

February 2023

Financed emissions of Landsbankinn

Estimated emissions in 2020 and
2021 according to PCAF methodology





Independent Auditor's Assurance Report

To the Management and the stakeholders of Landsbankinn hf.

We have been engaged by Landsbankinn hf. to provide limited assurance on Landsbankinn's report of financed emissions for the years 2020-2021 ("the PCAF Report") according to the PCAF methodology.

Our engagement was performed in order to:

- Assess disclosures presented in Landsbankinn's report of carbon emissions in loan portfolio for the years 2020-2021

We express a conclusion providing limited assurance.

Management's responsibility

The Management of Landsbankinn is responsible for collecting, analysing, aggregating and presenting the information in the report, ensuring that the information is free from material misstatement, whether due to fraud or error.

Our independence and quality control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants (IESBA Code), which are based on the fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Deloitte ehf. is subject to International Standard on Quality Management (ISQM) 1 and, accordingly, applies a comprehensive quality control system, including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Auditor's responsibility

Our responsibility is to express a limited assurance conclusion on Landsbankinn's PCAF Report. We have conducted our work in accordance with ISAE 3000 (revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information, to obtain limited assurance about our conclusion. In accordance with the standard we have planned and performed our work to obtain limited assurance about whether the PCAF Report is free from material misstatement.

A limited assurance engagement is less in scope than a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Considering the risk of material misstatement, we planned and performed our work to obtain all information and explanations necessary to support our conclusion.

We performed reviews of data, recalculation of selected key performance indicators, reviews of the underlying data processes as well as interviews with those responsible for producing and preparing the data. Our work has included interviews with key employees of Landsbankinn, inquiries regarding procedures and methods to ensure the appropriateness of the disclosures in Landsbankinn's PCAF Report. We have assessed processes, tools and controls for gathering, consolidating and aggregating data at Landsbankinn, and performed analytical review procedures and tested data prepared against underlying documentation.

Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Landsbankinn's PCAF Report for the years 2020-2021 is not prepared, in all material respects, in accordance with the PCAF methodology.

Kópavogi, February 2nd 2023

Deloitte ehf.

Birna María Sigurðardóttir

Birna María Sigurðardóttir
State Authorised Public Accountant



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From the Chief Executive Officer

Lilja Björk Einarsdóttir



From the Chief Executive Officer

Landsbankinn is the largest commercial bank in Iceland, with a credit portfolio that incorporates loans to individuals and businesses in all parts of the country and in all sectors. We have focused on understanding the impact of the Bank on ESG factors and analysing the origin of emissions from the Bank's activity. Landsbankinn was the first Icelandic financial institution to measure emissions from its credit portfolio, which we selected as a starting point, as the impact is greatest there. We believe that regular measurement of the impact of material factors in our operation is key to goal setting and performance measurement in reducing GHG emissions.

To put the Bank's emphasis on indirect emissions into perspective, the carbon footprint of our own activities is less than one percent of the estimated total emissions from our operation. Without knowing the outcome beforehand, it was rather obvious that the greatest impact was going to be here. This is why we took the initiative and played a leading role in developing the PCAF standard, the first international carbon accounting method that allows financial undertakings to assess and disclose their indirect environmental impact in a coordinated manner. We are pleased to be one of the first banks to pave the way and to discover how in demand we are as collaborators on the international stage. It's good to be at the point where we already have three years of emission statistics to learn from.

As with all measurements, emission figures must be put into context before broad conclusions are drawn or decisions made. Iceland is a signatory to the Paris Agreement and our authorities have set the goal of achieving carbon neutrality by 2040. This is obviously a great task in which all Icelandic companies must participate. Emissions for 2020 and 2021 are lower than emission figures for 2019, published in the Bank's PCAF report issued in 2021, yet the year-over-year reduction can be attributed largely to the effect of the pandemic that shook the world. The results of carbon emission measurement from loans to corporates, housing mortgages and vehicle loans provide a good picture of the environmental impact of lending to both individuals and corporate customers, and emissions must decrease over time if we are to reach our goals.

Opportunities are found in the many small victories along the way, enabling us to improve with time. By measuring and assessing our impact, we are able to show how we improve our utilisation of resources and how we are making progress. Landsbankinn intends to continue to lead the field in sustainable development, not just domestically but also internationally. We continue to develop, share information and have a passion for success. That's Landsbankinn, an ever-smarter bank.



Lilja Björk Einarsdóttir,
CEO

A photograph of a man and a young boy sitting on a couch, playing chess. The man, wearing a blue button-down shirt, is leaning forward and pointing at a chess piece on the board. The boy, also in a blue button-down shirt, is looking at the board with his hand near his mouth, appearing to be in deep thought. The chess set is made of light-colored wood. The background is slightly blurred, showing a domestic interior.

Main conclusions

Main conclusions

Landsbankinn's analysis is based on the Bank's balance sheets for the years 2020 and 2021. The Bank's indirect emissions through lending to customers is estimated at just over 210 ktCO₂e[a] in 2020 and just over 250 ktCO₂e in 2021. Estimated emissions from the Bank's investments was just under 188 ktCO₂e in 2020 and around 222 ktCO₂e in 2021. These emissions are almost exclusively from sovereign debt and exclude emissions from land use, land-use change and forestry (LULUCF).

	Loans to customers	Investments	
	Total	Excluding LULUCF	Including LULUCF
Year	ktCO ₂ e	ktCO ₂ e	ktCO ₂ e
2020	211.5	187.7	384.1
2021	251.5	221.8	419.6

Emissions figures from loans for both years are lower than those for 2019, which were published in the [Bank's Annual and Sustainability Report](#) for 2021. At the time, the Bank's estimated indirect emissions were 325 ktCO₂e, with the reduction in emissions the following year largely attributable to the Covid-19 pandemic. The PCAF methodology has continued to develop and access to data has improved.

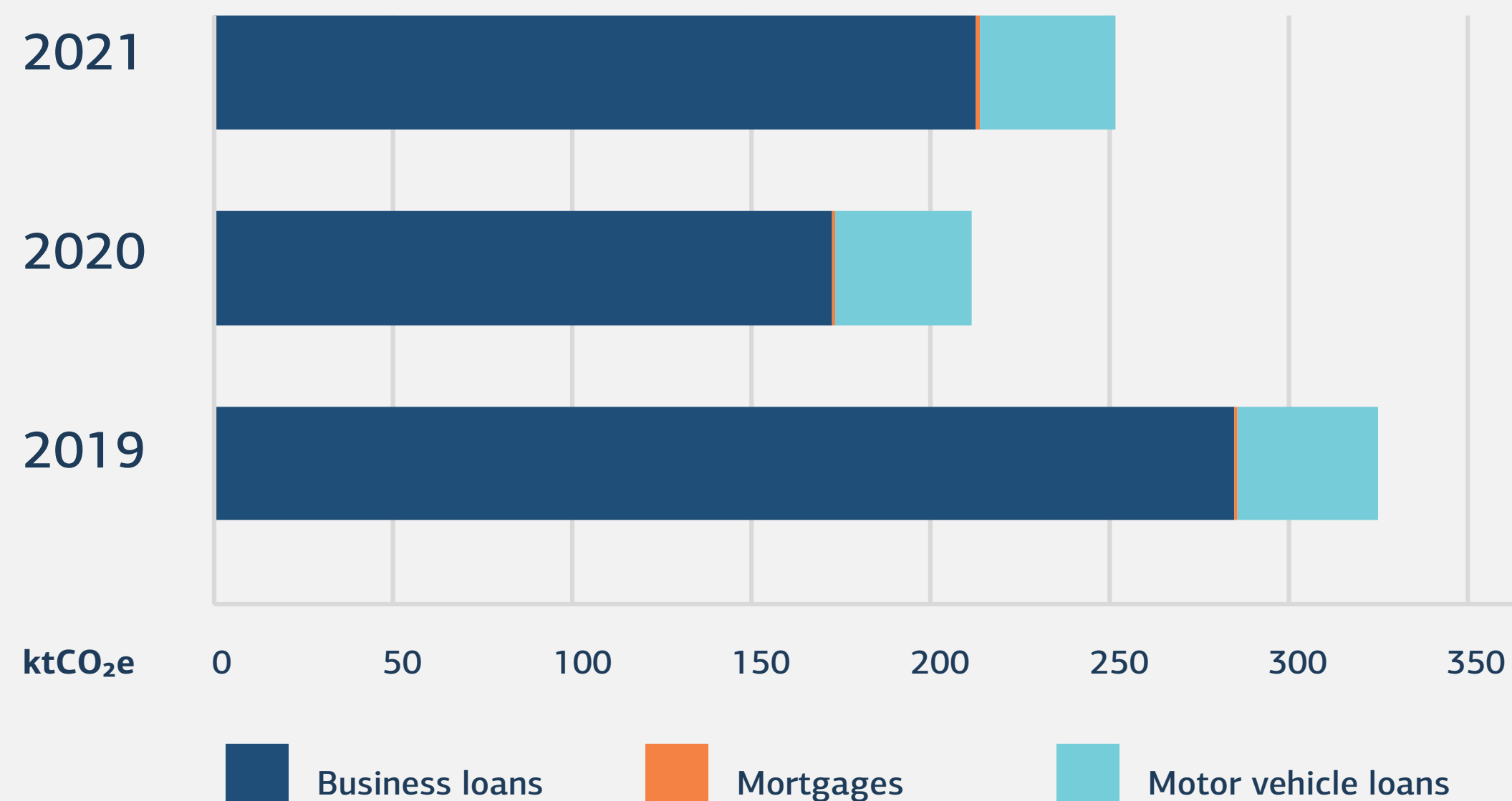
Scope 3 emissions from the Bank's customers are estimated at 373 ktCO₂e in 2020 and 398 ktCO₂e in 2021. This is down from an estimated 451 ktCO₂e in 2019. Other scope 3 emissions from the Bank's asset portfolio is relatively low compared to emissions from customers, or between 0.9-1.6 ktCO₂e.

The Bank's analysis extends to around 90% of loans and receivables due from customers. In 2020, the share of the five most emission-heavy customers was just under 39% of total emission from the Bank's credit portfolio; in 2021, this figure is up to 42%.

[a] Kilotonnes of CO₂-equivalent. Because there are many types of greenhouse gases and they vary in intensity, their effects are converted to CO₂-equivalent. One CO₂-equivalent equals one CO₂.



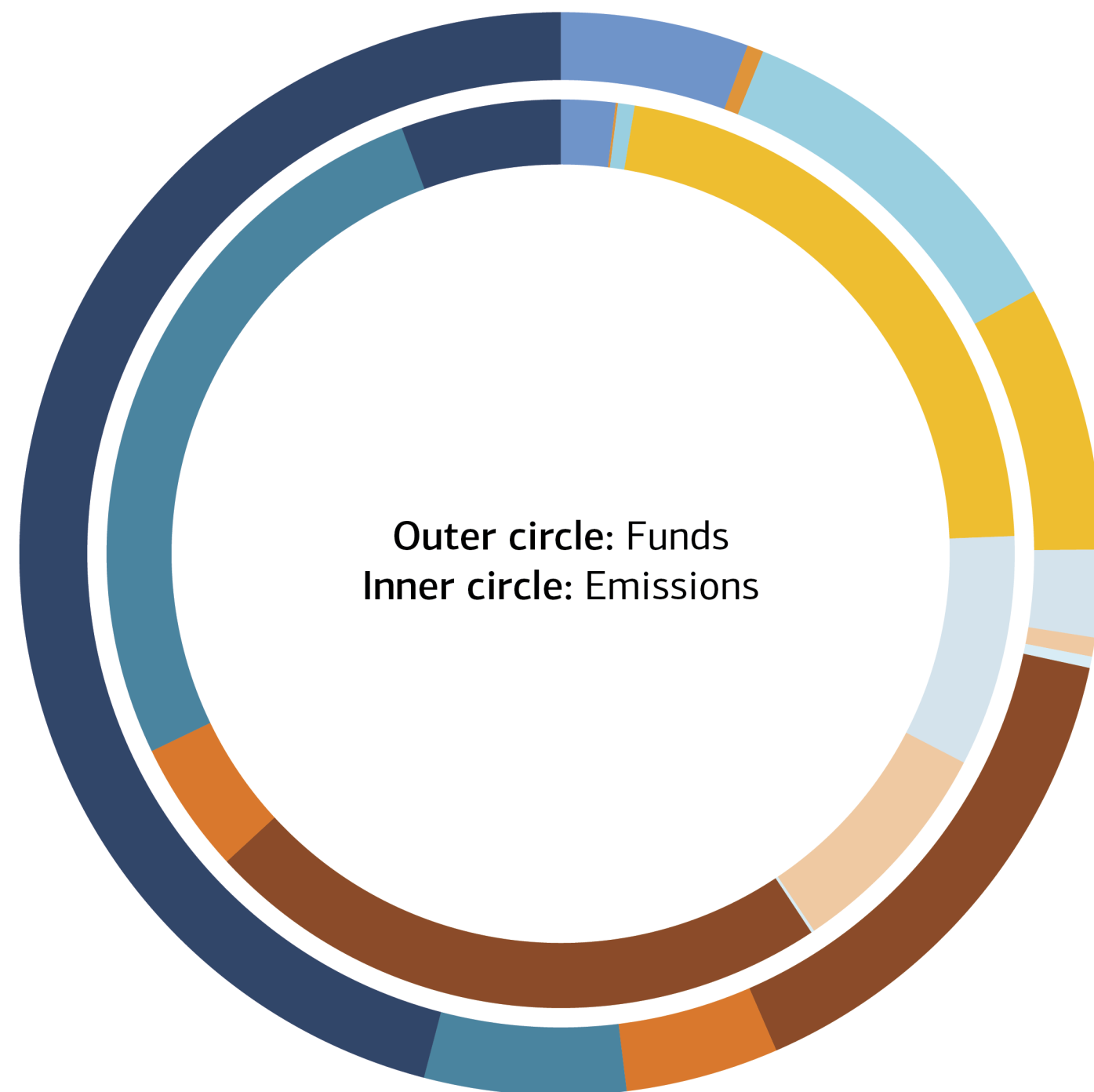
Landsbankinn's credit portfolios 2019-2021



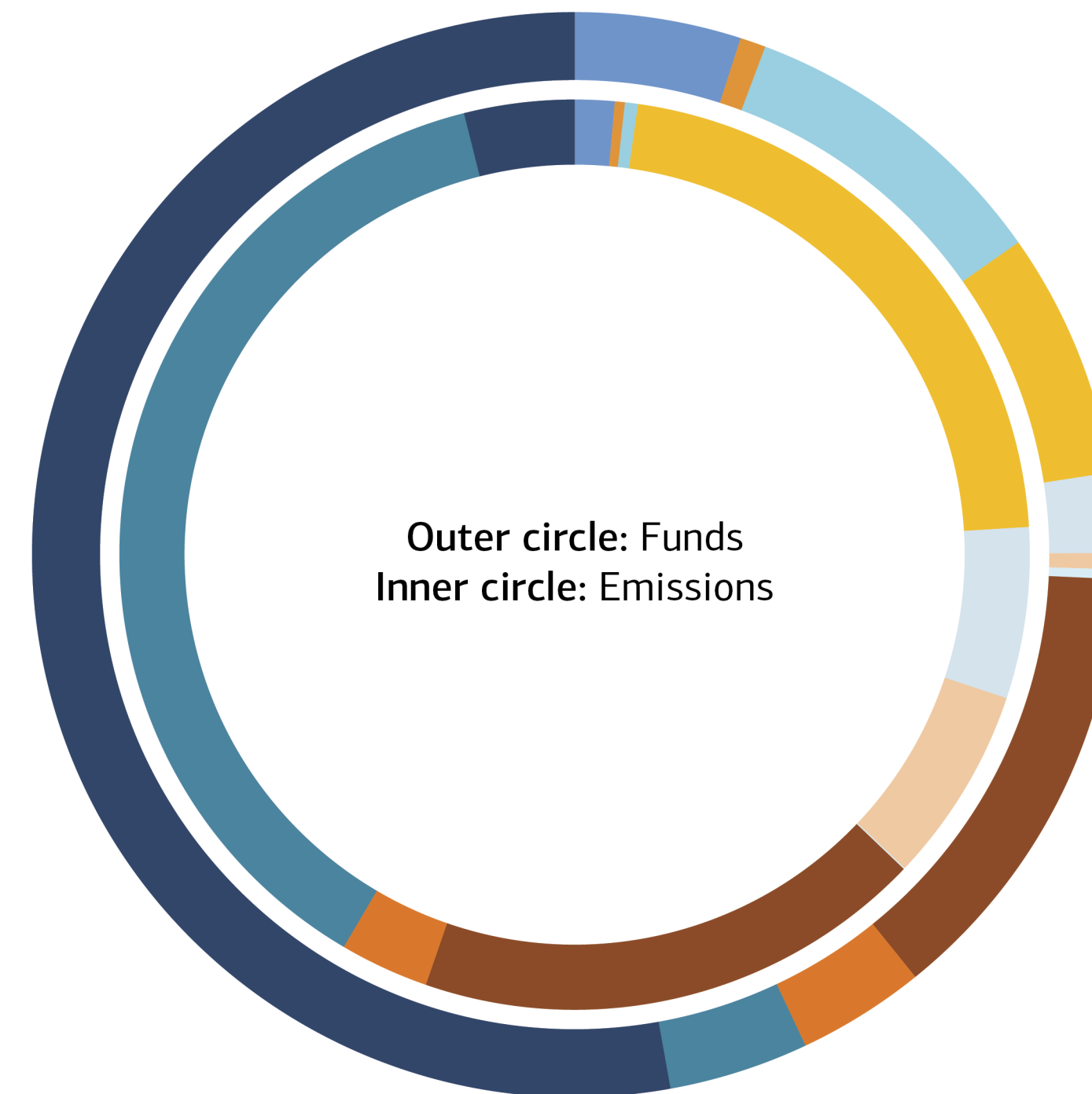
Conclusions show both total emissions and the emission intensity of customers and categories. The emission intensity is estimated emission per borrowed 1 ISK. The emission intensity does not necessarily increase concomitant with total emissions.

The emission intensity of the Bank's credit and asset portfolio changes little overall between 2020 and 2021, measuring just under 0.50 tCO₂e/ISK million (hereafter "ISKm") both years. The increased weight of housing mortgages in the total credit portfolio and lower sovereign bonds emission intensity offsets increased emissions from corporates. The emission intensity from the Bank's corporate customers rose from 0.29 tCO₂e/ISKm to 0.38 tCO₂e/ISKm, or by just under 32%. Considering year-to-year changes in the value of companies, the emission intensity can be estimated at 0.39 tCO₂e/ISKm compared to the previous year. This means that the emission intensity from lending to corporates has in fact increased by over 36% between years.

Credit portfolio 2020

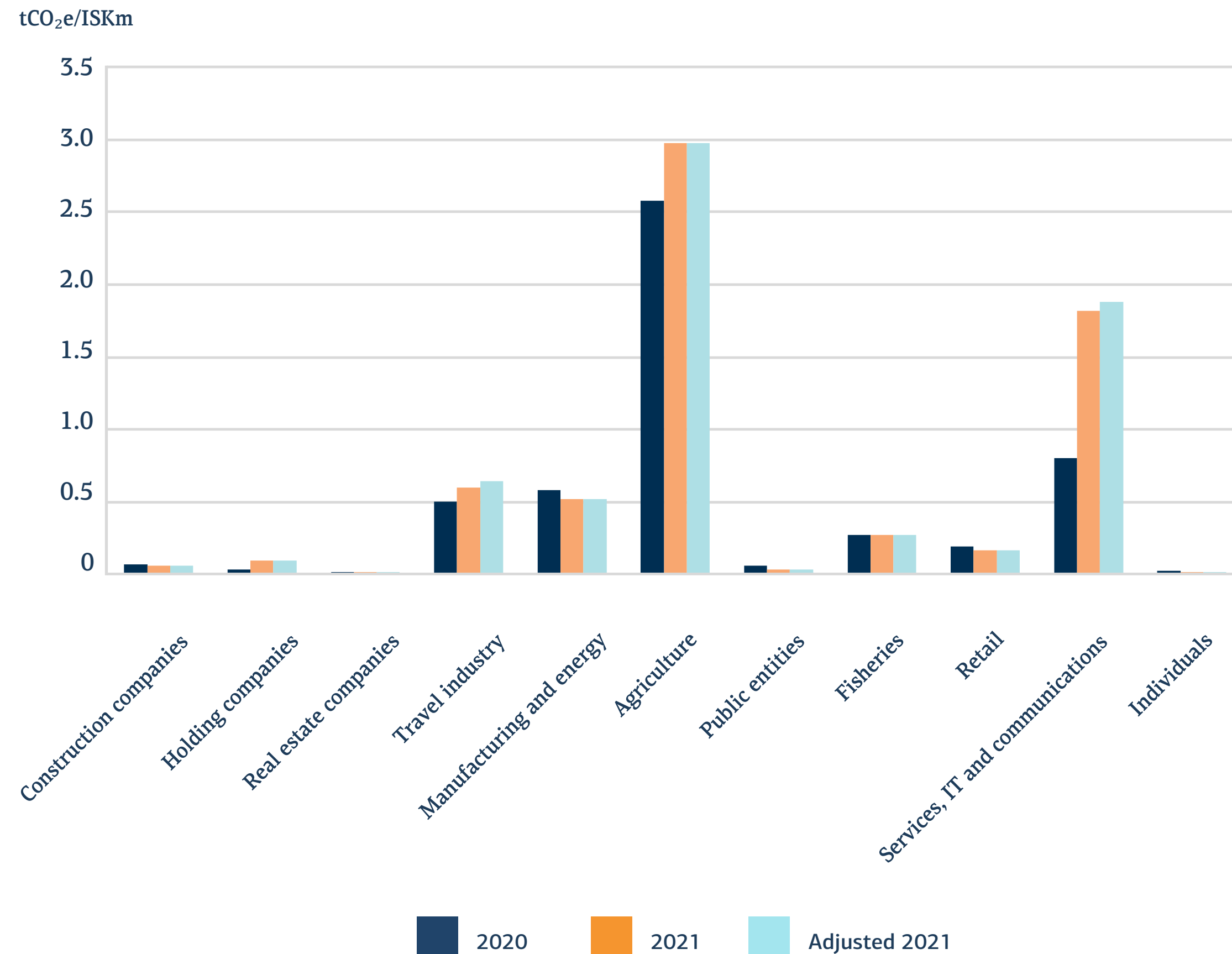


Credit portfolio 2021



- | | | | |
|----------------------------|-----------------------------------|-------------------------|-------------------|
| ■ Construction companies | ■ Holding companies | ■ Real estate companies | ■ Travel industry |
| ■ Manufacturing and energy | ■ Agriculture | ■ Public entities | ■ Fisheries |
| ■ Retail | ■ Services, IT and communications | ■ Individuals | |

Emission intensity by sectors



Sectors with the most carbon emissions

Three sectors in the Bank's credit portfolio are the largest contributors to emissions both years, services, IT & communications, the travel industry and fisheries. These sectors are responsible for up to 80% of estimated total emissions from the Bank's credit portfolio. Of the three, services, IT & telecommunications are the biggest emitters with 56.0 ktCO₂e in 2020 and 94.6 ktCO₂e in 2021, followed by the travel industry with 46.1 ktCO₂e in 2020 and 54.8 ktCO₂e in 2021, and finally fisheries with 47.5 ktCO₂e in 2020 and 45.7 ktCO₂e in 2021. Fisheries are a pivotal part of Icelandic industry and the Bank finances numerous companies in the sector, which represents the largest single borrower by sector in the credit portfolio. The same is to be said for passenger transport, which mainly consists of air travel, which is classified under the travel industry. Goods transport is also classified under services, IT & telecommunications.

Sectors with the highest emission intensity

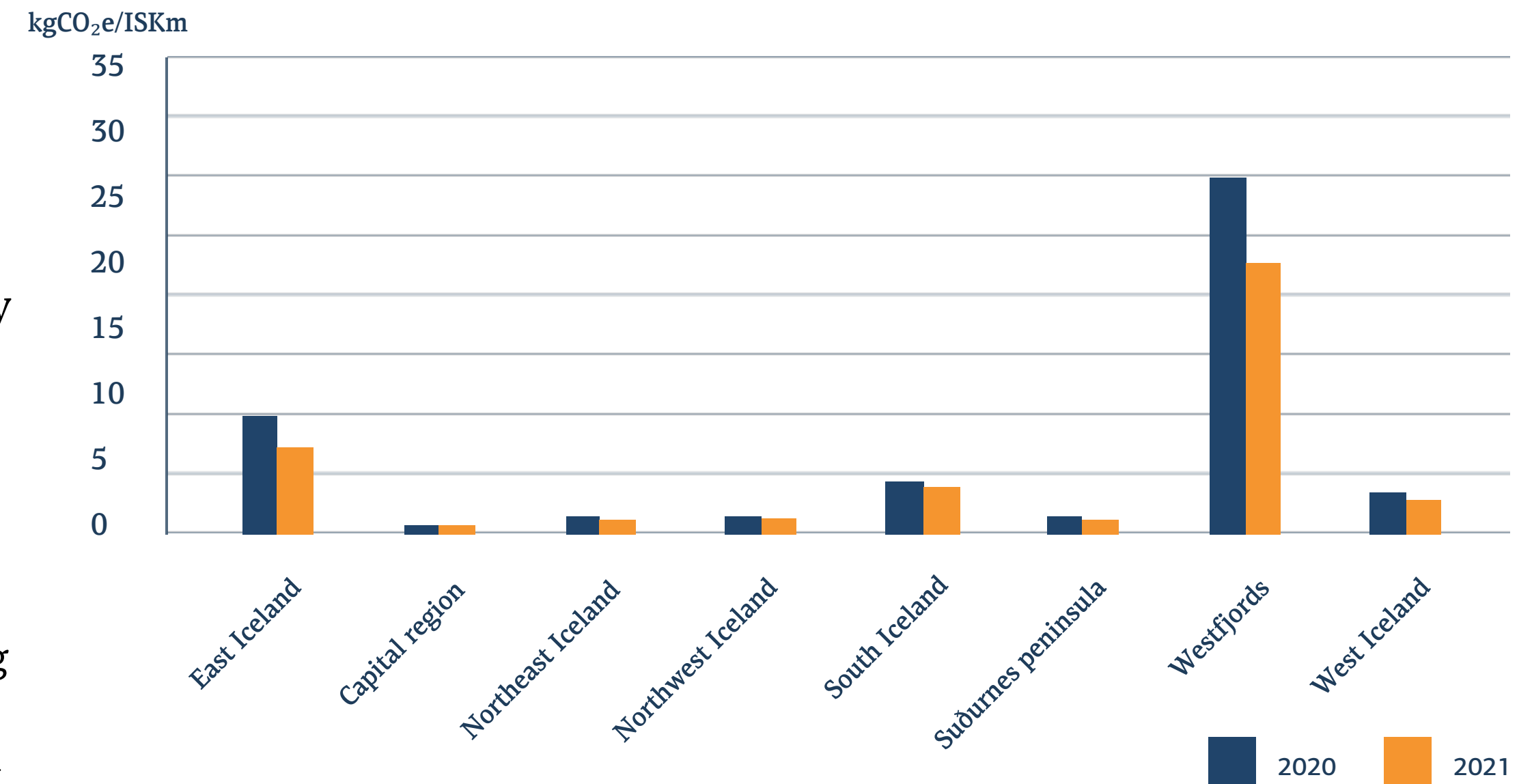
Measuring emission intensity by sector, agriculture has the highest emission intensity both years, of 2.58 tCO₂e/ISKm and 2.98 tCO₂e/ISKm. Services, IT & communications are next in line with an emission intensity of 0.81 tCO₂e/ISKm in 2020 and 1.82 tCO₂e/ISKm the following year. Considering year-to-year changes in the value of companies in the sector, the sector's emission factor can be estimated at 1.88 tCO₂e/ISKm in 2021. This is equivalent to a 133% increase in emissions per ISK lent to corporate customers in each sector between years. The emission intensity of the travel industry increased by just under a third between 2020 and 2021, most likely due to the dwindling effect of restrictions imposed under Covid-19.

Emission from loans to retail customers contracts between years

Analysis of loans to individuals extends to mortgages and vehicle & equipment loans only. Mortgages to individuals comprise the largest loan category in the Bank's credit portfolio, or up to 45% in 2020. There was a considerable increase in issued mortgages between 2020 and 2021, with book value growing by 25%. Despite this, total emissions only increased by 0.03 ktCO₂e and were estimated at 0.97 ktCO₂e in 2021. The emission intensity of housing mortgages is the very lowest in the Bank's credit portfolio, or about 0.002 tCO₂e per ISK million, as over 99% of household heating and 99.99% of general electricity consumption is based on renewable energy. Despite this high proportion of renewable energy in energy consumption for housing, there are still cases where it is necessary to use fossil fuels temporarily or in full, such as for oil heating and heating from district heating companies. In the Bank's analysis, the country was divided according to the combination of energy sources in each area. As an example, results of the analysis show that in 2020, the emission intensity of housing mortgages for homes in the Westfjords was up to 31 times higher than the lowest factor, in the Capital Region. This difference is somewhat less in 2021, which can be traced to a great reduction in oil use in district heating companies. There was a similar reduction in carbon emissions in East Iceland, largely due to the new district heating utility that was taken into use in Höfn in late 2020. District heating utilities have little or no carbon emissions per unit of energy produced.

A look at the results for motor vehicle loans to individuals shows that their total emissions were reduced by 2 ktCO₂e between 2020 and 2021, or by 20%. This is primarily because individuals sought out more

Emission intensity of mortgages by geographies



environmentally friendly options when renewing their vehicles. This trend is expected to continue in the coming years, as vehicles running on fossil fuel may not be imported after 2030.

This is different for corporate motor vehicle loans, where total carbon emissions increased by 2 ktCO₂e between years while the emission intensity decreased by 5%. Travel industry is by far the most emission-heavy sector under motor vehicle loans, with 21.5 ktCO₂e of emissions in 2020 and 24.3 ktCO₂e in 2021, which amounts to 80% or more of the total emissions from corporate motor vehicle loans.

Sovereign debt is large contributor to emissions

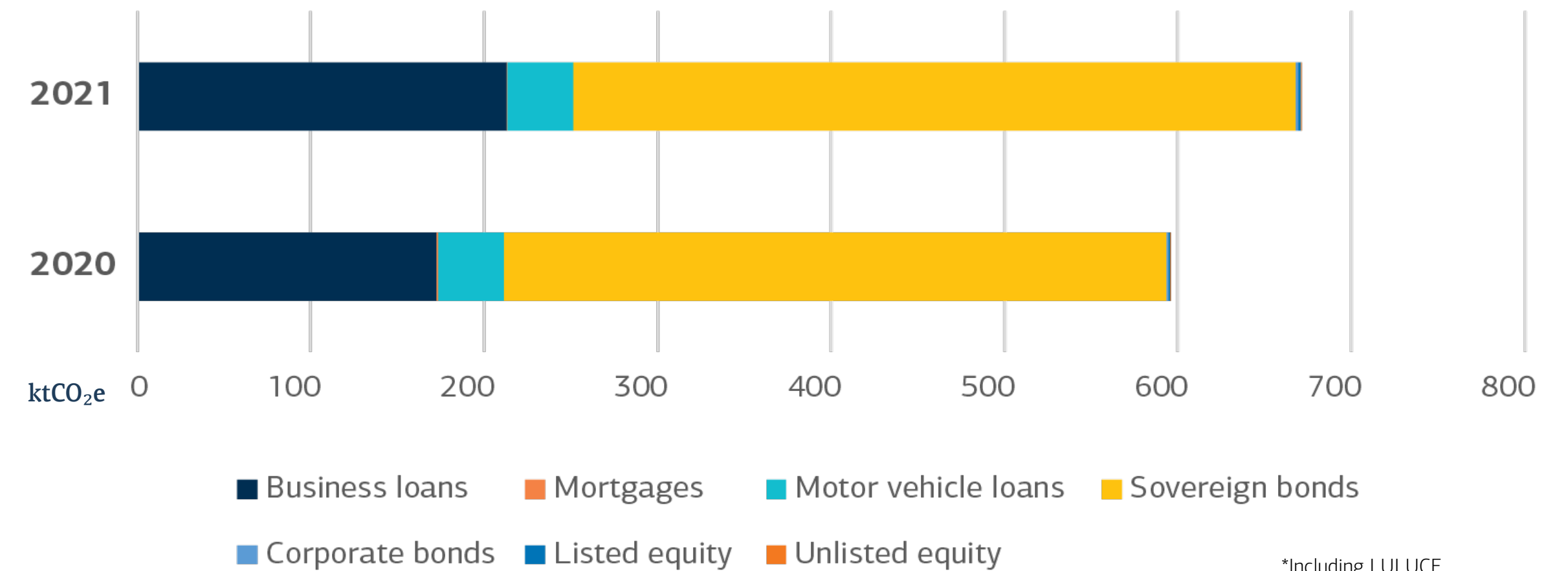
Financed emissions from Landsbankinn's bond and equity portfolio were estimated at 2.3 ktCO₂e in 2020 and 3.4 ktCO₂e in 2021. The emission intensity was 0.07 ktCO₂e per ISK million in 2020 and 0.11 tCO₂e/ISKm in 2021. In terms of year-to-year changes in the value of companies, the emission intensity in 2021 amounted to about 0.12 tCO₂e per ISK million based on their total value in 2020. That's the equivalent of a more than 70% increase. This low carbon emission is mainly because the Bank's bond and equity portfolio largely consisted of investments in companies with a low carbon footprint.

There are considerable financed emissions from sovereign debt compared to other classes analysed. Here, the composition of the bonds has a great effect, as the largest percentage of emissions may be traced to Icelandic sovereign debt. Different countries report carbon emissions differently so the results of the analysis show both carbon emissions with and without LULUCF. The book value of sovereign debt increased by more than a third between 2020 and 2021, which largely explains the increase in their carbon emissions between years. Sovereign bonds emission with LULUCF were estimated at 382 ktCO₂e in 2020 but had reached 416 ktCO₂e in 2021. That is around 65% more emissions than the projected carbon emissions of the Bank's credit portfolio for the same year.

Opportunities and prospects for the future

The rapid technological and social changes that take place from day to day present numerous opportunities to reduce carbon emissions. The sectors and companies identified with the highest carbon footprint in the Bank's credit and asset portfolio are connected to the fishing industry and transport of cargo and passengers. The operations of both these sectors are largely based on the use of fossil fuels. Considering the Icelandic government's climate policy, fossil fuel use in Iceland may be expected to decrease with energy exchange and improved fuel efficiency, and may even be completely eliminated at some point in the future.

Carbon emission* of Landsbankinn's credit and asset portfolios 2020-2021



Annual financial statement - 2020

	Total assets	In scope	Outside scope	Other ^[b]	In scope	Financed emissions	Emission intensity	Data quality	Adjusted emission intensity
	ISKm	ISKm	ISKm	ISKm	Percentage	ktCO ₂ e	tCO ₂ e/ISKm	Weighted average	tCO ₂ e/ISKm
Cash and balances with Central Bank	67,604		67,604						
Bonds and debt instruments	119,330	117,193	723	1,414	99.4%	383.0	3.27	2.1	3.27
Equities and equity instruments	26,808	10,913	14,930	965	42.2%	1.1	0.18	2.7	0.10
Derivative instruments	3,303		3,303						
Loans and advances to financial institutions	48,073		48,073						
Loans and advances to customers	1,273,426	1,155,776	117,650		90.8%	211.5	0.18	4.2	0.18
Investment in equity-accounted associates	1,722		1,722						
Property and equipment	9,327		9,327						
Intangible assets	1,696		1,696						
Deferred tax assets	23		23						
Other assets	11,227		11,227						
Assets classified as held for sale	1,638		1,638						
Total	1,564,177	1,283,882	277,916	2,379	82.2%	595.6	0.46	4.0	0.46

Loans to customers - 2020

	Total assets	In scope	Outside scope	Other ^[b]	In scope	Financed emissions	Emission intensity	Data quality	Adjusted emission intensity
	ISKm	ISKm	ISKm	ISKm	Percentage	ktCO ₂ e	tCO ₂ e/ISKm	Weighted average	tCO ₂ e/ISKm
Mortgages - Individuals	518,023	515,713	2,310		99.6%	0.9	0.002	4.0	0.002
Motor vehicle loans - Individuals and corporate	37,319	36,916	403		98.9%	38.0	1.03	2.6	1.03
Other loans - Individuals	58,483		58,483						
Other loans - Corporate	659,602	603,147	56,454		91.4%	172.6	0.29	4.5	0.29
Total	1.273.426	1.155.776	117,650		90.8%	211.5	0.18	4.2	0.18

[b] Book value of Landsbankinn’s subsidiary excluded in the analysis.

Annual financial statement - 2021

	Total assets	In scope	Outside scope	Other[c]	In scope	Financed emissions	Emission intensity	Data quality	Adjusted emission intensity
	ISKm	ISKm	ISKm	ISKm	Percentage	ktCO ₂ e	tCO ₂ e/ISKm	Weighted average	tCO ₂ e/ISKm
Cash and balances with Central Bank	82,425		82,425						
Bonds and debt instruments	150,435	147,059	1,391	1,985	99.1%	417.7	2.84	2.0	2.84
Equities and equity instruments	33,347	14,881	16,781	1,685	47.0%	2.0	0.13	2.8	0.16
Derivative instruments	1,233		1,233						
Loans and advances to financial institutions	47,231		47,231						
Loans and advances to customers	1,387,463	1,247,699	139,764		89.9%	251.5	0.20	4.2	0,21
Investment in equity-accounted associates	1,857		1,857						
Property and equipment	13,019		13,019						
Intangible assets	1,781		1,781						
Deferred tax assets	15		15						
Other assets	10,087		10,087						
Assets classified as held for sale	905		905						
Total	1,729,798	1,409,639	316,488	3,670	81.7%	671.1	0.48	4.0	0.48

Loans to customers - 2021

	Total assets	In scope	Outside scope	Other[c]	In scope	Financed emissions	Emission intensity	Data quality	Adjusted emission intensity
	ISKm	ISKm	ISKm	ISKm	Percentage	ktCO ₂ e	tCO ₂ e/ISKm	Weighted average	tCO ₂ e/ISKm
Mortgages - Individuals	646,264	643,808	2,455		99.6%	1.0	0.002	4.0	0.002
Motor vehicle loans - Individuals and corporate	40,485	39,834	650		98.4%	37.9	0.95	2.6	0.95
Other loans - Individuals	63,198		63,198						
Other loans - Corporate	637,517	564,057	73,460		88.5%	212.7	0.38	4.5	0.39
Total	1,387,463	1,247,699	139,764		89.9%	251.5	0.20	4.2	0.21

[c] Book value of Landsbankinn’s subsidiary excluded in the analysis.



Methodology

Methodology

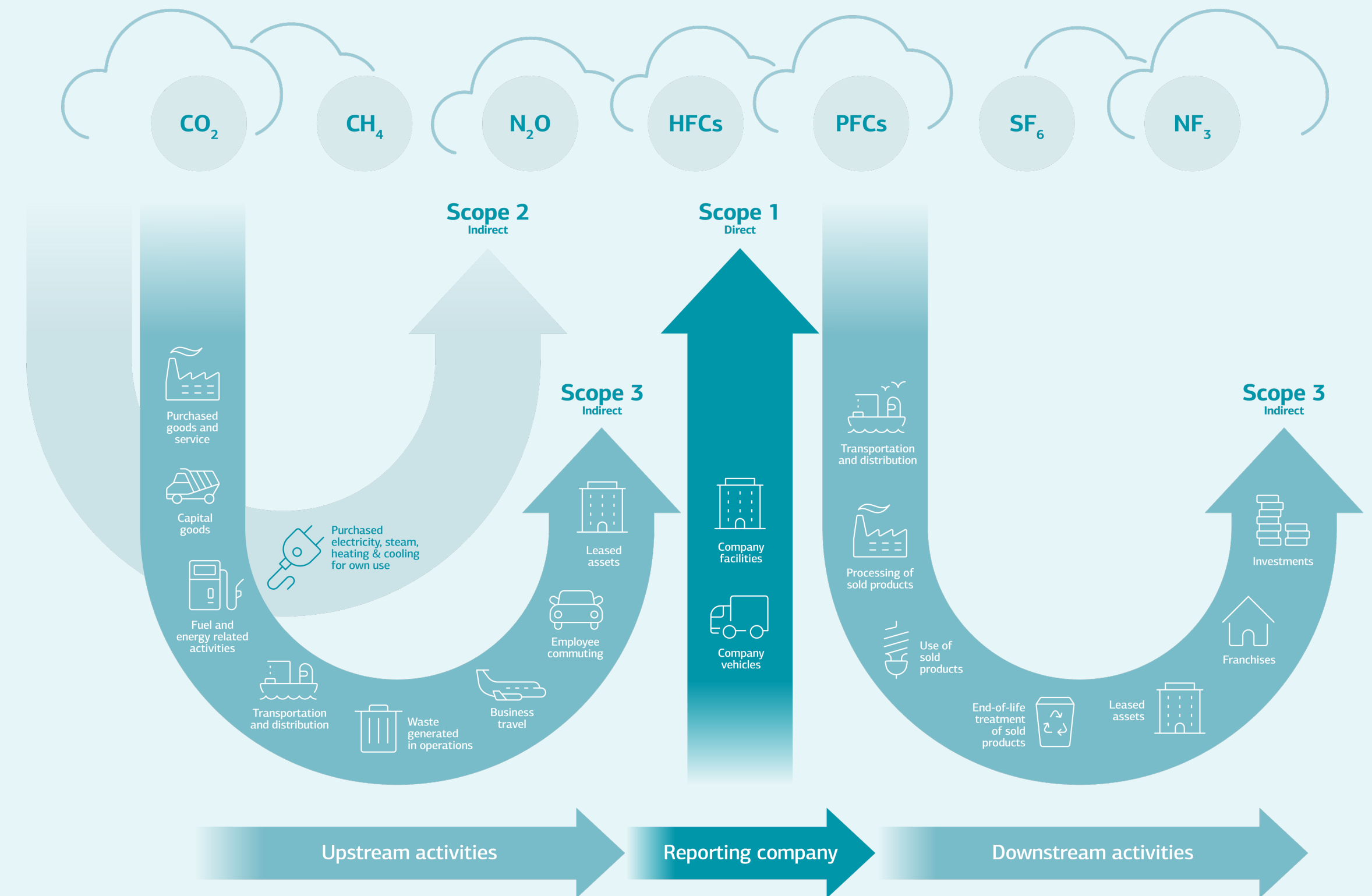
In November 2020, the Global GHG Accounting and Reporting Standard for the Financial Industry was launched by the Partnership for Carbon Accounting Financials (PCAF). It is intended to enable financial undertakings to calculate and assess emissions from their credit and asset portfolios. The PCAF methodology is mostly based on the methodology of Greenhouse Gas (GHG) Protocol, and has been approved as such by GHG Protocol. According to the GHG methodology, emissions are defined as direct or indirect and divided into three different scopes according to their source and location in the value chain.

The three scopes are:

Scope 1: Direct GHG emissions that occur from sources owned or controlled by the reporting company, e.g. from vehicles and machines owned by the company.

Scope 2: Indirect emissions from the generation of energy for the operations of the company, such as electricity and other energy used for heating.

Scope 3: All other indirect emissions that occur in the value chain of the reporting company, such as emissions due to waste and purchased services.



Source: [WRI](#) and [WBCSD](#)

PCAF requires companies to report their emissions for Scope 1 and 2, but only in part for Scope 3. Reporting of Scope 3 emissions is only expected from companies in the oil, gas and mining industries, and none of Landsbankinn's customers are classified as such. Although emissions analysis is currently only required for these particular classes, Landsbankinn will cover Scope 3 emissions for all classes in its reporting. The Bank will therefore report on emissions for all scopes for its customers and other asset classes, as applicable, according to PCAF classification.

PCAF divides the credit and asset portfolios of financial undertakings into seven asset classes:

- Listed equity and corporate bonds
- Business loans and unlisted equity
- Project finance
- Commercial housing
- Mortgages
- Motor vehicle loans
- Sovereign debt

The last category is a new addition in the updated version of the PCAF methodology issued at the end of December 2022.

Although PCAF has been in rapid development in recent years, methods have not yet been developed to calculate emissions for all asset classes, such as green bonds, derivatives, overdrafts and credit cards of individuals. This, along with lack of data for other categories with defined methodologies, results in a portion of the credit portfolio being reported as out of scope in the results of the analysis.

The analysis of the financed emissions is based on the availability of data needed to perform the calculations. The aim is to use data that are as close as possible to actual data, but in other cases estimated emission values must be used. It was not possible to analyse specifically funded emissions for project finance and commercial real estate due to insufficient data, so instead they are included as business loans in the results.

Data collection and accessibility varies and is one of the main challenges in analysing carbon emissions from companies. This challenge is not limited to any one country, and PCAF has issued a rating scale to assess data quality. The rating is determined by how detailed and close to actual figures the data are. The scale ranges from 1 to 5, with 5 representing the least detailed and reliable data. Data quality is defined according to the methodology, source and nature of the data. PCAF also maintains a database of emissions figures by class, country and sector. However, the database does not contain emissions figures for Iceland.

Efforts are made to use the emissions figures issued by companies for their activities. In other cases, it is necessary to have access to information on financial indicators of companies to assess the Bank's credit portfolio. Annual financial statements play a key role in this, and most companies have now issued their statement for 2021.

The analysis is based on the Bank's consolidated balance sheet for 2020 and 2021. As the analysis only covers the Bank itself, the variables associated with the Bank's subsidiary, Landsbréf hf., in the balance sheets are not included in the classes analysed.

Listed equity and corporate bonds



Listed equity and corporate bonds

This shows results for the Bank's financed emissions in 2020 and 2021 for listed equity and corporate bonds according to the balance sheets for these years. Not included are green bonds, loans for securitization, exchange traded funds and derivatives, as the methodology to assess emissions from such financial instruments has not been developed yet. Sovereign debt is also not included here, but is covered in a separate section.

Data on carbon emissions of companies were collected by the following means and in the following order::

a) Via corporate annual or sustainability reports

- Data score: 2

b) Via the PCAF database[d]

- Data score: 5

In using the PCAF database, the company's registered ÍSAT[e] classification according to Landsbankinn was used.

The following formula was used to calculate emissions of listed companies:

$$\text{Financed emissions} = \sum_c \frac{\text{Outstanding amount}_c}{\text{EVIC}_c} \times \text{Company emissions}_c$$

c = a company that is invested in

EVIC[f] stands for enterprise value including cash, where cash is not deducted so the total value will not be a negative figure.

The following equation was used to calculate the emissions of unlisted companies with carbon emissions published in their annual financial statement:

$$\text{Financed emissions} = \sum_c \frac{\text{Outstanding amount}_c}{\text{Total equity} + \text{debt}_c} \times \text{Company emissions}_c$$

c = a company that is invested in

[d] Emission factors for Iceland are not included in the PCAF database, so emission factors for Norway were used instead. Norway is similar to Iceland in many respects, including energy production, with geothermal heat and hydropower used in both countries. The emission factors are defined according to income and economic activities.

[e] An Icelandic classification of economic activities based on the EU's NACE classification.

[f] Enterprise Value Including Cash.



The following equation was used to calculate the emissions of unlisted companies who don't have carbon emissions published in their annual financial statement:

$$Financed\ emissions = \sum_{c,n} \frac{Outstanding\ amount_c}{Total\ equity + debt_c} \times Revenue_c \times \frac{GHG\ emissions_n}{Revenue_n}$$

c = a company that is invested in, n = the appropriate NACE[g] category

Companies were deemed to be out of scope if their income was recorded at 0 in their annual financial statement.

For 2021, the emission intensity also converted with regard to year-to-year changes in the value of listed companies. The value of a company is the denominator in the formula, and therefore has an effect according to whether the value decreases or increases. This is done so a more reliable comparison of emission intensity between years can be carried out.

The following formula was used to calculate the converted emission intensity:

$$Emission\ intensity_{adjusted} = Emission\ intensity_v \times \omega_b \times \frac{EVIC_t}{EVIC_b}$$

ω = benchmarks weights, b = base year, t = comparison year

Year	Type	Financed emissions ktCO ₂ e	Book value ISKm	Emission intensity tCO ₂ e/ISKm	Data quality Weighted average	Scope 3 ktCO ₂ e	Data quality - Scope 3 Weighted average	Adjusted emission intensity tCO ₂ e/ISKm	In scope Percentage
2020	Listed equity	0.9	8,548	0.11	2.0	0.6	2.0	0.11	97.4%
2020	Listed corporate bonds	1.2	20,350	0.06	2.5	0.1	2.7	0.06	96.6%
	Total	2.2	28,898	0.08	2.4	0.7	2.5	0.08	96.8%
2021	Listed equity	1.5	10,832	0.14	2.0	0.5	2.0	0.17	94.2%
2021	Listed corporate bonds	1.4	14,902	0.09	2.1	0.2	2.1	0.09	91.5%
	Total	2.9	25,734	0.11	2.1	0.7	2.1	0.13	92.6%

[g] EU classification of economic activities.



Business loans and unlisted equity

Business loans and unlisted equity

This shows results for the Bank's financed emissions in 2020 and 2021 for business loans and unlisted equity according to the balance sheets for these years. Motor vehicle loans are not included, but will be covered in a separate section.

Data on carbon emissions of companies were collected by the following means and in the following order:

a) Via corporate annual or sustainability reports

- Data score: 2

b) Via the PCAF database

- Data score: 5

In using the PCAF database, the company's registered ÍSAT classification according to Landsbankinn was used.

For financed emissions from business loans, the calculations noted in the previous section on listed equity and corporate bonds are used. Companies were deemed to be out of scope if their income was recorded at 0 in their annual financial statement.

In addition, the emission intensity of listed companies was also converted for 2021 using the same methodology applied for listed equity and corporate bonds. This is done so a more reliable comparison of emission intensity between years can be carried out.

The following formula was used to calculate the outstanding amount for unlisted equity:

$$\text{Outstanding amount} = \frac{\# \text{shares of financial institution}_c}{\# \text{total shares}_c} \times \text{Total equity}_c$$

c = company

If the number of unlisted equity was unknown or there was no information available regarding equity, the result was deemed to be out of scope

2020	Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality – Scope 3	Adjusted emission intensity
Sector	ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Weighted average	tCO ₂ e/ISKm
Construction companies	2.7	62,838	0.04	5.0	59.2	5.0	0.04
Holding companies	0.2	5,629	0.03	5.0	0.3	5.0	0.03
Real estate companies	1.2	125,111	0.01	4.6	4.2	4.8	0.01
Travel industry	24.6	78,214	0.31	4.1	16.1	4.6	0.31
Manufacturing and energy	17.0	29,614	0.58	4.4	68.4	5.0	0.58
Agriculture	16.7	6,342	2.64	5.0	5.4	5.0	2.64
Public entities	0.2	3,933	0.06	4.8	0.9	5.0	0.06
Fisheries	47.4	174,247	0.27	4.7	161.2	4.9	0.27
Retail	8.6	50,410	0.17	3.8	12.9	3.9	0.17
Services, IT and communications	54.0	66,809	0.81	4.1	34.5	4.8	0.81
Total	172.6	603,148	0.29	4.5	362.9	4.8	0.29

2021	Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality – Scope 3	Adjusted emission intensity
Sector	ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Weighted average	tCO ₂ e/ISKm
Construction companies	2.3	59,610	0.04	5.0	49.9	5.0	0.04
Holding companies	0.9	9,541	0.09	5.0	1.6	5.0	0.09
Real estate companies	1.1	118,720	0.01	4.8	4.0	4.9	0.01
Travel industry	30.6	76,858	0.40	4.1	23.2	4.7	0.45
Manufacturing and energy	15.0	29,169	0.52	4.4	71.1	5.0	0.52
Agriculture	17.4	5,677	3.07	5.0	6.0	5.0	3.07
Public entities	0.1	3,640	0.03	5.0	0.9	5.0	0.03
Fisheries	45.6	167,950	0.27	4.8	176.9	5.0	0.28
Retail	6.9	44,232	0.16	3.6	10.2	3.9	0.16
Services, IT and communications	92.8	48,660	1.91	4.1	44.5	4.7	1.97
Total	212.7	564,057	0.38	4.6	388.1	4.8	0.39

Type	Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality – Scope 3	Adjusted emission intensity	In scope
	ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Weighted average	tCO ₂ e/ISKm	Percentage
Unlisted equity - 2020	0.1	2,365	0.05	5.0	0.2	5.0	0.05	13.9%
Unlisted equity - 2021	0.5	4,049	0.12	5.0	0.9	5.0	0.12	20.1%

A man with a beard, wearing a blue hard hat and a red high-visibility jacket with reflective silver stripes, is smiling and looking off to the side. He is standing in a snowy, industrial environment with large concrete structures and a cloudy sky in the background. The word "Mortgages" is overlaid in a large, dark blue serif font on the right side of the image.

Mortgages

Mortgages

This shows results for the Bank's financed emissions in 2020 and 2021 for mortgages to individuals according to the balance sheets for these years.

The following formula was used to calculate emissions from mortgages:

$$\text{Financed emissions} = \sum_{b,p} \frac{\text{Outstanding amount}_b}{\text{Property value}_b} \times \text{Estimated energy consumption}_b \times \text{GHG emission factor}_p$$

b = building, p = postal code

An emission factor for Scope 1[h] and 2 for each postal code in the country was calculated according to the proportional division between energy sources within each postal code. The division was based on the Property Register and data from the National Energy Authority.

There are only a few houses in Iceland that only use fossil fuel for heating and/or electricity produced by such means. All other residential buildings in the country utilise renewable energy for general use. Other sources of energy that are used for domestic heating are electricity, geothermal energy and district heating[j]. There are a few houses where wooden pellets are used for heating, but this is an unknown quantity and therefore not included here.

It was assumed that carbon emissions from thermal water from geothermal power plants were zero as they were already calculated in the Environment Agency of Iceland's factor for electricity, which was used for the electricity analysis. Emissions from hot water in low-temperature fields was considered negligible, cf. report. The emission factor for district heating was calculated according to annual financial statements and data from the companies in question.

To assess the energy consumption of the housing concerned, data from a report by Arion Bank and Mannvit was used, and housing divided by type and building material.

When analysing scope 3 carbon emissions, emissions from the transportation and distribution of the energy in question were considered. Distribution and transportation losses of geothermal energy and electricity were based on a report and energy figures from the National Energy Authority. The emission factor for transport and production of fossil fuels was according to data from DEFRA[j]. The emissions were calculated using similar methodology as used for scope 1 and 2.

According to data from the National Energy Authority, over 91% of Icelandic residential housing was heated with geothermal energy, 6% with electricity, 2.5% with district heating and 0.2% with fossil fuel in 2020.

[h] Emissions from fossil fuels are included here if there is only oil heating.

[i] District heat is generated by a central source where electricity and, as the case may be, fossil fuel is used to heat water that is then distributed for domestic heating.

[j] Department for Environment, Food and Rural Affairs



Emissions from housing construction were not calculated as this could result in double counting of emissions. This is related to the fact that these emissions have usually gone through loans that the construction companies have taken out for the construction.

If a mortgage could not be linked to registered housing in the Property Register. e.g. due to incorrect registration or lack of information. the loan in question was assessed as out of scope.

All mortgages are classified as having a data score of 4.

	Financed emissions 2020	Book value 2020	Financed emissions 2021	Book value 2021
Type of housing	ktCO ₂ e	ISKm	ktCO ₂ e	ISKm
Single occupancy - concrete	0.38	97,330	0.37	113,471
Single occupancy - timber	0.12	29,479	0.12	36,285
Apartment building	0.31	303,220	0.34	387,045
Semi-detached & row house	0.13	85,683	0.14	107,007
Total	0.94	515,713	0.97	643,808

2020	Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality - Scope 3
Region	ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Weighted average
East Iceland	0.14	13,585	0.010	4.0	0.01	4.0
Capital Region	0.27	350,407	0.001	4.0	0.02	4.0
Northeast Iceland	0.07	33,223	0.002	4.0	0.01	4.0
Northwest Iceland	0.02	6,679	0.003	4.0	0.00	4.0
South Iceland	0.14	34,036	0.004	4.0	0.02	4.0
Suðurnes peninsula	0.06	48,094	0.001	4.0	0.00	4.0
Westfjords	0.16	6,475	0.025	4.0	0.02	4.0
West Iceland	0.09	23,214	0.004	4.0	0.01	4.0
Total	0.94	515,713	0.002	4.0	0.09	4.0

2021	Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality - Scope 3
Region	ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Weighted average
East Iceland	0.11	15,855	0.007	4.0	0.01	4.0
Capital Region	0.29	438,070	0.001	4.0	0.02	4.0
Northeast Iceland	0.08	41,277	0.002	4.0	0.01	4.0
Northwest Iceland	0.02	8,513	0.002	4.0	0.00	4.0
South Iceland	0.16	43,853	0.004	4.0	0.02	4.0
Suðurnes peninsula	0.07	59,857	0.001	4.0	0.01	4.0
Westfjords	0.14	7,804	0.018	4.0	0.02	4.0
West Iceland	0.10	28,580	0.003	4.0	0.01	4.0
Total	0.97	643,808	0.002	4.0	0.08	4.0



Motor vehicle loans

Motor vehicle loans

This shows results for the Bank's financed emissions in 2020 and 2021 for motor vehicle loans to individuals according to the balance sheets for these years. This also includes other loans secured with a mortgage in a car or another vehicle or machinery.

To calculate the emissions from motor vehicle loans, the following formula was generally used for road vehicles:

$$\text{Financed emissions} = \sum_v \frac{\text{Outstanding amount}_v}{\text{Property value}_v} \times \text{Average distance traveled}_v \times \text{Emission factor}_v$$

v = vehicle

The following formula was used to calculate emissions from off-road vehicles:

$$\text{Financed emissions} = \sum_{v,m} \frac{\text{Outstanding amount}_v}{\text{Property value}_v} \times \text{Average emission factor}_v$$

v = vehicle, m = total average

Data on carbon emissions of vehicles were collected by the following means and in the following order:

a) The Icelandic Transport Authority's vehicle registry

- Data score: 2

b) The average of identical vehicle classes and fuels from known values in the database[1]

- Data score: 4

c) From DEFRA emission factor (recorded as WLTP[m] emission values)

- Data score: 5

d) (For vehicles other than standard road vehicles). Average data on the number of heavy machinery from the Occupational Safety and Health Administration and the amount of oil sold to the relevant classes of machinery.

- Data score: 5

Driving data were collected by the following

means and in the following order:

a) Average vehicle mileage according to the Icelandic Transport Authority (not motorcycles).

- Data score: 2

b) The Eurostat database for motorcycles, based on Norway.

- Data score: 5

Each vehicle's data score was determined based on which was higher, the data score for the emission factor or driving data.

[k] Equipment loans cover all heavy machinery and off-road equipment, such as tractors and excavators.

[l] All 0 values are excluded.

[m] Worldwide Harmonized Light-Duty Test Procedure. The new EU pollution scale for fuel use and vehicle emissions.

Other criteria for calculating carbon emissions from motor vehicle loans:

- Rental cars were determined to drive four times more than a similar privately-owned vehicles.
- There are two procedures to assess emission values of vehicles. NEDC[n] and WLTP. WLTP is newer and will eventually replace NEDC altogether. The analysis was based on the WLTP values of vehicles while for vehicles that only had a NEDC value. the value was calculated to WLTP according to defined factors based on the type of vehicle.
- Charging arrangement for electric cars is based on the report from Samorka.

All vehicles that in any way use fossil fuels and methane are covered by scope 1 and therefore only pure electric vehicles are covered by scope 2.

When analysing scope 3 carbon emissions. emissions from the transportation and distribution of the energy in question were considered. Distribution and transportation losses of electricity were based on energy figures from the National Energy Authority. The emission factor for transportation and production of fossil fuels and methane was according to data from DEFRA.

2020	Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality -
Type	ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Scope 3 Weighted average
Fossil fuel only	37.0	31,355	1.18	2.7	9.3	2.7
Hybrid vehicles[o]	1.0	4,210	0.25	2.0	0.3	2.0
Green vehicles[p]	0.0	1,350	0.63	2.0	0.0	2.0
Total	38.0	36,916	1.03	2.6	9.6	2.6

2021	Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality -
Type	ktCO ₂ e	ISKm	tCO ₂ e/ISKm.	Weighted average	ktCO ₂ e	Scope 3 Weighted average
Fossil fuel only	33.9	27,969	1.21	2.8	8.8	2.8
Hybrid vehicles[o]	4.0	8,152	0.49	2.0	1.1	2.0
Green vehicles[p]	0.0	3,714	0.67	2.0	0.0	2.0
Total	37.9	39,834	0.95	2.6	9.8	2.6

[n] New European Driving Cycle
[o] Hybrid vehicles are vehicles that use two sources of energy.
[p] Green vehicles are pure electric and methane vehicles.

A photograph of two women, an older woman with brown hair and a younger woman with blonde hair, both smiling and looking down at a document they are holding together. The older woman is wearing a yellow sweater over a grey collared shirt. The younger woman is wearing a beige sweater. The background is blurred, showing what appears to be an office or meeting room setting.

Sovereign debt

Sovereign debt

This shows results for the Bank’s financed emissions in 2020 and 2021 for listed sovereign debt according to the balance sheets for these years.

$$Financed\ emissions = \sum_c \frac{Outstanding\ amount_c}{PPR_{[q]}\ adjusted\ GDP_c^{[r][s]}} \times Product\ emissions_c$$

c = country in question

The calculation method for sovereign debt is basically the same as for listed equity and corporate bonds except that instead of using the total value of the company in question, or country in this instance, the country’s economy is used. The economies of the countries of the world are different and can depend on both the size of the countries and their economic status. For instance, Iceland's economy is small in a global sense but is nevertheless considered among the most developed in the world. For a real comparison between countries in calculating financed emissions, purchasing power parity adjusted for GDP is used.

Data from the [World Bank’s database](#) was used to gather information on purchasing power parity adjusted for GDP for the countries in question. To carry out the calculations, outstanding amounts had to be converted to US dollars.

[q] PPP stands for purchase power parity.

[r] GDP stands for gross domestic product.

[s] PPP-adjusted GDP is the value of a country’s output as a proxy for the ‘value of the country’ adjusted by the PPP factor. The figure is GDP converted into international dollars using the PPP factor. The international dollar has the same purchasing power over GDP as the USD has in the US.

[t] United Nations Framework Convention on Climate Change.

The carbon accounting of countries can differ for a variety of reasons so it may be difficult to make an analysis using similarly recorded data. The [Climate Watch database](#) includes data on the carbon emissions of countries according to different data recording methods, but for this analysis, data recording according to the UNFCCC[t] was used for carbon emissions from sovereign debt. However, there is a delay in the availability of these data, as information on the carbon emissions of countries is usually published two to three years after the fact. Data on the carbon emissions of the relevant countries for 2019 are used for the calculation of financed emissions in 2020 and 2021, as this is the most recent available data information.

The results show financed emissions from sovereign debt according to emission figures for the relevant countries, with and without LULUCF.

All sovereign debt is classified as having a data score of 2 and falling under scope 1.

		Financed emissions		Book value	Emission intensity		Data quality
		excluding LULUCF	including LULUCF		excluding LULUCF	including LULUCF	
Year	Type	ktCO ₂ e	ktCO ₂ e	ISKm	tCO ₂ e/ISKm	tCO ₂ e/ISKm	Weighted average
2020	Sovereign debt	185.4	381.8	96,843	1.91	3.94	2.0
2021	Sovereign debt	218.4	416.3	132,157	1.65	3.15	2.0





Supporting material

Itemisation according to NACE categories 2020

		Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality - Scope 3	Adjusted emission intensity	In scope
NACE		ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Weighted average	tCO ₂ e/ISKm	Percentage
A	Agriculture, forestry and fishing	37.1	95,321	0.39	5.00	45.1	5.00	0.39	98.6%
B	Mining and quarrying	0.3	503	0.54	5.00	0.6	5.00	0.54	97.4%
C	Manufacturing	42.9	105,960	0.41	4.46	188.7	4.82	0.41	96.3%
D	Electricity, gas, steam and air conditioning supply	1.6	9,248	0.17	3.01	0.8	4.78	0.17	99.9%
E	Water supply; sewerage, waste management and remediation activities	0.6	1,039	0.58	4.99	1.9	5.00	0.58	100%
F	Construction	4.1	64,934	0.06	4.97	59.5	4.99	0.06	79.1%
G	Wholesale and retail trade; motor vehicles and motorcycles	9.9	52,892	0.19	3.72	13.2	3.90	0.19	96.8%
H	Transportation and storage	72.0	30,324	2.37	2.80	16.4	3.59	2.37	99.6%
I	Accommodation and food service activities	3.1	46,477	0.07	4.99	6.8	5.00	0.07	95.0%
J	Information and communication	0.9	31,647	0.03	4.01	6.5	4.87	0.03	97.9%
K	Financial and insurance activities	0.2	5,732	0.03	4.99	0.3	5.00	0.03	19.7%
L	Real estate activities	1.3	126,740	0.01	4.59	4.4	4.80	0.01	98.5%
M	Professional, scientific and technical activities	2.1	8,690	0.24	4.95	3.5	4.98	0.24	97.3%
N	Administrative and support service activities	21.9	29,336	0.75	2.71	10.0	3.33	0.75	94.2%
O	Public administration and defence; compulsory social security	0.2	3,696	0.06	4.82	0.8	4.99	0.06	94.2%
P	Education	0.0	345	0.10	4.79	0.2	4.95	0.10	50.0%
Q	Human health and social work activities	0.2	1,808	0.12	4.90	1.7	4.98	0.12	95.7%
R	Arts, entertainment and recreation	0.9	7,304	0.12	4.99	8.7	5.00	0.12	93.8%
S	Other service activities	0.3	2,935	0.11	4.97	0.9	4.99	0.11	84.5%
Total - Corporate		199.5	624,929	0.32	4.41	369.7	4.77	0.32	91.7%
Individuals		12.0	530,848	0.02	3.95	2.9	3.88	0.02	89.7%
Total - All		211.5	1,155,776	0.18	4.20	372.6	4.69	0.18	90.8%

Itemisation according to NACE categories 2021

		Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality - Scope 3	Adjusted emission intensity	In scope
NACE		ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Weighted average	tCO ₂ e/ISKm	Percentage
A	Agriculture, forestry and fishing	38.5	85,508	0.45	5.00	47.2	5.00	0.45	93.0%
B	Mining and quarrying	0.3	514	0.66	5.00	0.6	5.00	0.66	97.6%
C	Manufacturing	38.1	109,074	0.35	4.75	205.6	4.93	0.36	96.3%
D	Electricity, gas, steam and air conditioning supply	1.6	8,596	0.18	3.04	0.7	4.74	0.18	99.7%
E	Water supply; sewerage, waste management and remediation activities	1.1	1,509	0.72	4.66	1.0	4.82	0.72	100.0%
F	Construction	3.6	61,784	0.06	4.97	50.2	4.99	0.06	72.3%
G	Wholesale and retail trade; motor vehicles and motorcycles	8.0	47,550	0.17	3.58	10.4	3.84	0.17	96.0%
H	Transportation and storage	102.6	32,390	3.17	2.98	21.7	3.69	3.38	99.2%
I	Accommodation and food service activities	4.3	42,362	0.10	4.99	9.5	5.00	0.10	88.2%
J	Information and communication	0.3	13,936	0.02	3.55	2.2	4.37	0.02	95.9%
K	Financial and insurance activities	0.9	9,847	0.09	5.00	1.7	5.00	0.09	32.2%
L	Real estate activities	1.2	120,359	0.01	4.77	4.2	4.90	0.01	94.8%
M	Professional, scientific and technical activities	1.7	3,982	0.43	4.90	2.9	4.97	0.43	93.0%
N	Administrative and support service activities	38.3	33,285	1.15	2.88	29.5	3.73	1.15	98.3%
O	Public administration and defence; compulsory social security	0.1	3,383	0.03	4.94	0.8	4.99	0.03	93.5%
P	Education	0.1	601	0.08	4.87	0.3	4.97	0.08	87.3%
Q	Human health and social work activities	0.2	1,611	0.14	4.86	1.9	4.96	0.14	72.2%
R	Arts, entertainment and recreation	0.5	7,772	0.06	4.98	4.4	5.00	0.06	92.0%
S	Other service activities	0.3	4,519	0.07	4.98	1.0	5.00	0.07	80.9%
Total - Corporate		241.7	588,582	0.41	4.49	395.7	4.81	0.42	88.9%
Individuals		9.8	659,118	0.02	3.96	2.4	3.88	0.02	90.9%
Total - All		251.5	1,247,699	0.20	4.21	398.0	4.71	0.21	89.9%

Itemisation according to sectors 2020

	Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality - Scope 3	Adjusted emission intensity	In scope
Sector	ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Weighted average	tCO ₂ e/ISKm	Percentage
Construction companies	4.1	64,934	0.06	4.97	59.5	4.99	0.06	79.1%
Holding companies	0.2	5,634	0.03	5.00	0.3	5.00	0.03	19.5%
Real estate companies	1.3	125,245	0.01	4.58	4.2	4.80	0.01	98.5%
Travel industry	46.1	91,723	0.50	3.84	21.5	4.50	0.50	95.5%
Manufacturing and energy	17.4	30,086	0.58	4.37	68.5	4.97	0.58	99.4%
Agriculture	16.9	6,542	2.58	4.98	5.4	4.99	2.58	99.6%
Public entities	0.2	3,934	0.06	4.83	0.9	5.00	0.06	95.2%
Fisheries	47.5	174,404	0.27	4.67	161.2	4.88	0.27	97.1%
Retail	9.9	52,892	0.19	3.72	13.2	3.90	0.19	96.8%
Services, IT and communications	56.0	69,536	0.81	4.13	35.0	4.81	0.81	96.4%
Total - Corporate	199.5	624,929	0.32	4.41	369.7	4.77	0.32	91.7%
Individuals	12.0	530,848	0.02	3.95	2.9	3.88	0.02	89.7%
Total - All	211.5	1.155,776	0.18	4.20	372.6	4.69	0.18	90.8%

Itemisation according to sectors 2021

	Financed emissions	Book value	Emission intensity	Data quality	Scope 3	Data quality - Scope 3	Adjusted emission intensity	In scope
Sector	ktCO ₂ e	ISKm	tCO ₂ e/ISKm	Weighted average	ktCO ₂ e	Weighted average	tCO ₂ e/ISKm	Percentage
Construction companies	3.5	61,784	0.06	4.97	50.2	4.99	0.06	72.3%
Holding companies	0.9	9,543	0.09	5.00	1.6	5.00	0.09	31.7%
Real estate companies	1.2	118,821	0.01	4.77	4.0	4.89	0.01	94.8%
Travel industry	54.8	91,551	0.60	3.78	29.6	4.51	0.64	93.8%
Manufacturing and energy	15.3	29,684	0.52	4.42	71.2	4.96	0.52	98.6%
Agriculture	17.6	5,896	2.98	4.98	6.0	4.98	2.98	96.0%
Public entities	0.1	3,648	0.03	4.95	0.9	4.99	0.03	93.6%
Fisheries	45.7	168,112	0.27	4.84	176.9	4.95	0.28	94.4%
Retail	8.0	47,550	0.17	3.58	10.4	3.85	0.17	96.0%
Services, IT and communications	94.6	51,994	1.82	4.11	44.9	4.67	1.88	93.0%
Total - Corporate	241.7	588,582	0.41	4.49	395.7	4.81	0.42	88.9%
Individuals	9.8	659,118	0.02	3.96	2.4	3.88	0.02	90.9%
Total - All	251.5	1,247,699	0.20	4.21	398.0	4.71	0.21	89.9%