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Ireland: Financial System Stability Assessment

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IRELAND

FINANCIAL SYSTEM STABILITY ASSESSMENT

July 2022

This paper on Ireland was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on June 15, 2022.

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FINANCIAL SYSTEM STABILITY ASSESSMENT

June 15, 2022

KEY ISSUES

Context: Ireland has considerably strengthened financial sector regulation and supervision since the 2016 FSAP, aided by the ECB/SSM, and is working with European and international regulators to strengthen oversight of the large market-based finance (MBF) sector. This strengthening is evidenced by a successful navigation through the challenges of Brexit and the pandemic. Despite global headwinds, Ireland is exiting the pandemic with strong economic growth and a highly capitalized and liquid banking system. The financial system has grown rapidly and in complexity, especially after Brexit, and Ireland has become a European base for large financial groups. The MBF sector has grown to the second largest in Europe, with global interlinkages.

Findings: Risks to financial stability emanate from a much larger and more complex financial system, emergent risks from non-bank lending, Fintech, and climate change, as well as legacy issues from the global financial crisis (GFC) which weigh on the performance of domestic retail banks. Impediments to corporate insolvency and repossession of mortgage collateral slow NPL resolution and lead to a high cost of credit. The potential impact of the unwinding of public pandemic policy support and global shocks, against the backdrop of the war in Ukraine, may increase pressures on asset quality in the near term. The extent of linkages of a segment of the MBF sector with the domestic economy remains opaque. Stress tests indicate that the financial system is broadly resilient to severe macro-financial shocks.

Policy advice: Recognizing the progress made and the identified risks, the recommendations reflect five broad themes: i) enhancing supervisory and enforcement powers and practice; ii) maintaining the resources and capacity to regulate and supervise a larger and more complex financial system; iii) focusing supervisory efforts increasingly on cross-border aspects and in new areas including climate change; iv) comprehensively identifying financial linkages to the economy and promoting greater stability in the large MBF sector; and v) fully addressing legacy policies and scarring from the GFC.

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Approved By
May Khamis and Laura Papi
Prepared By
Monetary and Capital Markets Department

This report is based on the assessment work under the Financial Sector Assessment Program (FSAP) conducted during October 2021 and March 2022. The findings were discussed with the authorities in March 2022 (the close of the FSAP) and in May 2022 (the Article-IV Consultation).

- The team was led by Paul Mathieu, and included Tumer Kapan (Deputy Mission Chief), Vassili Bazinas, Xiaodan Ding, Tara Iyer, David Rozumek, Richard Stobo (all MCM); Anna Shabunina (EUR); Chanda DeLong (LEG); Timo Broszeit and David Scott (External Experts). Valuable inputs on AML/CFT issues were received from Chady El Khoury, Ivana Rossi, Maksym Markevych, and Indulekha Thomas (all LEG). Emeric Lai Tim provided research assistance and Ramanjeet Singh provided administrative assistance. The FSAP team also collaborated closely with the EUR Article IV Consultation team.

- The mission met with Central Bank of Ireland Governor Gabriel Makhlouf, Secretary General of Finance John Hogan, other high ranking public officials, senior representatives of various private sector entities, including local and foreign banks, investment funds, fintech firms, insurance companies, rating agencies, auditors, and industry associations.

- FSAPs assess the stability of the financial system as a whole and not that of individual institutions. They are intended to help countries identify key sources of systemic risk in the financial sector and implement policies to enhance its resilience to shocks and contagion. Certain categories of risk affecting financial institutions, such as operational or legal risk, or risk related to fraud, are not covered in FSAPs.

- Ireland is deemed by the Fund to have a systemically important financial sector according to SM/10/235 (9/16/2010), and the stability assessment under this FSAP is part of bilateral surveillance under Article IV of the Fund's Articles of Agreement.

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Glossary

AIFMD	Alternative Investment Fund Managers Directive
AML/CFT	Anti-Money Laundering/Combating the Financing of Terrorism
AMLSC	Anti-Money Laundering Steering Committee
BRRD	Bank Recovery and Resolution Directive
CCyB	Countercyclical Capital Buffer
Central Bank	Central Bank of Ireland
CET1	Common Equity Tier 1
CIT	Corporate Income Tax
CLRG	Company Law Review Group
CRE	Commercial Real Estate
DETE	Department of Enterprise, Trade and Employment
DoF	Department of Finance
DoJ	Department of Justice
DORA	Digital Operational Resilience Act
ECB	European Central Bank
EIOPA	European Insurance and Occupational Pensions Authority
ESA	European Supervisory Authority
ESFS	European System of Financial Supervision
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EU	European Union
EUR	Euro
FSA	Financial Sector Assessment
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSR	Financial Stability Report
FVC	Financial Vehicle Corporation
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GNI	Gross National Income
IF	Investment Fund
IFRS	International Financial Reporting Standard
ISI	Insolvency Service of Ireland
LCR	Liquidity Coverage Ratio
LSI	Less Significant Institution
LTMA	Long-term Mortgage Arrears
LTI	Loan-to-income
LTV	Loan-to-value
MBF	Market-based Finance
MiCA	Markets in Crypto Assets
MFIN	Minister for Finance

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ML/TF	Money Laundering/Terrorism Financing
MMF	Money Market Fund
MNE	Multinational Enterprise
NFC	Non-financial Corporate
NPL	Non-performing Loan
NSFR	Net Stable Funding Ratio
OFI	Other Financial Institutions
PIEMI	Payment Institution and Electronic Money Institution
SCR	Solvency Capital Requirement
SI	Significant Institution
SME	Small and Medium Enterprises
SPE	Special Purpose Entity
SSM	Single Supervisory Mechanism
STeM	Stress Test Matrix
U.K.	United Kingdom
U.S.	United States
USD	United States Dollar

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EXECUTIVE SUMMARY

Ireland is a small open economy with a major international financial center featuring extensive cross-border linkages, mostly through the MBF sector. It has seen exceptional economic and financial sector growth over the past decade, as it recovered from the GFC. The GFC was a particularly adverse economic event in Ireland and has had long-lasting effects. Many lessons were learned, the banking system was de-risked and restructured, and an effective macroprudential framework was introduced. Brexit drove a large increase in the size and complexity of the financial system, notably of international banks, for which Ireland has become an operations base for Europe. Cross-border insurance activities and the MBF sector, which is primarily linked to the U.S. and Europe have also grown markedly, the latter to the second largest in Europe. In contrast, retail banks have struggled with low credit demand, post-GFC scarring and legacy policies, and low collateral recovery, which weigh on their performance. Recently, the last two foreign retail banks announced their exit from Ireland. Non-bank lenders and fintech firms have been growing rapidly, taking market share from the retail banks. Despite global headwinds, Ireland is exiting the pandemic with strong economic growth and a highly capitalized and liquid banking system.

Ireland has come a long way in strengthening financial regulation and supervision since the 2016 FSAP, aided by its membership in the European System of Financial Supervision (ESFS). This strengthening is evidenced by a successful navigation through the challenges of Brexit, the pandemic, and now the war in Ukraine. The authorities have been working with European and international regulators to strengthen financial system oversight across most relevant areas, including credit risk, captive insurance, and supervision of cross-border business and group supervision. The macroprudential framework is sound and has been up to the increased challenges. The authorities need to keep pace with the large, complex, and globally interconnected financial system, and the non-bank lending, Fintech, and AML/CFT issues.

Risks to financial stability emanate from a much larger and more complex financial system, persistent legacy issues, as well as emergent ones from non-bank lending, Fintech, and climate change. The potential impact of the unwinding of public pandemic policy support and global shocks, against the backdrop of the war in Ukraine, may increase pressures on the banking system in the near term. Still opaque linkages in certain segments of the MBF sector with the economy could act as a source of risk transmission and amplify external shocks. GFC legacy issues and policies—including restrictions on bank pay and bonuses, dominant government ownership, and persistent impediments to repossession of mortgage collateral that keep risk weights and the cost of credit high—result in low profitability in the retail banking system. The direct impact of the war in Ukraine and related sanctions imposed on Russia appear limited. Direct financial sector linkages to Russia also appear limited.

Stress tests confirmed banks' resilience to severe macrofinancial shocks, with some caveats. On the solvency side, banks' high initial capital provides strong buffers, but there are some risks as the economy exits from pandemic-related policy support. The liquidity stress tests suggest banks are resilient to adverse liquidity conditions, although maturity mismatches may expose banks to shortfalls in a sustained liquidity stress environment, with some cross-currency vulnerabilities.

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Insurers were also broadly resilient in the solvency and liquidity stress tests. Linkages of an MBF subsector—"Other Financial Institutions (OFI) residual", with total assets of about 1.6 times GDP—with the economy remain opaque.

The FSAP recommendations reflect steps to address existing risks and meet new challenges:

- **Cross-cutting** measures aim to further enhance the de jure independence of the central bank; extend supervisory and enforcement powers against individuals; and implement an action plan on risks from climate change.
- **Supervisory focus and resources.** While broadly adequate, supervisory resources and capacity need to keep pace with a growing and more complex sector with significant cross-border linkages. Efforts are needed to further strengthen supervision of banks' credit risk and develop capacity and skills on new areas such as climate, non-bank lending, and Fintech. Insurance oversight should prioritize intra-group complexities. For the MBF sector, the authorities should provide guidance to investment funds on liquidity management tools to enhance their resilience. Additionally, they should intensify efforts to better understand the linkages between the OFI residual segment and the economy.
- **The macroprudential framework** can be further extended, to cover risks from the nonbank sector, including introducing leverage limits on property funds.
- **Resolution and crisis management** can be enhanced through greater planning and collaboration between the Central Bank and the Department of Finance (DoF) to bolster the ability to deal effectively with institution failures and systemic crises.
- **Addressing policies and legacies from the GFC** that are a drag on retail banking require measures to address impediments to the repossession of mortgage collateral, complete the sale of government bank ownership, and lift operating restrictions.
- **AML/CFT policy.** Efforts are needed to better understand and address risks from non-residents and cross-border activity. Adequately resourcing AML/CFT capacity, broader data collection and the use of advanced data analytical tools will be crucial.

The FSAP thus recommends targeted measures outlined in Table 1.

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	Table 1. Ireland: FSAP Key Recommendations		
	Recommendation	**Addressee**	**Timing***
Oversight – Cross cutting			
1	Notwithstanding strong de facto independence, further strengthen de jure Central Bank independence by: • amending legislation such that the Minister for Finance may dismiss Central Bank Commission members only on specified grounds of serious misconduct, and • enshrining in legislation a written procedure for the submission by the Central Bank and approval by Minister for Finance of the supervisory levy.	DoF, Oireachtas**	ST
2	Amend relevant legislation to provide for greater individual accountability and enhance supervisory powers of the Central Bank to take direct enforcement action against individuals. Finalize the related internal framework to operationalize execution of the upgraded accountability regime.	DoF, Oireachtas, Central Bank	ST
3	Adopt a sequenced action plan for banking and insurance supervision to manage climate-related financial risks in priority areas, with an early emphasis on robust data and quality disclosure.	Central Bank	I
Macroprudential Policy			
4	Work with European institutions to develop macroprudential tools targeting risks from non-banks, including for leakages and other cross-border issues.	Central Bank	MT
5	Expand the monitoring of non-bank lenders beyond those engaged in mortgage activities.	Central Bank	ST
6	Strengthen the resilience of property funds by introducing the proposed macroprudential leverage limit and liquidity management guidance, while adjusting the limit countercyclically.	Central Bank	I
Banking Sector			
7	Maintain the use of tools developed for intensified monitoring of banks' credit losses introduced during the pandemic.	Central Bank	ST
Insurance Sector			
8	Continue strengthening insurance supervision focused on intra-group transactions and concentrations, with a focus on post-Brexit group structures, recovery planning, and liquidity risk management.	Central Bank	ST
MBF Sector			
9	Work with ESMA, ESRB, and EU Commission, as part of the Commission's review of the EU MMF Regulation, to promote MMF resilience.	Central Bank, DoF	ST
10	Prioritize guidance to the funds sector on using the full range of liquidity management tools, including those which result in subscribing or redeeming investors bearing the associated transaction costs.	Central Bank	ST
11	Intensify collaboration between the Central Bank, the CSO, and international regulators to better understand the OFI residual entities and their domestic and foreign linkages, and to conduct risk analysis at a granular level.	Central Bank, CSO	MT
12	Conduct more deep dives to further enhance the monitoring of risks of sub-segments of the funds sector.	Central Bank	ST

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Table 1. Ireland: FSAP Key Recommendations (Concluded)			
Fintech Sector			
13	Prepare to introduce domestic legislation in the event of significant delay or material gaps in the MiCA framework.	DoF, Central Bank	ST
14	Continue to advocate for inclusion of systemic Irish cloud service providers in the Union Oversight Framework under DORA; failing which, seek additional statutory powers to review and examine the resilience of these entities.	Central Bank, DoF	MT
Insolvency and Creditor Rights			
15	Further develop the government strategy, ensuring coordination across multiple responsible agencies, to provide targeted solutions to long-term mortgage arrears borrowers based on their financial situation and debt servicing capacity.	Central Bank, DoF, DoJ, ISI, in consultation with relevant agencies	ST
16	Conduct a review of examinership given its limited usage, the new EU Directive and identified gaps vis a vis the Standard. Consider introducing a new hybrid procedure in line with the "spirit" of the EU Directive.	DETE; CLRG	I
Crisis Management			
17	Develop policies and procedures for assessing the prospective solvency of a bank entering into or undergoing resolution to determine its eligibility for ELA.	Central Bank	ST
18	Remedy weaknesses in the insolvency regime for insurers, including any required legislative amendments	DoF, Central Bank	ST
Financial Integrity			
19	Adequately resource AML/CFT capacity, use advanced data analytical tools, and focus on deepening understanding of and addressing ML/TF risks from non-resident and cross-border activity.	Relevant AMLSC members	ST

* Timing: C = Continuous; I = Immediate (within one year); ST = Short Term (within 1-3 years); MT = Medium Term (within 3-5 years).
** Parliament of Ireland.

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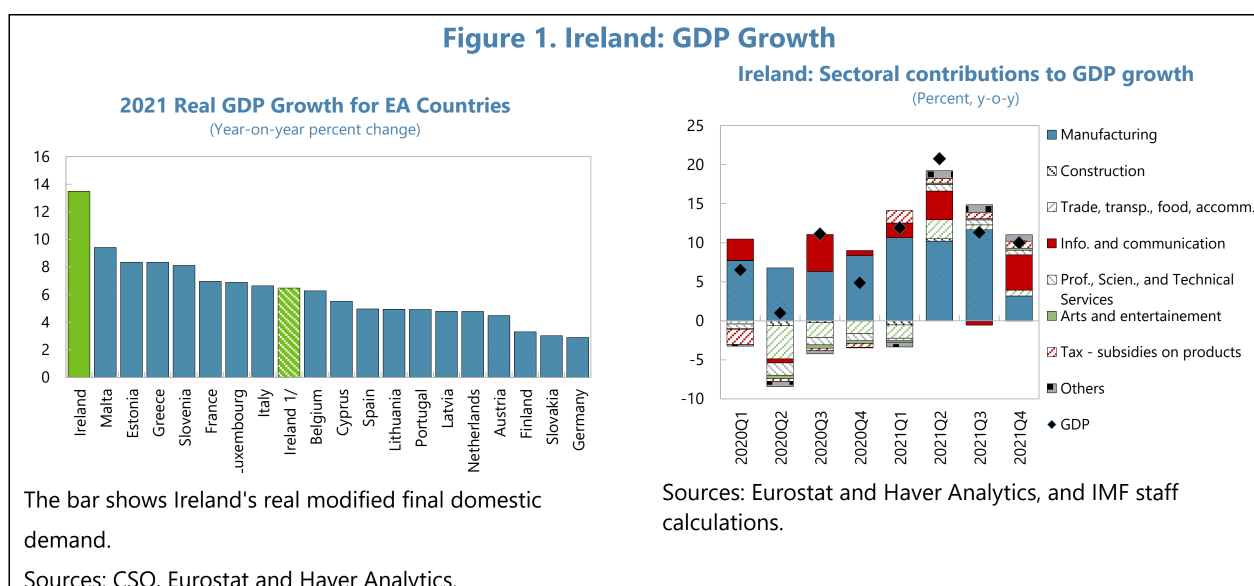
BACKGROUND

A. Macrofinancial Developments

1. Ireland has seen exceptional economic and financial sector growth over the past decade as it recovered from the GFC, which was a particularly adverse event in Ireland. Under a favorable tax regime, large multinational enterprises (MNEs) have driven exports, economic growth, and national income. Brexit drove a large increase in the size and complexity of the financial system, notably of international banks, cross-border insurance activities, and of the MBF sector, that is primarily linked to the U.S. and Europe. In contrast, the retail banking system has continued to shrink until recently, as it struggled with low credit demand from deleveraging by SMEs and households, driven by the still live memory of the GFC shock.

2. The Irish economy has rebounded strongly from the pandemic. GDP grew by 13½ percent in 2021, largely driven by MNEs, while GNI* growth (which excludes most MNE activities) is estimated at 6 percent (Figure 1). The economy fully reopened in early 2022 as COVID-19 infections declined. The labor market continued to rebound strongly, reflecting the waning pandemic and ongoing effect of policy support, and employment and participation rates have exceeded pre-pandemic levels. However, recent energy and commodity price increases are pressuring inflation, which reached 7 percent in April 2022. While direct trade links with Russia and Ukraine are small, with the impact of energy price increases and lower external demand, growth is expected to decelerate to 7.5 percent in 2022 and gradually decline to its medium-term potential of 3 percent by 2025.

Figure 1. Ireland: GDP Growth



The bar shows Ireland's real modified final domestic demand.

Sources: CSO, Eurostat and Haver Analytics.

Sources: Eurostat and Haver Analytics, and IMF staff calculations.

3. While uncertainty remains, the pandemic's impact on borrowers' financial position has so far been limited. Household balance sheets improved slightly since the start of the pandemic, largely due to extraordinary public income support (Figure 2). Similarly, the nonfinancial corporate (NFC) sector, aided by the support measures, has seen limited impact on the aggregate, though, there was a large heterogeneity across sectors hit by COVID-19 (Figure 3).

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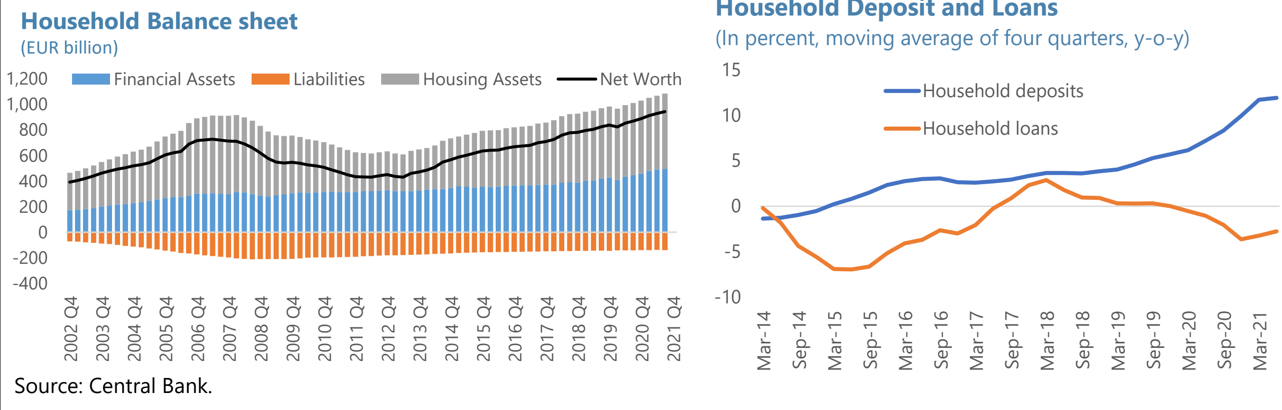

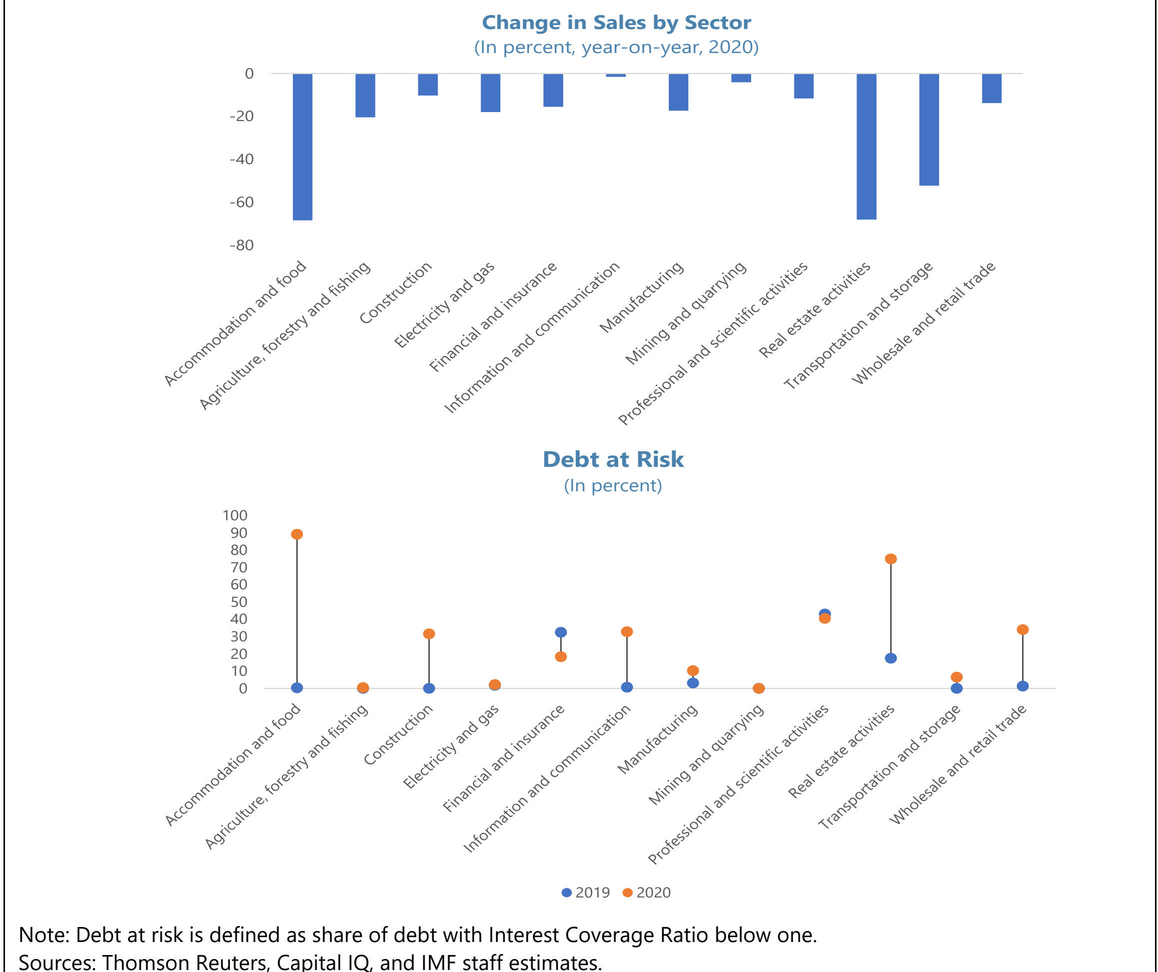

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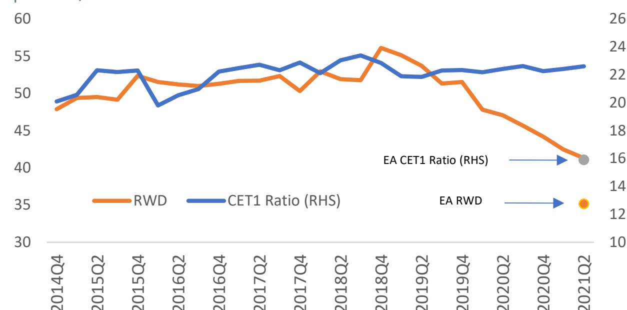
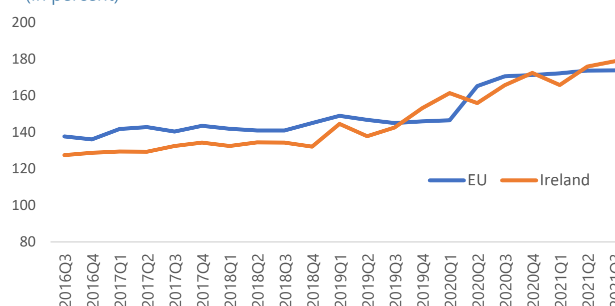
4. While the pandemic was a significant shock to the economy, banks continued to maintain strong capital and liquidity buffers. As of Q3-2021, the average Common Equity Tier 1 (CET1) ratio was 22 percent (well above the euro area average of 16 percent), the Liquidity Coverage ratio (LCR) stood at 178 percent, and the Net Stable Funding Ratio (NSFR) was about 150 percent, with liquidity benefiting from ECB liquidity measures and higher customer deposits (Figure 4). While the NPL ratio of the aggregate banking system continued to decline to under 3 percent at mid-2021 and the system returned to profitability, retail banks carried higher NPLs of about 4 percent.

Figure 4. Ireland: Banking Sector Indicators

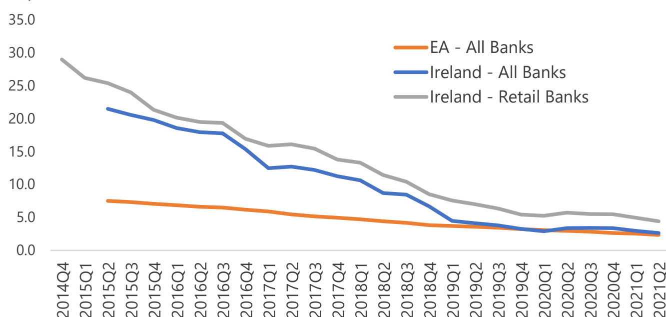
CET1 Ratio and RWD
(In percent)



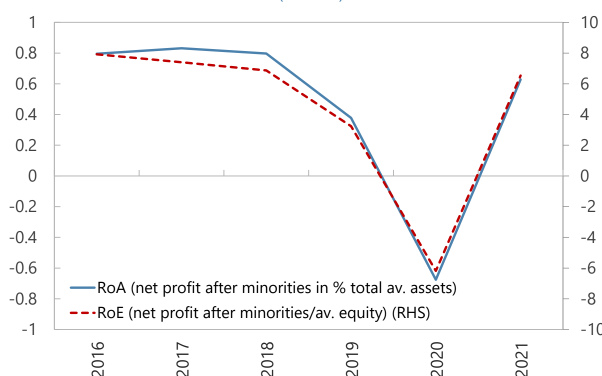
Liquidity Coverage Ratio
(In percent)



Non-performing Loan Ratio
(In percent)



Irish Banks ROA and ROE
(Percent)



Notes: RWD stands for risk weight density. "CET1 Ratio" reflects traditional (non-fully loaded) measure of CET1. EA comparison charts are based on data for the total Irish banking sector which is different from sample used in the FSAP bank stress test.
Sources: ECB Statistical Data Warehouse and Central Bank.

B. Financial Sector Landscape

5. The financial sector has grown both in asset size and complexity, especially after Brexit. The funds sector's assets reached €4.5 trillion in 2021, more than ten times the GDP (Figure 5). Additionally, some large international banks relocated their EU-related activities to Ireland after Brexit, these focus on international corporate and investment banking and are supervised by the Single Supervisory Mechanism (SSM). The insurance sector, especially the non-life segment, has also seen significant growth in recent years partially driven by Brexit.

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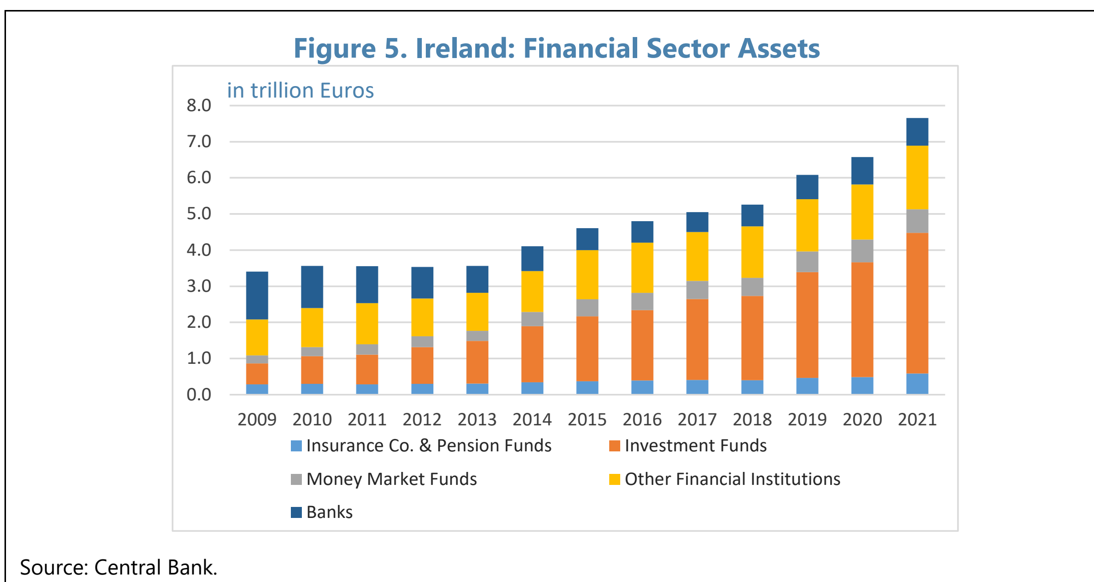
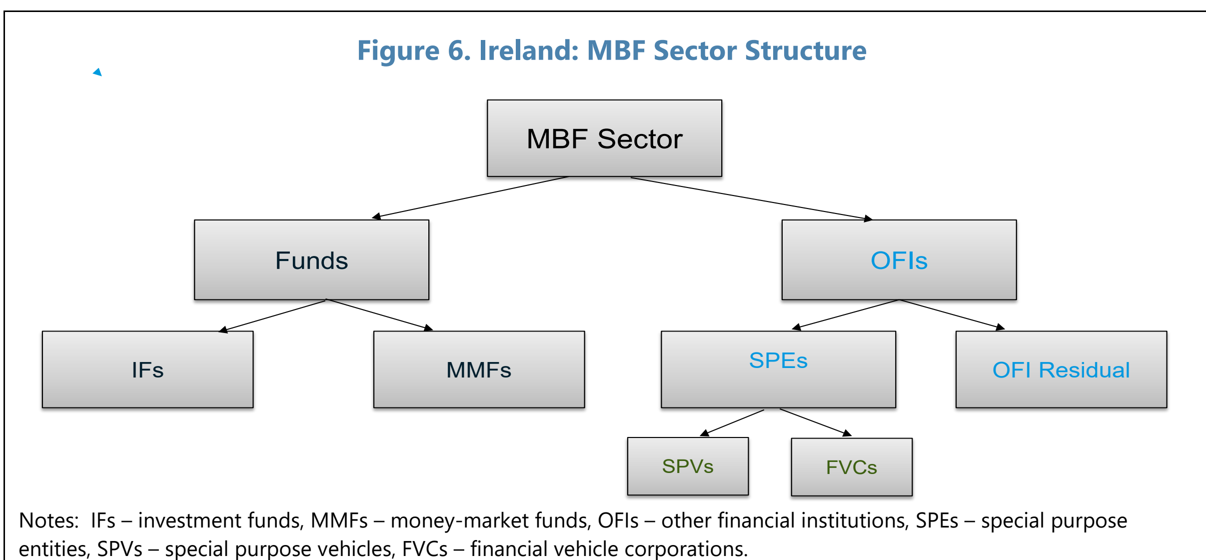
Figure 5. Ireland: Financial Sector Assets



Source: Central Bank.

6. The MBF sector is the largest component of the financial system[1], with total assets at over 15 times GDP. It is comprised of the funds sector —money-market funds (MMFs) and investment funds (IFs)— as well as other financial institutions (OFIs). Funds hold primarily non-Irish assets on behalf of non-Irish investors, although they also have domestic interlinkages, primarily through property funds. OFIs, with total assets of four times GDP, are comprised of special purpose entities (SPEs) and a catch-all category entitled "OFI residual." SPEs are commonly used for securitization as well as intra-group and external financing. The OFI residual segment, with total assets of about 1.6 times GDP, includes entities that engage in non-bank lending (Figure 6).

Figure 6. Ireland: MBF Sector Structure



Notes: IFs – investment funds, MMFs – money-market funds, OFIs – other financial institutions, SPEs – special purpose entities, SPVs – special purpose vehicles, FVCs – financial vehicle corporations.

7. The banking sector comprises two segments, retail and international banks, which vary considerably in their business models and market orientations. Retail banks (about 42 percent of total banking system assets) focus mostly on the domestic economy, with some exposures in the U.K. (Figure 7). They rely on domestic household and corporate deposits and have increasingly turned to

[1] Close to 83 percent of the total financial sector assets.

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mortgage finance, but face high costs, including from legacy mortgage NPLs and the relatively long time it takes to recover collateral. Issues around mortgage collateral recovery impact credit risk, raising risk weights and the cost of lending. International banks, primarily European subsidiaries of international groups, focus mostly on cross-border activities.

Figure 7. Ireland: Banking Sector Segments

Note: Figures showing comparisons between banking segments are based only on the sample of banks used in the stress test. "CET1 Ratio" reflects traditional (non-fully loaded) measure of CET1.
Sources: ECB, Central Bank, Fitch, and IMF staff estimates.

8. **Retail banks have weathered well both the Brexit and the COVID-19 shocks and ongoing consolidation in the retail segment will boost profitability in the short-term.** They are making progress, albeit slow, in improving cost efficiency (digitalization, closing of branches, headcount

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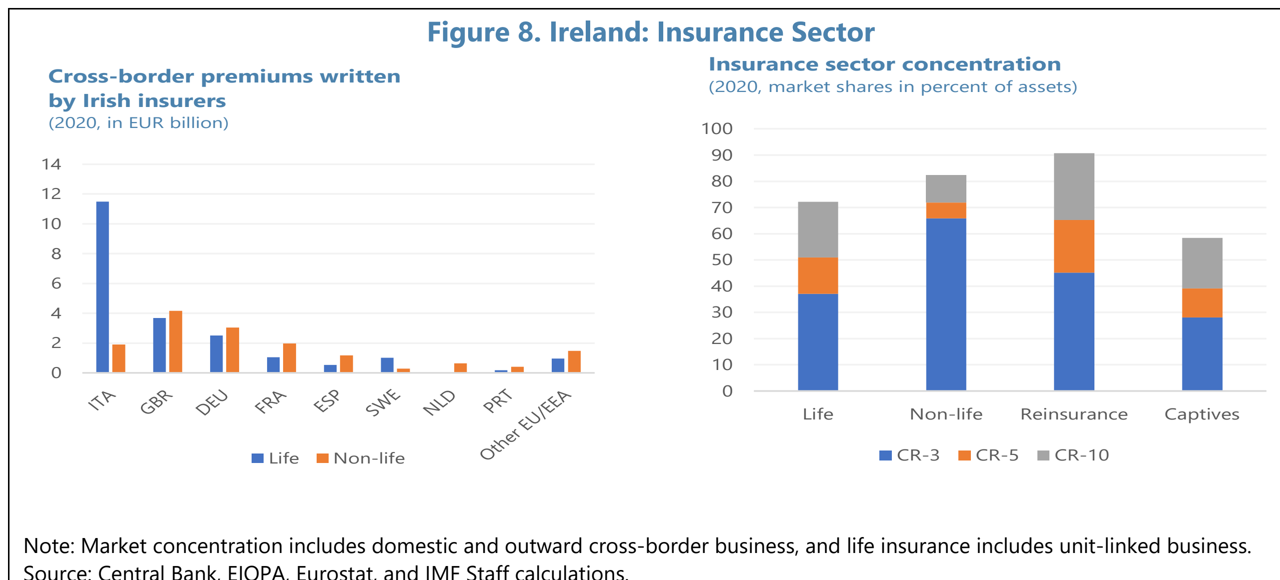
reduction) and have taken steps to diversify income sources (e.g., acquisitions of wealth management firms).

9. Ireland's insurance sector is large, primarily due to cross-border business. Ireland hosts the fourth largest sector in the European Union (EU) by premiums, and assets managed by the insurance industry amount to 117 percent of the GDP. Most Irish insurers are subsidiaries of international groups and often have significant financial links with intra-group entities. Cross-border business plays an essential role, and many firms operate on an 'outward' basis, with less than 30 percent of total premiums being written in Ireland (Figure 8).

Figure 8. Ireland: Insurance Sector



Note: Market concentration includes domestic and outward cross-border business, and life insurance includes unit-linked business.
Source: Central Bank, EIOPA, Eurostat, and IMF Staff calculations.

10. Financial sector's linkages to Russia are limited. SPEs have the largest links to Russia as they held €37 billion of Russian-issued assets at end-2021 (3.6 percent of their total assets). Investment funds held €11.5 billion Russian-issued assets (0.3 percent of their total assets). Banking asset exposures were within international banks and small (€1.1 billion).

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SYSTEMIC RISK ASSESSMENT

A. Macrofinancial Challenges

Dealing with the long-tail effects and policies of the GFC that weigh on retail banks

11. Efforts are needed to fully address the legacies of the post-GFC era to protect financial stability and support the financing of growth. Following the GFC, the banking system went through a necessary deleveraging and restructuring, with the government rescue resulting in the state becoming a majority shareholder in several banks. The last two foreign retail banks are leaving the market in 2022, after which only three will remain. While the small size of the domestic market is a factor, post-GFC policies are contributing to a challenging retail banking environment. While understandable at the time, these policies have outlived their usefulness. Chronic low profitability and operational challenges represent financial stability concerns, especially that concentration has risen markedly.

- **The NPLs of retail banks remain above the EU average and these weigh on profitability, including via high risk weights**. While much progress has been made in reducing bank NPLs since the GFC, progress has slowed down recently. Very long-term mortgage arrears (LTMA), some more than a decade, persist. A push to clear the final stock is needed, as well as steps to improve insolvency and collateral recovery procedures to see a meaningful drop in risk weights that are contributing to higher interest rates in Ireland than in EA peers.

- **Policies introduced at the time of the government bailout significantly handicap critical talent acquisition and retention, especially for key risk management and compliance positions, and should be ended.** The measures include caps on executive pay,[2] a penal tax on all employee bonuses (89 percent), and a bank levy to reduce the impact of large loss carryforwards on tax revenue. These policies also result in an uneven playing field for the retail banks, which are in a catch-up game with more nimble and digitally advanced non-banks.

- **Long-term government ownership, not envisaged at the time of rescue, may be contributing to slow progress in cost reduction, innovation, and normal commercial/credit risk-taking**. While the government has been unwinding its stake in recent years, it remains a majority owner of two of three remaining retail banks.[3] Irish banks stand out compared to peers with the low share of loans to non-financial corporations (13 percent of total loans vis-à-vis the EU average of 22 percent) and high concentration on mortgages. Surveys of SMEs point to difficulties in acquiring bank credit.

[2] See the FSB Principles for Sound Compensation Practices for guidance on best practice in this area.

[3] The government stake in Bank of Ireland has been drawn down to under 4 percent at end-May 2022. The government owns 69 percent of Allied Irish Bank and 75 percent of the smaller Permanent TSB. NatWest will take a 16 percent stake in PTSB, diluting government's stake to 62 percent.

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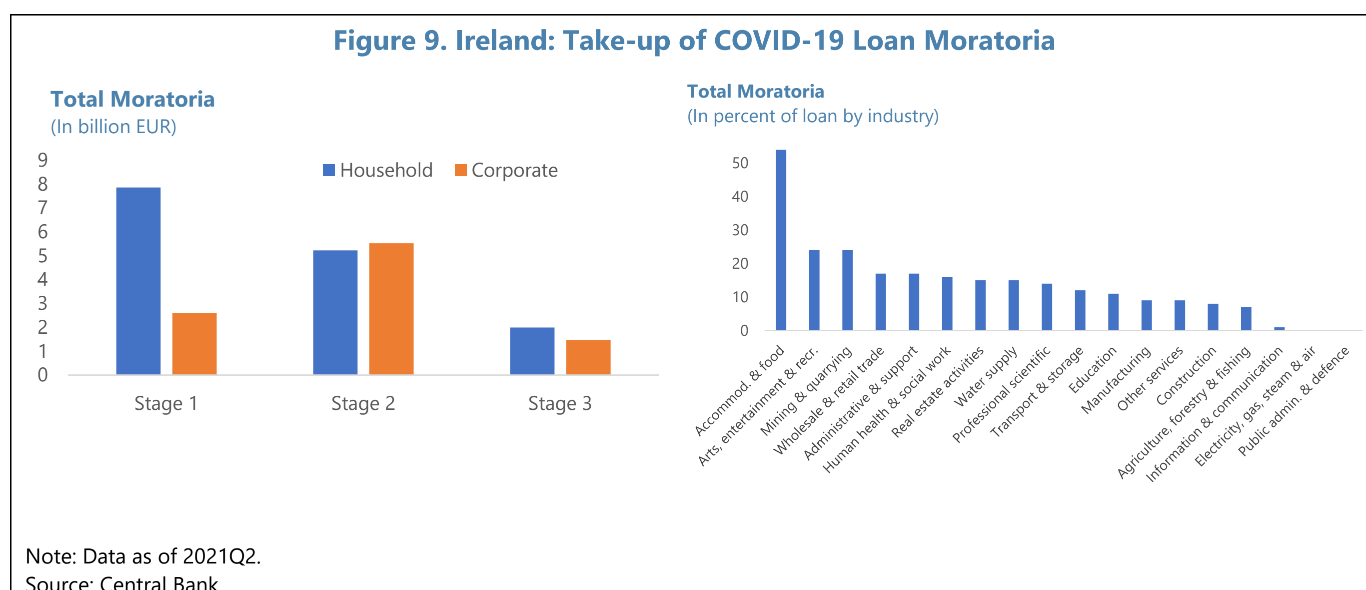
B. Systemic Risks

12. There are risks associated with the withdrawal of public pandemic support. While the economy is expected to grow strongly, the effects of the withdrawal of public support need to be monitored closely. While all moratoria have now expired, 40 percent of household loans in Stage 2 were previously under moratoria, indicating credit quality deterioration. Against this background, the FSAP performed a sensitivity analysis to gauge the risks from the end of broad policy support on bank capital positions (Figure 9).

Figure 9. Ireland: Take-up of COVID-19 Loan Moratoria



Note: Data as of 2021Q2.
Source: Central Bank.

13. Although households have been deleveraging, house prices have been rising in recent years, largely due to supply constraints. Credit growth has continued to be muted as SMEs and households continue to deleverage (Figure 10) and MNEs are largely funded internationally. The credit gap, based on both GDP and GNI*, has been negative since 2016. However, annual house price increases accelerated to 14 percent in December 2021. Staff's house-price-at-risk estimation points to downside risk of about 30 percent cumulative decline over a three-year horizon.[4]

[4] Estimated at 5th percentile.

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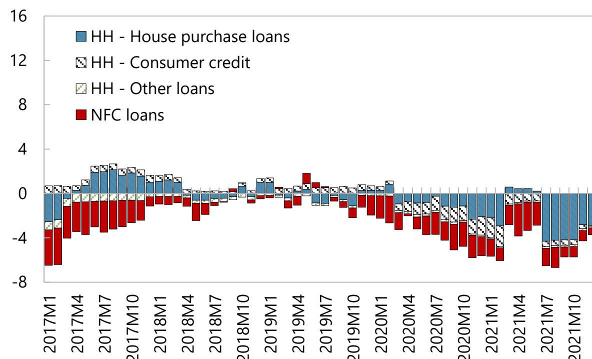
Figure 10. Ireland: Credit Developments and Leverage

Contributions to Credit Growth

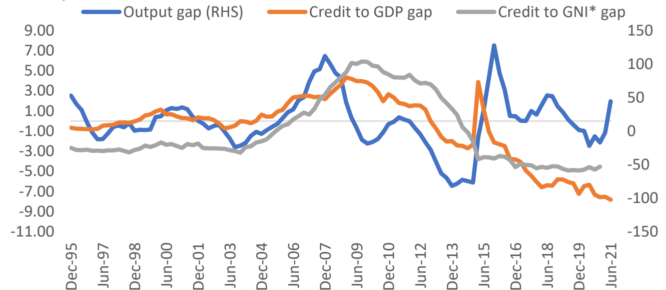
(Percentage points, year-on-year)



Sources: CBI, Haver Analytics, and IMF staff calculations.

Output and Credit to GDP Gap

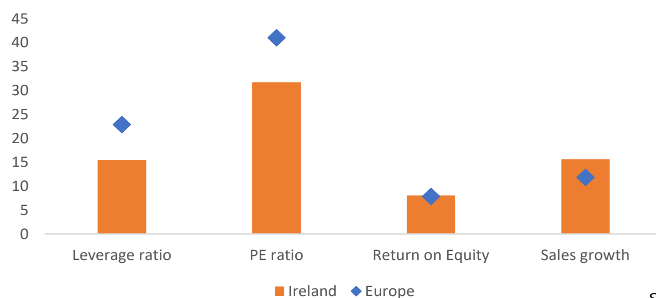
(In percent)



Sources: Haver Analytics, BIS and IMF staff estimates.

Corporate Sector Performance

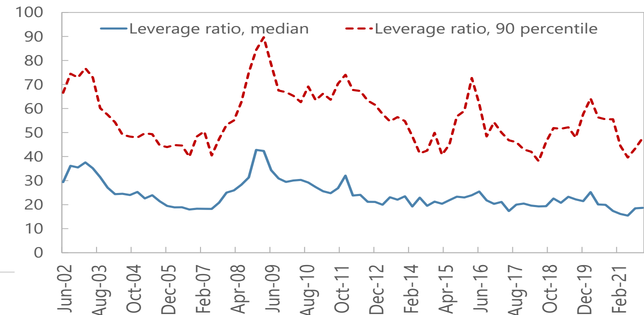
(In percent, 2021Q2)



Source: Capital IQ and IMF staff estimates.

Corporate Leverage Ratio

(In percent)



Sources: Moody's Analytics and IMF staff estimates.

14. **The commercial real estate (CRE) sector has been largely resilient during the pandemic, but with significant sub-sectoral divergence.** The retail sector has been the hardest hit, while demand for industrial space has been robust throughout (Figure 11). Investment in CRE rebounded in 2021 with significant cross-border flows, often intermediated via investment funds. While these flows provide funding diversification, they may also act as a channel of contagion for global financial shocks. Banks' exposures to the non-retail real estate activities warrant continued monitoring amidst sectoral adjustments.

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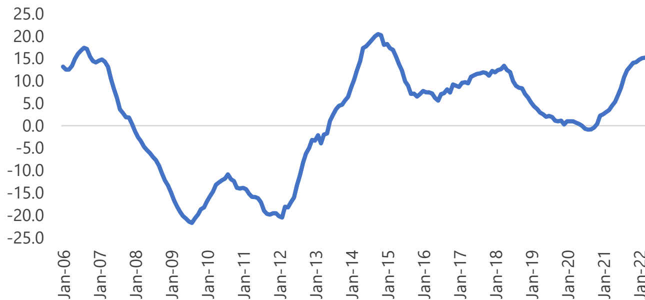
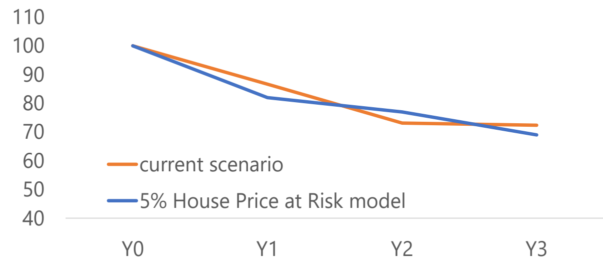
Figure 11. Ireland: Property Prices

House Price Growth
(In percent)



Source: Haver.

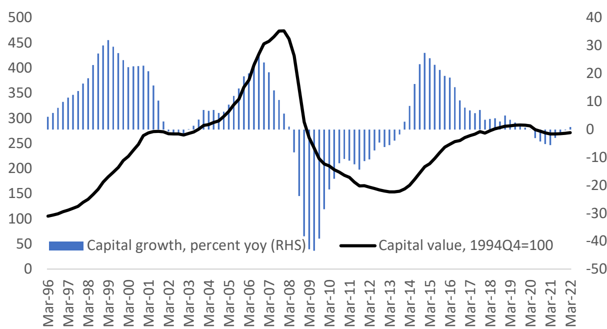
Housing Price Shock Quantification
(2021Q2=100)



Source: IMF staff estimation.

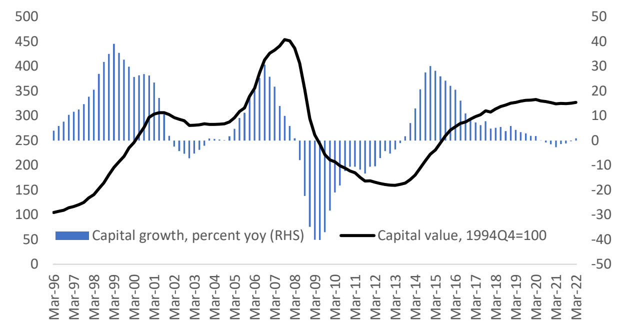
Note: HaR model estimate corresponds to the 5-percentile of the housing price growth distribution under a one standard deviation shock of all risk factors.

CRE Price Level and Growth - Total



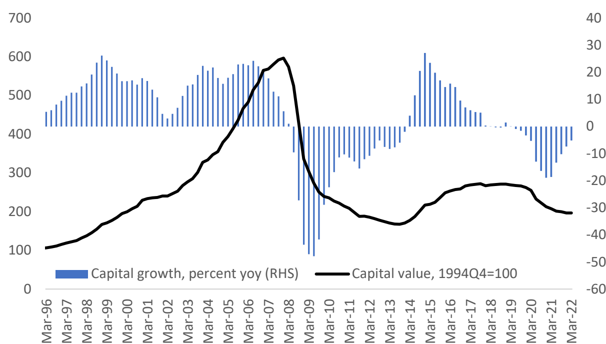
Source: MSCI.

CRE Price Level and Growth - Office



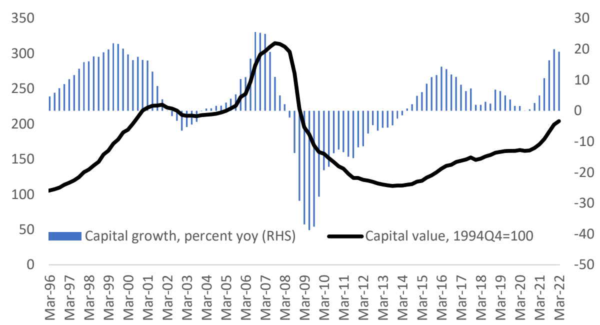
Source: MSCI.

CRE Price Level and Growth - Retail



Source: MSCI.

CRE Price Level and Growth - Industrial



Source: MSCI.

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15. High reliance on wholesale and non-resident deposits combined with large contingent liabilities may expose international banks to funding stress.[5] Unlike retail banks which mostly rely on retail deposits, Irish international banks obtain significant funding from either parents or large corporates via cross-border wholesale deposits, which are considered more volatile under stress. Off-balance sheet exposures, including credit lines and guarantees, are also sizeable (40 percent of total assets) for large international banks, which may increase credit impairments through an unexpected expansion/conversion of risky exposures.

16. The large OFI sector has significant linkages to the domestic economy, some parts of which remains opaque. The Central Bank collects and analyzes granular data on SPEs and has a better understanding of their links to the domestic economy. However, information on the "OFI residual" is more limited, so the full extent of linkages of these institutions remains opaque.

C. Banking Sector Solvency and Liquidity

17. The FSAP carried out a top-down stress test (ST) covering 12 banks, which constitute around 80 percent of sector assets. Five of these banks are retail banks, and seven are international banks. For the five retail and three large international banks, a scenario-based ST was conducted, while a sensitivity analysis was conducted for the four other international banks, which are all less significant institutions (LSIs).

Solvency Analysis

18. The FSAP identified the following key macrofinancial risks that could pose challenges for the banking sector if they materialized.[6] The adverse scenario is constructed on the joint realization of these risks.

- *Russia's invasion of Ukraine leads to escalation of sanctions and other disruptions,* which could lead to even higher commodity prices and tighter financial conditions. This, in turn, would put additional pressure on domestic inflation and hurt consumers, further stifling economic activity in Ireland.
- *Outbreaks of lethal and highly contagious COVID-19 variants,* which could result in extended supply chain disruptions, a deterioration of fiscal balances, financial tightening, and an impact on growth.
- *De-anchoring of inflation expectations in the U.S. and/or advanced European economies* prompting central banks to tighten policies faster than anticipated, resulting in a sharp tightening of global financial conditions and spiking risk premia.

[5] However, non-resident deposits have declined significantly since the GFC (by 65 percent), therefore their systemic relevance has been reduced.

[6] For details, see the Risk Assessment Matrix (Appendix II).

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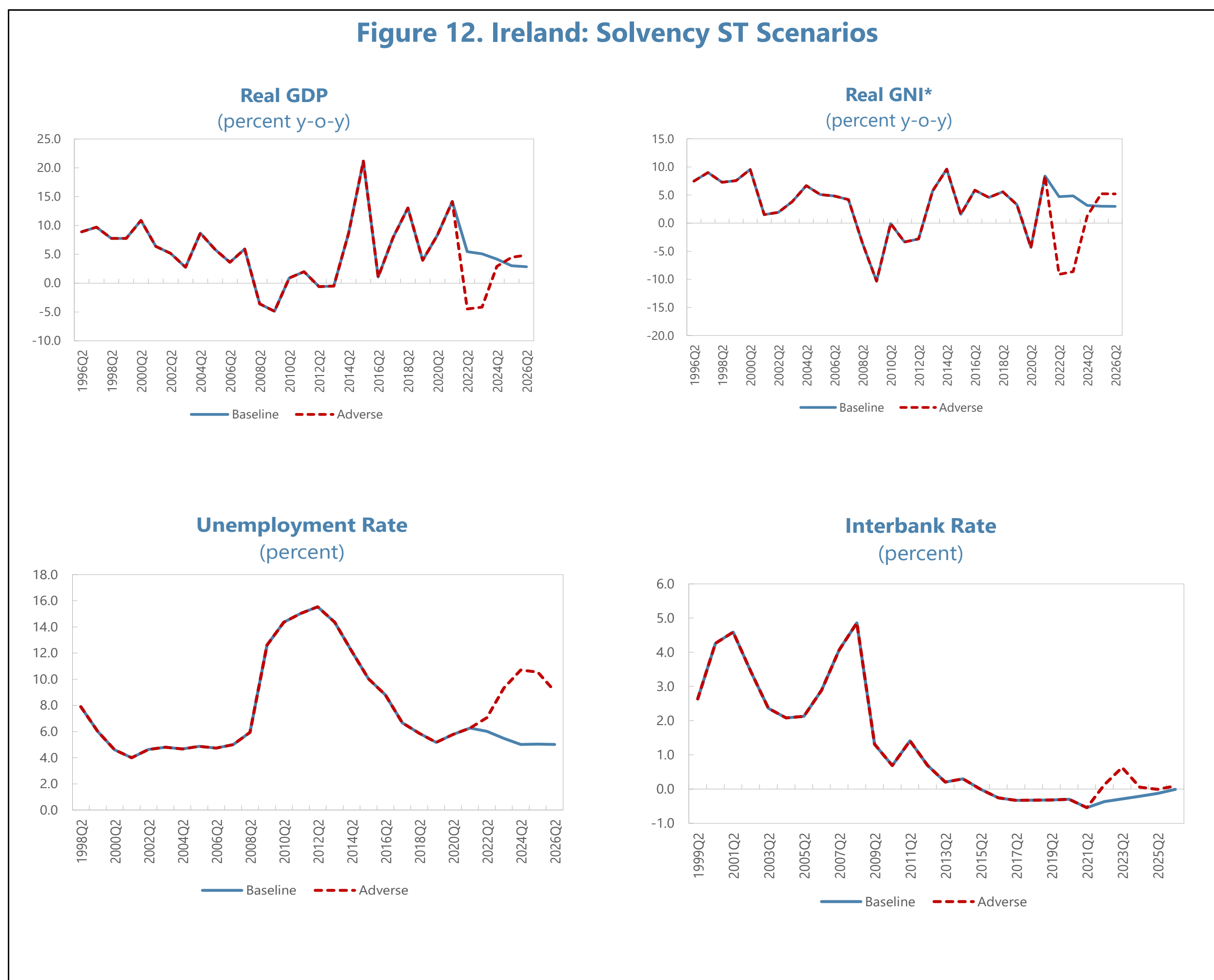
- *Geopolitical tensions and deglobalization,* which could cause, among other things, economic disruptions, a decline in global trade, and lower investor confidence.

- *Continued trade frictions and uncertainty related to the detailed implementation of post-Brexit arrangements,* which could cause increased costs for Irish businesses with close relationships with the U.K. leading to a slowdown in growth.

19. The exercise uses bank data as of mid-2021 and the baseline and adverse scenarios span a five-year horizon starting from this date. The baseline scenario aligns with staff projections as of March 2022,[7] while the adverse scenario features a shock to GDP and GNI* growth equivalent to 2.6 and 3.2 standard deviations, respectively, from their baselines (Figure 12).[8]

Figure 12. Ireland: Solvency ST Scenarios



[7] The baseline scenario reflects staff's view on the impact of war in Ukraine as of March 2022.

[8] When measured against historical means, shocks to GDP and GNI* are equivalent to 2.1 and 2.4 standard deviations, respectively.

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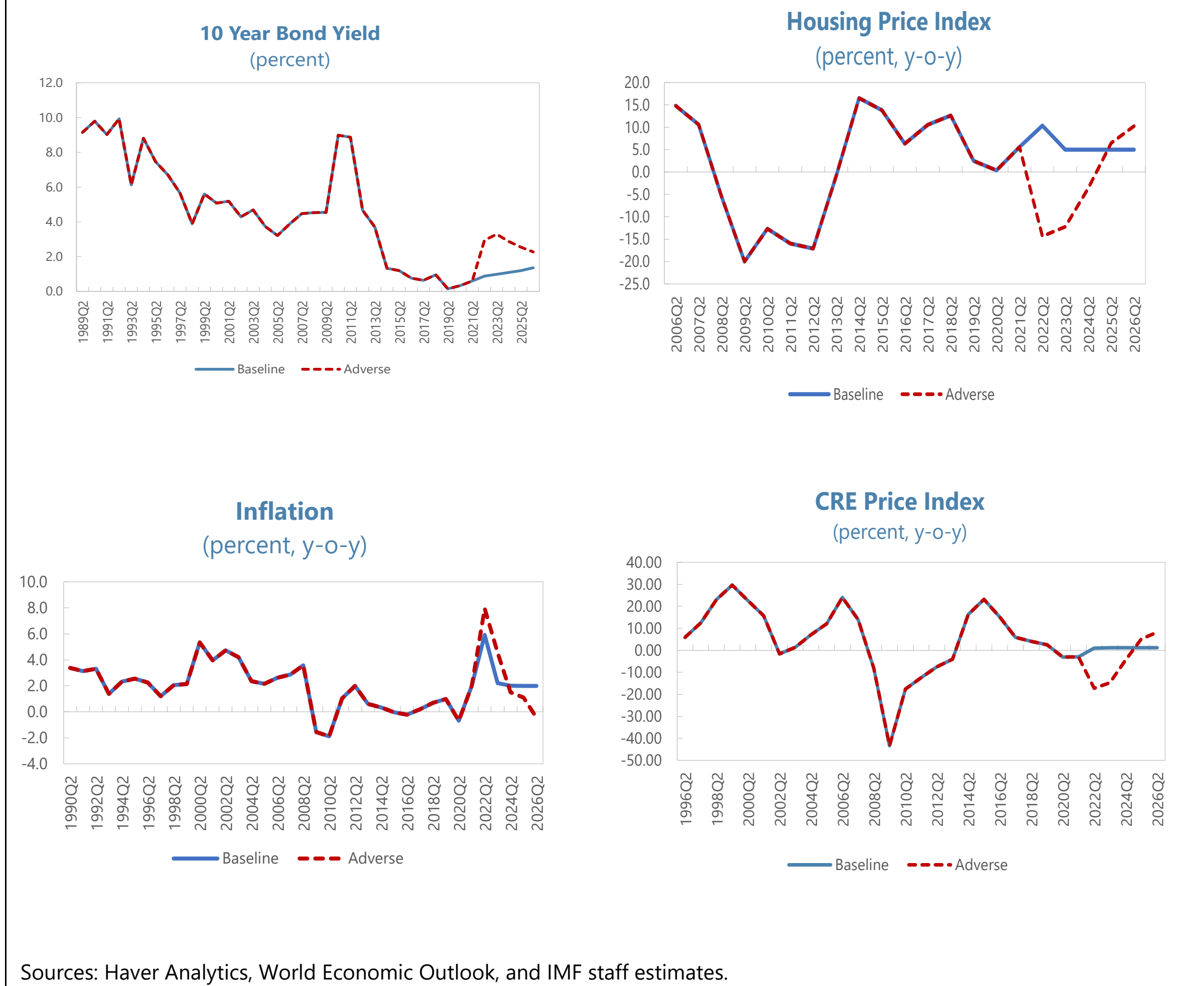
Figure 12. Ireland: Solvency ST Scenarios (Concluded)



Sources: Haver Analytics, World Economic Outlook, and IMF staff estimates.

20. The solvency ST confirmed banks' resilience to severe macrofinancial shocks, while pointing to some risks as the pandemic-related policy support is being withdrawn (Figure 13). The baseline scenario indicates banks will maintain their strong capital positions, with additional capital accumulation. Both retail and large international banks would see their CET1 ratios trend upwards, which will further increase existing buffers.

21. The adverse scenario confirmed banks' resilience when facing severe adverse shocks. No bank would see its capital ratio fall below the hurdle rates,[9] supported largely by the high initial capital position for both retail and large international banks, as well as the high pre-provision income generation capacity of the large international banks. Retail banks experience a larger impact, with their fully-loaded CET1 ratio declining by 6.7 percentage points vs. 0.4 percentage points for large international banks by the 5th year. At the trough, the capital depletion would reach 7.2 and

[9] Hurdle rates considered for the adverse scenario are: (i) CET1: 4.5 percent plus O-SII buffer; (ii) Tier 1: 6.0 percent plus O-SII buffer. Capital Conservation Buffer (currently at 2.5 percent) is considered useable in the adverse scenario, hence not included in the hurdle rate.

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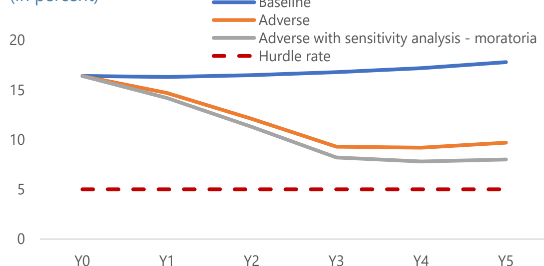
Figure 13. Ireland: Results of Scenario-based Solvency Stress Test

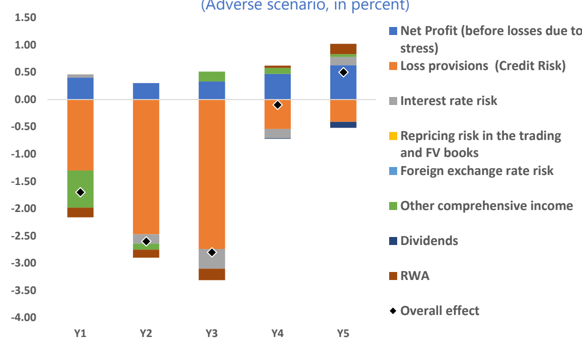
	Scenario	Average CET1 ratio[1] (percent)	Number of banks with CET1 ratio < 4.5% + OSII	Number of banks with T1 ratio < 6% + OSII	Number of banks with CAR < 8% + OSII	Asset share of undercapitalized banks (CAR < hurdle) (percent)	Max capital shortfall vis-à-vis CET1 capital thresholds (percent of GDP)	Average leverage ratio[2] (percent)
Retail	2021-Q2	16.4	0	0	0	0	0.0	7.9
	Adverse, trough	9.2						4.6
	Adverse, 2026-Q2	9.7	0	0	0	0	0.0	4.6
	Adverse sensitivity analysis - Moratoria, 2026-Q2	8.0	1	1	0	N/A	0.2	4.0
Large international	2021-Q2	19.9	0	0	0	0	0.0	8.5
	Adverse, trough	17.6						7.3
	Adverse, 2026-Q2	19.5	0	0	0	0	0.0	7.5
	Adverse sensitivity analysis - Moratoria, 2026-Q2	19.2	0	0	0	0	0.0	7.4
Total	2021-Q2	18.0	0	0	0	0	0.0	8.2
	Adverse, trough	13.2						5.9
	Adverse, 2026-Q2	14.5	0	0	0	0	0.0	6.0
	Adverse sensitivity analysis - Moratoria, 2026-Q2	13.4	1	1	0	N/A	0.2	5.6

[1] CET1 ratio represents fully-loaded weighted average capital ratio. Tier 1 and total capital ratio represent ratios in absense of the IFRS9 transitional arrangement.
[2] Leverage ratio is proxied by Tier1 capital divided by total assets (non-risk weighted).

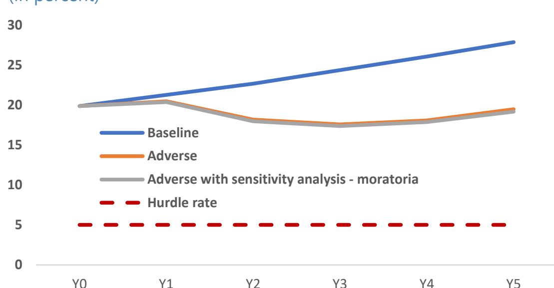
CET1 Capital Ratio - Retail Banks
(In percent)



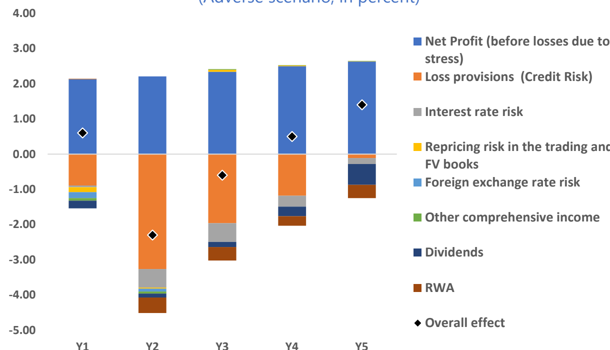
Contributions to Changes in Capital Ratio - Retail Banks
(Adverse scenario, in percent)



CET1 Capital Ratio - Large International Banks
(In percent)



Contributions to Changes in Capital Ratio - Large International Banks
(Adverse scenario, in percent)



Source: IMF staff.
Notes: Data correspond to the stress testing bank sample, which is a subset of the full banking sector. Hurdle rates in the figures are displayed as minimum CET1 ratio plus the average of the bank specific O-SII buffers.

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2.3 percentage points for retail and large international banks, respectively. Retail banks experience a higher capital depletion, due to losses from their larger holdings of domestic corporate portfolios with a higher share of CRE loans and their lower pre-provision income. Credit risk provisioning is by far the largest contributor to the decline in capital ratios, with the cumulative effect amounting to 7.4 percentage points across five years.

22. The ST results paint a slightly more adverse picture when assuming an additional impact from the unwinding of support policies. The sensitivity analysis, which assumes that 50 percent of loans with either active or expired moratoria flows from stage one and stage two assets into stage three assets, results in one retail bank's CET1 and Tier 1 ratio falling below the hurdle rates under the adverse scenario, with the capital shortfall against the CET1 hurdle rate amounting to 0.2 percent of GDP.

23. The sensitivity analysis for other international banks indicated overall resilience of, albeit with notable variation across banks. The FSAP assumed joint realizations of shocks to all major components of banks' income to test their resilience. No bank would see its capital ratio fall below the hurdle rate, and the results highlight bank-specific sensitives to different shocks given their highly diverse business models.

Liquidity Analysis

24. The LCR-based ST suggests that banks are resilient to adverse liquidity conditions (Figure 14). Retail banks experience a larger impact under the retail stress scenario while international banks are more adversely affected by the wholesale stress scenario. The relatively lower initial level of the LCR for large international banks brings this group closer to the 100 percent threshold under stress; nevertheless, all banks can withstand the most severe shock within the 30-day window, underpinned by their high initial level of liquidity buffers.

25. The cashflow-based ST suggests potential liquidity gaps when extending the stress beyond 30-days. This is due to maturity mismatches characterized by more frontloaded cash outflows and backloaded cash inflows, with sustained liquidity stress leading to liquidity shortfalls over the longer term. International banks are more prone to liquidity shortfalls across various maturities, due to their high share of wholesale funding (largely, group parental support) and larger off-balance sheet exposures.

26. Both LCR and cashflow-based ST for major foreign currencies reveal vulnerabilities of banks to USD- and sterling-denominated outflows. Currency-specific analyses signal vulnerabilities across major foreign currencies, in particular for USD outflows for international banks. This is largely due to weaker currency-specific initial liquidity positions and high reliance of international subsidiaries on foreign currency backstop from parent entities.

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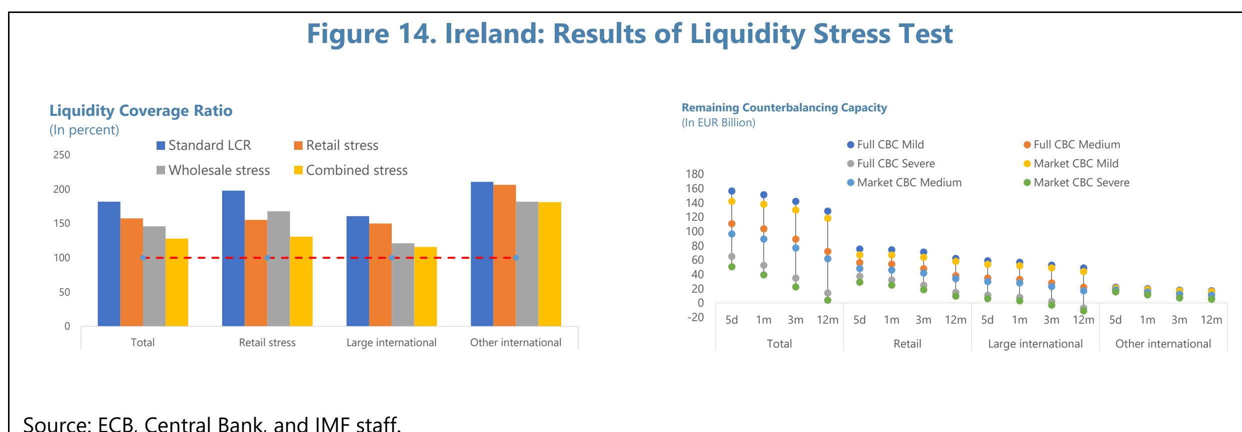
Figure 14. Ireland: Results of Liquidity Stress Test



Source: ECB, Central Bank, and IMF staff.

D. Banking Sector Interconnectedness

27. The domestic interbank analysis indicates limited interbank exposures within Ireland, with retail banks playing a more prominent role in the network (Figure 15).[10] Both inward and outward spillover risks for the domestic interbank network appear to be small, due to limited interbank activity. The results suggest that all banks have sufficient capital to withstand domestic interbank shocks via direct exposures.

28. Similarly, the cross-border interbank analysis indicates limited integration of Irish retail banks to the global network. Irish retail banks' foreign asset claims and liabilities have declined substantially since the GFC, from US$234 to US$15 billion and from US$358 to US$31 billion, respectively. Accordingly, both cross-border inward and outward spillover risks for the Irish retail banks are well-contained.

29. Beyond the interbank market, however, there are significant linkages between large international banks and foreign non-bank financial institutions (NBFIs). The bank-NBFI contagion analysis focused on banks' inward spillover risks, which measures average credit loss of a bank due to the failure of all other banks and NBFIs. After adding NBFIs to the domestic interbank network, the potential for inward spillover risks, via the credit channel, rises sharply for the large international banks, suggesting larger vulnerabilities for these banks to shocks from NBFIs.

[10] Due to data limitations, the network only covers large exposures of the sample banks.

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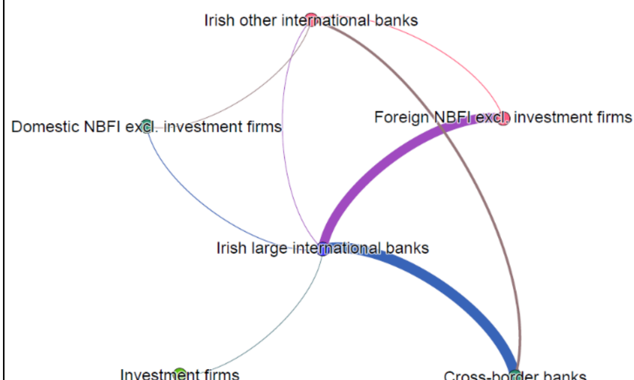
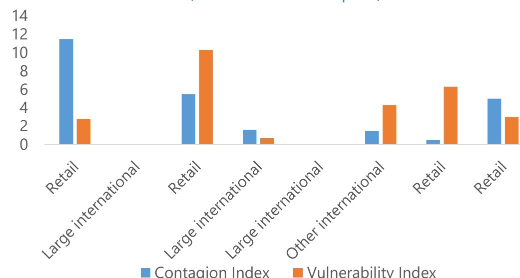
Figure 15. Ireland: Interconnectedness Analysis

International banks are closely connected with NBFIs and cross border banks…



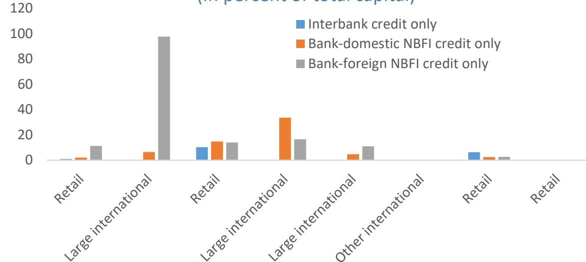
…while having minimal exposure to the domestic interbank market.

Interbank Contagion and Vulnerability Index
(Percent of total capital)



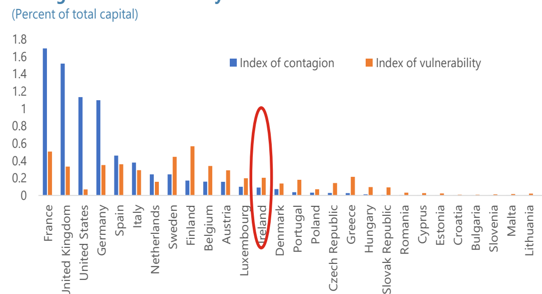
The integration of NBFIs into the interbank network amplified inward spillover risks for large international banks…

Vulnerability Index Credit Channel Only
(In percent of total capital)



Whereas retail banks retail banks are less exposed to spillover risks and cross border banks relative to regiaonl peers.

Contagion and Vulnerability Index
(Percent of total capital)



Note: Index of vulnerability is defined as the average loss of a bank due to the failure of all other banks (inward spillover). Index of contagion is defined as the average loss of other banks due to the failure of a bank (outward spillover). Panels showing comparisons between banking segments are based on the sample of banks used in the stress test and use large exposures of the sample banks.
Sources: ECB, Central Bank, and IMF staff calculations.

E. Interconnectedness of the MBF Sector

30. The FSAP analyzed the interconnectedness of the MBF sector with a particular focus on funds, while also assessing the linkages of OFIs with the domestic economy. The MBF sector is the largest component of the financial system, with total assets at almost 15 times GDP. While this sector is largely oriented abroad, it also has domestic interlinkages, which highlights the importance of understanding its linkages with the bank, non-bank, and real sectors in Ireland.

31. There are four main findings based on the analysis:

- **First, Irish funds have limited links to domestic banks and households.** Bank asset claims on Irish funds are negligible, while bank liabilities to funds are comprised mostly of deposits

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corresponding to only around 4 percent of GDP. Similarly, households do not have significant linkages with the funds.

- **Second, in contrast, Irish funds have significant interlinkages with OFIs resident in Ireland, as part of Ireland's large, internationally-oriented financial sector.** The financial linkages of Irish funds with OFIs are sizeable, with fund asset claims and liabilities to the total OFI sector close to 30 and 50 percent of GDP respectively.

- **Third, OFIs—while largely internationally focused—also have significant linkages to the domestic economy.** Most of these transactions relate to internationally focused activities, but entities within the OFI sector also have meaningful linkages with domestic banks, households, and firms.

- **Fourth, funds and banks have common exposures to the domestic CRE sector, which represents a potential channel of contagion**.

32. Ireland has made good progress in implementing the 2016 FSAP recommendations, but some important data gaps remain to be closed. While many linkages between the domestic economy and the MBF sector have been analyzed, work remains to be done to elucidate fully the linkages between parts of the MBF sector and the rest of the financial system, and to the domestic economy. A key area of risk lies in the opacity and lack of granular data on financial transactions of entities in the OFI residual sector. The authorities should intensify collaboration both domestically and with international regulators to better understand the OFI residual entities and their linkages, and to conduct risk analysis at a granular level for this segment.

F. Investment Fund Liquidity Analysis

33. The FSAP assessed the liquidity resilience of the investment fund industry in Ireland, the largest component of the MBF sector, to severe redemption shocks. If individual funds were to experience significant redemption shocks, they may be forced to liquidate assets. Should this happen on a collective basis, there is the potential for wide scale fire sales not being absorbed smoothly by markets.

34. Investment funds are generally resilient to shocks, but pockets of vulnerability exist. Resilience is measured here in terms of ability to meet large redemption requests in a stressed market, without the use of liquidity management tools or the sale of less liquid assets. The majority of fixed-income investment funds in Ireland, which are the focus of the liquidity stress test, would be able to weather severe but plausible redemption shocks under a wide range of shock scenarios. However, certain categories of funds, including high-yield (HY) bond funds and emerging-market focused fixed-income funds, which are more susceptible to liquidity mismatches, may be less resilient in events of severe market stress.

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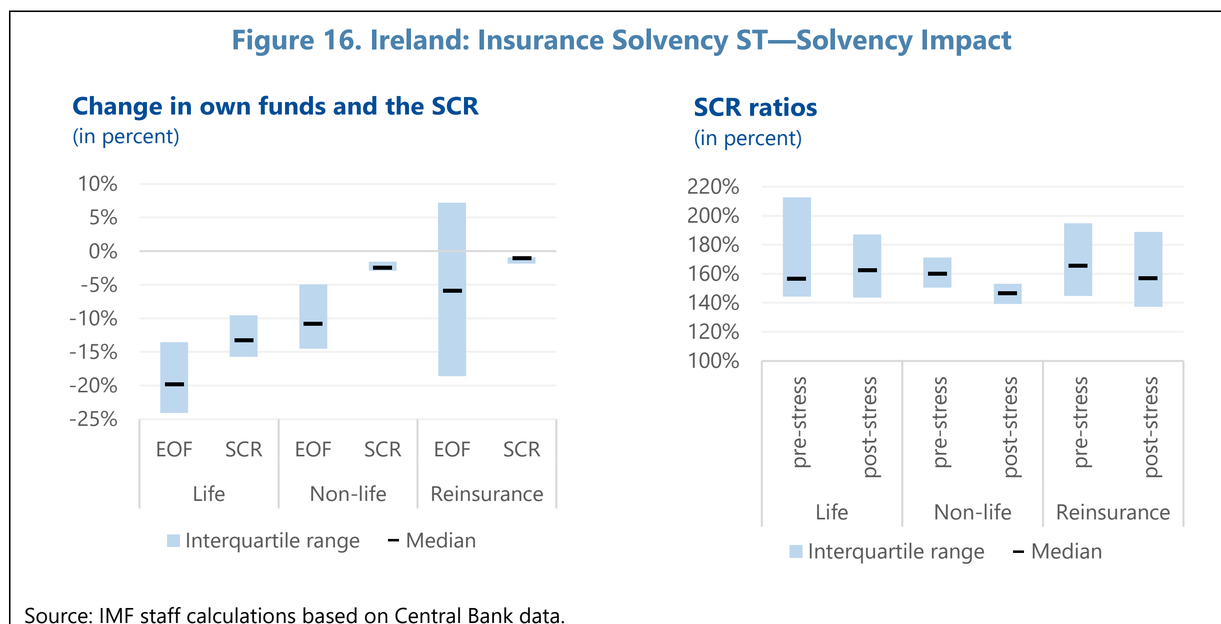
35. The key recommendations to the authorities are to review the use of liquidity management tools by funds and to expedite the completion of the internal stress-testing framework. As part of its ongoing policy development on fund liquidity risk management, and taking into account developments at the EU and international level, the Central Bank should review the use of liquidity management tools by HY bond funds and emerging market fixed-income funds. The Central Bank has made significant strides in building a fund stress-testing framework based on recommendations of the 2016 FSAP, but the model remains a work-in-progress. Given the size, accelerating growth, and systemic importance of the sector, the Central Bank should prioritize the completion of its stress-testing framework.

G. Insurance Sector Solvency and Liquidity

36. The solvency ST focused on market and credit risks and followed a top-down approach covering 25 insurers and 70 percent of each sub-sector (life, non-life, and reinsurance). Shocks derived from the banking sector adverse scenario were assumed to occur instantaneously at the reference date end-Q2 2021. This approach did not recognize potential management actions that insurers utilize to de-risk balance sheets and improve solvency positions.

37. Irish insurers are broadly resilient under the adverse scenario (Figure 16). Portfolio asset values decline due to higher spreads, which is partially offset by the effect of higher interest rates which reduces firms' liabilities. Most insurers remain well capitalized under the scenario and only one insurer falls below the 100 percent Solvency Capital Requirement (SCR) threshold. The aggregate shortfall in eligible own funds to meet the SCR is less than €10 million. Non-life insurers are affected more adversely from the shocks while life insurers on aggregate see smaller balance sheet effects.

Figure 16. Ireland: Insurance Solvency ST—Solvency Impact



Source: IMF staff calculations based on Central Bank data.

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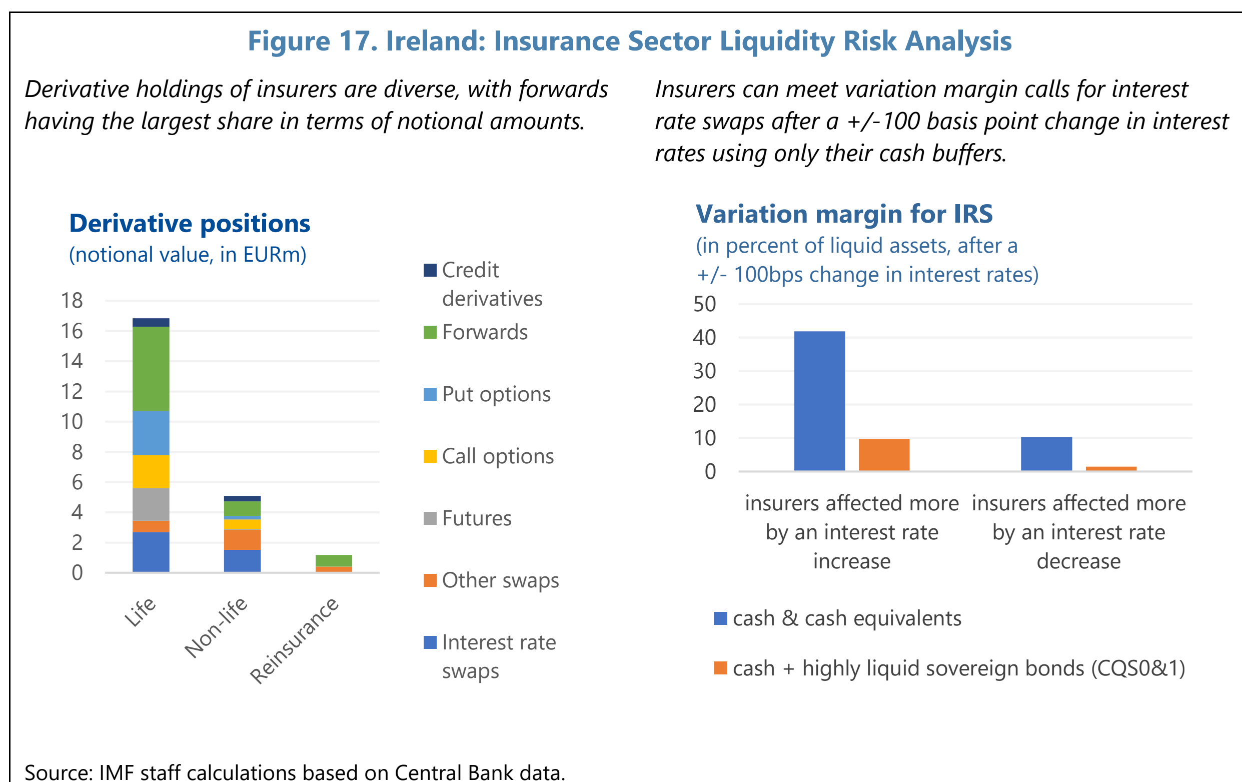
38. The FSAP also assessed insurers' resilience to variation margin calls in their interest rate swap portfolio. This top-down analysis confirmed the low vulnerabilities stemming from this channel, albeit reporting data for other derivative types being incomplete. The results highlight the importance for the supervisor to understand liquidity flows and liquidity risk management, which also needs to include the intra-group structures. Similarly, the Central Bank's bottom-up analysis indicates that a broader liquidity shock is unlikely to have a systemic impact in the Irish insurance sector; instead, the results are driven by company specifics (Figure 17).

Figure 17. Ireland: Insurance Sector Liquidity Risk Analysis

Derivative holdings of insurers are diverse, with forwards having the largest share in terms of notional amounts.

Insurers can meet variation margin calls for interest rate swaps after a +/-100 basis point change in interest rates using only their cash buffers.



Source: IMF staff calculations based on Central Bank data.

H. Climate Risk Analysis

39. The FSAP assessed climate-related financial risks for the banking and insurance sectors, covering both transition and physical risks.

40. The Irish banking system's exposure to climate risks is moderate but material. About 15 percent of corporate loans is to sectors with a high carbon footprint and more than 20 percent of loans are to sectors exposed to high physical hazards (largely floods), well above euro area average, suggesting vulnerability of banks to potential carbon tax shocks and sea level rises (Figure 18).

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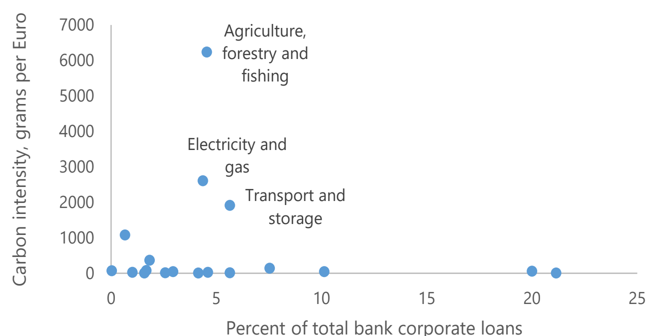
Figure 18. Ireland: Bank Exposure to Climate Risks

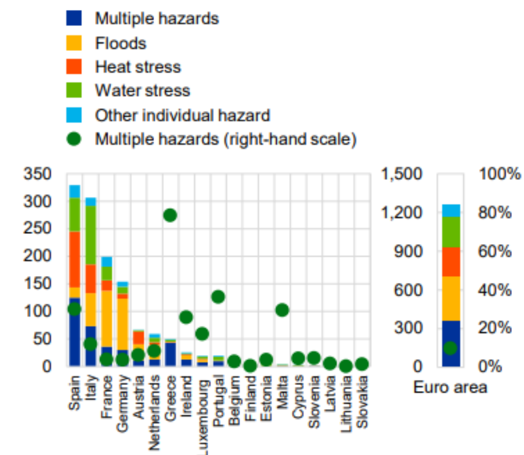
Bank Sectoral Exposure and Carbon Intensity

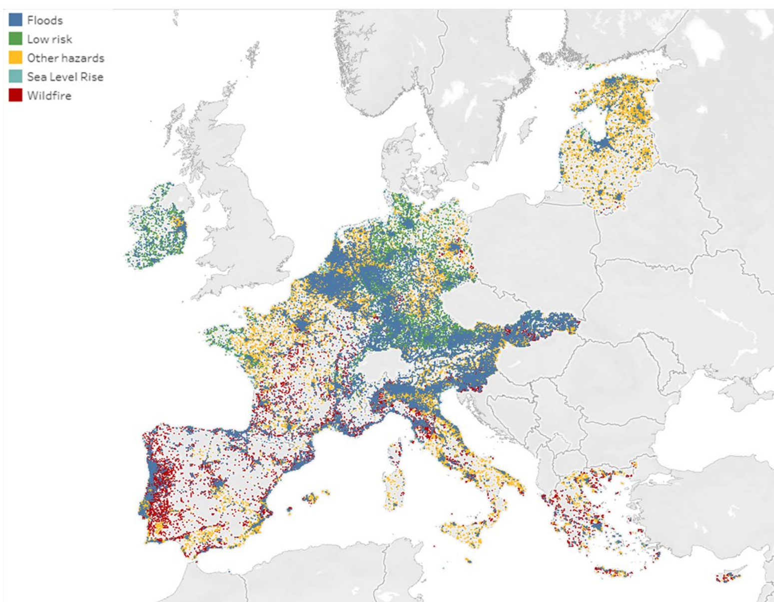
(2021Q2)



Bank Credit Exposure to Physical Risks

(LHS denotes EUR million, RHS denotes percent of total loans)





Sources: Eurostat, ECB, Central Bank, and IMF staff estimates.

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41. A scenario-based physical risk analysis was conducted to gauge the impact of a severe flooding event on banks, focusing exclusively on retail banks given the high domestic nature of the simulated scenario. A severe flooding event was first mapped to a set of macrofinancial variable shocks over a 5-year horizon, which were then translated to bank capital impact (Figure 19).

42. The transmission from the severe flood-induced macroeconomic shock to capital impact is mainly through credit and market risk. The results suggest that retail banks could experience non-trivial depletion of CET1 capital (up to 2.4 percentage points) at trough, before recovering to close to the pre-shock capital levels at the end of the scenario period.

43. The transition risk analysis aimed to assess the impact of transition to a low carbon economy on banks by assuming an instantaneous increase of carbon tax from €33.5 to €100 per ton of CO2 emissions. Higher carbon prices are expected to hit firms that have heavy carbon footprints, leading to higher defaults, which would result in impaired credit quality for the banks that extend loans to those entities.

44. Energy-intensive sectors saw the largest increase in defaults under various scenarios based on firm-level behavioral response assumptions. The cumulative CET1 depletion resulting from the projected default paths can approach 3.5 percentage points of CET1 capital (or 15 percent of existing CET1 stock) under the most severe scenario, suggesting meaningful exposure to transition risks and highlighting the importance of enhanced monitoring of banking sector's exposure to climate-sensitive segments.

45. The insurance sector is exposed to physical risks mainly through its non-life underwriting, but also through investments. Domestically, the most important natural perils are windstorms, floods and freezes, but several Irish (re)insurers underwrite business globally, exposing them also to international climate-related risks such as U.S. hurricanes and wildfires. The FSAP analysis indicates that even large natural catastrophes, when seen in isolation, would likely not have a pronounced impact on solvency levels.

46. The impact of transition risk is larger for life insurers, mainly due to comparably larger asset allocation towards sectors with high carbon footprints. Transition risks were analyzed by assuming that the effect of the NGFS scenario of an orderly 1.5 degree increase until 2050 is priced by investors instantaneously, resulting in lower asset valuations. The resulting loss on investment portfolios of insurers would be around €7 billion, or 2.3 percent of total investments.

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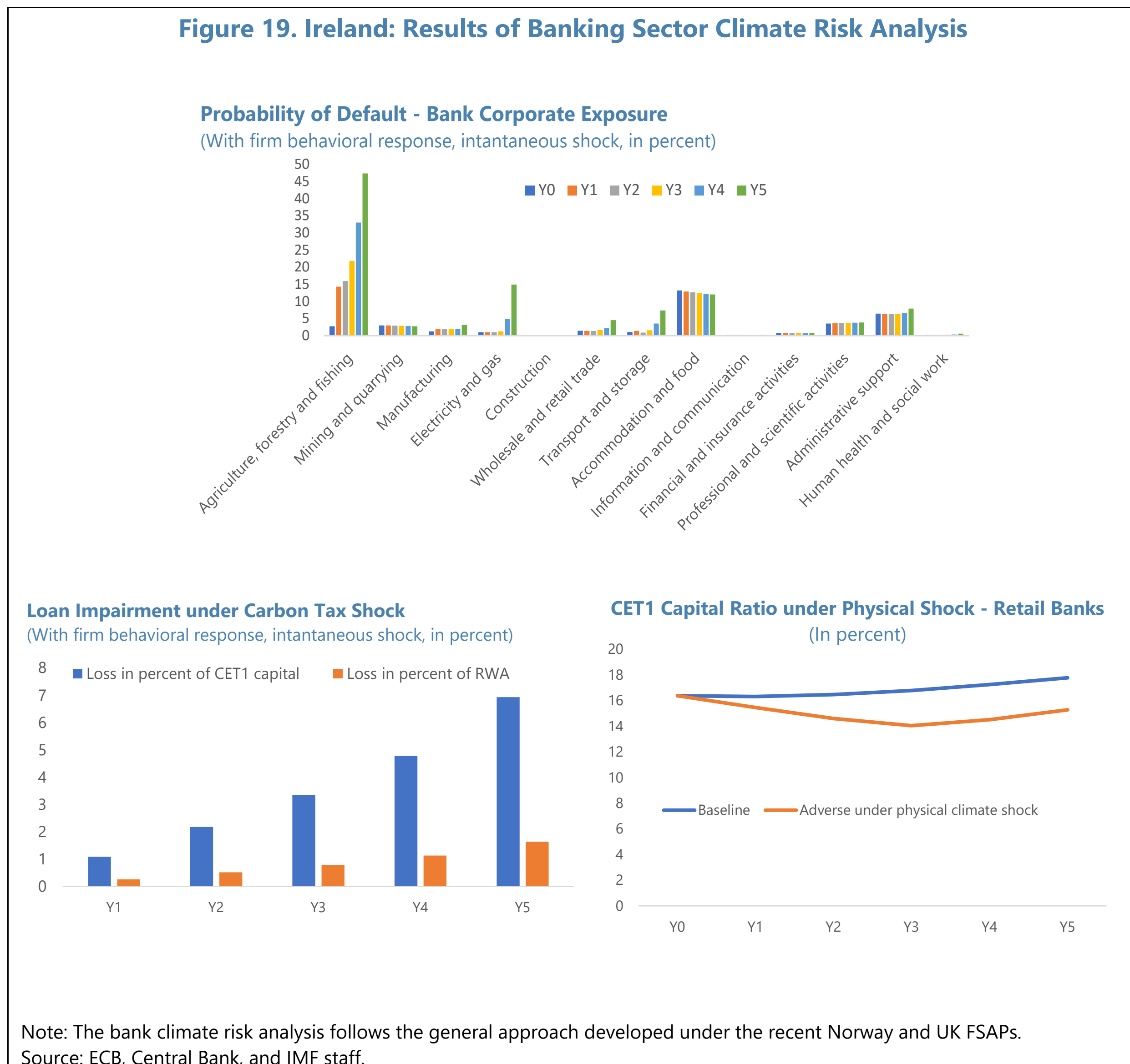
Figure 19. Ireland: Results of Banking Sector Climate Risk Analysis



Note: The bank climate risk analysis follows the general approach developed under the recent Norway and UK FSAPs.
Source: ECB, Central Bank, and IMF staff.

FINANCIAL SECTOR OVERSIGHT

A. Macroprudential Policy Framework

47. The Central Bank is responsible for macroprudential policy in Ireland, sharing some responsibilities with European institutions. Macroprudential policy is a particularly important tool for a small open economy that is part of a monetary union. The macroprudential policy framework has developed since the 2016 FSAP, with the implementation of new measures, including the residential mortgage measures and macroprudential capital buffers. In January 2015, loan-to-value and loan-to-income limits were introduced and empirical evidence shows that the measures have been working as intended. In 2016, the Financial Stability Directorate of the Central Bank (with responsibility for macroprudential policy and crisis management), and the Macroprudential

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Measures Committee (MMC; to advise on macroprudential measures and their calibration) were established. The Financial Stability Group (FSG) was formed in 2017 as a non-statutory, intra- agency coordination mechanism to improve cooperation at the national level

48. The institutional framework is appropriate, although some areas could be strengthened. The Central Bank has a clear financial stability mandate. Decision-making on tools under the Central Bank's power is divided between the Commission and the Governor under advisement by the MMC. The Central Bank has broad powers to implement measures and gather information, as relevant for financial stability. Opening the MMC to external advisory members would align the committee with best practice, strengthen diversity of perspectives, and act as a safeguard against the risk of potential inaction.

49. The systemic risk monitoring framework is sophisticated but would benefit from closing data gaps and improving non-bank monitoring. The process for monitoring systemic risks is structured around the bi-annual production of the Financial Stability Review, facilitating an exchange of views at multiple stages of the development cycle. Completion of a dynamic macroprudential stress-testing framework will provide additional information, to inform the calibration of capital buffers. Filling gaps in CRE investment flows, in coordination with international institutions especially for direct cross-border flows, would enhance the Central Bank's monitoring of a potential channel of contagion. Broader limits on total debt should be considered should leakages emerge from unsecured credit.

50. Risks from non-banks are diverse. Irish property funds, with total assets of about €33 billion, account for more than 40 percent invested CRE market and are largely financed by overseas investors. A cohort of these funds has leverage above 50 percent, while liquidity mismatches are generally moderate. Non-bank lending to SMEs has been increasing,[11] but a currently small share of non-bank (peer-to-peer and crowdsourced) funding is not measured in the Central Credit Register. The Central Bank has proposed a leverage limit and liquidity management guidelines for property funds, and the details should be finalized and implemented. The Central Bank should consider counter-cyclical adjustments to leverage limits on property funds, more regular reporting requirements, and the tradeoff between timelines on compliance if the limit is breached with the risk of fire sales in the funds returning to compliance.

51. The Central Bank must continue to work through European and international institutions to address non-bank risks and to develop a non-bank macroprudential framework. Various data gaps, including direct cross-border investments into CRE, can only be closed through international collaboration. The Central Bank has also been innovative in considering macroprudential measures for non-banks through the EU AIFMD regulation. As the lack of reciprocity may impact effectiveness, the Central Bank should continue to work with European institutions to address cross-border issues.

[11] NBFIs account for around 30 percent of new lending to SMEs.

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B. Microprudential Oversight

Cross-Cutting Issues

52. As the integrated regulator of an increasingly large and complex financial services sector, the Central Bank has adequate supervisory resources and enforcement powers. Although de facto independence is strong, some further de jure enhancements would be beneficial. The grounds for dismissing Central Bank commission members should parallel those for the Governor, namely on specified grounds of serious misconduct. While the Central Bank has stable and secure funding, the determination of the "supervisory levy" should be put on a firmer legal basis. Actions are needed, and are under preparation, to enhance the Central Bank's enforcement powers and facilitate the pursuit of sanctions against individuals. This will be addressed by the new Individual Accountability Framework (IAF), the adoption and implementation of which should be prioritized.

53. The Central Bank has been expanding its analysis and management of climate risks. The recent adoption of a strategic plan, which includes a particular focus on resilience and the establishment of the Climate Change Unit, is welcome. The strategic plan needs to be operationalized by a sequenced action plan for banking and insurance supervision, which should include indirect effects and litigation risks, and with an emphasis on robust data and quality disclosure.

Banking

54. Prudential regulation of banks has improved greatly since the 2016 FSAP. The Central Bank applies the entire SSM regulations to its LSIs, which provides a strong supervisory framework. EU regulatory initiatives on nonperforming exposures (NPEs) helped Irish banks to dramatically decrease the stock of non-performing loans since the 2016. This was complemented by the Central Bank's actions to ensure fair and transparent treatment of financially distressed borrowers and to ensure that lenders are implementing sustainable long-term solutions. Through these efforts, non-performing loans have been sharply reduced to under 5 percent of total loans.

55. Supervision of LSIs is largely effective in Ireland. The Central Bank's supervisory approach is intrusive and well-developed supervisory tools are appropriately applied. Supervision has sufficient rigor, and the new IAF, planned for 2022, will allow more efficient enforcement. The supervisory responses to changing conditions are timely and agile. The expertise of supervisors is expanding with the development of the market, although keeping pace is a challenge. The independence of banking supervision is strong in practice, and benefits from the safeguards of the SSM, including methodological support and guidance. Recent efforts to enhance cooperation between prudential and conduct supervision of banks ("One Bank") has raised the quality of supervision, although further enhancements can be made.

56. Credit risk supervision should be enhanced by the lessons learned during the pandemic. During the pandemic, the Central Bank undertook enhanced monitoring of emerging

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credit risk and NPLs. This enhanced monitoring should continue, and the Central Bank should engage with banks to draw lessons from the pandemic, to inform a systematic upgrade to monitoring tools and ensure that banks' reviews of latent credit risks are robust and reflected in credit risk indicators.

Insurance

57. The Central Bank has made good progress in implementing the recommendations from the 2016 FSAP. Credit risk and reinsurance transactions have become key components of the Central Bank's risk-based supervisory approach. Solvency II—which created an economic valuation regime for assets and liabilities, a risk-based solvency framework, enhanced risk management practices, and greater public transparency—has been fully implemented without any significant frictions. The Central Bank applies a risk-based supervisory framework—the Probability Risk and Impact System in the supervision of insurance firms. This framework sets out the minimum engagement model for supervisors and comprises extensive off-site reviews and on-site inspections. The Central Bank regularly scrutinizes the Own Risk and Solvency Assessment reports of larger insurers.

58. Implementation of International Financial Reporting Standard (IFRS) 17 will be a major operational challenge for insurers. IFRS 17 (effective January 2023), will necessitate substantial efforts by insurers and audit firms to upgrade their accounting frameworks, but its longer-term implications on pricing, product design, asset-liability management, and investment policies still need to be fully understood. The Central Bank should continue to closely liaise with insurers, the Society of Actuaries in Ireland, and audit firms in the final phase of the implementation and monitor the operational risks resulting from underlying changes in data, processes, and systems. Furthermore, it will be critical to develop an understanding of how IFRS 17 might change insurers' business strategies. The Central Bank should provide enhanced staff training to ensure adequate preparedness for the changes.

59. The Central Bank should continue strengthening its monitoring of the considerable exposures many subsidiaries have to group internal reinsurance or retrocession for capital management. Many cross-border entities have considerable exposure to their parent. The Central Bank undertook a thematic review of intra-group reinsurance in 2020 and is undertaking further work on intragroup transactions and exposures, which is expected to be finalized in 2022. It is recommended that the Central Bank continues strengthening the supervision of intra-group transactions and concentrations, with a focus on post-Brexit group structures, recovery planning, and liquidity risk management.

60. There is scope for the Central Bank to leverage its expertise and experience to promote further EU convergence on insurance oversight. The Central Bank has been very active in policy discussions at the European Insurance and Occupational Pensions Authority (EIOPA) and is well placed to take a leading role in efforts to achieve consistent application of EU legislation; specifically, supervisory convergence on the supervision of cross-border business, the supervision of intra-group transactions and group concentrations, and the supervision of captives.

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Market-Based Finance

61. Ireland has made good progress in implementing MBF-relevant recommendations from the 2016 FSAP, but some gaps remain. The EU Money Market Fund Regulation has introduced detailed rules on MMFs, including on liquidity, diversification, and stress testing. This has been complemented by the European Securities and Markets Authority's stress testing guidelines for Undertakings for Collective Investment in Transferable Securities (UCITS) and Alternative Investment Fund (AIFs). The Central Bank has also strengthened its approach to collection, monitoring and analysis of data on MBF.

62. There is scope for the Central Bank to leverage its expertise and experience to promote further EU convergence on MBF oversight. The Central Bank is well placed to maintain its leading role in the efforts to achieve consistent application of EU legislation on IFs in a manner that strengthens financial stability. The authorities should also build on Ireland's status as a MMF hub to promote reforms that would materially strengthen resilience of these vehicles, including by decoupling gates and fees from liquidity thresholds and increasing liquidity buffers.

63. Closing data gaps would further enhance the Central Bank's robust regulation and supervision of the MBF sector. This includes data on delegation of portfolio management, IF credit lines, underlying investors of IFs and leverage in the UCITS sector. This would build on the steps the Central Bank has taken in recent years to broaden the set of data it collects and use it more effectively for the purposes of ongoing supervision and mitigation of systemic risk.

64. The Central Bank should intensify its work to assess and mitigate financial stability risks of MBF. Regulatory action is desirable to broaden the set of liquidity management tools used by Irish IFs and encourage the adoption of tools which result in subscribing or redeeming investors bearing the associated transaction costs, such as swing pricing and anti-dilution levies. The Central Bank should also engage closely with exchange-traded fund providers to ensure their arrangements with authorized participants and market makers are robust and promote the smooth functioning of the sector, including in times of market stress.

65. Finalization of work already under way on IF pricing errors should be prioritized, while oversight of SPEs deserves regulatory and supervisory attention. The introduction of a comprehensive framework for pricing errors will lay the foundation for greater investor protection and more consistent industry practices. Oversight of SPEs has improved from the perspective of statistical analysis, but more efforts are needed to strengthen governance practices. Gaps in the framework for winding-up of IFs should also be filled, including by clarifying the steps to be taken when unit-holders of an IF cannot be contacted.

FINANCIAL SAFETY NET AND CRISIS MANAGEMENT

66. Since the 2016 FSAP, the authorities have adopted a comprehensive set of new policy, procedure and coordination frameworks for bank resolution and crisis management. While there have been no bank failures during this period, new crisis management frameworks at

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the interagency and Central Bank levels have been invoked several times in the context of Brexit and the COVID-19 pandemic, leading to enhancements to the frameworks. The authorities have utilized simulation exercises to test and enhance different aspects of their bank failure and crisis management frameworks. This program of testing and enhancement is well institutionalized, overseen at the interagency level by the FSG chaired by the DoF Secretary General and within the Central Bank by the Financial Stability Committee chaired by the Governor. The FSG's Terms of Reference should be extended to encompass an annual discussion of member agencies' contingency plans and testing regimes as they relate to systemic bank failures and financial sector crises.

67. The Central Bank's resolution functions are adequately staffed and resourced. Staffing levels have been increased in response to developments, notably Brexit and the resulting new entry and expansion of regulated firms. A unit in the Central Bank is tasked with guiding the development and testing of bank failure and crisis preparedness arrangements.

68. Recovery planning by banks and oversight by the Central Bank are well advanced. Having been initiated in 2015-16, recovery plans are now quite mature. The requirement for recovery planning has recently been extended to insurers. The Central Bank has extensive powers to take actions to ensure that banks rectify identified weaknesses, including requiring them to implement measures specified in their recovery plans.

69. As throughout the Euro Area, the bank and insurer winding-up and liquidation regime is governed by national insolvency laws. That legal framework in Ireland is sound with respect to banks but has deficiencies with respect to insurers. The legal framework for bank resolution, other than by liquidation, is the Irish transposition of the EU's 2014 Bank Recovery and Resolution Directive, as amended. At present, there is no comparable legal framework for insurers.

70. The Central Bank has statutory obligations to notify the Minister of certain steps taken with respect to failing banks and must obtain the Minister's prior consent to take resolution action in limited circumstances.[12] The Central Bank and the DoF have agreed a framework promoting effective coordination for bank failures. Government ownership of banks that might be subject to Central Bank resolution action requiring the Minister's prior consent does, however, give rise to the appearance of potential conflict of interest. Steps to limit the Minister's consent to circumstances that require the use of fiscal resources should be considered.

71. Unlike in some Euro Area states, the High Court plays a decisive role in the resolution of bank failures whether by liquidation or alternative action. The Court must approve all relevant actions proposed by the Central Bank. The Central Bank has elaborated policies and procedures to facilitate prompt Court petitions and adequate arrangements are in place to mobilize the external experts needed to support it in the process of petitioning the Court and

[12] Where it is likely to have systemic implications, creating a serious risk to the stability of the financial system or the economy of the State, or where it would have a direct fiscal impact.

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implementing the Court's orders. Legal amendments to specify a short timeframe for Court decision-making pertaining to resolution powers should be considered.

72. Resolution planning by the Central Bank and within banks is well advanced. Substantial progress has been made in ensuring that banks not likely to be liquidated are able to be effectively and efficiently resolved. The Central Bank has in place detailed policy, procedure, and coordination frameworks for executing winding-up and resolution actions.

73. The authorities have made substantive efforts to propose a resolution regime for insurers and to identify scope for improving the existing insolvency framework for insurers. Adoption of an insurer resolution regime will depend on progress at the European level where an Insurance Recovery and Resolution Directive recently has been proposed, but remedies to the insolvency framework shortcomings can be implemented independently.

74. The Central Bank is developing a structured framework on the use of its early intervention powers and its determination as to whether a bank is likely to fail. Its emergency liquidity assistance (ELA) framework has in recent years been undergoing testing and enhancements and this effort will continue. The DoF is developing an Incident Response Protocol that should complement comparable protocols at the interagency level and in the Central Bank. The Central Bank should adopt policies and procedures for assessing the prospective solvency of a bank undergoing resolution to determine its eligibility for ELA.

FINTECH SECTOR

A. An Evolving Landscape

75. Ireland's fintech sector is growing through the entry of innovative new players as well as the transformation of incumbents' business models and products. The largest sub-sector is represented by payment and e-money institutions (PIEMIs), which continues to grow rapidly. Fintech activities are developing on a smaller scale in areas such as insurance and investment management. Meanwhile, the importance of cloud service providers (CSPs), and their interconnectedness with financial institutions, continues to grow.

B. Regulatory and Supervisory Approach

76. The authorities' approach to fintech seeks to encourage innovation while ensuring prudent oversight of the sector. The Central Bank has an Innovation Hub that provides a single point of contact for stakeholders, experience under which can be used to inform development of the regulatory framework.

77. Most crypto-assets and related services fall outside the scope of existing EU legislation, except for AML/CFT requirements. The Central Bank has issued warnings to consumers on the risks of investing in crypto assets but has not adopted a bespoke regulatory framework. A common EU framework is due to be put in place in H2-2023 via the Markets in Crypto-Assets (MiCA) Regulation. The Irish authorities should continue to contribute actively to the

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MiCA negotiations, advocate for its earliest possible introduction, and prepare to introduce domestic legislation in the event of significant delay or material gaps in MiCA. Additionally, the Central Bank should, together with its European peers, further intensify its efforts to monitor developments in this area through systematic data collection.

78. There is reliance by Irish regulated entities on a limited number of CSPs. The Basel Principles for Operational Resilience, European Supervisory Authority (ESA) guidelines, and Central Bank guidance provide a strong framework for indirect supervision of CSPs. However, the CSPs themselves—some of which may be systemically important—are not within the regulatory perimeter. The Central Bank should continue to advocate for CSPs of systemic importance to the Irish financial services to be included in the Union Oversight Framework under the EU's new Digital Operational Resilience Act; failing which, the authorities should seek additional statutory powers to review and examine the resilience of systemic CSPs.

79. Under the EU's passporting framework, host regulators receive limited information on the activities that passporting entities are carrying out in their jurisdiction. Cross-border activity is typical of many fintechs' business models. To broaden its knowledge of activities happening in Ireland, the Central Bank should engage with the ESAs on how to expand the information that host regulators receive from home regulators.

80. PIEMIs represent one of the largest and growing sub-sectors within the fintech universe in Ireland. An increasing number of these firms are offering services that are comparable to banking-type services through the provision of e-money wallets, which are not covered by the DGS. The Central Bank has proactively strengthened the governance expectations for this sector informed by best practice corporate governance requirements, such as the Corporate Governance Requirements for Credit Institutions, as well as from supervisory learnings. The Central Bank and the DoF should actively contribute to the review of the EU framework and push for the regime to be strengthened, particularly in the areas of governance and risk management, safeguarding, crisis management, and corporate insolvency. In the absence of such changes forming part of the revised EU legislation, the authorities should work to introduce these reforms at the national level.

81. Incumbent retail banks in Ireland are dedicating significant resources to digital transformation, while fintechs are enlarging consumer choice through innovative services. Progress on several issues could facilitate the modernization of the incumbents' business models while also allowing relatively new players to fulfil their potential. The Central Bank, working with the Competition and Consumer Protection Commission, should continue its efforts to address IBAN discrimination. The Central Bank, in addition to its primary financial stability mandate, can play an important role in encouraging banks to adopt instant payments and helping consumers realize the full benefits of open banking.

INSOLVENCY AND CREDITOR RIGHTS

82. Ireland has a well-developed legal toolkit for corporate debt resolution, largely in line with international best practice. Examinership is the standard corporate reorganization

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procedure, although the law also provides for the ability to reach restructuring agreements outside of court, if a qualified majority of creditors agree. A newly-adopted procedure—the Small Company Administrative Rescue Process (SCARP)—allows for a quicker, less court-involved reorganization process than examinership for small and micro-sized companies. Companies may also be resolved via receivership, whereby a receiver takes over the administration of the company on behalf of creditors. Finally, the insolvency regime also provides for liquidation proceedings, both voluntary and compulsory.

83. Despite its sophistication, the corporate reorganization procedure is little-used and costly, and a review of the framework is in order. A review should seek to identify ways to increase use, lower costs, and close gaps with the international insolvency standard. Policy makers should also consider creating a hybrid procedure to complement examinership, with limited judicial intervention, subject to constitutional constraints, consistent with the spirit of the EU Directive on Preventive Insolvency. While SCARP is a welcome development, key aspects—such as the ability of public creditors to opt out—may limit its effectiveness. The authorities should monitor SCARP's implementation and revisit the law as experience is gained and data is collected. Data on corporate insolvency procedures is scarce. Collecting and publishing meaningful data would support more effective analysis and inform policy. The institutional framework would benefit from dedicating more judges to insolvency-related matters. Modernization programs to support electronic filings and remote hearings should be intensified.

84. While mortgage-backed arrears in Ireland are largely a legacy of the GFC, they still constitute almost one-half of all NPLs in the retail banks. LTMA pose a challenge to the effectiveness of the overall system for debt resolution and creditors' rights, and failure to fully resolve these arrears has the potential to undermine credit growth and affordability, given the impact on credit risk of uncertainty of realizing collateral. The authorities have pursued a multi-faceted strategy over the last decade to resolve LTMAs, however, further efforts are needed.

85. A key hindrance to creditors' rights remains the inability to predictably and efficiently enforce mortgage security on primary dwelling homes. Repossession is not the optimal solution for many distressed borrowers and resolution of LTMAs necessitates further engagement from both borrowers and lenders. A more efficient enforcement regime is crucial to an effective creditors' rights system. Accordingly, enforcement should be streamlined and simplified. Recommendations to improve the process include clear rules and guidelines for judges with respect to proceedings and ensuring hearings take place in a timely manner (e.g., through more frequent court sessions). The courts should also strengthen data collection and publication on repossession cases to better understand and address potential bottlenecks.

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86. More broadly, the Government should adopt a coordinated, multi-agency strategy for resolving mortgage arrears. Such a strategy should be informed by the data on borrowers' financial situation and debt servicing capacity. Consideration should be given to publishing more granular guidelines on solutions that creditors offer to borrowers, based on capacity to repay parameters. Broader social housing would also reinforce such an approach, given that many borrowers may lack capacity to repay, even if meaningful restructuring solutions are offered. Personal insolvency can also play a role, by ensuring that court-approved mortgage repayment plans provide sustainable solutions.

FINANCIAL INTEGRITY

87. Ireland faces increasing money laundering threats from foreign criminal proceeds. As a fast-growing international financial center, Ireland is exposed to inherent transnational ML/TF risks from illicit proceeds of foreign crimes. The authorities have demonstrated a deep and robust experience in assessing and understanding their domestic ML/TF risks but to a lesser extent of transnational ones. Conducting a thematic risk assessment focusing on non-resident and cross-border ML/TF risks would improve the understanding of transnational ML/TF risks and inform AML/CFT policy priorities.

88. Priority should be given to enhancing the risk-based supervision of banks focusing on cross-border activity. The Central Bank has a comprehensive and well-designed AML/CFT supervisory approach with a depth of engagement determined by an entity's overall risk rating. Given the considerable expansion of the financial sector, an augmentation of resources and skills would be necessary to maintain the depth of supervisory engagement. Since 2017, the Central Bank broadened access to data from supervised entities, but collection of cross-border data and use of analytical tools, such as machine learning and big data, can be improved. Desk-based and on-site inspections, while robust, should be reassessed to ensure that they adequately reflect the risks of the fast-growing entities, with significant increase in cross-border financial flows. The Central Bank has a broad enforcement toolkit and should continue to vigorously pursue enforcement actions, in line with compliance breaches and risk-levels.

89. The commencement of the registration process of virtual asset service providers (VASPs) is a welcome move. The Central Bank is seeing a significant number of VASP applications and expects a high volume of transactions in the sector. The Central Bank has not yet commenced active supervision of the sector; however, a comprehensive assessment of applicants is undertaken as part of the registration process. The Central Bank should invest in developing supervisory tools for the sector and increase resources commensurate with risks.

90. Efforts to raise awareness of key ML/TF risks for lawyers, accountants and Trust and Company Service Providers (TCSPs)—professional gatekeepers—are positive developments, however, supervision of these sectors is fragmented, undermining effectiveness. The AMLCU and self-regulatory bodies continue to take extensive efforts to improve the understanding of TCSPs of their AML/CFT obligations. The recently published risk assessment of the TCSP sector is a welcome move and should inform supervisory engagement with the sector. Fragmentation leads to

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inconsistent supervision and the potential for regulatory arbitrage, particularly in the accountancy sector. Further, enhancing the enforcement toolkit, through the power to impose administrative fines could also help improve supervisory outcomes.

91. Ireland has taken an important step forward with the creation of three beneficial ownership registries (BOR) in 2019-20 for companies, trusts, and certain financial vehicles. A sectoral risk assessment for legal persons and legal arrangements was published in 2020, which showed a significant risk of money laundering, particularly for entities with complex ownership structures. The Pandora Papers also recently highlighted potential misuse of limited partnerships. Although significant efforts have been made to collect the information, the BORs should ensure registration is accurate, complete, and up-to-date. Professional gatekeepers should assist in improving the quality of information, sharing any discrepancies found during their customer due diligence activities.

AUTHORITIES' VIEWS

92. The authorities welcomed the FSAP, reflected in their open and constructive engagement with the IMF team throughout the process. They appreciated the IMF's extensive work and engagement with a wide range of stakeholders and valued the insights provided by an external, in-depth assessment of the resilience of the financial sector and the overall framework for financial sector oversight and crisis management in Ireland. More broadly, the authorities are strongly supportive of the FSAP as a global financial stability tool.

93. Overall, the authorities broadly agreed with the IMF team's assessments and recommendations. They welcomed the IMF's positive endorsement of Ireland's continued progress in strengthening regulation, supervision, and crisis management since the last FSAP in 2016, aided by its active collaboration and engagement with the ECB/SSM, the Single Resolution Board and, more broadly, the ESFS. They noted that their determined efforts to bolster financial sector oversight and crisis preparedness have proven their value recently, with the financial sector remaining resilient through the shocks stemming from Brexit and the pandemic. Looking ahead, as Ireland's financial sector continues to grow in size, complexity, and interconnectedness, the authorities acknowledged the importance of ensuring that the regulatory framework and supervisory capacity keep pace with the evolving landscape. Furthermore, work on continuing to strengthen the AML/CFT framework is a priority, including in respect of cross-border activity, as European and international AML/CFT standards continue to be enhanced as part of ongoing efforts to more effectively combat ML/TF. The authorities welcomed the FSAP's recognition of Ireland's demonstrated commitment to cross-border collaboration on financial sector oversight and regulation. They noted that several areas of focus of the FSAP team, including in relation to market-based finance or fintech, require effective regulatory co-ordination at a European and global level. In that context, the authorities underscored their commitment to continue driving work with European and international counterparts, including in relation to extending macroprudential oversight to the market-based finance sector. The

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authorities indicated their intent to follow up on the FSAP recommendations and agreed to publish the FSSA and the Technical Notes.

94. The authorities welcomed the work and recommendations across the technical workstreams, which were tailored to Ireland's needs. The authorities welcomed the insights of the IMF team's risk assessments, which had shown that Irish banks and insurance companies are resilient to possible future adverse shocks. The authorities also acknowledged the importance of addressing the remaining legacy issues from the GFC on the retail banks and completing government divestiture. They noted that further efforts are being undertaken to enhance supervisory powers regarding individual accountability and to conduct further deep dive analysis on the market-based finance sector, including its domestic and global interlinkages. The analysis on insolvency and creditor rights provided helpful insights and recommendations for efforts to raise the efficiency of collateral recovery that would have the potential to benefit the economy as a whole. The authorities also welcomed the FSAP's focus on managing climate-related risks to the financial sector, consistent with their own focus and plans to implement a sequenced work program in this area.

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Table 2. Ireland: Selected Economic Indicators
(Percentage change, unless otherwise indicated)

	2019	2020	2021	2022	2023	2024	2025	2026	2027
				Projections					
	(annual percentage change, constant prices, unless otherwise indicated)								
Output/Demand									
Real GDP 1/	4.9	5.9	13.5	7.5	5.0	4.1	3.1	3.0	3.0
Domestic demand	43.5	-14.8	-16.8	3.8	4.7	4.5	4.2	4.0	3.9
Public consumption	7.1	10.9	5.3	-1.3	2.0	2.5	2.9	2.9	2.9
Private consumption	3.3	-10.4	5.7	5.0	4.0	3.5	3.0	3.0	3.0
Gross fixed capital formation	99.5	-23.0	-37.6	5.0	7.0	6.6	6.1	5.5	5.3
Exports of goods and services	10.4	9.5	16.6	8.5	6.0	5.0	4.0	4.0	4.0
Imports of goods and services	41.7	-7.4	-3.7	7.0	6.3	5.7	5.1	5.0	5.0
Output gap	0.3	-2.3	0.8	0.5	0.0	0.0	0.0	0.0	0.0
Contribution to growth									
Domestic demand	30.9	-14.2	-13.2	2.3	2.7	2.6	2.4	2.3	2.3
Consumption	1.8	-2.1	2.1	1.2	1.2	1.1	1.0	1.1	1.1
Gross fixed capital formation	28.1	-12.3	-14.9	1.2	1.5	1.4	1.4	1.3	1.3
Inventories	1.0	0.3	-0.4	0.0	0.0	0.0	0.0	0.0	0.0
Net exports	-26.5	21.4	25.7	4.8	2.2	1.3	0.4	0.5	0.5
Residual	0.6	-1.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Prices									
Inflation (HICP)	0.9	-0.5	2.4	7.5	3.8	2.5	2.0	2.0	2.0
Inflation (HICP, core)	0.9	-0.1	1.6	4.7	3.5	2.4	2.0	2.0	2.0
GDP deflator	4.2	-1.2	-0.4	5.9	3.6	2.3	2.0	2.0	2.0
Employment									
Employment (% changes of level, ILO definition)	2.9	-2.7	5.9	2.0	1.0	1.0	1.0	1.0	1.0
Unemployment rate (percent)	5.0	5.8	6.2	5.0	5.0	5.0	5.0	5.0	5.0
	(percent of GDP)								
Public Finance, General Government									
Revenue	24.7	22.2	23.0	22.5	22.2	22.1	22.1	21.9	21.9
Expenditure	24.2	27.3	24.9	22.7	21.9	21.5	21.3	21.2	21.0
Overall balance	0.5	-5.1	-1.9	-0.2	0.4	0.6	0.8	0.8	0.9
Primary balance	1.8	-4.1	-1.2	0.5	1.1	1.3	1.3	1.3	1.4
Structural balance (percent of potential GDP)	0.4	-1.3	0.3	0.9	0.4	0.6	0.8	0.8	0.9
General government gross debt	57.2	58.4	56.0	49.1	44.8	41.6	39.0	36.4	33.4
General government gross debt (percent of GNI*)	94.6	104.7	107.3	96.7	88.9	83.2	78.0	72.9	66.9
Balance of payments									
Trade balance (goods)	33.1	38.9	41.0	44.9	43.4	41.3	39.7	38.2	36.7
Current account balance	-19.9	-2.7	13.9	12.3	10.1	9.0	8.0	7.0	7.0
Gross external debt (excl. IFSC) 2/	292.9	302.1	255.0	220.9	201.2	188.6	180.5	174.3	169.4
Saving and investment balance									
Gross national savings	34.8	38.2	38.1	34.7	32.7	32.2	31.9	31.5	32.3
Private sector	32.9	41.9	38.8	33.8	31.3	30.6	30.2	29.9	30.6
Public sector	2.0	-3.7	-0.7	0.9	1.4	1.6	1.7	1.6	1.7
Gross capital formation	54.7	40.9	24.2	22.4	22.6	23.1	23.9	24.6	25.3
Memorandum items:									
Nominal GDP (€ billions)	356.5	372.9	421.5	479.9	522.1	556.1	584.6	614.8	646.2
Nominal GNI* (€ billions)	215.6	208.2	219.8	243.5	263.4	278.1	292.1	307.0	322.5
Real GNI* (growth rate) 3/	4.5	-2.2	6.0	4.6	4.4	3.2	3.0	3.0	3.0

Sources: CSO, DoF, Eurostat, and IMF staff estimates and projections.

1/ The reported real GDP growth is changed to non-seasonally-adjusted (NSA). The annual SA versus NSA differences in 2018-2020 arise principally due to the lumpy, irregular pattern of IP Imports over the past three years.

2/ IFSC indicates international financial services.

3/ Nominal GNI* is deflated using GDP deflator as proxy, since an official GNI* deflator is not available.

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Table 3. Ireland: Financial Soundness Indicators
(In Percent)

	2015	2016	2017	2018	2019	2020	2021Q2
				(in percent)			
Capital							
Regulatory capital to risk-weighted assets	27.5	27.3	25.3	25.4	25.0	25.5	26.0
Tier 1 capital to risk-weighted assets	25.3	25.4	23.5	23.4	23.1	23.4	23.7
Capital to assets (leverage ratio)	13.3	13.6	13.6	13.1	11.9	8.8	8.0
Large exposures to capital	27.9	23.2	24.7	21.6	33.2	32.1	49.8
Profitability							
Return on assets	1.0	1.0	0.9	0.9	0.7	-0.3	0.6
Return on equity	5.7	7.8	5.1	5.5	3.8	-2.2	5.3
Noninterest expenses to gross income	68.7	63.9	67.3	68.9	73.5	74.6	76.5
Trading income to total income	3.9	9.6	6.4	7.1	5.8	4.6	7.6
Personnel expenses to noninterest expenses	35.5	37.3	35.9	36.4	37.9	41.4	40.0
Liquidity							
Liquid assets to total assets	...	20.9	23.8	25.3	25.4	23.3	23.2
Liquid assets to short-term liabilities	...	30.0	30.7	36.2	36.0	37.0	46.3
Customer deposits to total (non-interbank) loans	64.1	66.3	76.4	66.1	65.1	67.4	61.8
Sensitivity to market risk							
Net open position in FX to capital	0.9	1.4	1.5	2.4	1.9	2.0	2.1
Gross asset position in derivatives to capital	30.7	34.7	26.3	18.7	62.1	109.6	95.6
Gross liability position in derivatives to capital	32.9	35.8	28.6	20.9	64.3	112.8	98.6
Asset Quality							
Nonperforming loans net of provisions to capital	47.5	38.7	38.0	18.7	12.1	9.6	9.1
Nonperforming loans to total gross loans	16.4	12.6	11.5	5.5	3.4	3.4	2.8

Source: IMF Financial Soundness Indicators.

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Table 4. Ireland: Financial Sector Structure

	2021		
	Number of Institutions	Total Assets (EUR billion)	Multiples of GDP
Banks	263	764	1.8
Insurance Co. and Pension Funds	123,308*	562	1.3
Investment Funds	6,175	3,889	9.2
Money market funds	83	652	1.5
Other Financial Institutions	N/A	1,841	4.4
of which Special Purpose Entities	3,125	1,031	2.4
Total		7,707	18.3

Source: Central Bank of Ireland.
Notes: "Banks" category inlcudes credit unions and other banks. "Incurance Co. and Pension Funds" includes 186 insurance companies and 123,122 pension funds.

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Appendix I. Status of Key Recommendations of 2016 FSAP

Recommendations	Time[1]	Status
Cross-cutting		
1. Support independence of the Central Bank by continuing to demonstrate accountability to the Oireachtas (Parliament) and enhancing public transparency (⁋39).	Ongoing	**Partially addressed.** Strengthening transparency and accountability have been key elements of the two (three-year) Central Bank Strategic Plans since the last Irish FSAP. There have been several initiatives to strengthen transparency in recent years. The Central Bank actively and regularly engages with the Oireachtas, through appearances in Committee hearings, correspondence on central banking or financial regulation matters and responses to Parliamentary Questions.
2. Revise personnel policies to attract and retainexperienced staff (⁋39)	NT	**Largely addressed.** The Central Bank has formulated and implemented a People Strategy, which includes an approved approach to resourcing, learning and development, leadership development and talent management. Notwithstanding the pre-pandemic tightness in the labor market, the Central Bank has continued to attract and retain relevant skills and capabilities, achieving significant growth in staffing. The CBI's long-term people strategy continues to evolve, with focus on how the Central Bank will continue to build capability to meet its mandate in the context of a changing operating environment.
Stability Analysis		
3. Further develop bank stress testing, including risks in U.K. operations (⁋22).	NT	**Addressed.** The CBI has significantly enhanced its capabilities for solvency stress testing, including to develop modelling infrastructure which stress tests U.K. exposures. CBI capabilities for bank solvency stress testing are currently sufficient for the domestic retail banks. The means to stress test some new institutions with significant 'traded risk' exposures is currently under development.
4. Close data gaps on cross-border exposures, the nonbank financial sector, the commercial real estate market, and the non-financial corporate sector (⁋24, 26, 28, 52, 53).	NT	**Partially addressed.** There has been continued progress towards filling a number of data gaps across the different categories outlined in the last FSAP, including though major projects such as AnaCredit, SHS and the Central Credit Register. The Central Bank has been also at the forefront of data collection on the non-bank financial sector and, because of that, Ireland has significantly reduced the size of our "OFI residual" compared to other jurisdictions. However, the OFI residual remains large with respect to the size of the domestic economy. These data sources have already been used for analytical and policy purposes, including to enhance our understanding of potential financial vulnerabilities and inter-connectedness, and to publish analysis and research around these segments (especially the non-bank sector). Of course, identifying and filling data gaps is a continuous endeavor.
5. Build internal capacity that allows for regular stresstesting of MMFs (⁋52).	NT	**Partially addressed/ongoing.** The Central Bank contributes to the development of parameters around MMF stress testing developed by ESMA and the ESRB. The Central Bank conducts liquidity analysis of MMFs and is also developing its own stress testing capabilities around investment funds and MMFs, but this will take time to develop fully, consistent with similar frameworks developed internationally.

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6. Improve data coverage and monitoring of all special purpose vehicles (⁋52).	NT	**Partially addressed.** Beyond securitization vehicles, Ireland is host to a large number of other special purpose vehicles (SPVs) engaged in a range of diverse activities. Data on these entities were first collected by the Central Bank of Ireland in the third quarter of 2015, deepening our understanding of their business models and potential risks associated with their activities. The Central Bank has been at the forefront internationally on publishing data on SPEs, including quarterly statistical updates and analytical work. We continuously engage with industry to ensure data quality, but will also do so on any gaps identified, when there is more clarity on the international definitions and implementation plans at the IMF and ECB. Implementation will also depend on the Central Statistics Office.
7. Develop better understanding of the use of investmentfund portfolio leverage (⁋52).	NT	**Partially addressed.** The degree of leverage among investment funds domiciled in Ireland varies depending on the type of fund. The Central Bank has contributed to international efforts to monitor risk-taking (including use of leverage) by the fund sector, for as example as part of the FSB and the ESRB. The Central Bank conducted a deep dive on potential vulnerabilities in the property fund sector in Ireland, where it identified a cohort of funds with more elevated levels of leverage. The Central Bank has been active in international work to strengthen understanding around vulnerabilities stemming from leverage in investment funds, including at IOSCO and the ESRB. Despite recent advances, further work is required – both domestically and internationally – to measure and monitor developments in leverage in a more comprehensive manner.
Financial Sector Oversight		
Macroprudential Policy		
8. Maintain, and in due course review, LTV and LTI limits (⁋55).	NT	**Addressed.** The Central Bank is committed to annually reviewing the calibration of the mortgage measures in the context of wider housing and mortgage market developments, to ensure that they continue to meet their objectives. The Central Bank views the measures as a permanent feature of the market, but the calibration can be adjusted depending on prevailing developments to promote the long-term sustainability of Irish mortgage lending and safeguard wider financial stability.
9. Operationalize the Central Credit Register as soon as possible, and, once operational, transform the LTI limitinto a more comprehensive DTI limit (⁋55).	MT	**Partially addressed/ongoing.** • The Central Credit Register is now fully operational, and the pseudo-anonymized data is available for use by Central Bank staff for analytical purposes. • Considerations, both conceptual and practical, around a move to a DTI limit were part of the thematic reviews of the measures that have been taking place over 2021 and 2022.
Banking		
10. Continue to streamline options under nationaldiscretion and regulations in bank supervision (⁋ 42).	MT	This recommendation is **addressed to the ECB** and consequently is outside the scope of the CBI's powers to address. The ECB under the SSM coordinates optional discretions by the ECB Guideline and ECB Recommendation across the SSM to streamline the options. The CBI will input to discussions at SSM as appropriate and is ready to comply with any actions proposed by the ECB in a timely manner. There is only a limited number of instances where the CBI

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		retains discretion to exercise and has exercised competent authority O&Ds differently from the ECB.
11. Further enhance the effectiveness and enforceability ofthe supervision of credit risk in banks with respect to loan classification and provisioning (⁋ 43).	NT	For significant credit institutions, this recommendation is largely **addressed to the ECB**. Several initiatives have taken place in recent years to promote appropriate provision levels on banks' assets, through RMPs and discussions with the banks, as well as requiring robust practices for classification of distressed loans (enforcement of the EBA GL on Definition of Default / ECB NPL guidance). The CRD/CRR calendar provisioning backstop has also been implemented across the banking sector and initial impacts were recognized already at year-end 2020. For less significant credit institutions, the CBI, under delegation from the ECB, remains the competent authority. The CBI's focus has been to address the level of NPLs through ongoing engagement and also promote prudent provisioning.
12. Remain vigilant that harmonization of the SSM supervisory processes is balanced by the application ofthe principle of proportionality (⁋ 42).	NT	This recommendation is **addressed to the ECB** and consequently is outside the scope of the CBI's powers to address. However, the FSAP observed changes in the ECB approach stemming out of its newly developed role in more intrusive monitoring LSI supervision and in providing proportionate but sufficiently detailed guidance for LSI supervision. The CBI will input to discussions at SSM as appropriate and is ready to comply with any actions proposed by the ECB in a timely manner.
Insurance		
13. Enhance assessment of credit risk in insurers' portfolios (⁋33).	NT	**Addressed.** Under the Central Bank's supervisory framework, the investment portfolios of all (re)insurance undertakings are monitored as part of base and core risk assessments. This monitoring is supported through use of an investment risk dashboard (updated quarterly), building on key risk indicators defined in the EIOPA Supervisory Review Process Handbook. This investment risk assessment captures a range of risk factors, including credit risk (both point-in-time overview and time series analysis to identify deteriorating credit quality). In addition, at an industry level aggregate credit quality is analyzed across all insurers as part of the quarterly financial resilience overview.
14. Enhance analysis of unusual reinsurance transactions to ensure that any capital relief is warranted by true risk transfer (⁋ 45).	NT	**Addressed.** Reinsurance proposals are extensively reviewed as part of the authorization process, including effective risk transfer under the quality review assessment. For existing firms risk transfer is addressed as part of the counterparty risk supervisory review process. Policy papers have also been developed addressing this topic, including on SPVs and intragroup quota share arrangements.
15. Coordinate among insurance supervisors to ensure due scrutiny of license application and limit improper "jurisdiction shopping" (⁋46).	NT	**Addressed.** Development of a revised general protocol on collaboration was undertaken during 2016 with EIOPA to strengthen the level of cooperation and information sharing among national regulatory authorities regarding insurance undertakings operating under the EU Freedom of Services and Freedom of Establishment framework (i.e., operating on a branch or cross border basis). The new Decision and revised protocol specifically addresses this recommendation and was effective from 1 May 2017. All internal procedures have been updated to reflect the revised protocol with training provided to supervisors. An MMoU has been developed between EIOPA members (including the CBI) and the U.K. authorities.

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Market-based Finance		
16. Require MMFs to report liquid assets and characteristics of the investor base (⁋52).	NT	**Addressed.** Since the last FSAP, the introduction of the European MMF Regulation includes requirements for MMFs to disclose to investors and report to supervisors different pieces of information around liquidity and investor base. The Central Bank has developed monitoring tools, to analyze developments with regard to liquidity risk for MMFs. This work has also deployed new databases (including the Securities Holding Database) to improve our understanding of investors in Irish MMFs and their interconnectedness with other parts of the financial system.
17. Encourage existing MMFs to graduate away from the CNAV convention to one better reflecting the variabilityin underlying prices, and ensure appropriate risk management safeguards are in place; discourage CNAV valuation in new MMFs (⁋52).	NT	**Addressed.** Since the last FSAP, the Money Market Funds Regulation (EU 2017/1131) (MMFR), together with implementing Irish Regulations, has been introduced. The MMFR does not prohibit CNAV MMFs, but introduces more detailed requirements for the operation of MMFs, including a prohibition on any sponsor support, cessation of the reverse distribution mechanism, rules on liquidity, eligible assets, stress testing, valuation, redemption practices and transparency. IOSCO recently published the results of its Thematic Review on consistency in implementation of Money Market Funds reforms, assessing legislative and regulatory frameworks in relation to the implementation of selected recommendations from the 2012 IOSCO Policy Recommendations on Money Market Funds. In its assessment, IOSCO found Ireland to be 'Fully Consistent'. Across different types of MMFs, the COVID-19 shock has raised questions as to the extent to which previous global reforms have sufficiently mitigated risks. The Central Bank is an active participant in international deliberations at the FSB, IOSCO, ESRB and ESMA around the need for, and options around, further reforms to strengthen MMF resilience.
Financial Safety Net		
18. Continue to identify and address impediments to resolvability (⁋64).	Ongoing	**Addressed.** Since the last FSAP there has been significant progress in enhancing resolvability of Irish banks. Irish retail banks have: set up separate holding companies to the facilitate bail-in of MREL debt in resolution; made significant progress in building MREL and now are very close to meeting their full MREL requirements; been required to develop and test bail-in "playbooks"; made good progress in ensuring operational continuity in resolution, in particular in terms of critical services underlying the provision of critical functions and financial market infrastructure contingency access. Of course, more progress is needed for these institutions to be fully resolvable and the overall crisis management and deposit insurance framework in Europe needs to continue to be strengthened, something that the Central Bank of Ireland has been a key advocate of.
19. Streamline the process for court approval of resolution measures (⁋ 61).	NT	**Not addressed.** This recommendation relates to the requirement in Ireland for ex ante judicial approval in advance of using the resolution tools in the BRRD. A legislative change would be required to remove this requirement. It is the Department of Finance's view that the imposition of a specific fixed timeframe on the Court to give its decision would risk imposing an unconstitutional fetter on judicial discretion and independence in dealing with an individual case contrary to the Irish constitutional right to fair procedures and judicial

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		independence. In terms of other sub-aspects of that recommendation, there are new terms of reference of the Financial Stability Group (replacing the Principal's Group) and the FSG has conducted a crisis simulation exercise (see, for example, the 2018 FSG annual report). The Central Bank has also elaborated policies and procedures to facilitate prompt Court decisions.
20. Streamline the process of SRM decision making (⁋61).	MT	This recommendation was **addressed to the EU authorities** and, therefore, outside the scope of the Irish authorities to address in full. The complexity of the EU decision-making framework in the context of resolution is acknowledged by the Central Bank. While there have been some elements of streamlining of the SRM decision-making process in terms of resolution planning, the framework for actual resolution decision and execution remains relatively complex. The Central Bank has been a strong advocate of simulation exercises across the SRM as a means of testing those processes and enhancing preparedness.
[1] "NT-near-term" denotes up to 2 years; "MT-medium-term" denotes 2–5 years.		

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Appendix II. Ireland Risk Assessment Matrix

Risk	Overall Level of Concern	
	Relative Likelihood	Expected Impact if Materialized
Conjunctural Risks		
Russia's invasion of Ukraine leads to escalation of sanctions and other disruptions. Sanctions on Russia are broadened to include oil, gas, and food sectors. Russia is disconnected almost completely from the global financial system and large parts of the trading system. This, combined with Russian countersanctions and secondary sanctions on countries and companies that continue business with Russia, leads to even higher commodity prices, refugee migration, tighter financial conditions, and other adverse spillovers, which particularly affect LICs and commodity-importing EMs.	**High**	**Low** • Global supply chain and economic disruptions induced by sanctions on Russia may lead to direct and indirect spillovers to domestic economy via trade, consumption and investment, which can transform to deterioration in economic growth and credit quality of borrowers, resulting in credit losses in the banking system. • Higher energy and commodity price may weaken consumer purchasing power and intensify inflationary pressures. In the meantime, slower growth in nominal wage than domestic price may stifle domestic economic activities. Tightened global financial conditions may exacerbate slowdown in growth, trigger capital outflows, and pose downside risks to both the financial and the non-financial sector more broadly.
Outbreaks of lethal and highly contagious Covid-19 variants. Rapidly increasing hospitalizations and deaths due to low vaccine protection or vaccine-resistant variants force more social distancing and/or new lockdowns. This results in extended supply chain disruptions and a reassessment of growth prospects, triggering capital outflows, financial tightening, currency depreciations, and debt distress in some EMDEs.	**Medium**	**High** • The renewed pandemic lockdown and social distancing measures may erode market confidence and adversely affect growth, with uneven impact across sectors. • Constrained policy space as a result of sustained deterioration of fiscal balance dents market confidence, exacerbates slowdown and long-term scarring of the economy. • Persistent flattening or contraction of consumption and investment activities impairs private sector financial health, leading to reassessment of asset value and sizable formation of NPLs. • A protracted slowdown of retail activities and decline in market demand translate to deterioration of prices in the commercial real estate market, with effect propagating to banks loan book with significant exposures.
De-anchoring of inflation expectations in the U.S. and/or advanced European economies. Worsening supply-demand imbalances, higher commodity prices (in part due to war in Ukraine), and higher nominal wage growth lead to persistently higher inflation and/or inflation expectations, prompting	**Medium (for U.S.)/ Medium/Low (for EA)**	**Medium/Low** • Sharp tightening of global financial conditions and spiking risk premia may adversely impact corporates and household credit worthiness and lead to market

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central banks to tighten policies faster than anticipated. The resulting sharp tightening of global financial conditions and spiking risk premia lead to lower global demand, currency depreciations, asset market selloffs, bankruptcies, sovereign defaults, and contagion across EMDEs.		losses in bank trading portfolios and insurers' investments due to a sharp decline in asset values. • Higher borrowing cost for government may result in unsustainable fiscal path, a decompression of sovereign risk premia, and devaluation of sovereign securities held by banks. • Sharp asset price correction due to rising risk premia and rapid sell-offs may lead to collateral revaluation and result in lower recovery value of defaulted loans. • Inflationary pressures may constrain consumer purchasing power, give rise to additional financial pressures and stretch corporate and household balance sheets.
Geopolitical tensions and deglobalization. Intensified geopolitical tensions, security risks, conflicts, and wars cause economic and political disruptions, fragmentation of the international monetary system, production reshoring, a decline in global trade, and lower investor confidence.	**High**	**Low** • Economic disruption and bearish investor sentiment resulting from intensified and persistent geopolitical tensions and deglobalization may translate to growth slowdown, abrupt reversal in asset prices and higher credit delinquencies, with shock permeating through the financial market leading to system-wide liquidity and solvency stress.
Structural Risks		
Continued trade frictions and uncertainty related to the detailed implementation of post-Brexit arrangements. Details are being negotiated to minimize non-tariff barriers to goods and services trade. Further delays in finalizing remaining detailed implementation of post-Brexit arrangements can hamper trade and raise tensions.	**Medium**	**Medium** • Higher input cost and logistic expenses for Irish business may curtail firms' profitability and risk financial viability, escalating debt failures. • Significant credit exposure of Irish banking sector to the U.K. market could entail a shock to bank profitability in Ireland due to negative impact on the U.K. economy.
Natural disasters related to climate change. Higher frequency of natural disasters causes severe economic damage to smaller vulnerable economies and accelerate emigration. Severe events in large economies reduce global GDP, cause further supply chain disruptions and inflationary pressures, and prompt a recalculation of risk and growth prospects. Disasters hitting key infrastructure or disrupting trade raise commodity price levels and volatility.	**Medium**	**Medium** • Natural disasters related physical damages may impair financial health for firms and households, translating to higher credit and market risks facing the financial sector.

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Banking Sector: Solvency Stress Test		
Top-down by IMF		
1. Institutional Perimeter	Exercise	• Top-Down by FSAP team.
	Institutions included	• 12 banks subcategorized as SIs (7 banks) and LSIs (5 banks). Among the total, 5 are domestically focused retail banks and 7 are internationally oriented banks which are subsidiaries of foreign parents. LSIs are only subject to sensitivity analysis. • Scenario based stress test for retail and large international banks (8 banks); sensitivity analysis for other international banks (4 banks).
	Market share	• Total coverage is about 80 percent of the banking sector, with 73 percent for SIs and 7 percent for LSIs.
	Data and baseline date	• Multiple data vintages: December 2019, December 2020, June 2021 • Supervisory data: bank balance sheet and supervisory statistics (including FINREP and COREP), information on interest rate risk in the banking book (IRRBB), liquidity risk and market risk sensitivities (including STE templates) provided by the authorities and the ECB. Expected Default Frequency sourced from Moody's. Also provided was further supervisory information, among others, probability of defaults and stage transition matrix by credit portfolios. The data also includes transparency templates for banks in the 2021 EBA stress test sample. • Market and publicly available data, such as information from ECB statistical data warehouse on funding and lending rates by type of asset and funding portfolios. • Data on policy mitigation impact on banking sectors in the context of COVID-19 primarily through moratoria, public guarantees, and liquidity support measures. • Scope of consolidation: banking activities of the consolidated banking group for banks having their headquarters in Ireland. Foreign subsidiaries are assessed on the unconsolidated level covering domestic activities only. • Coverage of sovereign and non-sovereign securities exposures: debt securities measured through fair value (FVPL and FVOCI) and amortized cost (AC) account. • Coverage of lending exposure: credit institutions, nonbank financial institutions, household (retail and mortgage), corporate (Ireland non-CRE, Ireland CRE, U.K., U.S., rest of EA and rest of the world).
2. Institutional Perimeter	Exercise	• Top-Down by FSAP team.

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Banking Sector: Solvency Stress Test		
Top-down by IMF		
3. Channels of Risk Propagation	Methodology	• FSAP team satellite models and methodologies. • Balance-sheet regulatory approach. • Market risk is treated as an add-on component, with a separate calibration. The market risk stress scenario has an impact on both capital resources (either via profit and loss or via Other Comprehensive Income (OCI)) and capital requirements (RWA). The impact on capital resources comprises of positions in the trading book as well as other fair valued items in the banking book. The impact on RWA for market risk evolve with balance sheet assumptions. • Traded risk impact from the revaluation of trading assets (FVPL) and securities classified as fair value thorough other comprehensive income (FVOCI) securities by counterparty: central government (by country issuers), credit institutions, other financial institutions, and nonfinancial corporates. Credit spreads on sovereign, credit institutions and corporate securities interpolated using bank-specific residual maturity at the book and issuer level (i.e., sovereign issuers by country and individual corporate issuers by ISIN codes). Credit spreads on other securities estimated on a hypothetical portfolio using a duration proxy. Valuation effects assessed using a modified duration approach. Hedges are considered as ineffective under stress.
		• The losses for securities portfolios are based on modified duration approach. Losses on equities (both long and short position) were based on stock market price movement specified by the scenario. • For internally modelled exposures (IRB), projection of PiT and TTC PDs, LGD, EAD and RWA. For standardized (STA) exposures, projection of new flows of defaulted exposures, risk weights downgrades and coverage ratio for defaulted loans. Credit risk projections for IRB and STA exposures covers ten asset classes: credit institutions, nonbank financial institutions, household (retail and mortgage), corporate (Ireland non-CRE, Ireland CRE, U.K., US, rest of EA and rest of the world). Credit risks from domestic nonfinancial corporations adopt a sectoral approach to differentiate impact on COVID and Brexit sensitive sectors. PDs (or flow of new nonperforming loans) are obtained from country authorities for domestic exposures and proxied by Moody's EDFs for foreign exposures. Resulting impact is translated into credit loss impairment charges and shifts to RWAs due to capital charges for defaulted assets. • Provisioning. Provisioning for IRB and STA was modeled using IFRS9 transition matrix approach. Transition matrices, PiT PDs, PiT LGDs for loan and securities classified under financial asset measured through amortized cost (AC) and other comprehensive income (FVOCI) were modeled using CBI submissions and COREP data. • Funding costs projected at the portfolio level using funding structure by product (deposits, debt securities, etc.) and maturity bucket (overnight vs. term). Funding cost projections capture systematic risk linked to the scenario and utilized bank level data on 8 Irish banks from COREP templates. Lending rates were projected at the system level and attached to bank-specific effective interest rates and outstanding amount at cut-off date (interest rate on corporate and household loans and debt securities).

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Banking Sector: Solvency Stress Test		
Top-down by IMF		
	Stress test horizon	• 2021 Q2–2026 Q2 (5 years)
4. Tail Shocks	Scenario	2 Scenarios: • A baseline scenario based on the March 2022 WEO macroeconomic projections. • An adverse scenario that captures the key risks in the RAM. This scenario relies on Global Macro-financial Model (GFM), a structural macroeconometric model of the world economy, disaggregated into forty national economies, documented in Vitek (2018). Scenarios for foreign countries where Ireland has significant exposure is extracted from GFM and is internally consistent with country scenarios of ongoing FSAPs.
	Sensitivity analysis	• Single-factor sensitivity test for other international banks (4 banks) to test banks' capital adequacy by imposing a lower bound (10 percentile) of the historical distribution of net interest margin, net trading income ratio and net fees and commission income ratio, and an upper bound (90 percentile) of net loan loss ratio and loss ratio from off-balance sheet exposure with 50 percent conversion rate to on-balance sheet exposure. • Single-factor sensitivity test further assess the resilience of the banking sector to concentrations risk for SI and LSIs, where the banks' top 3 to 5 exposures are assumed to fail. • Effect of policy mitigation under Covid-19: sensitivity analysis assessing the effects unwinding of supportive policies (e.g., payment breaks) on bank solvency condition.
5. Risks and Buffers	Risk covered	• Risks covered include credit (on loans and debt securities), market (valuation impact of debt instruments through repricing and credit spread risk as well as the P&L impact of net open positions in market risk factors such as foreign exchange risks) and interest rate risk (IRRBB) on the banking book. • Concentration risk by sensitivity analysis. • Solvency and liquidity risk interactions, mainly through asset haircut.
	Behavioral Adjustment	• For the growth of the banks' balance sheet over the stress-test horizon, a quasi-static approach is used. Asset allocation and the composition of funding remain the same, whereas the balance sheet grows in line with the nominal GDP paths of major geographical exposures and subject to reduced credit demand in material jurisdictions and FX shock from revaluation effects on foreign currency loans specified in the stress test scenario. However, to prevent the banks from deleveraging, the rate of change of balance sheets is set at a floor of zero percent. This constraint is binding in the adverse scenario. • In projecting RWAs, standardized and IRB portfolios are differentiated. For the standardized portfolios, RWAs changed due to the balance sheet growth, new inflows of non-performing loans, new provisions for credit losses, exchange rate movements, and the conversion of a portion of off-balance sheet items (undisbursed credit lines and guarantees) to on-balance sheet items. For the IRB portfolios, through-the-cycle-PDs, downturn LGDs and EAD for each asset class/industry are used to project risk weights.

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Banking Sector: Solvency Stress Test		
Top-down by IMF		
6.		• Interest income from non-performing loan is not accrued. • We assume that banks do not issue new shares or make repurchases during the stress test horizon. Dividends are assumed to be paid out at 25 percent of current period net income after taxes (i.e., only if net income is positive) by banks that were in compliance with supervisory capital requirements.
7. Regulatory and Market-Based Standards and Parameters		• National regulatory framework Basel III regulatory minima on CET1 (4.5 percent). In addition to the CET1, we evaluated the banks' total capital adequacy ratio against the 8 percent level, their Tier 1 capital ratio against the 6 percent benchmark and the leverage ratio during the stress test horizon against the 3 percent Basel III minimum requirement. The adverse scenario hurdle rate for CET1, T1 and total capital adequacy includes any requirements due to systemic buffers for other systemically important institution (O-SII), and do not include the capital conservation buffer which is considered useable in the adverse scenario. Countercyclical capital buffer is currently set at 0 in Ireland.
8. Reporting Form for Results	Output presentation	• The results of the stress tests are reported using a variety of charts and tables. These potentially include Evolution of capital ratios for the system as a whole and as groups of retail banks and large international banks. Outputs also include information on impact of different result drivers, including profit components, losses due to realization of different risk factors; capital shortfall as sum of individual shortfalls; in euros and in percent of nominal annual GDP; number of banks and corresponding percentage of assets below the regulatory minimum (or below the minimum leverage ratio).
Banking Sector: Liquidity Stress Test		
Top-down by IMF		
1. Institutional Perimeter	Exercise	• Top-Down by FSAP team.
	Institutions included	• 12 banks subcategorized as Sis (7 banks) and LSIs (5 banks). Among the total, 5 are domestically focused retail banks and 7 are internationally oriented banks which are subsidiaries of foreign parents.
	Market share	• Total coverage is about 80 percent of the banking sector, with 73 percent for Sis and 7 percent for LSIs.
	Data and baseline date	• Latest data: June 2021 • Source: supervisory data (LCR, NSFR and ALMM Maturity Ladder template) • Scope of consolidation: banking activities of the consolidated banking group for banks having their headquarters in Ireland. Foreign subsidiaries are assessed on the unconsolidated level covering domestic activities only.

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Banking Sector: Liquidity Stress Test		
Top-down by IMF		
2. Channels of Risk Propagation	Methodology	• Basel III LCR and cash-flow based liquidity stress test using maturity buckets by banks, incorporating both contractual and behavioral (where available) with assumption about combined interaction of funding and market liquidity and different level of central bank support. • Liquidity test in total currency, USD, and Sterling.
3. Risks and Buffers	Risks	• Funding liquidity • Market liquidity
	Buffers	• The counterbalancing capacity, including liquidity obtained from markets and/or the central bank's facilities. Expected cash inflows are also included in the cash-flow based analysis.
4. Tail shocks	Size of the shock	• The run-off rates are calibrated to reflect scenarios of system-wide deposit runs and dry-up of unsecured wholesale and retail funding, with additional run-off for non-resident deposits on top of the retail and wholesale run-off, which is calibrated following historical events, recent international experience in liquidity crisis and IMF expert judgment. • Retail scenario key assumptions are: (i) 10 percent run-off rates for stable retail deposits and 20 percent for less stable retail; (ii) 5-25 percent for operational deposits and 20-40 percent for non-operational deposits; and (iii) no changes in liquid assets weights • Wholesale scenario key assumptions are: (i) 5 percent run-off rates for stable retail deposits and 15 percent for less stable retail; (ii) 15-35 percent for operational deposits and 30-50 percent for non-operational deposits; and ((iii) no changes in liquid assets weights • Combined run-off and price shock scenario key assumptions are: (i) 10 percent run-off rates for stable retail deposits and 20 percent for less stable retail; (ii) 15-35 percent for operational deposits and 30-50 percent for non-operational deposits; and ((iii) liquid assets weights reduction of 0-5 percent for level 1 assets, 3-20 for level 1 covered bonds, 5-15 percent for level 2A assets and 5-25 for level 2B assets • The liquidity shocks will be simulated for 1–month for both LCR, and 5 days, 1 month, 3 months and 1 year for cash-flow based approach. • The haircuts of high-quality liquid assets (HQLA) are calibrated against ECB haircuts, past Euro Area FSAPs, and market shock for investment securities and money market instruments in the solvency stress test.
5. Regulatory and Market-Based Standards and Parameters	Regulatory standards	• Consistent with Basel III regulatory framework (LCR). • Liquidity shortfall by bank.

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Banking Sector: Liquidity Stress Test		
Top-down by IMF		
6. Reporting Format for Results	Output presentation	• Liquidity ratio or shortfall by groups of banks and aggregated (system wide). • Number of banks that still can meet or fail their obligations.
Bank and Non-bank Sector: Contagion Analysis		
Top-down by IMF		
1. Institutional Perimeter	Exercise	• Top-Down by FSAP team.
	Institutions included	• Domestic interbank contagion: 12 banks subcategorized as Sis (7 banks) and LSIs (5 banks). Among the total, 5 are domestically focused retail banks and 7 are internationally oriented banks which are subsidiaries of foreign parents. • Cross-border contagion: country-pair bilateral exposure across Ireland, rest of Euro Area countries, U.K., and US. • Cross-sectoral contagion: entity specific bilateral exposure across Irish banks and top 10 nonbank financial institutions (NBFIs) in terms of exposure size, drawing from sample including but not limited to, financial vehicle corporations (FVCs) and special purpose vehicles (SPVs), other financial service companies, as well as investment fund, pension and insurance companies.
	Market share	• Total coverage is about 80 percent of the banking sector, with 73 percent for SIs and 7 percent for LSIs.
	Data and baseline date	• Latest data: Supervisory as of June 2021 (and to the extent possible December 2021) • BIS consolidated banking statistics
2. Channels of Risk Propagation	Methodology	• Balance-sheet model: Interbank and cross-border network model by Espinosa-Vega and Solé (2010).
3. Tail shocks	Size of the shock	• Pure contagion: hypothetical default of institutions. • Default threshold: banks would default if their total CET1 ratios falling below 4.5 percent.
4. Reporting Format for Results	Output presentation	• Capital shortfall systemwide, by bank and by group: contagion and vulnerability scores. • Direction and size of spillovers within the network.
Banking Sector: Climate Risk Analysis		
Top-down by IMF		
5. Institutional Perimeter	Exercise	• Top-Down by FSAP team.
	Institutions included	• 12 banks subcategorized as SIs (7 banks) and LSIs (5 banks). Among the total, 5 are domestically focused retail banks and 7 are internationally oriented banks which are subsidiaries of foreign parents.
	Market share	• Total coverage is about 80 percent of the banking sector, with 73 percent for SIs and 7 percent for LSIs.

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Banking Sector: Climate Risk Analysis		
Top-down by IMF		
	Data and baseline date	• Supervisory data as of June 2021. • Public data from 2003 to 2020 from capital IQ, Moody's Analytics and Eurostat.
6. Channels of Risk Propagation	Methodology	• Transition risk: single factor sensitivity analysis to assess the near-term impact on corporate credit quality from a rising carbon tax. The analysis will allow for a sectoral level differentiation. Bank credit impairment are generated by applying changes in sectoral PDs from entire firm sample to bank corporate loan PDs. Market losses from bank holdings of mark-to-market (MTM) debt securities are estimated using a duration approach while replying on estimated PDs and Merton theory. • Physical risk: scenario-based analysis simulating the macroeconomic impact of a severe flooding event, which is translated into bank losses through credit, market, and interest rate risk channel.
7. Risks and Buffers	Risks	• Transition risk • Physical risk
	Firm behavioral response	• Firms are allowed to pass through partial or full cost of carbon tax to consumers through increase in prices. Corresponding drop in demand is incorporated based on pre-determined price elasticity.
8. Tail shocks	Size of the shock	• Increase of carbon tax from €33.50 to €100 per ton, based on CBI national targets and NGFS scenarios. Impact was assessed from 1-year to 5-year horizon, assuming shock materializes immediately in the first year.
9. Regulatory and Market-Based Standards and Parameters	Regulatory standards	• No capital thresholds are applied.
10. Reporting Format for Results	Output presentation	• Change in corporate PDs by sector with and without firm behavioral response from 1-year to 5-year horizon. • Bank credit impairment by sectors due to shock on PDs on corporate loan, from 1-year to 5-year horizon. • Bank market losses on holdings of debt securities due to shock on credit spread induced from corporate PDs, from 1-year to 5-year horizon. • Bank capital ratio impact from 1-year to 5-year horizon.

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Appendix IV. Insurance Sector Stress Testing Matrix (STeM)

Insurance Sector: Solvency Risk		
Top-Down by IMF		
1. Institutional perimeter	Institutions included	• 10 life insurers: Aviva Life & Pensions Ireland DAC, AXA MPS Financial DAC, Darta Saving Life Assurance dac, Intesa SanPaolo Life dac, Irish Life Assurance Plc, Metlife Europe d.a.c., New Ireland Assurance, Standard Life International, Utmost PanEurope dac, Zurich Life Assurance plc • 8 non-life insurers: Allianz Plc, Aviva Insurance Ireland, AXA Insurance DAC, AXIS Specialty Europe SE, FBD Insurance Plc, RSA Insurance Ireland dac, XL Insurance Company SE, Zurich Insurance plc • 7 reinsurers: Allianz Re Dublin, Hannover Re (Ireland) DAC, Partner Reinsurance Europe SE, RGA International Reinsurance, SCOR Global Life Reinsurance Ireland dac, SCOR Life Ireland Designated Activity Company, XL Re Europe SE
	Market share	• Life: >70 percent (gross premiums written, total and domestic business) • Non-life: >70 percent (gross premiums written, total and domestic business) • Reinsurance: >70 percent (gross premiums written, total and domestic business)
	Consolidation	• Solo-entity level
	Data	• Regulatory reporting
	Reference date	• June 30, 2021
2. Channels of risk propagation	Methodology	• Investment assets: market value changes after price shocks, affecting the solvency position • Insurance liabilities: impact on value of the best estimate by changing discount rate of future cash flows, proportionate change for the risk margin • Recalculation of required capital after stress: approximated by the Solvency II standard formula also for internal model users
	Time horizon	• Instantaneous shock

3. Tail shocks	Scenario analysis	• Adverse scenario (in line with narrative severity of the banking sector stress test):
		  • risk-free interest rates (without volatility adjustment) -17 bps (1yr EUR), -49 bps (10yr EUR); -17 bps (1yr USD), -48 bps (10yr USD); -17 bps (1yr GBP), -49 bps (10yr GBP).
		  • sovereign bond spread +160 bps (domestic), +25 bps for other low-yield advanced economies, up to +180 bps for emerging and developing economies.
		  • stock prices -58.0 percent (domestic), -18.0 percent (Euro Area and United States), -20.0 percent (other advanced economies), -35.0 percent (emerging and developing economies).

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Insurance Sector: Solvency Risk		
Top-Down by IMF		
		• property prices -19.9 percent (domestic, residential), -34.1 percent (domestic, commercial), -5.0 percent (foreign, residential), -18.0 percent (foreign, commercial). • corporate bond spreads between +60 bps (AAA, non-financials) and +420 bps (CCC and lower, non-financials), and between +75 bps (AAA, financials) and +450 bps (CCC and lower, financials). • Rating downgrades of one category (3 notches) for one third of the corporate bond portfolio • EUR external value: -11.8 percent
	Sensitivity analyses	• Risk-free interest rates +/-100 bps (all currencies) • EUR external value +/-10 percent • Stock prices -40 percent • Default of largest banking counterparty
4. Risks and buffers	Risks/factors assessed	• Market risks: interest rates, share prices, property prices, credit spreads, currency • Credit risks: default of largest financial counterparty • Summation of risks, no diversification effects
	Buffers	• Solvency II long-term guarantee measures and transitionals: • Volatility Adjustment (VA) • Unit-linked life insurance: Investment losses borne by policyholders
	Behavioral adjustments	• None
5. Regulatory/accounting standards		• Solvency II • National GAAP
6. Reporting format for results	Output presentation	• Impact on valuation of assets and liabilities • Impact on solvency ratios (including and excluding the effect of long-term guarantee measures and transitionals) • Contribution of individual shocks to changes of eligible own funds • Dispersion measures of solvency ratios • Capital shortfall and possible de-risking of investment assets to re-establish a full coverage of solvency requirements

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Insurance Sector: Liquidity Risk			
		Bottom-up by CBI	**Top-down by IMF**
1. Institutional perimeter	Institutions included	• 10 insurers: Allianz Global Life, Amtrust International Underwriters, Hannover Re (Ireland) DAC, Intesa SanPaolo Life dac, Metlife Europe d.a.c., Partner Reinsurance Europe SE, RGA International Reinsurance, Utmost PanEurope dac, XL Insurance Company SE, Zurich Insurance plc	• 10 life insurers, 8 non-life insurers, 7 reinsurers: As for the solvency ST
	Market share	• Life: 20 percent (gross premiums written) • Non-life: 45 percent (gross premiums written)	• >70 percent (gross premiums written, total and domestic business)
	Data	• Regulatory reporting	• Regulatory reporting
	Reference date	• December 31, 2020	• June 30, 2021
2. Channels of risk propagation	Methodology	• Stock/flow assessment of liquidity sources and liquidity needs • Shock to cash flows, based on EIOPA's 2021 adverse scenario (market and insurance risks) • Reduction in the value of liquid assets, based on EIOPA's 2021 adverse scenario (market shocks)	• Revaluation of derivative positions after interest rate shock
	Time horizon	• 90 days	• Instantaneous (1 day, 5 days)
3. Tail shocks	Scenario analysis	• EIOPA 2021 adverse scenario	• None
	Sensitivity analysis	• None	• Parallel shift of the interest rate term structure (for all currencies): +25 bps, +50 bps, +100 bps
4. Risks and buffers	Risks/factors assessed	• Liquidity risk: Shock to market value of assets, mass lapse shock, mortality shock, pandemic morbidity shock and increase of non-life cost of claims, shock to reinsurance inflows, reduction in written premiums	• Liquidity risk: Margin calls for interest rate swaps
	Buffers	• None	• None
	Behavioral adjustments	• None	• None
5. Regulatory/accounting standards		• Solvency II • National GAAP	• Solvency II • National GAAP
6. Reporting format for results	Output presentation	• "Sustainability indicator": Net flows divided by liquid assets	• Total amount of variation margin calls • Variation margin as percent of cash holdings • Variation margin as percent of high-quality liquid assets

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Appendix V. Investment Fund Liquidity Stress Testing Matrix (STeM)

Domain		Framework
1. Institutional perimeter	Institutions included	• Fixed-income bond funds
	Market share	• Varies by type of fund
	Data and baseline date	• Portfolio reporting date: Jan 1, 2021 or later • Data: Morningstar
2. Channels of risk propagation	Methodology	• Various levels of redemptions shock compared level of highly liquid assets at the fund level • Redemption shocks calculated based on historical data on redemptions using VaR and Expected Shortfall methodologies with multiple thresholds
	Stress test horizon	• Monthly data frequency, instantaneous shocks
3. Tail shocks	Scenario analysis	• Pure redemption shock: severe outflows based on historical distribution
4. Risks and buffers	Positions/risk factors assessed	Risks • Liquidity risk: severe redemption shock Buffers • Level of highly liquid assets
5. Reporting format for results	Output presentation	• Number of funds with a redemption coverage ratio (ratio of highly liquid assets to redemptions) below one • Liquidity shortfall amount for individual funds after redemptions

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