



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

June 2024

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1. Introduction

Climate change, coupled with the transition towards climate neutrality, can lead to rising financial risks. Latvijas Banka acknowledges the impact these processes have on the macroeconomic environment and financial stability, and subsequently impacting the risk profile of the assets held in the Bank's non-monetary policy investment portfolios (NMPPs). The focus of Latvijas Banka's climate-related investment management efforts revolves around three key objectives: addressing climate risks, supporting the green transition through relevant actions within its mandate, and sharing experiences to encourage broader and coordinated action of other financial institutions, policy makers, and regulatory bodies. This report outlines and examines the climate-related financial disclosures of Latvijas Banka's NMPPs.

Latvijas Banka participates in the work of the Central Banks and Supervisors Network for Greening the Financial System (NGFS) as well as supporting and actively taking part in the implementation of the Eurosystem's climate policy. In May 2024, the NGFS published a report, "Sustainable and Responsible Investment in Central Banks' Portfolio Management – Practices and Recommendations", including the case study, "Latvijas Banka – Sustainability Transition of the Developed Market Equity Portfolio", being one of ten studies included in the report. In June 2023, Latvijas Banka reviewed its Sustainability Strategy which was first published in November 2021, further integrating sustainability principles to ensure the successful execution of the tasks specified in the Law on Latvijas Banka, including the management of foreign reserves and other financial investments.

Latvijas Banka publishes the climate-related financial disclosures of its NMPPs in accordance with the Eurosystem's common stance on climate-related disclosures. 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 Bank has applied sustainability strategies to two of its NMPPs, while also aiming to further broaden the scope of sustainability strategies. This integration of sustainability strategies is conducted without prejudice to other investment objectives as set out in the mandate of Latvijas Banka.

In March 2023, Latvijas Banka published the first annual climate-related financial disclosures report of its NMPPs. This report presents an update on the metrics published in 2023, reflecting the latest emissions and economic data. We welcome the evolution of the metrics used over the year and, in this report, production emissions for sovereign issuers are reported, taking into account EU land use, land-use change, and forestry (LULUCF) regulation, as well as a new metric, Carbon Intensity, is reported for all covered asset types.

We also disclose changes made to emerging markets fixed income portfolio in the first half of 2024, where the main objective is to tilt the portfolio toward issuers ranked higher on environmental, social and governance (ESG) criteria and green bond issues, and to underweight and remove lower ranked issuers. Over time, sustainability-related data disclosure methodology will be enhanced, and further improvements introduced. As a result, fostering Latvijas Banka's efforts in improving its environmental impact and the transparency of its portfolios' exposure to climate risks and their carbon footprint.

2. Governance

Latvijas Banka supports and adheres to the Eurosystem's common stance on sustainable investment principles related to climate change and has announced its ambition to integrate sustainability objectives into the management of its discretionally managed NMPPs as set out in its Sustainability Strategy. The Bank considers sustainability in the management of NMPPs along the traditional objectives: capital preservation, liquidity, and income generation over the medium term.

The Bank has adopted an integrated approach to the management of climate-related issues, addressing them within the 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 Market Operations Department implement these principles in practice, while reporting to the Council at least once per year.

To date, Latvijas Banka has applied its Sustainability Strategy to the developed markets equity portfolio and emerging markets fixed income portfolio and aims to further broaden the incorporation of sustainability principles into its investment policy. Within the Eurosystem's framework, the Bank procures climate data to aid the investment management process and to report on climate-related financial disclosures in line with the Eurosystem's common stance.

The current sustainable finance and climate-related risk management framework is in the development process, and it is expected that over time the application of the Sustainability Strategy, the management of related risks, and data disclosure will be enhanced, and further improvements will be possible, especially in the field of metrics, data standards, availability, and quality.

3. Strategy

Latvijas Banka's Sustainability Strategy constitutes the basis for incorporating sustainability principles into the management of NMPPs. Considering the Bank's conservative and prudential approach as well as the main investment objectives and the current composition of its NMPPs portfolios, the integration of sustainability strategies into NMPPs is considered on an individual basis for each portfolio. Currently, the Bank hasn't set the decarbonization target for the NMPPs. However, decarbonization is still being pursued through the alignment process which is largely impacted by progress in refining various regulations and methodologies (e.g. ESG methodology for securitized instruments), the development of robust data standards (e.g. The Regulation on European Green Bonds), and the enhancement of data availability.

3.1 Equities

In 2022, the developed market equity portfolio was the first Latvijas Banka's portfolio to have the sustainability strategy applied to it. This has meant the integration of the following factors: 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 ESG-related tilting, all as a way to integrate sustainability.

3.1.1 Engagement

Latvijas Banka believes that sufficient change cannot be achieved by the simple exclusion of issuers that do not currently meet the relevant sustainability 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 to act as an active owner of assets managed on behalf of the Bank, while allowing the Bank to leverage its position as a shareholder in public companies to influence corporate decisionmaking 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 the evolution of good governance practices.

3.1.2 Climate-related risk mitigation and thematic investment strategies

As the incorporation of sustainability targets depends on advancements in data availability and metrics, equities were considered as the best asset class for implementing a meaningful strategy. The risk mitigation strategy for the equity portfolio covers transition risks and physical risks.

Climate-related risk mitigation is achieved by optimizing the 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 greater at any given time. Meanwhile, opportunities are captured by applying investment tools provided by the external manager: 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 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 United Nations (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 outlined below (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 towards companies with better biodiversity and waste management practices. The tilting is utilized by adding more weight to companies that perform more effectively via two channels: the natural capital theme (a weighted average score of water stress, biodiversity, and land use, as well as raw material sourcing scores +10% relative to the benchmark) and the pollution and waste theme (a weighted average score of toxic emissions and waste, packaging material and waste, and electronic waste +10% relative to the benchmark).

3.1.5 ESG

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

The emerging markets fixed income portfolio was the second portfolio to have the sustainability strategy applied to it through a change in its benchmark in the first half of 2024. In accordance with the index provider's methodology, the new benchmark index applies an ESG scoring and screening policy to tilt assets toward issuers ranked higher on ESG criteria and green bond issues, and to underweight and remove lower ranking issuers. ESG exclusions are applied to those issuers involved in certain activities deemed to have negative environmental and/or social outcomes, those deemed to have violated UN Global Compact principles, and issuers with an ESG score below a threshold set by the index provider.

For the purposes of the Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector (SFDR), the emerging markets fixed income portfolio is classified as an Article 8 fund.

Further work is being carried out to formulate appropriate sustainability strategies for other NMPPs, with progress reports being updated annually. In spite of substantial progress in recent years, more research is needed to explore the effectiveness of sustainability strategies in financial investments. ›

A substantial part of Latvijas Banka's NMPPs is invested in structured instruments (asset-backed securities (ABS) and mortgage-backed securities (MBS) due to the asset class's favourable characteristics as an alternative to the United States (US) Treasuries. MBS provide an opportunity to invest through a social lens, as the mission of MBS issuers, government agencies Fannie Mae, Freddie Mac, and especially Ginnie Mae, is inherently driven by social principles, aiming to encourage home ownership and facilitate the flow of government-subsidized residential credit to low- and moderate-income borrowers.

However, further advancements in disclosure and measurement standards, as well as standard transparency and harmonization, are needed before meaningful sustainability strategies can be designed and adopted for MBS. The evolution of ESG incorporation in the strategies and analysis of US securitized debt has faced different challenges than that of equities or non-securitized bonds. For example, in the case of MBS, which are linked to pools of individual assets, access to individual loan details remains problematic due to borrower protection laws, which restrict investors from acquiring complete transparency on ESG attributes for individual loans within asset pools.

4. Risk management

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 to financial risks, assets held in NMPPs are exposed to climate related risks, both physical and transition. The latter describe risks related to the transition to a low-carbon economy, while physical risks describe risks related to the physical impacts of climate change.

Latvijas Banka applies a bottom-up approach in assessing climate risks. The Bank treats climate-related risks as an augmenting factor for existing financial risk categories, which are monitored under the overall risk management process.

Risk management measures capture 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 considers climate risks inherent in its sovereign bond holdings. Transition risks are longer term by nature and depend on the carbon emissions and the transition policies implemented by the respective governments and other national authorities, while physical risks can affect the market value of bonds in the short run.

Latvijas Banka focuses on the traditional objectives of the foreign reserves – capital preservation, liquidity and return – with a limited scope for more specific climate risk management measures. In addition, sustainability strategies are conducted without overshadowing other investment objectives outlined in the mandate of Latvijas Banka. However, the prudent risk management framework also provides for the management of climate-related risks, as these risks could manifest in financial losses through the realization of credit and market factors.

Given the asset allocation of the Bank's investments, climate-related risks are currently considered to have a small impact on financial risks in the short and medium term. However, they are deemed to gain in importance in the long term.

The monitoring and reporting of portfolios' exposure to climate risks is gradually enhanced and expanded as the coverage and quality of data improve through annual reviews.

5. Metrics and targets

This section presents Latvijas Banka's second disclosures of climate-related metrics and targets for its NMPPs within the framework of the jointly identified Eurosystem's climate-related disclosures: data metrics and common data sources that consist of 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 (except for the developed markets equity portfolio, where data is also presented at the last rebalancing on 29th February 2024 and except for the emerging market fixed income portfolio, where data is also presented for April 2024). Data are made available for the last three calendar years. Four key metrics, which together form the foundation of the Eurosystem's common disclosures of 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 are reported both including and excluding the effects of LULUCF. Production emissions are self-reported by sovereigns, while all other emissions are modelled by the data providers. The three emission allocation methods are complementary and allow for a maximum degree of transparency.

Metrics for supranational, agency, and corporate issuers are based on the issuers' scope 1 and scope 2 emissions for the time being, with the possibility of adding scope 3 emissions as calculation methodologies, data quality, and coverage improve over time to reduce double counting of emissions.

Emissions and financial data that match the reference year of the holdings are used for calculating the metrics whenever possible. However, the discrepancy in 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 in the application of the same emissions data for non-sovereign holdings in 2022 and 2023 and for sovereign holdings from 2021 to 2023. As a result, the only changes that can be observed are due to changes in the portfolio holdings and securities' market values, which create an artificial sense of stability in the NMPP's climate-related parameters.

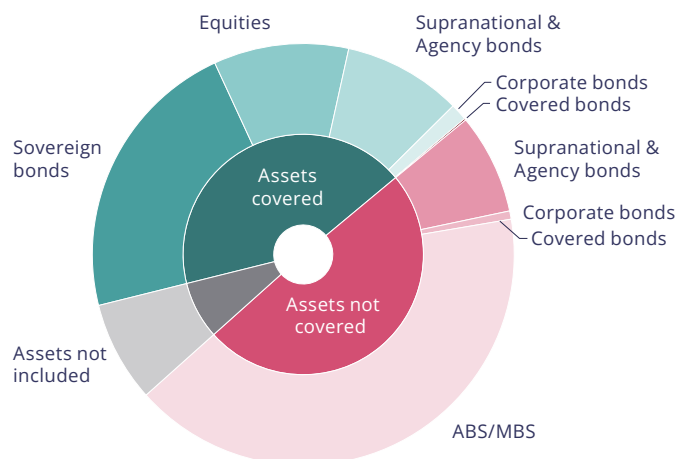
In upcoming reports, Latvijas Banka will retrospectively revise metrics that were originally based on data from different reference years than those of the portfolio holdings. These updates will occur as the relevant data become available. Following this approach, this report presents updated metrics for corporate sector assets for the years 2021 and 2022, compared to the metrics presented in the previous report.

5.1 Climate-related disclosure results for 2023

The review below covers 94% 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 a part of supranational, agency, and corporate bonds. As a result, the total coverage ratio of the assets where climate analysis can be performed is 45%. ›

Chart 1

Coverage of the climate analysis, NMPP market value as of 29 December 2023



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 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
WACI (tCO₂e/ € M revenue or PPP adj. GDP, population or expenditure)	200	196	12	141	1	498	2	70	0	64
<i>data availability</i>	100%	100%	100%	99%	61%	69%	85%	100%	0%	32%
Total Absolute GHG Emissions (Scope 1 and 2 in tCO₂e)	244,802	239,172	292,183	27,657	16	28,562	2	20,856	0	49,437
<i>data availability</i>	100%	100%	100%	100%	61%	69%	85%	100%	0%	32%
Carbon Footprint (tCO₂e per € M invested)	200	196	239	23	0	336	0	31	0	36
<i>data availability</i>	100%	100%	100%	100%	61%	69%	85%	100%	0%	32%
Carbon Intensity	200	196	10	125	1	460	2	72	0	132
<i>data availability</i>	100%	100%	100%	100%	61%	69%	85%	100%	0%	32%

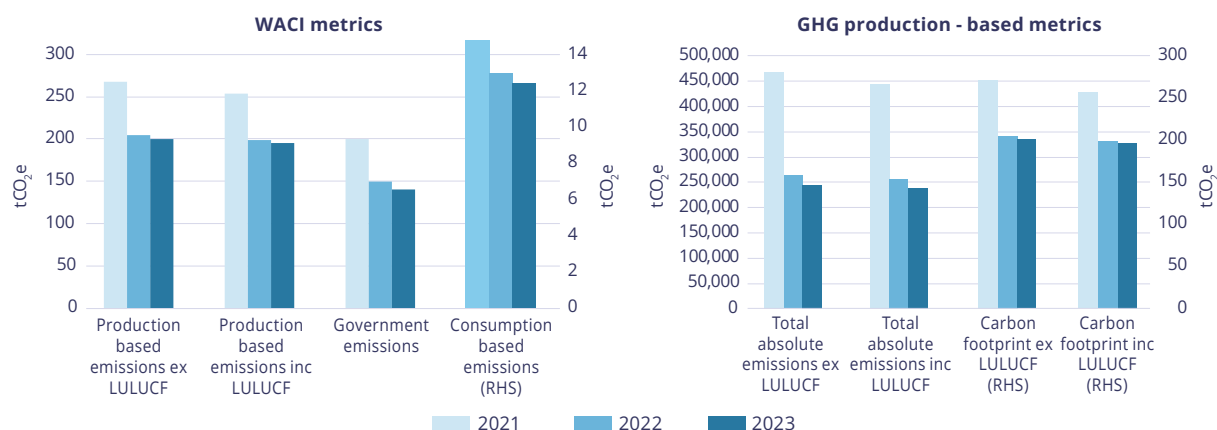
Data: Latvijas Banka, ISS (reported or estimated), C4F, World Bank and financial statements of issuers. Calculations by Latvijas Banka.

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 required data (i.e., GHG emissions data and financial data) are available. GHG emissions data have a 1-3 year lag; therefore, the 2023 metrics reflect 2022 corporate emissions and 2021 and 2020 sovereign emissions. GDP, population and final consumption expenditure, revenue, and EVIC data are as of 2022. 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 key metrics for sovereign bond investments have remained relatively stable (see Chart 2). However, due to the unavailability of climate data for 2022 and 2023 by this report's cut-off date, the figures for these years reflect only changes in the portfolio holdings. ›

Chart 2

Evolution of key metrics for sovereign bond investments



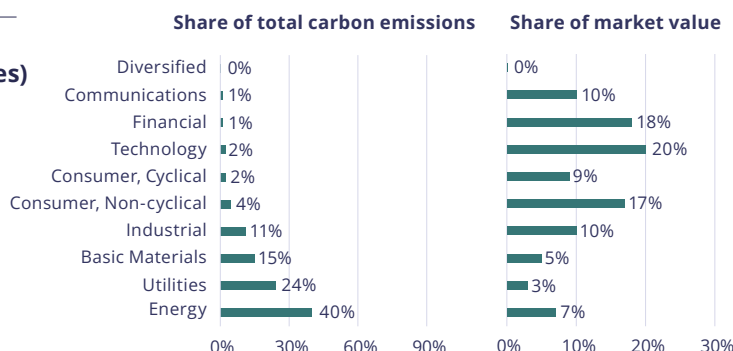
Data: Latvijas Banka, ISS (reported or estimated), C4F, World Bank. Calculations by Latvijas Banka.

Note: Climate data for 2022 and 2023 are expected to be revised in subsequent reports in light of updated climate data. Underlying holdings refer to year-end values. Metrics are based on issuers' scope 1 and 2 emissions.

For corporate issuers (both bonds and equities), the utilities and energy sectors' exposures account for 64% of the total carbon emissions, while only constituting 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: for 2023, Latvijas Banka, ISS (reported or estimated) and financial statements of issuers. Calculations by Latvijas Banka.

The total green bond share of the fixed income investments was 1.5% as of the end of 2023.

As the Bank has a cautious and prudent approach, as well as its primary investment goals, the incorporation of sustainability strategies into NMPPs is evaluated on a portfolio-by-portfolio basis. Currently, there are no specific decarbonization targets for the overall NMPPs. 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, as described in section 3.1, the developed markets equity portfolio is structured in a way that enhances carbon neutrality by 2050 at the latest and, as described in section 3.2, the emerging markets fixed income portfolio is structured in a way to improve its ESG scores.

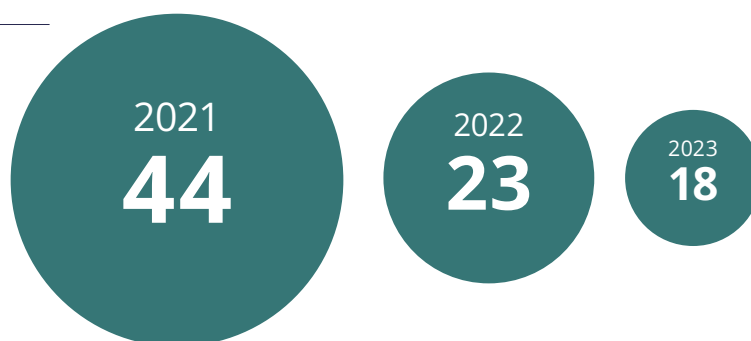
5.2 Developed markets equity portfolio

As described in Section 3.1, the transition of the developed markets equity portfolio was completed in December 2022 and ensures compliance with the provisions set out in the Paris Agreement. As a result,

the carbon footprint of the portfolio decreased by 47%, in line with the strategy. In 2023, the carbon footprint was decreased by an additional 22% compared to data from 2022, to bring the total reduction of the carbon footprint to 59% since the implementation of the sustainability strategy.

Chart 4

Evolution of 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.

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

As a result of a specific sustainability strategy being applied to the portfolio, more granular data are provided in Table 2 than the metrics calculated for the whole investment universe, while also including metrics and factors set forth in the sustainability guidelines for the portfolio. The data and calculations in Table 2 are provided by the external manager.

Table 2

The developed markets equity portfolio after the transition

Climate and sustainability metrics	Target deviations from the benchmark	Deviation from the benchmark at the last rebalancing on 29 th February 2024
Carbon Intensity Scope 1 (revenue-based)	-50%	-61%
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%	-50%
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%	+35%
UBS ESG Consensus Score	+10%	+10%
Natural Capital Theme Score (Water Stress Key Issue Score, Biodiversity & Land Use Key Issue Score, Raw Material Sourcing Key Issue Score)	+10%	+10%
Pollution and Waste Theme Score (Toxic Emissions & Waste Key Issue Score, Packaging Material & Waste Key Issue Score, Electronic Waste Key Issue Score)	+10%	+13%

Data: External manager of Latvijas Banka's equity portfolio, MSCI ESG Research, Trucost, Thomson Reuters, MSCI. Data as at February 2024. Metrics are rounded to one decimal point, deviations are not calculated using rounded figures.

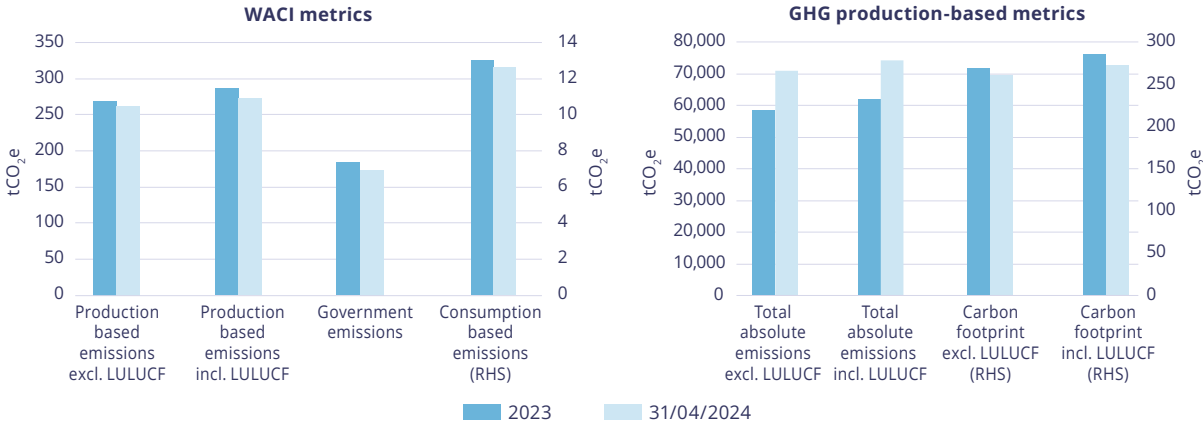
Note: [^]The stricter rule between the carbon intensity deviation target and decarbonisation target of 7% per annum is applied – as long as the -50% deviation from the benchmark is greater than the deviation produced by the decarbonisation target of 7% per annum vs base year, the deviation of 50% is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

5.3 Emerging market fixed income portfolio

The sustainability strategy was applied to the emerging market fixed income portfolio in April 2024 as described in section 3.2 of this report. As a result, a reduction in both WACI and carbon footprint can be seen (see Chart 5 and Table 3). The increase in total absolute emissions is due to the increase of sovereign bond holdings that followed the implementation of the sustainability strategy.

Chart 5

Evolution of key metrics for sovereign bond investments in the emerging market 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	31/04/2024
WACI (tCO₂e/ € M revenue or PPP adj. GDP, population or expenditure)	800	255
<i>data availability</i>	53%	33%
WACI (tCO₂e/ € M revenue or PPP adj. GDP, population or expenditure)	24,889	8,951
<i>data availability</i>	52%	32%
Carbon Footprint (tCO₂e per € M invested)	544	607
<i>data availability</i>	52%	32%

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

As a result of the change of the benchmark index, the ESG score of the portfolio improved by 13% from 46 as of the end of March 2024 to 52 at the end of April 2024.

Chart 6

Evolution of ESG score of emerging markets debt portfolio



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

5.4 Conclusions

Latvijas Banka has prepared its climate-related disclosures report to provide transparency regarding the respective metrics. The Bank recognizes that there is high uncertainty of climate-related risk materialization in relation to the timing, magnitude, type of impact on investment portfolios, and the underlying methodology of the disclosures 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 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 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 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 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 subsovereign 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 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.

$$\text{Total Absolute GHG Emissions} = \sum_n^i \left(\frac{\text{current value of investment}_i}{EVIC \text{ or PPP adj. GDP}_i} \times \text{issuer's GHG emissions}_i \right)^2$$

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.

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

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

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

¹ 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](#).

² 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.

Annex 3

Climate-related metrics 2021-2023

Table 1

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	
	ex LULUCF	inc LULUCF								
Portfolio size (€ M)	1,812				877	204	57	882	2,398	4,418
WACI (tCO₂e/ € M revenue or PPP adj. GDP, population or expenditure)	268	254	15	200	3	312	2	149	0	115
<i>data availability</i>	100%	100%	100%	97%	50%	57%	54%	100%	0%	33%
Total Absolute GHG Emissions (Scope 1 and 2 in tCO₂e)	468,897	443,499	543,670	58,307	27	30,286	6	47,257	0	77,576
<i>data availability</i>	99%	99%	100%	99%	50%	57%	54%	100%	0%	33%
Carbon Footprint (tCO₂e per € M invested)	271	256	311	34	0	527	0	54	0	54
<i>data availability</i>	99%	99%	100%	99%	50%	57%	54%	100%	0%	33%
Carbon Intensity	268	254	13	186	4	935	2	179	0	234
<i>data availability</i>	99%	99%	99%	100%	50%	57%	54%	100%	0%	33%

Table 2

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
WACI (tCO₂e/ € M revenue or PPP adj. GDP, population or expenditure)	205	198	13	150	1	545	2	87	0	80
<i>data availability</i>	100%	100%	100%	97%	56%	71%	70%	100%	0%	30%
Total Absolute GHG Emissions (Scope 1 and 2 in tCO₂e)	263,574	255,732	311,077	30,432	102	26,986	1	20,430	0	47,519
<i>data availability</i>	100%	100%	100%	100%	47%	68%	70%	100%	0%	28%
Carbon Footprint (tCO₂e per € M invested)	205	198	241	24	0	337	0	36	0	43
<i>data availability</i>	100%	100%	100%	100%	47%	68%	70%	100%	0%	28%
Carbon Intensity	205	198	11	134	4	403	1	81	0	137
<i>data availability</i>	100%	100%	100%	100%	47%	68%	70%	100%	0%	28%

Table 3

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
WACI (tCO₂e/ € M revenue or PPP adj. GDP, population or expenditure)	200	196	12	141	1	498	2	70	0	64
<i>data availability</i>	100%	100%	100%	99%	61%	69%	85%	100%	0%	32%
Total Absolute GHG Emissions (Scope 1 and 2 in tCO₂e)	244,802	239,172	292,183	27,657	16	28,562	2	20,856	0	49,437
<i>data availability</i>	100%	100%	100%	100%	61%	69%	85%	100%	0%	32%
Carbon Footprint (tCO₂e per € M invested)	200	196	239	23	0	336	0	31	0	36
<i>data availability</i>	100%	100%	100%	100%	61%	69%	85%	100%	0%	32%
Carbon Intensity	200	196	10	125	1	460	2	72	0	132
<i>data availability</i>	100%	100%	100%	100%	61%	69%	85%	100%	0%	32%