

Climate-Related Disclosures of Latvijas Banka's Non-Monetary Policy Portfolios

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1. Introduction

Climate change, in conjunction with the transition towards climate neutrality, can lead to rising financial risks. Latvijas Banka acknowledges how these dynamics influence the macroeconomic environment and financial stability, ultimately affecting the risk profile of assets within its portfolios. To address these challenges, the Bank's climate-related investment management strategy is guided by three core objectives: addressing climate risks, facilitating the green transition through relevant actions within its mandate, and fostering collaboration by sharing experiences to encourage coordinated efforts among financial institutions, policymakers, and regulatory bodies. This report provides the climate-related financial disclosures of Latvijas Banka's non-monetary policy investment portfolios (NMPPs).

Latvijas Banka has developed its [Sustainability Strategy](#) which defines the Bank's understanding of sustainability and outlines the scope of its tasks in integrating sustainability principles to ensure a successful performance of the responsibilities specified in the Law on Latvijas Banka, including the management of foreign reserves and other financial investments. The Sustainability Strategy was first published in November 2021 and reviewed in June 2023 to reflect the changing environment and increase the Bank's efforts towards achieving sustainability. Additionally, Latvijas Banka takes part in the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), as well as supports and actively participates in the implementation of the Eurosystem's climate policy.

Latvijas Banka publishes the climate-related financial disclosures of its foreign reserves and other NMPPs in accordance with the Eurosystem's common stance on climate-related disclosures. This report represents the Bank's third instalment. The disclosures follow the recommendations and terminology of the Task Force on Climate-Related Financial Disclosures (TCFD) of the Financial Stability Board and the information is structured according to the four TCFD's categories: Governance, Strategy, Risk Management, and Metrics and Targets. The Metrics and Targets category encompasses the Eurosystem's common disclosure framework. This report reflects the further broadening of disclosed data by adding Scope 3 - Greenhouse Gas (GHG) Emission Metrics.

The Bank has gradually expanded the integration of its Sustainability Strategy into several of its NMPPs and plans to extend this scope even further. The Bank also discloses changes made in 2024 to the emerging markets fixed income portfolio and the global fixed income portfolio by integrating sustainability considerations into their investment guidelines. This integration of sustainability strategies is carried out without overshadowing other investment objectives, as set out in the mandate of Latvijas Banka.

Over time, further enhancements to sustainability-related data disclosure methodology will support Latvijas Banka's ongoing efforts to reduce its environmental impact and increase transparency regarding its portfolios' exposure to climate risks and their carbon footprint.

2. Governance

Latvijas Banka supports and follows the Eurosystem's common stance on sustainable investment principles related to climate change. When managing NMPPs, the Bank considers sustainability alongside the traditional objectives: capital preservation, liquidity, and income generation over the medium term.

The Bank has adopted a comprehensive approach to the management of climate-related issues, integrating them into its existing governance and investment management frameworks.

The Council of Latvijas Banka is responsible for approving investment principles and targets, including those related to climate and sustainability, while the Investment Committee and Market Operations Department are responsible for implementing these principles in practice and providing annual reports to the Council.

To date, Latvijas Banka has applied sustainability strategies to its developed markets equity portfolio, emerging markets fixed income portfolio, and global investment-grade fixed income portfolio. Latvijas Banka is committed to explore possibilities to integrate sustainability objectives into the management of its discretionally managed NMPPs, as set out in its Sustainability Strategy.

Latvijas Banka's framework for sustainable finance and climate-related risk management is undergoing continuous development. Over time, enhancements are expected in the application of sustainability strategies, risk management practices, and data disclosures, particularly in areas such as metrics, data standards, availability, and quality.

3. Strategy

Latvijas Banka's Sustainability Strategy forms the basis for incorporating sustainability principles into the management of NMPPs. Given the Bank's prudent approach, its primary investment goals, and the current composition of the investment portfolios, the incorporation of sustainability strategies is evaluated on a case-by-case basis for each portfolio. Although the Bank has not established an overall decarbonisation target for its foreign reserves at present, decarbonisation efforts are ongoing through an alignment process. Significant progress in terms of sustainability integration can only be achieved through improvements in methodologies and the establishment of robust data standards. Given the investment structure of the Bank's NMPPs, enhanced data availability for securitised instruments would be a significant step in this direction. However, as long as the quality of sustainability and climate data remains uncertain, the extensive reporting requirements will undermine any added benefits. Consequently, the Bank prioritises adherence to the Eurosystem's common mandatory disclosure framework.

3.1 Equities

The combination of active ownership opportunities, data availability, and strategic flexibility makes equities the most suitable asset class for executing a robust sustainability strategy. In 2022, the developed markets equity portfolio became the first of Latvijas Banka's portfolios to have a sustainability strategy applied. The applied elements are as follows: climate-related risk mitigation, thematic investment, engagement, conduct-based, product-based and engagement-based exclusions, and Paris Aligned Benchmark (PAB) activity-based exclusions, biodiversity, and waste reduction, as well as environmental, social, and governance (ESG)-related tilting as a means of integrating sustainability.

At the end of 2024, the Bank analysed possibilities to further enhance the Natural Capital and Pollution and Waste theme in the portfolio's sustainability guidelines. These changes will be reflected in the 2025 disclosures report.

3.1.1 Engagement

Latvijas Banka emphasises that meaningful change cannot be achieved solely by excluding issuers that currently fail to meet the relevant sustainability criteria. Instead, it believes that active ownership offers a more impactful long-term approach. The equity portfolio is managed by an external asset manager, who is entrusted with implementing the engagement process. Latvijas Banka evaluates the manager's ability to integrate climate impact strategies and ensure active engagement.

The external manager operates under a robust engagement policy, acting as an active manager of the Bank's assets. This approach enables Latvijas Banka to leverage its position as a shareholder in public companies to influence corporate decisions concerning climate-related risks and other ESG factors. The primary objectives are to reduce GHG emissions, minimise investees' exposure to climate-related risks, and promote sustainability while fostering good governance practices.

3.1.2 Climate-related risk mitigation and thematic investment strategies

The equity portfolio's risk mitigation framework addresses both transition risks (policy and technological shifts) and physical risks (climate impacts).

Portfolio optimisation strategies mitigate climate risk by:

- Accelerating the transition to carbon neutrality by 2050 at the latest;
- Aligning with the Paris Agreement commitments, aiming to reduce carbon intensity by 50% relative to the benchmark or achieve 7% annual self-decarbonisation (based on 2019 levels), prioritising whichever target is lower at each stage;
- Capturing sustainability opportunities through investment tools provided by the external manager: the green opportunities factor and glide path transition factor.

3.1.3 Exclusions

Several types of issuer exclusions are applied to Latvijas Banka's developed markets equity portfolio to support a wider range of sustainability goals. These include conduct-based, product-based, engagement-based, and PAB activity-based exclusions. The conduct-based exclusions align with the United Nations (UN) Global Compact principles. The product-based exclusions apply to producers of controversial weapons and tobacco in accordance with the Global Industry Classification Standard. The engagement-based exclusions target laggards within the external manager's thematic engagement programme. The Bank also restricts investments in individual companies whose turnover exceeds the following thresholds (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 a tilting strategy to favour companies with stronger biodiversity and waste management practices. This approach involves assigning greater weight to better-performing companies through two key channels: the Natural Capital theme (a weighted average score for water stress, biodiversity and land use, and raw material sourcing +10% relative to the benchmark) and the Pollution and Waste theme (a weighted average score for toxic emissions and waste, packaging material and waste, and electronic waste +10% relative to the benchmark).

An update to the strategy regarding biodiversity and pollution was reviewed at the end of 2024, and corresponding changes were made to the portfolio. These changes will be detailed in the 2025 disclosures report.

3.1.5 Broader ESG factors

Companies are not excluded from the equity portfolio based merely on weak ESG scores. 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

3.2.1 Emerging markets fixed income portfolio

The emerging markets fixed income portfolio was the second portfolio to have the sustainability strategy applied by changing its benchmark in 2024. The updated benchmark applies the following ESG exclusion criteria to issuers, based on the index provider's methodology: quasi-sovereign issuers that are not in compliance with the UN Global Compact principles and quasi-sovereign issuers that are involved in activities such as the production of weapons, oil sands, thermal coal, and tobacco. In addition, the new benchmark integrates an ESG methodology to tilt its constituents towards sovereign and quasi-sovereign issuers with higher ESG ratings, based on their sustainability credentials, while underweighting and/or excluding issuers with lower ESG ratings according to the thresholds set by the index provider.

3.2.2 Global investment grade fixed income portfolio

In 2024, the global investment grade fixed income portfolio, managed by an external asset manager, was restructured to align with the requirements of Article 8 funds under the Sustainable Finance Disclosure Regulation (SFDR). Although sustainable investment is not the portfolio's primary objective, sustainability considerations are integrated into its investment process. Within this framework, a limit is placed on the share of assets invested in issuers with low ESG scores, as determined by the external manager's proprietary ESG scoring methodology and cross-checked with the ESG providers' data. As an Article 8 fund, there is an ongoing effort to invest in companies that contribute positively to areas such as sustainable development, good governance practices, and transparent disclosure. This approach ensures that, while sustainability is not the core focus, it plays a significant role in guiding investment decisions.

3.2.3 Structured financial instruments

A considerable share of Latvijas Banka's NMPPs is allocated to structured instruments, such as asset-backed securities (ABS) and mortgage-backed securities (MBS). MBS, in particular, offer opportunities for socially-focused investments, as their issuers – government agencies Fannie Mae, Freddie Mac, and especially Ginnie Mae – operate with social missions aimed at promoting homeownership and facilitating access to government-subsidised residential credit for low- and moderate-income borrowers.

However, while progress has been made in ESG data disclosure and engagement, further improvements are still needed in data transparency and quality, measurement frameworks, and harmonized disclosure practices to develop meaningful sustainability strategies for structured financial instruments. Integrating ESG factors into securitised debt strategies presents unique challenges compared to equities or traditional bonds. A key obstacle is the limited access to granular loan-level data, as borrower privacy laws restrict investors' ability to acquire social attributes (e.g., income levels or housing accessibility) for individual loans within pooled securities, hindering a comprehensive ESG analysis.

Further work is underway to develop appropriate sustainability strategies for other NMPPs. Progress is reported annually.

4. Risk management

The financial risks of NMPPs include market, credit, and liquidity risks. In addition to these, NMPP portfolios are also exposed to climate-related risks, categorised as physical and transition risks. Transition risks are related to the transition to a low-carbon economy. Physical risks are related to the physical impacts of climate change. Within the Eurosystem's framework, the Bank procures climate data and climate rating systems to support the investment management process and to ensure that climate-related financial disclosure is aligned with the Eurosystem's unified approach.

Latvijas Banka applies a bottom-up approach to assess climate risks, integrating them into its existing financial risk management framework. Climate risks are treated as an augmenting factor in the traditional financial risk categories mentioned above and are monitored as part of the overall risk management process.

The Bank's risk management framework considers climate risks to the extent that they are already reflected in asset prices, asset price volatilities, and credit risk indicators, such as ratings from credit rating agencies.

Latvijas Banka recognises that climate risks are inherent in its sovereign bond holdings. Transition risks, which are longer-term in nature, depend on carbon emissions and the transition policies implemented by governments and national authorities. In contrast, physical risks can affect the market value of financial assets in the short term.

Latvijas Banka focuses on the traditional objectives of foreign reserves – capital preservation, liquidity, and return. Currently, the scope for specific climate risk management measures is limited. In addition, the sustainability strategies are implemented without compromising the other investment objectives set out in the mandate of Latvijas Banka. Nevertheless, the prudent risk management framework also addresses climate-related risks, as these can lead to financial losses by affecting credit and market factors.

Considering the Bank's current asset allocation, climate-related risks are assessed to have a limited impact on financial risks in the short and medium term. However, these risks are expected to become more significant in the long term.

The monitoring and reporting of portfolios' exposure to climate risks is gradually being enhanced and expanded as the coverage and quality of data improve. These efforts are reviewed annually.

5. Metrics and targets

This section presents Latvijas Banka's third disclosures of climate-related metrics and targets for its NMPPs within the framework of the Eurosystem's jointly identified climate-related disclosures: data metrics and common data sources, incorporating both backward- and forward-looking issuers' disclosures. The calculation of the following metrics adheres to the TCFD's recommendations and is prepared for holdings at the end of the corresponding year. Data are provided for the last three calendar years. The four key metrics, which together form the basis of the Eurosystem's common disclosures for NMPPs, are: Weighted Average Carbon Intensity (WACI), Carbon Intensity, Total Absolute GHG Emissions, and Carbon Footprint.

Sovereign bond metrics are calculated based on three emission allocation methods: (i) emissions within a country's physical borders (production emissions), (ii) emissions related to domestic consumption (consumption emissions), and (iii) emissions related to government institutions and government expenditures (government emissions). Production emissions for sovereign issuers are reported both including and excluding the effects of land use, land use change, and forestry (LULUCF). Production emissions are self-reported by sovereign issuers, while all other emissions are modelled by the data providers. These three emission allocation methods are complementary and allow for maximum transparency. However, due to differences in methodologies, the calculations of emissions for sovereign bonds and non-sovereign bonds are not comparable and are therefore reported separately.

The metrics for supranational, agency, and corporate issuers are based on their Scope 1 and Scope 2 emissions. Although issues affecting the quality of Scope 3 emissions data continue to limit their reliability and comparability over time, total Scope 3 carbon emissions for these underlying issuers have been reported in the main text of the report for the first time (limited to the most recent data). Scope 1, 2, and 3 emissions are either self-reported by issuers or modelled by the data providers, with self-reported emissions preferred whenever available. The main quality and reliability issues associated with the Scope 3 emissions data include (i) considerable estimation uncertainty, (ii) divergent estimates across different data providers, and (iii) methodological issues. Consequently, metrics based on Scope 3 emissions are reported separately.

Whenever possible, emissions and financial data matching the reference year of the holdings are used to calculate the metrics. However, the discrepancy in the reference years for the most recent reporting periods arises due to the inherent delay in the availability of emissions data. This data limitation is most notable when applying the same emissions data to non-sovereign holdings in 2023 and 2024, and to sovereign holdings from 2022 to 2024. As a result, the only observable changes are those resulting from changes in the portfolio holdings and securities' market values, creating an artificial sense of stability in the NMPP's climate-related parameters.

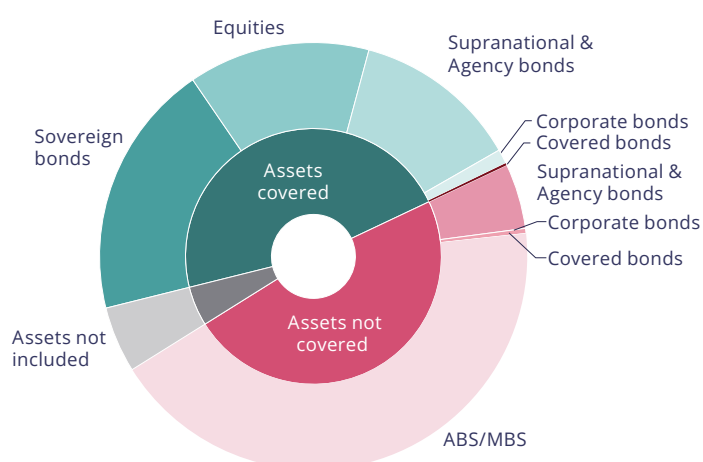
In future reports, Latvijas Banka will retrospectively revise metrics that were originally based on data from different reference years than those of the portfolio holdings. These updates will be made as the relevant data become available. Following this approach, this report presents updated metrics for corporate sector assets for the years 2022 and 2023, compared to the metrics presented in the previous report.

5.1 Climate-related disclosure results for 2024

The review below covers 95% of the total market value of the NMPPs at the end of the year. However, 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 select supranational, agency, and corporate bonds. As a result, the total coverage ratio of assets for which climate analysis can be performed is 47%.

Chart 1

Coverage of the climate analysis, NMPP market value as of 31 December 2024



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 2024

	Sovereign bonds			
	Production-based emissions		Consumption-based emissions	Government-based emissions
	ex LULUCF	inc LULUCF		
Portfolio size (€ M)	1,190			
Total Absolute GHG Emissions (Scope 1 and 2 in tCO ₂ e)	228,153	198,945	269,456	24,744
data availability	100%	100%	100%	100%
WACI (tCO ₂ e/ € M revenue or PPP adj. GDP, population or expenditure)	184	160	11	113
data availability	100%	100%	100%	100%
Carbon Footprint (tCO ₂ e per € M invested)	184	160	217	20
data availability	100%	100%	100%	100%
Carbon Intensity	184	160	10	109
data availability	100%	100%	100%	100%

		Non-sovereign issuers					Total non-sovereign issuers
		Supranational & Agency bonds	Corporate bonds	Covered bonds	Equities	ABS/MBS	
Portfolio size (€ M)		1,075	91	12	844	2,632	4,654
Total Absolute GHG Emissions (tCO₂e)	Scope 1 and Scope 2	14	17,936	2	19,417	0	37,369
	<i>data availability</i>	66%	71%	76%	100%	0%	35%
	Scope 3	37,338	119,173	2,088	484,204	0	642,804
	<i>data availability</i>	66%	71%	67%	100%	0%	35%
WACI (tCO₂e/ € M revenue or PPP adj. GDP, population or expenditure)	Scope 1 and Scope 2	0.3	203	1	56	0	36
	<i>data availability</i>	72%	74%	100%	100%	0%	36%
Carbon Footprint (tCO₂e per € M invested)	Scope 1 and Scope 2	0.02	266	0.2	23	0	23
	<i>data availability</i>	66%	71%	76%	100%	0%	35%
Carbon Intensity	Scope 1 and Scope 2	0.3	219	1	55	0	78
	<i>data availability</i>	66%	71%	76%	100%	0%	35%

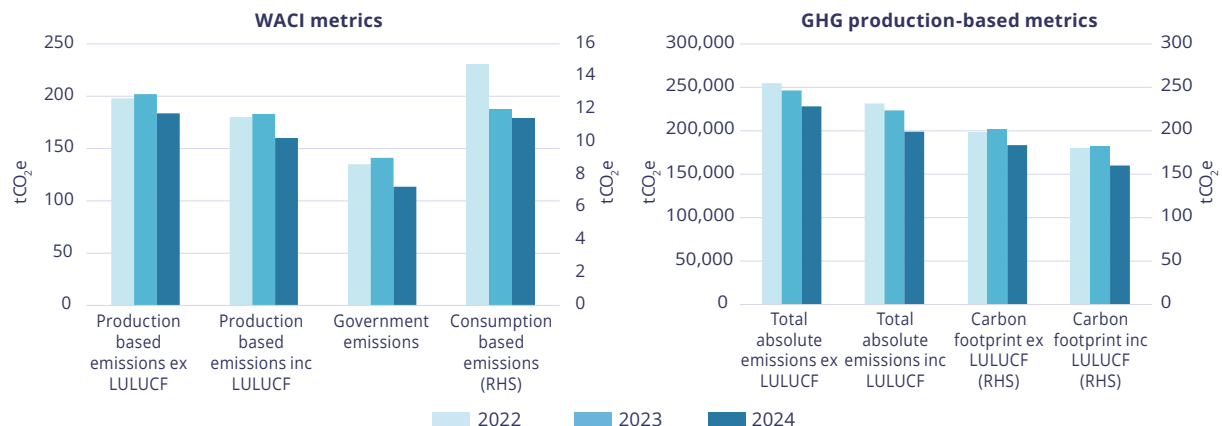
Data: Latvijas Banka, ISS (reported or estimated), C4F, World Bank, and financial statements of issuers. Calculations by Latvijas Banka.

Note: Sub-sovereign issuers are treated as sovereign issuers. The percentages below the metrics represent data availability, calculated as a percentage of investments (i.e., market value of investments / market value of portfolio) for which all the required data (i.e., GHG emissions data and financial data) are available. GHG emissions data have a 1–3 year lag; therefore, the 2024 metrics reflect 2023 corporate emissions and 2022 and 2021 sovereign emissions. GDP, population, and final consumption expenditure, revenue, and EVIC data are as of 2023. 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, Carbon Footprint, and Carbon Intensity for individual asset classes are reported on a standalone basis.

Over the last two years, the evolution of WACI and GHG emission metrics show a gradual improvement (see Chart 2), however, as climate data for 2023 and 2024 were unavailable by the cut-off date for this report, the figures for these years only reflect changes in the portfolio holdings.

Chart 2

Evolution of key metrics for sovereign bond investments



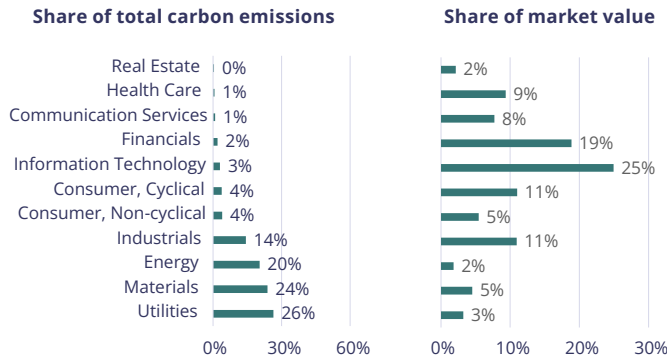
Data: Latvijas Banka, ISS (reported or estimated), C4F, World Bank. Calculations by Latvijas Banka.

Note: Climate data for 2023 and 2024 are expected to be revised in subsequent reports in light of updated climate data. Underlying holdings refer to year-end values.

For corporate issuers (both bonds and equities), exposures in the utilities, energy, and materials sectors account for 70% of the total carbon emissions, while constituting only 10% of their respective 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



Data: Latvijas Banka, ISS (reported or estimated), and financial statements of issuers. Calculations by Latvijas Banka, based on issuers' Scope 1 and 2 emissions.

As of the end of 2024, green bonds made up 1.9% of fixed income investments, while sustainability, sustainability-linked, and social bonds accounted for 3.2%.

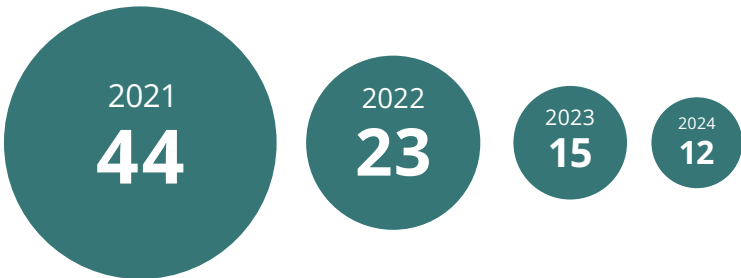
Given the Bank's cautious and prudent approach and its primary investment goals, the incorporation of sustainability strategies into NMPPs is evaluated on a portfolio-by-portfolio basis. Currently, there are no specific decarbonisation targets for NMPPs as a whole. Sovereign bond holdings are expected to decarbonise in line with national governments delivering on their commitments under the Paris Agreement. Supranational and agency holdings will mirror the decarbonisation paths of their respective issuers. However, the developed markets equity portfolio is structured to enhance carbon neutrality by 2050 at the latest. As outlined in Section 3.2.1, the emerging markets fixed income portfolio is structured to improve its ESG scores, and the global fixed income portfolio has been restructured to ensure alignment with the requirements of SFDR Article 8 funds.

5.2 Developed markets equity portfolio

As described in Section 3.1, the transition of the developed markets equity portfolio was completed in December 2022, ensuring compliance with the provisions set out in the Paris Agreement. Consequently, the portfolio's carbon footprint decreased by 47%, in line with the strategy. By 2024, the carbon footprint had decreased by a further 48% compared to data from 2022, bringing the total reduction in the carbon footprint to 73% since the implementation of the sustainability strategy.

Chart 4

Evolution of the carbon footprint of the developed markets equity portfolio (tCO₂e per € M invested)



Data: Latvijas Banka, ISS (reported or estimated), and financial statements of issuers. Calculations by Latvijas Banka, based on issuers' Scope 1 and 2 emissions.

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

As a result of applying a specific sustainability strategy to the portfolio, Table 2 provides more granular data than the metrics calculated for the entire investment universe, while also including metrics and factors set out in the portfolio's sustainability guidelines. The data and calculations in Table 2 are provided by the external manager.

Table 2

The developed markets equity portfolio

Climate and sustainability metrics	Target deviations from the benchmark	Deviation from the benchmark at the last rebalancing of the reporting year
Carbon Intensity Scope 1 (revenue-based)	-50%	-75%
Carbon Intensity Scope 2 (revenue-based)	-20%	-21%
Carbon Intensity Scope 3 (revenue-based)	-10%	-11%
Carbon Intensity Scope 1+2, selected 3 (EVIC based)^	-50%	-51%
Decarbonisation target (reference metric – Carbon Intensity Scope 1+2, selected 3 (EVIC based)) vs base year of 2019^	-7% per annum	N/A
Fossil Fuel Reserves Factor	-30%	-100%
Green Opportunities Factor	+20%	+21%
Glide Path Transition Factor (forward-looking factor)	+35%	+36%
The external manager's ESG Consensus Score	+10%	+11%
Natural Capital Theme Score (Water Stress Key Issue Score, Biodiversity & Land Use Key Issue Score, Raw Material Sourcing Key Issue Score)	+10%	+11%
Pollution and Waste Theme Score (Toxic Emissions & Waste Key Issue Score, Packaging Material & Waste Key Issue Score, Electronic Waste Key Issue Score)	+10%	+19%

Data: The external manager of Latvijas Banka's equity portfolio, MSCI ESG Research, Trucost, Thomson Reuters, MSCI. Data as at the last rebalancing of the reporting year, 22 November 2024.

Notes: Metrics are rounded to one decimal point, deviations are not calculated using rounded figures.

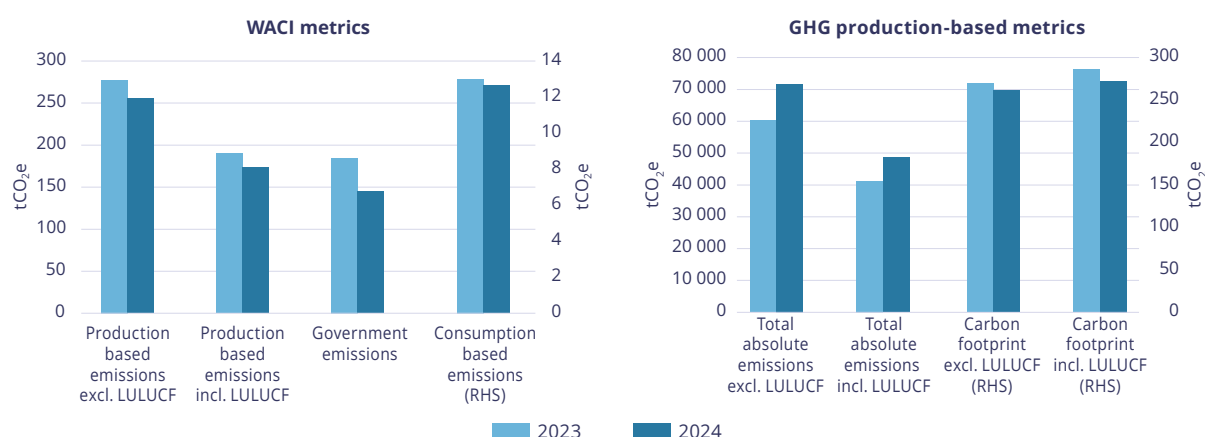
^The stricter rule between the carbon intensity deviation target and decarbonisation target of 7% per annum is applied – as long as the -50% deviation from the benchmark is greater than the deviation produced by the decarbonisation target of 7% per annum vs base year, the deviation of 50% is applied.

5.3 Emerging market fixed income portfolio

As described in Section 3.2.1 of this report, the sustainability strategy was applied to the emerging markets fixed income portfolio in April 2024. As a result, reductions in both WACI and Carbon Footprint are evident (see Chart 5 and Table 3). The increase in total absolute emissions is due to the increase in sovereign bond holdings following the implementation of the sustainability strategy.

Chart 5

Evolution of key metrics for sovereign bond investments in the emerging markets fixed income portfolio after the transition



Data: Latvijas Banka, ISS (reported or estimated), C4F, World Bank. Calculations by Latvijas Banka.

Table 3

Climate-related metrics for non-sovereign issuers in the emerging market fixed income portfolio before and after transition

	Non-sovereign issuers	
	31/12/2023	31/12/2024
WACI (tCO₂e/ € M revenue or PPP adj. GDP, population or expenditure)	860	202
<i>data availability</i>	62%	58%
Total Absolute GHG Emissions (Scope 1 and 2 in tCO₂e)	24,555	19,834
<i>data availability</i>	48%	55%
Carbon Footprint (tCO₂e per € M invested)	591	255
<i>data availability</i>	48%	55%

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

The ESG score of the portfolio before the change was 46, reaching 51 at the end of 2024 –marking an improvement of 11%.

Chart 6

Evolution of the ESG score of the emerging markets debt portfolio



Data: the ESG score according to the methodology of the benchmark index.

Conclusions

Latvijas Banka has prepared this report on its climate-related disclosures to provide transparency regarding the corresponding metrics. The Bank recognises that there is a high degree of uncertainty surrounding the materialisation of climate-related risks in relation to the timing, magnitude, type of impact on investment portfolios, and the underlying methodology of the disclosures which will evolve as climate-related reporting continues to develop. The EU 2050 long-term strategy strives 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, 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 and 3 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. Scope 3 emissions are all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream, and downstream emissions.	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 the 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 later consumed.	
	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 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 allocation

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

Definitions

The WACI measures a portfolio's exposure to carbon-intensive issuers, expressed in tonnes of CO₂ equivalent per EUR million revenue.¹ 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 for 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 weighing 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 a proxy for a portfolio's exposure to climate change-related transition risks.

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

The Total Absolute GHG Emissions metric quantifies the emissions associated with a portfolio, expressed in tonnes 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 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 a 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, the 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 tonnes of CO₂ equivalent per EUR million invested, thereby allowing for comparability across a spectrum of portfolio sizes and time.

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

In addition to the elements of the Eurosystem's disclosure framework, Latvijas Banka publishes the Carbon Intensity metric, which is defined as:

$$\text{Carbon intensity} = \frac{\sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \right) \times \text{issuer's carbon emissions}_i}{\sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \times \text{issuer's revenue, PPP adjusted GDP, or population}_i \right)}$$

¹ Carbon dioxide equivalent (or CO₂ equivalent) is a metric measure used to compare the emissions from various greenhouse gases by converting the amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential (GWP). For more information, see [Eurostat](#).

Annex 3

Climate-related metrics 2022-2024

Table 1

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	
	ex LULUCF	inc LULUCF								
Portfolio size (€ M)	1,199				917	105	5	564	2,238	3,830
Total Absolute GHG Emissions (Scope 1 and 2 in tCO ₂ e)	254,746	231,524	298,379	29,274	102	60,928	1	20,430	0	81,462
data availability	100%	100%	100%	100%	47%	68%	70%	100%	0%	28%
WACI (tCO ₂ e/ € M revenue or PPP adj. GDP, population or expenditure)	198	180	13	135	1	545	2	87	0	80
data availability	100%	100%	100%	97%	56%	71%	70%	100%	0%	30%
Carbon Footprint (tCO ₂ e per € M invested)	198	180	232	23	0	761	0	36	0	74
data availability	100%	100%	100%	100%	47%	68%	70%	100%	0%	28%
Carbon Intensity	198	180	11	127	4	525	1	563	0	206
data availability	100%	100%	100%	100%	47%	68%	70%	100%	0%	28%

Table 2

Climate-related metrics, NMPPs for the year 2023

	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	
	ex LULUCF	inc LULUCF								
Portfolio size (€ M)	1,179				998	116	11	666	2,424	4,215
Total Absolute GHG Emissions (Scope 1 and 2 in tCO ₂ e)	246,369	223,504	291,215	27,657	11	45,529	2	18,390	0	63,932
data availability	100%	100%	100%	100%	61%	69%	85%	100%	0%	32%
WACI (tCO ₂ e/ € M revenue or PPP adj. GDP, population or expenditure)	202	183	12	141	0	580	1	74	0	69
data availability	100%	100%	100%	99%	70%	74%	100%	100%	0%	35%
Carbon Footprint (tCO ₂ e per € M invested)	202	183	238	23	0	535	0	28	0	46
data availability	100%	100%	100%	100%	61%	69%	85%	100%	0%	32%
Carbon Intensity	202	183	10	125	0	754	1	72	0	180
data availability	100%	100%	100%	100%	61%	69%	85%	100%	0%	32%

Table 3

Climate-related metrics, NMPPs for the year 2024

	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	
	ex LULUCF	inc LULUCF								
Portfolio size (€ M)	1,190				1,075	91	12	844	2,632	4,654
Total Absolute GHG Emissions (Scope 1 and 2 in tCO ₂ e)	228,153	198,945	269,456	24,744	14	17,936	2	19,417	0	37,369
data availability	100%	100%	100%	100%	66%	71%	76%	100%	0%	35%
WACI (tCO ₂ e/ € M revenue or PPP adj. GDP, population or expenditure)	184	160	11	113	0	203	1	56	0	36
data availability	100%	100%	100%	100%	72%	74%	100%	100%	0%	36%
Carbon Footprint (tCO ₂ e per € M invested)	184	160	217	20	0	266	0	23	0	23
data availability	100%	100%	100%	100%	66%	71%	76%	100%	0%	35%
Carbon Intensity	184	160	10	109	0	219	1	55	0	78
data availability	100%	100%	100%	100%	66%	71%	76%	100%	0%	35%

Table 4

Climate-related metrics, NMPPs non-sovereign issuers for the year 2024, including Scope 3 emissions

		Non-sovereign issuers					Total non-sovereign issuers
		Supranational & Agency bonds	Corporate bonds	Covered bonds	Equities	ABS/MBS	
Portfolio size (€ M)		1,075	91	12	844	2,632	4,654
Total Absolute GHG Emissions (tCO ₂ e)	Scope 1 and Scope 2	14	17,936	2	19,417	0	37,369
	data availability	66%	71%	76%	100%	0%	35%
	Scope 3	37,338	119,173	2,088	484,204	0	642,804
	data availability	66%	71%	67%	100%	0%	35%
WACI (tCO ₂ e/ € M revenue or PPP adj. GDP, population or expenditure)	Scope 1 and Scope 2	0	203	1	56	0	36
	data availability	72%	74%	100%	100%	0%	36%
	Scope 3	1,795	3,038	1,318	1,147	0	1,451
	data availability	72%	74%	87%	100%	0%	36%
Carbon Footprint (tCO ₂ e per € M invested)	Scope 1 and Scope 2	0	266	0	23	0	23
	data availability	66%	71%	76%	100%	0%	35%
	Scope 3	99	1,610	237	574	0	493
	data availability	66%	71%	67%	100%	0%	35%
Carbon Intensity	Scope 1 and Scope 2	0	219	1	55	0	78
	data availability	66%	71%	76%	100%	0%	35%
	Scope 3	1,693	1,744	1,279	1,383	0	1,454
	data availability	66%	71%	67%	100%	0%	35%