



Transition risks in the banks' loan portfolios – an application of PACTA

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Joint report by Finansinspektionen and the Riksbank

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Foreword

Climate change and the transition to climate neutrality affect everyone in society. For the economy, climate-related risks are a source of financial risk. It is therefore important for central banks and financial supervisory authorities, within the framework of their respective mandates, to work on climate-related risks to gain an understanding of how they can affect the financial system and ensure the resilience of the system.

Both the Riksbank and Finansinspektionen will work towards sustainable development in line with the ambitions of the Riksdag (the Swedish Parliament) and the Government and work to analyse climate-related risks. Since the authorities have common interests in this area, we have together applied one of the methods developed to analyse the transition risks in the Swedish banks' loan portfolios. The results of this application are presented in this report.

Continued analyses of this type are important, since the banks are exposed to climate risks through their lending to non-financial companies. The banks themselves need to understand how climate risks affect the risks of loan losses and to adjust their lending accordingly. Although a great deal of work remains to be done before such analyses are fully reliable, it is important that the banks are already working to deal with these risks.

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Summary

Finansinspektionen (the Swedish Financial Supervisory Authority) and the Riksbank have jointly applied the Paris Agreement Capital Transit Assessment Tool (PACTA) to measure transition risks in the Swedish banks' credit portfolios. Although only a limited part of the banks' loans are covered by the method, we can observe that there are climate-related transition risks that the banks need to take into account. The data and methods available for measuring transition risks are under development.

There is a lot of work going on in this area, in banks and organisations nationally and internationally, but it is important that the banks calculate and manage these risks already today. It is no good waiting for better data and fully standardised and harmonised methods to become available.

Climate change affects society and companies in different ways. It can give rise to physical risks¹ in the form of the risk of properties and facilities being destroyed by natural disasters. It can also lead to transition risks², where, for example, climate targets, technological advances, political decisions or changes in preferences and mood in markets create pressure on companies to convert their operations. Climate-related risks are a source of financial risks and therefore need to be managed. In their role as lenders, banks need to understand how these risks affect the risks of loan losses in corporate portfolios and to adapt their lending accordingly. It is also the responsibility of central banks and financial supervisory authorities to ensure that the financial system is resistant to this type of risk.

Paris Agreement Capital Transition Assessment (PACTA) for banks is a method developed to analyse whether companies meet climate targets that are specified in different climate scenarios. The results can be used to support the analysis of transition risks in the banks' loan portfolios. We, the Riksbank and Finansinspektionen (FI), have applied PACTA to understand the transition risk in the part of the banks' loan portfolios covered by this method. There has also been an aim to increase our understanding of what is needed further in the form of methods, tools and data to assess transition risks in a forward-looking perspective.

The results of our application of PACTA note that there are transition risks in a number of companies in the banks' loan portfolios that are covered by the method. Many

¹ Physical risk: Financial impact due to climate change, partly derived from damage to physical property or reduced productivity due to extreme events such as storms, droughts, and floods, and, on partly derived from damage to physical property or reduced productivity due to gradual changes, such as rising water levels, increased temperatures and destroyed land areas.

² Transition risk: The financial loss of an institution as a result of direct or indirect transition to a low-carbon and more economically sustainable economy. This can be triggered, for example, by a relatively abrupt introduction of new climate and environmental policies, technological advances or changes in preferences and mood in the market. In this memorandum, transition risk refers to the effects that arise when a company does not change its operations at the required pace in a number of climate scenarios.

companies with a need for transition have difficulty meeting the climate targets set five years ahead. More than half of the bank lending classified as going to activities that are directly harmful to the environment – a large part of which is made up of companies that extract fossil fuels – does not meet the targets.

Since the results are only valid for the companies covered by the method and for which data exists, no conclusions can be drawn at portfolio level. Because of the limitations, we know that there are a lot of unrecorded cases and that the total transition risk is greater than our application of PACTA shows. To obtain a more comprehensive picture, and also to cover physical climate risks, the analysis needs to be supplemented with other methods and tools. However, the results give a picture of the transition risk for the companies included in the analysis and the method constitutes a starting point that can be used to understand what is required to quantify transition risk. Through our application of PACTA, we have been able to understand the challenges of measuring transition risk, and this has given us a better understanding of what data is needed and how sensitive the results are to the different details of the method.

The results of the analysis have been presented to and discussed with the major Swedish banks.³ The banks we have been in contact with who have themselves applied PACTA have also found that only a small proportion of the companies in the portfolio are covered by the method, and that in some cases necessary data are missing for the companies included. However, the banks are working on several different initiatives and methods to try to obtain a complete picture of the physical and transition risks arising from climate change.

Although much work remains to be done before such analyses can be used to draw conclusions at portfolio level, it is important that banks are already working on assessing, quantifying and managing climate risks now. More data will become available when the requirements on companies' climate reporting are increased⁴, but climate risks are a reality today and it is not possible to wait for data and methods to be available across all companies. However, the approaches that banks are currently working on differ and both we, and they, see a need for greater standardisation and harmonisation. It is also important to establish common measures and expectations as to how climate risks should be handled by a bank. The banks need to pursue this work both internally, in trade organisations and in other cooperation both nationally and internationally.

At present, several initiatives are underway both within the EU and globally to address, for example, methodological challenges and access to data.⁵ Some banks already publish some climate data according to the disclosure requirements of the Task

³ SEB, SHB and Swedbank.

⁴ For example, the European Commission's proposal for CSRD https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en and the global initiative of the IFRS foundation with the establishment of ISSB <https://www.ifrs.org/projects/completed-projects/2021/sustainability-reporting/#final-stage>

⁵ For example, the UNEP FI Corporate Impact Analysis Tool (<https://www.unepfi.org/publications/positive-impact-publications/corporate-impact-tool/>), Partnership for Carbon Accounting Financials (PCAF, <https://carbonaccountingfinancials.com/>), the EU's Taxonomy directive (<https://eur-lex.europa.eu/legal->

Force on Climate Related Financial Disclosures. In January 2023, large banks will need to fulfil new requirements for publishing information, called Pillar 3 requirements, on climate risks in their portfolios.⁶

[content/EN/TXT/?uri=CELEX%3A32020R0852](https://www.eba.europa.eu/eba-publishes-binding-standards-pillar-3-disclosures-esg-risks)) the EBA's technical standards for ESG-related publications (<https://www.eba.europa.eu/eba-publishes-binding-standards-pillar-3-disclosures-esg-risks>) and <https://www.iosco.org/news/pdf/IOSCONEWS625.pdf>

⁶ <https://www.eba.europa.eu/eba-publishes-binding-standards-pillar-3-disclosures-esg-risks>

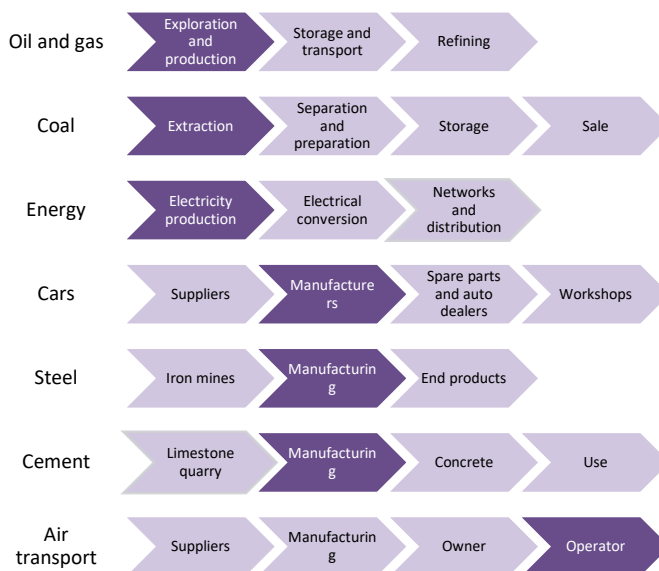
1. Description of PACTA

PACTA for banks has been developed by the 2^oInvesting Initiative (2DII)⁷ as a public utility method with associated tools. PACTA shows, among other things, how companies in a loan portfolio meet climate targets in different scenarios, and it can be used to understand transition risks. The tool is free to download and can be used by financial actors, supervisory authorities, central banks and other organisations.

1.1 Sectors and value chains included in PACTA

PACTA covers the sectors considered by 2DII to have the greatest climate impact in terms of carbon dioxide emissions. These sectors are estimated to account for more than 75% of global emissions. The method focuses on those parts of the value chain in these sectors that are considered to have the greatest impact on climate transition. 2DII justifies this distinction by the fact that if a climate transition in production is made in the part of the value chain covered, it will have a decisive effect on the entire sector, as the other parts will have to change as well. Figure 1 shows the sectors included, where the dark arrow boxes mark the parts of the value chains covered by the method and included in the analysis.

Figure 1. Sector and parts of value chains covered by PACTA



Note: The part of the value chain in each sector that is part of PACTA's method has dark arrow boxes.

⁷ 2^oInvesting Initiative (2DII) is a think-tank supported, among others, by the UN's Principles for Responsible Investment and the European Commission. PACTA is available in two versions, one that analyses loan portfolios and one that analyses asset portfolios, https://www.transitionmonitor.com/wp-content/uploads/2021/07/PACTA-for-Banks-Methodology-document-02-07-2021_v1.2.0_v4.pdf

However, it is important to note that in some of the sub-sectors in Figure 1 that are not covered (light boxes) there are activities that have high carbon dioxide emissions or other significant impact on the climate. For example, refineries, iron ore mining and aircraft manufacturing are not included. This limits usability from a bank perspective, since a bank needs to analyse the transition risk for all companies in the loan portfolio, including those not covered by PACTA's method.

1.2 Applying PACTA requires production forecasts, corporate loan portfolios and climate scenarios

To perform an analysis in PACTA, production forecasts are needed for the companies covered by the method. Production forecast refers to data on what a company is expected to produce in the coming years. A PACTA user can use their own production forecasts or request access to the company Asset Resolution's database, which contains forecasts for companies covered by the method. The production forecasts in Asset Resolution's database come from physical factories and other types of production facilities. The forecasts need to cover five years.

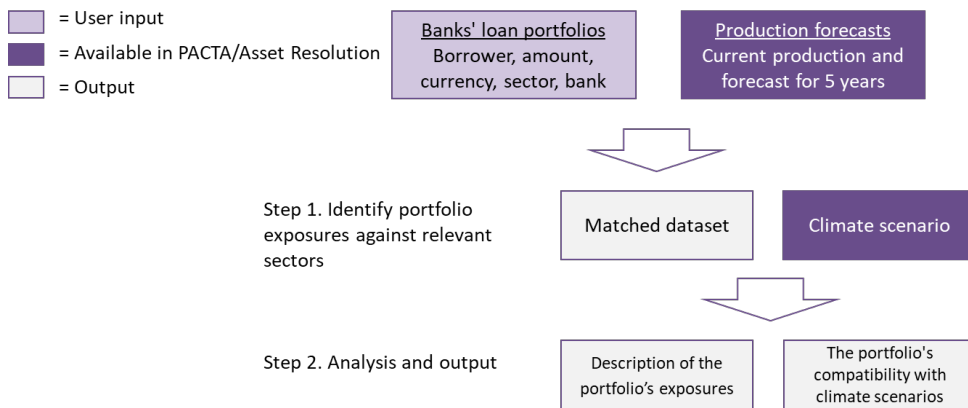
To achieve comparability and relevant measures that reflect the climate impact of each sector, 2DII has selected specific key figures that capture the climate impact of each sector. Production forecasts need to indicate production according to these key figures. For example, coal, oil and gas extraction is measured in gigajoule potential energy recovery. This is a general measure and comparable between the three energy sources. It is also a measure used in the sector to describe how much is extracted and the size of the stocks available. The energy sector is measured in megawatt production capacity and is divided into different types of energy sources (gas, oil, coal, nuclear power, hydroelectric power and renewable). The key figures chosen for each sector are shown in Appendix 1.

1.3 PACTA analysis steps

The PACTA analysis can be divided into a number of steps. Figure 2 gives an overview of these and the information needed to carry out the analysis.

Step 1 involves matching the companies in the banks' loan portfolios with the companies in the production forecasts. Step 2 calculates companies' deviation from the transition targets according to the different climate scenarios. The results are then summarised at portfolio level.

Figure 2. Overview of PACTA



PACTA includes different climate scenarios with transition targets for each sector. The sectoral targets are in turn divided up by technology.⁸ Some sectors and technologies have transition targets that require them to reduce CO2 emissions quickly, others need to expand sustainable production options or phase out production altogether. PACTA then divides the transition targets into companies' production facilities based on technology. This means that the companies' transition targets may be linked to several technologies. In a final step, the companies' loans are allocated to technologies, which provides a link between the loans and the transition targets that can be analysed by company or portfolio. A PACTA user can either use the scenarios provided or construct their own scenarios.

⁸ For more information see www.transitionmonitor.com/pacta-for-banks-2020/methodology-and-supporting-materials/ and [20210706-PACTA-for-Banks_Scenario-Supporting-document_V11.pdf](https://www.transitionmonitor.com/20210706-PACTA-for-Banks_Scenario-Supporting-document_V11.pdf) (transitionmonitor.com)

2. Analysis of transition risk in the banks' loan portfolios using PACTA

Climate change affects society and companies in different ways. Direct effects of destruction of property and production facilities caused by natural disasters – that is, physical risks – are a reality that companies need to take into account in their strategies and investment decisions. In addition, new climate and environmental targets, technological advances, political decisions or changes in preferences and mood in the markets create a need to change the production and business strategies of many companies, leading to transition risk.

2.1 Transition risk can lead to loan losses

In their role as lenders, banks need to understand how climate risks in the form of physical and transition risks affect the risk of loss in corporate portfolios and to adapt their lending accordingly. They will also need to change internal guidelines as well as risk and credit assessment policies to take these risks into account. Many banks have started analyses and begun to update risk frameworks and policies. However, much work remains to be done, not least in the development and harmonisation of definitions, data access and analysis methods.

It is also important for central banks and financial supervisory authorities to analyse, within the framework of their respective mandates, the banks' climate-related risks. It is important to understand how these risks can affect the financial system and financial stability.

2.2 Application of PACTA to the banks' loan portfolios

Together, FI and the Riksbank have applied PACTA to reported data from a number of Swedish banks.⁹ The aim is to get an idea of the transition risk in the part of the banks' loan portfolios covered by PACTA and to gain a further understanding of the data and model assumptions and specifications needed for that type of analysis.

Data on Swedish banks' loan portfolios comes from the Riksbank's credit database

The application is based on the Riksbank's credit database (KRITA), which contains reported data on corporate lending by Swedish credit institutions.¹⁰ Company-specific production forecasts adapted to PACTA come from the company Asset Resolution.

⁹ The institutions covered by the analysis are Svenska Handelsbanken, Stadshypotek, Handelsbanken Finans, Skandinaviska Enskilda Banken, Swedbank, Swedbank Hypotek, SBAB, Kommuninvest, Svensk Exportkredit, Sveriges Säkerställda Obligationer, Sparbanken Skåne, Sparbanken Sjuhärad, Länsförsäkringar Hypotek, Nordea Bank Filial i Sverige, Nordea Hypotek, Nordea Finans Sverige, Danske Bank Sverige Filial.

¹⁰ KRITA largely follows the ECB's AnaCredit (ECB/2016/13), both in terms of content and methodology. For more information, see www.scb.se/krita/.

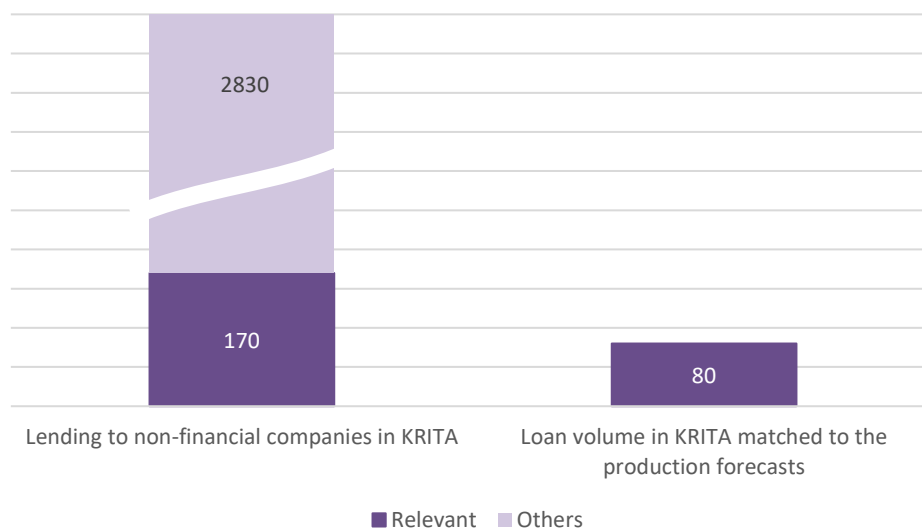
The analysis uses scenarios from the International Energy Agency (IEA) and the Institute for Sustainable Futures, which are included in PACTA.

We have used the part of the loans in KRITA that is to non-financial companies, where the total volume at the end of the second quarter of 2021 amounted to approximately SEK 3,000 billion. Of these, SEK 170 billion were allocated to companies in sectors covered by the PACTA method, as illustrated in Figure 1.¹¹ The fact that such a large volume of loans is excluded is mainly explained by the fact that Swedish banks have very little lending to the sectors covered by PACTA. Instead, the banks' loan portfolios consist largely of exposures to real estate companies, which are not covered by the method.¹²

Of these SEK 170 billion, SEK 80 billion was to companies that could be matched to the companies in Asset Resolution's production forecasts (see Figure 3). The fall from SEK 170 billion to SEK 80 billion is partly due to the fact that the method's production forecasts only include companies operating in parts of the value chains in the sectors covered. The production forecasts also need to include more companies to reach a higher matching percentage. For example, there is no production data for many small Swedish companies and municipal companies in the energy sector.

Figure 3. Loan volume divided by companies in sectors covered by PACTA and loans to other companies as well as loans to companies included in Asset Resolution's production forecasts

SEK billion



Note: Lending to "relevant sectors" means the lending that can be classified in the sectors covered by the PACTA method according to the standardised sector codes (NACE) reported in KRITA.

The loan volume of SEK 80 billion consists mainly of lending to the energy sector, the extraction and exploration of fossil fuels and the automotive industry. In addition,

¹¹ The classification was made according to the standardised sector codes (NACE) reported in KRITA.

¹² See Appendix 2 for a breakdown of the Swedish banks' corporate lending by business area.

there is a small proportion of loans to the aerospace, steel and cement industries. The SEK 80 billion comprises 2.7 per cent of the banks' total lending to non-financial companies. The fact that the share was not larger is due, as mentioned, to the fact that the real estate sector, for example, was not included in the analysis. But that does not mean that the real estate sector has no climate impact. For example, it is exposed to transition risk via input goods (energy, construction materials, etc.) in new construction. Completed buildings also require a great deal of energy for temperature control, for example, where energy can come from both renewable and fossil sources.

The results indicate that there are transition risks in the banks' loan portfolios

We have divided the lending that is analysed into climate-damaging and climate-neutral lending to distinguish the lending that goes to companies that according to PACTA have production with high-carbon and low-carbon technologies respectively and with higher and lower emission intensity than the climate targets.

The following loans have been allocated to climate-damaging lending:

- lending to companies that extract fossil fuels
- lending to energy companies that goes to fossil fuel combustion
- lending to car companies for the production of internal combustion engines
- lending to aviation, steel and cement production with higher emission intensity in production than the climate targets.

The following loans have been allocated to climate-neutral lending:

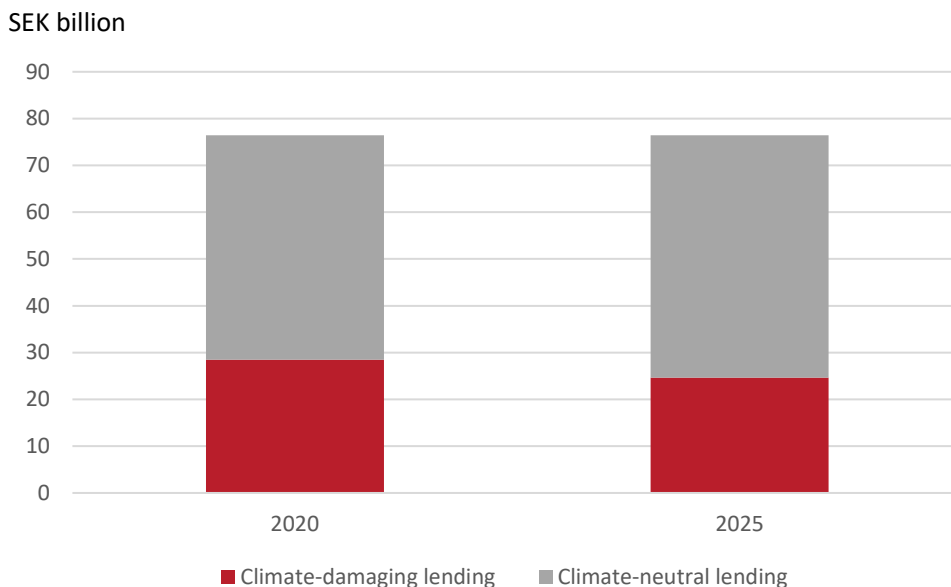
- lending to energy companies that goes to renewable energy production (solar and wind power), hydroelectric power and nuclear power
- lending to car companies for the production of electric, fuel cell and hybrid cars
- lending to aeronautical, steel and cement production with lower emission intensity in production than the climate targets.

This classification can be used to indicate the transition risk, because companies that conduct climate-damaging activities can be considered more vulnerable to, for example, changing consumption behaviour or the cost of emissions during the transition period. Large volumes of exposures to such companies make a bank more sensitive to transition risks.

Of the loans of SEK 80 billion that have been analysed, SEK 30 billion can be classified as climate-damaging loans as defined above. The remaining SEK 50 billion can be classified as climate-neutral lending (see Figure 4). For those companies that have several production technologies, the loans are broken down according to the amount produced per technology. This means that part of the lending to a company can be reported as harmful to the climate and another part as climate neutral. As companies can change their production during the forecast period, lending can also change from climate-damaging to climate-neutral.

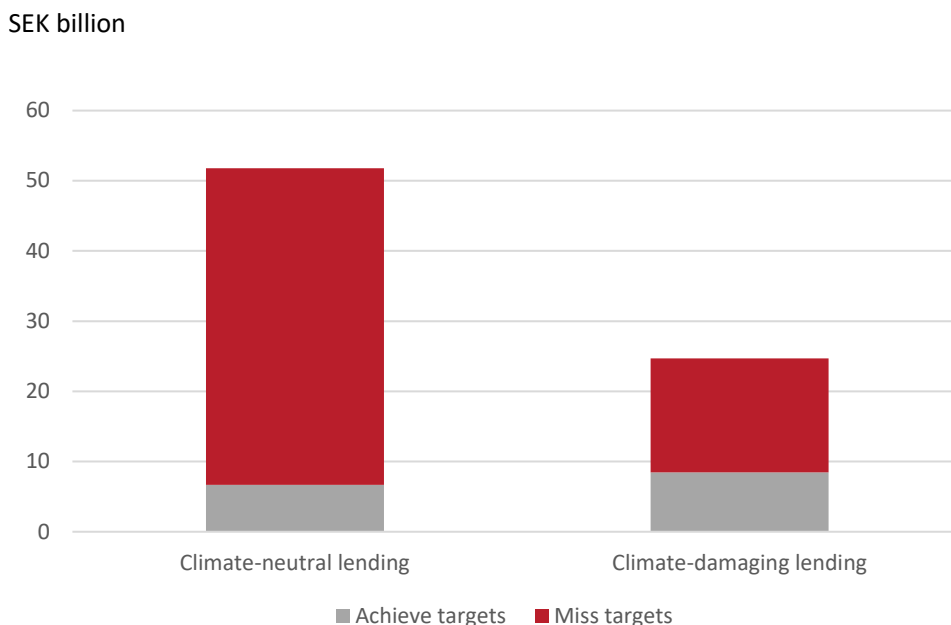
In five years' time, lending to companies that produce with climate-damaging technology is expected to decrease by SEK 5 billion, while the share of climate-neutral lending increases slightly. This shift is mainly due to the transition in the energy sector and the car industry.

Figure 4. Climate-damaging and climate-neutral lending, 2020 and 2025



When we next compare companies' production forecasts five years ahead with how much companies need to change their activities in order to attain the climate targets, it is clear that a majority of companies in both the climate-damaging and climate-neutral categories do not attain the targets. Over 60 per cent of loans for climate-damaging activities do not meet the targets (see Figure 5).

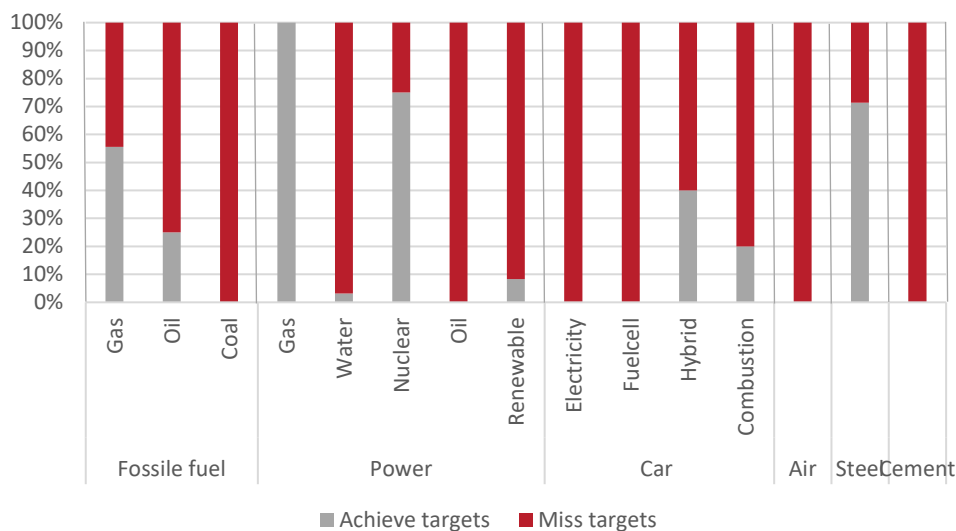
Figure 5. Climate-damaging and climate-neutral lending 2025 divided by target fulfilment, 2025



From a risk perspective, it is interesting to look more closely at the part of the lending in the climate-damaging category that does not meet the climate targets, since it can be considered to be associated with the largest transition risk. The extent of the transition required for these counterparties may be assumed to be significantly greater than for the neutral lending.¹³ The risk and consequences during the transition period are therefore likely to be greater for companies producing climate-damaging technology. A clear result of our analysis is that lending to companies that extract fossil fuels accounts for a large proportion of lending to companies that produce with climate-damaging technology and that the target fulfilment in that sector is generally low.

The more detailed company and sector-specific results from our application of PACTA can also help to identify the transition risk in each sector and to identify which counterparties are most exposed to this type of transition risk (see Figure 6). The results generally show that the companies' target fulfilment in each sector is low. This means that the transition of many companies, based on estimated production forecasts, is not sufficient to achieve the climate targets set for their sector before 2025. A more extensive transition is therefore necessary. However, the results differ in each sector, depending on production technology. For example, target fulfilment is very low for energy companies, with regard to how they plan to convert their oil combustion and expand their renewable energy production, but far better in terms of their gas combustion. Target fulfilment is also low for the automotive, aviation and cement industries, but the volume of loans analysed for the last two sectors in particular is small.

Figure 6. Share of companies by sector and technology that meet and do not meet the conversion targets, 2025



Note: The outcome is based on the worst outcome of the four scenarios used in the application. Number of companies analysed by sector: Fossil fuels 20, Energy 161, Automotive 5, Aviation 3, Steel 7, Cement 4.

¹³ This is partly due to PACTA's allocation logic. Climate-neutral operations classified as not meeting climate targets do so because climate-neutral production does not increase sufficiently, based on the company's market share.

To summarise, the results of the application indicate that the plans of the companies analysed to convert their production overall are not sufficient to achieve the climate targets under a number of climate scenarios. A more comprehensive transition is therefore needed to achieve these objectives. The analysis also indicates that only a small part of the banks' loan portfolios are exposed to the companies which, according to 2DII, have the greatest impact on the climate transition. However, the conclusion regarding the magnitude of the transition risk in the banks' portfolios is uncertain. One reason for this is that PACTA covers a limited number of sectors and only parts of value chains. There is also a lack of production forecasts for some companies. The outcome of our application also depends on how the transition targets have been distributed among the companies, which in PACTA has been done with strong assumptions.¹⁴ The fact that the analysis only extends five years ahead can also be considered to be too short a time horizon for a complete picture of the transition risk. The results should therefore be interpreted with some caution.

Because of the limitations, we know that the number of unknowns is high for the total transition risk. Similarly, there is considerable uncertainty about the consequences for, for instance, subcontractors and customers of the companies analysed. They are not included in the analysis, but may well be financed by the same banks that lend money to the companies involved. The matching result can also be used to achieve a more comprehensive picture of the transition risk, by extending the analysis to the transition risk that exists through the links of the matched companies to suppliers and companies in the same group, as well as to their credit commitments and, in many cases, significant market financing.¹⁵ The indirect effects of the actions of the companies analysed and any external effects on them can thus have a significantly greater impact on the overall transition risk than the analysis indicates.

2.3 The banks' climate risk work

PACTA, as described in section 1, is a utility method with associated tools that can be downloaded and applied by financial actors. With this in mind, we have met the three major Swedish banks to discuss our application and their experiences with PACTA and, more generally, their approaches to assessing and managing climate risks.

The banks that have applied PACTA to their own portfolios have, like us, found that only a limited proportion of the bank's loan portfolio is covered by the method and that production forecasts are lacking for some companies. The banks are working on other initiatives and methods, both qualitative and quantitative, to obtain a comprehensive picture of the physical and transition risks that climate change creates in the

¹⁴ The distribution means, for example, that all electricity companies are allocated climate targets for the expansion of hydroelectric power, wind power and nuclear power, which are investment decisions that companies do not in most cases make themselves.

¹⁵ For example, for the industrial sector and the energy and water sector, more than half of the total borrowing of market financing, see Chart 24 in [Appendix to Financial Stability Report 2020 2, Chart \(riksbank.se\)](#).

loan portfolio. To some extent, banks have begun to include climate risk in their risk frameworks and policies, including working with credit limits for certain particularly vulnerable sectors. The banks have different approaches, but there is a consensus among the banks with which we have had contact. They all see a need for standardisation and harmonisation in order to achieve comparability, access to data and common measures and expectations of how climate risks should be managed by a bank.

All in all, the banks, like us, emphasize that work on standardisation and harmonisation of methods, data taxonomy, data reporting, data collection and rules and guidelines for controlling and managing climate risks needs to be carried out in parallel in trade organisations, public authorities and private initiatives, nationally and internationally.

3. Conclusions

It is clear that climate-related risks, including transition risks, affect, in one way or another, and will continue to affect, bank loan portfolios. For example, the price of carbon dioxide emissions may be increased, the company's customers may have new preferences or technological advances may outcompete certain businesses. These changes may lead to the banks' counterparties that are affected and unable to manage this type of risk suffering a deterioration in earnings, higher costs or a combination of both. This would impair the ability of borrowers to repay, which could increase the risk of loan losses for the bank. Other market players may also be reluctant to provide credit to or invest in these types of companies. Thus, refinancing risk may also increase, which means greater uncertainties and potentially negative consequences for existing financiers (including banks).

It is against this background that it is important to have an idea of the transition risks to which a bank is exposed directly and indirectly. PACTA's approach is that the more climate impact a company has in terms of carbon dioxide emissions, the more it needs to convert its production to attain climate targets. During the transition period, the company is more vulnerable to, for example, changes in consumption behaviour or the costs of emissions. Large volumes of exposures to these companies make a bank more sensitive to transition risks. At present, it is not possible to measure exactly how serious the consequences can be. But by applying PACTA, we can gain a slightly better understanding of the transition needs of the banks' counterparties. For those counterparties with climate-damaging activities that fail to meet the climate targets, PACTA shows a considerable transition risk that could have consequences for the banks.

Analyses of transition risks are still associated with certain challenges. Perhaps the largest of these is that the availability of relevant and reliable data is limited. Similarly, standards for climate reporting and accounting are still being developed to a great extent. Combined with the fact that the methods for measuring and assessing climate-related transition risks are relatively new and potentially difficult to verify, this means that the results should be interpreted with some caution.

It would also be desirable, from the banking perspective of transition risk, to extend the PACTA method to cover all companies exposed to transition risks. For example, the real estate sector, to which the Swedish banking sector has large exposures, is exposed to transition risks via input goods (energy, building materials, etc.) in new construction. Completed buildings also require a great deal of energy for temperature control, for example, where energy can come from both renewable and fossil sources.

The risk spectrum is thus, for several reasons, not complete. But that does not mean that it is not important to work on gaining a clearer idea of the risks right now, quite the reverse. To avoid or reduce the effects of unexpected events, banks need to identify and manage the risks. Unfortunately, there is currently no comprehensive or perfect method for quantifying transition risks. However, there are several initiatives underway, both within the EU and globally, to address, for example, methodological challenges and data access. Several actors have begun to develop different methods and tools to start measuring climate risks, where PACTA is one example. For the time

Conclusions

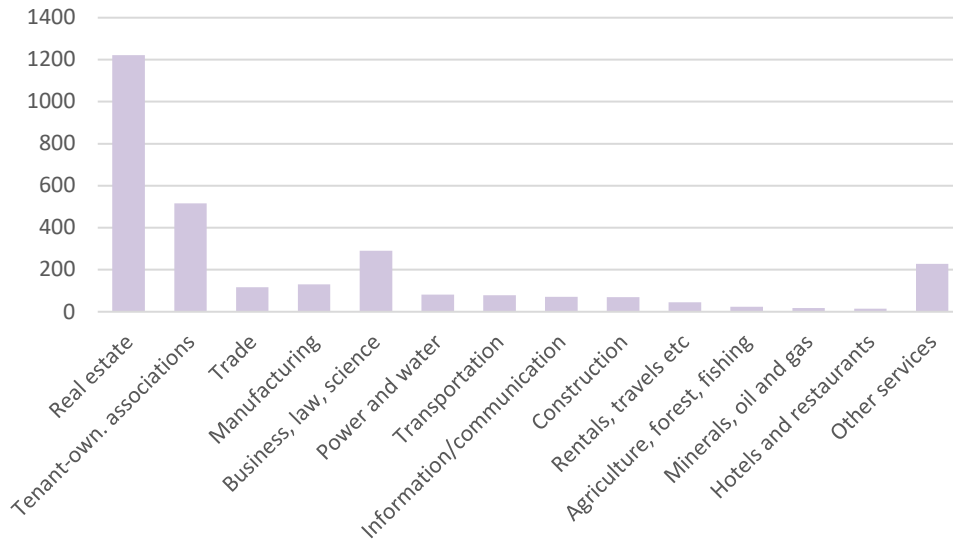
being, there may be a need to combine methods and data sources or supplement the analysis with other methods and tools.

Appendix 1, PACTA key ratios for different sectors

- The coal, oil and gas sectors are measured in energy capacity in the unit of gigajoules.
- The auto manufacturing industry is measured by the number of cars manufactured and is divided into different engine options (combustion, hybrid, electricity and fuel cell).
- The energy sector is measured in megawatt production capacity and is divided into different types of energy sources (gas, oil, coal, nuclear power, hydroelectric power and renewable).
- The steel sector is measured in number of tonnes of steel produced. The production forecast is supplemented by an emission intensity forecast, tonnes of CO₂ per tonne of steel produced.
- The cement sector is measured in tonnes of cement produced. Production forecasts are supplemented by an emission intensity forecast, tonnes CO₂ per tonne of cement produced.
- The aviation sector is measured in emissions of CO₂ per passenger kilometre.

Appendix 2, Swedish banks' lending to non-financial companies by business area

SEK billion



Source: The Riksbank's credit database (KRITA), Q2 2021



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