increasingly preferred to issue conventional debt instruments, such as covered bonds, over ESG bonds. While the share of covered bonds which were issued as ESG bonds remained broadly stable, the share of senior preferred and senior non-preferred bonds issued as ESG bonds increased markedly. Nevertheless, the share of senior non-preferred ESG bonds remained at an overall low volume.

Box 8: Greenium during crisis periods

Since 2015, several quantitative studies have been conducted on the topic of a 'greenium' – a potential pricing advantage (premium) for green funding or financing instruments – in general, with mixed results on the size of the premium and sometimes on the direction. It is generally concluded that the greenium observed in the market is likely to be the result of factors other than credit risk, such as the demand for green products continuing to ex-

ceed supply with an increasing number of funds, which have committed to only invest in ESG products. Another factor could be lower perceived volatility of green bonds, as holders of green bonds are often understood to be long-term investors and to hold the bonds to maturity. These factors can drive up green bond prices, lowering their yields. Using a sample of senior green bank bonds and comparing it with conventional bonds of the same issuer, average greeniums across different seniority groups of bonds can be derived (Figure 43).

Figure 43: Average greeniums of selected banks and for different seniority groups of debt instruments between 1 August 2019 and 30 June 2022
 Source: IHS Markit, EBA calculations



A tightening of the greenium occurred in Q2 2020 with the onset of the COVID-19 crisis. Looking at various seniority segments, greeniums have even briefly turned positive on average, implying returns asked by investors on green bonds exceeding those of conventional bonds. The picture is very different from the onset of the Russian war of aggression, with continuously widening greeniums – i.e. a growing price advantage of green bonds over others – since February/March 2022.

This relative resilience of green compared to conventional bonds since then may be explained by the nature of green bond investors, believed to have a longer investment horizon, but also by the importance placed on the impact or 'psychological benefit' of green investments of doing something good. More recently, the boost to greeniums may also be driven by the energy crisis increasing the significance of re-

newable energy, with potentially increased climate awareness of investors considering numerous acute climate events occurring across Europe.

Further, lower seniorities (such as senior non-preferred vs. senior preferred) appear to offer more room for green premia. Whilst the greenium trend across time is the same across bonds of different seniority, the sample of senior non-preferred issuances consistently shows higher premia than the senior preferred segment over the period considered. This could be driven by a general narrower spread compression of the senior preferred segment or bigger volumes issued in the senior preferred segment, diminishing the spread advantage of green issuances. For the senior preferred segment, the average greenium has in fact been positive until late 2020, as also evident from the period averages which is positive at just under 7 bps.

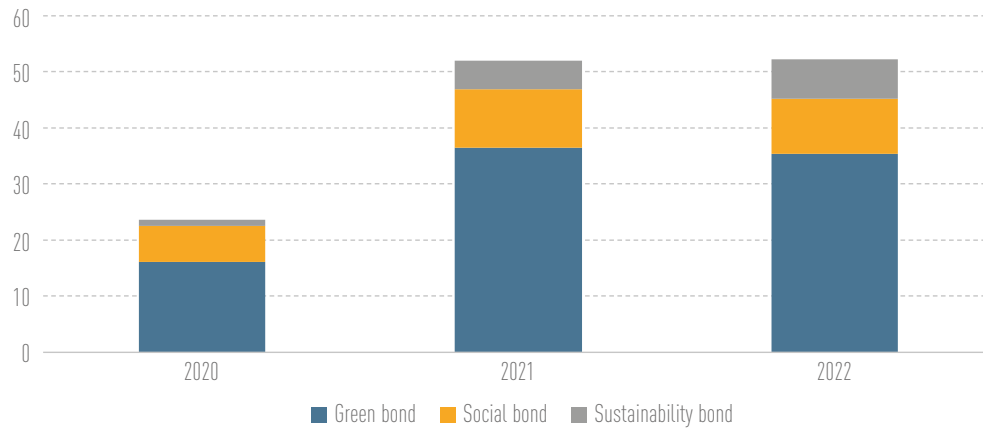
Green issuances often trade at a premium over non-green issuances in the market, meaning lower yields on green bonds than non-green bonds with otherwise similar characteristics, and often referred to as 'greenium' (see textbox). The greenium has been one of the drivers for banks to issue instruments in the green format. It is often observed even though holders of green bonds are not generally exposed to the credit risk of a green project but rather to the overall credit risk of the issuer – as holders of non-green debt.^[50] The greenium might also explain the growing share of senior preferred and senior non-preferred bonds issued as green bonds. Two thirds of respondents to the RAQ confirm to have observed pricing benefits over con-

ventional bonds when issuing green bonds (Figure 48).

There were nevertheless indications of a diminishing greenium in the second half of 2022, in particular for senior preferred bonds. At times green bond yields even temporarily exceeded yields for non-green bonds. Although the green label of a bond is supporting investor demand (see textbox), green bond issuance volume has nevertheless decelerated.^[51] In volatile and uncertain markets conventional debt instruments might attract a broader investor base, not least when offering higher yields than green bonds (Figure 44).

Figure 44: Issuance volumes of green, social and sustainability bonds in the EU, Q1 – Q3 2020 - 2022 (EUR bn)^[52]

Source: Dealogic, EBA calculations.



^[50] Some exceptions may exist, such as project bonds.

^[51] See, e.g., ECB Working Paper No. 2728 on "Pricing of green bonds: drivers and dynamics of the greenium", September 2022.

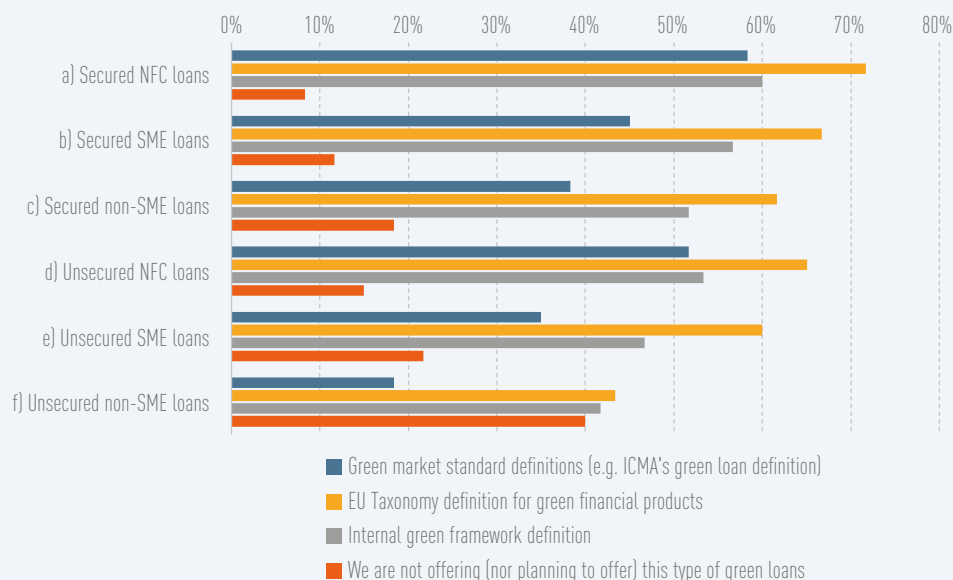
^[52] Based on publicly available market data which may not completely reflect all issuances of the different types of debt and capital instruments.

Box 9: General market trends in sustainable loans and bonds

Banks continue to integrate ESG considerations in their funding and lending activities. Recent RAQ shows that banks have appetite to offer various sustainable loans not only to NFCs but also to SMEs and retail borrowers. This aligns with sector analysts' expectations that not only green corporate lending but also other segments such as green mortgages and green consumer credit will increase in the next 12 months. As a result, it is possible to expect an increase in the volume of green loans in all segments of the market.

As to how banks define their ESG exposures, which is one of the key regulatory questions in the realm of sustainable finance, the RAQ results indicate that while banks' green loans are based on various definitions and market standards, the EU Taxonomy is expected to be a main classification system to be used in defining green lending in the future. Between 55% and 70% of the banks covered in the RAQ agreed that the EU Taxonomy is currently and going to be in the future a main classification standard for various green products. However, they also indicate that banks' internal as well as green market standard definitions will continue to play a role (Figure 45).

Figure 45: Definition of green used by banks for different loan segments
 Source: RAQ for banks



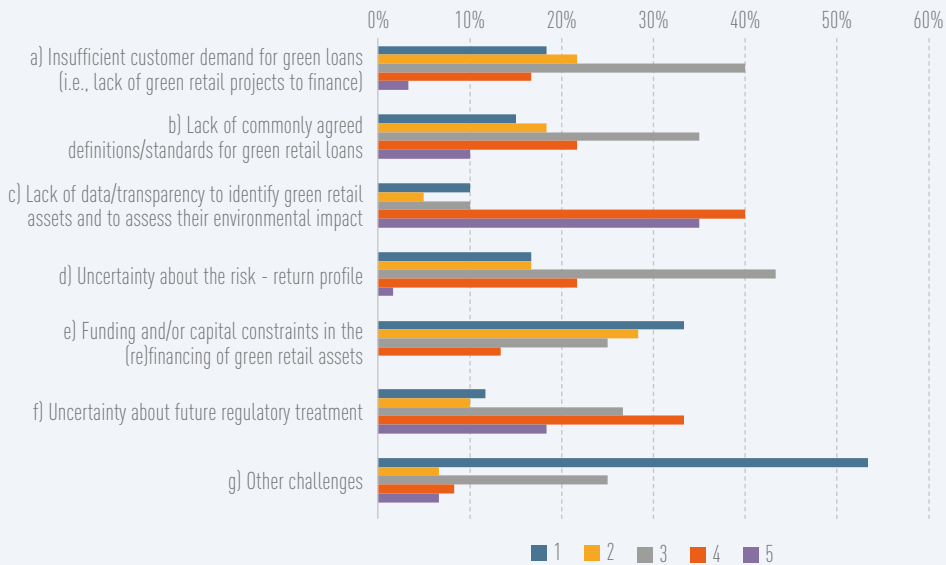
These findings suggest that a well-functioning Taxonomy with adequate available data would be a key classification system in markets for green loans. Going forward, the regulatory framework needs to ensure that a necessary infrastructure around the Taxonomy, e.g., measures for exchange of information, is established so that the market participants benefit from this public good and contribute to the growth of a well-functioning market for sustainable lending and investment activities.

The RAQ results also confirm that the current regulatory framework in sustainable finance requires further improvements.

When it comes to green retail loans, nearly 75% of banks see lack of data and transparency, as one key impediment to market growth. This is followed by uncertainty about future regulatory treatment and lack of common agreed definitions and standards, which 52% and 32% of banks seeing these in primary relevance. In comparison, banks also indicate that uncertainty about the risk-return profile of green investments and funding and/or capital constrains in the (re)financing of green retail assets are less of a concern to further development of the green retail loans market, with 23% and 13% of banks considering these in primary high respectively (Figure 46).

Figure 46: Main impediments for the further development of green retail loans (1-Not relevant, 5-Extremely relevant)

Source: RAQ for banks



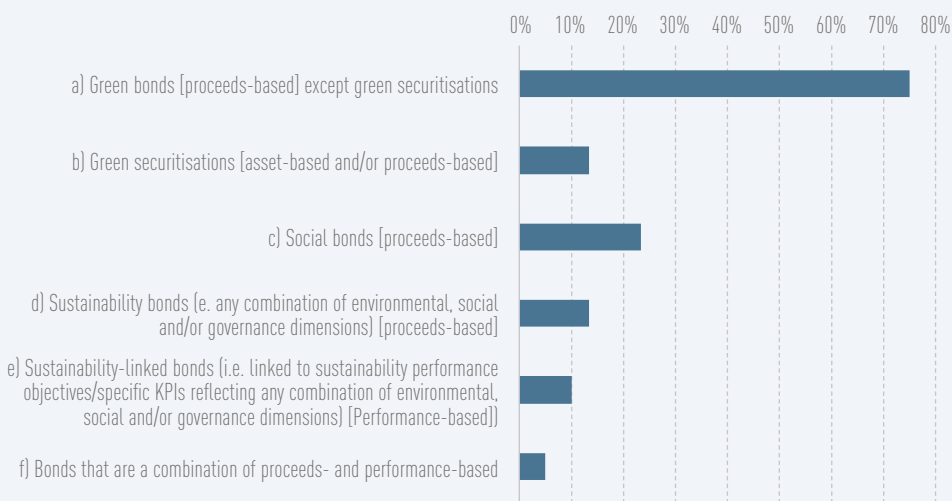
These findings suggest that the regulatory efforts should continue to develop the EU sustainable finance framework in order to support banks' lending and wider investment activities towards sustainable finance, in all segments of the financial markets, as well as their compliance with the EU Taxonomy requirements.

On the funding side, (proceeds-based) green bonds remain the main instrument

for banks. Across various sustainability and sustainability-linked bonds, while a majority of the banks (75%) issued green bonds, only 23% of the banks issued social bonds. On this point, analysts confirm that these instruments have not only developed to a more mature stage in the past but are expected to grow also in the future. They expect green bonds and, in general, sustainability bonds to continue growing in the next 12 months (Figure 47).

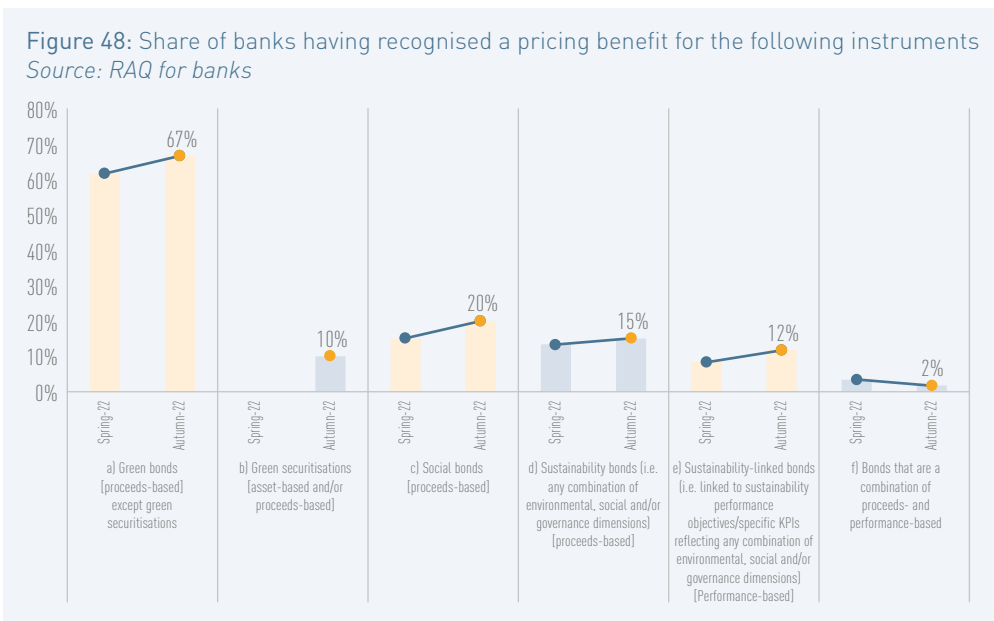
Figure 47: ESG related funding instruments already issued by banks

Source: RAQ for banks



Compared to the previous RAQ exercise (spring 2022), more EU banks also reported a benefit in the price of green bonds compared to non-green, ordinary bonds issued in primary or secondary markets. While such price benefit seems to be small

or negligible for other similar sustainability and sustainability-linked funding products, an increase in the number of banks benefiting in price is also observed for these products compared to the levels from the previous RAQ (Spring 2022) (Figure 48).



3.2. Liquidity

Banks' liquidity remained high but showed a decreasing trend during 2022 following the rising geopolitical tensions and its consequences in the macroeconomic outlook. As of June 2022, the main liquidity indicators showed a strong position of banks across the EU/EEA, with the LCR standing at 165.1% and the NSFR at 127%. Banks at the lowest end of the distribution also maintained ratios above regulatory requirements. The lowest quartile stood at 155% (167% in June 2021) for the LCR and 126% (125% in June 2021) for the NSFR.

Banks' LCR decreased in 2022 due to an increase in cash outflows

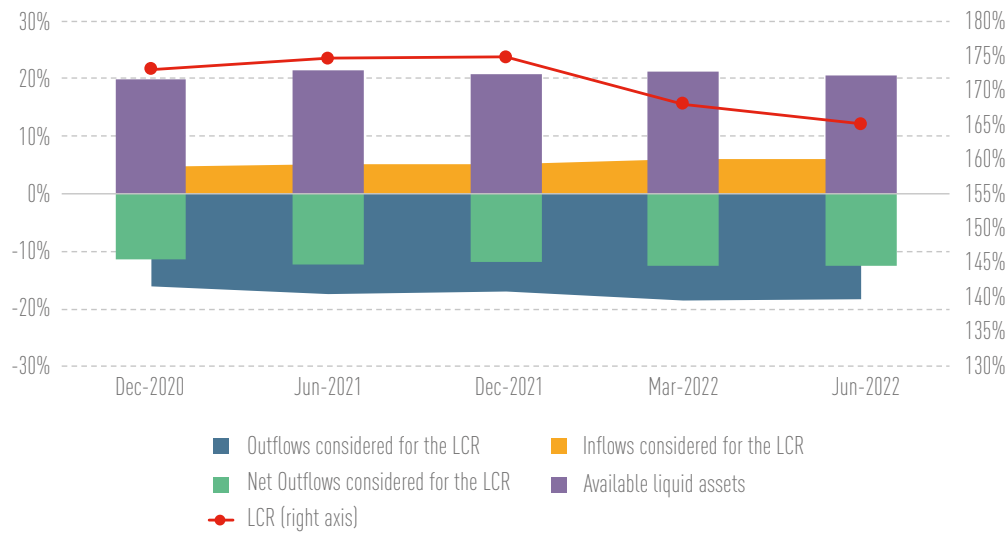
After a strong increase in 2020 (from 148% to 173%), which was supported by extraordinary liquidity-enhancing measures im-

plemented by central banks following the COVID-19 crisis, the LCR showed some signs of stabilisation during 2021, reaching 174.8% in December 2021. During 2022, following the outbreak of the Russian war, the LCR decreased to 165.1% in June 2022.

The increase of the net cash outflows – the denominator of the LCR – was the key driver of the decrease in the LCR. As of June 2022, it increased by 11% YoY (14.6% since December 2021). As a share of total assets, net cash outflows increased from 11.8% in December 2021 to 12.4% in June 2022. The rise was driven by an increase of gross outflows (from 16.9% to 18.3% between December 2021 and June 2022), which was bigger than the increase of inflows. The latter are deducted from gross outflows to calculate the net outflows. Inflows increased slightly from 5.1% to 5.9% of total assets between December 2021 and June 2022 (Figure 49).

Figure 49: Main components of the LCR as a share of total assets

Source: Supervisory reporting data

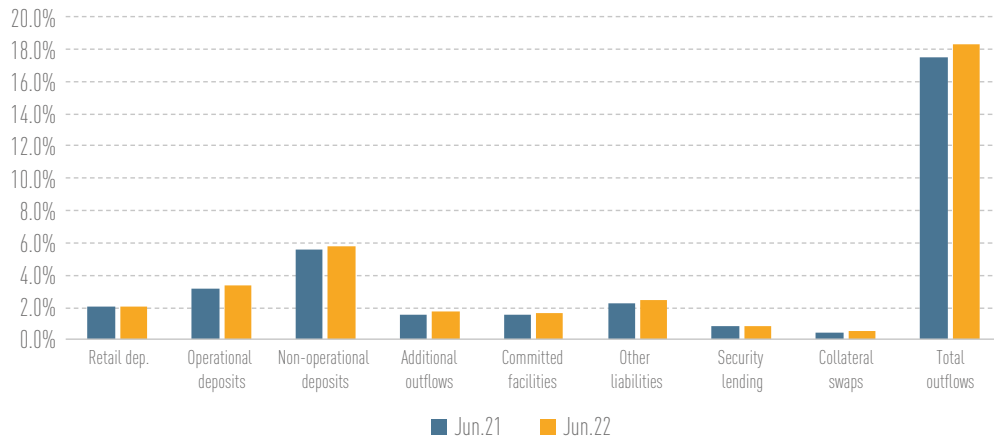


The increase in gross outflows between December 2021 and June 2022 is mainly driven by growing non-operational deposits, outflows from other liabilities and from secured funding transactions (Figure 50). These increases in outflows cannot least be linked to the unstable economic outlook during the first half of the year and the fall in asset prices. In such circumstances, outflows from

derivatives (included in 'outflows from other liabilities') are expected to increase to reflect negatives market values due to elevated volatility on financial and other markets. Additionally, outflows from secured funding transactions could increase as counterparties may request additional collateral to cover for decreases in the valuations.

Figure 50: Evolution gross outflow requirement (post-weights)

Source: Supervisory reporting data



Liquid assets showed a slight decrease between June 2021 and June 2022. Such decrease affects all high-quality liquid assets (HQLA) categories. This follows the increase in the yield curves that negatively affected the market value of HQLA instruments. With re-

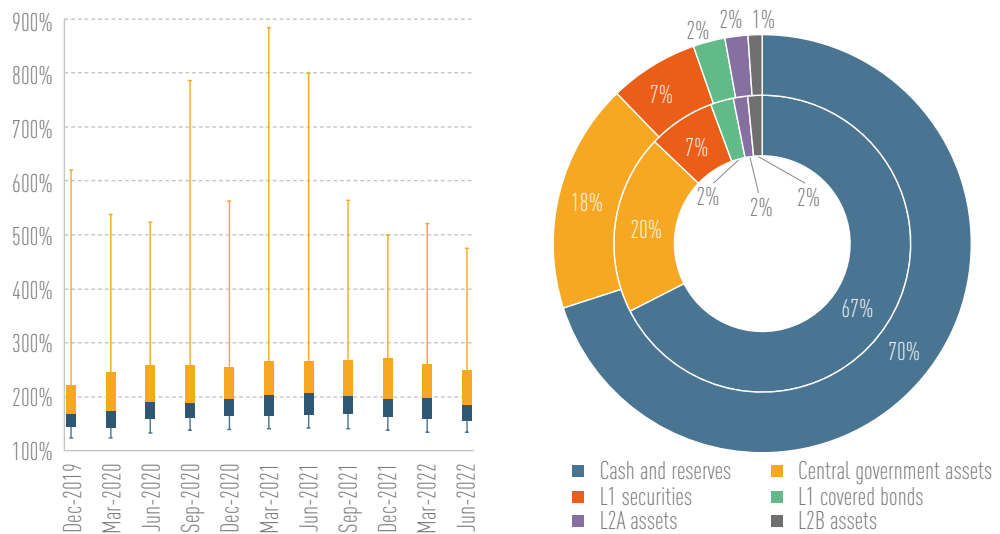
gard to the composition of the liquidity buffer, there were no significant changes. Cash and reserves remained the main source of HQLA, accounting for 70% of the liquidity buffer. Cash and reserves increased considerably since the outbreak of the pandemic in March

2020, in particular for Euro area banks (Figure 51). This coincides with the ECB application of more generous terms for TLTRO-3. Although the bulk of TLTRO-3 will mature in 2023, banks' funding plans only envisage a partial substitution for market-based and deposit funding (see Chapter 3.1).^[53] The EBA is analysing the potential impact of maturing TLTRO-3 funding on banks' liquidity buffers (see Chapter 3.1). The distribution across

banks shows that all banks in the sample have strong LCR positions (being the 135% minimum LCR value in the sample and 155% the ratio for 5th percentile). Monitoring the evolution of banks' LCR levels becomes particularly relevant amid the highly uncertain economic outlook including high inflation and rising interest rates, which for instance also affect margin calls and bond values (Figure 51).

Figure 51: Banks' distribution of the LCR (median, interquartile range, maximum and minimum; left) and composition of liquid assets as of June 2021 (inner circle) and June 2022 (outer circle; right)

Source: Supervisory reporting data



Weighted average LCRs for USD is below 100%

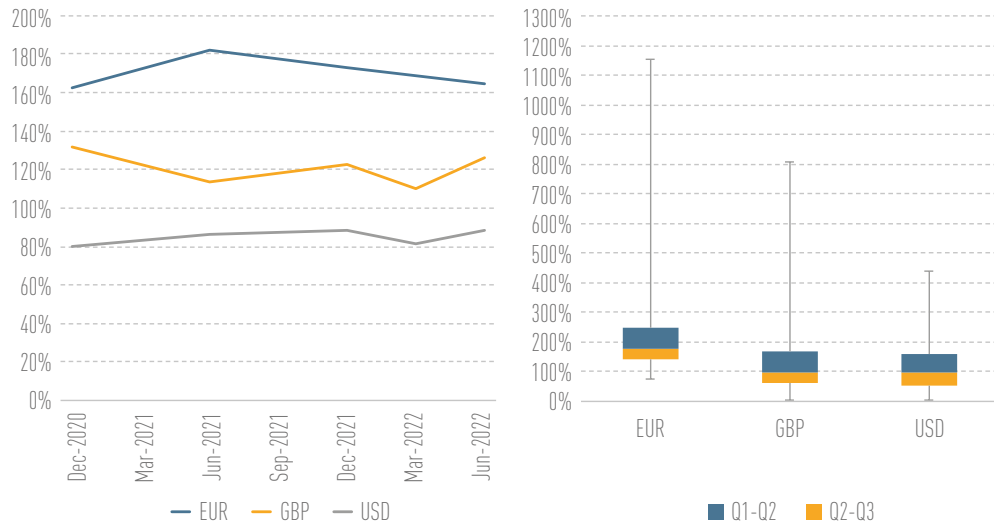
EUR LCR values are significantly above 100%. YoY, the weighted average value shows a declining trend with values close to the overall LCR. The EUR LCR stood at 165% as of June 2022 (182% as of June 2021), with a median value of 177% and the lowest quartile at 142.7%. GBP LCR values have generally been above 100%, although lower than the overall LCR. The GBP LCR ratio stood at 123% as of June 2022 (114% as of June 2021). Nonetheless, several banks showed levels well below

the average. The median GBP LCR stood at 98% as of June 2022 while the lowest quartile stood at 62.1%. Vulnerabilities can be seen in case of the USD LCR, with a weighted average USD LCR consistently below 100%, even though there has been an increasing trend in the last years (88.2% as at June 2022, up from 86.2% as at June 2021). The median USD LCR is close to 100% while the lowest quartile stood at 54% as of June 2022, which indicates that the mismatch is particularly relevant for some of the largest banks reporting USD as a significant currency (Figure 52).

^[53] See the EBA's funding plan report, September 2022, according to which liquidity indicators are assumed to decline going forward.

Figure 52: Evolution of the LCR by currency (EUR LCR, GBP LCR, USD LCR; left) and dispersion of the LCR by currency (EUR LCR, GBP LCR, USD LCR; median, interquartile range, maximum and minimum; right)

Source: Supervisory reporting data



These results indicate that the surplus in liquidity coverage at aggregate level offsets the liquidity shortfall in USD. The EU liquidity regulation does not quantify a minimum required LCR level in foreign currencies, although it requires banks to ensure consistency between liquid assets and net liquidity outflows in the LCR that are denominated in the same currency. However, low levels of LCR in one or several foreign currencies may cause problems during volatile markets, as banks' ability to swap currencies and raise

funds on FX markets at reasonable prices may be questioned. This becomes particularly obvious amid significant widenings of the USD-EUR cross currency basis swaps at the end of September 2022. The widening implies that USD funding becomes more expensive for Euro area banks (Figure 53). The combination of the below 100% LCR in USD and these rising costs for USD funding might pose a risk for some banks in case they need to quickly fill liquidity gaps in USD.

Figure 53: Evolution of the cross-currency basis swaps

Source: Bloomberg, EBA calculations



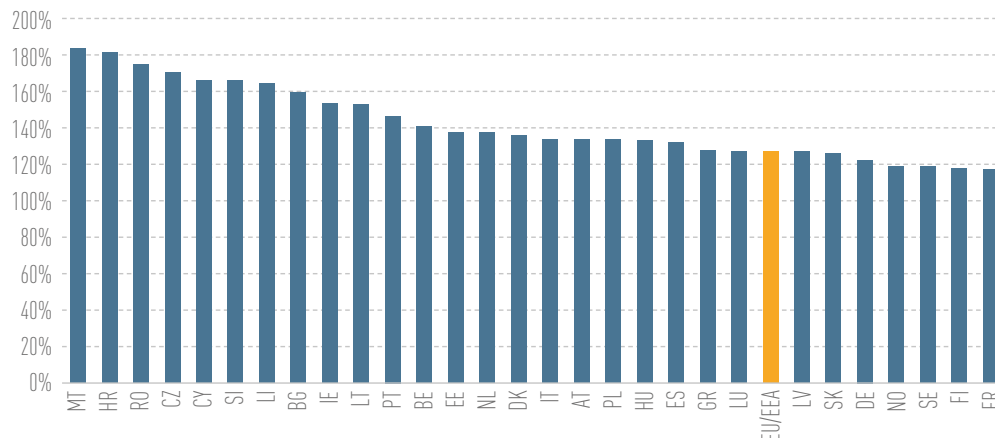
The NSFR shows a comfortable position for banks in all jurisdictions

an adequate level for all EU/EEA countries. At country level, all average ratios are above 100% (Figure 54).

With an EU aggregate figure of 127%, the NSFR, a structural liquidity indicator, shows

Figure 54: Net stable funding across EU countries (June 2022)

Source: Supervisory reporting data



A bank-by-bank comparison shows that as of June 2022 no bank had NSFR values below 100% (Figure 55). The median NSFR stood at 132% as of June 2022 (135% as of June 2021) while the lowest quartile stood at 126% as of June 2022 (125% as of June 2021). No bank showed a NSFR ratio above 200%. An analysis by component shows only low dispersion of the numerator and denominator of the NSFR, the available stable funding (ASF) and the required stable funding (RSF), re-

spectively (Figure 55). Retail deposits are the main component of bank’s ASF representing 45.5% of it. Funding from financial customers and central banks comes at the second place (14.7 % of the total ASF). Capital, funding from NFCs and liabilities with unknown counterparties are also important, each of them representing around 12% of ASF. Regarding the denominator of the ratio, loans are the main component, representing 78.7% of the total RSF (Figure 56).

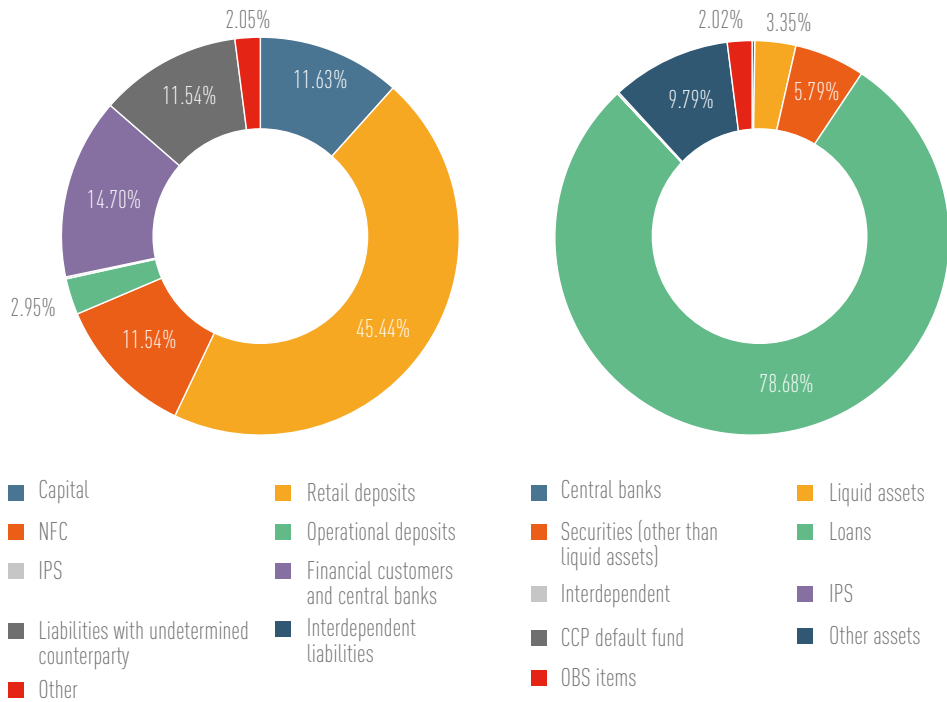
Figure 55: Net stable funding: distribution at bank level (median, interquartile range, maximum and minimum)

Source: Supervisory reporting data



Figure 56: Components of the NSFR (ASF – left, RSF – right)

Source: Supervisory reporting data.



In recent years, the environment of (ultra) low and even negative interest rates together with extraordinary funding measures undertaken by central banks have effectively supported EU banks' compliance with this indicator. On the one hand, the use of longer-term market-based financing has been cheaper amid low interest rates. On the other hand, for Euro area banks, the ECB extraordinary pandemic measures allowed banks to use less liquid collateral in exchange of central bank funding.^[54] This made the access to stable funding easier for banks.

However, the shift in economic and monetary developments resulted in a raise in interest rates in recent quarters. This development may also have an impact on banks' funding

structure and funding costs, which will then translate into lower NSFRs going forward. Additionally, the ECB's phase out of the temporary pandemic collateral easing together with the expected end of TLTRO-3 instruments during 2023 will presumably result in a further reduction in the shares of central bank funding.^[55] Also this development will presumably support the change in banks' funding structures, emphasising the trend towards lower stable funding structures of banks. The NSFR is for this reason also part of above mentioned further analysis of the potential impact of maturing TLTRO-3 funding and further market developments on banks' liquidity buffers, which will be particularly relevant for those banks with rather lower NSFR values.

[54] See the ECB's press statement on this.

[55] It should be noted that the TLTRO 3 instruments maturing in 2023, have as of June 2022 a maturity below 1 year. So they are included in the available stable fund with a haircut of 50% if between 1 year and 6 months and not included at all if below 6 months.

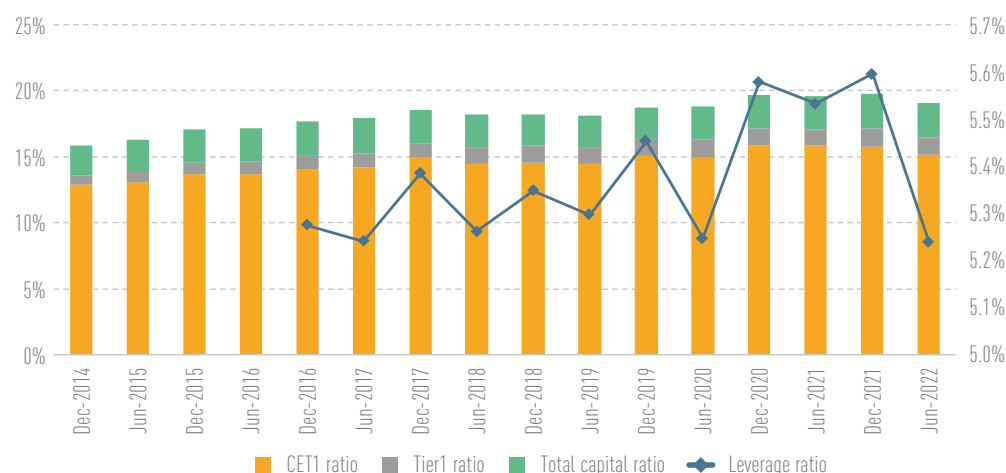
4. Capital

Capital ratios decreased in the past year

EU/EEA banks decreased their capital ratios in the past year. A substantial RWA surge due not least to increasing lending volumes, which outpaced organic capital generation via retained earnings, led to a CET1 ratio of 15.2% (15% on a fully loaded basis), a decrease of 60 bps from 15.8% in June 2021. ^[56] This decrease is the first YoY decline since 2015. Banks' total capital ratio decreased

as well and stood at 19%, 60 bps below the June 2021 level. The AT1 component decreased slightly by 3 bps representing 1.2% of RWA. The T2 component increased by 10 bps compared to June 2021 and stood at 2.6% of RWA (Figure 57). Dispersion across banks increased in the past year with the 5th percentile remaining at around 12.3% and the 95th percentile increasing to 36.1% (33.2% in June 2021) for the CET1 ratio.

Figure 57: Capital ratios (lhs, transitional definitions) and Leverage ratio (rhs)
Source: Supervisory reporting data



The leverage ratio has also decreased by 60 bps and stood at 5.3% as of June 2022. This drop is partly attributable to the end of the exemption allowing central banks exposures to be excluded from the leverage ratio exposure measure (Figure 58).^[57] Exempted

exposures represented 8% of total leverage ratio exposures during the exemption period, which ended by 1 April 2022. For banks in several countries, this share increased to 10% or more (Figure 59).

^[56] AT1/T2 shortfalls, which must be absorbed by CET1 capital, are not considered in the CET1 ratio.

^[57] In September 2020, the ECB allowed banks to exclude certain central bank exposures from the denominators of their leverage ratios owing to the exceptional macroeconomic circumstances. In June 2021 the ECB extended that measure until the end of March 2022. From 1 April 2022, banks had reinstate central bank exposures in the leverage ratio. See more on [ECB will not extend capital and leverage relief for banks](#), February 2022.

Figure 58: Leverage ratio exposure measure (EUR bn, fully phased-in definition) and exemptions
 Source: Supervisory reporting data

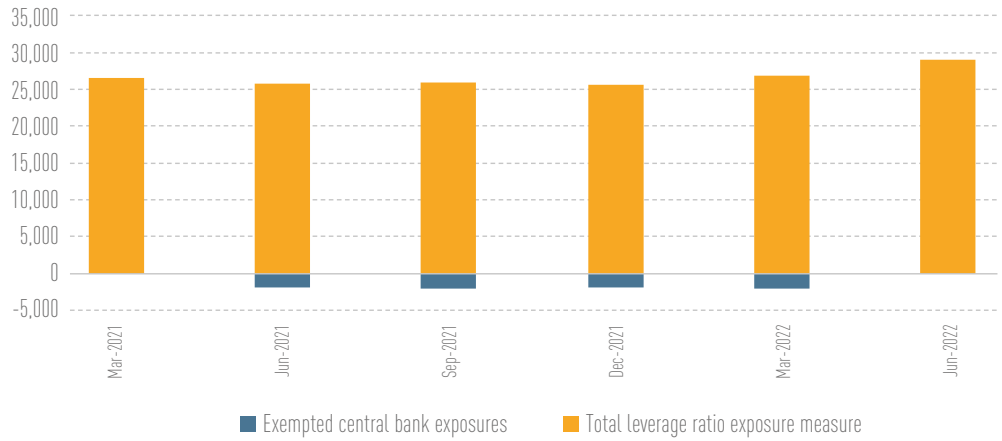
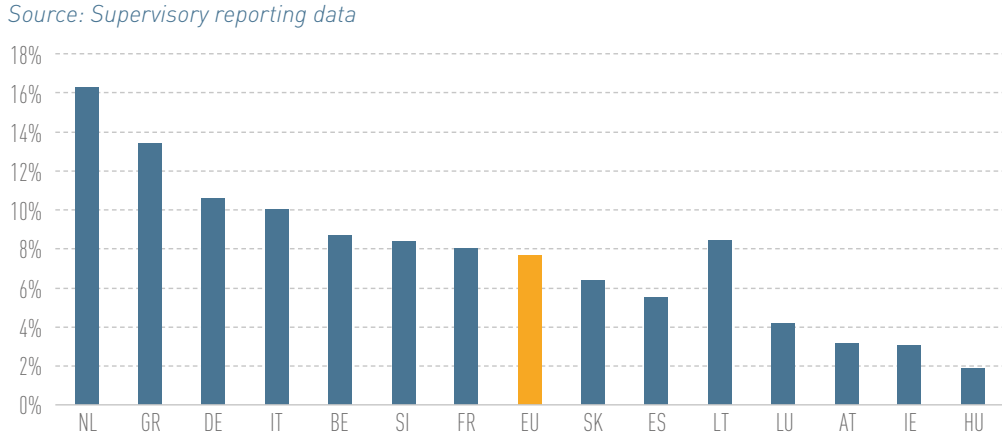


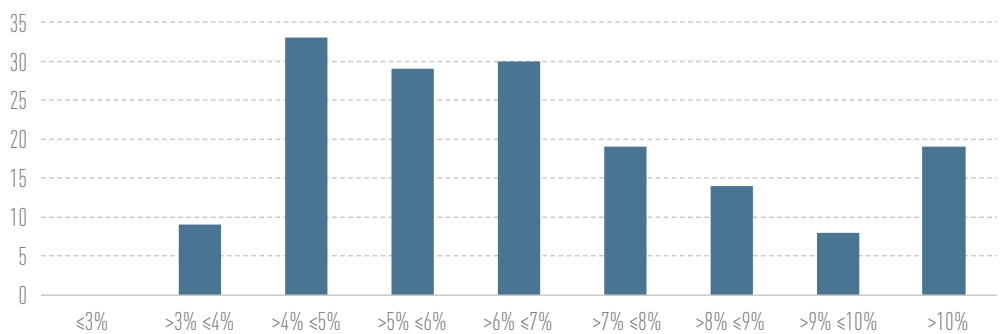
Figure 59: Average percentage of leverage ratio exposure measure exempted from Q2 2021 to Q1 2022
 Source: Supervisory reporting data



Most banks in the sample (74%) reported a leverage ratio of at least 5% as of June 2022 and, given this, have a buffer of more than 200 bps above the minimum requirement of 3%. This minimum requirement became applicable for EU/EEA banks in June 2021, whereas

the leverage ratio buffer requirement on G-SIIs will become applicable from 1 January 2023. Another 20% of the banks in the sample reported a buffer of between 100 and 200 bps, while 6% of the banks were within 100 bps of the minimum requirement (Figure 60).

Figure 60: Leverage ratio buckets
 Source: Supervisory reporting data



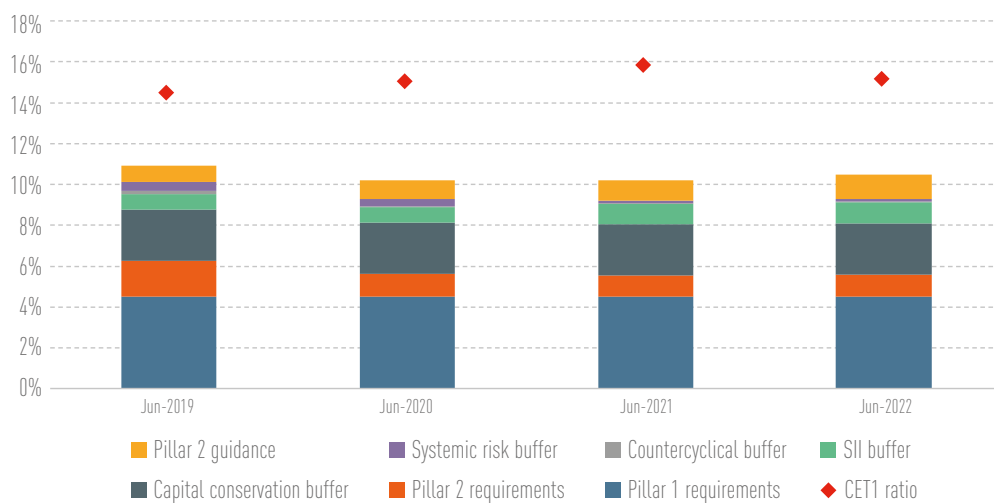
Banks to rebuild capital buffers to enhance resilience ahead of downturn period

Banks' headroom over CET1 capital requirements and P2G decreased in the last year and stood at 4.65% in June 2022 (5.58% in June 2021), ranging from -0.46% to well above 20% for individual banks.^[58] The overall decrease was due to declining capital ratios and, to a lesser extent, rising capital requirements. Overall CET1 capital requirements, which consist of Pillar 1, Pillar 2 and the combined buffer requirements, increased slightly in the past year and stood at 9.30% in June 2022 (9.20% in June 2021). While still significantly below the level applicable before the COVID-19 pandemic in June 2019 (10.07%), the increase of 10 bps since June 2021 was driven by an increase of the capital buffer required for systemically important institutions (+3 bps) and revised Pillar 2 requirements (+4 bps). As a result, the combined buffer requirement stood at 3.69% and Pillar

2 requirement at 1.11% as of June 2022. The Countercyclical Capital Buffer (CCyB) added 1 bp to the overall increase but remained at a very low level of 0.04%.

National authorities have started to re-activate the CCyB requirements that were released during the COVID-19 pandemic. The Systemic Risk Buffer (SRB) remained at a low level of 0.11%, unchanged compared to June 2021 but significantly below the level of 0.43% observed before the pandemic in June 2019. As pointed out in the EBA's reply to the Commission's review of the macro-prudential framework, it will be important to build regulatory capital buffers to sufficient levels so that they can be released when needed again in the future.^[59] The P2G, the level of capital that CAs expect banks to maintain in addition to their binding capital requirements, increased by 18 bps and stood at 1.20% in June 2022 (1.02% in June 2021) (Figure 61).

Figure 61: Capital requirements
Source: Supervisory reporting data



Retained earnings drove the small increase in CET1 capital resources

The level of CET1 capital resources in June 2022 has increased by 1% compared to June 2021 (EUR 1,414 bn in Q2 2022 vs 1,404 bn in Q2 2021). Supported by solid results in 2021 and the first half of 2022, retained earnings have increased substantially by 11%. The rise in retained earnings was almost entirely offset by a decline in capital instruments, which

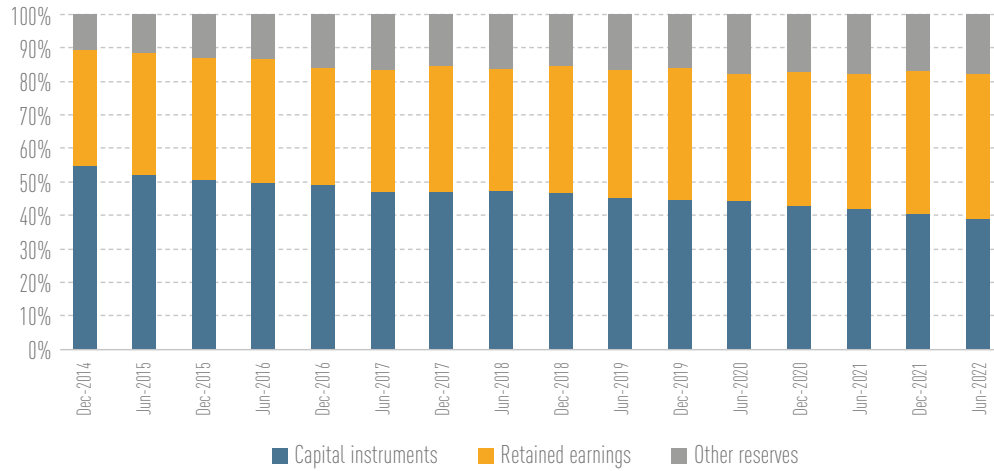
consist of paid-in capital and share premiums, and an increase in deductions from CET1. Capital instruments continued their downward trend observed in the past years. The reduction of 4% in the last year compares to a 1% decrease in the year before and resulted in the share of capital instruments in total CET1 decreasing to less than 40 % as of Q2 2022. Due to the expiry at the end of 2021, grandfathered CET1 instruments are no longer eligible as CET1 capital (Figure 62).

^[58] AT1/T2 shortfalls, which must be absorbed by CET1 capital, are not considered in the calculation.

^[59] See the EBA's [advice on how to simplify and improve the macroprudential framework](#).

Figure 62: Share of main CET1 capital components⁽⁶⁰⁾

Source: Supervisory reporting data

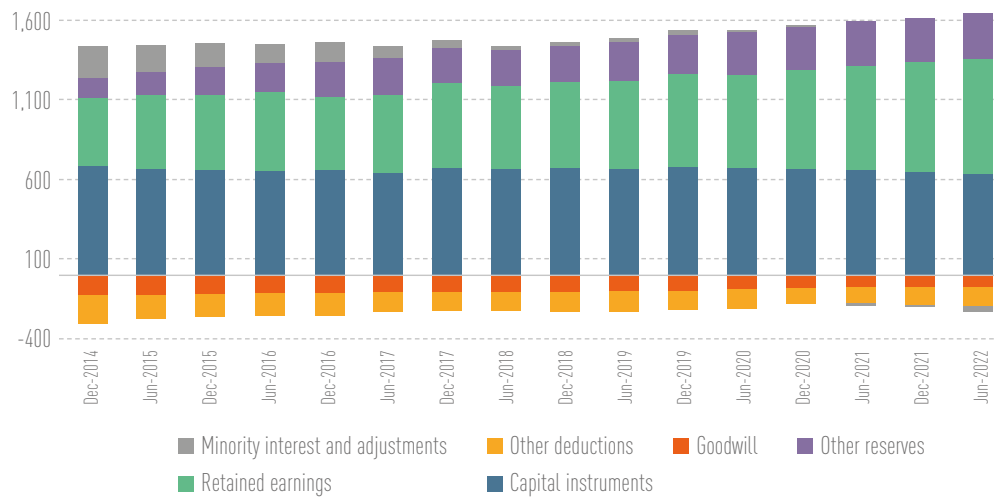


The increase in goodwill and other deductions compensated most of the capital gained from retained earnings. While goodwill increased by 2%, other deductions were on average 15% higher than in June 2021. Deductions based on OCI, which reflect gains or losses that have yet to be realised, increased by 29% and represent the biggest driver of deductions in absolute terms. The respective OCI reserve does not least reflect moves in sovereign bond exposures,

which have been affected by rising yields (see Chapter 1 on interest rate moves and Chapter 2.1 on sovereign exposures, incl. the share of those measured at fair value through OCI). Defined benefit pension fund assets, deferred tax assets as well as other intangible assets also increased substantially, adding to increasing CET1 deductions. Voluntary deductions banks can make based on Article 3 CRR also increased by 65% in the last year (Figure 63).

Figure 63: CET1 capital components (EUR bn)

Source: Supervisory reporting data



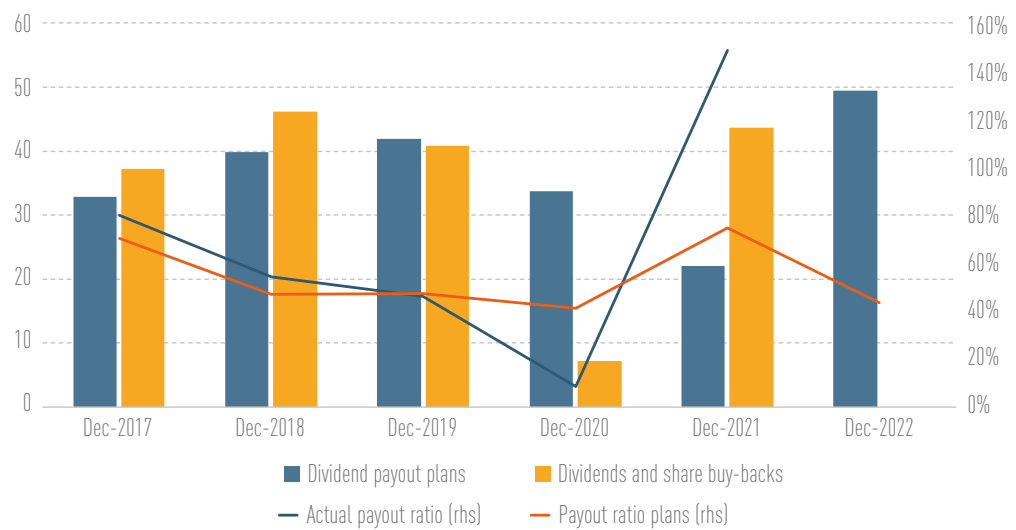
⁽⁶⁰⁾ Main CET1 components being understood here as the most prominent source of CET1 capital excluding transitional adjustments and minority interests, not taking into account goodwill and other deductions.

Shareholder remuneration has bounced back after restrictions were lifted

2021 saw dividend payments and share buy-backs bounce back from extraordinary low levels in 2020. Most restrictions on shareholder remuneration, put in place after the outbreak of the COVID-19 pandemic, were lifted by the end of 2021 and European banks reported almost EUR 44 bn of dividend payments and share buy-backs (148% of year-end 2020 profits). In 2022, banks plan to

further increase shareholder remuneration to EUR 49 bn (44% of year-end 2021 profits). This amount is higher than in any of the past 5 years, as banks reported solid profits in 2021 and some banks might still be catching-up on shareholder remuneration that they deferred due to the restrictions in place throughout 2020 and parts of 2021. The estimated payout ratio of 44% for planned dividends and share buy-backs in 2022 is roughly in line with the long-term average (2015 – 2020) of 49% (Figure 64).

Figure 64: Dividends and share buy-backs (in EUR bn) and payout ratio
Source: Supervisory reporting data



Going forward, banks need to be prudent in their planning of capital resources and dividend payments in order to safeguard their financial resilience. Sufficient capital buffers are vital for financial stability, and are necessary for banks to keep lending throughout periods of economic downturns (see Chapter 1 on the increasingly uncertain economic outlook).

in market risk is not least linked to the market volatility triggered by macro uncertainties and geopolitical turmoil, as well as the repricing of bonds in the context of increasing rates. Similarly, credit valuation adjustment (CVA) and other risks have increased by 27.5% on a YoY basis, reflecting the rise in counterparty risk on the credit derivatives markets.

RWA increase driven by growing lending volumes

EU/EEA banks' RWA increased by 4.9% compared with June 2021. Credit risk increased by 3.7% since June 2021 and continued to be the main source of RWA representing 83.3% of total RWA. While most of the absolute RWA increase is attributable to credit risk, market risk showed the strongest growth rate with 29.7% since June 2021. This steep increase

Operational risk also increased, but at a slower pace than the average RWA with an upward trend of 1.8%. Despite this rather mild increase, operational risk remains the second largest RWA component with 9.5% of total RWA. As a result of the surge in market and CVA risks, the composition of banks' RWA has changed with the share of market risk rising to 4.1% (3.3% in 2021) and CVA representing 3.0% (2.5% in 2021) of total RWA (Figure 65 and Figure 66).

Figure 65: RWA by type of risk (EUR tn)

Source: Supervisory reporting data

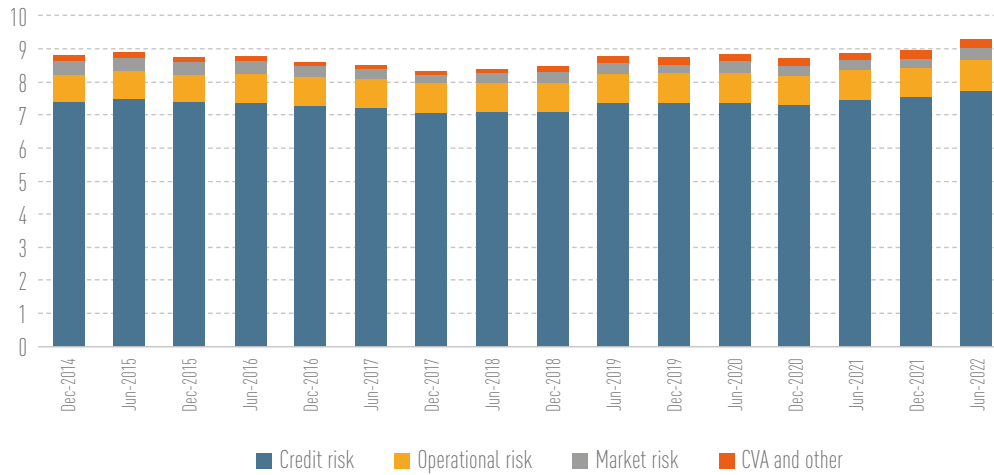
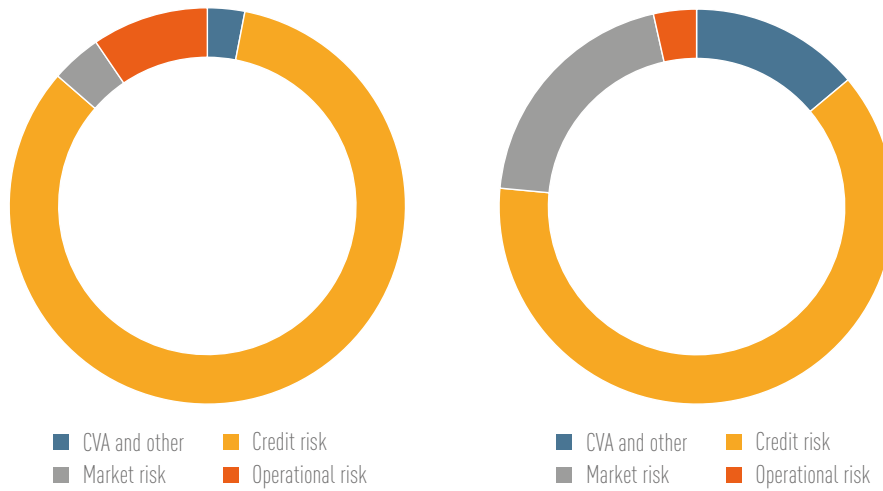


Figure 66: RWA composition by type of risk (average 2014 to 2022) (left) and sources of RWA increase since June 2021 (right)

Source: Supervisory reporting data

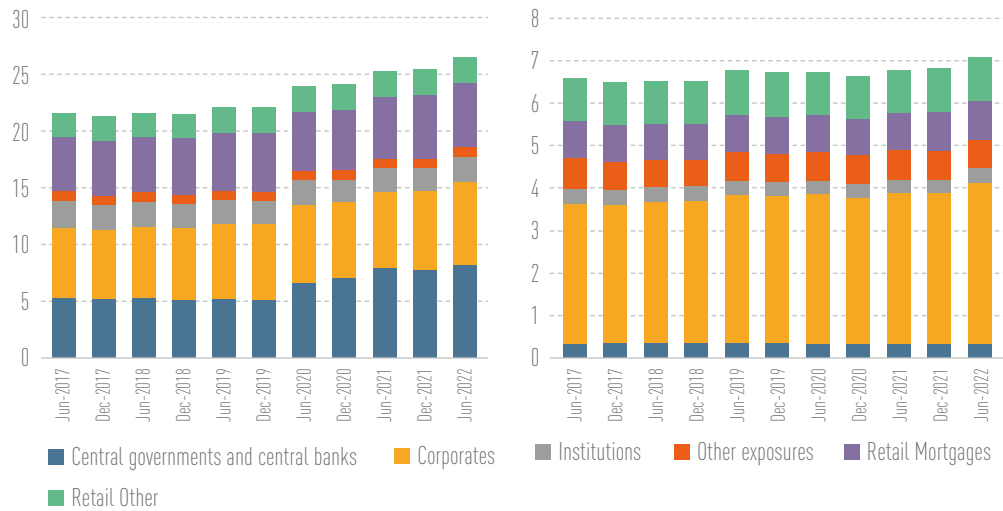


Different trends can be observed for various credit risk exposure classes. Between June 2021 and June 2022, RWA for CG increased slightly by 0.2%, and those for financial institutions by 2.3%. On the other hand, RWA increased significantly for corporate exposures (+7.2%) and for retail mortgages (+5.0%). The RWA increase was mainly driven by a surge in exposures amounts, which rose by an average of 4.9% in the last year. The rise

was strongest for exposures to corporates (+9.3%), institutions (+6.5%) and retail mortgage customers (3.7%). In contrast to corporate exposures, where the increase in RWA is lower than the rise in exposure amounts, the RWA increase for retail mortgage exposures surpassed the rise in underlying exposure amounts, signalling a change in the underlying risk profile for both exposure classes (Figure 67).

Figure 67: Credit risk exposures (left) and RWA (right) for selected exposure classes, excluding e.g., securitisation and equity (EUR tn)

Source: Supervisory reporting data

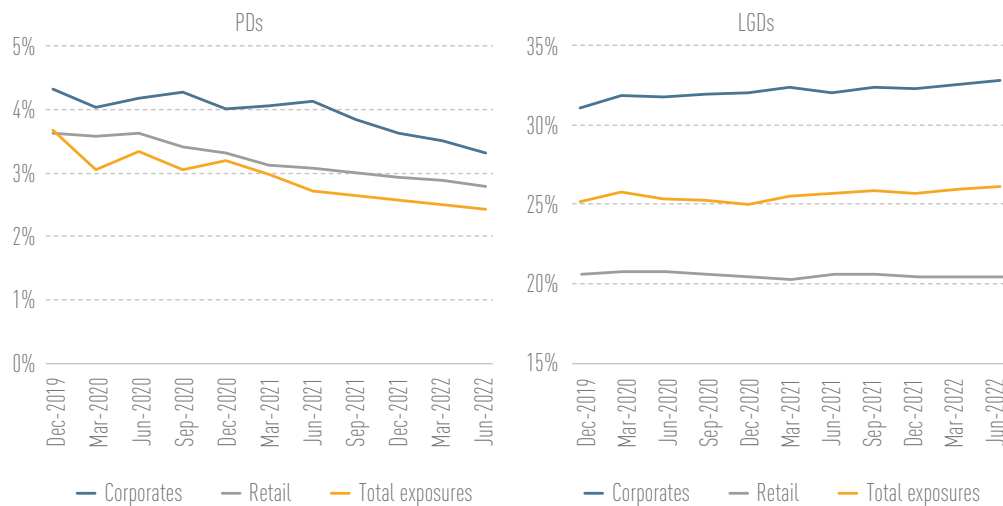


Banks' parameters for internal credit risk models show a rise in loss given default (LGD), with an average increase of 49 bps for internal ratings based (IRB) exposures from 25.65% in June 2021 to 26.14% in June 2022 (Figure 68). The overall increase was driven by the corporate sector, with an increase of 80 bps to 32.83% in June 2022. LGD values for

the retail portfolio declined by 16 bps since June 2021 and stood at 20.36% in June 2022. Probability of default (PD) values, on the other hand, continued to decline across exposure classes and stood at 2.78% for retail exposures (3.07% in June 2021), and 3.31% for corporate exposures (4.13% in June 2021) (Figure 68).

Figure 68: IRB parameters

Source: Supervisory reporting data



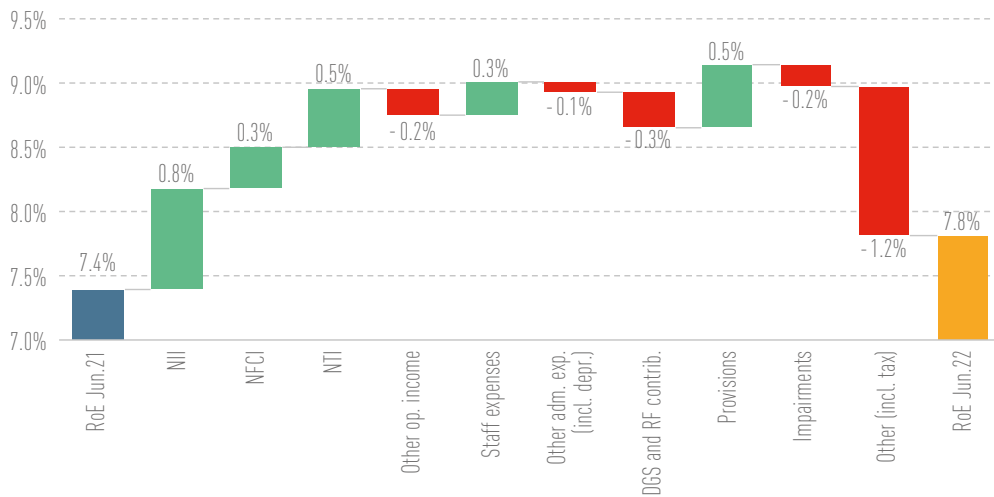
5. Profitability

The RoE of EU/EEA banks reached 7.8% in June 2022, compared to 7.4% a year earlier driven by higher NII. Despite inflationary pressures, banks also managed to contain their staff expenses. Lower provisions (other than those related to credit impairments) also explain a substantial share of the profit-

ability improvement in the past year. On the contrary, the negative contribution of the residual category “Other (incl. tax)” is due to the absence in 2022 of large one-off gains (mainly negative goodwill adjustments originated in some corporative operations) compared to 2021 (Figure 69).

Figure 69: Contribution to the RoE of the main P&L items, calculated as a ratio to total equity (2021-2022)

Source: Supervisory reporting data

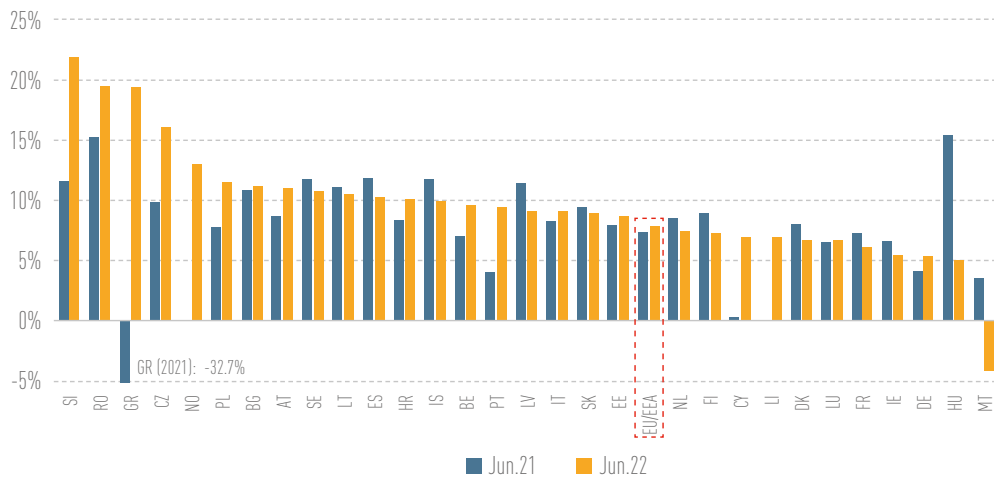


Despite these improvements, the average RoE remains below the estimated cost of equity (CoE) for many banks. According to the results of the RAQ, 77% of banks estimate their CoE stands above 8%. At country level, the highest profitability levels were observed in banks from Greece, Romania and Slovenia, which presented RoE levels of ca. 20%. On the other hand, the worst performers were banks from

Hungary and Ireland (with RoEs of ca. 5%), as well as banks from Malta, which were the only ones with a negative RoE in 2022. Among the countries with the largest banking sectors, banks from Spain, Italy and Sweden fared relatively well, with RoEs around 10%, whereas banks from France, Germany and the Netherlands exhibited RoEs of 6.2%, 5.4% and 7.4%, respectively (Figure 70).

Figure 70: RoE by country

Source: Supervisory reporting data



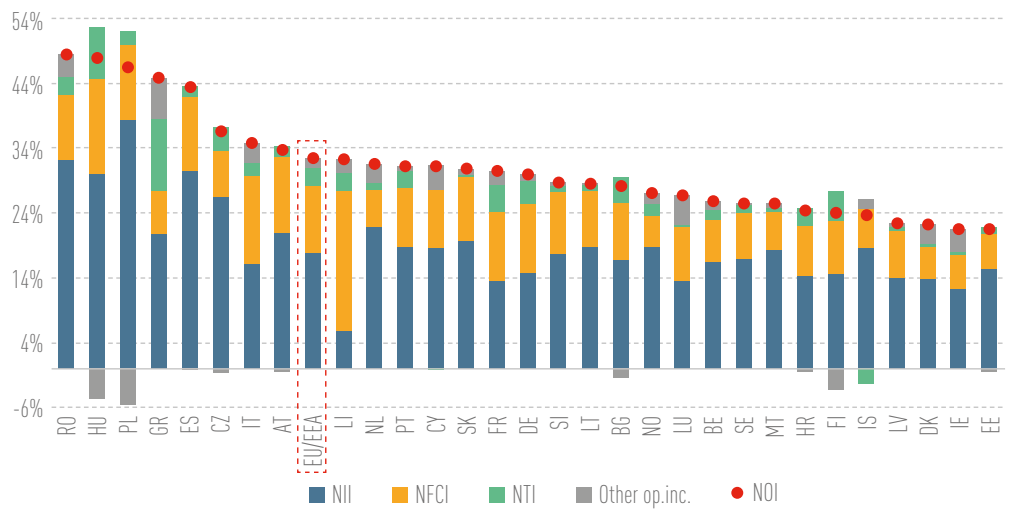
In the medium term, market participants do not expect major profitability improvements. Rising rates expectations in late 2021 resulted in increasing bank valuations, but those improvements vanished in 2022 amid stagflationary pressures and the geopolitical setting. Since the GFC, banks' valuations have languished. The average price to book (PtB) ratio of the Euro Stoxx Banks index has been uninterruptedly below 1 since 2009. Nonetheless, until Russia's invasion of Ukraine this index outperformed the Stoxx Europe 600, and the PtB ratio of the Eurostoxx 600 banks rose from 0.60 in June 2021 to 0.75 in February 2022. Market participants seemed to welcome rising rates expectations as they could help many banks to escape the zero lower rate bound, thus, reprice their assets at a faster speed than their liabilities and recovering NIM. However, the Russian war and stagflation concerns wiped out those gains (see Chapter 1). Since the outbreak of the Russian war Euro

Stoxx Banks has underperformed the Stoxx Europe 600 and, currently, its average PtB ratio is around 0.55.

Lending growth and increasing margins have driven NII up

EU/EEA banks' net operating income (NOI) rose by 7.4% in the twelve months from June 2021 to June 2022 amid an increase of all three main revenue lines (NII, net fee and commission income (NFCI) as well as net trading income (NTI)). NOI amounts to 32.5% of equity (31.1% in 2021). At country level, banks in CEE countries such as Hungary, Romania or Poland show the largest share of NOI as percentage of equity presumably because of their lower exposure to jurisdictions affected by low and negative rates. In contrast, in countries such as Denmark, Estonia or Ireland, NOI amounts to ca. 22% of equity (Figure 71).

Figure 71: NOI as % of equity by country (June 2022).
Source: Supervisory reporting data

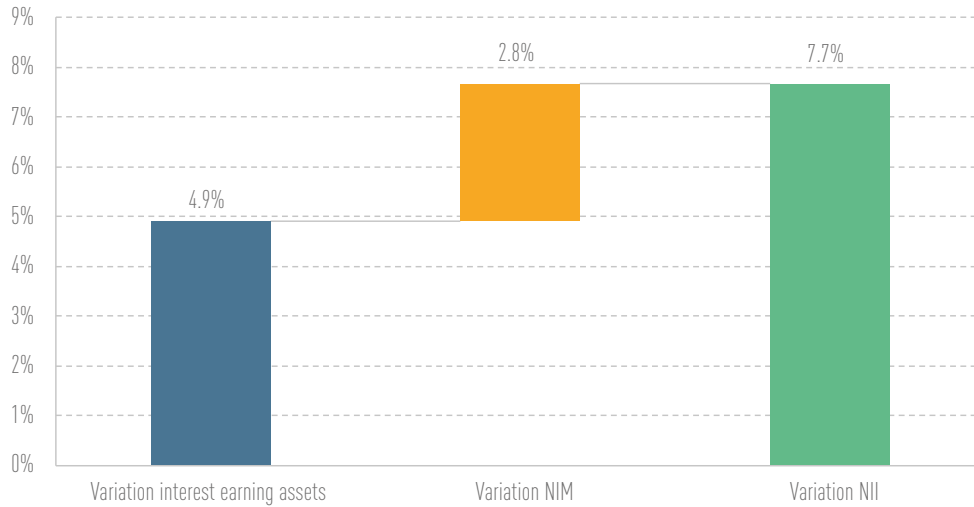


The increase in revenues was broad-based, with the largest contribution to the improvement in RoE coming from NII. NII accounts for more than half of total NOI and it registered an increase of 7.7% from June 2021 to June 2022. The rising rate environment has allowed banks to revert the declining trend

in NIM. This component increased by 4 bps to 1.28% from June 2021 to June 2022. Despite this rise in NIM, the increase in interest earning assets (+4.8% YoY) explains the largest share of the observed improvement of NII (Figure 72).

Figure 72: Contribution to NII (June 2021 to June 2022).

Source: Supervisory reporting data

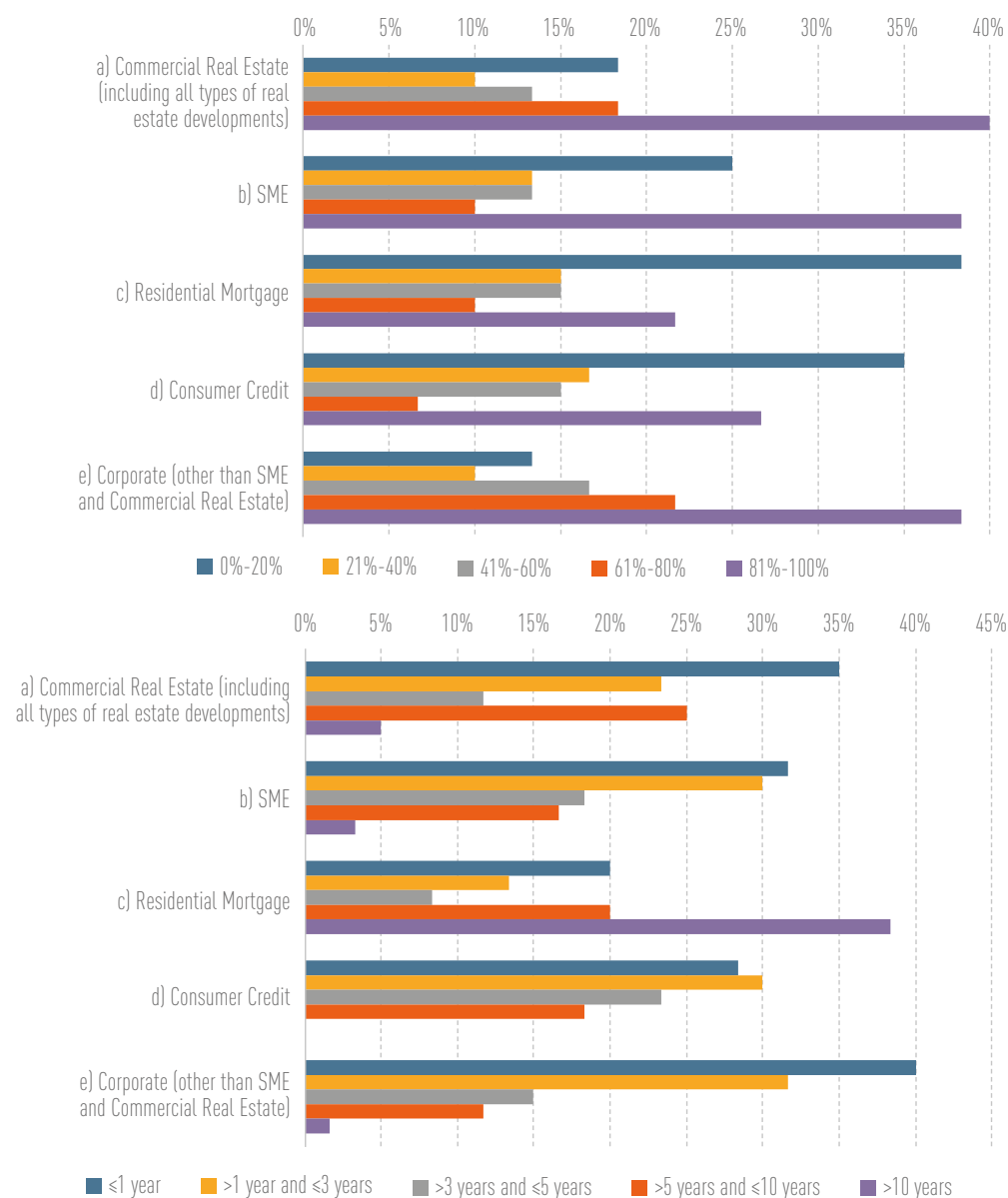


Going forward, the growth in interest earning assets might slow down while NIM might further increase. Macroeconomic headwinds might have a negative impact on lending growth, therefore limiting the upside potential of NII. But rising rates are expected to result in further increasing NIM. As rates rise, banks are likely to reprice their assets, including their stock of high quality and liquid assets, many of which were offering negative yields until recently.

Yet the increase in margins cannot be taken for granted for some banks. Banks' hedging policies and positioning might affect the impact of changing rates. Despite an increase in average NIM, the NIM of the lowest fifth percentile remains at the same level as of

June 2021 (0.24%). The repricing of assets might also be rather slow if lending growth is sluggish or if a bank has a large share of its portfolios referenced at fixed rates. For example, ca. 40% of banks responding to the RAQ reported that less than 20% of their residential mortgage loans would be repriced in the next 12 months. A similar percentage of banks also reported interest rate fixation periods at origination of more than 10 years for this loan portfolio. In contrast, for portfolios such as CRE and corporate, banks report a comparatively high share of loans repricing in the next 12 months and a relatively low interest rate fixation periods at origination (Figure 73).

Figure 73: Share of loans repricing in the next 12 months (top) and average interest rate fixation periods for loans at origination (bottom) (% of responding banks)
 Source: RAQ for banks



On the other hand, the repricing of liabilities might be faster than expected. Banks that are more reliant on wholesale funding or which need to build up or refinance a substantial part of their MREL buffer might be more exposed to the increase in yields and the spread widening observed in wholesale funding instruments (see Chapter 3).

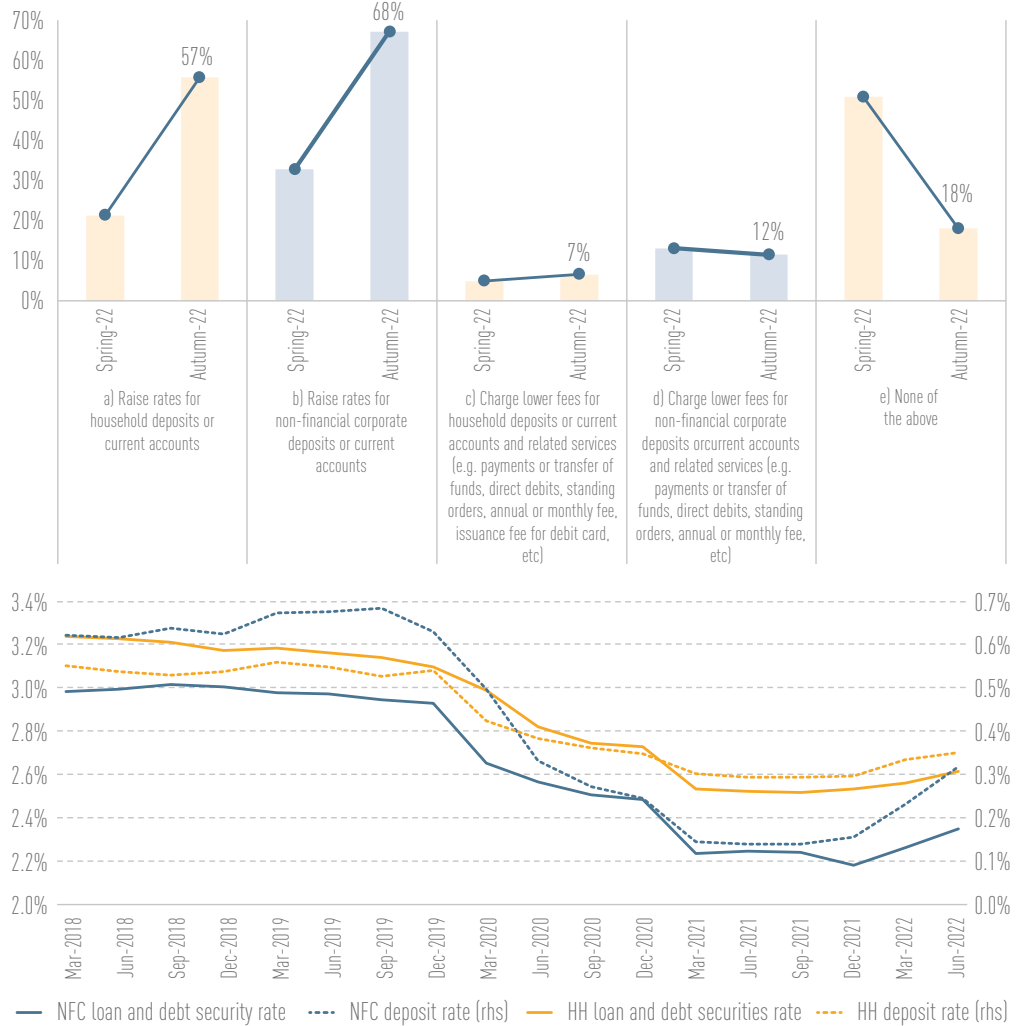
The refinancing of TLTRO-3 borrowing might also have an adverse effect on NII. Many banks may need to refinance it - at least partially - with presumably more expensive wholesale funding. Moreover, the changes in TLTRO-3 terms from November 2022 (see Chapter 1 and Chapter 3.1) will make this borrowing more expensive and will remove

the possibility to obtain profits by depositing TLTRO-3 borrowing at the ECB deposit facility.

Furthermore, the assumed low sensitivity of deposits to central bank rates might be challenged. Banks might opt for more deposit funding given the increased cost of wholesale funding (see Chapter 3). If they embark on a strong competition for customers' deposits, the cost of these products might increase faster than expected. In the latest RAQ, a majority of banks acknowledged they planned to raise deposit rates. This is also already reflected in the spread between loan and deposit rates. From June 2021 to June 2022, the average rate of NFC deposits rose by 18 bps

whereas the average rate of NFC loans and debt securities held by EU/EEA banks rose by just 10 bps. Household deposit rates also registered a rate increase (+6 bps.) albeit of a lower magnitude than household loans (+9 bps) (Figure 74).

Figure 74: Actions banks plan to take in relation to deposits (% of responding banks, top) and evolution of household and NFC deposit and lending rates (bottom)
 Source: RAQ for banks and supervisory reporting data

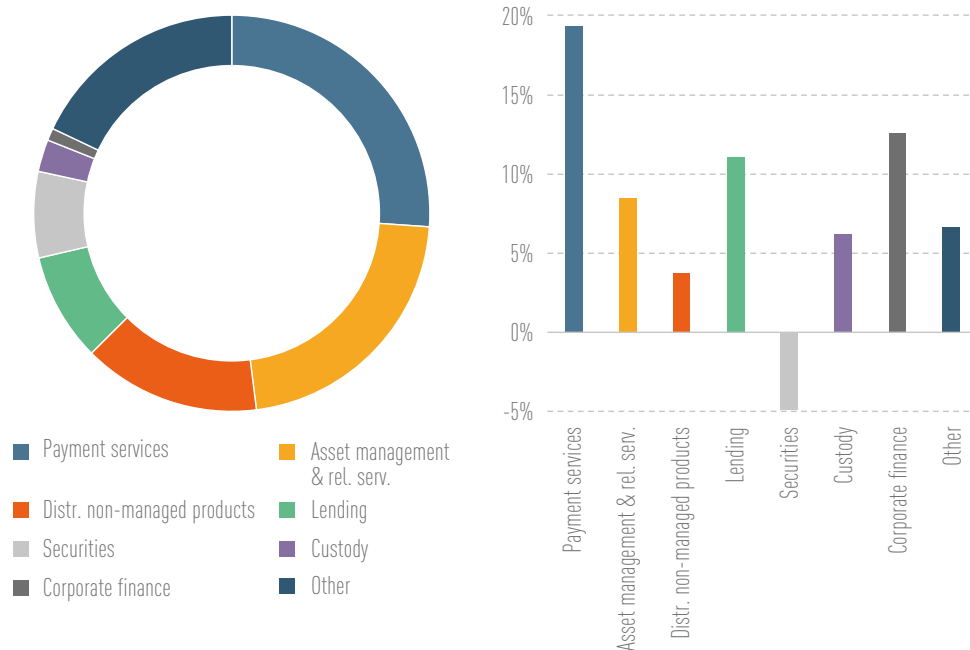


NFCI is the second most relevant revenue item, accounting for 31.3% of NOI. It is particularly relevant in countries domiciling large investment banks such as Germany and France, but for instance also in Italy. On the contrary, in countries such as the Czech Republic, Greece, the Netherlands or Norway, NFCI accounts for less than 20% of NOI. From June 2021 to June 2022, NFCI rose by

6.3%, propped up by income from payment services (+19.3%). Other relevant areas like asset management and related services (+8.4%), distribution of non-managed products (+3.7%) and corporate finance (+12.6%) also contributed to the overall increase. Nonetheless, the share of the latter over total fee income is very small (Figure 75).

Figure 75: Breakdown of fee and commission income (Jun-2022) and variation of its main components (June 2021 – June 2022).

Source: Supervisory reporting data



Under the current macroeconomic situation, further improvements in NFCI might prove challenging. A reduction in consumption might affect payment services. Rising rates and increasing market volatility might lead clients to move from riskier assets such as securities and mutual or pension funds to term deposits. In the same vein, a slowdown in loan origination will diminish lending-related fees.

NTI accounts for ca. 9% of EU/EEA banks' NOI, but it is a rather volatile element. From June 2021 to June 2022, it went up by 21.7%. However, most of the increase took place until the first quarter of 2022. In the second one, NTI fell by 10.5%, presumably because of financial market tensions observed since Russia's invasion of Ukraine.

Operating costs and impairments have only risen moderately but they are under increasing pressure

Mixed trends were observed in EU/EEA banks' costs. While operating expenses (staff and

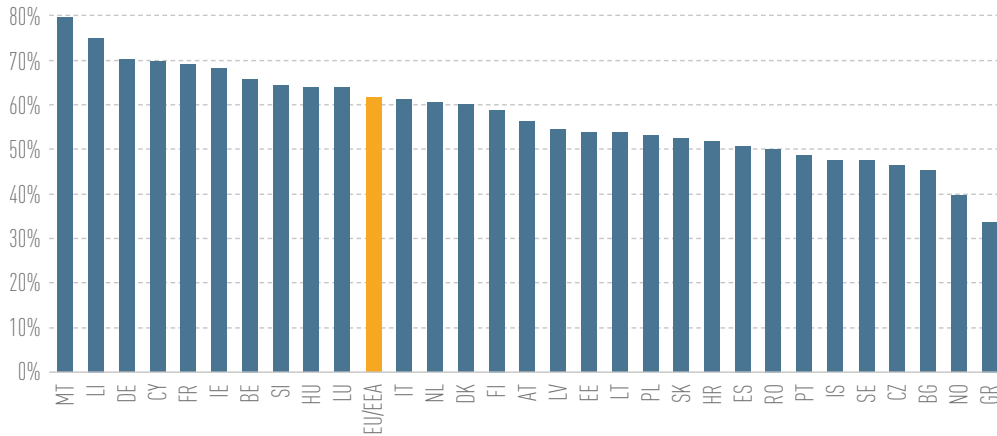
other administrative expenses as well as contributions to deposit guarantee schemes (DGS) and resolution funds (RF)) and impairments increased substantially, provisions (different from those to cover loan losses) more than halved from June 2021 to June 2022.

Operating expenses grew by 3.5% from June 2021 to June 2022 on the back of other administrative expenses⁶¹ (+4%, including depreciation) as well as contributions to DGS and RF (+22.3%). Nonetheless, the growth in operating expenses was offset by the increase in NOI and the decline in the cost-to-income ratio (CIR) from 64% to 61.6%, the lowest level since 2015. The decrease in CIR was broad based as even banks at the highest end of the distribution experienced a decline. For instance, the CIR of the highest quartile and the fifth highest percentile dropped to 71.4% and 88.4% from 74.1% and 98.7% a year before. At country level, there was a stark contrast between banks in Germany, Lichtenstein, or Malta, with CIR above 70%; and those in Greece and Norway where the CIR stood below 40% (Figure 76).

^[61] Administrative expenses different from staff expenses and depreciations.

Figure 76: CIR by country (June 2022)

Source: Supervisory reporting data

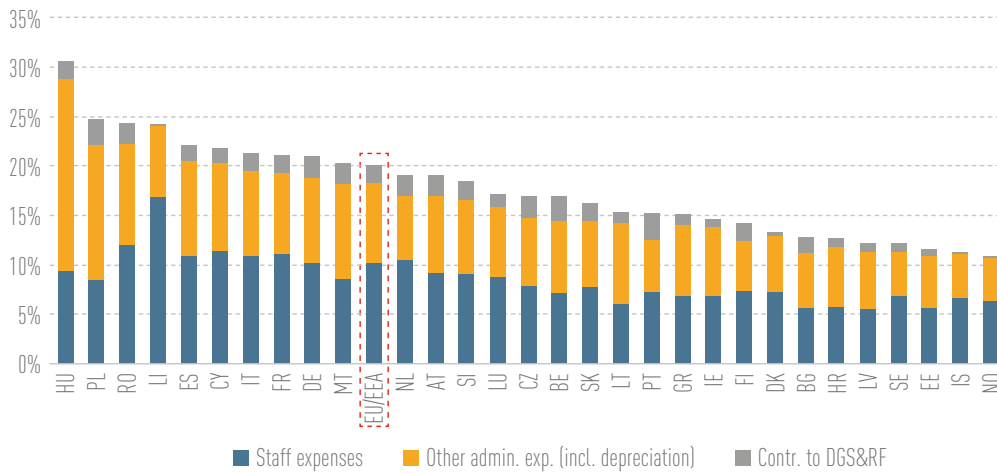


Operating expenses accounted for 20% of total equity as of June 2022 (19.9% in June 2021). They are particularly high in some CEE countries such as Hungary, Poland, or Romania. In contrast, they are very low in Nordic and Baltic countries, presumably because of the higher penetration of digital banking in these jurisdictions. In terms of variation, the largest increases were observed in Poland (+7.8

p.p.) and Romania (+5.3 p.p.) driven by other administrative expenses and staff expenses, respectively. This might not least be a result of inflation, which has been on the rise since last year.^[62] On the contrary, Greek (-1.1 p.p.) and Latvian (-3.2 p.p.) banks registered the largest drops not least due to contained operating expenses (Figure 77).

Figure 77: Operating expenses as % of equity by countries (June 2022)

Source: Supervisory reporting data

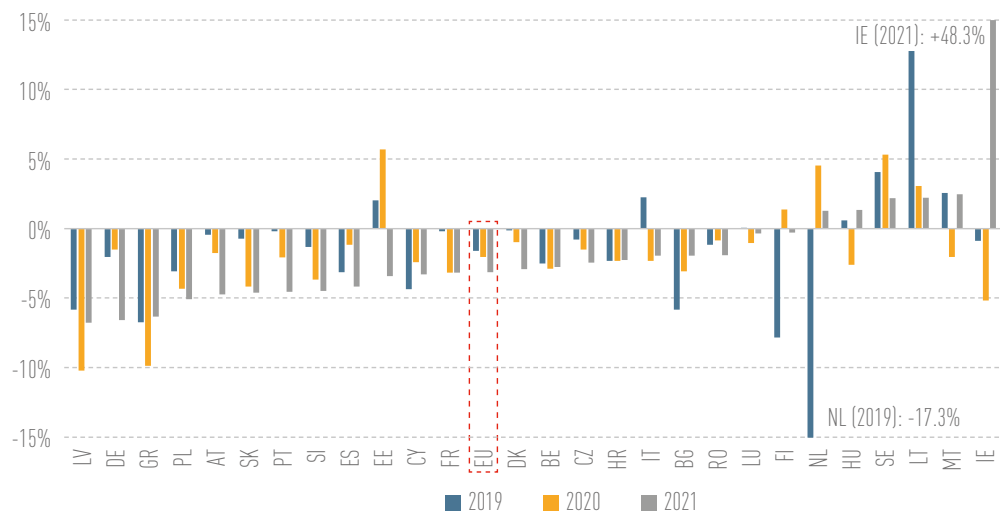


Payroll reductions were not sufficient to bring staff expenses down (Figure 78). The declining trend in the number of bank employees accelerated in 2021 (-3.2%) compared to

2020 (-2%) and 2019 (-1.6%; Figure 78). Yet inflationary pressures seem to have weighed more on overall staff expenses as they grew by 0.4% from June 2021 to June 2022.

[62] See for Polish inflation the data of the National Bank of Poland (NBP) and for Romania the data of the National Bank of Romania (NBR).

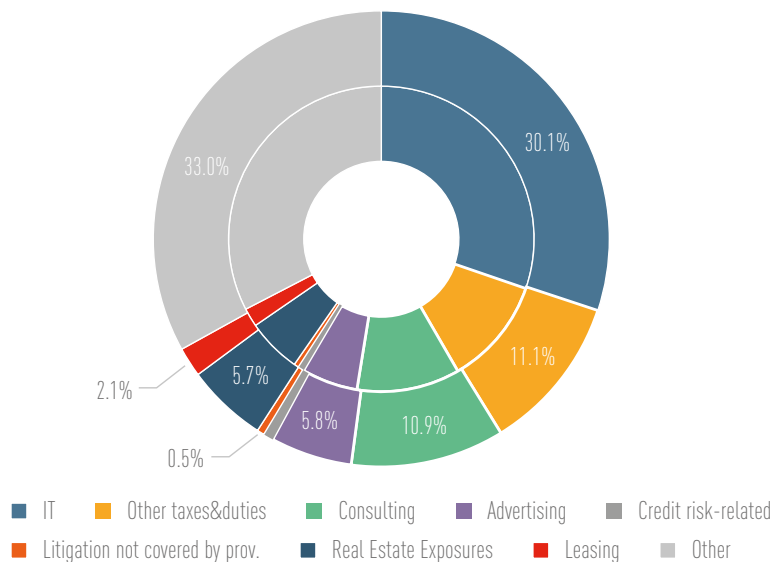
Figure 78: Annual variation in the number of employees
Source: ECB Statistical Data Warehouse



A closer look at other administrative expenses reveals that information technology (IT) costs are the most relevant ones, accounting for more than 30% of them. Moreover, part of the consulting expenses might also be related to IT. It is also noteworthy

that 46% of IT expenses are outsourced. IT expenses are followed by other taxes and duties different from taxes related to profit or loss, or from discontinued operations (e.g., taxes and duties levied on goods and services; Figure 79).

Figure 79: Breakdown of other administrative expenses as of June 2021 (inner circle) and June 2022 (outer circle)
Source: Supervisory reporting data

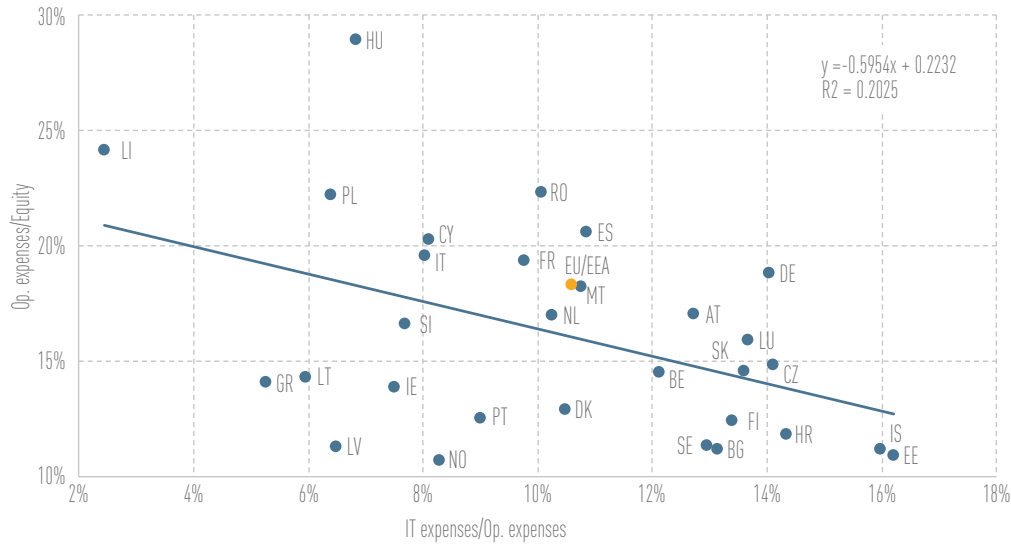


Further analysis indicates that there seems to be a negative relation between IT expenses and operating expenses. Nordic countries such as Finland, Iceland or Sweden show low ratio of operating expenses to total equity and high ratios of IT expenses to oper-

ating expenses. On the contrary, banks from Hungary, Liechtenstein and Poland spend a smaller part of their operating expenses in IT and have higher ratios of operating expenses to total equity (Figure 80).

Figure 80: Ratio of IT expenses to operating expenses and ratio of operating expenses to total equity (June 2022)⁽⁶³⁾

Source: Supervisory reporting data

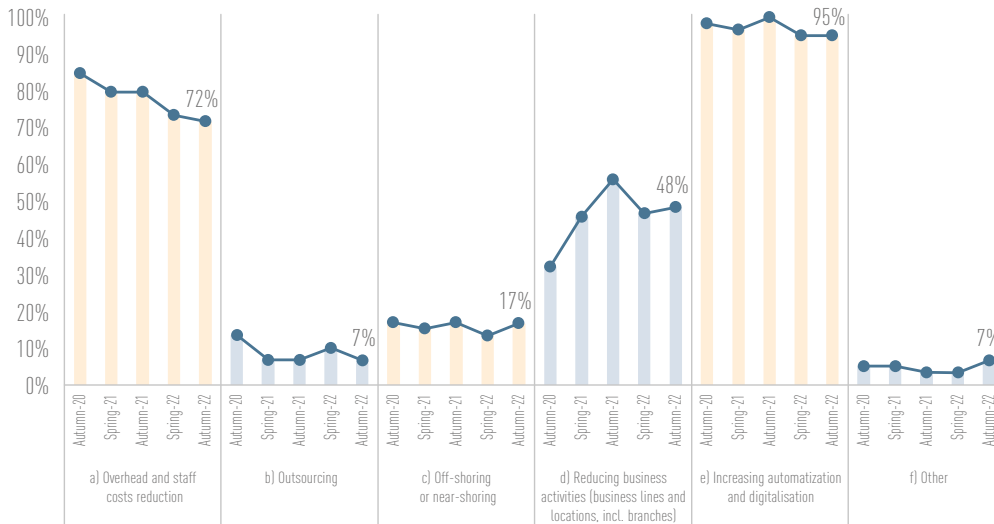


Banks' responses to the RAQ reveal the relevance of ICT investments. Increasing automation and digitalisation continues to rank

first among the options selected for banks to reduce operating expenses (Figure 81).

Figure 81: Primary measures banks are adopting to reduce operating expenses (% of responding banks)

Source: RAQ for banks



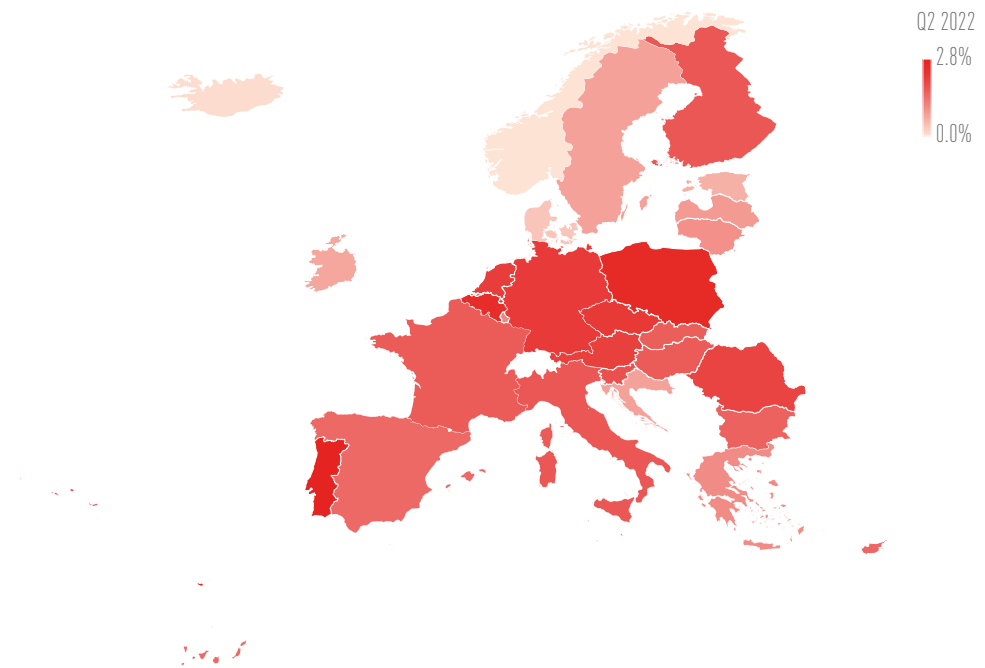
Contributions to DGS and RF have increased by more than 20% from June 2021 to June 2022. They accounted for 1.7% of total equity (1.5% in June 2021). The increase seems to be driven mainly by the material increase in covered deposits in 2020 and 2021 (see Chapter 3). In addition, as the end of the transition period to attain the target levels is getting closer, those

DGS and national RF which are below their expected funding trajectory would need to raise more contributions than in previous years. The failure of some subsidiaries of Russian banks and some other institutions might result in additional higher contributions in some jurisdictions.⁽⁶⁴⁾ Nonetheless, the overall increase related to these failures might also depend on the amount and timing of the recoveries the DGSs receive (Figure 82).

⁽⁶³⁾ For the purposes of this analysis, operating expenses include staff expenses, other administrative expenses, and depreciation. Contributions to DGS and RF are not considered.

⁽⁶⁴⁾ See more on [Notifications on resolution cases and use of DGS funds received by the EBA](#).

Figure 82: Contributions to RF and DGS as percentage of equity (June 2022)
 Source: Supervisory reporting data

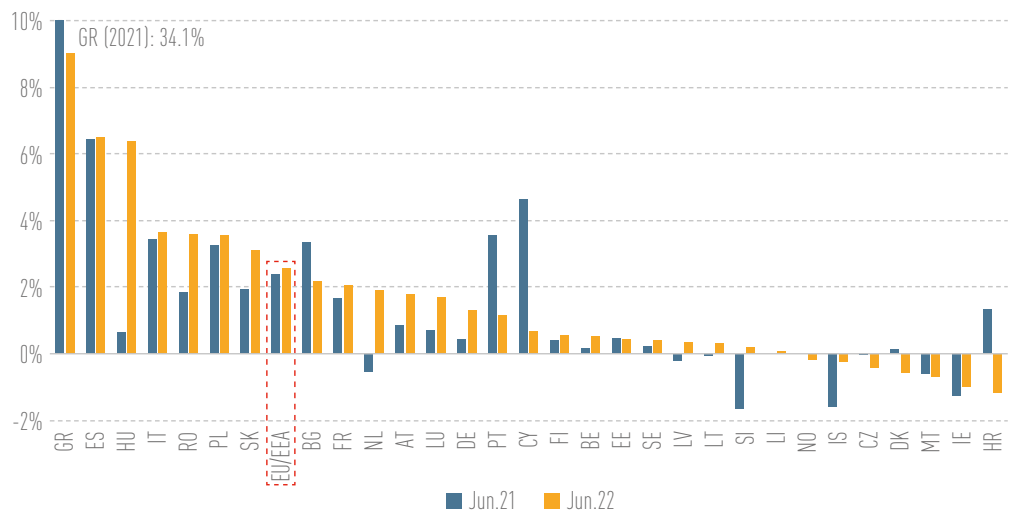


Amidst a deteriorating macroeconomic outlook, impairments grew by 10.1% from June 2021 to June 2022. Nonetheless, the average CoR of EU/EEA banks went down from 0.51% to 0.46% as lending growth offset the increase in impairments. The release or the reallocation of COVID-19-related overlays might blur the increase in provisions that would have taken place if the pandemic had not preceded the current macroeconomic

environment (see textbox on IFRS 9 overlays in this chapter; on the drivers for CoR by IFRS 9 stages see Chapter 2.2).

As a percentage of equity, impairments increased by 0.2 p.p. to 2.5%. They are particularly high in Spain, Greece, and Hungary. On the other hand, banks from countries such as Croatia, Ireland, or Malta benefitted from a release of accumulated impairments (Figure 83).

Figure 83: Impairments as percentage of total equity.
 Source: Supervisory reporting data



Provisions (other than those related to credit impairments) declined in absolute terms for the first time since 2018. In June 2022 they accounted for 0.3% of equity (0.8% a year before). Although banks are still in a challenging operating environment, provisions dropped by more than 60% (see Chapter 6).

Going forward, newly introduced banking taxes might negatively affect bank profitability. As of June 2022, taxes and duties cost banks an amount equivalent to 3.4% of their equity (3.1% a year earlier). In 2022 several jurisdictions introduced, or plan to introduce, new taxes on the banking sector in order to curb the increase in banks' profits that might be associated with a higher rates environment. These measures are similar to those applied to other sectors like energy. Other measures

targeting banks have also been introduced, such as agreements to cap fee growth levied on households, or measures to alleviate debt payments to customers affected by rising rates. One of the main objectives of such measures is that sectors benefitting from the current economic circumstances shall contribute more to the financing of public support measures for vulnerable households and firms. The introduction of taxes and other related measures should not compromise long run viability of banks. Moreover, these measures should come with a proper cost-benefit analysis to limit unintended side effects such as distortions in competition and consider any potential impact on the resilience of the banking sector as well as potential capital allocations by affected banks to other countries.

Box 10: Application of overlays in provisioning

The outbreak of the COVID-19 pandemic pushed IFRS 9 models outside their boundaries leading to an increase in the use of overlays by banks across the EU. Such overlays can be understood as a necessary measure in instances where models are not able to cope with the specificities of certain situations, with COVID-19 crisis being an example.

As presented in the IFRS 9 monitoring report published in November 2021, the usage of overlays and associated practices has been quite heterogeneous among EU/EEA institutions. Divergencies have also been observed in terms of materiality of the related impacts to the final expected credit loss (ECL) figures.^[65] The current geopolitical tensions and consequent inflation scenario has moreover made the picture even more complicated, requiring - once again - additional adjustments to the initial model outputs. These considerations, coupled with the expected temporary nature of these adjustments, call for further scrutiny from supervisors and regulators on this topic.

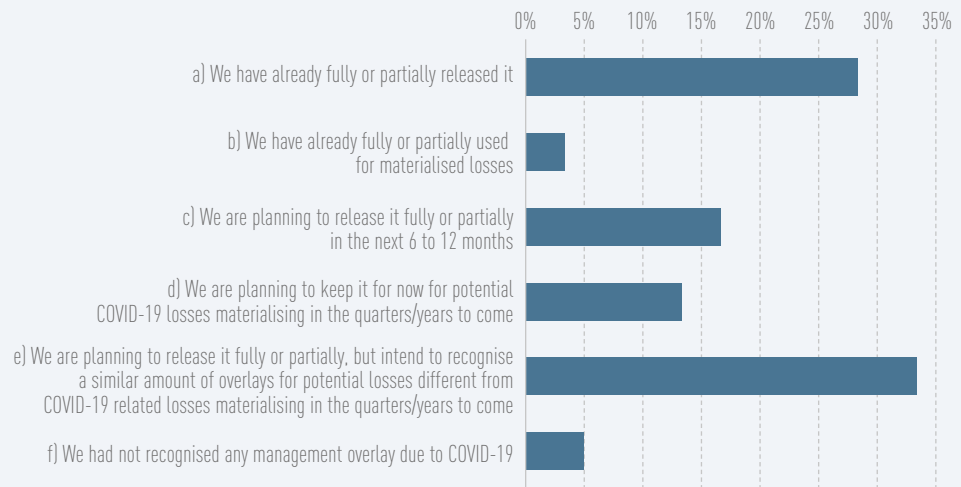
Responses collected from banks with the Autumn 2022 RAQ provide important in-

formation on relevant aspects such as the planned usage of existing overlays and the recognition of new overlays practices in the new challenging macroeconomic environment.

According to the RAQ, there is a high degree of heterogeneity on the planned treatment of the COVID-19 overlays in banks' provisioning. On the one hand, 45% of institutions have already released - or are going to release in the next 6-12 months - their COVID-19 overlays. On the other hand, almost the same percentage of the sample (46%) are following a more prudent approach, with 13% of banks planning to retain the overlays for the time being, to be prepared for potential COVID-19 losses which could materialise in the next quarters or years. The remaining 33% of institutions are planning to release the Covid-19 overlays (fully or partially) while recognising a similar amount of overlays to account for emerging risks. Only 3% of institutions in the sample have already fully or partially used the COVID-19 overlays for materialised losses. Finally, it is important to note that only 5% of institutions in the sample had not recognised any management overlays in the context of COVID-19, suggesting widespread difficulties banks encountered in capturing the specificities of the pandemic in their IFRS 9 models and the need to introduce specific overlays (Figure 84).

^[65] See EBA's IFRS 9 implementation by EU institutions, November 2021.

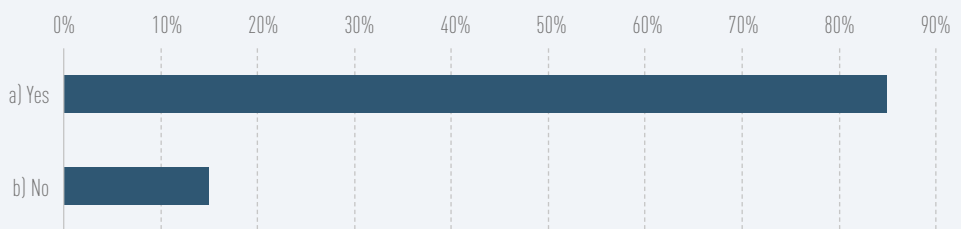
Figure 84: Planned treatment of COVID-19 overlays in banks' provisioning
 Source: RAQ for banks



From another perspective, the answers collected in the RAQ show that the vast majority of institutions in the sample (85%) have already recognised provisioning over-

lays for reasons other than COVID-19, indicating, in overall terms, that other idiosyncratic factors might not be appropriately captured by the IFRS 9 models (Figure 85).

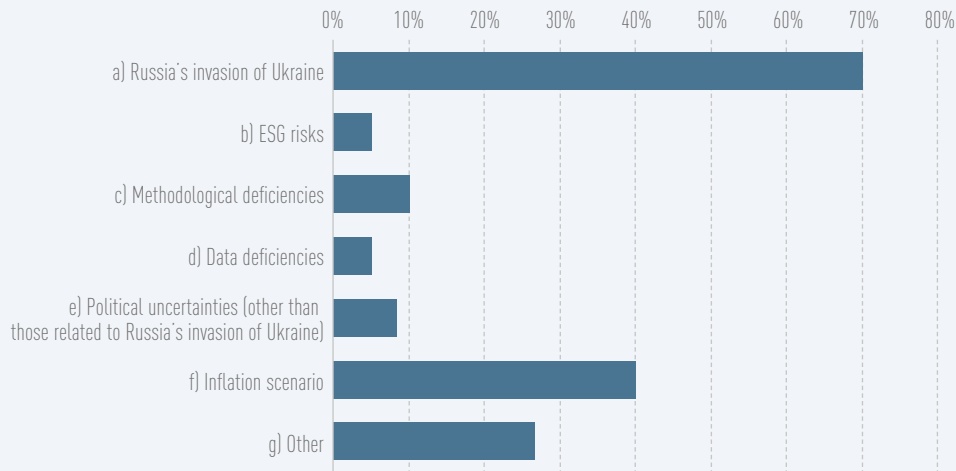
Figure 85: Recognition of provisioning overlays for reasons other than COVID-19
 Source: RAQ for banks



As far as for the reasons behind the use of these overlays, banks' answers show that the main factor leading to their application is related to Russia's invasion of Ukraine (mentioned by 70% of the institutions). This is followed by impacts of the inflation scenario (mentioned by 40% of the institu-

tions). The remaining factors listed in the questionnaire (i.e., ESG risks, methodological deficiencies, data deficiencies, political uncertainties other than related to Russia's invasion of Ukraine) were mentioned by 10% or less institutions in the sample (Figure 86).

Figure 86: Reasons behind the provisioning overlays for reasons other than COVID-19
 Source: RAQ for banks



Going forward, other EBA's monitoring activities – such as the on-going IFRS9 benchmarking exercise – will likely provide further insights on overlay's practices of EU banks (including on aspects such as the determination and the level at which the adjustment is applied), and on the related impact on ECL figures as well as the governance arrangements that are behind their application. The latter aspect

is of paramount importance. While it is acknowledged that overlays may be necessary to account for very specific circumstances that cannot be immediately embedded in the ECL model assumptions, it is essential that their usage fall under strict governance processes and internal controls, and that the nature, significance and permanence/duration of the adjustments is well understood by all parties concerned.

6. Operational resilience

6.1. Operational resilience: general trends

Operational risk has become increasingly relevant in the past years. With the pandemic, digitalisation and the use of ICT by banks and their customers further accelerated and became indispensable. Digital transformation continued unabatedly even after many containment measures related to the pandemic were relaxed. In response to ICT risk, the incoming Digital Operational Resilience Act (DORA) regulation aims to provide a framework for the mitigation of ICT risks and to enhance operational resilience of financial entities across sectors. According to the Autumn 2022 RAQ, a large majority of retail banking and corporate banking customers are now primarily using digital channels for their daily banking activities.

Reliance of banks on digital and remote solutions to perform their daily operations, to deliver their services to customers, and to conduct business has resulted in an enhanced exposure and vulnerability to increasingly sophisticated cyber-attacks and to fraud. Scope and relevance of operational risk further broadened along with technological advances and underlines the importance of ensuring operational resilience.

Moreover, banks are facing increased operational challenges since geopolitical tensions are playing an increasing role in the technological and digital space, with impacts felt across geographies. The Russian war of aggression against Ukraine has led to further

heightened cyber risks, including threats to information security and business continuity.

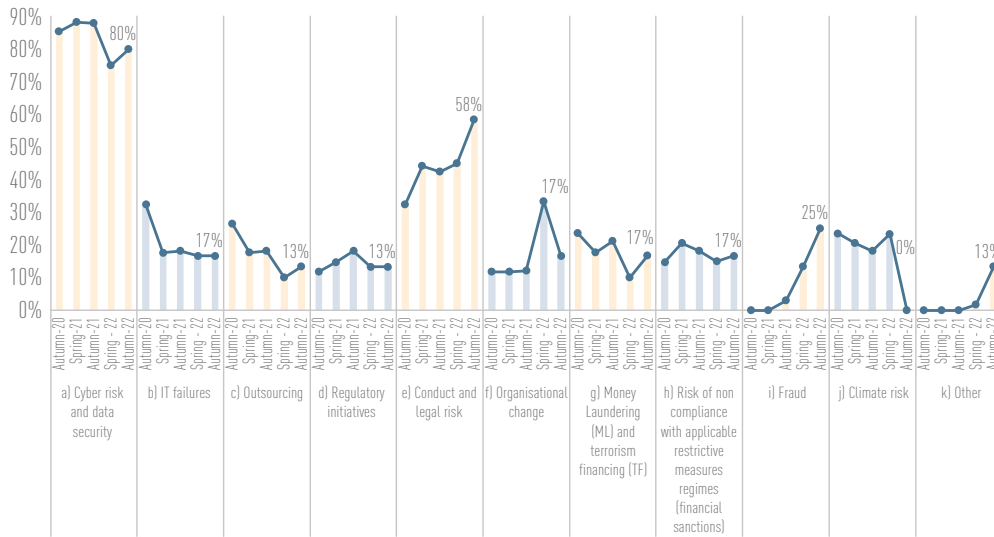
Exposure to reputational and operational challenges, including business conduct and organisational change, for example, have neither diminished with the pandemic. To RAQ respondents, conduct and legal risk is the second most relevant driver of operational risk. The Russian war of aggression and sanctions implemented at an EU and global level in response may give rise to further legal and / or reputational risks. Against this backdrop, an enhanced monitoring of sanctions compliance by banks and supervisors is essential.

Cyber risk and data security as drivers of operational risk

Banks and analysts share views of most important drivers of operational risk. Both groups agree that cyber risk and data security are by far the most prominent drivers, as reflected in their responses to the RAQ, with 80% and 78% agreement respectively (Figure 87). Conduct and legal risks are the second most important driver of operational risk in both banks' and analysts' views, at 58% and 56% agreement, respectively. Conduct and legal risk have again become a key operational risk driver in analyst views, after temporarily less relevant in 2021, while for banks it has been the second most important risk driver for the past years. Risk of fraud continues to increase in banks' perceptions. It is now a major driver of operational risk for 25% of responding banks, but was not considered until spring 2021 (Figure 87).

Figure 87: Main drivers of operational risk as seen by banks^[66]

Source: RAQ for banks



Growing impact of losses related to operational risk

At ca. 3.4 million events, the total number of new operational risk events EU/EEA banks reported in 2021 remained on a high level compared to 2019 and 2020, and higher than the long-term average until 2019.^[67] Yet the number of new operational risk events decreased by 12% compared to 2020, when banks were affected by the immediate impact of the pandemic on their operations. While the pandemic and containment measures continued, the decrease in events in 2021 may indicate that banks have adapted to operational constraints and challenges of the pandemic. This similarly applies for new IT risk events, which also declined, by more than 30%.

Beyond the number of new operational risk events, reporting data indicates a strongly increasing impact of losses related to operational risk. Total materialised gross losses from new operational risk events, before recoveries, and loss adjustments relating to earlier reporting periods strongly increased by ca. 80% compared to 2020 and amounted to almost EUR 18.6 bn in 2021. This amount was also slightly higher than in 2017 – 2018, when some large banks were affected by high litigation and settlement payments

from, for example, breaches of financial and trade sanctions as well as breaches of AML and CFT provisions. While only few very high individual litigation and settlement payments were reported in 2021, the strong increase of respective operational risk losses may not least point to wider distributed materialised losses from operational risk events across banks in the pandemic. Coupled with lingering cyber risks, and operational risks related to sanctions imposed amid the Russian war, high operational risk losses are an issue of concern.

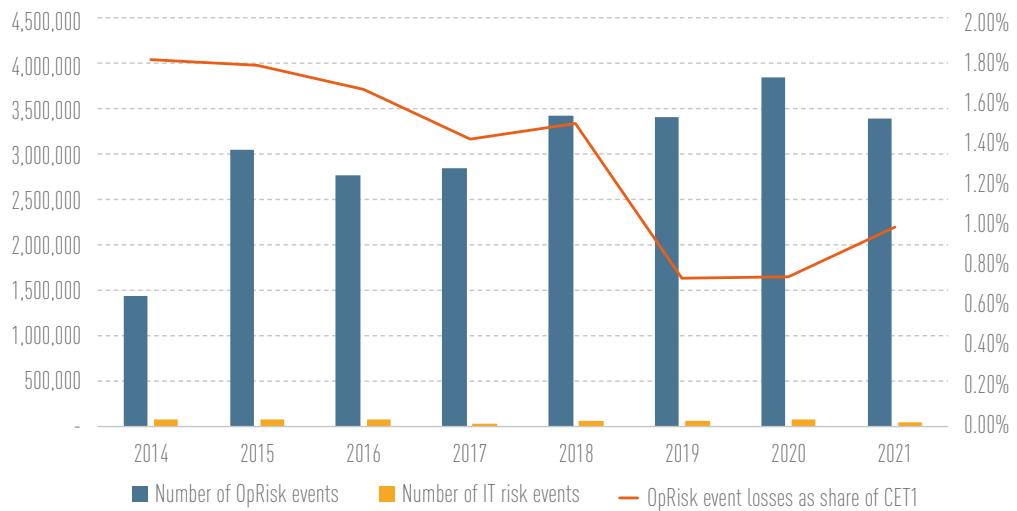
Measured as a share of CET1 capital, total gross losses from new operational risk loss events, and respective adjustments related to previous reporting periods strongly increased to 1% in 2021, from 0.7% in 2020. While CET1 capital was only marginally increasing in 2021, the strong increase of this ratio was largely driven by strongly growing operational risk losses in 2021 as outlined above. The amount of total losses from new operational risk loss events and adjustments relating to previous reporting periods as share of CET1 capital was at about 1.5% in 2017 and 2018, but was on a decreasing trend in 2019 and 2020 not least because of the increase in the denominator, before slightly increasing again in 2021 (Figure 88; see on capital Chapter 4).

[66] Agreement to up to three options was possible for respondents.

[67] The analysis of this and the following figures captures yearly data.

Figure 88: Number of new operational risk events and number of new IT risk events over time, 2014 – 2021; Total gross losses from operational risk events as a share of CET1⁽⁶⁸⁾

Source: Supervisory reporting data



These figures confirm that operational risk and its impact have increased since the pandemic. Since total operational risk amounts only reflect materialised gross losses of events identified until end 2021 and adjustments relating to previous reporting periods, further future losses related to these incidents might in the coming years add to losses that have already been recognised (e.g. court rulings and legal settlements, compliance failure or legal and reputational risks in relation to sanctions imposed amid the Russian war, etc.). Moreover, additional litigation costs from legal settlements that banks are entering into may not always be fully reflected in the reported data.

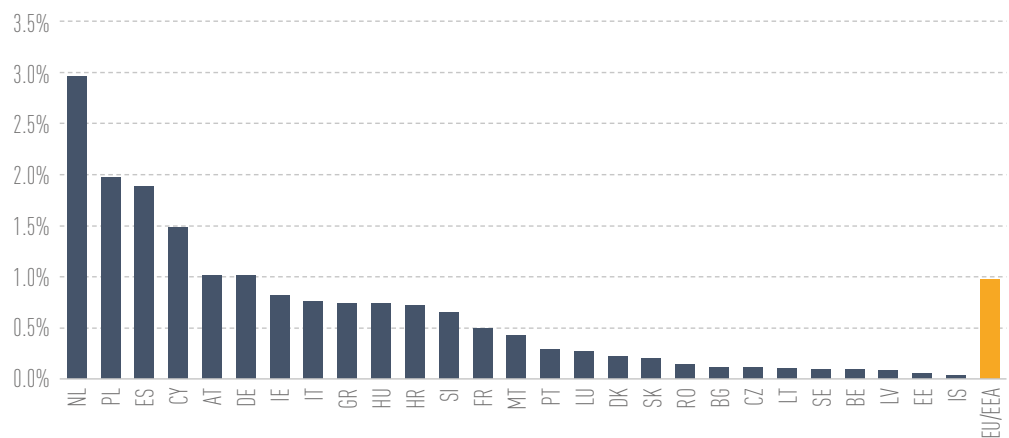
Operational risk events may not cause direct financial loss but might imply reputational damage. This may result in decreasing revenues in the future if a bank exits certain

business areas or faces challenges to retain or attract customers. Costs might also indirectly increase as a result of materialising operational risk, when higher investments into compliance and governance, or technology, become necessary, or when risk premia for market-based funding increase.

Country-by-country data of operational risk losses shows that losses are widely distributed. Several jurisdictions reported relatively low loss amounts, while in 13 countries operational risk losses were above 0.5% of CET1 capital. This was the case in only 8 countries in 2020 and 2019. It is important to gain a deeper understanding of drivers of large divergencies in operational risk losses across countries and banks and identify possible drivers and lessons where losses are low (Figure 89).

Figure 89: Total losses from operational risk as a share of CET1, by country, December 2021

Source: Supervisory reporting data



⁽⁶⁸⁾ The operational risk losses include those from new events and loss adjustments relating to previous reporting periods. It includes all event types, including internal and external fraud.

Box 11: Major incidences in the EU payment market

Based on Article 96 of the revised Payment Services Directive (PSD2), over 6,000 payment service providers (PSPs) in the EU, consisting of all credit institutions, payment institutions and electronic money institutions, are required to report to their National Competent Authorities (NCAs) major security and operational incidents related to the payment services provided. NCAs are required to further report these incidences to the EBA. In support of that provision, the EBA issued Guidelines in 2017 setting out the reporting process and the reporting templates, which apply since January 2018 and which were revised and streamlined in 2021, with a view inter alia to ease the workload of PSPs, to make the reporting more meaningful, and to catch cyber incidents more accurately.^[69]

Following the application of the revised Guidelines, since 1 January 2022, the EBA has, in close cooperation with the ECB, carried out a preliminary analysis of 396 incidents reported from 22 EU/EEA countries in the first eight months of 2022.

^[69] See EBA revised Guidelines on major incident reporting under PSD2, June 2021

Initial findings of incidents in the payment market reported to the EBA suggest that most of the major incidents are of an operational nature (95%). The large majority of these incidences concerned the availability of services, especially internal payment systems and web/mobile payment services. The predominant causes for such incidents were system failures or process failures. This observation is in line with high-level analyses carried out by the EBA in previous years.

A significant part of the incidents observed have impacted several PSPs at the same time, sometimes spreading across different countries. This has been the case, for example, of incidents originated at the ICT data centre of a parent company servicing various banks or other financial operators in the group, or at a technical service provider that provides outsourced and ICT-related services to many different PSPs. A few cyber-related incidents have been observed in the period, mainly Distributed Denial of Service (DDoS) attacks, but with limited impact in terms of service disruption for the customers or losses for the operators.

6.2. Digitalisation and ICT-related risks

Cyber risk and data security are regarded by far as the most prominent drivers of increased operational risk, as responses to the RAQ show (88% agreement). Its relevance further increased since the pandemic and with geopolitical tensions with the Russian invasion of Ukraine. 17% of RAQ respondents also point to IT failures and to organisational change as relevant drivers of operational risk. Organisational change risks arise not least when institutions further adapt their organisational setups to a digital environment.

Efforts to address digitalisation risk

Further proliferation and reliance on technology since the pandemic was accompanied by a high number and impact of ICT-related incidents. This was not least driven by the complexity and interconnectedness of ICT systems, both owned by banks and those dependent on third-party providers. Risks stemming from sophisticated and organised cyber-attacks with potentially big impact as well as other ICT-related incidents are therefore high. They may have further increased with geopolitical tensions, which have led

to further cyber and information security threats, including DDoS attacks.

A few indications show the effort of banks to address ICT challenges. For example, the number of IT-related risk events has decreased to ca. 50,000 in 2021, compared to about 72,000 in 2020 (Figure 88). This decline amid further ICT usage and scope may point to some progress in managing risk in this field. As expressed in past iterations of the RAQ, banks continue to increase ICT investments, which may have contributed to this development. This highlights the relevance of further ICT investments and related security as digitalisation and ICT usage further expand. Yet a lack of resources, including skilled staff, may pose challenges for further investments into ICT security infrastructures. On progress to address ICT risk, RAQ responses also suggest that while volume and frequency of cyber-attacks are unabatedly high (see below), a majority of responding banks (88%) report that they did not face a successful cyber-attack in the first half of 2022.^[70]

^[70] A major ICT-related incident refers an ICT-related incident with a potentially high adverse impact on the network and information systems that support critical functions of the financial entity (Article 3(7) DORA).

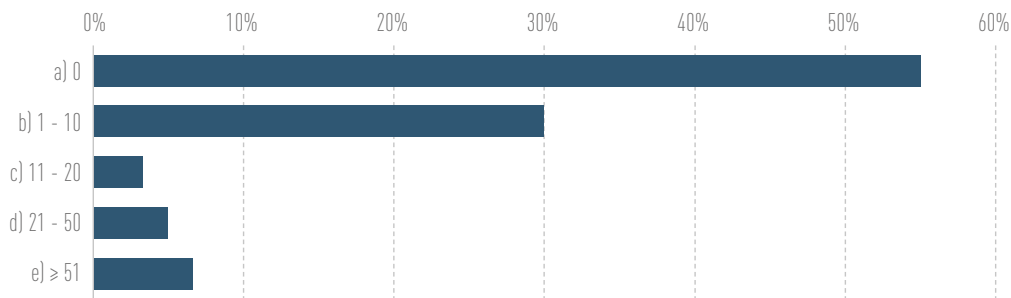
ICT risk level is high and further efforts are needed

Yet risks remain high in spite of these efforts. Demonstrating a materialisation of high risks, 12% of banks noted to have been victim of 1 to 5 successful cyber-attacks in

the first half of 2022 in their RAQ responses. A high volume and frequency of cyber-attacks is also reflected in RAQ observations that almost half (45%) of responding banks were subject to cyber-attacks in the first half of 2022, thereof 12% to 21 or more cyber-attacks (Figure 90).

Figure 90: Number of cyber-attacks that resulted or could have resulted in a “major ICT related incidence” in the first half of 2022^[71]

Source: RAQ for banks



Further effort is therefore required at banks to manage and address ICT security risks. This includes additional action to counter cyber-attacks and improve logical ICT security. The frequency of cyber incidents impacting all financial sectors, as measured by publicly available data, increased significantly in 2022 compared to the previous year.^[72] ICT related risks are also considered as a key topic in the EBA’s supervisory examination programme for next year.^[73] The Bank for International Settlements (BIS) also pointed out that cyber threats and incidents, such as ransomware attacks, have emerged as a growing concern for the banking sector over the past few years.^[74] They pose risks to the safety and soundness of individual banks and the stability of the financial system. Cyberattacks on financial market infrastructures and their potential consequences pose additional risks for financial stability. Growing use of third-party providers to outsource critical services for banks were in particular identified to intensify operational risk. Accordingly, ICT security as well as related ICT outsourcing risks were prioritised at EU/EEA level, and the Commission is accelerating its cybersecurity strategy.^[75]

Ransomware attacks have become a particular threat lately.^[76] They have become one of the most impactful types of cyber-attacks and have increased their reach as threat actors appear to quickly adapt to business models and security measures. According to the recent “Threat Landscape for Ransomware Attacks” from the EU Agency for Cybersecurity (ENISA), findings when mapping and studying ransomware incidents from May 2021 to June 2022 are “grim”.^[77] In October, the G7 has also expressed its concern over the use of ransomware.^[78] Ransomware has adapted and evolved, becoming more efficient and causing more devastating attacks. Banks as well as their customers should be ready not only for the possibility of their assets being targeted by ransomware but also to have their most private information stolen and possibly leaked or sold on the Internet to the highest bidder.

Responses to ICT security risks and outsourcing risks

The EBA has responded to the need to manage ICT security risks by detailing how supervisors should cover ICT and security risks in its Guidelines on ICT risk assessment under Supervisory Review and Evaluation Process (SREP), and by describing the expectations

^[71] It refers to an ICT-related incident with a potentially high adverse impact on the network and information systems that support critical functions of the financial entity (DORA Article 3(7)).

^[72] See, e.g., EIOPA’s Risk Dashboard, August 2022.

^[73] See the EBA’s 2023 European supervisory examination programme for prudential supervisors from October 2022.

^[74] See BIS Newsletter on cybersecurity, September 2021.

^[75] See Commission cybersecurity strategy.

^[76] A type of attack where threat actors take control of a target’s assets and demand a ransom in exchange for the return of the asset’s availability and confidentiality (ENISA definition).

^[77] See ENISA’s Threat Landscape for Ransomware Attacks.

^[78] See Ransomware Annex to G7 Statement.

for ICT and security risk management for the financial entities in the EBA Guidelines on ICT and security risk management (2019).^[79] These guidelines set out how financial entities should manage the ICT and security risks that they are exposed to and set supervisory expectations for the management of ICT and security risks. Money laundering (ML) / terrorist financing (TF) related risks are also considered as a key point of attention in the EBA's Supervisory examination programme for prudential purposes for 2023.^[80]

As banks have outsourced many services and functions, including critical functions, to third-party service providers, their security risk management capabilities are of high relevance. These third-party service providers should not become channels to spread cyber risks. As ICT outsourcing risks may pose challenges, they also require financial institutions' senior level management attention and effort to manage them, as outsourced services and functions remain their responsibility. Banks therefore need to be in a position to prudently identify, assess, manage, and mitigate their exposures to cyber risks arising from third-party service providers. Third party providers moreover should have in place adequate governance and control frameworks and appropriate technologies to address related risks. The EBA Guidelines on Outsourcing arrangements and on ICT and security risk management issued in 2019 provide helpful guidance on the steps and approach to be followed to manage associated risks.^[81]

Preparations for the DORA are advancing

The increased digitalisation of financial services with related high security risks renders

banks more vulnerable to threats to their operational resilience and business continuity. As cyber threats are constantly evolving and their number have been growing over the recent years, they may pose significant risks to financial stability at the EU/EEA level. Against this background, in May 2022 the EU co-legislators reached a provisional agreement on DORA, an EU regulation that provides a framework for the mitigation of ICT risks and aims at enhancing operational resilience of financial entities across sectors.

DORA intends to strengthen and harmonise rules on cybersecurity across the EU financial sector. It will introduce specific requirements that will be homogenous to all financial entities across the EU. DORA will also enhance and streamline the financial entities' conduct of ICT risk management, envisage a thorough testing of ICT systems, and increase supervisors' awareness of cyber risks and ICT-related incidents faced by financial entities. Importantly, DORA will assign a key role to the European Supervisory Agencies (ESAs) to oversee risks stemming from financial entities' dependency on ICT third-party service providers.

In addition to DORA, the European Systemic Risk Board (ESRB) earlier this year published a Recommendation to the ESAs to start preparing for the gradual development of a pan-European Systemic Cyber Incident Co-ordination Framework (EU-SCICF), so to be ready for an effective EU-level coordinated response in the event of a major cross-border cyber incident impacting the EU financial sector.^[82] The EBA – in coordination with the other ESAs – will continue its preparatory activities to address the ESRB Recommendation and for the implementation of DORA.

^[79] See the EBA's Guidelines on ICT security risk management under the SREP, May 2017.

^[80] See the EBA's 2023 European supervisory examination programme for prudential supervisors, October 2022.

^[81] See the EBA's Guidelines on Outsourcing and the EBA's Guidelines on ICT and security risk management, February and November 2019 respectively.

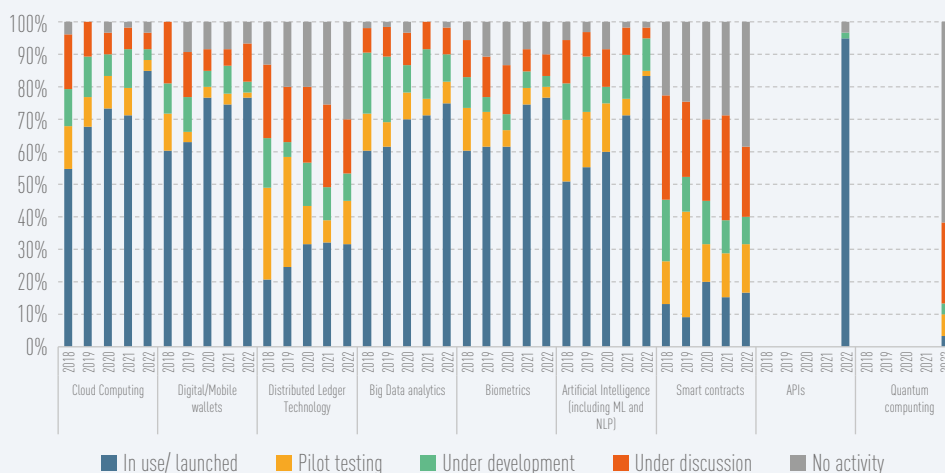
^[82] See ESRB Recommendation to establish a systemic cyber incidence coordination network, January 2022.

Box 12: Digitalisation trends at banks

The trend of continuous increase in the use of artificial intelligence (AI) solutions (including machine learning and natural language processing (NLP) observed since 2018 is continuing. 83% of RAQ respondents reported that they already use AI (including machine learning and NLP), and an additional 12% are either pilot testing or developing AI systems. The use of cloud computing⁸³, likely driven by a need to support the adoption of AI/machine

learning solutions, has also increased. 85% of RAQ respondents reported it to be in use, up from 71% in 2021 (Figure 91). The change in the use of other monitored financial technologies has been less pronounced. The new data collected on the use of application programming interfaces (APIs) and quantum computing indicate that almost all banks (95%) are already using APIs, while the use of quantum computing is at a very early stage – 3% of banks reported it in use, additional 7% in pilot testing (Figure 91).

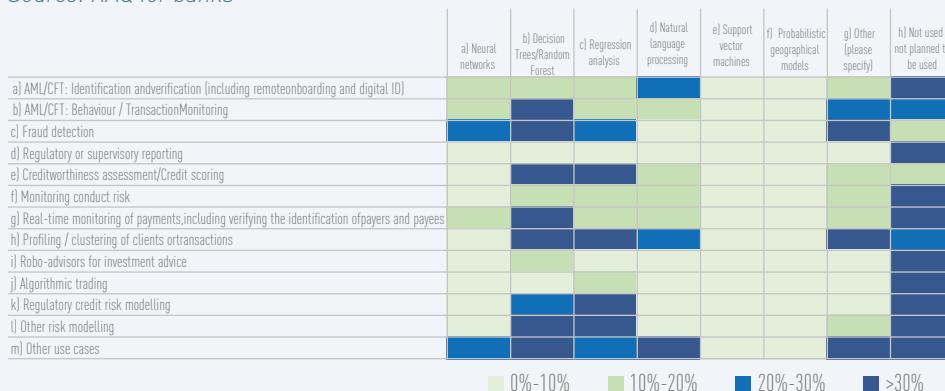
Figure 91: Level of involvement of banks with the application of the selected technologies
Source: RAQ for banks



The use of AI applications by banks is becoming increasingly popular, and as stated above, around 95% of banks responding to the RAQ are using or developing AI/machine learning approaches for various use cases. Amongst them, the most common use cases of AI/machine learning are i) fraud detection (82%), ii) AML/CFT purposes (80%), iii) creditworthiness assessment or credit scoring (80%), or iv) profiling/clustering

of clients or transactions (77%; Figure 92). Other popular AI applications relate to real-time monitoring of payments, risk modelling, including regulatory credit risk modelling, or conduct risk monitoring. RAQ responses therefore show that the use of AI/machine learning by banks is rising, with increasing diversity regarding the scope of services and processes where AI/machine learning solutions are deployed (Figure 92).

Figure 92: Applications of AI by banks, differentiated by AI methods and approaches
Source: RAQ for banks



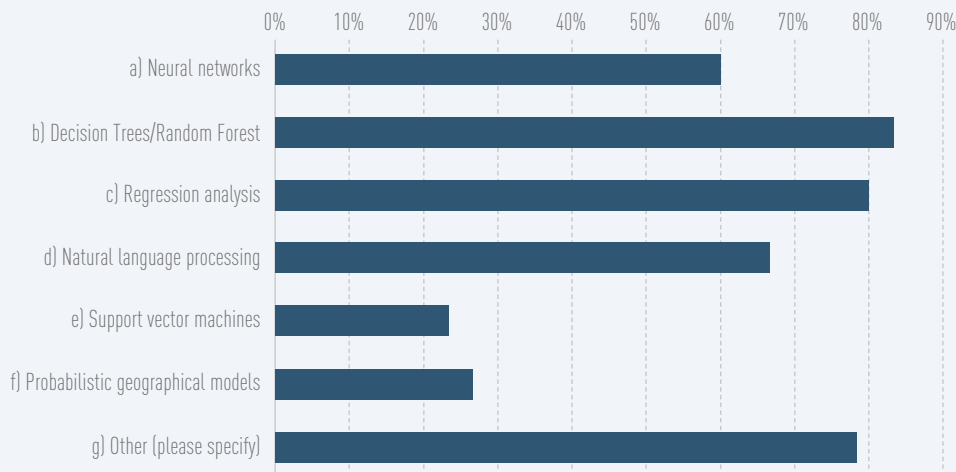
⁽⁸³⁾ The autumn 2022 RAQ covers cloud computing, including edge computing.

In addition to these observations, the AI methods and approaches used by banks appear to be increasingly diverse and complex. For example, while the most reported approaches are decision trees (83% of re-

sponding banks use it for at least one of the use cases) and regression analysis (80%), other approaches are also increasingly used by banks, in particular NLP (67%) and neural networks (60%) (Figure 93).

Figure 93: Proportion of banks that use different AI approaches

Source: RAQ for banks



Background information: monitoring of innovation at the EBA

The EBA has a statutory duty to monitor new or innovative financial activities with a view to enhancing consumer protection and achieving a coordinated approach to the regulatory and supervisory treatment of them. Based on its assessment and taking into account the ongoing and foreseen policy work, the EBA in 2023 and beyond ex-

pects to put further attention on the following areas: i) AI/machine learning use cases in banking and payment services (for example, creditworthiness assessment/credit scoring or regulatory credit risk modelling), ii) tokenisation in relation to new financial products and services and Decentralised Finance (DeFi), and iii) digital identity management, to monitor emerging use cases related to digital identities, biometric recognition and self-sovereign identity.

Further ICT-related risk refers to the dependencies on individual service providers. In the process of winding down some Russian controlled banks in the EU, some additional operational shortcomings in the banks concerned were often identified in this process. Experience shows that these shortcomings include – but are not limited to – the reliance on individual ICT service providers at the banks concerned. Finally, related to ICT risks but also to business continuity more broadly, banks should reflect in their plans risks of potentially longer power outages.

6.3. Financial crime risks

A high number of cases of ML involving European banks in recent years caused substantial reputational damage to banks. Several banks were also subject to costly enforcement action in respect of their AML/CFT

systems and controls failures. ML/TF undermines the integrity of the EU/EEA banking sector. In the prevention of ML/TF, banks have an important gate-keeper role.

Differences in the implementation and enforcement of the AML Directive have made the EU's financial sector vulnerable to ML/TF.^[84] In response, the Commission published in July 2021 a proposal for fundamental legal and institutional reforms of the EU's AML/CFT framework. In the meantime, the EBA continues its work to strengthen CA and the sector's capacity to tackle ML/TF risk and to foster a common approach. For example, it published in June 2022 the first set of harmonised rules for AML/CFT governance

^[84] See Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing.

arrangements and the appointment of an AML/CFT compliance officer.^[85]

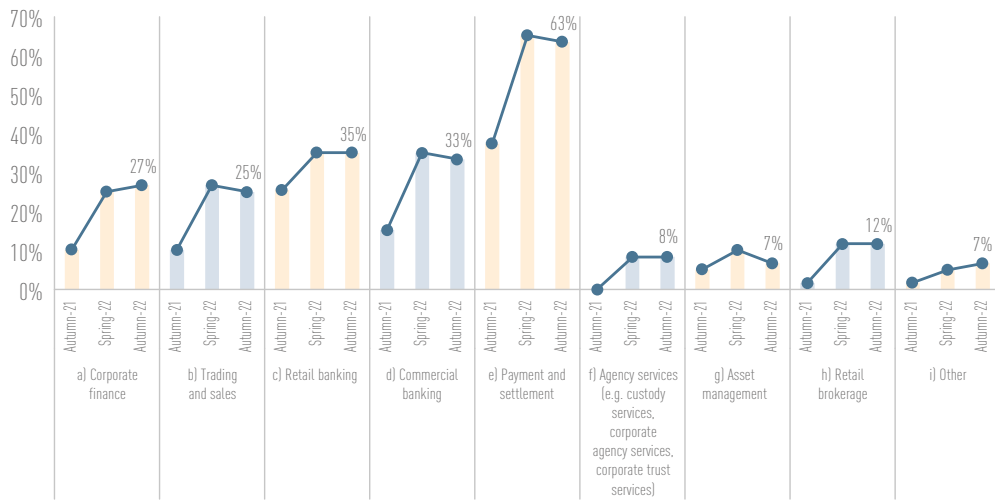
The focus on ML/TF risk is decreasing

From an operational risk perspective, banks appear to attribute less significance to ML/TF risk than to other operational risk aspects. This is indicated in responses to the RAQ, where only 17% of respondents agreed that ML/TF risk was a main driver of operational risk. A slightly higher share of analysts (22%) considers ML/TF risks as main drivers for increasing operational risk. A lower prominence of ML/TF risks may be a reflection of several factors. It could, for example, be related to banks taking comfort from significant investments into AML/CFT compliance frameworks, and subsequently, to banks considering that these investments have helped them to better identify and manage ML/TF risks they are exposed to. It could also be related to perceptions that breaches

of AML/CFT obligations are more of a legal or regulatory nature, rather than purely operational.

A possible underestimation of ML/TF risks may be reflected in perceptions on how related risk exposure might affect specific business lines, such as corporate finance and asset management in the next 6 to 12 months. A large majority of RAQ respondents does not anticipate that ML/TF risk will have a short-term impact on any specific business lines. A sizeable share of banks (63%) nevertheless indicated that they would expect their ML/TF risk exposure to increase significantly in the areas of payment and settlements, as well as, albeit less, in retail banking and commercial banking (35%) (Figure 94). Furthermore, it needs to be added that indications are that supervisors do not seem to think that ML/TF risk has decreased significantly, or that banks are significantly better at managing that risk.

Figure 94: Expectations of ML/TF risk exposure related to specific product and business lines
Source: RAQ for banks



Risks associated with the restrictive measures in response to the Russian invasion of Ukraine

Banks' assessment of their exposure to ML/TF risk and an associated shift in focus away from those risks might also be a result of a shifting focus of banks in 2022 towards risks related to the implementation of restrictive measures related to the Russian war of aggression against Ukraine (see textbox on sanctions in Chapter 1). In the RAQ, analysts consider risk of non-compliance with finan-

cial sanctions as the third most relevant operational risk. In the same vein, over 40% of banks responding to the RAQ consider risks associated with customers' transactions received from, or sent to, jurisdictions that are subject to international sanctions as "highly significant". Around 30% consider it as "significant".

Risk perceptions associated with customers whose ownership and control structure are opaque or unduly complex have also increased, similar to risks associated with cus-

^[85] See the EBA Guidelines on policies and procedures in relation to compliance management and the role and responsibilities of the AML/CFT Compliance Officer under Article 8 and Chapter VI of Directive (EU) 2015/849, June 2022.

tomers dealing in crypto assets. Both these observations are associated with risks of circumvention of sanctions and could be mitigated through the application of robust AML/CFT controls. At the same time, concerns by CAs about the adequacy and effectiveness of institution's AML/CFT controls still exist. Implemented sanctions may give rise to further misconduct and circumvention risk and may have contributed to the growing relevance of conduct and legal risk.

Exposure to Russia is moreover affecting the reputation of some banks concerned and may have indirectly contributed to reduced income (on the exposures to Russian counterparties see Chapter 2). Banks retreating from their Russian operations or winding down their exposure are additionally facing substantial costs in the process. But reputational costs and risks of continued operations in Russia and "rogue states" might exceed potential losses of winding down these activities. Elevated reputational risk is also reflected in high volumes of deposit outflows in some Russian-controlled banks in the EU, which in some instances lead to their closure.

It is important that compliance with obligations relating to restrictive measures does not lead to the financial exclusion of legitimate, vulnerable customers such as refugees. This is why the EBA published a Statement on financial inclusion in the context of the invasion of Ukraine.^[86] The Statement reminds institutions that EU's legal framework is sufficiently flexible to allow financial institutions to comply with their AML/CFT obligations effectively in different ways. Work on new Guidelines to foster effective ML/TF risk management practices in situations where access to financial services is an important public interest goal is currently underway, and builds on findings from the EBA's Opinion on de-risking that was published earlier in 2022.^[87]

New guidance and information sharing on ML/TF risks

Although individual banks are exposed to different levels of ML/TF risk as a result of their customer base, geographic exposure, distribution channels or the products and services they offer, some risks are common to the whole banking sector. These include risks related to on the use of remote onboarding solutions. In response to this risk, the EBA

published new Guidelines on the use of remote customer onboarding solutions.^[88]

The EBA also continued to strengthen supervisors' capacity to tackle ML/TF risks at an early stage. In January 2022, it launched the European reporting System for material CFT/AML weaknesses (EuReCA). This database contains information on material weaknesses in individual financial institutions in the EU that CAs have identified. CAs will also report to EuReCA measures they have imposed on financial institutions to rectify those material weaknesses. The EBA shares information from EuReCA with CAs and going forward, and will use this information to inform its views of ML/TF risks in the EU. The EBA also continues to support and monitor the setting up of AML/CFT colleges of supervisors in line with its 2019 Guidelines.^[89] By September 2022, more than 200 AML/CFT colleges had already been established.

6.4. Other legal and reputational risks

Legal and reputational risks go beyond digitalisation and ICT-related risks as well as ML/TF risks. Concerns about past misconduct behaviour, such as, e.g., breaches of sanctions, to facilitate dividend arbitrage schemes, redress for mis-selling, fines associated with financial crime, misconduct, etc., continue to uphold and add to operational risks. Conduct and legal risk is the second most relevant operational risk to RAQ respondents, and its relevance has increased strongly compared to last year (see Figure 87). Beyond reputational damage for the banks concerned, misconduct costs have been substantive and added to challenges to attain sustainable profits. They also indirectly affect banks' ability to extend lending to the real economy. Misconduct and practises to facilitate inappropriate or fraudulent business can, moreover, undermine trust in the banking system and the proper functioning of the financial system.

High redress costs

Redress cost for past misconduct have remained high even though new very high litigation and settlements payments like those some large banks faced in 2014 -2018 did not

^[86] See the EBA statement on financial inclusion in the context of the invasion of Ukraine, April 2022.

^[87] See Opinion of the EBA on 'de-risking', January 2022.

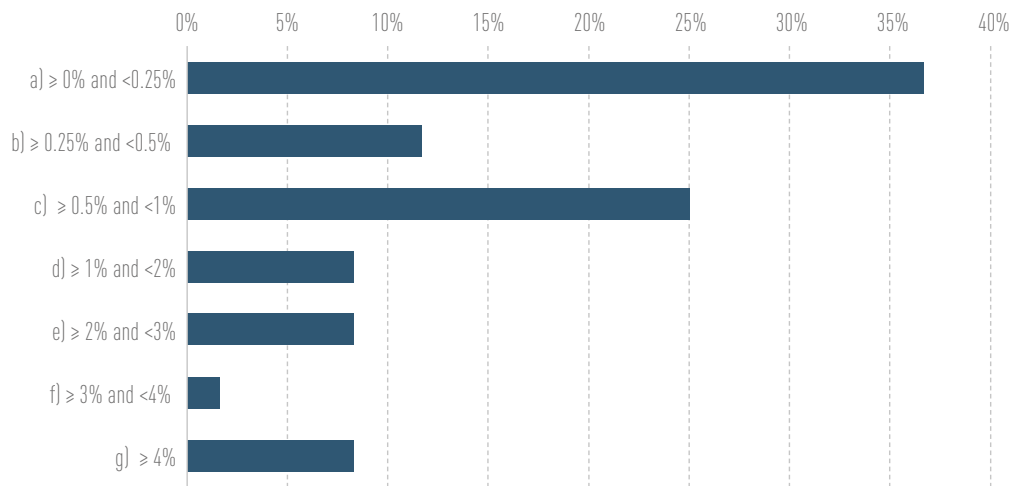
^[88] See EBA Guidelines on the use of Remote Customer Onboarding Solutions under Article 13(1) of Directive [EU] 2015/849, November 2022.

^[89] See ESAs' Joint Guidelines on cooperation and information exchange for the purpose of Directive [EU] 2015/849 between CA supervising credit and financial institutions, December 2019.

occur in the last three years. In this time period, nearly half of banks responding to the RAR had to pay out at least 0.5% of their equity in the form of compensation, redress, litigation and similar payments. In addition, 18% of banks paid out at least 2% of their eq-

uity in the form of such payments. This not least shows that heightened litigation costs are not confined to a few banks only but affect a rather large share of European banks across geographies (Figure 95).

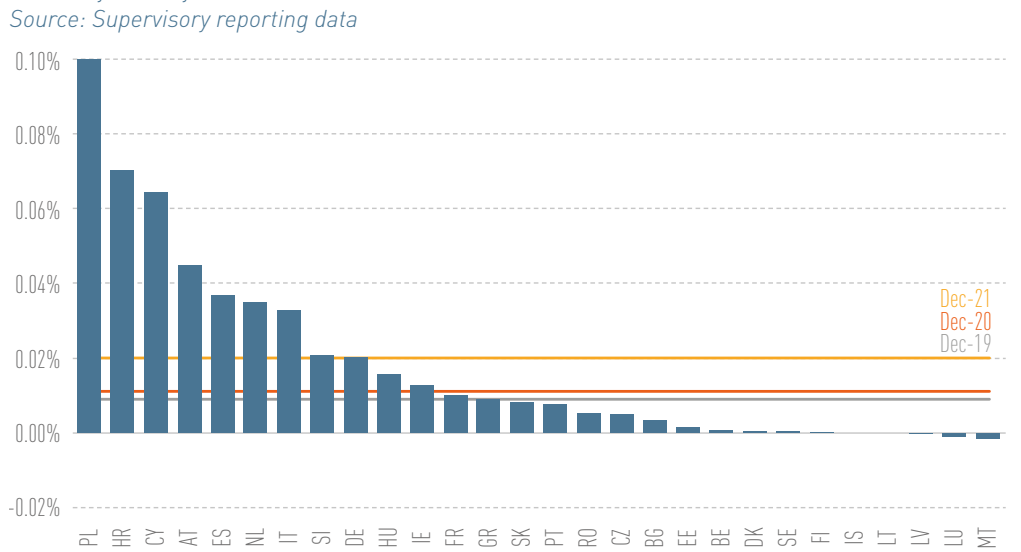
Figure 95: Total payments for redress costs in the past 3 years as percentage of equity
Source: RAQ for banks



Data indicates that banks substantially increased their provision for legal and conduct risk. Net changes in provisions due to pending legal issues and litigation measured as a share of total assets were at approx. 2 bps in December 2021, substantially higher than in December 2020 and December 2019 (at approx. 1 bp, Figure 96). Considering that the

relevance of conduct and legal as the second most important driver of operational risks is strongly increasing according to the RAQ (58% agreement, see Figure 87), these rising provisioning levels due to pending legal issues and litigation appears appropriate reflect lingering litigation risks for all banks.

Figure 96: Net changes in provisions for pending legal issues and tax litigation as a share of total assets by country (2021) and for the EU (2019-2021)
Source: Supervisory reporting data



Outlook of continued high operational risk

Going forward, adverse economic prospects, the Russian war and related sanctions, coupled with a high level of cyber risks are expected to contribute to a continued high level of operational risk. Sanctions and incentives to potentially circumvent them may provide opportunities for the emergence of new types of misconduct. Potential misuse and losses from measures introduced to alleviate the impact of the pandemic may not have materialised yet. This also applies to possible losses from fraudulent activities.

Strongly increased total materialised loss amounts in 2021 related to operational risk in spite of the broad absence of new very high individual litigation and settlement payments (see Figure 96), coupled with an outlook of high operational risk, give rise to concerns that further high loss amounts could materialise in 2022 and beyond. It is therefore important that banks and supervisors give high priority to operational risk. They should stay vigilant in times of economic and geopolitical uncertainty and strengthen their monitoring of business conduct and operational risk.

7. Policy implications and measures

Energy saving measures are essential. Despite a mild autumn in Europe and gas storage filling above target in EU countries, restrictions of gas and electricity consumption cannot be completely ruled out. This might have a profound impact on energy-intensive sectors, households and the overall economy more broadly. In the medium term, a cleaner, more affordable, and more secure energy system is needed to reach net-zero greenhouse gas emissions, to ensure reliability of supply, and to preserve the overall competitiveness of the EU/EEA economy.

Large downturns in real estate prices may threaten financial stability. Buoyant house prices and mortgage lending growth over the past few years have resulted in accumulated cyclical risk in RRE markets. In addition, pre-existing vulnerabilities in the CRE segment have been aggravated by the pandemic. Rising mortgage rates and the worsening in debt-servicing capacity due to a decline in real income might exert downward pressure on real estate prices. Given the materiality of the EU/EEA banks' exposures towards both segments, an abrupt decline in real estate prices could cause rising default rates. Banks as well as micro and macro financial supervisors should, on the one hand, prevent further risk accumulation and, on the other, be prepared to weather the impacts of a potential abrupt drop in real estate prices.

Newly introduced windfall taxes should not compromise long run viability of banks. Sectors benefitting from the current economic circumstances are assumed to contribute more to the financing of public support measures for vulnerable households and firms. Yet strong banks are a safeguard for financial stability in the long run. Thus, new taxes should not prevent banks' capacity to attain an adequate return on capital to be viable over the long run.

Banks should prepare for a likely deterioration in asset quality. Rising rates might increase debt payments and reduce collateral valuations, while higher inflation and slower economic growth might reduce borrowers' disposable income. Banks should timely recognise vulnerable clients and corresponding impairments. Banks should engage, as soon

as possible, with struggling borrowers to ensure their viability.

Forbearance measures should target truly vulnerable borrowers and not rely on one-size-fits-all approaches. Banks should explore not only moratoria on loan repayments but also other measures, for instance related to interest payments, collateral enforcement or debt for equity swaps. Irrespective of the chosen strategy, banks should be mindful of the relevant consumer protection obligations.

Banks should continue efforts to integrate ESG considerations into their overall risk management. Recent climate-related events in Europe such as wildfires and floods show that climate-related physical risk can drive financial risk for banks through the economic activities of their counterparties and through physical assets held on their balance sheets. At the same time, policy initiatives to reduce greenhouse gas emissions and shift energy resources towards renewables mean that banks can face further transition risk. Banks should consider climate-related risks when developing their overall business strategy, business objectives and risk management framework to ensure that they remain resilient, and facilitate required funding to achieve the transition to a sustainable and low carbon economy.

Supervisors should carefully assess the impact of maturing central bank loans. The progressive normalisation of monetary policy implies that some banks have to adjust their funding structure, relying more on market-based funding or increasing competition for deposit-based funding. This might result in higher funding costs, especially for smaller banks or those perceived as financially less robust by market participants. Funding in foreign currencies also needs to be carefully assessed. LCR levels below 100% for foreign currencies reported as significant might make banks vulnerable in case of difficulties to swap currencies and require them to raise funds on FX markets in volatile market periods.

Banks should pursue prudent capital distribution policies in order to safeguard their

financial resilience. Even though banks' profitability seems to be benefitting from higher interest rates and capital ratios are at relatively high levels, banks should carefully consider dividend, share buy-back or bonus policies. Banks need to count on comfortable capital headroom to cover unexpected losses and maintain the flow of lending to the real economy under a worsening macroeconomic environment.

Banks should strengthen their screening systems and controls to ensure a strict compliance with sanctions and prevent related legal and reputational risks. In previous years, ineffective implementation by some institutions of AML/CFT requirements contributed to significant Russian assets being laundered in the EU financial system. Although banks that have retreated from their Russian activities have faced substantial costs, continued operations in Russia and other high sanction risk states might also entail reputational losses that exceed these costs such as reduced income, increasing wholesale funding costs, or large deposit outflows.

Banks should have adequate skills and capacities to guarantee ICT security. Reliance of banks on digital and remote solutions to perform their daily operations and deliver services to customers results in vulnerabilities to ICT incidents, including increasingly sophisticated cyber-attacks. Banks should implement procedures aiming to minimise the frequency and impact of these incidents such as regular risk assessments and repeated tests of security measures to identify possible information leakages, malicious code, and other security threats.

Banks should control the quality and performance of outsourced functions. Outsourcing has become a relatively easy and efficient way for banks to access new technologies. Nonetheless, contracts and service level agreements with providers should include appropriate minimum cybersecurity requirements. Banks should have in place business continuity plans with regard to outsourced critical or important functions. These plans should consider the potential impact of the failure of the service providers as well as political risks in the service providers' jurisdictions.

Annex I: Samples of banks

List of banks that made up the sample population for the risk indicators, the transparency exercise and the RAQ ⁽⁹⁰⁾:

Name	Country	Risk indicators	2022 Transparency Exercise	RAQ
BAWAG Group AG	Austria	X	X	X
Erste Group Bank AG	Austria	X	X	X
Raiffeisen Bank International AG	Austria	X	X	X
Raiffeisenbankengruppe OÖ Verbund eGen	Austria	X	X	
UniCredit Bank Austria AG	Austria	X		
Volksbanken Verbund	Austria	X	X	
Belfius Bank	Belgium	X	X	X
BNP Paribas Fortis	Belgium	X		
Crelan	Belgium	X	X	
Dexia	Belgium	X	X*	
ING BELGIUM	Belgium	X		
Investeringsmaatschappij Argenta	Belgium	X	X	
KBC Groep	Belgium	X	X	X
The Bank of New York Mellon	Belgium	X	X	
DSK Bank AD	Bulgaria	X		
First investment Bank AD	Bulgaria			X
UniCredit Bulbank AD	Bulgaria	X		
United Bulgarian Bank AD	Bulgaria	X		
Bank of Cyprus Holdings Public Limited Company	Cyprus	X	X	X
Hellenic Bank Public Company Limited	Cyprus	X	X	X
RCB Bank Ltd	Cyprus	X	X*	
Česká spořitelna, a.s.	Czech Republic	X		
Československá obchodní banka, a.s.	Czech Republic	X		
Komerční banka, a.s.	Czech Republic	X		
Aareal Bank AG	Germany	X	X	
Bayerische Landesbank	Germany	X	X	X
COMMERZBANK Aktiengesellschaft	Germany	X	X	X
DekaBank Deutsche Girozentrale	Germany	X	X	
DEUTSCHE APOTHEKER- UND ÄRZTEBANK EG	Germany	X	X	
DEUTSCHE BANK AKTIENGESELLSCHAFT	Germany	X	X	X
Deutsche Pfandbriefbank AG	Germany	X	X	
DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main	Germany	X	X	X
Erwerbsgesellschaft der S-Finanzgruppe mbH & Co. KG	Germany	X	X	

⁽⁹⁰⁾ The sample of banks is regularly adjusted to take into account bank-specific developments; for example, banks that ceased activity or underwent a significant restructuring process are not considered further. Not all banks are subject to all reporting requirements (e.g. those for FINREP). The list of banks that are the basis for the risk indicators refers to the sample of banks used to calculate the Q2 2022 indicators. The lists of reporting institutions are available on the EBA website.

Name	Country	Risk indicators	2022 Transparency Exercise	RAQ
Goldman Sachs Bank Europe SE	Germany	X	X	
Hamburg Commercial Bank AG	Germany	X	X	
HASPA Finanzholding	Germany	X	X	
HSBC Germany Holdings GmbH	Germany	X	X	
J.P. Morgan SE	Germany	X	X	
Landesbank Baden-Württemberg	Germany	X	X*	X
Landesbank Hessen-Thüringen Girozentrale	Germany	X	X	X
Morgan Stanley Europe Holding SE	Germany	X	X	
Münchener Hypothekbank eG	Germany	X	X	
Norddeutsche Landesbank - Girozentrale -	Germany	X	X	X
State Street Europe Holdings Germany S.a.r.l. & Co. KG	Germany	X	X	
UBS Europe SE	Germany	X	X	
Volkswagen Bank Gesellschaft mit beschränkter Haftung	Germany	X	X	
Danske Bank A/S	Denmark	X	X	X
Jyske Bank A/S	Denmark	X	X	
Nykredit Realkredit A/S	Denmark	X	X	X
AS LHV Group	Estonia	X	X	
AS LHV Pank	Estonia			X
AS SEB Pank	Estonia	X		
Luminor Holding AS	Estonia	X	X	
Swedbank AS	Estonia	X		
Abanca Corporacion Bancaria, S.A.	Spain	X	X	
Banco Bilbao Vizcaya Argentaria, S.A.	Spain	X	X	X
Banco de Crédito Social Cooperativo	Spain	X	X	
Banco de Sabadell, S.A.	Spain	X	X	X
Banco Santander, S.A.	Spain	X	X	X
BANKINTER, S.A.	Spain	X	X	X
CAIXABANK, S.A.	Spain	X	X	X
Ibercaja Banco, S.A.	Spain	X	X	
Kutxabank, S.A.	Spain	X	X	
Unicaja Banco, S.A.	Spain	X	X	
Kuntarahoitus Oyj	Finland	X	X	
Nordea Bank Abp	Finland	X	X	X
OP Osuuskunta	Finland	X	X	X
Banque centrale de compensation	France	X	X*	
BNP Paribas	France	X	X	X
Bpifrance	France	X	X	
Confédération Nationale du Crédit Mutuel	France	X	X	X
Groupe BPCE	France	X	X	X
Groupe Crédit Agricole	France	X	X	X
HSBC Continental Europe	France	X	X	
La Banque Postale	France	X	X	X
RCI Banque	France	X	X	
SFIL S.A.	France	X	X	

Name	Country	Risk indicators	2022 Transparency Exercise	RAQ
Société générale	France	X	X	X
ALPHA SERVICES AND HOLDINGS S.A.	Greece	X	X	X
Eurobank Ergasias Services and Holdings S.A.	Greece	X	X	X
National Bank of Greece, S.A.	Greece	X	X	X
Piraeus Financial Holdings	Greece	X	X	X
Erste&Steiermärkische Bank d.d.	Croatia	X		
Privredna Banka Zagreb d.d.	Croatia	X		
Zagrebačka banka d.d.	Croatia	X		
Kereskedelmi és Hitelbank csoport	Hungary	X		
MKB bankcsoport	Hungary	X	X	
OTP-csoport	Hungary	X	X	X
UniCredit csoport	Hungary	X		
AIB Group plc	Ireland	X	X	X
Bank of America Europe Designated Activity Company	Ireland	X	X	
Bank of Ireland Group plc	Ireland	X	X	X
Barclays Bank Ireland plc	Ireland	X	X	
Citibank Holdings Ireland Limited	Ireland	X	X	
Ulster Bank Ireland Designated Activity Company	Ireland	X	X*	
Arion banki hf	Iceland	X	X	
Íslandsbanki hf.	Iceland	X	X	
Landsbankinn hf.	Iceland	X	X	X
BANCA MEDIOLANUM S.P.A.	Italy	X	X	
Banca Monte dei Paschi di Siena S.p.A.	Italy	X	X	X
BANCA POPOLARE DI SONDRIO SOCIETA' PER AZIONI	Italy	X	X	
BANCO BPM SOCIETA' PER AZIONI	Italy	X	X	X
BPER Banca S.p.A.	Italy	X	X	X
CASSA CENTRALE BANCA	Italy	X	X	
CREDITO EMILIANO HOLDING SOCIETA' PER AZIONI	Italy	X	X	
FINECOBANK SPA	Italy	X	X	
ICCREA BANCA SPA	Italy	X	X	
Intesa Sanpaolo S.p.A.	Italy	X	X	X
Mediobanca - Banca di Credito Finanziario S.p.A.	Italy	X	X	
UNICREDIT, SOCIETA' PER AZIONI	Italy	X	X	X
"Swedbank", AB	Lithuania	X		
AB SEB bankas	Lithuania	X		
Akcinė bendrovė Šiaulių bankas	Lithuania	X	X	
LIETUVOS CENTRINĖ KREDITO UNIJA	Lithuania	X	X*	
LGT Group Foundation	Liechtenstein	X**	X	
Liechtensteinische Landesbank AG	Liechtenstein	X**	X	
VP Bank AG	Liechtenstein	X**	X*	
Banque et Caisse d'Épargne de l'État, Luxembourg	Luxembourg	X	X	X
Banque Internationale à Luxembourg	Luxembourg	X	X	
BGL BNP Paribas	Luxembourg	X		
Quintet Private Bank (Europe) S.A	Luxembourg	X	X	

Name	Country	Risk indicators	2022 Transparency Exercise	RAQ
RBC Investor Services Bank S.A.	Luxembourg	X	X*	
Société Générale Luxembourg	Luxembourg	X		
Akciju sabiedrība "Citadele banka"	Latvia	X	X	
AS "SEB banka"	Latvia	X		
Swedbank Baltics AS	Latvia	X		
Bank of Valletta Plc	Malta	X	X	X
HSBC Bank Malta p.l.c.	Malta	X	X	
MDB Group Limited	Malta	X	X	
ABN AMRO Bank N.V.	Netherlands	X	X	X
BNG Bank N.V.	Netherlands	X	X	
Coöperatieve Rabobank U.A.	Netherlands	X	X	X
de Volksbank N.V.	Netherlands	X	X	
ING Groep N.V.	Netherlands	X	X	X
LP Group B.V.	Netherlands	X	X	
Nederlandse Waterschapsbank N.V.	Netherlands	X	X	
DNB Bank ASA	Norway	X**	X	X
SpareBank 1 SMN	Norway	X**	X	
SPAREBANK 1 SR-BANK ASA	Norway	X**	X	X
Bank Polska Kasa Opieki S.A.	Poland	X	X	X
Powszechna Kasa Oszczedności Bank Polski S.A.	Poland	X	X	X
Santander Bank Polska S.A.	Poland	X		
Banco Comercial Português, SA	Portugal	X	X	X
Caixa Geral de Depósitos, SA	Portugal	X	X	X
LSF Nani Investments S.à r.l.	Portugal	X	X	
Santander Totta , SGPS, S.A.	Portugal	X		
Banca Comerciala Romana SA	Romania	X		
BANCA TRANSILVANIA	Romania	X	X	X
BRD-Groupe Société Générale SA	Romania	X		
Aktiebolaget Svensk Exportkredit	Sweden	X	X*	
Kommuninvest - Grupp	Sweden	X	X	
Länsförsäkringar Bank AB - gruppen	Sweden	X	X	
SBAB Bank AB - Grupp	Sweden	X	X	
Skandinaviska Enskilda Banken - gruppen	Sweden	X	X	X
Svenska Handelsbanken - gruppen	Sweden	X	X	X
Swedbank - Grupp	Sweden	X	X	X
AGRI EUROPE CYPRUS LIMITED	Slovenia	X	X	
BISER TOPCO S.A R.L.	Slovenia	X	X	
Nova Ljubljanska Banka d.d., Ljubljana	Slovenia	X	X	X
SKB BANKA D.D. LJUBLJANA	Slovenia	X		
Slovenská sporiteľňa, a.s.	Slovakia	X		
Tatra banka, a.s.	Slovakia	X		
Všeobecná úverová banka, a.s.	Slovakia	X		

The banks marked (*) are included in the transparency exercise in the 'other banks' bucket in Q1 and Q2 2022.

The banks marked (**) are not included in figures based on supervisory reporting data that show EU/EEA aggregated figures.

Annex II: Descriptive statistics from the EBA key risk indicators

The data shows the trend in risk indicators and is based on the sample of banks, which is regularly adjusted to take into account bank-specific developments; for example, banks that ceased activity or underwent a significant restructuring process are not considered further.⁽⁹⁾

KRI	Descriptive Statistics																															
	Dec.14	Mar.15	Jun.15	Dec.15	Mar.16	Jun.16	Dec.16	Mar.17	Jun.17	Dec.17	Mar.18	Jun.18	Dec.18	Mar.19	Jun.19	Dec.19	Mar.20	Jun.20	Dec.20	Mar.21	Jun.21	Dec.21	Mar.22	Jun.22								
1 - Tier 1 capital ratio	Weighted average	13.6%	13.5%	13.9%	14.0%	14.5%	14.4%	14.6%	14.8%	15.0%	15.1%	15.3%	15.7%	16.0%	15.7%	15.8%	15.6%	15.7%	16.3%	15.8%	16.3%	16.7%	17.1%	17.0%	17.1%	17.0%	16.5%	16.4%				
	First quartile	11.5%	11.5%	11.7%	12.0%	12.4%	12.6%	12.7%	12.9%	12.9%	13.4%	13.5%	14.0%	13.8%	13.7%	13.9%	14.1%	14.4%	14.5%	15.0%	14.3%	14.8%	15.3%	15.8%	15.7%	15.6%	15.6%	15.3%	14.9%			
	Median	13.7%	13.6%	13.6%	13.9%	14.6%	14.7%	14.9%	15.0%	15.4%	15.3%	16.0%	16.1%	16.3%	16.2%	16.2%	16.3%	16.2%	16.1%	16.7%	16.2%	16.9%	17.2%	18.0%	17.7%	17.6%	17.5%	17.9%	16.9%	17.0%		
	Third quartile	16.2%	16.2%	16.5%	17.6%	17.9%	17.7%	18.5%	19.0%	19.9%	19.3%	19.4%	19.8%	21.2%	21.3%	21.7%	20.3%	19.8%	19.7%	19.4%	19.9%	20.2%	20.6%	21.3%	21.1%	21.3%	21.3%	20.1%	20.3%	20.3%		
2 - Total capital ratio	Weighted average	15.9%	15.9%	16.3%	16.5%	17.0%	16.9%	17.2%	17.5%	17.7%	17.8%	18.0%	18.3%	18.6%	18.2%	18.1%	18.2%	18.0%	18.1%	18.7%	18.2%	18.8%	19.2%	19.7%	19.5%	19.6%	19.5%	19.8%	19.1%	19.0%		
	First quartile	13.5%	13.4%	13.7%	13.9%	14.5%	14.5%	14.5%	14.5%	14.8%	14.9%	15.4%	15.7%	15.8%	15.9%	15.8%	16.0%	16.2%	16.3%	16.9%	16.5%	17.1%	17.6%	18.1%	17.9%	17.9%	17.9%	17.4%	17.2%	17.2%		
	Median	15.7%	15.5%	15.9%	16.2%	16.8%	16.8%	17.2%	17.7%	17.3%	18.0%	18.0%	18.5%	18.2%	18.2%	18.1%	18.3%	18.2%	18.4%	18.3%	18.9%	18.1%	19.2%	19.3%	20.1%	20.0%	20.1%	19.8%	20.3%	19.5%	19.3%	
	Third quartile	19.2%	18.9%	20.1%	20.8%	21.6%	21.5%	21.7%	22.5%	23.5%	23.2%	23.9%	23.2%	23.9%	23.2%	23.0%	22.2%	21.6%	21.5%	21.3%	22.6%	21.6%	22.2%	22.5%	23.9%	23.3%	23.1%	22.8%	22.0%	22.0%	22.0%	
3 - CET1 ratio	Weighted average	12.9%	12.8%	13.1%	13.2%	13.6%	13.5%	13.7%	13.9%	14.0%	14.0%	14.2%	14.6%	15.0%	14.4%	14.5%	14.6%	14.5%	15.0%	14.5%	15.0%	15.4%	15.8%	15.7%	16.8%	15.7%	16.8%	15.7%	15.2%	15.2%		
	First quartile	11.2%	11.3%	11.4%	11.7%	12.2%	12.3%	12.2%	12.4%	12.4%	13.0%	13.1%	13.5%	13.2%	13.4%	13.3%	13.5%	13.4%	13.8%	13.7%	14.2%	13.4%	14.2%	14.7%	14.4%	14.5%	14.5%	14.8%	14.1%	14.0%	14.0%	
	Median	13.1%	13.0%	12.9%	13.2%	13.8%	14.0%	14.1%	14.4%	14.7%	14.6%	15.1%	15.2%	15.8%	15.7%	15.6%	15.9%	15.7%	15.5%	15.5%	15.9%	16.2%	16.6%	17.3%	16.8%	17.2%	16.6%	17.0%	16.3%	16.0%	16.0%	
	Third quartile	15.5%	15.2%	15.7%	15.9%	17.0%	17.1%	17.4%	17.9%	18.0%	18.8%	19.1%	19.2%	20.1%	20.6%	20.9%	20.1%	18.9%	19.4%	18.9%	19.6%	19.2%	19.6%	20.3%	20.2%	20.1%	20.2%	20.0%	18.7%	18.9%	18.9%	
4 - CET1 ratio (fully loaded)	Weighted average	11.5%	11.8%	12.0%	12.1%	12.8%	12.8%	13.0%	13.2%	13.3%	13.6%	13.8%	14.2%	14.6%	14.2%	14.1%	14.2%	14.3%	14.1%	14.2%	14.8%	14.3%	14.7%	15.0%	15.4%	15.5%	15.4%	15.5%	15.0%	15.0%	15.0%	
	First quartile	10.1%	10.3%	10.4%	10.7%	11.5%	11.5%	11.7%	11.7%	11.9%	12.0%	12.5%	12.6%	13.1%	12.6%	12.7%	12.5%	12.7%	12.9%	13.0%	13.4%	13.0%	13.2%	13.5%	14.0%	14.0%	14.3%	14.0%	14.1%	13.9%	13.7%	13.7%
	Median	11.8%	12.2%	12.3%	12.6%	13.3%	13.5%	13.6%	13.8%	14.5%	14.6%	14.8%	14.8%	15.5%	15.2%	15.3%	15.4%	15.4%	15.1%	15.2%	15.8%	15.5%	16.0%	16.4%	16.7%	16.5%	16.4%	16.2%	16.3%	15.8%	15.5%	15.5%
	Third quartile	15.1%	15.2%	15.0%	15.6%	16.4%	16.9%	17.3%	17.9%	18.7%	18.8%	19.1%	19.2%	20.1%	20.0%	20.5%	20.8%	19.6%	18.8%	18.9%	18.7%	19.5%	18.8%	19.2%	19.4%	20.2%	20.0%	20.1%	19.6%	18.7%	18.9%	18.9%

⁽⁹⁾ This table excludes data from Liechtenstein, Norwegian and UK banks, as described in the Introduction.

KRI Descriptive Statistics Dec.14 Mar.15 Jun.15 Sep.15 Dec.15 Mar.16 Jun.16 Sep.16 Dec.16 Mar.17 Jun.17 Sep.17 Dec.17 Mar.18 Jun.18 Sep.18 Dec.18 Mar.19 Jun.19 Sep.19 Dec.19 Mar.20 Jun.20 Sep.20 Dec.20 Mar.21 Jun.21 Sep.21 Dec.21 Mar.22 Jun.22

Credit Risk and Asset Quality	10 - Ratio of non-performing exposures (NPE ratio)	6.3%	6.1%	6.0%	5.9%	5.7%	5.6%	5.4%	5.3%	5.1%	4.8%	4.5%	4.3%	4.1%	3.9%	3.7%	3.5%	3.2%	3.1%	3.0%	2.9%	2.8%	2.6%	2.5%	2.4%	2.3%	2.2%	2.0%	1.9%	1.8%	1.7%	1.6%	
	Weighted average																																
	First quartile	2.4%	2.4%	2.2%	2.2%	1.9%	1.8%	1.8%	1.5%	1.4%	1.4%	1.4%	1.4%	1.4%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.1%	1.1%	1.1%	1.1%	1.1%	1.0%	0.9%	0.8%	0.9%	0.7%	0.7%
	Median	5.2%	5.1%	4.9%	5.1%	4.7%	4.4%	4.1%	4.0%	3.7%	3.4%	3.3%	3.0%	2.8%	2.7%	2.5%	2.6%	2.5%	2.2%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.0%	2.0%	1.8%	1.7%	1.7%	1.6%	1.5%
	Third quartile	13.2%	13.4%	13.2%	13.3%	12.8%	12.6%	12.1%	11.9%	11.2%	9.8%	8.2%	7.8%	6.8%	6.4%	5.7%	5.6%	4.8%	4.1%	3.7%	3.5%	3.5%	3.4%	3.1%	3.0%	3.0%	3.0%	2.8%	2.7%	2.6%	2.5%	2.2%	
	Weighted average	3.3%	6.8%	6.8%	6.2%	4.9%	5.5%	5.9%	6.0%	3.9%	7.7%	7.6%	7.6%	6.6%	6.9%	7.3%	7.2%	6.5%	6.3%	6.6%	6.4%	5.8%	1.2%	0.4%	2.4%	1.9%	7.6%	7.4%	7.7%	7.3%	6.7%	7.8%	
	11 - Return on equity	-2.4%	2.8%	3.5%	3.5%	2.7%	1.9%	2.3%	2.5%	1.4%	3.0%	3.8%	3.6%	3.1%	3.9%	3.7%	4.1%	3.2%	3.0%	4.1%	4.3%	3.1%	-3.3%	0.0%	0.9%	0.9%	2.9%	3.7%	4.2%	4.5%	3.5%	4.6%	
	Median	3.5%	6.5%	7.1%	7.0%	5.8%	5.0%	6.1%	5.9%	5.5%	6.2%	7.3%	7.1%	6.4%	6.8%	6.7%	6.9%	6.8%	6.3%	6.6%	6.0%	1.3%	2.5%	3.6%	3.6%	6.0%	6.0%	7.1%	7.8%	7.4%	5.9%	7.0%	
	Third quartile	7.8%	10.0%	10.2%	10.3%	8.7%	8.4%	9.9%	10.5%	9.6%	11.0%	10.9%	10.7%	10.6%	9.8%	9.9%	9.6%	9.4%	9.1%	9.8%	10.0%	9.0%	5.0%	5.2%	6.1%	6.0%	9.5%	9.8%	10.4%	10.4%	10.8%	11.2%	
	Weighted average	0.2%	0.4%	0.4%	0.4%	0.3%	0.3%	0.4%	0.4%	0.3%	0.5%	0.5%	0.4%	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.1%	0.0%	0.2%	0.1%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%	0.4%	
	12 - Return on assets	-0.1%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	-0.2%	0.0%	0.1%	0.0%	0.2%	0.2%	0.3%	0.2%	0.2%	0.3%	
	Median	0.2%	0.4%	0.4%	0.4%	0.4%	0.3%	0.4%	0.4%	0.4%	0.4%	0.5%	0.5%	0.4%	0.5%	0.5%	0.4%	0.4%	0.5%	0.4%	0.4%	0.1%	0.2%	0.3%	0.4%	0.5%	0.4%	0.5%	0.5%	0.4%	0.5%	0.4%	
	Third quartile	0.5%	0.7%	0.7%	0.7%	0.6%	0.6%	0.7%	0.7%	0.7%	0.7%	0.8%	0.8%	0.9%	0.8%	0.9%	0.8%	0.8%	0.8%	0.8%	0.8%	0.6%	0.4%	0.3%	0.4%	0.5%	0.7%	0.8%	0.8%	0.9%	0.7%	0.8%	
Profitability	13 - Cost to income ratio	62.3%	61.5%	59.9%	60.8%	62.5%	67.2%	63.5%	63.3%	64.8%	64.4%	61.8%	62.0%	63.2%	66.3%	64.6%	64.2%	64.9%	68.0%	65.4%	64.5%	64.9%	72.2%	67.0%	65.0%	65.5%	63.7%	64.0%	62.7%	63.3%	63.2%	61.6%	
	Weighted average																																
	First quartile	46.1%	45.0%	46.3%	47.3%	48.3%	51.2%	49.9%	49.8%	50.2%	49.7%	50.2%	49.5%	50.2%	49.5%	51.5%	50.4%	50.6%	52.9%	51.8%	51.2%	53.1%	56.7%	54.1%	53.9%	52.0%	54.0%	50.1%	48.2%	48.9%	51.4%	52.2%	
	Median	58.8%	57.1%	56.4%	57.6%	59.0%	63.9%	59.3%	58.8%	61.1%	59.9%	58.2%	58.1%	58.9%	62.7%	61.9%	61.7%	62.5%	65.5%	64.2%	62.4%	65.1%	67.8%	65.7%	64.9%	64.7%	63.5%	62.2%	60.3%	60.7%	62.9%	61.8%	
	Third quartile	69.7%	67.4%	65.2%	66.3%	67.4%	73.8%	70.7%	70.5%	73.2%	74.2%	70.4%	71.5%	71.0%	75.9%	73.8%	70.0%	70.9%	75.1%	72.8%	72.1%	73.4%	86.0%	80.2%	74.4%	73.2%	77.0%	74.1%	70.5%	71.1%	74.5%	71.4%	
	Weighted average	58.2%	54.6%	54.5%	56.2%	56.8%	57.9%	56.3%	57.1%	57.0%	55.8%	55.2%	56.8%	57.0%	56.6%	57.0%	57.7%	59.1%	58.5%	59.1%	59.1%	62.8%	60.2%	59.7%	58.8%	53.6%	55.0%	55.4%	55.2%	53.6%	55.1%		
	14 - Net interest income to total net operating income	47.5%	41.6%	45.8%	48.3%	47.9%	50.7%	48.7%	49.4%	49.4%	48.5%	49.3%	52.6%	47.9%	47.1%	49.1%	50.3%	52.9%	49.7%	51.8%	53.5%	53.0%	51.8%	53.8%	54.5%	52.0%	44.8%	48.5%	46.0%	47.4%	46.3%	46.1%	
	Median	60.3%	56.2%	58.7%	58.6%	60.4%	63.0%	63.2%	62.2%	62.5%	61.0%	61.6%	62.8%	63.1%	63.1%	65.9%	65.0%	65.7%	64.8%	64.1%	64.1%	63.8%	66.9%	65.9%	64.6%	62.5%	60.4%	60.3%	60.9%	62.4%	61.9%	62.0%	
	Third quartile	74.9%	73.4%	72.7%	76.2%	76.6%	80.1%	76.1%	75.8%	75.5%	73.9%	71.8%	73.4%	72.6%	75.7%	74.0%	72.8%	74.3%	75.6%	73.4%	73.1%	73.4%	81.9%	79.0%	77.3%	75.3%	70.9%	71.6%	71.4%	71.2%	70.9%	72.6%	

KRI	Descriptive Statistics	Date																															
		Dec.14	Mar.15	Jun.15	Dec.15	Mar.16	Jun.16	Sep.16	Dec.16	Mar.17	Jun.17	Sep.17	Dec.17	Mar.18	Jun.18	Sep.18	Dec.18	Mar.19	Jun.19	Sep.19	Dec.19	Mar.20	Jun.20	Sep.20	Dec.20	Mar.21	Jun.21	Sep.21	Dec.21	Mar.22	Jun.22		
15 - Net fee and commission income to total net operating income	Weighted average	27.9%	27.5%	27.3%	27.6%	27.9%	28.6%	28.0%	28.3%	28.2%	28.6%	28.6%	29.3%	29.6%	30.0%	30.2%	30.0%	30.4%	30.2%	30.0%	30.4%	30.7%	33.2%	30.6%	30.4%	30.8%	30.5%	31.6%	31.9%	32.5%	31.3%	31.3%	
	First quartile	14.0%	13.7%	13.5%	12.8%	14.7%	12.6%	13.3%	13.4%	13.4%	13.6%	13.6%	13.8%	14.8%	14.5%	14.5%	15.1%	16.1%	16.9%	17.1%	17.2%	17.1%	17.4%	16.4%	16.3%	16.1%	16.2%	16.6%	16.8%	17.0%	19.1%	19.8%	
	Median	23.0%	23.7%	22.0%	23.2%	22.3%	24.3%	24.0%	24.2%	23.5%	24.2%	23.5%	24.2%	24.8%	25.8%	26.7%	27.0%	25.7%	26.6%	26.3%	26.7%	27.1%	28.6%	27.3%	27.1%	26.4%	26.0%	26.5%	27.3%	27.6%	26.6%	27.0%	
	Third quartile	31.2%	32.6%	31.5%	32.1%	31.1%	33.3%	33.5%	32.9%	33.4%	33.3%	33.5%	33.6%	33.8%	34.8%	35.2%	34.1%	35.5%	35.1%	34.8%	35.2%	34.8%	34.9%	37.7%	36.8%	36.8%	36.0%	37.8%	37.4%	37.6%	37.7%	38.8%	37.6%
	Weighted average	5.7%	7.0%	5.2%	5.2%	4.8%	3.0%	3.7%	4.8%	5.3%	9.6%	8.5%	8.4%	8.2%	4.1%	5.2%	4.2%	1.6%	14.9%	10.9%	8.6%	8.6%	-20.1%	-1.6%	-0.6%	4.7%	12.1%	7.8%	7.3%	6.7%	9.8%	8.8%	
	First quartile	-0.5%	-1.2%	-1.7%	-1.5%	-0.8%	-1.8%	-1.2%	-0.2%	-0.1%	0.0%	0.1%	0.1%	0.0%	-0.4%	-0.3%	-0.2%	-0.3%	0.0%	0.0%	0.0%	0.0%	-5.4%	-3.0%	-2.0%	-0.3%	0.1%	0.7%	0.9%	0.6%	0.1%	-0.1%	
	Median	1.2%	1.0%	0.8%	1.4%	0.8%	0.2%	0.5%	1.0%	1.6%	1.9%	2.1%	2.3%	1.5%	1.1%	1.0%	0.7%	0.5%	1.9%	1.1%	1.2%	1.2%	-0.3%	0.2%	0.0%	0.4%	2.6%	4.1%	3.9%	3.6%	3.6%	4.0%	
	Third quartile	5.2%	7.5%	5.4%	4.1%	4.0%	3.8%	3.8%	4.4%	5.6%	7.7%	7.8%	7.2%	6.6%	5.2%	5.0%	4.3%	2.6%	9.7%	6.7%	6.1%	4.3%	2.7%	2.8%	2.3%	3.3%	10.8%	9.3%	8.1%	7.8%	10.3%	10.3%	
	Weighted average	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.4%	1.4%	1.4%	1.5%	1.4%	1.4%	1.4%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.2%	1.2%	1.3%	1.2%	1.3%	
	First quartile	1.1%	1.0%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.9%	0.8%	0.8%	0.9%	0.9%	
Median	1.4%	1.4%	1.5%	1.5%	1.4%	1.4%	1.4%	1.4%	1.3%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.3%	1.3%	1.3%	1.2%	1.2%	1.2%	1.2%	1.2%		
Third quartile	1.9%	1.8%	1.8%	1.9%	1.9%	2.1%	2.1%	2.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.0%	1.9%	1.9%	1.9%	1.9%	1.7%	1.8%	1.7%	1.7%	1.8%		
Weighted average																		0.6%	0.5%	0.5%	0.6%	0.5%	0.8%	0.9%	0.7%	0.7%	0.5%	0.5%	0.5%	0.5%	0.5%		
First quartile																			0.0%	0.0%	0.1%	0.1%	0.1%	0.3%	0.4%	0.3%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	
Median																			0.3%	0.3%	0.2%	0.3%	0.4%	0.3%	0.7%	0.8%	0.7%	0.4%	0.3%	0.3%	0.3%	0.3%	
Third quartile																			0.6%	0.7%	0.6%	0.6%	0.6%	0.7%	1.1%	1.3%	1.1%	1.0%	0.8%	0.7%	0.6%	0.6%	

Profitability

17 - Net interest margin

Weighted average

18 - Cost of Risk

Weighted average

First quartile

Median

Third quartile

KRI	Descriptive Statistics	Dec.14	Mar.15	Jun.15	Sep.15	Dec.15	Mar.16	Jun.16	Sep.16	Dec.16	Mar.17	Jun.17	Sep.17	Dec.17	Mar.18	Jun.18	Sep.18	Dec.18	Mar.19	Jun.19	Sep.19	Dec.19	Mar.20	Jun.20	Sep.20	Dec.20	Mar.21	Jun.21	Sep.21	Dec.21	Mar.22	Jun.22		
19 - Loan-to-deposit ratio for households and non-financial corporations)	Weighted average	133.5%	134.8%	134.7%	132.9%	130.5%	130.9%	129.8%	129.2%	127.4%	126.5%	125.3%	124.7%	124.1%	125.2%	124.9%	123.9%	123.8%	122.9%	122.3%	121.9%	121.0%	120.7%	115.3%	112.9%	111.5%	110.3%	108.9%	108.2%	108.6%	109.1%	109.4%		
	First quartile	98.7%	99.1%	101.7%	100.7%	95.2%	98.0%	97.1%	93.2%	93.5%	94.2%	91.0%	91.6%	90.3%	89.7%	86.7%	86.7%	88.4%	88.4%	90.9%	92.3%	89.4%	87.9%	85.1%	84.4%	81.0%	79.0%	78.8%	78.6%	76.1%	78.2%	78.1%		
	Median	124.2%	124.5%	121.5%	120.9%	120.1%	121.0%	119.1%	117.8%	116.4%	117.7%	114.8%	112.3%	113.5%	112.6%	111.6%	111.8%	110.2%	107.2%	106.0%	104.8%	105.6%	104.0%	100.7%	99.5%	97.5%	97.0%	97.2%	97.5%	96.5%	96.2%	98.6%		
	Third quartile	194.5%	189.5%	191.0%	189.6%	190.5%	178.3%	183.9%	189.2%	195.1%	182.7%	163.9%	179.2%	174.7%	179.9%	180.7%	195.5%	188.1%	164.1%	169.4%	169.2%	171.7%	167.4%	165.2%	156.2%	162.2%	163.9%	149.7%	148.8%	153.6%	144.5%	143.8%		
20 - Asset-encumbrance ratio	Weighted average	26.3%	26.7%	26.4%	26.0%	25.8%	26.0%	26.1%	26.7%	26.3%	27.1%	27.0%	26.5%	26.2%	26.7%	26.5%	25.9%	25.9%	25.9%	26.1%	25.9%	25.1%	26.7%	27.5%	27.9%	27.9%	28.8%	29.1%	29.1%	29.1%	29.2%	28.7%		
	First quartile	12.3%	12.4%	12.9%	12.5%	13.2%	11.3%	11.9%	12.2%	11.8%	10.3%	10.4%	11.3%	10.2%	10.7%	10.6%	10.8%	11.5%	9.8%	10.5%	10.4%	9.8%	11.1%	12.7%	12.7%	11.8%	12.5%	12.7%	13.3%	14.3%	13.9%	13.8%		
	Median	24.0%	24.6%	24.3%	24.8%	25.4%	24.6%	24.9%	24.1%	23.6%	24.4%	23.3%	23.4%	22.8%	22.4%	22.3%	21.8%	20.9%	20.6%	19.4%	18.6%	22.0%	25.2%	25.0%	24.8%	24.6%	25.8%	25.3%	24.6%	24.2%	24.3%	24.3%		
	Third quartile	38.5%	38.4%	36.1%	36.3%	35.4%	35.2%	34.6%	34.7%	35.9%	32.7%	32.7%	32.4%	32.7%	32.7%	32.3%	32.2%	33.0%	30.9%	30.2%	29.5%	29.2%	31.2%	31.5%	32.9%	32.5%	34.1%	34.5%	33.7%	33.2%	33.7%	32.8%		
21 - Liquidity coverage ratio (%)	Weighted average	139.8%	139.0%	144.0%	144.0%	142.0%	144.0%	142.0%	145.4%	143.6%	142.5%	142.4%	145.8%	142.4%	146.7%	147.2%	146.7%	147.9%	149.0%	166.2%	171.4%	173.0%	173.5%	174.5%	174.7%	174.8%	174.8%	174.5%	174.8%	168.0%	165.1%			
	First quartile	126.0%	125.9%	131.6%	134.2%	132.0%	138.3%	139.7%	138.1%	136.1%	136.2%	146.3%	139.0%	139.9%	144.6%	142.3%	159.4%	161.7%	163.8%	164.3%	167.5%	167.9%	167.9%	163.6%	164.3%	167.5%	167.9%	163.6%	163.6%	159.4%	157.1%			
	Median	147.6%	151.2%	158.9%	156.4%	155.1%	166.0%	162.3%	159.1%	160.5%	164.4%	174.2%	173.1%	168.7%	169.5%	173.3%	191.0%	189.7%	196.3%	203.5%	209.1%	202.3%	196.8%	198.1%	185.0%									
	Third quartile	243.5%	233.5%	237.5%	227.5%	253.7%	214.6%	234.8%	216.0%	229.3%	234.5%	233.9%	239.7%	235.1%	221.6%	244.8%	288.4%	258.3%	254.4%	266.2%	265.7%	266.9%	271.0%	260.4%	249.3%									
22 - Net Stable Funding Ratio	Weighted average	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%	129.3%		
	First quartile	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	124.9%	
	Median	135.4%	135.2%	135.8%	135.2%	132.3%	135.4%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%	135.2%
	Third quartile	147.2%	147.6%	147.0%	146.9%	145.4%	147.2%	147.6%	147.0%	146.9%	145.4%	147.2%	147.6%	147.0%	146.9%	145.4%	147.2%	147.6%	147.0%	146.9%	145.4%	147.2%	147.6%	147.0%	146.9%	145.4%	147.2%	147.6%	147.0%	146.9%	145.4%	147.2%	147.6%	147.0%

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Tour Europlaza, 20 avenue André Prothin, CS 30154
92927 Paris La Défense CEDEX, FRANCE

Tel. +33 1 86 52 70 00
E-mail: info@eba.europa.eu



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