

Climate-related disclosures of Latvijas Banka's non-monetary policy portfolios

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1 Introduction

Climate change and the transition towards a sustainable economy affect the valuation of financial asset through their impact not only on macroeconomic indicators, such as inflation, output, employment, interest rates, investment, and productivity, but also on financial stability and the transmission of monetary policy. Consequently, climate change and the low-carbon transition also influence the risk profile of the assets held in Latvijas Banka's investment portfolios, potentially leading to an undesirable accumulation of climate-related financial risks.

The identification and management of climate change and transition risks are especially important with regard to both macroeconomic and financial stability, having a direct effect on the attainment of the Eurosystem's objectives and also on the successful performance of Latvijas Banka's tasks, including the implementation of monetary policy, promotion of financial stability, management of foreign reserves and other financial investments, and other functions of the Bank.

Latvijas Banka takes part in the work of the Network of Central Banks and Supervisors for Greening the Financial System, as well as supports and actively participates in the implementation of the Eurosystem's climate policy. A part of Latvijas Banka's reserves is managed by external asset managers, all eight of whom are signatories of the United Nations' Principles for Responsible Investment (UN PRI). The external manager of the developed markets equity portfolio also endorses the ISG US Stewardship Principles and ICGN Global Stewardship Principles.

In February 2021, the Eurosystem announced that it will start making annual climate-related financial disclosures for its euro-denominated non-monetary policy portfolios (NMPPs) within the following two years. The disclosures will follow the recommendations and terminology of the Task Force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board.

This report presents Latvijas Banka's first climate-related financial disclosures on its NMPPs (foreign reserves and other non-monetary policy investment portfolios) within the Eurosystem's framework, structuring the information according to the four TCFD's categories: "Governance", "Strategy", "Risk management", and "Metrics and targets". Through improving the transparency of its activities, the Bank aims to contribute to the availability of climate-related data and a better overall understanding of climate-related risks. In doing so, Latvijas Banka strives to reduce its own environmental impact and to foster action beyond the institution.

Latvijas Banka announced the ambition to incorporate sustainability objectives in the management of NMPPs in its Sustainability Strategy published in 2021. By implementing sustainable investment guidelines for the equity portfolio¹, the Bank seeks to mitigate climate-related financial risks. In 2022, the scope of the portfolio objectives was broadened by integrating climate-related aspects: to enhance carbon neutrality by 2050 at the latest, to ensure the compliance with the provisions set out in the Paris Agreement and to act towards the preservation of biodiversity and enhancement of pollution mitigation strategies. The disclosures will be improved and updated over time in line with the advancements in climate data availability and quality as well as the developments in sustainable investment strategies and joint international commitments.

1 The developed markets equity portfolio accounted for 9% of NMPPs as at 31 December 2022.

2 Governance

While the Eurosystem has a common stance on sustainable investment principles related to climate change, the management of NMPPs is at the discretion of each central bank. Following the adoption of its Sustainability Strategy in 2021, Latvijas Banka considers sustainability in the management of NMPPs along the traditional objectives: safety, liquidity, and return.

Latvijas Banka has adopted an integrated approach to the governance of climate-related issues; therefore, climate-related considerations are addressed within its existing governance and investment management structures.

The Council of Latvijas Banka is responsible for approving the principles and targets related to investment activities, including climate-related investment targets. Latvijas Banka's Investment Committee and the Market Operations Department implement these principles in practice and report to the Council at least once a year.

To date, Latvijas Banka has applied its Sustainability Strategy principles to its developed markets equity portfolio and is working on incorporating sustainability objectives into its investment policy for other NMPPs. Within the Eurosystem's framework, the Bank procures climate data and climate ratings systems to integrate them into the investment management process and to report on climate-related financial disclosures in line with the Eurosystem's common stance.

The current climate-related risk management framework is not considered final. It is expected that over time sustainability-related data disclosures will be enhanced and further improvements will be possible, especially in the field of metrics, data standards, and quality.

3 Strategy

In November 2021, Latvijas Banka announced the ambition to incorporate sustainability objectives in the management of NMPPs as set out in its Sustainability Strategy. Given the Bank's conservative and thus limited investment scope, currently the incorporation of sustainability targets in NMPPs is primarily dependent on advancements in data disclosures and metrics.

3.1 Equities

So far, Latvijas Banka has developed and approved dedicated sustainability targets for the developed markets equity portfolio. The implementation of the principles of the Sustainability Strategy in this portfolio was completed in 2022.

For the developed markets equity investments, Latvijas Banka has applied the following sustainability strategy elements: climate-related risk mitigation, thematic investment, engagement, conduct, product, engagement-based and Paris-Aligned Benchmark (PAB) activity-based exclusions, biodiversity, and waste reduction, along with environmental, social and governance (ESG)-related tilting.

3.1.1 Climate-related risk mitigation and thematic investment strategies

The results from a potential impact analysis show that climate and sustainability-related strategies applied to equity investments would generate a meaningful impact due to both data availability and possibilities of engagement with issuers. The risk mitigation strategy for the equity portfolio covers transition risks and physical risks.

Climate-related risk mitigation is achieved by optimizing the equity portfolio in a way that enhances carbon neutrality by 2050 at the latest and ensures compliance with the provisions set out in the Paris Agreement by targeting a reduction in carbon intensity by 50% against the benchmark or self-decarbonisation by 7% per annum (2019 base year), whichever is lower at any given time. Meanwhile, opportunities are captured by applying investment tools provided by the external manager: the green opportunities factor and the glide path transition factor.

3.1.2 Engagement

A sufficient change cannot be achieved by the mere exclusion of issuers that currently do not meet the relevant criteria, instead a more significant impact in the longer term can be achieved via active ownership. The equity portfolio is managed by an external asset manager to whom Latvijas Banka has outsourced the engagement process, evaluating the manager's capabilities to incorporate climate impact strategies and to ensure active engagement. The external manager has a comprehensive engagement policy and experience in engagement and voting according to the respective guidelines. This engagement policy allows the Bank to leverage its position as a shareholder in public companies to influence corporate decision-making in relation to climate-related risk and other ESG-related factors. The main objective is to reduce greenhouse gas (GHG) emissions and to ensure that investees' climate-related risk exposure is reduced, while also contributing to sustainability and evolution of good governance practices. Through engagement, the Bank also advocates the enhancement of quality and availability of data disclosures for investee companies.

Latvijas Banka believes that the broader use of material ESG information in the investment analysis process leads to better-informed investment decisions. The external manager's stewardship policy is its commitment to act as an active owner of assets managed on behalf of the Bank.

Carrying out its stewardship responsibilities is a core element of the external manager's fiduciary duty and involves:

- building relationships with companies through regular and on-going engagement;
- tracking progress of dialogue with companies;
- voting on all resolutions globally, where practical, in line with Latvijas Banka's guidelines;
- working with other shareholders where appropriate;
- reporting to the Bank.

3.1.3 Exclusions

There are several types of issuer exclusions applied to Latvijas Banka's developed markets equity portfolio in order to ensure a wider range of sustainability goals, namely conduct-based, product-

based, engagement-based and PAB activity-based exclusions. The conduct-based exclusions are aligned with the UN Global Compact principles, the product-based exclusions apply to controversial weapons and tobacco producers in accordance with the Global Industry Classification Standard, and the engagement-based exclusions are identified as laggards within the external manager's thematic engagement program. The Bank restricts investments in individual companies whose turnover exceeds the thresholds as follows (PAB activity-based exclusions, revenue-based):

coal mining	maximum 1%
oil	maximum 10%
natural gas	maximum 50%
inefficient electricity production	maximum 50%

3.1.4 Biodiversity and pollution

Latvijas Banka applies tilting toward companies with better biodiversity and waste management practices. Tilting is utilized by adding more weight to companies that perform better via two channels: natural capital theme (a score that is a weighted average of water stress, biodiversity and land use, and raw material sourcing scores) (+10% relative to the benchmark) and pollution and waste theme (a score that is a weighted average of toxic emissions and waste, packaging material and waste, and electronic waste) (+10% relative to the benchmark).

3.1.5 ESG

Latvijas Banka favours the engagement rather than the exclusion approach to sustainable investing, and companies are not excluded from the equity portfolio based just on weak ESG scores. However, to emphasize the importance of not only the environmental but also the social and governance factors, the Bank utilizes ESG factor tilting by improving the ESG score of the portfolio by 10% relative to the benchmark.

3.2 Fixed income securities

Further work is being carried out to formulate appropriate sustainability strategies for other NMPPs and the progress reports will be updated annually. Methodological and data issues for other asset classes, most importantly structured instruments (mortgage-backed securities (MBS) and asset-backed securities (ABS)), require further advancements in disclosure and measurement standards before relevant sustainability strategies can be designed and adopted.

A substantial part of Latvijas Banka's NMPPs are invested in MBS given the asset class's favourable characteristics as an alternative to the US Treasuries. MBS provide an opportunity to invest through a social lens as the mission of MBS issuers – the government agencies Fannie Mae, Freddie Mac, and especially Ginnie Mae – is inherently driven by social principles, aiming to encourage homeownership and facilitate the flow of government-subsidized residential credit to low- and moderate-income borrowers. Historically, studies have shown a large gap in the US across income levels or ethnic groups.

Currently, the largest challenge in the market is a shortage of consistent, comparable, and widely adopted data points. The evolution of ESG incorporation in the strategies and analysis of the US securitized debt has faced different challenges than that of equities or bonds due to the complexity of the market, a lack of data, and changing classification standards. Government agencies recently have become more transparent by disclosing some income and individual pool data. Despite some of the large advances in initiatives, access to individual loan details remains problematic due to borrower protection laws, prohibiting investors from acquiring complete transparency on social attributes for individual loans within pools.

4 Risk management

In line with the integrated approach, climate-related risks are monitored under the overall risk management process, where climate-related risks do not form a new risk category, but rather are an augmenting factor for the existing financial risk categories. Financial risks of NMPPs consist of market, credit, and liquidity risks. Market risks include adverse movements in exchange rates, interest rates, and stock prices. In addition, the Bank's NMPPs are exposed to climate-related risks.

Latvijas Banka recognizes the importance of developing a thorough understanding of climate-related risks in its NMPPs and has adopted the recommendations and terminology proposed by the TCFD in identifying, assessing, and mitigating climate-related risks.

Latvijas Banka takes a holistic view in managing the potential quantitative effect that climate-related risks have on its balance sheet via the NMPPs.

Climate-related risks have been divided according to their nature into "physical" and "transitional", and their implications are relevant to all assets that are subject to large downside risks. As climate change impacts both macroeconomic and microeconomic factors, financial markets play an important role in translating this impact to market participants through asset prices, which, in the case of corporate bonds and equities, are also exposed to reputational risks and climate-related litigation risks.

Latvijas Banka applies a bottom-up approach and treats climate-related risks as reinforcers of financial risks. The sensitivity of financial assets to climate-related risks is calculated based on several metrics and data sources which are jointly identified in the Eurosystem, such as Carbon Footprint and Weighted Average Carbon Intensity (WACI) for assets in traditional asset classes, i.e., government debt, supranational and agency bonds, corporate bonds, covered bonds, and equities. Consequently, the risk management framework includes the management of climate-related risks alongside financial risks as climate-related risks would manifest in financial losses through the realization of credit and market factors.

Latvijas Banka monitors the exposure of its NMPPs to climate-related risks with specific metrics that are integrated into its risk management framework and will be reviewed annually. Further work is underway to explore future developments based on comprehensive climate stress tests.

Latvijas Banka recognizes the importance of developing a thorough understanding of the climate-related risks in its NMPPs relative to other risks. Given the asset allocation of the Bank's investments, currently these are considered to have a small impact on the existing financial risks in the short and medium term.

However, climate-related risks are regarded as more important in the long term.

5 Metrics and targets

The section presents Latvijas Banka's first disclosures of climate-related metrics and targets for its NMPPs within the framework of jointly identified Eurosystem's climate-related disclosures: data metrics and common data sources that focus on both backward- and forward-looking issuers' disclosures. The calculation of the subsequently presented metrics follows the TCFD's recommendations and is prepared for holdings as at the end of the corresponding year. Data are made available for the last three calendar years. The main metrics, which together form the basis of the Eurosystem's common minimum disclosures on NMPPs, are WACI, Total Absolute GHG Emissions and Carbon Footprint.

5.1 Definitions

The WACI measures a portfolio's exposure to carbon-intensive issuers, expressed in tons of CO₂ equivalent per EUR million revenue.² The carbon intensity of each issuer is computed by normalising their GHG emissions by a measure of economic activity. For sovereign and sub-sovereign bonds the calculation consists of three measures: purchasing power parity adjusted gross domestic product (PPP adj. GDP) for production-based emissions, population for consumption-based emissions and final consumption expenditure for government-based emissions. For all other instruments calculations are based on revenues. The portfolio WACI is then calculated by weighting the carbon intensity of each issuer by their respective share of holdings in the portfolio. The WACI is the central element of the Eurosystem's climate-related financial disclosures. High data availability, data normalisation, and the widespread application of the metric across the financial industry ensure comparability across portfolios and time. The WACI delivers an "outside-in-perspective" (i.e., financial materiality), which serves as proxy for a portfolio's exposure to climate change-related transition risks.

$$WACI = \sum_n^i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \right) \times \left(\frac{\text{issuer's GHG emissions}_i}{\text{issuer's revenue or PPP adj. GDP, population, final consumption expenditure}_i} \right)^3$$

The Total Absolute GHG Emissions metric quantifies the emissions associated with a portfolio, expressed in tons of CO₂ equivalent. GHG emissions are weighted by the investor's contribution to the issuer's total capital structure – enterprise value including cash (EVIC) or PPP adj. GDP – and summed up to determine the portfolio's total absolute GHG emissions. The metric functions as a foundation of related normalised metrics such as Carbon Footprint. It provides an "inside-out-perspective" (i.e., environmental materiality), which serves as proxy for a portfolio's environmental footprint.

$$\text{Total Absolute GHG Emissions} = \sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \times \text{issuer's GHG emissions}_i \right)$$

Due to its non-normalised nature, the metric's comparability across portfolios and time is limited, with portfolio size being the main driver. To overcome this shortcoming and to provide a more holistic view of a portfolio's associated emissions, complementary disclosure of *Carbon Footprint* is essential.

Carbon Footprint normalises the *Total Absolute GHG Emissions* associated with a portfolio by its market value, expressed in tons of CO₂ equivalent per EUR million invested, thereby allowing for comparability across differently sized portfolios and time.

$$\text{Carbon Footprint} = \frac{\sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \right) \times \text{issuer's GHG emissions}_i}{\text{current portfolio value}}$$

For the time being, the main focus is on Scope 1 and 2 emissions with the possibility to add Scope 3 emissions as calculation methodologies, data quality and coverage improve over time to reduce double counting of emissions.

2 Carbon dioxide equivalent (or CO₂ equivalent) is a metric measure used to compare the emissions from various greenhouse gases by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential (GWP). For more information, see [Eurostat](#).

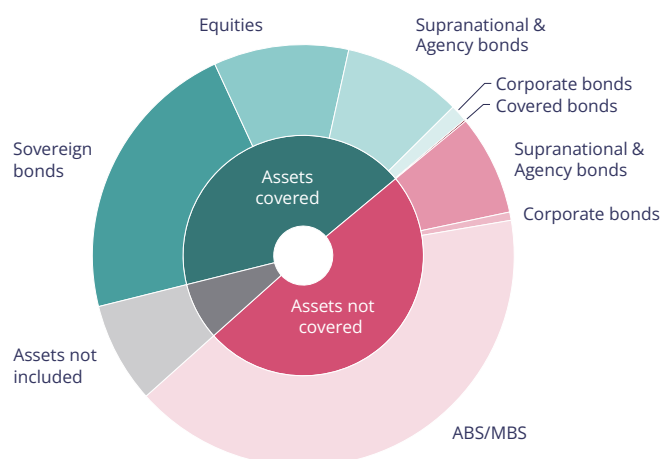
3 There are different normalisation factors used in the calculation of WACI for sovereign bonds depending on emissions – PPP adj. GDP is used for production-based emissions, population is used for consumption-based emissions and the final consumption expenditure is used for government-based emissions.

5.2 The results of climate-related disclosures for 2022

he review below covers 92% of the total market value of the NMPPs as at the end of the year. Gold, cash, negative security exposures, derivatives, and cash equivalents are not included in the climate analysis due to their current incompatibility with this analysis. At the time of the calculation, no GHG emissions data were available for ABS/MBS and part of supranational, agency and corporate bonds, hence the total coverage ratio of the assets where climate analysis can be performed is 43%.

Chart 1

The coverage of the climate analysis, market value as at 30 December 2022



For a detailed description of the allocation methods, normalisation factors and attribution factors, see Annex 1.

The most significant climate impacts arise from the sovereign and corporate (corporate bonds and equities) investments (see Table 1).

Table 1

Climate-related metrics, NMPPs for 2022

	Sovereign bonds			Non-sovereign issuers					Total non-sovereign issuers
	Production-based emissions	Consumption-based emissions	Government-based emissions	Supranational & Agency bonds	Corporate bonds	Covered bonds	Equities	ABS/MBS	
Portfolio size (€ M)	1,199			917	105	5	564	2,238	3,830
WACI (tCO₂e/ € M revenue or PPP adj. GDP, population or expenditure)	252	12	158	2	497	3	113	0	89
<i>data availability</i>	100%	100%	97%	54%	67%	100%	100%	0%	30%
Total Absolute GHG Emissions (Scope 1 and 2 in tCO₂e)	324,503	373,680	36,701	25	65,560	2	20,581	0	86,167
<i>data availability</i>	100%	100%	100%	54%	67%	100%	100%	0%	30%
Carbon Footprint (tCO₂e per € M invested)	252	290	28	0	829	0	36	0	74
<i>data availability</i>	100%	100%	100%	54%	67%	100%	100%	0%	30%

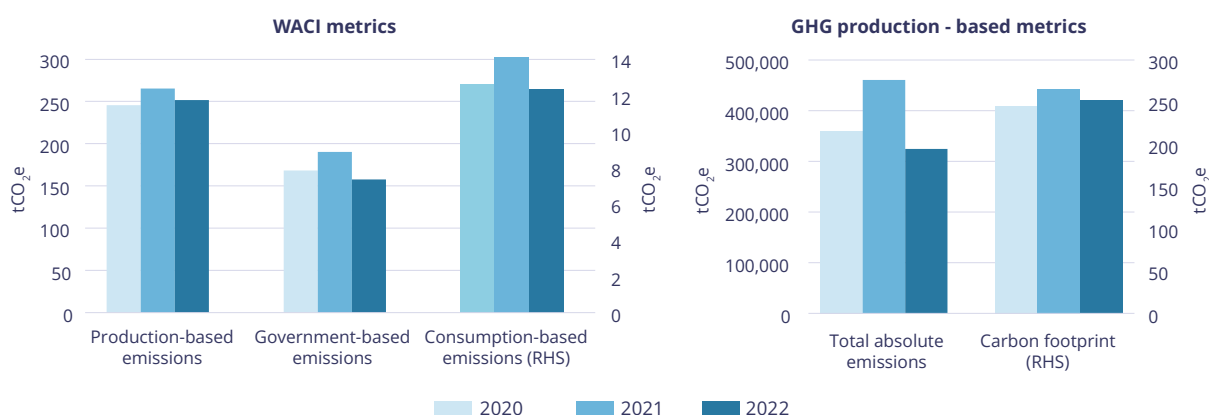
Note: Sub-sovereign issuers are treated as sovereign issuers. The percentages below the metrics represent data availability, calculated as percentage of investments (i.e., market value of investments / market value of portfolio) for which all required data (i.e., GHG emissions data and financial data) are available. GHG emissions data have a 1–3 year lag; therefore, the 2022 metrics reflect 2021 corporate emissions and 2020, 2019 sovereign emissions. GDP, population and final consumption expenditure, revenue and EVIC data are as at 2021. The displayed portfolio size is calculated using the market value of the respective investment regardless of the accounting principles applied to the investment. Metrics are calculated using market values for equities and nominal values for bonds. WACI and Carbon Footprint for individual asset classes are reported on a standalone basis.

Data: Latvijas Banka, ISS (reported or estimated), C4F, World Bank and financial statements of issuers. Calculations by Latvijas Banka.

Over the last three years, the key metrics for sovereign bond investments have been relatively stable (see Chart 2).

Chart 2

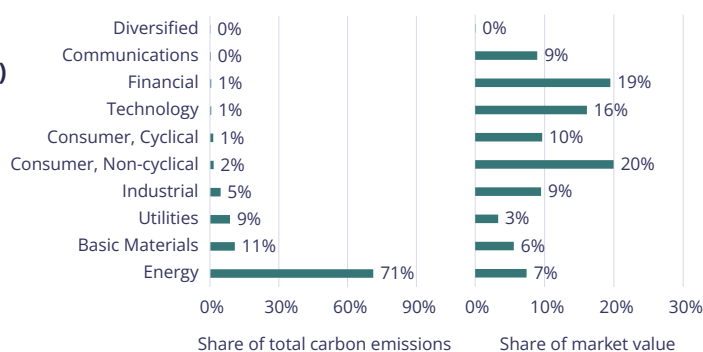
Evolution of key metrics for sovereign bond investments



For corporate issuers (both bonds and equities), the energy, basic materials, and utilities sectors exposures account for 91% of the total carbon emissions, while only constituting 16% of the respective securities' market value (see Chart 3). This is explained by the high carbon intensity in these sectors.

Chart 3

Breakdown of corporate investment allocation (corporate bonds and equities) by sector



In 2022, Latvijas Banka implemented the principles of its Sustainability Strategy in the developed markets equity portfolio and, as a result, the carbon footprint for the portfolio decreased by 47%, in line with the strategy (see Chart 4).

Chart 4

Evolution of carbon footprint of the developed markets equity portfolio



Note: Metrics are rounded, the change is calculated using exact numbers.

5.3 Results of the implementation of the Sustainability Strategy principles in the equity portfolio

As described in Section 5, the transition of the developed markets equity portfolio was completed in December 2022. Since the equity portfolio is managed by an external asset manager, the data and calculations in Table 2 are provided by the external manager. Considering that sustainability strategy is applied to the developed markets equity portfolio, more granular data than the metrics calculated for the whole investment universe are provided in Table 2 and include metrics and factors set forth in the sustainability guidelines for the portfolio.

Table 2

The developed markets equity portfolio after the transition

Climate and sustainability metrics	Target deviations from the benchmark	Metric before the transition	Deviation from the benchmark before the transition	Metric after the transition	Deviation from the benchmark after the transition
Carbon Intensity Scope 1 (revenue-based)	-50%	128.8	+0.0%	62.1	-51.7%
Carbon Intensity Scope 2 (revenue-based)	-20%	33.6	+0.3%	24.4	-20.8%
Carbon Intensity Scope 3 (revenue-based)	-10%	136.0	+0.2%	120.8	-11.1%
Carbon Intensity Scope 1+2, selected 3 (EVIC based)^	-50%	254.1	+0.6%	123.8	-51.4%
Decarbonisation target (reference metric – Carbon Intensity Scope 1+2, selected 3 (EVIC based)) vs base year of 2019^	-7% per annum	N/A	N/A	N/A	N/A
Fossil Fuel Reserves Factor	-30%	N/A	+0.4%	N/A	-86.6%
Green Opportunities Factor	+20%	N/A	+0.0%	N/A	+20.4%
Glide Path Transition Factor (forward-looking factor)	+35%	N/A	-0.2%	N/A	+34.5%
UBS ESG Consensus Score	+10%	6.6	-0.0%	7.3	+10.1%
Natural Capital Theme Score (Water Stress Key Issue Score, Biodiversity & Land Use Key Issue Score, Raw Material Sourcing Key Issue Score)	+10%	7.6	-0.0%	8.4	+11.0%
Pollution and Waste Theme Score (Toxic Emissions & Waste Key Issue Score, Packaging Material & Waste Key Issue Score, Electronic Waste Key Issue Score)	+10%	1.9	-0.1%	2.1	+11.0%

Source: External manager of Latvijas Banka's equity portfolio, MSCI ESG Research, Trucost, Thomson Reuters, MSCI. Data as at December 2022. Indicative figures relating to the portfolio transition, "Before": 14 December 2022, "After": 19 December 2022. Metrics are rounded to one decimal point, deviations are not calculated using rounded figures.

Note: ^The stricter rule between the carbon intensity deviation target and decarbonisation target of 7% per annum is applied – as long as the -50% deviation from the benchmark is greater than the deviation produced by the decarbonisation target of 7% per annum vs base year, the deviation of 50% is applied.

5.4 Conclusions

Latvijas Banka has prepared its first climate-related disclosures report with the goal of providing transparency regarding the respective metrics. The Bank recognizes that there is a high uncertainty of climate-related risk materialization, and the underlying methodology of the disclosures will evolve as climate-related reporting continues to develop. As this is the Bank's first report of this kind, the findings have not yet been used as a basis for any investment policy decisions or specific risk mitigation measures. The implementation of the Sustainability Strategy principles in the developed markets equity portfolio was realized independently of the results of the disclosures analysis. The EU 2050 long-term strategy aims for EU climate neutrality by 2050 in line with the Paris Agreement's objective to keep the global temperature increase well below 2°C and pursue efforts to keep it to 1.5°C. Going forward, in support of the EU climate strategies and the Paris Agreement, as well as a part of its commitment to climate-neutral strategies for NMPPs by 2050, Latvijas Banka intends to further improve its climate-related risk management framework, especially due to the rapidly-evolving nature of this field in terms of data availability and quality, best practices and regulation.

Annex 1

Carbon emissions allocation methods, normalisation factors and attribution factors

Table 1

Emissions allocation

Issuer type	Factor	Remarks	Unit
Corporate	Scope 1 & 2 emissions	Scope 1 comprises direct GHG emissions that occur from sources controlled or owned by an organisation (e.g. emissions associated with fuel combustion in boilers, furnaces, vehicles). Scope 2 comprises indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling.	tCO ₂ e
Supra & Agency			
Sovereign	Production-based emissions	Emissions produced domestically within a country's physical borders, including domestic consumption and exports. This definition follows the territorial emissions approach adopted by United Nations Framework Convention on Climate Change (UNFCCC) for annual national inventories.	
	Consumption-based emissions	Emissions related to domestic demand, accounting for trade effects. This metric provides a broader view of a sovereign's emissions and tackles the issue of carbon leakage that arises due to production shifts from countries where goods are consumed later.	
	Government-based emissions	Direct emissions (e.g. from buildings, vehicles) and indirect emissions (e.g. emissions related to energy consumption, but also expenditures, subsidies, and investments) of the central government.	

Table 2

Emission normalisation

Issuer type	Factor	Remarks	Unit
Corporate	Revenue	The total amount of income generated by the sale of goods and services related to the primary operations of the business. Commercial revenue may also be referred to as sales or as turnover.	EUR million
Supra & Agency			
Sovereign	Production: PPP adj. GDP	GDP is the sum of gross value added by all resident producers plus any product taxes and minus any subsidies not included in the value of the products. The Purchasing Power Parity (PPP) conversion factor is a spatial price deflator and currency converter that eliminates effects of differences in countries' price levels.	EUR million
	Consumption: Population	Total population of a country.	People
	Government: Final consumption expenditure	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defence and security but excludes government military expenditures that are part of government capital formation.	EUR million

Table 3

Emission attribution

Asset class	Factor	Remarks	Unit
Sovereign bonds	PPP adj. GDP	See description of “PPP adj. GDP” in the normalisation factor.	EUR
Equities	EVIC	The sum of the market capitalisation of ordinary shares at fiscal year-end, the market capitalisation of preferred shares at fiscal year-end, and the book values of total debt and minorities' interests.	
Supra & Agency bonds			
Corporate bonds			
Covered bonds			

Annex 2

Climate-related metrics 2020-2022

Table 1

Climate-related metrics, NMPPs for the year 2020

	Sovereign bonds			Non-sovereign issuers					Total non-sovereign issuers
	Production-based emissions	Consumption-based emissions	Government-based emissions	Supranational & Agency bonds	Corporate bonds	Covered bonds	Equities	ABS/MBS	
Portfolio size (€ M)	1,551			979	142	97	571	2,428	4,217
WACI (tCO₂e/ € M revenue or PPP adj. GDP)	246	13	168	2	28	2	153	0	72
<i>data availability</i>	100%	100%	100%	56%	91%	73%	100%	0%	31%
Total Absolute GHG Emissions (Scope 1 and 2 in tCO₂e)	360,305	414,792	44,673	37	1,236	18	30,982	0	32,273
<i>data availability</i>	100%	100%	100%	56%	91%	73%	100%	0%	31%
Carbon Footprint (tCO₂e per € M invested)	246	283	30	0	10	0	54	0	25
<i>data availability</i>	100%	100%	100%	56%	91%	73%	100%	0%	31%

Table 2

Climate-related metrics, NMPPs for the year 2021

	Sovereign bonds			Non-sovereign issuers					Total non-sovereign issuers
	Production-based emissions	Consumption-based emissions	Government-based emissions	Supranational & Agency bonds	Corporate bonds	Covered bonds	Equities	ABS/MBS	
Portfolio size (€ M)	1,812			877	204	57	882	2,398	4,418
WACI (tCO₂e/ € M revenue or PPP adj. GDP)	265	14	190	3	312	2	149	0	115
<i>data availability</i>	99%	100%	97%	50%	57%	54%	100%	0%	33%
Total Absolute GHG Emissions (Scope 1 and 2 in tCO₂e)	460,248	524,559	56,290	27	57,625	6	47,258	0	104,916
<i>data availability</i>	99%	100%	99%	50%	57%	54%	100%	0%	33%
Carbon Footprint (tCO₂e per € M invested)	265	300	32	0	524	0	54	0	72
<i>data availability</i>	99%	100%	99%	50%	57%	54%	100%	0%	33%

Table 3

Climate-related metrics, NMPPs for the year 2022

	Sovereign bonds			Non-sovereign issuers					Total non-sovereign issuers
	Production-based emissions	Consumption-based emissions	Government-based emissions	Supranational & Agency bonds	Corporate bonds	Covered bonds	Equities	ABS/MBS	
Portfolio size (€ M)	1,119			917	105	5	564	2,238	3,830
WACI (tCO₂e/ € M revenue or PPP adj. GDP)	252	12	158	2	497	3	113	0	89
<i>data availability</i>	100%	100%	97%	54%	67%	100%	100%	0%	30%
Total Absolute GHG Emissions (Scope 1 and 2 in tCO₂e)	324,503	373,680	36,701	25	65,560	2	20,581	0	86,167
<i>data availability</i>	100%	100%	100%	54%	67%	100%	100%	0%	30%
Carbon Footprint (tCO₂e per € M invested)	262	290	28	0	829	0	36	0	74
<i>data availability</i>	100%	100%	100%	54%	67%	100%	100%	0%	30%