



SWEDEN

FINANCIAL SECTOR ASSESSMENT PROGRAM

April 2023

TECHNICAL NOTE ON SUPERVISION AND DISCLOSURE OF CLIMATE-RELATED RISKS

This Technical Note on Supervision and Disclosure of Climate-Related Risks for the Sweden FSAP 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 March 17, 2023.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
PO Box 92780 • Washington, D.C. 20090
Telephone: (202) 623-7430 • Fax: (202) 623-7201
E-mail: publications@imf.org Web: <http://www.imf.org>
Price: \$18.00 per printed copy

International Monetary Fund
Washington, D.C.



SWEDEN

FINANCIAL SECTOR ASSESSMENT PROGRAM

March 17, 2023

TECHNICAL NOTE

SUPERVISION AND DISCLOSURE OF CLIMATE-RELATED RISKS

Prepared By
**Monetary and Capital Markets
Department**

This Technical Note was prepared by Leonard Chumo (MCM) in the context of the Financial Sector Assessment Program in Sweden, led by Tommaso Mancini Griffoli. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at <http://www.imf.org/external/np/fsap/fssa.aspx>

CONTENTS

Glossary	4
EXECUTIVE SUMMARY	5
INTRODUCTION	9
CLIMATE CHANGE AND RESPONSE BY THE AUTHORITIES	10
A. Vulnerabilities of Sweden to the Effects of Climate Change	10
B. Government Initiatives to Address Climate Change	13
C. Supervisory Initiatives in Sweden	15
VULNERABILITY OF BANKS IN SWEDEN TO CLIMATE-RELATED RISKS	17
A. Physical Risk	17
B. Transition Risks	19
REGULATORY AND SUPERVISORY RESPONSES	23
A. Supervisory Responsibilities, Powers, and Functions	23
B. Supervisory Resources and Capacity	24
C. Supervisory Approach, Tools, and Technique	25
D. Supervisory Expectation on Management of Climate-Related Risks	29
E. Management of Climate-Related Risk by Banks	30
REPORTING AND DISCLOSURES REQUIREMENTS	34
A. Application of TCFD Recommendations by Banks in Sweden	35
B. EU Taxonomy Regulation	36
C. Relevant EU Directives and EBA Standards	36
COLLABORATION AND INFORMATION SHARING AGREEMENTS	39
BOXES	
1. Carbon Taxes in Sweden	14
2. Use of PACTA Tool to Assess Transition Risks in Swedish Banks	22
3. Measurement of Climate Risks by Swedish Financial Firms	30
FIGURES	
1. Risk of Flooding and Storm in Sweden	11
2. Historical and Projected Temperature in Sweden	12
3. Carbon Emission and Some of the Drivers	15
4. Impact of Physical Risks on Performance of a Banks	18
5. Impact of Transition Risks on Performance of a Banks	19
6. Summary of Steps in PACTA Analysis	21
7. Overview of Sustainability Related Initiatives by FI and Riksbank	23
8. EU Disclosure Requirements	35

TABLES

1. 2022 FSAP—Key Recommendations on Supervision of Climate-Related Risk	7
2. High-Level Benchmarking Against Basel Principles for Effective Management and Supervision of Climate Related Financial Risks	31
3. Mapping of the NFRD Requirement and TCFD Recommended Disclosures	37

APPENDICES

I. Overview of Swedish Laws, Programs, and Action Plans Related to Climate Change	41
II. Summary of ESG Disclosures Under Pillar 3	44

Glossary

BCBS	Basel Committee on Banking Supervision
BTAR	Banking Book Taxonomy Alignment Ratio
CCA	Climate Change Adaptation
CCM	Climate Change Mitigation
CO ₂	Carbon Dioxide
CRE	Commercial Real Estate
CSRD	Corporate Sustainability Reporting Directive
EBA	European Banking Authority
EIOPA	European Insurance and Occupational Pensions Authority
ESG	Environmental, Social and Governance
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
ETS	Emission Trading System
EU	European Union
FI	Finansinspektionen
FSAP	Financial Stability Assessment Program
FSB	Financial Stability Board
GAR	Green Asset Ratio
GDP	Gross Domestic Product
GHG	Greenhouse Gases
IEA	International Energy Agency
IOSCO	International Organization of Securities Commissions
IPCC	United Nations Intergovernmental Panel on Climate Change
KRI	Key Risk Indicator
LTV	Loan-to-Value
NDC	Nationally Determined Contribution
NFRD	Non-Financial Reporting Directive
NGFS	Central Banks and Regulators Network for Greening the Financial System
OECD	Organisation for Economic Co-operation and Development
PACTA	The Paris Agreement Capital Transition Assessment
QRR	Quarterly Risk Review
RCP	Representative Concentration Pathway Scenarios
SCB	Statistics Sweden
SDG	Sustainable Development Goals
SEK	Swedish Krona
SFDR	Sustainable Finance Disclosure Regulation
SREP	Supervisory Review and Evaluation Process
TCFD	Task Force on Climate-related Financial Disclosures
TFCR	Task Force on Climate-Related Financial Risks
TSC	Technical Screening Criteria
UNPRI	UN Principles for Responsible Investment
SFSA	Swedish Financial Services Authority
SMHI	Swedish Meteorological and Hydrological Institute

EXECUTIVE SUMMARY

Swedish banks are in general mainly exposed to the effects of climate change through loans that are collateralized by real estate properties and lending to high-emission industries.

Sweden is prone to the natural hazards such as floods, storms, landslides and wildfires, which if they were to occur, could negatively influence the value of real estate collaterals for bank loans. These developments could result in increased credit risk, decline in market valuation of investments due to perception of heightened risk, and operational losses, owing to damage to physical assets and outages. Generally, while there is a risk of losses to Swedish banks due to physical risk events, the aggregate risk is currently limited. Swedish banks, through their lending activities, are also exposed to companies in high emission industries and to the real estate sector which could be adversely impacted by changes in government policies, legislation and regulation, technology and consumer behavior in response to climate change¹. This could accelerate the transition towards a low-carbon economy resulting in increased risk to the banking system. The exposure across banks however varies due to differences in their business models.

Similar to other jurisdictions, integration of climate-related risks into supervisory processes in Sweden has been hindered by lack of data, harmonized methodologies, and international standards or guidelines.

This is particularly the case given that climate risk is very unique and new to most bank supervisors and financial institutions, and extensive collaboration and coordinated effort is therefore required at domestic and international level to: (i) improve availability of reliable, consistent and comparable data for assessment of these risks, (ii) develop new methodologies and tools to capture the unique features of climate-related risks, (iii) enhance regulatory reporting and disclosure requirements, and (iv) develop and promote the implementation of international standards on supervision of these risks. To partly address these challenges, the Basel Committee has published its principles on the effective management and supervision of climate-related risks². There are also ongoing efforts at international level to address data gaps and disclosure requirements, and to facilitate experience sharing between supervisory authorities on emerging practices.

Despite the challenges, Finansinspektionen (FI) has undertaken a number of positive initiatives aimed at integrating climate-related risks and the wider sustainability issues into its supervisory processes.

This includes amongst others setting up a Sustainability Committee to ensure a consistent view across the organisation on sustainability-related issues and to facilitate collaboration and experience-sharing across the supervisory sections (i.e., banking, insurance and financial markets). FI has also set up a dedicated sustainability department headed by FI's Head of Sustainable Finance, which is responsible for driving sustainability related analysis and policy work and developing the relevant regulations and supervisory processes. In addition, it has also: (i) established an internal action plan aimed at integrating climate related perspective into supervisory

¹ This includes regulatory initiatives such as energy efficiency standards.

² See Table 2 for a high-level benchmarking of current supervisory practice in Sweden against Basel principles.

activities and at developing the appropriate risk assessment tools (e.g., assessment methodologies within the SREP which are in place for two risk types since 2021), and (ii) carried out a number of surveys aimed at assessing practices in financial institutions on integration of sustainability and climate-related risks into credit granting process, corporate governance and disclosures. The Riksbank (Swedish Central Bank), on its part, has also analyzed the exposure of Swedish banking system to firms that may be affected by climate related risks particularly transition risks, and rising sea levels due to global warming³. It has also done a pilot study on stress test of climate risks. Jointly, FI and the Riksbank have also analyzed transition risk in banks' corporate portfolios⁴.

There are however still some gaps that need to be gradually addressed by FI to ensure full integration of climate-related risks into supervisory processes. This includes: (i) the lack of specific requirement for banks to report on their exposure to climate-related risks as part of the supervisory reporting process, (ii) the limited scope of assessment of impact of climate-related risks to the Swedish banking system which does not capture some exposure which are potentially vulnerable to transition risks, e.g., exposure to the real estate sector, and some physical risk, e.g., storms, drought, wild fire etc, (iii) lack of regulation or supervisory guidelines setting specific expectation for banks on management of climate-related financial risk, and (iv) some gaps in the integration of climate-related risks into the Supervisory Review and Evaluation Process (SREP), which is currently limited to credit risk and Business Model Analysis (BMA) and have not yet had an impact on the risk rating of an institution.

The specific action to further integrate climate into the supervisory process should be prioritized based on the vulnerability of the Swedish banks and progress at international level in addressing the challenges that are not unique to Sweden. The specific action should include: (i) enhancement of supervisory reporting by banks on their exposures, (ii) the development of an offsite monitoring system to facilitate the tracking of banks' exposures to climate-related risks and to inform the supervisory activities, (iii) promotion of effective implementation of international standards and best practices on management, supervision and disclosure of climate-related risks, (iv) development of complementary risk assessment tools and methodologies including climate stress tests and scenario analysis that capture all exposures and risks, (v) ongoing development of internal capacity of supervision, particularly on the more technical areas such as climate stress testing, which is key given the emerging supervisory standards and rapid evolution in industry practice, and (vi) increasing engagement with financial institutions on climate-related risks and wider sustainability issues. The enhanced supervisory approach should also be implemented in a proportional manner taking into account other vulnerabilities to the banking sector. FI should also continue to collaborate with the Riksbank on the assessment of the vulnerability of the Swedish banking system to climate-related risks and on scenario analysis given the Riksbank's analytical capabilities.

³ Rising sea levels means that some of today's shore areas in Sweden will eventually end up under water.

⁴ [Transition risks in the banks' loan portfolios – an application of PACTA, April 2022.](#)

FI should also in a proportional manner formalize and expand its collaboration and information sharing arrangements with other Swedish Agencies involved in climate-related work. This includes: The Swedish Environmental Protection Agency, Swedish Meteorological and Hydrological Institute (SMHI), The Swedish Civil Contingency Agency, The Swedish Climate Policy Council and the Swedish National Expert Council for Climate Adaptation. The aim should be to, amongst others, enhance FI's capacity to effectively identify and supervise climate-related risks including on development of stress test scenarios and capabilities. This is particularly important given the scarcity of individuals in the financial sector with the required skills and experience on climate change and related risks.

Table 1. Sweden: 2022 FSAP—Key Recommendations on Supervision of Climate-Related Risk

	Recommendation	Responsible Authorities	Priority¹
	Assessment of vulnerability of banks to climate-related risks		
1	Develop additional tools and methodologies for assessment of banks' exposure to climate-related risks, including climate stress tests, to complement the current approaches which includes the use of the Paris Agreement Capital Transition Assessment (PACTA) methodology. ²	FI and Riksbank	NT
2	Expand the scope of assessment of exposure to transition risks to include all the material exposures. For example, transition risk due to exposure to the real estate sector and impact of other physical risk events besides floods (such as storms, droughts etc) on the banks' portfolios and operations, if material.	FI and Riksbank	NT
	Regulatory and supervisory response to climate-related risks		
3	Enhance technical capacity of bank supervisors to effectively identify, assess and supervise climate-related risks in view of the emerging standards, new assessment methodologies, and evolving supervisory practices.	FI	NT
4	Implement tools for offsite monitoring of banks' exposure to climate-related risks to help inform supervisory activities. For example, Key Risk Indicators (KRIs), dashboards, heatmaps, risk matrix etc.	FI	NT
5	Deepen the integration of climate-related risks into ongoing supervisory activities including SREP, supervisory stress testing, thematic reviews etc in a gradual and proportional manner, and align supervisory practices with expectation of Basel principles.	FI	MT
	Supervisory expectation on management of climate-related risks		
6	Promote and monitor implementation of international standards on effective management and disclosure of climate-related risks by Swedish banks.	FI	NT

Table 1. Sweden: 2022 FSAP—Key Recommendations on Supervision of Climate-Related Risk (concluded)

Supervisory reporting and disclosure of climate-related risks			
7	Improve collection and availability of reliable, granular, consistent and comparable climate-related data to facilitate ongoing monitoring and assessment of climate-related risks.	FI	NT
8	Require mandatory disclosure of climate-related risks by banks in line with international standards.	FI	NT
9	Formalize information sharing arrangement between FI and other Swedish government agencies and stakeholders on climate-related information in a proportional manner. ³	FI	NT/MT
<p>¹ I = immediate (within one year); NT = near term (within 1-2 years); MT = medium term (within 3-5 years).</p> <p>² FI can leverage on Riksbank's resources and expertise in the development of assessment methodologies of banks' exposure to climate-related risks including climate stress testing.</p> <p>³ This include collaboration with The Swedish Environmental Protection Agency, The Swedish Meteorological and Hydrological Institute, The Swedish Civil Contingency Agency, The Swedish Climate Policy Council, and the Swedish National Expert Council for Climate Adaptation.</p>			

INTRODUCTION

1. Supervisory authorities across the world are currently working to integrate climate-related risks into their prudential frameworks. This includes ensuring that risks due to climate change and transition to a low carbon economy, are appropriately taken into consideration in their regulatory and supervisory processes, as well as risk management processes of financial institutions. The increase in awareness of the financial stability risks associated with climate change and transition to a low-carbon economy has particularly brought climate-related risks into the forefront of the agenda for financial institutions, central banks and other financial sector regulators. However, progress in the integration of climate-related risks into prudential frameworks and risk management practices of financial institutions has been generally hampered by data gaps, resource constraints, lack of harmonised methodologies and risk metrics, and lack of broadly agreed international standards on climate-related risks.⁵

2. This technical note provides an analysis of the review of approach to supervision and disclosure of climate-related risks in Swedish banks that was conducted in June 2022. The analysis is based on a review of the relevant legislation, outcome of surveys that have been conducted by FI, research carried out by Riksbank, FI's internal supervisory methodologies, national climate strategy and policy framework, as well as the authorities' responses to the questionnaire prior to the mission. Extensive discussions with authorities, government agencies with mandate over environmental issues, and the largest banks in Sweden also informed this note.⁶ While FI has set up the necessary organisational structure to facilitate the integration of climate-related risks into the supervisor process, which includes a Sustainability Committee and a dedicated Sustainability Department, progress has largely been hindered by data gaps, methodological limitations and limited guidance from the standard setting bodies and the European Banking Authority (EBA).

3. The note is aimed at strengthening the integration of climate-related risks into the supervisory process for banks in Sweden while taking into account emerging international standards and materiality of climate risk in Sweden. The note is not a formal or detailed assessment of compliance with any specific standard assessment framework. The analysis has however, to a large extent, taken into account the broad expectation of: (i) Basel Core Principles for Effective Banking Supervision (BCP; updated in September 2012 by the Basel Committee on Banking Supervision), and (ii) Basel principles for effective management and supervision of climate-related financial risks (published on 15 June 2022). This note has identified some gaps in the current approach and made recommendations aimed at addressing the specific challenges, and at embedding climate-related risks into supervisory activities in a proportional manner.

⁵ Basel Committee issued its principles on effective management and supervision of climate-related financial risks on 15 June 2022.

⁶ The mission team also met with The Swedish Environmental Protection Agency, The Swedish Meteorological and Hydrological Institute, Ministry of Environment, Ministry of Finance, The Climate Council.

4. The standards and best practices in supervision of climate-related financial risks are just emerging and have not been fully embedded within supervisory authorities, including in Sweden. There is also currently no formally agreed methodology for assessment of integration of climate-related risks into prudential frameworks, and financial institutions have yet to fully integrate these risks into their risk management frameworks due to, amongst others, lack of supervisory guidelines setting specific expectations. The mission however noted that progress had been made by FI particularly as it relates to establishment of governance structures and assignment of resources to coordinate work on climate and on the wider sustainability agenda. There has also been a number of stock taking exercises by FI, which has pointed towards gradual improvement in: (i) awareness of the potential impact of climate-related risks by financial institutions, and (ii) banks processes aimed at integrating the broader sustainability risks into credit granting processes, governance arrangements and overall risk management frameworks.

5. To address the risk and impact of climate change, the Swedish government has implemented a long-term strategy for reducing greenhouse gas (GHGs) emissions, a climate policy framework and a national strategy for climate change adaptation. The Swedish government has also adopted the United Nations (UN) 2030 Agenda for Sustainable Development (“2030 Agenda”), which includes climate goals. The strategy for reducing emission of GHGs sets out emission targets and measures that will drive climate transition in line with the goals of the Paris Agreement. The Climate Policy, which was adopted by the Swedish parliament in 2017 with a broad majority of the political parties, is also a key component of Sweden’s effort to comply with Paris Agreement and is aimed at creating a clear and coherent climate policy that ensures stability and at providing long-term signals to the market and other actors. The national strategy for climate change adaptation, on the other hand, includes Sweden’s climate adaptation goals and guiding principles, distribution of responsibilities for taking preventive adaptation measures, monitoring and evaluation of climate change adaptation work and capacity building initiatives.

CLIMATE CHANGE AND RESPONSE BY THE AUTHORITIES

6. This section provides an overview of the vulnerability of Sweden to the effects of climate change and the response by the authorities.

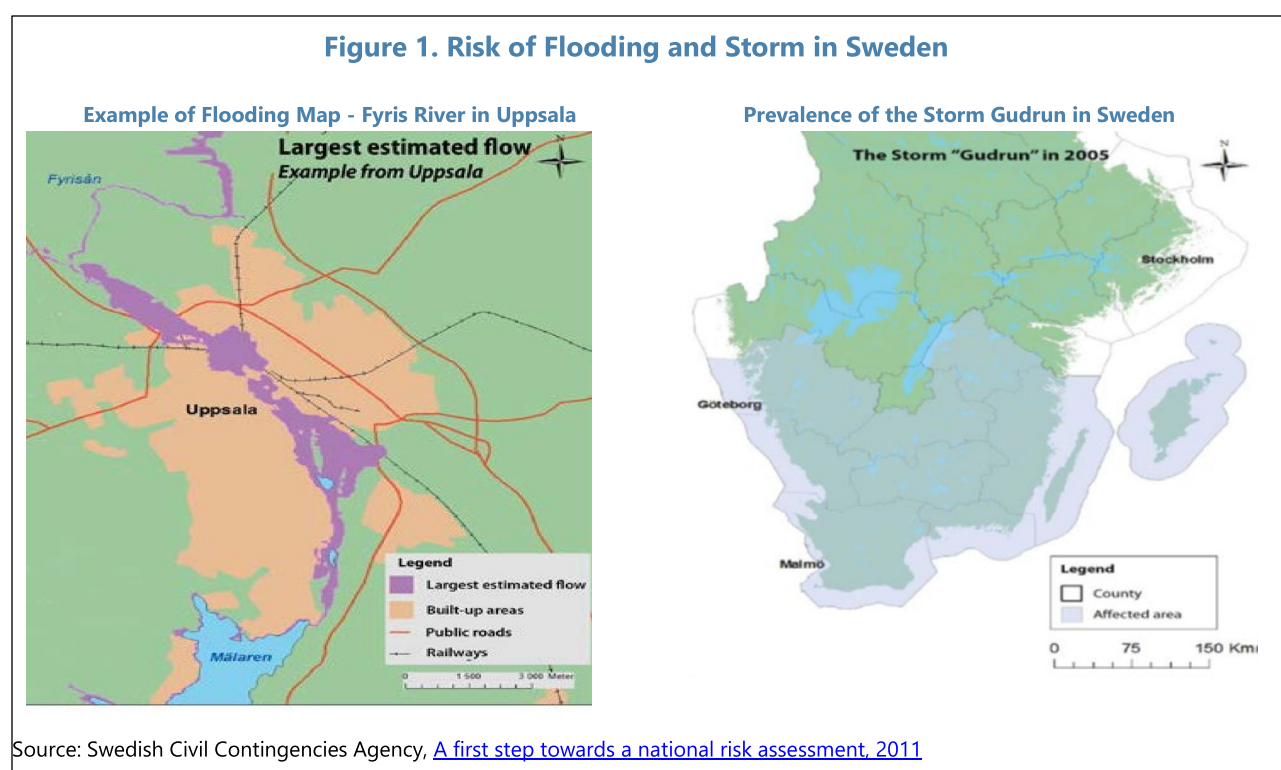
A. Vulnerabilities of Sweden to the Effects of Climate Change

7. Several major floods have affected Sweden in recent years and the frequency of floods is expected to increase due to the effects of climate change. On average, Sweden is hit by a large flood once every five years and the flood usually coincides with the melting away of snow, which can be worsened if combined with rain (Figure 1 below shows flooding map for Fyris River in Uppsala).⁷ There is also an expectation that hundred-year floods, as well as smaller floods with shorter return

⁷ [Swedish Civil Contingencies Agency, A first step towards a national risk assessment.](#)

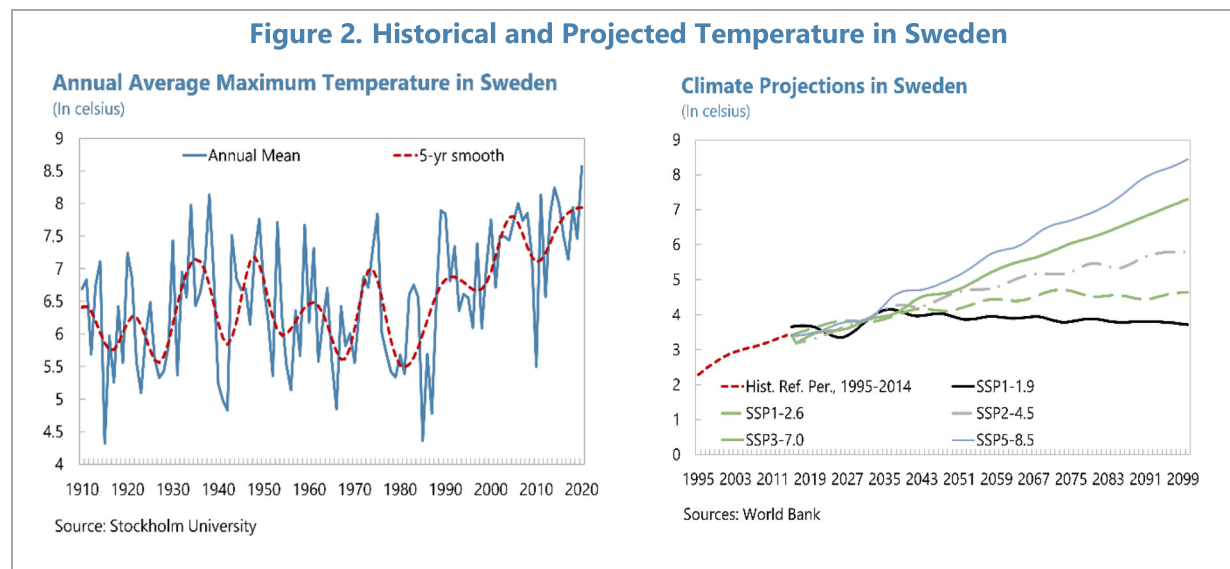
frequencies, will have a reduced return frequency in some parts of Sweden. For example, in some areas, it is estimated that the hundred-year floods will have a return frequency of 20 years. The hundred-year floods in a changed climate will therefore be higher than at present in Sweden, which means that larger areas will be flooded impacting on housing areas, industries and the agricultural sector. This will potentially have implications on the performance of individual institutions and, in extreme cases, on financial stability in Sweden. For example, the value of real estate, which constitutes a large part of the banks' collateral volume, may be adversely affected if this is damaged by flooding.

8. Sweden is also exposed to the risk of strong storms, droughts and landslides. The worst storm to hit Sweden in modern times is Gudrun on 8-9 January 2005 which damaged 72-73 million cubic metres of forest and almost 30,000 kilometres of power grid, and also resulted in serious accessibility-related problems on the roads and railways (Figure 1 below shows prevalence of storm Gudrun). Sweden also experienced its largest landslide on 7 June 1957 which covered approximately 37 hectares of land and resulted in the halting of ship traffic in River Göta älv for a month. Further, in recent years, Sweden experienced notable dry summers in 1975, 1976, 1983, 1994 and 2018. The summer of 2018 particularly featured low level of precipitation across much of Sweden and resulted in a large number of wildfires (primarily forest fires).



9. The rising temperatures in Sweden increase both the frequency and intensity of weather-related natural disasters. The average temperature in Sweden has increased by around 2 degrees since the pre-industrial age, and the increase has been at an increasingly rapid pace. In particular, the trend since 1960 has a steeper slope as compared to the trend from the turn of the

last century⁸. The equivalent figure for the global average is 1 degree. The much higher increase in Sweden's average temperature is linked to the temperature increase in the Arctic. **Figure 2** below shows the historical and projected temperature in Sweden.



10. The Network for Greening the Financial System (NGFS) has calculated scenarios for Swedish GDP from both the integrated assessment models and the macro model. The analysis showed that the economic cost in terms of reduced GDP is lower in Sweden as compared to the global average. Specifically: (i) based on the integrated assessment model, the Swedish GDP is expected to broadly remain unchanged (around 0.2 percent lower than the baseline scenario in 2100) under the **Net Zero 2050** and **Delayed Transition** Scenarios, and to be around 1.3 percent lower than the baseline scenario under the **Current Policies** scenario, and (ii) there are slightly greater effects on GDP in macro model (NiGEM) than in the integrated assessment models.⁹ The small effect on Swedish GDP could be due to several factors including: (i) the sector most affected by climate change being relatively small in relation to GDP and the likelihood that will become even smaller in future, (ii) the expectation that the good sector will decline at the expense of the service sector, which is likely to be less sensitive to climate change, (iii) availability of effective transfer and insurance systems that can compensate sectors that are severely impacted in more developed economies. The calculations by NGFS however does not include the risk of tipping point, which could result in high costs for the economy if they were to occur.¹⁰

⁸ The objective of the Paris Agreement is to limit global warming to 1.5 – 2.0 degrees, which requires a major reduction in global carbon dioxide emissions.

⁹ In calculating the scenarios, physical and transition risks are taken into account. The macro model (NiGEM) was developed by the National Institute for Economic and Social Research to calculate scenarios of the economic consequences, and contains economic variables such as GDP and its components.

¹⁰ Emma Bylund and Magnus Jonsson, [An overview of the economic consequences of the NGFS climate scenarios](#), Riksbank, Economic Commentary, December 2021.

B. Government Initiatives to Address Climate Change

11. The Swedish government has established a national climate strategy with activities linked to mitigation and management of the impact of climate change. The strategy, which is part of Sweden's work under the Paris Agreement, sets out a number of environmental related goals including the limitation of the climate impact and ambitious emissions targets that are expected to drive climate transition in Sweden. As part of the strategy, Sweden aims to achieve net-zero emission of GHGs by 2045 at the latest and negative net emissions thereafter¹¹. The Swedish government has also adopted the United Nations (UN) 2030 Agenda for Sustainable Development ("2030 Agenda"), which includes climate goals. The activities related to 2030 Agenda are coordinated through the Director General Forum, whose members are the heads of relevant authorities in Sweden, including FI. Please see Appendix 1 for an overview of Swedish laws, programs and action plans related to climate change.

12. Sweden introduced a Climate Policy Framework in June 2017 which consists of a Climate Act, national climate goals and a Climate Policy Council. The Framework is aimed at creating order and stability in climate policy and is a key component of Sweden's effort to comply with the Paris Agreement. The Climate Act entered into force in 2018 and imposes an obligation on the government to pursue policy based on national climate goals and contains elements that ensure that the climate policy is planned and followed up. The Framework has also created a Climate Policy Council, which is an independent scientific council tasked with providing an independent evaluation of whether the Government policy is compatible with the national climate targets.

13. Sweden has introduced a number of policy measures, which include the EU-wide policy measures, to reduce the emissions of GHGs and help attain the national climate goals. The specific measures include: (i) economic instruments such as energy and carbon taxes (see Box 1 and Figure 3 below), emission trading and various grants and subsidies to low emission vehicles, (ii) administrative measures such as reduction obligations, the Planning and Building Act, the Environmental Code and requirements on carbon dioxide emissions from new vehicles, (iii) energy and climate advice, and (iv) support for research programmes and industrial investment grants programme. These broad instruments have been supplemented by targeted sectoral measures such as: transport-efficient society, sustainable renewable fuels, more efficient vehicles and electrification, carbon capture and storage, energy and material efficiency, shifts of processes etc. The emphasis has however been on the use of general economic instruments, such as a price on carbon, which in many cases are supplemented by targeted measures.

14. The long-term target for Sweden is to achieve zero net emission of GHGs into the atmosphere by 2045 at the latest and negative emissions thereafter. This is 5 years ahead of the target set under the Paris Agreement. The Swedish parliament has also decided on three milestone targets for 2020, 2030 and 2040 to limit cumulative emission and ensure a course that is feasible. In addition, energy policy targets addressing renewable energy and energy efficiency have also been

¹¹ [Sweden's long-term strategy for reducing greenhouse gas emissions, December 2020.](#)

set. The target is 100 percent renewable electricity by 2040 and for energy consumption to be 50 percent more efficient by 2030 as compared with 2005.

15. In March 2018, the government presented a Swedish national climate change adaptation strategy. The strategy includes Sweden's: (i) climate change adaptation objectives, (ii) guiding principles for working with climate change adaptation, (iii) organisation and distribution of responsibilities, (iv) monitoring, evaluation and revision, (v) financing principles for climate change adaptation measures, and (vi) knowledge enhancing initiatives and research. The strategy is aimed at strengthening climate change adaptation work and national coordination of this work in the long term and will be updated every five years¹². The Swedish National Expert Council for Climate Change Adaptation is tasked with evaluating climate change adaptation work in Sweden and is required to prepare a report for the government every five years containing: (i) recommended focus areas of the national climate change adaptation, (ii) prioritization of adaptation measures based on assessment of risk, cost and benefit, (iii) an overall analysis of the effect of climate change on society, and (iv) follow-up and evaluation of the national climate change adaptation work.¹³

Box 1. Carbon Taxes in Sweden

Sweden introduced a carbon tax, based on the fossil carbon content in the fuel in 1991 with the aim of reducing carbon emissions in sectors outside the European Union (EU) Emission Trading System (ETS)¹ and it has been a feature of climate policy in Sweden. The carbon tax is levied on all fossil fuels in proportion to their carbon content as carbon dioxide emissions released in burning any fossil fuels are proportional to the carbon content of the fuels. It is therefore not necessary to measure actual emissions, which greatly simplifies the system. Approximately 95 percent of Swedish fossil carbon emissions are covered by carbon tax or EU ETS.

The total tax has increased from a rate corresponding to Swedish krona (SEK) 250 per ton of fossil carbon dioxide emitted in 1991 to SEK 1,200 in 2022. The gradual and stepwise increase in the carbon tax rate has provided businesses and households with time to adapt and has also improved the political feasibility of the tax increases. In response to carbon pricing and past increases in fossil fuel prices, some energy-intensive industries in Sweden such as the pulp and paper have adjusted their production technologies, product mixes, and research and development (R&D) strategies.²

Due to the risk of carbon leakage including the possibility of operations and their emissions moving outside the country's borders, a reduced tax or tax exemptions apply in certain sectors. For example, there is reduced carbon tax on fuel for vehicles in the manufacturing of mineral products and trains or other rail-bound means of transport, and there is full exemption on fuel used in energy generation, industrial manufacturing and domestic and international air transport.

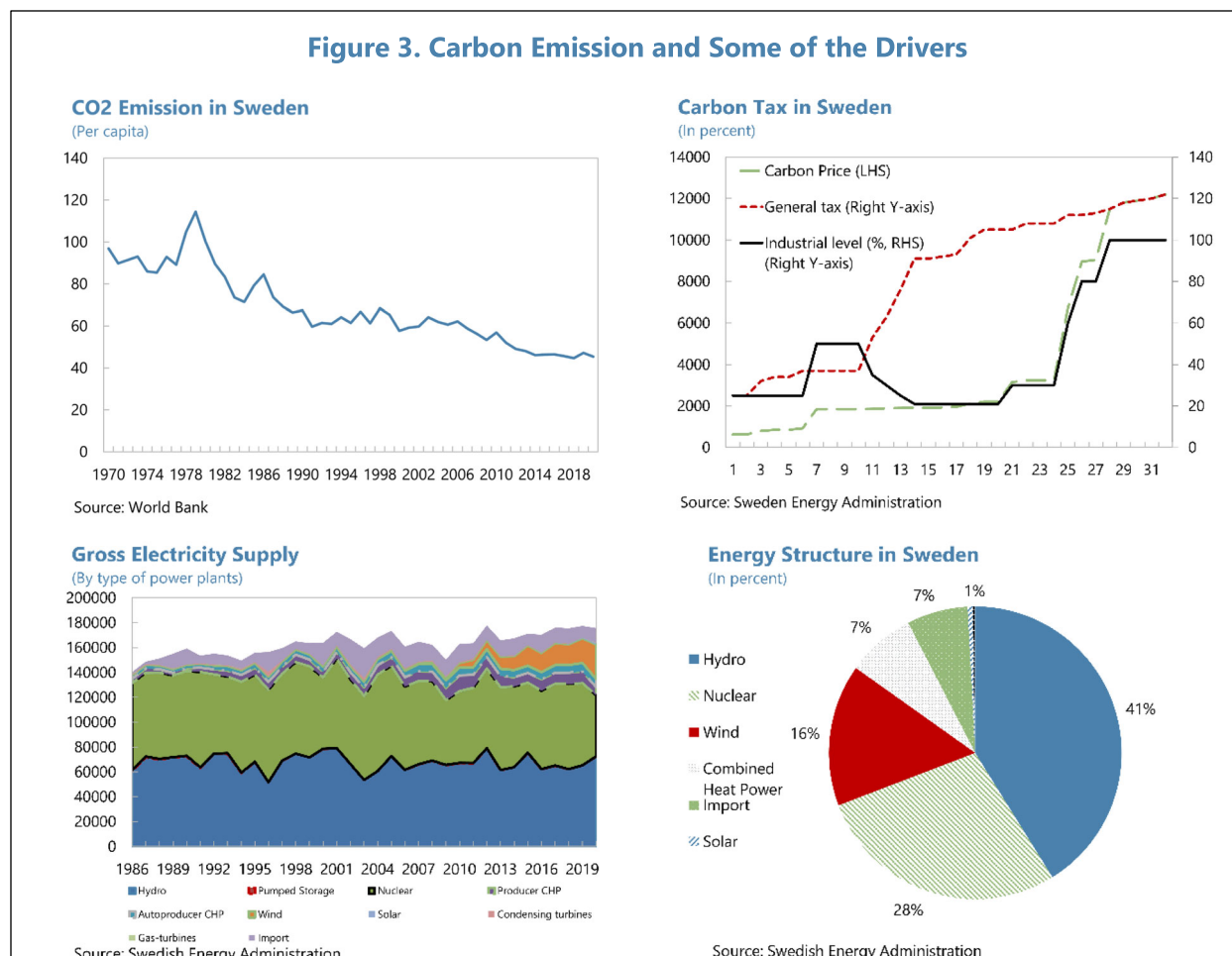
¹ The [EU ETS](#) was introduced in 2005 and has gradually been expanded to cover more sectors and GHGs. Approximately half of the emission rights are allocated free of charge and the rest are auctioned off.

² [Lindmark, M., Bergquist, A.-K. & Andersson, L.F., 2011. Energy transition, carbon dioxide reduction and output growth in the Swedish pulp and paper industry: 1973–2006. Energy Policy, 39\(9\), pp.5449– 5456.](#)

¹² National Strategy for Climate Change Adaptation.

¹³ The Swedish National Expert Council for Climate Change Adaptation consist of members who together have competence in areas including: physical planning, innovation, climatology, emergency preparedness, public administration and economics.

16. The policy measures introduced by the government have contributed to a gradual decline in emission per person in Sweden. This includes, amongst others, the extension of nuclear power in 1980s, which ensured that oil was replaced with fossil-free electricity, and the introduction of carbon tax at the beginning of the 1990s and its gradual increase (see Box 1 above). Figure 3 shows trends in carbon emission in Sweden and some of the key drivers.¹⁴



C. Supervisory Initiatives in Sweden

17. FI has been tasked with promoting a stable financial system that contributes to sustainable development and a high level of consumer protection. It therefore has to ensure that the financial system manages climate risks and contributes to the transition to net zero emission of GHGs (climate neutrality). In order to do this, financial institutions are expected to be able to identify activities which will be impacted by a green structural transformation and contribute to the required financing of the required transition to a low-carbon and sustainable economy. FI has clarified that it is not part of its mandate to raise or lower capital requirements for certain exposures for the sole purpose of promoting sustainable development. It can however require financial institutions to

¹⁴ The energy structure is based on data from 2020.

manage and consider relevant risks which means that they may be required to reduce their financing of activities that are not sustainable in the long run or to hold more capital to cushion against, climate risks¹⁵. FI has also been tasked to promote the financial system's contribution to sustainable development and is currently focusing its sustainability work on the climate. As suggested by international best practice, the mandate to promote sustainable development should remain subordinated to the financial stability mandate.

18. FI established a Sustainability Committee in 2020 to act as a bridge between its different parts that are involved in sustainability related work. The Committee is chaired by FI's Head of Sustainable Finance and consists of Deputy Directors of FI's supervisory sections (banking, insurance and financial markets) and the Economic Analysis Office¹⁶, as well as advisor to the Director General. As part of its 2022 annual plan, the Committee will focus on, amongst others: integration of ESG in supervision and licensing of financial institutions, development of an internal framework and strategy for FI's work on ESG-related issues, strengthening dialogue with industry organization and other stakeholders and implementation of new regulations. The other focus areas of the Committee include: (i) development of the relevant internal organizational structure, processes and steering documents, and (ii) how to address the two main ESG-related risks identified through FI's recent risk identification process, i.e., greenwashing and transition risk. The Riksbank has also established a Sustainability Committee to coordinate and develop work on the basis of its sustainability strategy.

19. FI has also set up a central sustainability department to coordinate the implementation of new regulations that are being introduced and the overall work with sustainability/ESG within FI. The focus for the Sustainability department for 2022 is on: greenwashing and transition risk in supervisory activities, strengthening dialogue with the industry and other stakeholders, continuing to integrate sustainability into supervision and authorization, and development of overall policy framework and strategy for sustainability¹⁷. In October 2021, FI also established a new role of Head of Sustainable Finance, which reports directly to the Director General.

20. FI and Riksbank made a public commitment in 2021 to continue integrating climate-related financial risks into the relevant parts of their activities The purpose of the commitment is to contribute to the global efforts presented by the NGFS in the Glasgow Declaration at the COP26 Climate Summit¹⁸. The Riksbank and FI specifically committed to: (i) continue to analyze the impact of climate-related risks on the financial system and its stability, (ii) be open and transparent and to share analyses, policy statements and research on climate-related topics, (iii) continue to contribute to international organisations and networks such as NGFS, Basel Committee on Banking Supervision (BCBS), EBA and European Systemic Risk Board (ESRB) and to collaborate with other central banks

¹⁵ [Finansinspektionen, Sustainability Report 2021 – the climate in focus.](#)

¹⁶ The Economic Analysis Office is responsible for analyzing the financial system vulnerabilities and resilience to different types of disruptions and for proposing measures to strengthen the financial stability.

¹⁷ The Sustainability Department expects to develop a road map on sustainability by the end of the year.

¹⁸ 26th United Nations Climate Change Conference.

and supervisors, and (iv) to continue to engage with the aim of improving the global consistency, comparability and reliability of sustainability reporting¹⁹.

21. In 2020, FI established an Action Plan aimed at incorporating climate-related risks into the supervisory processes. The in-house Action Plan encompasses: (i) integration of climate related perspectives into ongoing supervision of already established risk types, (ii) encouraging integration of climate-related risks by supervised entities into their risk identification, measurement and management processes, and (iii) development of tools for the measurement of climate-related financial risks in the financial sector, and (iv) improvement in disclosure of ESG risks by supervised entities as well as corporates. The Riksbank, on its part, has developed a sustainability strategy, which sets out its plans to: (i) contribute to the regulation of the financial system so as to reduce risks due to climate change, and (ii) analyze the impact of climate change and developments in sustainability on the Swedish economy and how best it can carry out its policy tasks.²⁰ Riksbank is also expected to support and contribute to research on the effect of climate change on the economy.²¹

VULNERABILITY OF BANKS IN SWEDEN TO CLIMATE-RELATED RISKS

22. This section discusses the vulnerability of Swedish banks to physical and transitional climate-related risks based on the analysis that has been undertaken by the authorities and the financial sector. Generally, while there is a risk of losses to banks due to physical risk events such as flooding, storms and landslides the aggregate risk is currently limited. The assessment of vulnerability of Swedish banks to transition risks has however been hindered by data and methodological limitations and more work is needed to fully understand its impact on Swedish financial institutions and the financial system.

A. Physical Risk

23. Severe physical risk events such as floods and storm can have an adverse impact on financial stability. Physical risk events can damage real estate collateral for banks resulting in increased credit risk. For example, flooding can affect the value of houses used as collateral resulting in increase in borrowers' loan-to-value ratio and Loss Given Default (LGD) and consequently the Expected Credit Losses (ECL).²² Depending on severity, this could have a negative impact on financial stability. Damage to assets and a perception of increase in risk by market participants can also result in decline in assets prices, causing investment and trading losses for financial institutions. Further, natural hazards can result in operational losses due to damage to physical assets such as buildings and could also result in reputational damage due to inability to offer services to clients. Figure 4

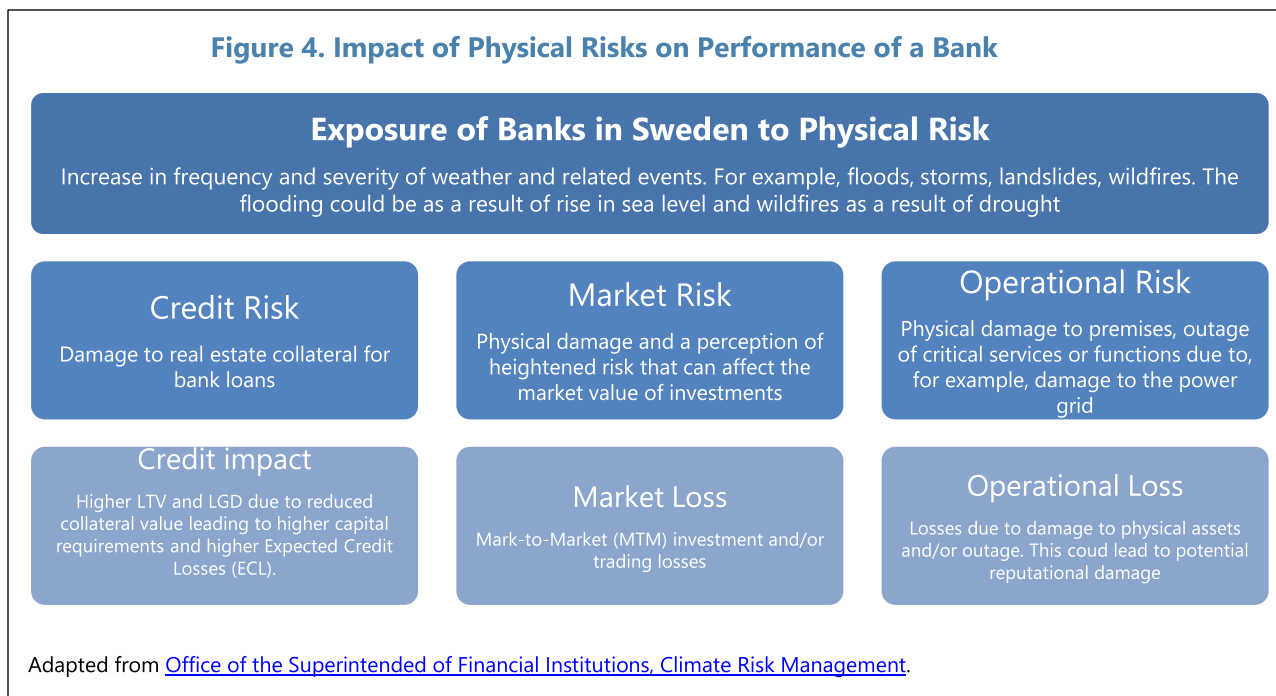
¹⁹ [Joint pledge from the Swedish members of the NGFS, Finansinspektionen and Sveriges Riksbank, at the occasion of the NGFS Glasgow Declaration during COP26.](#)

²⁰ [Sustainability strategy for the Riksbank \(December 2020\).](#)

²¹ Together with other institutions, the Riksbank has contributed to research on climate change since 2016.

²² M. Danielsson (2020), ["Rising sea levels due to global warming will entail increased risks to housing"](#), Economic Commentaries, No. 10, Sveriges Riksbank.

below shows how climate-related physical risks can impact on banks' exposure to traditional risk types, and consequently on its financial condition.



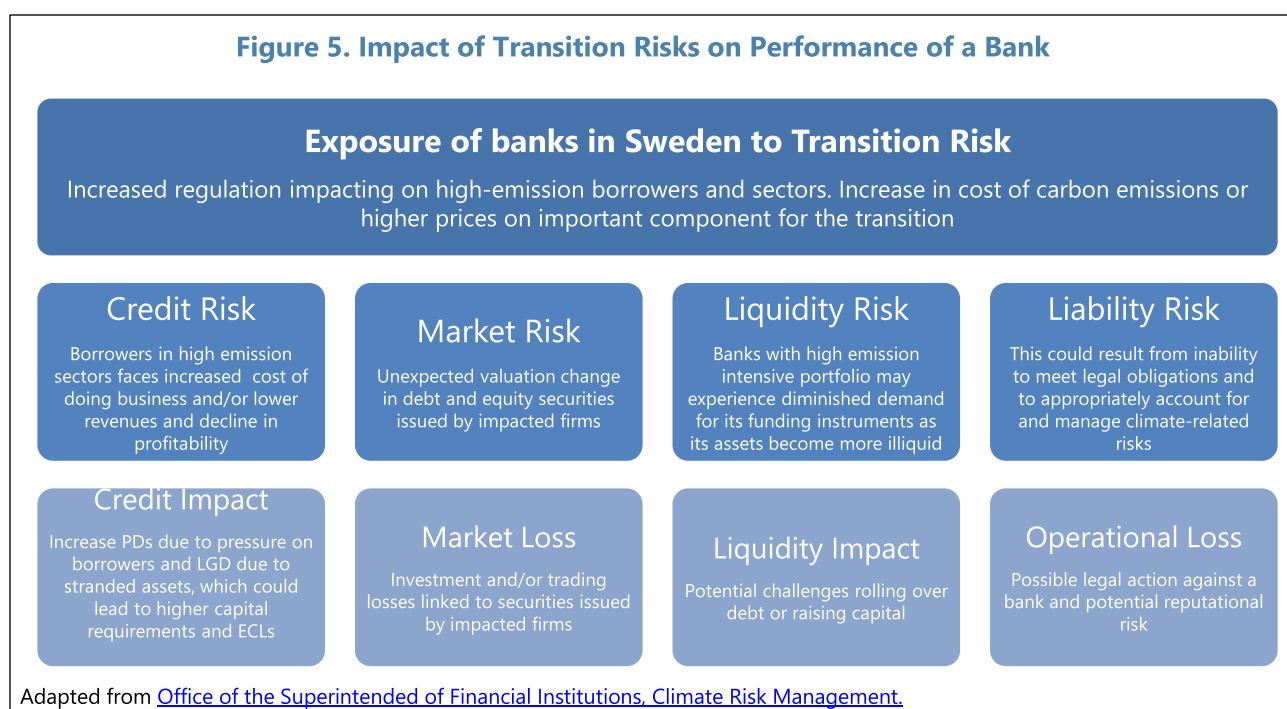
24. The coastal region in Sweden is vulnerable to the risks of flooding due to climate change and this could have implication on banks through their exposures to the real estate sector. The Riksbank has analyzed how flooding may affect coastal housing in Sweden if the sea level or the level of precipitation were to rise due to climate change, in the event of extreme weather or a combination of both and the impact this could have on financial stability. The analysis found that the risks associated with floods in Sweden will likely increase in the future. The increase in risks and the impact on financial stability would however depend on the severity of climate change and the measures in place to adjust to the new level of risk.

25. Though the exposure of Swedish banks to the real estate sector is substantial, the number of properties that are most vulnerable to flooding is limited. Swedish banks are to a varying degree exposed to physical climate-related risks due to exposures to private mortgages, commercial real estate (CRE) and agricultural properties. This is especially the case for real estate properties located in flood prone areas. The most vulnerable areas for flood in Sweden are however, on aggregate, limited in terms of size and value. For example, it has been estimated that only about 8 percent of homes are situated within 3 kilometers of the coast and not more than 5 metres above sea level. This housing is exposed to higher risk of material damage in a future climate scenario involving a rise in the sea level. Specifically, a study by Riksbank found that: (i) in the event of extreme weather, the risk of coastal housing ending up below water increases, and (ii) homes valued at about 5 percent of the banks' lending to the public with housing as collateral would be exposed to

climate risk under the most severe climate scenario²³. The extent of losses in the event of severe natural hazard would however be mitigated by the insurance cover on the properties.

B. Transition Risks

26. The transition to a low-carbon and more sustainable economy can have an impact on firms in high-emission sectors resulting in potential losses to the financial system. Regulation on high-emission firms and increase in carbon emission is expected to, amongst others, impact on business models of some firms in high-emission sectors or those expected to improve on their energy efficiency. The consequence of this would be an increase in the following risks for banks with significant exposure to counterparties who will be impacted by the transition: (i) credit risk due to decrease in revenue or increase in cost of doing business for high emitting borrowers, (ii) market risk due to changes in valuation of debt and equities issued by the impacted firms, (iii) liquidity risk due to decrease in funding for banks with high emission intensive portfolios, and (iv) liability risk due to inability to meet legal obligations. Figure 5 below shows the expected impact of transition risks on Swedish banks' balance sheets and profitability.



27. Swedish banks are exposed to transition climate risks due to their lending to companies in high-emission industries and to the real estate sector. Some of the large Swedish banks are exposed to high-emitting industries which are exposed to transition risks. A study by Cella (Riksbank, December 2021), found that approximately 12 percent of Swedish banks' corporate lending went to companies in high-emissions industries and that about 24 percent of these loans

²³ M. Danielsson (2020), "[Rising sea levels due to global warming will entail increased risks to housing](#)", Economic Commentaries, No. 10, Sveriges Riksbank.

went to financially vulnerable firms.²⁴ These companies in high emission industries are at risk of being affected by consumer behavior, e.g., boycotts and protests, reputational risks, and litigation risks related to environmental damage.²⁵ Further, as greener technologies become more available, carbon-intensive assets are likely to become obsolete resulting in stranded assets. These assets, which are usually largely financed by debt originated by banks, could consequently be repriced resulting in substantial losses to the financial system. Real estate exposures may also, to some extent, be exposed to transitional risk due to the effects of potential regulatory changes including those related to energy efficiency standards.²⁶

28. A recent joint assessment by FI and the Riksbank also identified transition risks in a number of companies in the Swedish banks' loan portfolios. The analysis applied the PACTA tool for banks (see **Figure 6 and Box 2** below), which is a method that has been developed to analyze whether companies meet climate targets that are specified in different climate scenarios, to understand the transition risk in the part of the banks' loan portfolios covered by the method. The analysis also found that some companies which need to transition have difficulties meeting the set climate target. For example, the study found that out of SEK 80 billion of loans that were analyzed, SEK 30 billion could be classified as climate-damaging loans, which consist of lending to companies that have production with high-carbon technologies and with a higher emission intensity than the climate targets.²⁷ However, though there is evidence that the transition risk is higher than that shown by the application of the PACTA tool, conclusion could not be drawn at the portfolio level due to data and methodological limitations.²⁸

Assessment

29. Data and methodological limitations have impacted the assessment of Swedish Banks' exposures to transition risks and more work needs to be done to fully understand the impact and likelihood of these risks.²⁹ The Swedish banks' lending consists largely of exposures to sectors or parts of value chains that are not covered by PACTA tool, which has been used by FI and the Riksbank to assess Swedish banks' exposure to transition risk. For example, lending to real estate companies is not included in the analysis. The outcome of the analysis by FI and the Riksbank is also impacted by the lack of production forecast for some companies, assumptions related to the

²⁴ Financially vulnerable firms were defined as firms that had interest coverage ratio equal to or below 1 and firms that had filed for bankruptcy or restructuring in either 2019 or 2020.

²⁵ High emission industries were defined as all the industries in the fourth quartile of the emissions distribution.

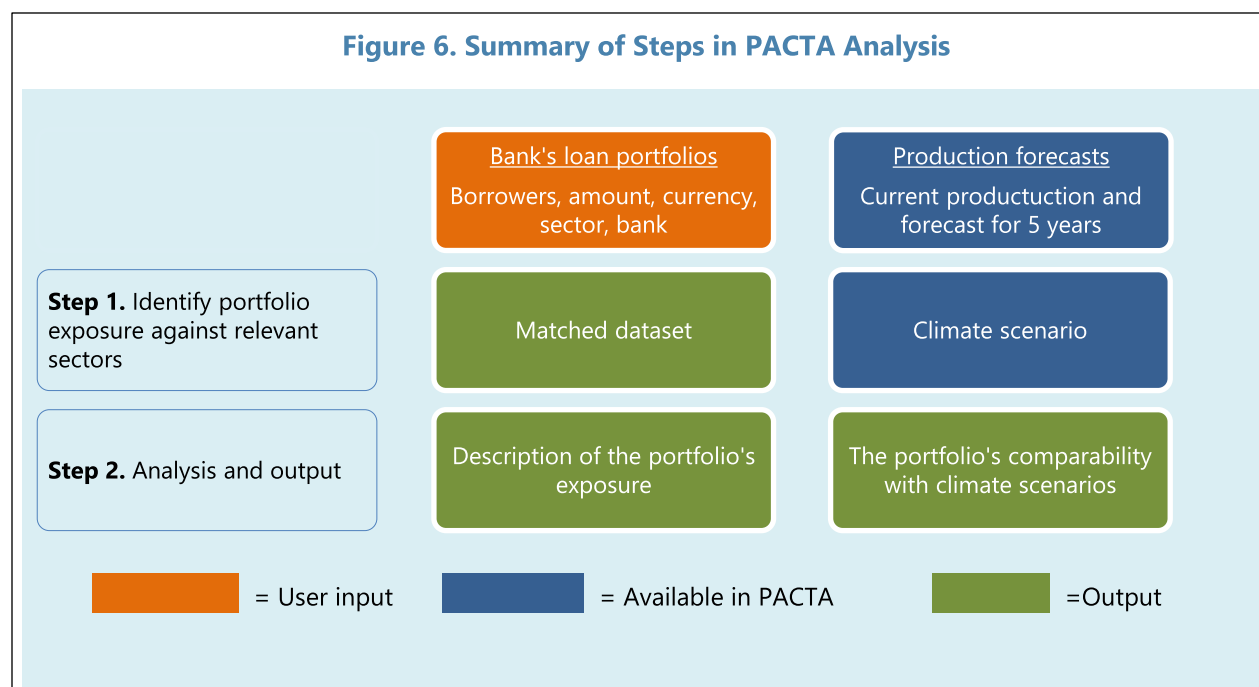
²⁶ C. Cella (2021), "[Banking and climate-related risks, implications for financial stability in Sweden](#)", Staff memo, May, Sveriges Riksbank.

²⁷ Climate-damaging lending consists of lending to: (i) companies that extract fossil fuels, (ii) energy companies that goes to fossil fuel combustion, (iii) car companies for the production of internal combustions engines, and (iv) aviation, steel and cement production with higher emission intensity in production than the climate targets.

²⁸ FI and Riksbank, [Transition risks in the banks' loan portfolios – an application of PACTA](#)

²⁹ The available data is either not granular enough or lack important information. The assessment tools are also still under development making it difficult to arrive at reliable conclusion on the impact of climate-related risks.

distribution of transition targets to companies, and the relatively short time horizon of five years which is not adequate to get a complete picture of the transition risk. Further, there is also the need for information that is required to facilitate a more detailed assessment of the interaction between transition risks and existing financial vulnerabilities within banks. This includes firm-level information on emissions of GHGs, holding of carbon intensive assets and, where applicable, firms' investment plans to green their operations.³⁰



Recommendation

30. FI and the Riksbank should develop additional tools and methodologies for identification and assessment of climate-related risks including climate stress tests to complement the PACTA approach. This could include consideration of: (i) climate-related scenarios analysis to facilitate the identification of relevant risk factors and portfolio exposures, (ii) qualitative tools such as risk matrix, heatmaps etc to facilitate a high-level identification of high-risk exposures and financial institutions from a climate risk perspective, and (iii) alternative methodologies that has been applied in other comparable jurisdictions. The scope of assessment of exposure to transition risk should also be expanded to ensure that all the relevant exposures including exposures to the real estate properties and sector are captured, and the impact of other natural hazards besides floods is analyzed.

³⁰ A deep-dive assessment by one of the banks on the Swedish part of the PACTA database showed that there were only around 650 unique Swedish companies in the database and few matched with the exposures in their portfolio.

Box 2. Use of PACTA Tool to Assess Transition Risks in Swedish Banks

Description of PACTA: FI and the Riksbank undertook a pilot project to quantify transition risks using the [Paris Agreement Capital Transition Assessment \(PACTA\) tool](#). The Tool shows how companies in a loan portfolio meet climate targets under different scenarios and can help in understanding transition risks. It also enables banks to measure the alignment of their corporate lending portfolios with climate scenarios across a set of key climate-relevant sectors and technologies hence providing insights into climate alignment of their corporate clients' capital stock and expenditure plans. The pilot-project was initially performed on insurance companies in 2020 and in 2021, was used to assess climate-related transition risks in the largest Swedish banks and the [outcome](#) was published in April 2022.

Objective of the Pilot Project: The pilot project was aimed at learning how the transition risks could be quantified and how the PACTA tool works in practice. The pilot was also used to evaluate whether the PACTA tool could be used to answer specific supervisory questions and, to achieve this, the outputs had to be enhanced as the tool was originally not designed for supervisory purposes. The specific supervisory questions included: (i) which financial institutions are most at risk due to exposure to carbon intensive technologies and misalignment with the Paris Agreement, and (ii) how these exposures to carbon-intensive sectors and alignments with Paris Agreement look like for the aggregated insurance or banking sector. These supervisory questions helped to prioritize resources by targeting the worst performing companies, and to analyze the potential transition risk and its likely effects on financial stability in Sweden.

Analytical Focus of PACTA for banks: PACTA for banks aims to assess the extent to which corporate lending portfolios and clients are aligned with climate change scenarios across climate critical sectors and (ii) climate change scenario alignment in the future based on a corporate lending portfolio's current exposure.

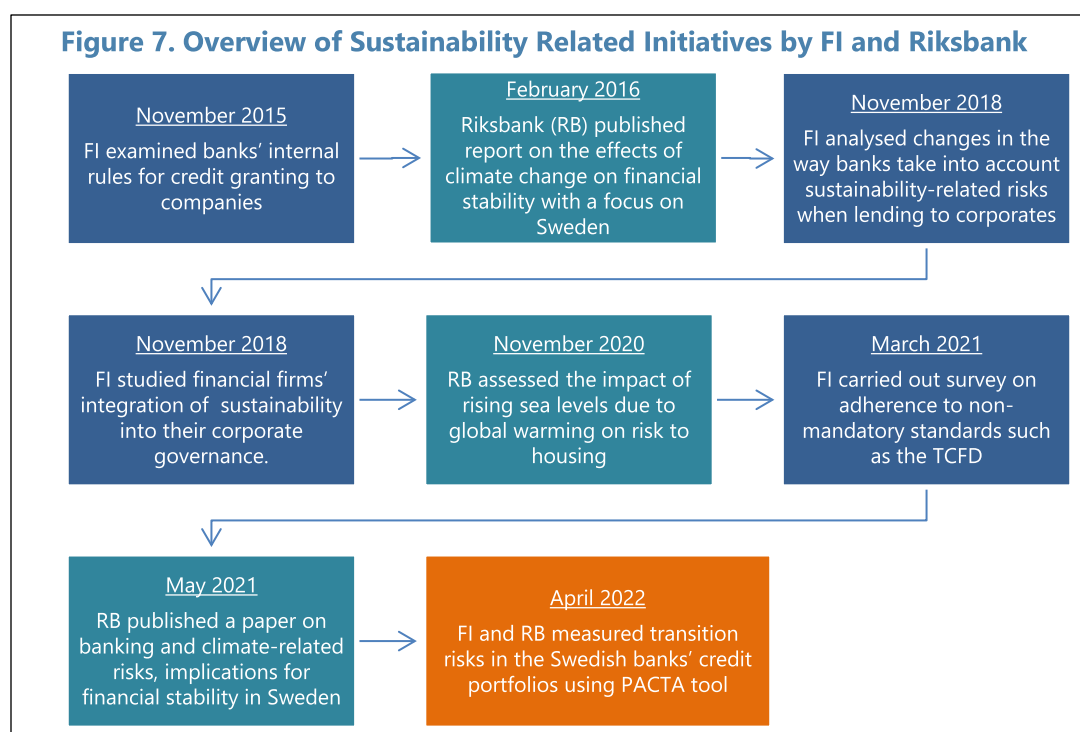
Sectors Covered by the PACTA Tool: The PACTA Tool covers sectors that are considered to have the greatest carbon dioxide emissions and those parts of the value chain in these high carbon emission sectors that are considered to have the greatest impact on climate transition. There are however some sub-sectors or parts of the value chain that are not covered by PACTA but with high carbon emission activities or other significant impact on climate. This is a limitation as banks should analyze the transition risk for all companies in their loan portfolio.

Data Requirements: The analysis requires production forecasts for the companies covered by the method over the coming five (5) years and information on banks' loan portfolios, i.e., borrowers, amount, currency, sector and banks.

Climate Scenario: PACTA includes different climate scenarios with transition targets for each sector. The sectoral targets are in turn divided up by technology with some sectors and technologies having transition targets that require them to quickly reduce carbon emissions while others being expected to either expand sustainable production options or to phase out their production altogether. A user can either use the scenarios provided or construct their own scenarios.

REGULATORY AND SUPERVISORY RESPONSES

31. FI and the Riksbank have carried out a number of surveys and analyses to better understand the exposure of Swedish banks to the risk of climate change. The surveys by FI also assessed emerging practices within financial institutions in the management of sustainability-related risk, including climate. The work has specifically included review of: integration of sustainability related issues by banks into corporate lending and corporate governance, adoption of the Financial Stability Board (FSB) Task Force on Climate-Related Financial Disclosures (TCFD) disclosure framework, impact of rising sea levels due to global warming on risk to housing, implication of climate-related risks on financial stability and transition risk in banks' credit portfolios. Figure 7 below is a summary of the specific action that has been undertaken by both FI and Riksbank.



A. Supervisory Responsibilities, Powers, and Functions

32. In 2020, the Swedish government granted FI with a new mandate to ensure that the financial system contributes to sustainable development. To achieve this mandate, FI is currently focusing its sustainability work in banking supervision on the climate, where it noted that developments have introduced substantial risks for the financial system and the wider society, and where there is currently international consensus that urgent action is required. In pursuing this mandate, FI's aim is to ensure that the financial system effectively manages climate risks and contributes to an orderly transition to a greener and more sustainable economy.³¹ The expectation is that, for financial firms in Sweden to contribute to sustainable development, they should be able to

³¹ The Financial Services Authority Instruction Ordinance (2009:93) does not make specific reference to climate-related or environmental risk, but these risks are included and are a central part of the work being undertaken by FI.

identify their exposures that will be impacted by climate-related risks. Financial firms can also contribute to financing of the required investments to transition to a greener economy and to meet the changing customer needs due to increased awareness of the impact of climate change.

33. The Banking and Financing Business Act (BFBA) requires banks in Sweden to manage risks associated with their operation, which implicitly include climate-related risks. The BFBA (Chapter 6, Section 2) provides that a credit institution shall identify, measure, control, internally report and verify the risks associated with its operations, and ensure that it possesses satisfactory internal controls. FI is particularly of the view that it could be argued that climate-related risks are included under this general provision though this has not been subjected to detailed legal review.³²

34. FI has clarified that raising or lowering capital requirements for certain types of exposures for the sole purpose of promoting sustainable development is not part of its mandate. It has also clarified that it cannot prevent banks from financing environmentally unsustainable business and activities but can require financial institutions to consider and effectively manage the relevant risks including those arising from climate change. The expectation therefore is that financial institutions should either reduce their financing of activities that are not sustainable in the long run or, alternatively, hold more capital to cushion against the additional risks from such activities including those resulting from exposure to climate-related risks.³³

B. Supervisory Resources and Capacity

35. FI has established a specialized sustainability department to coordinate the implementation of new sustainability related regulations and guidelines being introduced.³⁴ The department, which was established in 2021, is also responsible for: strengthening cooperation with other stakeholders, organizing dialogue meetings with trade associations and round tables on sustainable reporting, developing communication strategy and plan, and coordinating the overall sustainability work within FI. The department currently has 7 full time employees (FTE). FI noted that, as climate-related risk is an emerging area, it was still too early to determine whether the current number of FTEs with subject matter expertise is adequate, and that it is also challenging finding and developing the necessary skills. The challenge is coupled by the fact that regulation and practices are developing at a high pace and FI's current priority is to build the capacity of its supervisors and risks experts on climate-related risks.³⁵

36. The primary challenge for FI in the assessment, monitoring and supervision of climate-related risks is the limitations in the available resources and supervisory tools. This is mainly due to the fact that quantification of climate risks tend to be complicated, and requires both intense

³² Paragraph 2, chapter 6 Banking and Financing Business Act (SFS 2004:297).

³³ [Sustainability Report 2021 – the climate in focus, March 2021.](#)

³⁴ FI's aim is to integrate sustainability into its supervisory activities of the firms under its supervisions. i.e., banks, insurance and markets.

³⁵ A formal training program for staff on supervision of climate-related risks has however not been established.

work and advanced analytical skills. In addition, there are limitations in the existing tools for the assessment of climate risk.³⁶ This is particularly the case for climate related stress testing where FI's bank supervision currently does not have adequate resources to effectively achieve its broad mandate and easy access to data including those maintained in the KRITA database.³⁷ The Riksbank has however developed its climate risk assessment and stress testing capabilities, and FI could leverage on this capability while it builds its own internal capacity. The competition for experts on sustainability issues and related risks has also begun and, if measures are not put in place to retain the experienced staff within the sustainability department, could in the long run impact on the level and experience of FI's resources for supervision of climate-related risks.

Recommendation

37. In view of emerging practices and standards on climate-related financial risks, FI together with the Riksbank should as a priority develop its capacity to effectively identify and supervise climate-related financial risks. This could potentially be done through: (i) development of technical expertise on the relevant aspects of climate-related risks such as stress testing and scenario analysis, methodologies for assessment of these risks and emerging supervisory standards and practices, (ii) ongoing participation in the BCBS and EBA working groups and Taskforces on climate-related and ESG risks, (iii) recruitment of technical experts on climate change and related risks to complement and support the existing staff, (iv) partnership with external experts on climate including researchers, academia, climate scientists and policy makers, (v) use of external experts, on a case-by-case basis, to undertake specific specialized supervisory activities where there are challenges recruiting staff with the required skills or experience. Partnership with external experts can particularly be valuable in the development of scenarios for the assessment of vulnerabilities to climate-related risks.³⁸ FI should also, where practical, develop and implement a training programme to ensure that the lead supervisors, and risk and accounting experts are continually kept abreast of emerging practices in measurement, monitoring, supervision and management of climate-related risks.

C. Supervisory Approach, Tools, and Technique

38. In line with its risk-based approach to supervision, FI's engagement with banks on climate-related risks has mainly been with larger banks. FI, however, has a recurring dialogue with the industry organizations for banks. For example, in 2021, it held a number of webinars on regulatory issues and on how to take into account climate-related risks in the credit granting process, which were targeted at representatives at various levels in the saving banks. The individual banks' vulnerability to climate-related risks currently do not, on a standalone, impact the level of

³⁶ In many cases, the available tools were primarily designed for financial institutions and asset managers and not for supervisory purposes.

³⁷ KRITA is a survey conducted by Statistics Sweden on behalf of the Riksbank and contains information on Swedish credit institutions' loans to companies and the public sector. It largely follows the ECB's AnaCredit (ECB/2016/13).

³⁸ This could include partnership with: The Swedish Environmental Protection Agency, The Swedish Meteorological and Hydrological Institute, Swedish Civil Contingencies Agency etc.

supervisory engagement with banks. FI has identified green washing and follow up of supervised entities management of transition risk as priority supervisory work for 2022.

39. FI started to integrate climate-related risks in the review of business model and credit risk as part its SREP in 2021. The adopted methodology is based on EBA's Report on management and supervision of ESG risks for credit institutions and investment firms.³⁹ FI's focus in the business model analysis is on whether and how banks have considered sustainability risks in the forecast of their profitability as part of their business and strategic planning. In the supervisory assessment of credit risk, FI takes into consideration inherent risks in the banks' credit portfolios and whether and how sustainability aspects have been captured in the banks' risk management framework.⁴⁰ The assessment of the impact of climate-related risks on the viability and sustainability of the banks' business model is based on a qualitative and survey-based approach. That is, the process involves benchmarking of the banks: understanding of the effects of physical and transition climate-related risks on their business model, strategic plans for addressing climate-related risks, and activities to ensure the achievement of their strategy over the next three years.

40. Climate risk is a standing item during regular meetings between FI and the Chief Executive Officer (CEO) and Senior Management of the three largest banks as well as part of the Quarterly Risk Reviews (QRR). During these meetings, the banks are normally required to provide an update on how sustainability and transition risks are managed including, where applicable, how they have incorporated these risks into the banks' KRIs and limits. ESG related issues are also normally covered in the meetings with the banks to discuss their strategic business plans. Information on the ESG is normally requested from banks as part of the information package for the quarterly or biannual risk review meetings to feed into the supervisory risk assessment. Further, industrial sectors which are identified as particularly vulnerable to climate risks may be analyzed in detail by FI, depending on their size and materiality.

41. Since FI's supervisory mandate has not been fully clarified, the assessment of climate-related risks currently does not impact on banks SREP ratings nor result in Pillar 2 capital additions. The assessment of banks' management of ESG risks, including climate-related financial risks, is however included in the overall internal SREP assessment report for information purposes, and findings are communicated to banks on a bilateral basis. EBA is expected to update its SREP Guidelines to capture ESG risks, and FI is waiting for the updated guidelines before fully integrating the assessment of climate-related risks into its SREP.

42. Currently, FI's supervisory stress testing does not explicitly take into account climate-related scenarios. FI and the Riksbank are however currently exploring approaches to climate stress testing where sufficient granular data is available to draw financial stability conclusions. FI also plans to adopt the EBA guidelines related to climate risk stress testing and scenario analysis once they are

³⁹ FI has also used the EBA report as the basis for enhancement of its overall SREP methodology.

⁴⁰ Since 2021, ESG considerations have been included in FI's Risk Assessment Method for Credit Risk under SREP.

issued. FI has also continued to encourage banks to adopt the Recommendations of the FSB's TCFD which in turn advocates for the use of scenario analysis and the three largest banks have carried out scenario analysis to assess the potential impact of climate-related risks. For their climate stress testing, the largest banks have mainly chosen the United Nations Intergovernmental Panel on Climate Change (IPCC) climate scenarios, so called Representative Concentration Pathway (RCP) scenarios, to assess the impact on the balance sheets.

43. Plans are underway to incorporate and embed the relevant regulatory tools from EBA into FI's supervisory processes for climate-related risks and the wider ESG risks. The [revised EBA guidelines on SREP](#) requires Competent Authorities to consider ESG risk and their impact on the viability and sustainability of the business model and long-term resilience of the institution.⁴¹ The EBA report on management and supervision of ESG risks provide a comprehensive proposal on how ESG factors and risks should be included in the regulatory and supervisory frameworks, and sets the foundations for future EBA Guidelines on the topic. It also provides institutions with common definitions of ESG risks and their transmission channels and identifies evaluation methods that are needed for effective risk management. Through the report, the EBA recommends institutions to incorporate ESG risks-related considerations in their strategies and objectives, governance structures, and to manage these risks as drivers of financial risks in their risk appetite and internal capital allocation process. The EBA also recommends developing methodologies and approaches to test the long-term resilience of institutions against ESG factors and risks including through the use of scenario analysis.

Recommendation

44. FI should deepen the integration of climate-related risks into its ongoing supervisory activities in a gradual and proportional manner in line with the risk-based approach. This includes further consideration of climate-related risks in the supervisory activities such as: off-site monitoring, thematic reviews, SREP, on-site inspections and investigations, supervisory stress testing, regular meetings with senior management, and industry surveys.⁴² The selected tools and techniques for supervision of these risks should be aimed at assessing the effectiveness of banks' processes for identification, management and mitigation of climate-related risks, where it is material, and the approached should be systematic and broadly aligned with the Basel principles of effective supervision of climate-related risks. The supervisory activities should also, amongst others, facilitate the evaluation of banks': (i) processes and methodologies for assessing their exposures to climate-related physical and transition risks, (ii) compliances with regulatory requirements and supervisory expectations on management of climate-related financial risks, and (iii) climate-related scenario analysis and stress testing processes, including the appropriateness of the selected scenarios, methodologies and assumptions. The scope and frequency of coverage of climate-related risks should, ideally, be proportional to the size, complexity and vulnerability of the individual banks.

⁴¹ Other elements related to inclusion of SREP will take place in a further review of the EBA SREP guidelines

⁴² This should be done in line with the risk-based approach, where supervisory resources are allocated to where it is most needed.

45. Where material, climate-related financial risks should be adequately considered in the supervisory assessment of the traditional risk types and in the assignment of SREP rating. To facilitate this, consideration should be given to reviewing existing supervisory guidelines to ensure adequate consideration of climate-related risks. This includes enhancement of the guidelines on supervision of specific traditional risks, which could be amplified by climate-related events.⁴³ For example, the approach to assessment of these traditional risks should be enhanced to ensure that the assessment of climate-related risks and related governance and risk management processes, where applicable and material, is comprehensive and the outcome of such assessment is used to inform the SREP rating and formulation of other supervisory measures, where relevant. Further, the review of banks' internal governance and internal control arrangements should, where relevant, take into consideration the effectiveness of the processes for management of climate-related risks.

46. Once data and methodological issues have been sufficiently addressed, the authorities should consider incorporating climate-related risks into its supervisory stress testing exercises. This is to further facilitate the identification and assessment of: (i) the impact of climate change and the transition to a low-carbon economy on banks' business strategies and on the resilience of their business models to climate risk events, (ii) climate-related risk drivers affecting individual banks and the overall Swedish banking system, (iii) common data and methodological limitations, (iv) the adequacy of the of banks' frameworks for management of climate-related risks. The outcome of supervisory stress testing could also be used to inform the assessment of the adequacy of banks' risk management processes for climate-related risks, including the reasonableness of the proposed risk mitigation options. Scenario analysis is particularly important in the assessment of climate-related risks given its forward-looking nature and the associated inherent uncertainty, and can be a valuable tool in assessing: (i) the impact of physical and transition risk on financial institutions, (ii) evolution of climate-related risks under various scenarios, and (iii) materialization of climate-related, and (iii) possible materialization of the risks under different time horizon.

47. The approach to assessment and supervision of climate-related risks should be continually enhanced as practices evolve, and as new international standards on management and supervision are introduced. This should particularly be the case given that harmonized international standards on supervision of climate-related risks are still being developed, and methodologies and the data used to analyze these risks are also still evolving and are expected to mature over time as the identified gaps are addressed. Supervisory practice will also have to respond to the expected improvement in the technical capacity of banks to effectively manage these risks and in the capacity of the supervisors to undertake more detailed reviews of banks' end-to-end processes including risk assessment methodologies, modelling assumptions, scenarios etc.

48. Depending on the availability of supervisory resources, FI should gradually enhance its engagement with banks on climate-related risks and wider sustainability issues in line with its

⁴³ The traditional risks which could be amplified by climate-related events include credit, market, operational (including legal), liquidity, and reputational risks.

risk-based approach. This includes maintaining sufficiently frequent contact, as appropriate, with board and senior management of banks and developing an understanding of, and assessing the banks' long-term approach to addressing climate-related financial risks in a forward-looking manner. The engagement could be through thematic reviews, benchmarking of risk management practices against the expectation of the BCBS Principles for the management of climate-related risks, deep-dive reviews etc. The level and nature of engagement should depend on the materiality of the risks to the specific institutions and the outcome of the offsite monitoring exercise.

D. Supervisory Expectation on Management of Climate-Related Risks

49. FI has not published an explicit supervisory expectation document on management of climate-related risks by banks. It has however communicated its expectations to the industry through published supervisory reports and regular meetings with financial institutions. Specifically, FI conducted a number of dialogues and round tables in 2020 with different types of financial firms on approaches to integration of climate-related risks into their operations and on climate-related disclosures. FI is also currently engaging and communicating actively with financial firms on the upcoming EU regulation to ensure that they are adequately prepared for the new requirements once they are introduced. FI also had a round tables with the financial industry associations and other stakeholders to discuss: sustainable finance regulations (February and June 2021), sustainability reporting (May 2022), new regulation, trends and overarching issues in sustainable finance (May 2022).⁴⁴

50. Swedish financial firms are generally expected by FI to consider their relevant sustainability factors and aspects in their corporate governance, business models and risk management. This expectation was communicated to Swedish financial institutions through the Sustainability Report of 2021.⁴⁵ Financial institutions are also expected to integrate sustainability consideration into their processes for issuing credit, making investments, and underwriting insurance policies, and to put in place measures to manage financial risks from climate change and transition risk arising from activities that emit large amount of GHGs, depend on fossil input or susceptible business models. There is also an expectation for financial institutions to: (i) report their sustainability related targets and the steps taken to achieve them, (ii) apply a forward-looking approach to their work and to use a range of scenarios to assess the financial impact of climate change and transition risks, and (iii) ensure that sustainability forms part of the financial firms' business models and risk management.⁴⁶ FI has supported and encouraged banks in Sweden to adopt and adhere to the recommendations of the TCFD, which advocates for the use of scenario analyses.⁴⁷

⁴⁴ The stakeholders included The Swedish Bankers' Association, consultancy firms, law firms, accountancy professional associations, Finance Industry Associations.

⁴⁵ Sustainability Report 2021 – the climate in focus, March 2021.

⁴⁶ Integration of Sustainability into Corporate Governance, November 2018.

⁴⁷ In 2021, the Swedish Bankers Association declared that its members would apply the TCFD recommendations.

Recommendation

51. FI should continue to promote effective implementation of international standards on effective management of climate-related risks. This includes the Basel Committee principles on management and supervision of climate-related risks (published, June 2022) and other international standards including those aimed at enhancing the availability of data for the assessment of exposure of banks to climate-related risks. The aim should be to clarify the supervisory expectation on management of climate-related risks and including in relation to: governance, internal control framework, incorporation of climate-related risk into assessment of adequacy of capital and liquidity, risk management process, internal monitoring and reporting, stress testing and scenario analysis, and integration into the management of traditional risk types such as credit, market, operational, liquidity and reputational risks.

E. Management of Climate-Related Risk by Banks

52. The major banks in Sweden have integrated climate-related risks into their risk management frameworks. These banks have analyzed their exposure to physical and transition climate-related risks in their portfolios including those linked to fossil fuels, rising sea levels and extreme weather events and particularly flooding, and there is ongoing work to integrate these risks and the wider sustainability issues into their credit assessment, business strategies, Risk Appetite Statements (RAS), stress testing processes and methodologies, and Internal Capital Adequacy Assessment Process (ICAAP). Some banks have also introduced limits on new lending to certain vulnerable sectors and, in some cases, a total ban on certain exposures. Banks have however adopted different approaches to measurement and management of their exposure to climate-related financial risks (both physical and transition risks) and there is therefore the need for harmonization of practices to ensure comparability across banks (see Box 3 below). Banks particularly noted the need for supervisory guidelines on management of climate-related risks.⁴⁸

Box 3. Measurement of Climate Risks by Swedish Financial Firms

In 2020, FI reviewed the progress that had been made by the Swedish financial institutions in relation to measurement of climate risks and climate impact. As part of the survey, it received responses from 10 banks, 15 fund management companies and investment firms and 108 insurance undertakings.

The surveyed institutions identified lack of tools and data as key impediments to progress while some noted that they do not have the resources or that climate risk was not a business priority. A few institutions noted that they have limited or no exposure to climate-related risks.

More than half of the respondents reported that they assess climate-related risks in their portfolios and in specific exposures, but the risks included in the analysis differs across institutions. Financial institutions in all categories reported that they assess physical risks based on natural hazard losses and extreme weather events. For example, the banks which responded to the survey reported that they assess physical risks in their

⁴⁸ Some banks normally assess sustainability-related risks as part of credit and reputational risk.

Box 3. Measurement of Climate Risks by Swedish Financial Firms (concluded)

credit exposures including mortgages and lending to agriculture. As for transition risks, many financial institutions focus on risks arising from stricter climate regulation.

Banks, fund management companies and investment firms reported that they also analyse transition risks in the form of market risks. For example, changes in consumer behavior and demand, as well as risks associated with technological development. In the analysis of the climate-related risks, financial institutions often use both quantitative and qualitative assessments. More than half of the respondents reported that they assess the carbon emissions in their exposures. However fewer than half measures how their portfolios align with the climate goals in the Paris Agreement, though several have plans to do so in the future.

53. FI has adopted EBA Guidelines on loan origination and monitoring which require institutions to consider risks associated with ESG factors on the financial conditions of borrowers. The guidelines introduce environmentally sustainable lending dimensions, and set the requirements for institutions to consider ESG factors and associated risks in their credit risk appetite and risk management policies, credit policies and procedures. They also expect institutions to consider risk associated with ESG factors, particularly environmental factors and climate change, on the financial conditions of borrowers, and on value of collaterals (for example, energy efficiency of buildings). The guidelines recommend that institutions should consider using heatmaps that highlight climate-related and environmental risks of individual economic sectors to identify borrowers that are exposed to increased risk associated with ESG factors.⁴⁹

54. The largest Swedish banks noted that data limitations and methodological uncertainties was the main challenge in their assessment of climate-related risks and its integrations into risk management processes. The challenge is more pronounced in the assessment of exposures to transition risk due to lack of the relevant firm-level data and challenges related to some corporate structures in Sweden where entities have footprints in multiple industrial sectors. Some institutions also noted challenges related to measurement of how their portfolios are aligned with the climate goals in the Paris Agreement. Improving access to high-quality granular data to support accurate assessment of climate-related risks should be a top priority for the financial institutions and the supervisory authorities.

Table 2. Sweden: High-Level Benchmarking Against Basel Principles for Effective Management and Supervision of Climate-Related Financial Risks		
Principle	Expectation	Comments
Prudential, regulatory, and supervisory requirements for banks		
Principle 13	Supervisors determine that banks' incorporation of material climate-related financial risks into their business strategies, corporate governance and internal control frameworks is sound and comprehensive	FI has integrated sustainability into the assessment of business model and undertook a survey in November 2018 to assess the extent to which banks had incorporated sustainability into their corporate governance. More however needs to be done in this area.

⁴⁹ [EBA Guidelines on Loan Origination and Monitoring \(EBA/GL/2020/06\)](#)

Table 2. Sweden: High-Level Benchmarking Against Basel Principles for Effective Management and Supervision of Climate-Related Financial Risks (continued)		
Principle 14	Supervisors determine that banks can adequately identify, monitor and manage all material climate-related financial risks as part of their assessments of banks' risk appetite and risk management frameworks	<p>The current approach is to follow what the banks are doing given that the supervisory standards from the EBA have not been finalized and issued. Assessment is however made on the integration of sustainability into credit risk and BMA as part of the SREP exercise.</p> <p>More needs to be done to determine the robustness of banks processes for identification of material climate-related financial risks.</p>
Principle 15	Supervisors should determine the extent to which banks regularly identify and assess the impact of climate-related risk drivers on their risk profile and ensure that material climate-related financial risks are adequately considered in their management of credit, market, liquidity, operational, and other types of risk. Supervisors should determine that, where appropriate, banks apply climate scenario analysis.	<p>The current approach is to follow what the banks are doing given that the supervisory standards from the EBA have not been finalized and issued.</p> <p>More needs to be done to deepen the assessment of the adequacy of banks' processes including scenario analysis.</p>
Responsibilities, powers, and functions of supervisors		
Principle 16	In conducting supervisory assessments of banks' management of climate-related financial risks, supervisors should utilise an appropriate range of techniques and tools and adopt adequate follow-up measures in case of material misalignment with supervisory expectations.	<p>Climate-related risks has been integrated into the assessment of credit risk and in BMA as part of SREP. Specific supervisory expectation has however not been formally established.</p> <p>The assessment of climate-related risks should be enhanced to include robust offsite monitoring process, use of thematic reviews, onsite inspections and deep-dives.</p> <p>Further, the assessment should ideally result in adjustment to the risk rating and supervisory action which, where applicable, could include a bank being required to hold additional capital under Pillar 2.¹</p>
Principle 17	Supervisors should ensure that they have adequate resources and capacity to effectively assess banks' management of climate-related financial risks.	<p>FI has set up a standalone sustainability department with 7 FTE to coordinate sustainability activities. It is however too early to tell whether these resources are adequate.</p> <p>However, FI currently does not have analytical capacity to undertake climate stress testing.</p>

Table 2. Sweden: High-Level Benchmarking Against Basel Principles for Effective Management and Supervision of Climate-Related Financial Risks (concluded)		
Principle 18	Supervisors should consider using climate-related risk scenario analysis to identify relevant risk factors, size portfolio exposures, identify data gaps and inform the adequacy of risk management approaches. Supervisors may also consider the use of climate-related stress testing to evaluate a firm's financial position under severe but plausible scenarios. Where appropriate, supervisors should consider disclosing the findings of these exercises.	<p>FI has not integrated specific climate related scenario analysis into its supervisory stress testing processes.</p> <p>Scenario analysis can be a useful tool in the identification of climate-related risks and can particularly complement the PACTA tool which has been applied by FI and Riksbank.</p> <p>The ability to undertake climate stress testing is impacted by lack of relevant data, tools and capacity. There is also lack of common standards and the supervisor is waiting for stress testing guidelines from the EBA.</p>
<p>¹ It is currently possible to require banks to hold additional capital for credit risk should the risk be considered material enough by FI.</p>		

Recommendation

55. FI should encourage banks in Sweden to implement the recently issued Basel Principles on effective management of climate-related risks.

The Basel Principles could later be complemented by the relevant guideline by EBA once issues. The principles should, ideally, be the basis for the supervisory expectation and the assessment of the effectiveness of banks' processes for management of climate-related financial risks. The assessment of the effectiveness of banks' processes should be sufficient flexibility given the degree of heterogeneity and evolving practices in management of climate-related risks.

56. The regulation on management of credit risks (FFFS 2018:16) should be reviewed to ensure that climate-related financial risks are appropriately considered.⁵⁰ This is to ensure that banks in Sweden incorporate material climate-related financial risks into their credit life cycle, including client due diligence as part of onboarding process and ongoing monitoring of clients' risk profiles, in a proportional manner. This is important given that climate-related risks could impact on the risk profile of banks' credit portfolios and hence banks should be expected to ensure that their credit risk management systems and processes appropriately takes these risks into account.

57. FI should require banks to include material climate-related risks in their stress testing and scenario analysis to facilitate the assessment of vulnerability to physical and transition risks. This should particularly be the case for financial institutions with exposures concentrated to counterparties whose business models are dependent on low carbon prices or fossil-intensive input goods, emit large amounts of carbon, or are vulnerable to increases in carbon pricing. The scenario analysis can especially facilitate the effective management of transition risks by financial institutions.

⁵⁰ [Finansinspektionen's regulations and general guidelines regarding management of credit risks in credit institutions and securities companies, September 2018.](#)

It can also facilitate the assessment of the resilience of banks' business models to material climate-related financial risks over various time horizons and how these risks could impact on banks' ability to achieve their business objectives.

58. FI should issue supervisory guidelines setting out specific expectation on management and disclosure of climate-related risk which take into account Basel principles for management of climate-related financial risks.⁵¹ This is to further facilitate the integration of climate-related risks by banks into their risk management practices. The guidelines could potentially include specific expectation in relation to business model and strategy, governance, risk management, scenario analysis and stress testing, and disclosure.

REPORTING AND DISCLOSURES REQUIREMENTS

59. To measure, analyze, and price climate-related risks in the financial system, there is need for usable and comparable financial data. The availability of reliable financial data is a prerequisite if interest rates and asset prices are to reflect climate-related risks and forms the basis of financial stability analysis. In this regard, the Riksbank and FI has continued to support international work to develop international standards on climate-related reporting and has also initiated a number of projects to better understand climate-related risks in the Swedish financial sector. In line with its remit, the focus of work by Riksbank has primarily been on the banking sector and its main borrowers, and on other participants from a systemic risk perspective.⁵²

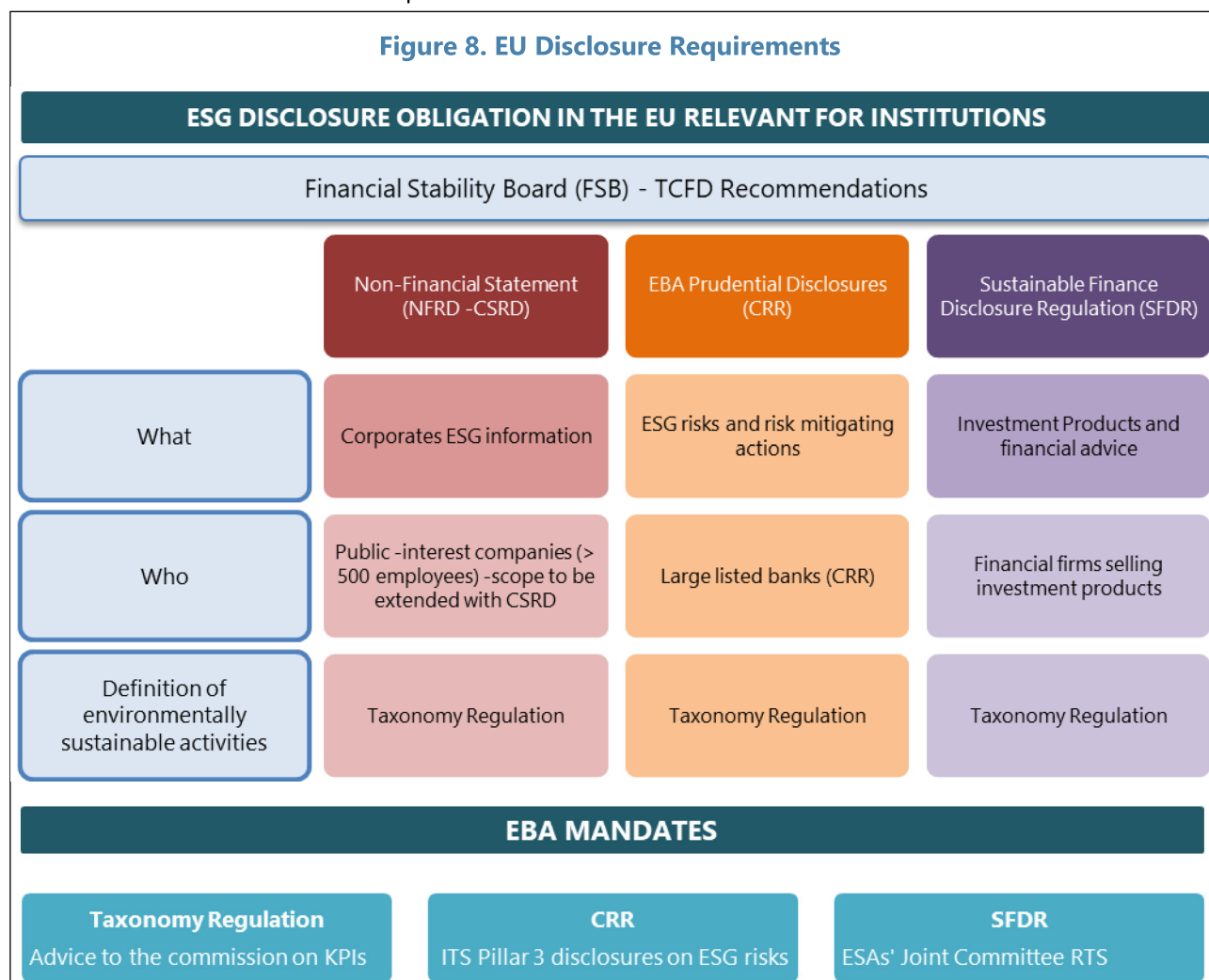
60. Currently no specific supervisory reporting requirement for banks on climate-related risks is in place, resulting in data gaps that need to be addressed. FI currently does not collect granular information from banks on their exposures to physical and transition climate risks based on standardised templates to facilitate the offsite assessment and monitoring of these risks. The assessment of banks' exposures to climate-related risks has also been impacted by lack of data, including amongst others, on corporate counterparty sectors on a granular level, GHG emissions from counterparties etc. There is however expectation that the new EU Pillar 3 disclosure requirements and the planned implementation of the Corporate Sustainability Directive (CSRD) will contribute to improvement in availability of data. Please see Appendix II for a summary of ESG disclosures under Pillar 3.

61. Swedish banks are currently subject to a number of ESG disclosure requirements and there are also plans to adopt a number of regulatory standards and guidelines being developed by the EBA. The EU Directive on Non-Financial Reporting Directive (NFRD) has been transposed into local legislation and a number of EU regulations related to ESG has also been adopted in Sweden. These include: The Taxonomy Regulation and Sustainable Finance Disclosure

⁵¹ BCBS principles for the effective management and supervision of climate-related financial risks includes 12 high-level principles that provide banks with guidance on effective management of climate-related financial risks.

⁵² The Riksbank's Climate Report, Climate risks in the policy work, December 2021.

Regulations (SFDR)⁵³. There are also plans to implement the EBA binding standards on Pillar 3 disclosures and FI has encourage banks to adopt the TCFD framework. Please see Figure 8 below for an overview of EU disclosure requirements.



A. Application of TCFD Recommendations by Banks in Sweden

62. FI has publicly encouraged companies to disclose in accordance with the TCFD recommendations and there has been an increase in adoption of the recommendation by firms in Sweden. The majority of financial institutions in Sweden that are subject to sustainability reporting requirements mainly use the TCFD framework, either fully or in part, in their reporting and consider this to be necessary to meet the requirements of the Annual Reports Act. For example, a study by FI found that 19 percent of the largest companies listed on the Stockholm Stock Exchange apply the TCFD recommendations for their sustainability reporting, but to varying extents, and 10

⁵³ The Taxonomy regulation defines environmentally sustainable activities (Paris Aligned).

percent of the firms have officially announced that they stand behind TCFD and are thus committed to reporting in accordance with the recommendations.⁵⁴

B. EU Taxonomy Regulation

63. The EU Taxonomy Regulation entered into force in 2020, and FI has initiated discussions on the supervisory responsibilities of the Taxonomy. The regulation establishes the criteria for determining whether an economic activity qualifies as environmentally sustainable and is expected to contribute to improved data access, and comparability and consistency of disclosures.⁵⁵ The regulation applies to firms that are required to prepare sustainability report in accordance with the EU Directive on Non-Financial Reporting Directive (NFRD), which includes listed and large public owned companies with more than 500 employees. The regulation sets out 4 overarching conditions that an economic activity has to meet in order to qualify as environmentally sustainable.⁵⁶

64. The Swedish banks have noted challenges in the implementation of the Taxonomy and the need for guidelines for institutions. The noted challenges include: limited data on taxonomy alignment of assets/borrowers, uncertainty regarding the correct implementation of certain technical screening criteria (TSC), the gradual phase-in of the disclosure requirements, and the fact that implementing the taxonomy can be resource intensive.

C. Relevant EU Directives and EBA Standards

65. The EU NFRD, which has been transposed into Swedish law through the Annual Accounts Act, makes it mandatory for all Swedish firms that meets the set criteria to publish sustainability reports. The Act specifically requires companies which meets more than one of the following prescribed conditions to publish sustainability report: (i) average employees of more than 250 for each of the past two financial years, (ii) total balance sheet of more than SEK 175 million for each of the two most recent financial years, or (iii) net turnover of SEK 350 million for each of the two most recent financial years. The Act requires sustainability reports to contain sustainability information that is necessary to understand the firm's development, financial position and results, and consequences of its operations. Specifically, the Act requires banks to disclose information on their: business model, ESG policy including the review that has been carried out, material risks ESG risk, firm's approach to management of ESG risks, and indicators which are relevant to the operations.⁵⁷ As per the European Commission's guideline on reporting climate-related information,

⁵⁴ [FI, Sustainability Report 2021 – the climate focus, March 2021.](#)

⁵⁵ The [Taxonomy Regulation](#) was published in the Official Journal of the EU on 22 June 2020 and entered into force on 12 July 2020.

⁵⁶ An economic activity must meet the following criteria to be classified as environmentally sustainable: (1) contribute substantially to one or more of the set environmental objectives, (2) does not significantly harm any of the environmental objectives, (3) is carried out in compliance with the set minimum safeguards, and (4) complies with technical screening criteria that has been established by the commission.


⁵⁷ If climate change is a significant risk for a bank, it has to report the risks, how they are managed, including essential risk indicators

climate-related information can be reported in accordance with the recommendations by the TCFD.⁵⁸ The reporting has to follow the rules set out in the EU Taxonomy Regulation in relevant parts, relating to environmentally sustainable activities.⁵⁹ Table 3 below illustrates how the EU Commission Guideline on reporting climate-related information has mapped each of the TCFD recommended disclosures (i.e., governance, strategy, risk management and metrics and targets) to disclosures of each of the five reporting areas in the NFRD (i.e., business model, policies and due diligence, outcome of policies, principal risks and risk management, and key performance indicators).

Table 3. Sweden: Mapping of the NFRD Requirement and TCFD Recommended Disclosures

TCFD Recommended Disclosures		NFRD Elements				
		Business Model	Policies and due diligence processes	Outcomes	Principal risks and their management	Key Performance Indicators
Governance	a) Board's oversight					
	b) Management's role					
Strategy	a) Climate-related risks and opportunities					
	b) Impact of climate-related risks and opportunities					
	c) Resilience of the organization's strategy					
Risk Management	a) Processes for identifying and assessing					
	b) Processes for managing					
	c) Integration into overall risk management					
Metrics & Targets	a) Metrics used to assess risk					
	b) GHG emissions					
	Targets					

Sources: EU Commission Guidelines on reporting climate-related information.

 = Is the cross referencing of the terms and concepts used in TCFD recommended disclosures with the those used in the NFRD

⁵⁸ Since the NFRD was incorporated into Swedish law, approximately 1,600 companies have had to prepare sustainability reports.

⁵⁹ Sustainability reports are to be reported according to the taxonomy of 1 January 2022 on climate change mitigation and climate change adaptation under delegated regulation 2021/2178, in force from 1 January 2022. Application will be gradually increased until 1 January 2024.

66. The European Commission is replacing the NFRD with the Corporate Sustainability Reporting Directive (CSRD) and FI plans to evaluate the impact of the new Directive on bank's disclosures requirement, once finalized, to inform the way forward. The Commission is proposing that all large companies and all companies listed on regulated markets (except listed micro-enterprises) will have to report according to mandatory EU sustainability reporting standards.⁶⁰ The proposal further: requires the audit (assurance) of reported information and introduces more detailed reporting requirements. The standards will be tailored to EU policies while building on and contributing to initiatives on international standards.⁶¹ The European proposal includes disclosure requirements on broader sustainability aspects while the global proposal, at the moment, includes climate-related disclosure requirements.

67. To further promote and strengthen market discipline by increasing consistency and comparability of disclosures by financial institutions, the EBA published binding standards on Pillar 3 disclosures on ESG risks in January 2022. The standards, which currently applies to large institutions with securities traded on a regulated market of any EU Member State, build on the recommendation of existing initiatives such as those of the TCFD and include granular templates, tables and instructions aimed at ensuring consistency and comparability of disclosures by institutions. The standards require banks to disclosure information on: (i) how climate change may exacerbate other risks within the banks' balance sheets, (ii) mitigating actions that banks have in place to address those risks, (iii) Green Asset Ratio (GAR) and Banking Book Taxonomy Alignment Ratio (BTAR) to understand how institutions are financing activities that will meet the publicly agreed Paris Agreement objectives of climate change mitigation and adaptation based on the EU taxonomy of green activities.⁶² The standards also require banks to disclose information on their ESG strategies, and ESG related governance and risk management arrangements.⁶³ All institutions must be able to disclose the required information by June 2024. Implementation of these standards in Sweden will ensure that stakeholders have access to information on institutions' ESG exposures, risks, and strategies to facilitate informed decisions and to enhance market discipline. Please see Appendix II for more details.

Recommendation

68. Concrete steps should be taken to further improve the availability of high-quality information in Sweden for assessment of banks' exposure to climate-related risks. This could include: introduction of proportional mandatory disclosure requirements for banks on climate-

⁶⁰ The standards would be developed by the European Financial Reporting Advisory Group (EFRAG).

⁶¹ At the global level, IFRS Foundation through the International Sustainability Standard Board (ISSB), is developing standards on sustainability reporting.

⁶² These KPIs (GAR and BTAR) will be a useful tool for showing how institutions are embedding sustainability considerations in their risk management, business models and strategy, and their pathway towards the Paris agreement goals.

⁶³ [Final draft implementing technical standards on prudential disclosures on ESG risks in accordance with Article 449a of Capital Requirement Regulation \(CRR\)](#) Published in January 2022.

related financial exposures and risks in addition to those that are currently in place to address identified information gap, encouraging investment in robust data collection and management infrastructure, standardization and clarification on definition of data to be disclosed to ensure consistency, promoting efficient implementation of international standards on disclosure of climate-related risks. Supervisory reporting should also be enhanced with the aim of addressing the gaps in the information that is available for supervisory assessment of banks' exposures to climate risks.

COLLABORATION AND INFORMATION SHARING AGREEMENTS

69. There is information sharing between FI and other home or host foreign supervisors. As part of the 2021 SREP, the outcome of BMA was shared with host authorities in the college where FI is the home supervisor. During college meetings for banks where FI is the home supervisor, presentations have also been made by FI and the respective banks on the work that has been done in relation to ESG.

70. FI is a participant in a number of working groups and committees on climate-related risks that have been set up by the international standard setters and European Supervisory Authorities. The banking area is represented in the NGFS workstream on supervision, where they lead the work to investigate the potential risk differential between green and brown assets in 2019 and 2020.⁶⁴ FI is also a participant in the Basel Committee Task Force on Climate-related Financial Risks (TCFR) as well as the EBA subgroup on Sustainable Finance. FI is also represented in the EBA, the European Insurance and Occupational Pensions Authority (EIOPA), and the European Securities and Markets Authority (ESMA) network for sustainable finance issues and various working groups on climate-related issues. Between 2020 and 2022, FI's Director General chaired the International Organization of Securities Commission (IOSCO) Sustainable Finance Task Force, which is tasked with driving the work toward a global standard or corporate sustainability reporting together with the IFRS Foundation.⁶⁵

71. The Riksbank participates in the Basel Committee Task Force on Climate-Related Financial Risks (TCFR), where it is currently co-leading the regulatory group. The TCFR work is aimed at strengthening the regulation and supervision of banks and at ensuring that the banks are better prepared to manage risks related to climate change. Riksbank also contributed to the European Systemic Risk Board (ESRB) Project Team on climate risk that carried out stress tests with climate scenarios at banks and financial institutions and participates in the EBA sustainable finance network. Riksbank is also represented in the NGFS workstream on Scenario Design and Analysis, Monetary Policy and Net Zero for Central Bank as well as the expert network on legal issues.

⁶⁴ FI is a co-founder and member of the steering committee of the NGFS.

⁶⁵ IOSCO has identified IFRS Foundation as the vehicle to develop a global baseline for investor-oriented sustainability standards.

72. FI cooperates with the Swedish Environmental Protection Agency in some of their climate-related assignments. Specifically, FI is cooperating with the Swedish Environmental Protection Agency in the analysis of existing and future instruments and regulations (at both national and EU level) in the financial market area aimed at improving the conditions for achieving climate and environmental objectives.⁶⁶ It is also expected to assist the Authority for Growth Policy Analysis in producing data on climate change in the business sector. The assignment includes assisting in the analysis of relevant legislation, producing proposals, and impact assessment with regard to financial actors and lending to Swedish companies and banks.

Recommendation

73. FI should in a proportional manner formalize and expand its collaboration and information sharing arrangements with other Swedish Agencies involved in climate-related work. This includes: The Swedish Environmental Protection Agency, Swedish Meteorological and Hydrological Institute (SMHI), The Swedish Civil Contingency Agency, The Swedish Geotechnical Institute etc. The aim should be to, amongst others, enhance FI's capacity to effectively identify and supervise climate-related risks including on development of stress test scenarios, and challenging of banks scenarios and assumptions.

⁶⁶ The assignment is to be reported to the Swedish Government Office (Ministry of Environment) on 31 December 2023.

Appendix I. Overview of Swedish Laws, Programs, and Action Plans Related to Climate Change

	National Laws, Programs and Action Plans
Sweden's long-term strategy for reducing GHG emissions ¹	This was submitted to the UN in 2020 and is part of Sweden's work under the Paris Agreement. It contains emission targets and measures that will drive climate transition in Sweden in line with the goals of the Paris Agreement
Agenda 2030	<p>Goal 13 is to take urgent action to combat climate change and its impact. The climate goal promote poverty reduction and sustainable development</p> <p><u>Targets</u></p> <ol style="list-style-type: none"> 1. Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries. 2. Integrate climate change measures into national policies, strategies and planning. 3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
Climate Policy Framework ²	<p>In 2017, the Swedish parliament adopted a new national climate policy framework for Sweden. The framework consists of three parts: a Climate Act, national climate goals, and a Climate Policy Council. Sweden's long-term target is to have zero net greenhouse gas emissions by 2045 at the latest.</p> <p>The purpose of the framework is to create a clear and coherent climate policy to ensure long-term signals to the market and other actors. The framework was adopted by the Parliament with a broad majority of the political parties and is set up to withstand political shifts. The climate policy framework is an important climate reform in Sweden and is a key component of Sweden's efforts to comply with the Paris Agreement.</p>
The Swedish Climate Act ³	<p>The Climate Act entered into force on 1st January 2018 and imposes an obligation on current and future governments to pursue a policy based on national climate goals. The Act contains elements that ensure that the policy is planned and followed up. The Act states that the Government shall:</p> <ul style="list-style-type: none"> • Present a climate report in its Budget Bill each year containing: a description of emission trends in relation to the targets, a description of the most important climate policy decisions made during the year and their effects on GHG emissions trends, and an evaluation of whether further measures are needed and, if so, when and how any decisions on such measures may be taken. • Draw up a climate policy action plan every four year to describe how the climate targets are to be achieved. This action plan is presented to the Parliament and is expected to contain a description of: (i) Sweden's commitments in the EU and internationally, (ii) historical greenhouse gas emissions data, including the most recent emissions inventory (iii) emissions reduction projections, (iv) the outcome of any emissions reduction measures taken, (v) planned emissions reduction measures, including an approximate indication of when these measures may come into force, (vi) the extent to which adopted and planned emissions reduction measures can be expected to contribute to the achievement of the national and global climate change targets, (vii) the extent to which adopted and planned measures in different expenditure areas affect the ability to achieve

	National Laws, Programs and Action Plans
	<p>the national and global climate change targets, and (viii) any further measures or decisions that may be needed to achieve the national and global climate change targets.</p> <ul style="list-style-type: none"> • Make sure that climate policy and budget policy objectives work together.
<p>The Swedish National Climate Goals</p>	<p><u>The Swedish environmental quality objective</u></p> <p>Sweden has adopted 16 environmental quality objectives to provide a clear structure for environmental efforts in Sweden. This includes the objective to reduce climate impact which underly Sweden’s action in combatting climate change and that Sweden will support global efforts towards achieving the temperature goal of the Paris Agreement.</p> <p><u>Long term emission target for 2045</u></p> <p>The long-term target for Sweden is to have zero net emissions of greenhouse gas into the atmosphere by 2045 at the latest and negative net emissions thereafter.</p> <p>Achieving zero net emissions of greenhouse gases means that the emissions of greenhouse gases from activities in Sweden shall be at least 85 percent lower in 2045 compared to 1990. The remaining reductions down to zero can be achieved through supplementary measures such as: (i) increased net removal of carbon dioxide in forests and land, (ii) verified emission reductions from investments in other countries, and (iii) capture and storage of biogenic carbon dioxide</p> <p><u>Milestone targets for 2020, 2030 and 2040</u></p> <p>The Swedish Parliament has decided on three milestone targets to limit cumulative emissions and ensure a course that is feasible. The milestone targets apply to emissions outside the EU Emissions Trading System (EU ETS) in the Effort Sharing Regulation (ESR) sectors. The milestone targets are:</p> <ul style="list-style-type: none"> ○ By 2020 greenhouse gas emissions in Sweden in the ESR sector are to be 40 percent lower than 1990. The Government’s ambition is to reach the target with national measures. This target was met. ○ By 2030 at the latest, greenhouse gas emissions in Sweden in the ESR sectors are to be at least 63 percent lower than 1990. A maximum of 8 percentage points of the reduction may be achieved through supplementary measures. ○ By 2040 at the latest, emissions in Sweden in the ESR sector should be at least 75 percent lower than 1990. A maximum of 2 percentage points of the reduction may be achieved through supplementary measures. <p><u>A milestone target for domestic transport</u></p> <p>The emissions from domestic transport (with the exception of domestic aviation, which is part of the EU ETS), are to be reduced by at least 70 percent by 2030, compared to 2010.</p> <p><u>Supplementary measures to meet targets for 2030, 2040 and 2045</u></p>

	National Laws, Programs and Action Plans
	<p>To achieve the long-term target of zero net emissions of greenhouse gases by 2045 and the milestone targets by 2030 and 2040, supplementary measures may be counted in line with rules decided at international level:</p> <ul style="list-style-type: none"> ○ Increased uptake of carbon dioxide by forests as the result of additional measures; ○ Verified emission reductions carried out outside the Swedish borders; and ○ Carbon capture and storage based on the combustion of biomass, known as bio-CCS.
The Swedish Climate Policy Council	<p>The Climate Policy Council, which began its work in 2018, is an independent scientific council tasked with providing the government with an independent evaluation of whether the overall policy of the Government is compatible with the climate targets. The council evaluates whether the direction of various policy areas will increase or reduce the likelihood of achieving the climate goals. The Council comprises of members with a high level of scientific experience in the field of climate, climate policy, economics, political science and behavioral science.</p> <p>The Climate Policy Council is required to submit a report to the Government by the end of March each year. The Climate Policy Council is also to foster greater discussion about climate policy in society.</p>
Sweden's national energy policy	<p>Besides the target of net zero emissions of greenhouse gases into the atmosphere by 2045, energy policy targets addressing renewable energy and energy efficiency have been set by the Swedish Government.</p> <p>The target for 2040 is 100 percent renewable electricity production. This is a target, not an end date that prohibits nuclear power, nor does it mean shutting down nuclear power by means of political decisions. In addition, Sweden's energy consumption is to be 50 percent more efficient by 2030 compared with 2005, expressed in terms of energy supplied in relation to gross national product (GNP).</p>
National Strategy for Climate Change Adaptation ⁴	<p>The strategy includes Sweden's climate change adaptation goals, guiding principles for the work, organisation and distribution of responsibilities, monitoring, financing principles and knowledge-boosting initiatives. The strategy will be updated every five years.</p> <p>To support the national work, several bodies have been established. The Swedish National Expert Council for Climate Adaptation was appointed by the Government and has been tasked with evaluating climate change adaptation work in Sweden and submitting proposal for ongoing work. The Expert Council provides data for national climate change adaptation strategy every five years.</p> <p>The Swedish National Centre for Climate Change Adaptation is also run-on behalf of the government at SMHI. The role of the centre is to act as a hub for knowledge about climate change and to be a meeting place for actors involved in climate change adaptation.</p>
<p>¹ Sweden's long-term strategy for reducing greenhouse gas emissions.</p> <p>² The Swedish Climate Policy Framework.</p> <p>³ The Swedish Climate Act.</p> <p>⁴ National Strategy for Climate Change Adaptation.</p>	

Appendix II. Summary of ESG Disclosures Under Pillar 3

	What to Disclose	Examples of Disclosures
Risk Disclosures	Climate Change Transition Risk Information on exposures to sectors or assets that may highly contribute to climate change	<ul style="list-style-type: none"> ▪ Exposures to fossil fuel companies excluded from sustainable climate benchmarks, and to other carbon-related sectors ▪ For real estate exposures, distribution of the exposures by energy performance of collateral
	Climate Change Physical Risks: Risk exposures subject to extreme weather events (sector or geography)	<ul style="list-style-type: none"> ▪ Assets subject to impact from chronic or acute climate change events by sector and geography ▪ Assets subject to impact from acute climate change events by sector and geography
Mitigating Actions	Actions that support counterparties in the transition to carbon neutral economy but that do not meet taxonomy criteria	Building renovation loans that improve the energy efficiency of the building but do not meet the taxonomy screening criteria
	Actions that support counterparties in the adaptation to climate change but that do not meet taxonomy criteria	Loans to build barriers against flooding, or water management mechanism against draughts but do not meet the taxonomy screening criteria
Green Asset Ratio	Information on exposures towards NFRD corporates and retail financing taxonomy-aligned activities consistent with Paris Agreement goals that contribute substantially to climate change mitigation (CCM) and adaptation (CCA), including information on transitional and enabling activities.	<ul style="list-style-type: none"> ▪ Contribution to CCM: Generation of renewable energy ▪ Enabling CCM: Manufacture of renewable energy technologies ▪ Contributing to CCA: Afforestation ▪ Enabling CCA: Engineering activities for adaptation to climate change
Banking Book Taxonomy Alignment Ratio	Information on exposures towards non-NFRD corporates not assessed in the GAR financing taxonomy-aligned activities consistent with Paris Agreement goals, contributing substantially to CCM and CCA. simplified assessment, based on bilateral information and estimates	
Qualitative Disclosures	Qualitative information on environmental, social and governance risks	<ul style="list-style-type: none"> ▪ Governance arrangements ▪ Business model and strategy ▪ Risk management
Source: EBA		