CREDIT SUISSE

Active Ownership Report 2022

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Contents

[1] ESG stands for environmental (E), social (S), and governance (G).

Foreword

Climate change and biodiversity loss were again at the top of the agenda in 2022. Credit Suisse Asset Management's Active Ownership team helps companies tackle these and other challenges to enable future-proof business models and a more sustainable future for society in order to best protect the value of the investment portfolios we manage for clients. This report shows how we do this.

The year 2022 was challenging in many ways. The war in Ukraine has caused extreme suffering and disrupted markets and economies that had just begun to normalize after two years of COVID-19. The war has also made it painfully clear that the world still has a long way to go to transition from traditional to renewable energy sources, which is necessary to mitigate the worst effects of climate change. Global warming and biodiversity loss are very much interconnected, and they drive and compound each other. They could impact a vast range of aspects of society if they are not dealt with accordingly. As a result, we have seen a range of initiatives in the financial industry as well as in our broader society to tackle these challenges, and we expect more to come given the severity and complexity of these issues.

Inaction and insufficient action pose a major risk not just to society, but also to businesses worldwide. As an asset manager, we have a fiduciary duty to protect our clients' investments from these risks. We are in an excellent position to support companies in developing sustainability strategies and achieving ESG-related goals. One example is the Climate Action Plan that Credit Suisse Asset Management and Investment Solutions & Sustainability, part of Credit Suisse Wealth Management, launched in December 2022. The Climate Action Plan reaffirms our commitment to supporting the transition to a net-zero society.

Sustainability is of strategic importance, and our Active Ownership team plays a key role within Credit Suisse's Sustainable Investment Framework. Through proxy voting as well as individual and collaborative engagements, we want to drive change toward a more sustainable future.

This Active Ownership Report highlights important themes and provides in-depth insight into our approach and activities. In 2022, we were able to expand our scope regionally as well as thematically, almost doubling our voting activity for another year and accelerating our engagement efforts. During the year, we also expanded our collaborative engagement, supported by joining industry groups and initiatives that push for sustainability in specific industries.

I am very proud of the developments and achievements of our dedicated team of sustainability experts and investment professionals. I look forward to further expanding our coverage and efforts in the years ahead and to bringing about changes that benefit our clients, society, and future generations.

Zurich, February 2023

Jeroen Bos
Global Head of Sustainable Investing
at Credit Suisse Asset Management

The Sustainable Investing teams at a glance

Sustainable Investing

Jeroen Bos
Global Head of Sustainable Investing

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Credit Suisse Asset Management has a dedicated team of sustainable investing experts. It is led by Jeroen Bos, who reports to Filippo Rima, Global Head of Investments at Credit Suisse Asset Management. The team consists of two specialized subteams: Active Ownership, headed by Stephan Scharrer, and ESG Integration, headed by Dominik Scheck, with a third one for Sustainability Research currently in the process of being formed. Acting in accordance with the Credit Suisse Sustainable Investment Framework[2], the subteams are responsible for conducting various tasks. Active Ownership is responsible for Credit Suisse Asset Management's proxy voting and engagement activities, whereas ESG Integration focuses, among other things, on defining and setting up policies and frameworks, providing a fully comprehensive ESG data infrastructure that facilitates investment processes, overseeing ESG monitoring, supporting the sustainable product development process, and implementing regulatory requirements.

The first ESG team at Credit Suisse Asset Management was founded at the beginning of 2019. It focused its activities on ESG integration and active ownership. In 2021, it grew from four to nine members, and an Active Ownership team was carved out to focus solely on proxy voting and engagement. On January 1, 2022, Jeroen Bos became Global Head of Sustainable Investing and established the current structure of the Sustainable Investing team. At the end of December 2022, the team comprised a total of twelve members with an average of ten years of sustainability-related experience.

Active Ownership

Stephan R. Scharrer
Head of Active Ownership
Focus on corporate governance

23 | 27

Jacqueline Oh
Engagement Lead
Focus on engagement framework, business conduct, and social issues

15 | 8

Dr. Christoph Biehl
Senior Active Ownership Specialist
Focus on biodiversity and engagement framework

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Emma Farrell
Active Ownership Specialist
Focus on responsible consumption and production

11 | 7

Dr. Ece Satar Pfister
Climate Specialist – Active Ownership
Focus on climate change and net-zero emissions

7 | 1

Enkhzul Stricker
Junior Active Ownership Specialist

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Charlotte Bourquin
Junior Active Ownership Specialist

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ESG Integration

Dominik Scheck
Head of ESG Integration

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Yalis Torretta
Senior ESG Specialist

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Thomas Schär
Senior ESG Integration Manager

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David Guadalupe Toledo
ESG Integration Specialist

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Years of relevant experience

Years at the company

[2] https://www.credit-suisse.com/media/asets/microsite/docs/responsibleinvesting/sustainable-investment-framework.pdf
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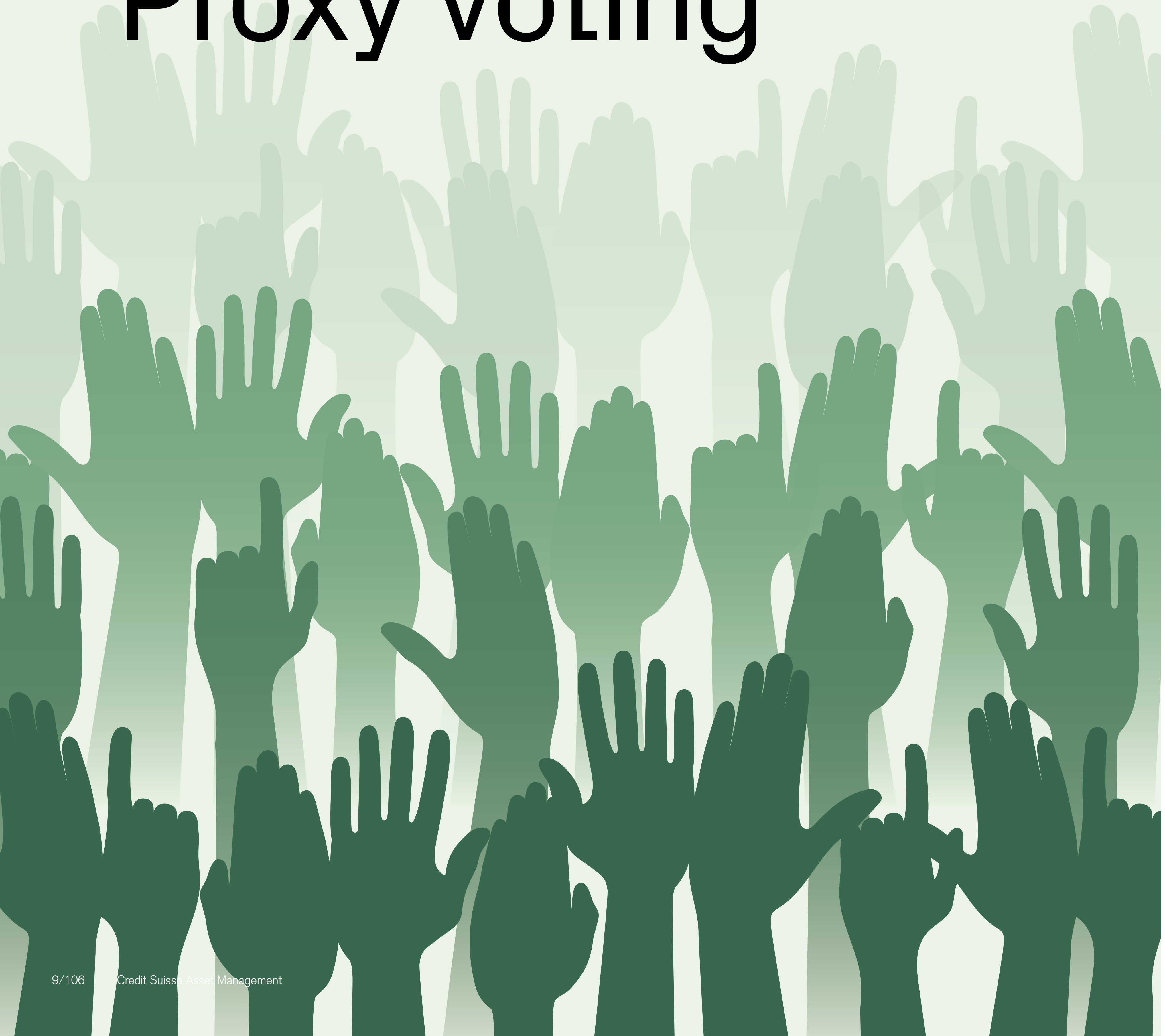
Proxy voting



> In 2022, we added two important emerging markets, China and Taiwan, and expanded our coverage in the small- and mid-cap space. As in previous years, our focus was on the protection of the interests of minority shareholders, ensuring the independence of supervisory bodies within companies and on adherence to regulations.

Stephan R. Scharrer
Head of Active Ownership

Proxy voting

After expanding from Europe to North America and the developed Asia-Pacific region (Australia, New Zealand, Japan, Singapore, and Hong Kong) in 2021, we added the first two emerging markets – China and Taiwan – to our proxy voting services in 2022. Our global voting was thus further broadened through the addition of two important markets. We substantially increased our coverage in the small- and mid-cap space across markets, covering a much larger number of issuers than in 2020. We continued to follow our best practices approach.

Our general focus is on regulations that are already applied or are in the process of being established in the respective markets. Essentially, we aim to protect the interests of minority shareholders, to avert conflicts of interests between various stakeholders in investee companies, and to strengthen the independence of the highest internal supervisory body.

In Europe, we noted the continued implementation of the EU Shareholder Rights Directive 2017/828 (SRD II) as a beneficial improvement for investors. A high level of expertise in compensation matters has become the standard for any asset manager that takes sustainability and governance issues seriously. The topic appears on the agenda at annual general meetings and must be reviewed by shareholders.

We see an unchanged need to improve the execution of proxy voting rights through custodian banks. Unfortunately, there are still some companies, mainly in Luxembourg and Germany, that make it difficult to exercise proxy voting rights electronically by imposing unnecessary bureaucratic hurdles. We view this practice as actively restricting our shareholder's rights. The directive is not binding and stringent enough to facilitate a fully digital execution, in our opinion.

We kept our focus and voted proactively on small holdings, screening specifically for environmental and social shareholder proposals (see Shareholder proposals).

Our comprehensive proxy voting framework is focused in particular on the following aspects:

Executive management compensation
The structuring of executive management compensation is of central importance to us. An attractive compensation framework is needed to retain and motivate management personnel. However, it is necessary to bring long-term interests of the various stakeholders into alignment, especially the interests of the executive management and investors. We put a sharp focus on deferred long-term compensation laid out in the long-term incentive plan (LTIP). We consider an LTIP a mandatory element, and the majority of the companies in which we are invested have such a plan in place.

As in the previous year, we initiated a dialogue with companies that do not have an LTIP and in which we have substantial equity interests through our fund holdings (see Thematic engagement – Corporate governance: The quest for best practices). We saw further progress in compensation reports throughout Europe. The improved transparency and degree of disclosure enabled us to gain better insights, which was necessary. As a shareholder, we have the fiduciary duty to take a stand on absolute compensation, compensation budgets, and/or remuneration systems in a growing number of countries. We exercise this duty with due care, conducting detailed analyses of compensation reports.

Independence of the board of directors and particularly of the audit and compensation committees
We consider it our fiduciary duty to ensure the independence of the aforementioned bodies. An independent board of directors (BoD) is crucial to the economic success of a company. Business strategies get adjusted much more often these days than some years ago and, as a consequence, changes to the executive board (CEO, CFO, etc.) occur more frequently than in the past. The independence of the BoD is an important bulwark against potential questionable developments in this area in terms of business policy and strategy.

Capital measures
We take a critical stance on capital increases without preemptive rights for existing shareholders. Our threshold here is a 10% dilution of voting rights, which we consider the current best-practice limit for Switzerland and Europe.

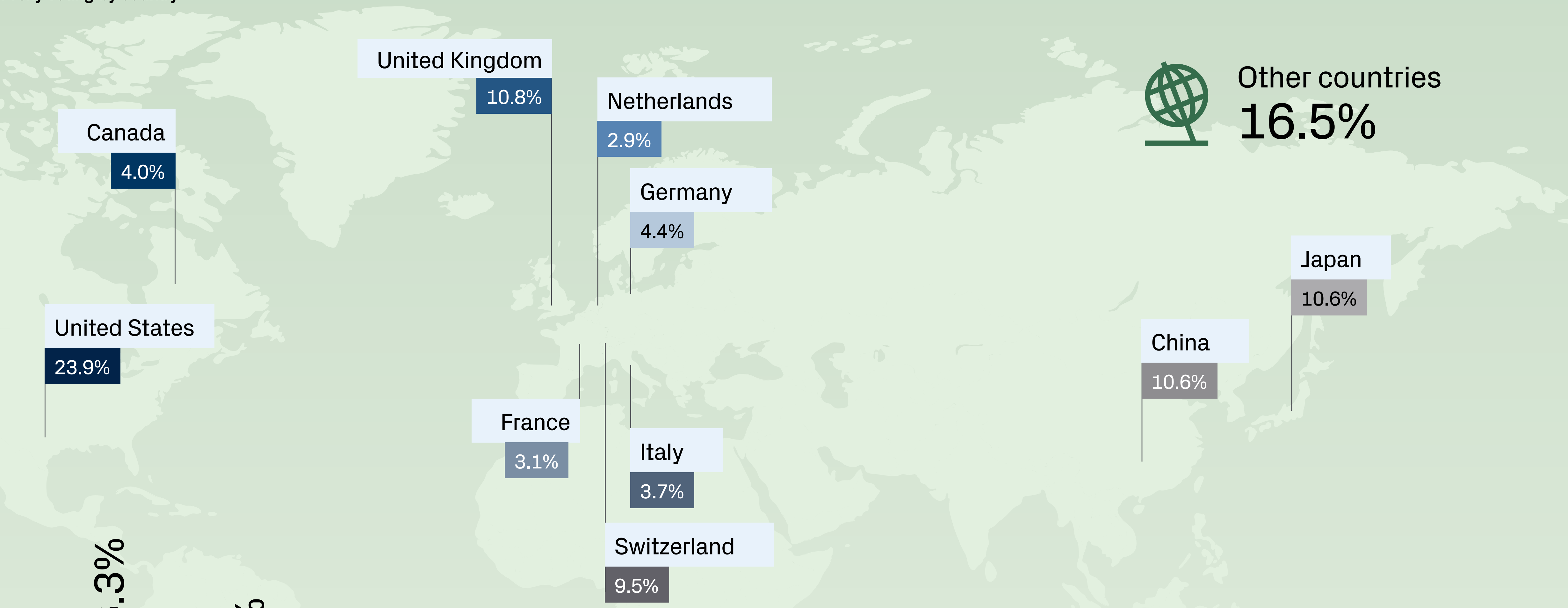
Proxy voting by country and sector

Our global coverage has grown further, and our votes were delegated at a total of 2,239 ordinary and extraordinary general shareholders' meetings (2021: 1,252).

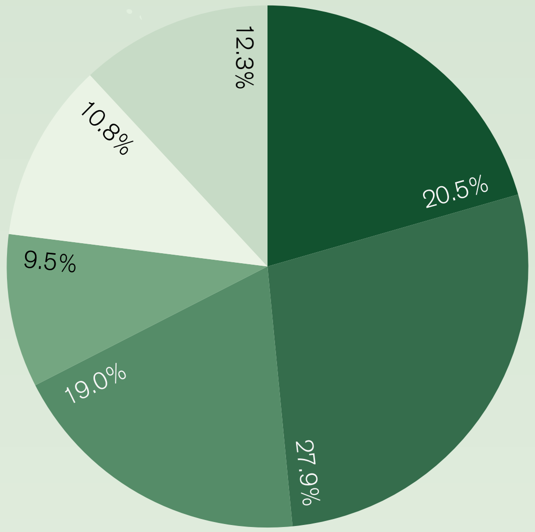
Overall, the growth rate compared to the previous year was 78.8%. It was achieved through an equally enlarged coverage of small and mid-caps in existing markets around the world, but also through the addition of our first two emerging markets, China and Taiwan.

Continental Europe, including the United Kingdom and Switzerland (40.8% of all proxy votes), remained our most important region from a geographical perspective. North America (27.9%) remained stable. The developed countries of the Asia-Pacific region (19.0%) gained almost four percentage points. The newly added emerging markets accounted for 11.9% of all proxy votes.

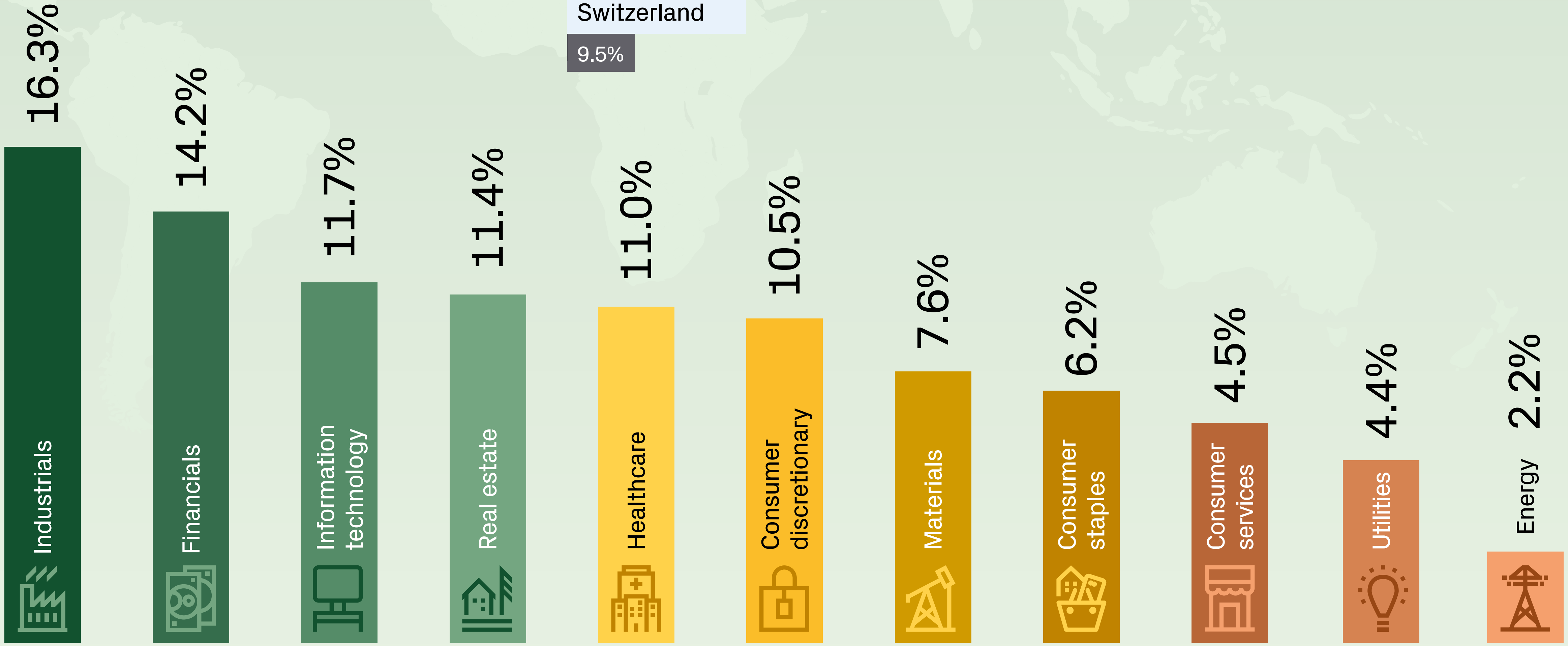
Proxy voting by country



Proxy voting by region



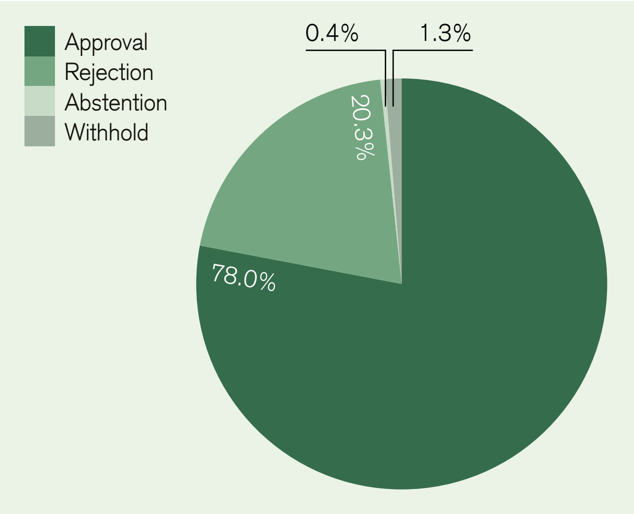
- European Union
- North America
- Developed countries of the Asia-Pacific region
- Switzerland
- United Kingdom
- Other countries



Proxy voting by sector

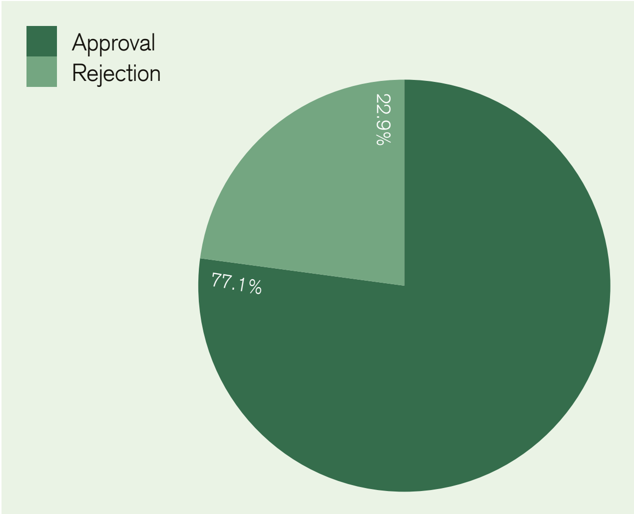
Proxy voting

Our voting record



Apart from the enlarged coverage, our global voting record remained stable. Overall, we endorsed 78.0% of all motions (2021: 77.6%; 2020: 77.0%), while we rejected 20.3% (2021: 21.0%; 2020: 21.3%) and withheld votes on 1.3% (2021: 0.9%). This is a particularity in North America where there is no option for an active deselection or rejection in personal elections, unlike in Europe. Therefore, our combined rejection rate was 21.6%. Our abstentions remained stable at 0.4% (2021: 0.5%).

Vote alignment with management

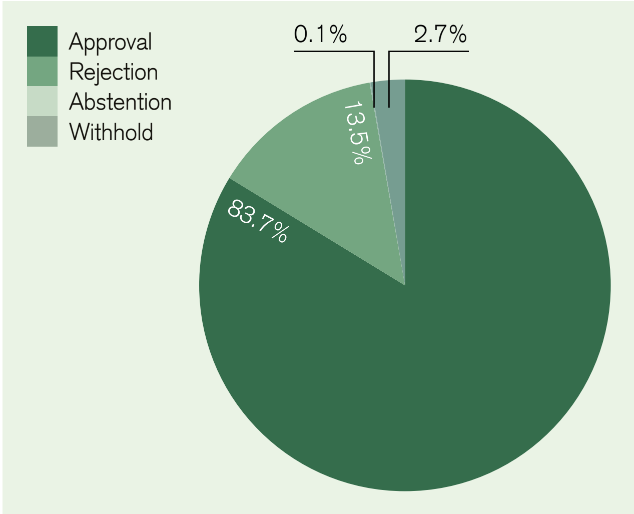


Our overall attitude toward recommendations by the executive management and the BoD remained critical and unchanged. We endorsed only around three-quarters of all motions (77.1%; 2021: 76.5%) and rejected around one in four (22.9%; 2021: 23.5%).

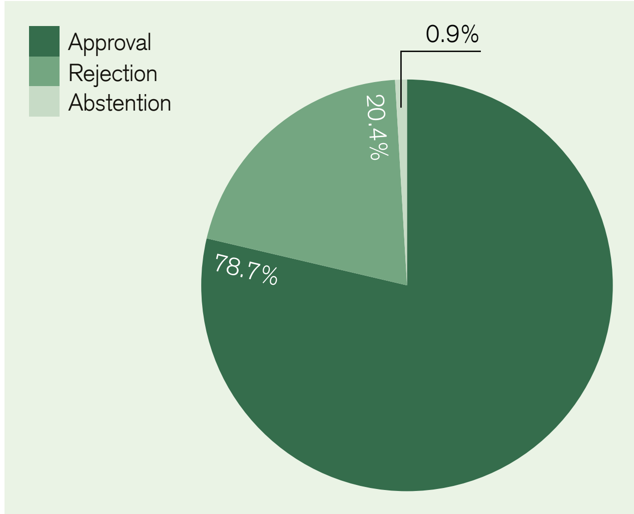
Elections

When electing candidates for the BoD, our focus is on the independence of the board as a body and on the independence of the individual board committees. National differences are taken into account, and best practices are a key criterion. In the United Kingdom, for example, best practices are defined by the Corporate Governance Code. We also pay close attention to what is known as “overboarding,” that is, we make sure that board members do not hold an excessive number of mandates at the same time. A board chairpersonship counts as a double mandate because this function entails a correspondingly higher workload. An executive function counts as three individual mandates. Depending on the market, we allow a count of up to four or five individual mandates. Any count higher than that meets the definition of overboarding.

Votes in elections to BoDs



Votes in elections to compensation committees



Election of members to BoDs
As explained above, when electing members to BoDs, we focus on ensuring the due independence of the board as a whole. The same applies to audit and compensation committees, where we insist on majority or full independence, depending on the country. We also require majority or full independence for nomination committees. Financial institutions are expected to appoint a separate risk committee.

In Switzerland, we apply a stricter definition of overboarding than the one currently recommended by the Swiss business federation Economiesuisse. We believe that board members face a demanding and complex workload and should have the necessary capacity to devote themselves to their responsibilities properly during unforeseen challenging periods.

Globally, we endorsed 83.7% of all candidates (2021: 82.8%) and rejected 13.5%. If we add withholds in the North American region to the active rejections, we did not support 16.2% of personnel elections (2021: 18.0%). Abstentions amounted to a marginal 0.1%.

Election of committee members
In very few countries, shareholders are also responsible for explicitly electing members to individual committees. If the independence of those bodies, which we require, is not compatible with the regional or country-specific requirements, we will vote the members of the BoD out of office in the main election accordingly.

Compensation committee members are elected separately in Switzerland pursuant to the Swiss Ordinance against Excessive Compensation in Listed Stock Companies (OaEC). Since the majority independence requirement for compensation committees was not met in every case, we were able to endorse only 78.7% of the candidates. In other words, we rejected more than one in five proposed candidates. In 2021, our support rate was 73.1%. We see an unchanged need to reach out to the companies in which we are invested. We are participating in ongoing and newly initiated dialogues with various companies as part of our thematic engagement on corporate governance (see Thematic engagement – Corporate governance: The quest for best practices).

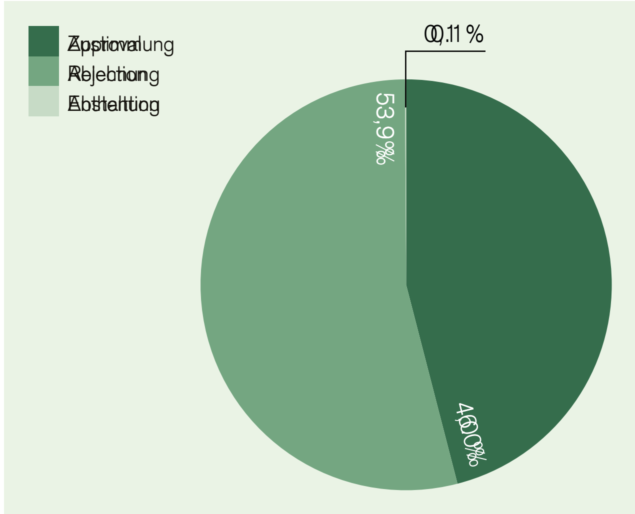
Compensation

As an investor, we appreciate the opportunity to vote on compensation for BoDs and executive management teams. Europe and Switzerland are far advanced in terms of compensation governance matters, with regulatorily mandated binding votes on executive and, depending on the market, also on BoD remuneration. North America has nonbinding votes on the highest-paid top executive, which is usually, but not always, the CEO.

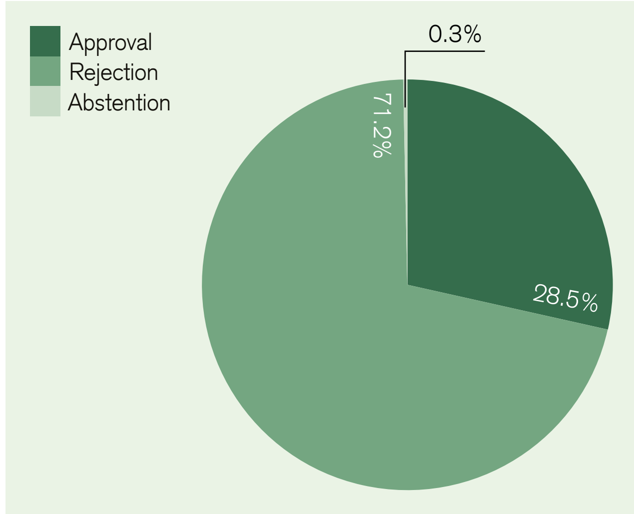
In Europe, there has been great variation in the transposition of the SRD II legislation into respective national laws, and its implementation thus varies from country to country. For example, absolute compensation amounts are usually voted on as a budget for the next fiscal year or the following year. Overall compensation frameworks are often put to a vote, with some of them then remaining in effect for several years. Retrospective approvals are quite rare, except in France, and are also problematic because part of the compensation would have to be reclaimed if the motion is rejected. Most laws implementing SRD II have entered into force. However, in principle, we are quite satisfied with developments in this area, even though we think that simpler solutions would have been possible in some instances.

We place strict requirements on compensation policies but base them on achievable targets. We have noticed that a considerable number of companies have set robust standards regarding their compensation policies and have adhered to those standards for years. Large-cap companies perform better in this respect than small-cap firms do. Our overall support on compensation matters slightly increased to 46.0% (2021: 44.1%). We note particularly low support for North American voting items, including US omnibus stock plans. Even though they are aimed mainly at the general workforce, they are also accessible to members of BoDs, with the short vesting period being objectionable to us (see Board of directors' compensation).

Votes on compensation issues



Votes on compensation reports

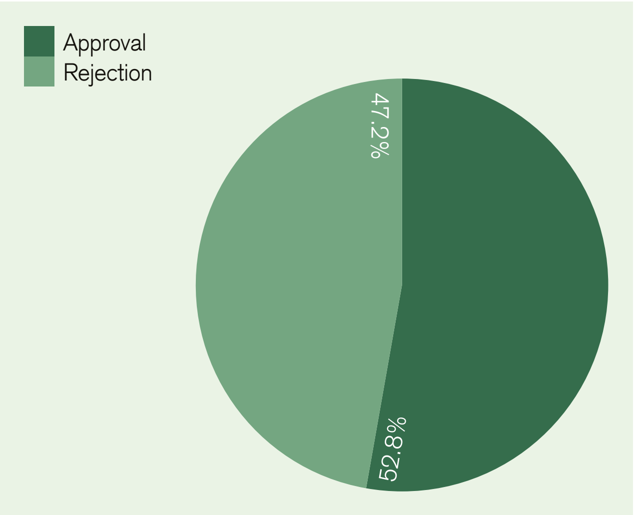


Compensation reports
Nonbinding votes on compensation reports have become the best practice or are mandatory pursuant to respective national laws. This agenda item covers multiple aspects, such as absolute compensation, for example, but also the structure of the compensation framework per se. We continue to take a critical stance on stripping out internal "exceptional income statement items" (e.g. restructuring charges). Many of these special items occur more than once in a business cycle and should therefore be categorized as standard budget items from a long-term perspective. We believe that all stakeholders should bear part of the responsibility for those burdens.

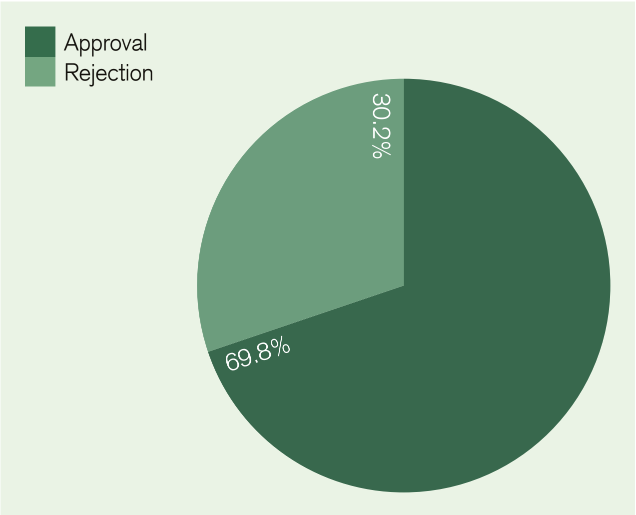
For the North American market, we face a high percentage of rejections because we see a conceptual shortfall in a clear separation between short-term incentive plans (STIPs) and long-term incentive plans (LTIPs). For LTIPs, we require no vesting before the third year. STIPs are defined with vesting periods between one and two years. Very often, we note staggered vesting on an annual basis for the non-performance-based portion of LTIPs (time-based vesting) starting in the first year. We view this as a cross-subsidy into the STIP, which goes against our framework. Given the increased coverage and the high share in absolute terms in the US, this has led to a further decrease in our support rate, which is now as low as 28.5% (2021: 32.7%). Our rejection rate increased to 71.2% (2021: 67.0%).

It is gratifying to report that there has been a gradual increase overall in personal equity investments by executive board and BoD members in the companies for which they work. One exception is Germany, where many supervisory board members do not want to hold a personal stake in the company where they have a mandate due to the special legal situation there. We can understand concerns in this regard, yet we also note that a small number of companies are nevertheless starting to explore this issue. We continue to expect executive board and BoD members, depending on their function, to hold a personal investment in their companies that would amount to one to two times their annual basic salary.

Votes on compensation frameworks



Votes on BoD compensation



Compensation frameworks
The implementation of SRD II brought a large number of compensation frameworks up for a vote. The outcomes are legally binding but do not have to be reapproved every year and therefore remain valid over a medium-term time frame. Compensation framework practices differ depending on national legislation.

When voting on compensation frameworks, we make sure to verify that they are transparent and understandable, and that all key variables and metrics are transparently disclosed. If a metric that judges a company's share price relative to a peer group is used, the identities of the companies belonging to the peer group must also be disclosed in a transparent manner. Furthermore, we pay special attention to verifying whether the LTIP has at least a three-year cliff vesting schedule. In the Netherlands and the United Kingdom, an additional two-year holding period has been established as the best practice.

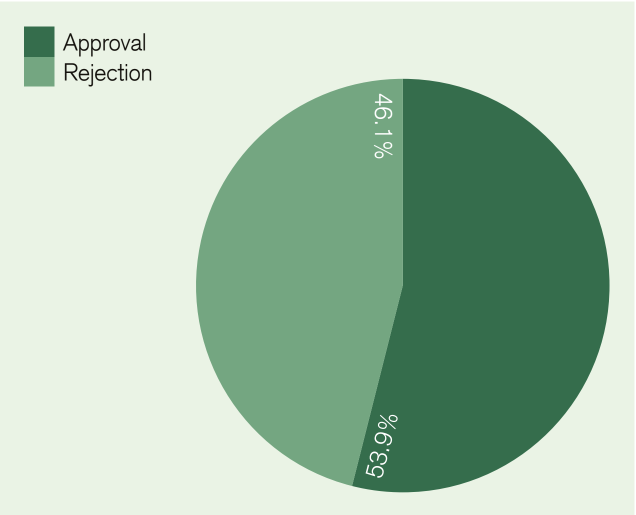
We view the increase in our approval rate to 52.8% (2021: 48.4%) as a positive development. In several cases, we noted that compensation committees' discretionary adjustment power for LTIPs was cancelled and/or we noted fewer cases where adjustments had been made. We still noted a very high share of LTIPs to be settled in cash in the German market. We do not agree with this practice because it means that executive management members are not invested enough in their own companies. Based on this, we continued to hold a number of thematic engagements with German issuers in which we are invested. We therefore decided to address this situation as part of our thematic engagement (see Thematic engagement – Corporate governance: The quest for best practices).

Board of directors' compensation
BoD members should receive fixed compensation that is not linked to performance. Alternatively, the members may also receive a portion of or the full compensation in a fixed number of shares determined in advance with a minimum three-year lock-up period. We categorically reject performance-related compensation and, in particular, options on shares for this body.

In the US, BoD members can generally participate in employee stock option plans (omnibus plans). We are not critical of these plans per se, provided that they are directed at senior managers and senior staff and not at the BoD and executive management. The plans are characterized by a very short vesting period, accelerated payouts in the event of acquisitions, and other short-term incentives, which is acceptable for senior management and senior staff, but not for BoD members. We therefore consider them to be generally expedient, but not appropriate for BoD members. Their compensation incentives must be clearly aligned with the long-term nature of the business.

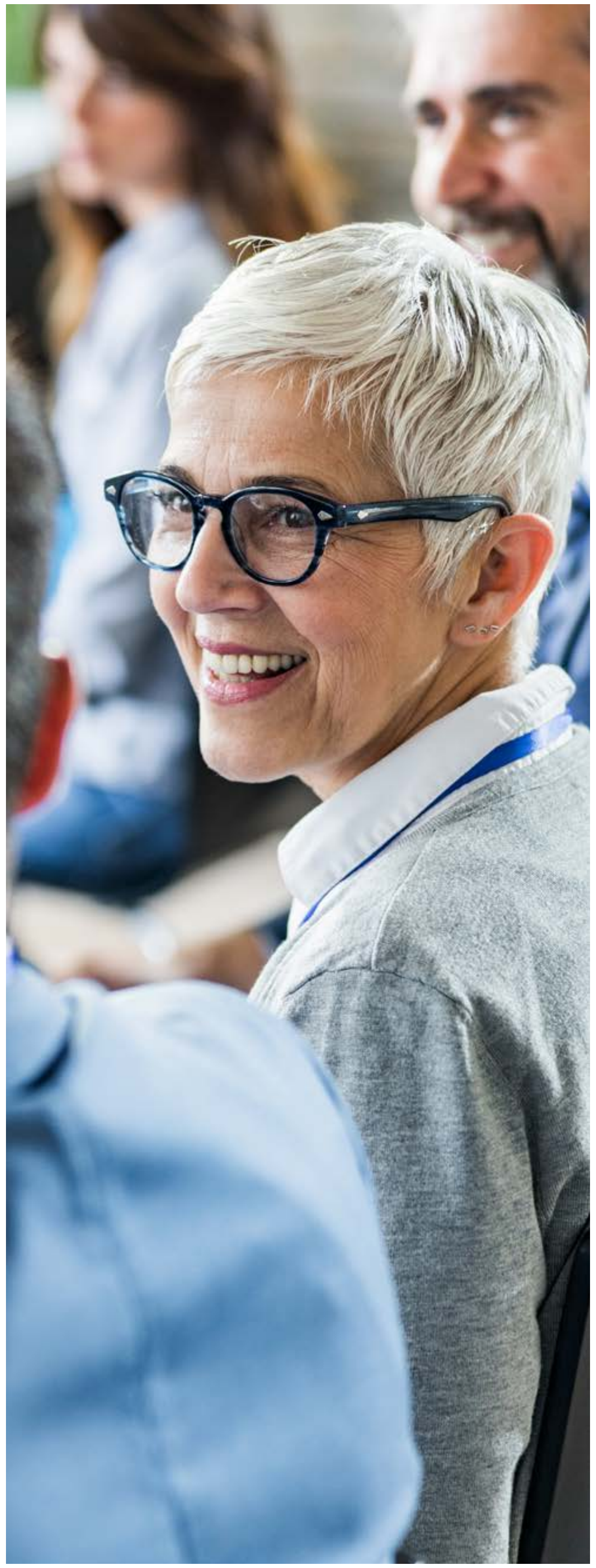
Most votes on BoD compensation are ex ante votes on the budget until the next ordinary general shareholders' meeting or for the next calendar year. We endorsed 69.8% of motions on average (2021: 71.6%).

Votes on executive management compensation



Executive management compensation
This agenda item is found only in Europe and Switzerland due to respective regulations. The approach chosen by the companies is forward-looking with budgets, and mostly for the 2023 fiscal year (i.e. one year forward-looking). We noted an improvement in the number of our supportive votes, which increased to 53.9% (2021: 48.5%). Nevertheless, we saw relatively often that the aforementioned requirements (see Compensation frameworks) were not met and/or that the maximum possible growth rates for compensation compared with the previous year were above our threshold.

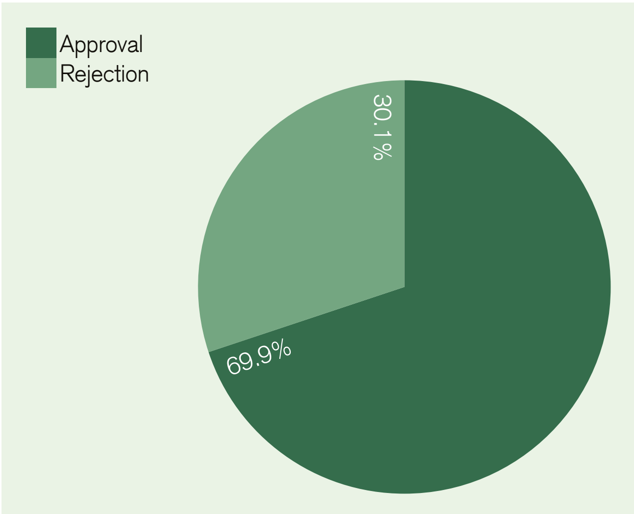
Due to the prevailing shortcomings identified in the proxy voting activities, we continued our thematic engagement initiative on these compensation issues with selected companies. Some of the engagements were ongoing and some were newly initiated. We also consider it necessary to discuss the matter of compensation frameworks and budgets in dialogue with specific companies in 2023 (see Outlook, Governance).



Capital measures

Capital measures include share buybacks, share capital reductions, and equity capital increases. The latter may normally be brought about by means of subscription rights, or certain shareholders may be given preference. In total, we endorsed 69.9% of all capital measures (2021: 73.5%).

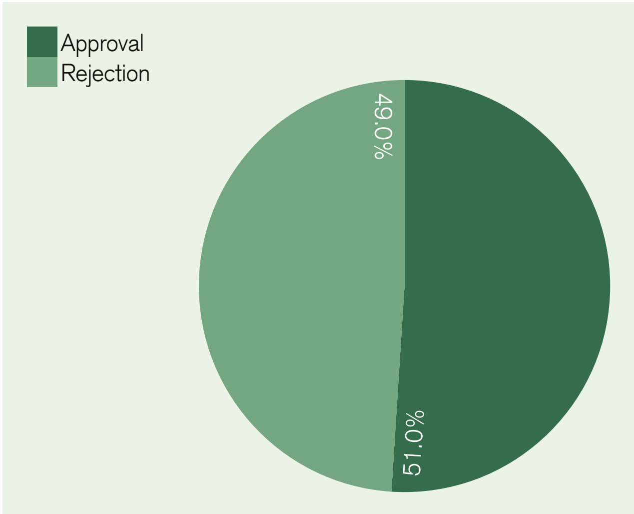
Votes on capital measures



We consider share buybacks and the subsequent cancellation of shares to be largely unproblematic if they do not exceed a certain volume and span at least a certain minimum time frame. However, we continue to take a more critical stance on authorized and/or conditional capital increases (one or both forms may exist, depending on the country), specifically the issuance of new shares without preemptive rights being granted to existing shareholders. Such capital increases dilute or reduce the value of existing shareholding stakes, and this dilution or value reduction must be limited. We understand that the convenience and speed of this type of financing can make it very attractive to companies, but it may at least partially undermine our fiduciary responsibilities. We allow a maximum dilution of 10% over a time horizon of at least two years.

Last year, we endorsed 51.0% of all motions on capital measures (2021: 58.8%). The drop in support comes from a blend of general capital authorizations. The 10% limit is being respected by more and more companies worldwide and is becoming a best practice. However, it is clear that there are some individual sectors, such as biotech, where companies continue to substantially exceed this limit.

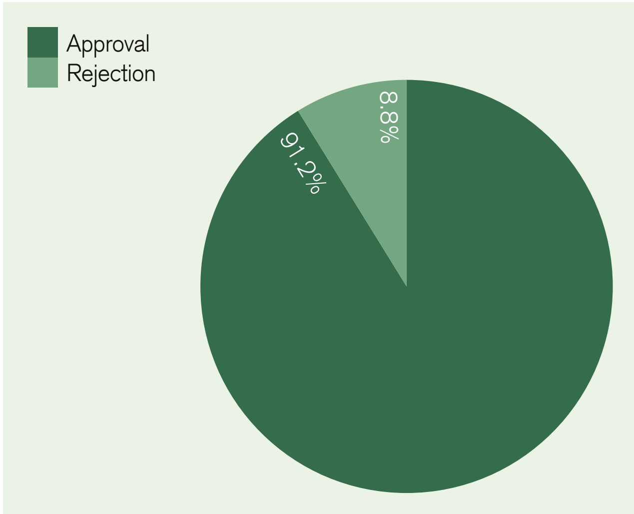
Votes on authorized and/or conditional capital increases



Amendments to articles of incorporation

We evaluate amendments to articles of incorporation on a case-by-case basis, with our focus on safeguarding the rights of minority shareholders. In general, we found only very few critical amendment proposals. Accordingly, we were able to endorse more than nine out of ten motions, namely 91.2% (2021: 97.1%).

Votes on amendments to articles of incorporation



Credit Suisse Asset Management Proxy Voting Committee

This committee consists of highly qualified experts from Credit Suisse Asset Management's General Counsel, Compliance, Risk, Portfolio Management, and Sustainable Investing departments.

The Proxy Voting Committee passes decisions on individual warranted deviations from our proxy voting methodology and adjudicates escalation cases in which the assessment by our fund portfolio managers irreconcilably diverges from that of our active ownership officers. The committee mediates with the goal of reaching a compromise, which is why it can make sense to deviate from the proxy voting policy in justified individual cases. The overriding rationale, however, is always our commitment to upholding our fiduciary duty solely in the interest of investors in our funds.

Given the departure of two committee members in 2022, the chair proposed two new members, both of whom were approved by the Management Committee of Credit Suisse Asset Management. We also made progress in terms of gender diversity, as one-third of committee members are now female.

The committee also passes decisions on modifications and improvements to our proxy voting methodology, which we undertake each year in order to incorporate the latest developments in corporate governance and sustainability best practices into the body of rules. These adjustments are also discussed with all internal stakeholders before being put into effect.

Our internal Proxy Voting Committee had to make very few decisions in 2022, but one meeting was held in person because the decision was far-reaching. As in 2021, there were no escalation cases submitted by investment teams.

Shareholder proposals

We continued to actively monitor shareholder proposal submissions. We observed a large number of motions, particularly in the US and Japan, and, to a lesser extent, in the United Kingdom and Europe. We critically reviewed them based on our Credit Suisse Sustainable Investment Framework. We also consulted research reports that focus on sustainability, including reports from Institutional Shareholder Services Inc. (ISS), our proxy voting service provider.

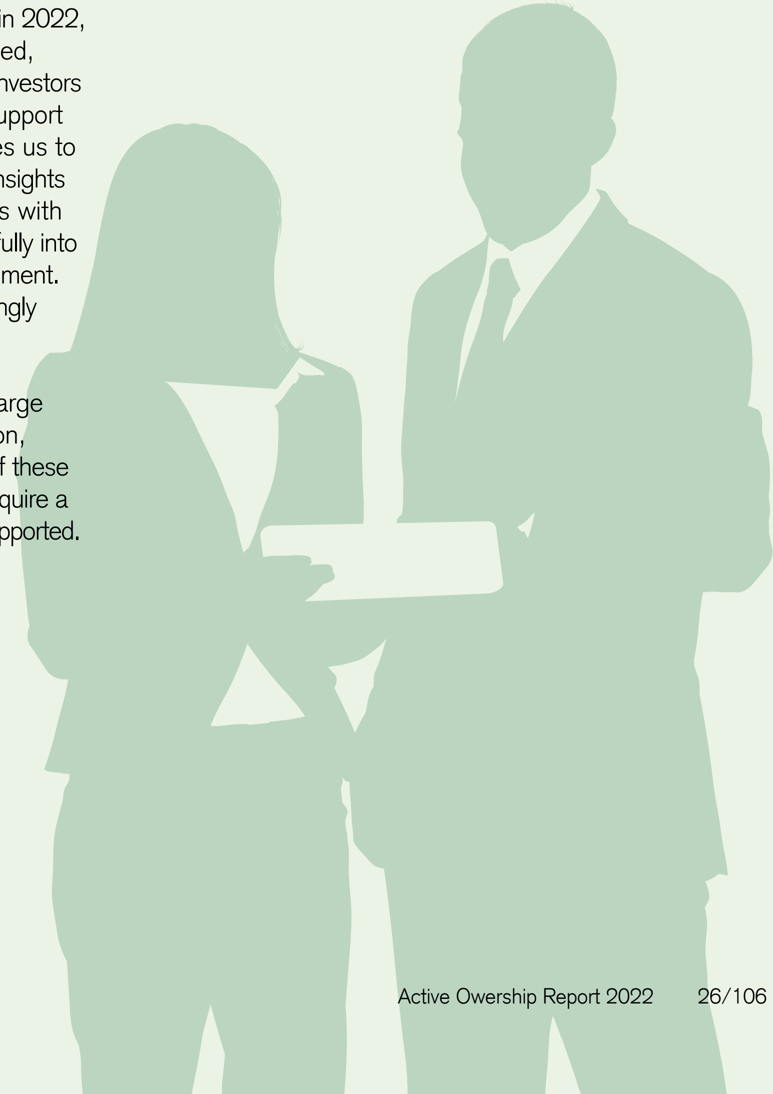
In 2022, we supported 72.5% of all shareholder proposals (2021: 84.1%). This marks a decrease of over 11 percentage points, but we still considered almost three out of four proposals to be in the interest of investors. It is obvious that the companies themselves are highly critical of these proposed agenda items. We voted against the recommendation of the BoD and the management in 60.8% of the motions (2021: 79.2%).

We saw an increasing number of reporting proposals in 2022, particularly in the US. If these proposals are accepted, companies will be required to disclose information to investors on the respective topic and matter. Generally, we support additional and improved reporting because it enables us to gain a better understanding of companies and more insights into our investment cases. It also raises awareness with investee companies that investors will look more carefully into operational matters that affect society and our environment. Increased ownership along the full verticals is increasingly becoming best practice.

On the corporate governance side, we voted on a large number of proposals to amend articles of association, bylaws, and charters. Overall, we supported 93.5% of these proposals. The second most-proposed item was to require a chairperson independent of the BoD, which we fully supported.

In terms of environmental matters, we evaluated a large number of proposals for reports on climate change, greenhouse gas (GHG) emissions, and community-environment impact. The largest number of agenda items concerned climate change reports, which we supported in 76.4% of all cases. We considered reports insufficient if, for example, no Scope 3 analysis was required or provided (see Thematic engagement – How we engage with investee companies). Overall, we supported 71.1% of all environmental proposals.

Social proposals tended to be broader. In descending order of occurrence, we voted on agenda items such as disclosure of political lobbying and political contributions, racial equity and/or civil rights audits, human rights risk assessments, BoD diversity, and reviews of drug pricing or distribution. On average, we supported 84.5% of all social proposals.



Engagement

> In 2022, we expanded our thematic scope and joined several global collaborative engagement initiatives. At the same time, we introduced engagements on business conduct, building on the Credit Suisse Sustainable Investment Framework.

Jacqueline Oh
Engagement Lead

Engagement

Overview of our engagement

Since establishing our own Active Ownership team in 2021, our objective has been to proactively engage with investee companies. We do this in order to address ESG-related systemic risks and to play an important role in helping drive change and ensuring that international standards are being applied, in line with our fiduciary duty. We analyze the dependencies of companies with regard to ESG-related risk factors, as well as their impact on nature and society.

Our engagement efforts are key to addressing broader negative externalities that could lead to inefficiencies in our portfolios. Our approach seeks to benefit all stakeholders in the long term and helps fulfill our fiduciary duty toward our clients. We started our engagement activities in 2019 as part of the ESG team and gradually expanded our thematic scope by adding the food loss and waste topic in 2020 and biodiversity loss in 2021. Furthermore, we laid the foundations to expand our net-zero engagements beyond listed real estate in line with the Climate Action Plan that Credit Suisse Asset Management and Investment Solutions & Sustainability, part of Credit Suisse Wealth Management, launched in December 2022.[3]

In 2022, we also increased our collaborative partnerships, joining up with peers and stakeholders to collaborate on selected thematic engagements. Collaborative engagement has a greater influence when it comes to engaging with larger organizations or whole industries. In addition to Climate Action 100+, which we joined in 2020, we also joined the new UN Principles for Responsible Investments (UN PRI) Advance stewardship initiative, signed on to three FAIRR initiatives, and became a member of the Institutional Investors Group on Climate Change (IIGCC).

Engagement framework
Investor interest in sustainable investments remains strong. Market participants put a spotlight on the importance of coherent rules of engagement. Having a clear and transparent framework is therefore a cornerstone of our activities.

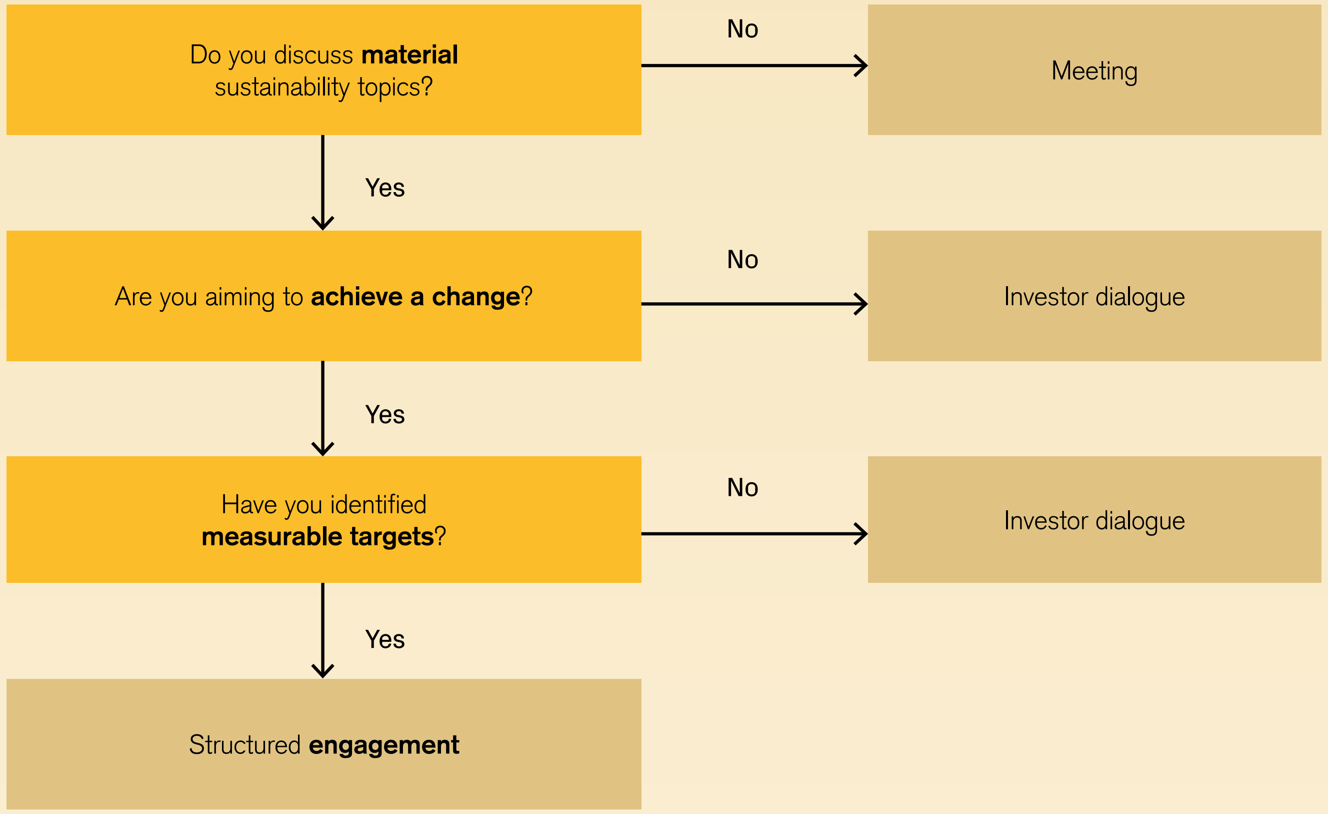
[3] Credit Suisse. December 2022. Climate Action Plan – Toward a net zero future.

Classification of engagement interactions
Engagement is a key tool that asset managers employ to protect long-term value for clients while trying to achieve an impact in the real economy. To facilitate engagement interactions with our investee companies and to create transparency for our stakeholders, we structure our engagement interactions into three different categories:

- Meetings with companies to gather information and share ideas
- Investor dialogues about important sustainability topics where we would like to see change
- Structured engagements in which we urge the investee company to change an important sustainability characteristic and help it define measurable goals and clear timelines for achieving them

Engagement interactions between all three categories play an important role in our active ownership efforts. It is essential to stay in contact with a broad range of investee companies, from laggards to leaders. Gaining insight into what drives the leaders while also understanding the laggards' challenges is essential when engaging with investee companies. This enables us to identify and promote attainable best-practice solutions for investee companies.

Types of engagement



Our approach to engagement

Our engagement interactions are categorized not only by classification, but also by approach. We distinguish between the following three approaches:

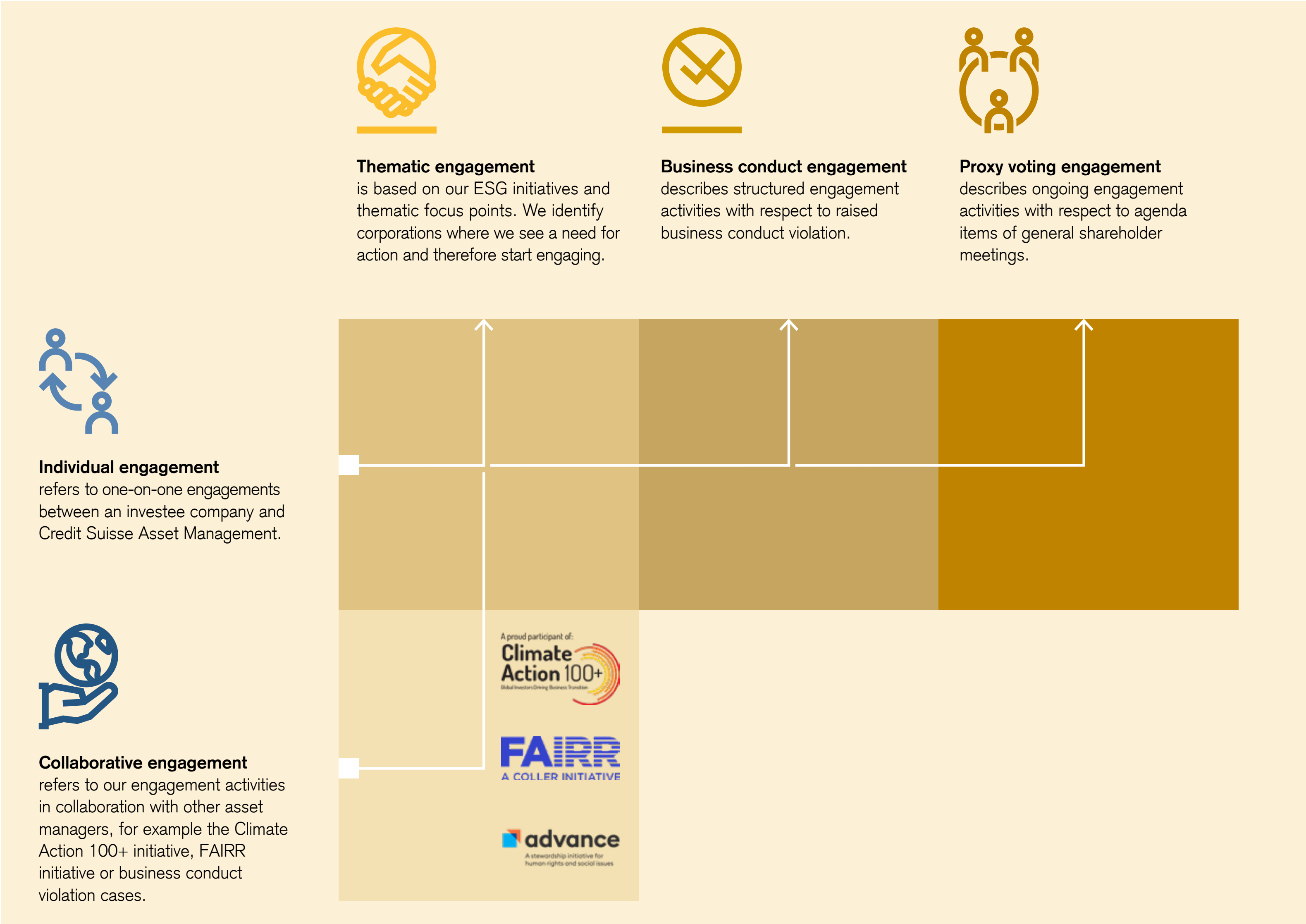
- **Thematic:** Our thematic engagement is aimed at companies to which we have exposure through our holdings. To identify the materiality of the individual subject areas, we relate them to our holdings. The core question of the materiality analysis is how a specific ESG issue affects the business model of a particular company ("dependencies") and how the business model influences the ESG issue ("impacts"). For example, a materiality analysis on climate change might identify the risk of storm damage to a production site as one of the dependencies and company-specific emissions of GHGs as one of the impacts. Making such connections is a central aspect of our thematic inquiry process. Generally, our thematic engagements take place over a number of years due to the long-term nature of the underlying systemic risks.
- **Business conduct:** Portfolio companies are reviewed systematically by Credit Suisse Group for potential business conduct violations. Critical cases are put on a watch list and may be subject to engagement by the Active Ownership team.
- **Proxy voting:** Proxy voting engagements are often determined by our voting at annual general meetings or extraordinary general meetings.In our proxy voting engagements, we mainly engage after being contacted by investee companies. The engagements mostly encompass agenda items voted on during the general meetings. Proxy voting engagements thus build a strong connection between our engagement and proxy voting activities.

Our coverage applies to equity as well as bond holdings in actively and passively managed investment vehicles. Our contacts range from large enterprises (large caps[4]) to small- and medium-sized enterprises (small caps[4] and mid caps, SMEs). Since we hold substantial equity and/or fixed-income positions in some small and mid caps, we have a particular focus on SMEs for thematic and proxy voting engagements. However, best practices are often developed by large caps, and we leverage these experiences and examples to raise awareness of key ESG issues among SMEs and to accelerate the dissemination of best practices on the market.

[4] Large caps refer to companies with a market capitalization of USD 10 bn or more; small caps refer to companies with a market capitalization between approx. USD 250 mn and USD 2 bn

We carry out our engagement activities on a one-on-one basis or together with peers and stakeholders:

- **Individual** engagement: We engage one-on-one with a specific company. Our interactions are often focused on financially material topics and severe or systemic issues that we have identified. In our individual engagements, we engage to identify best practices among companies, to develop an understanding of how different industries deal with material dependencies and impacts, and to encourage companies to address shortcomings.
- **Collaborative** engagement: Here we focus on engaging together with other stakeholders and peers, often on issues that are relevant to the broader stakeholder group. Collaborating with other investors increases the share of investment, which gives us more leverage to drive changes in larger companies. This requires a thorough analysis of companies and sectors, which means that in a collaborative engagement, participants can benefit from sharing in-depth know-how and information within the investor group. Climate change, biodiversity, or social issues are excellent examples that fit with collaborative engagement efforts aimed at using the group's collective voice to increase the chances of success.



Engagement activities in 2022

Individual engagements

Last year, the Active Ownership team initiated 94 engagement interactions with companies, with 41 related to investor dialogues and 53 to structured engagements. Further information on several engagements conducted by individual Credit Suisse (Lux) Thematic Equity funds can be found in the annual reports of the respective funds.[5]

Collaborative engagements

We also increased our work with stakeholders and peers. During the year, we joined three collaborative engagement initiatives and became a member of the Institutional Investors Group on Climate Change (IIGCC).

Institutional Investors Group on Climate Change

The IIGCC is the European membership body for investor collaboration on climate change and the voice of investors taking action for a prosperous, low carbon future.[6]

Climate Action 100+

Climate Action 100+ is an initiative coordinated by five regional investor networks, including the PRI and the IIGCC. The initiative focuses on ensuring that the world's major GHG emitters act on climate change by implementing climate governance frameworks and improving climate-related disclosures. The initiative is supported by more than 700 investors representing USD 68 tn in assets under management. [7]

PRI Advance

In July 2022, the UN PRI launched a new stewardship initiative enlisting institutional investors to jointly take action on human rights and social issues. This collaborative engagement aims to drive positive outcomes for workers, communities, and society. The following three expectations will be set for engagement focus companies:

- Fully implement the UN Guiding Principles on Business and Human Rights (UNGP) – the guardrail of corporate conduct on human rights
- Align their political engagement with their responsibility to respect human rights
- Deepen progress on the most severe human rights issues in their operations and across their value chains

Phase 1 of these engagements is expected to begin with approximately 30 to 40 companies in the metals and mining and renewables sectors in 2023.

FAIRR

The FAIRR initiative is a collaborative investor network established by the Jeremy Coller Foundation. Its members represent assets in the amount of USD 70 tn as of the end of 2022. The initiative focuses on the ESG risks and opportunities in protein supply chains. It provides research, best-practice tools, and collaborative engagement opportunities for its members. We joined three different FAIRR engagements in 2022.

- **Antimicrobial stewardship in the animal health industry**
  This engagement aims to drive greater disclosure and clarity on if and how animal pharmaceutical companies are addressing the risk of antimicrobial resistance (AMR) throughout their value chains, from factory to farm (see The rise of antimicrobial resistance poses a serious threat).
- **Managing biodiversity and climate risks in aquafeed**
  This engagement is asking for risk analyses of the impact of aquafeed on biodiversity and climate change to be conducted and disclosed (see FAIRR: Managing biodiversity and climate risks in aquafeed).
- **Biodiversity loss from waste and pollution**
  The world is facing species extinctions at an unprecedented rate. In this collaborative engagement, FAIRR functions as a facilitator focusing on the impact of manure from livestock husbandry on biodiversity (see FAIRR: Biodiversity loss from waste and pollution).

Engagement in relation to proxy voting

In addition, we conducted 18 engagements in relation to proxy voting. The companies were mostly Swiss and European investee companies from the small- to large-cap segment. Almost all meetings were one-on-one meetings with either the chairperson of the board of directors, the lead independent director, or the chairperson of the remuneration committee. Our exchanges were generally constructive and provided both sides with the opportunity to explain their views and actions (see Engagement on business conduct).

[5] https://am.credit-suisse.com/ch/en/asset-management/insights/thematic-equity-investing/environmental-impact.html
[5] https://am.credit-suisse.com/ch/en/asset-management/insights/thematic-equity-investing/edutainment.html
[6] IIGCC.2022. https://www.iigcc.org/about-us
[7] Climate Action 100+. 2022. Investors. https://www.climateaction100.org/whos-involved/investors/

Thematic engagement

As part of our thematic engagement program, we engaged with 78 investee companies through investor dialogues and structured engagements in 2022. In these engagements, we address material ESG issues in line with our fiduciary duty.

The engagements are aimed at companies to which we have material exposure through our funds. We do not distinguish between actively and passively managed funds and consider equity as well as fixed-income investments. During the engagements, we talk to investee companies ranging from large enterprises (large caps) to small- and medium-sized enterprises (small and mid-caps). As a good steward, we leverage our holdings, aiming to create an impact in the real economy. This could include, but is not limited to, sharing and accelerating the dissemination of best practices on the market.

On selected themes, we engage together with stakeholders and investors as part of collaborative engagements. Collaborating with other investors increases leverage to drive change. Thematic engagements require a thorough analysis of companies and sectors, which means that in a collaborative engagement, participants can benefit from sharing in-depth know-how and information within the investor group.

In 2022, we engaged on the following themes through individual or collaborative engagements:

Responsible consump-tion and production:

- Food loss and waste
- Antimicrobial resistance
- Hazardous chemicals

Biodiversity loss and extinction:

- Moving into the spotlight

Climate change:

- The transition to net zero

Corporate governance:

- The quest for best practices

Responsible consumption and production:

Reducing food loss and waste to tackle food insecurity

"In 2022, multiple pressures on an inter-connected global food system led to a spike in food prices. This cast a spotlight on food loss and waste. Reducing food loss and waste along the entire value chain not only makes business sense, but also conserves natural resources and improves food security for a growing population.

Emma Farrell
Active Ownership Specialist

In 2021, the food industry was still reeling from the consequences of the COVID-19 pandemic, which caused disruptions mostly in the foodservice industry and private households. In 2022, the main issue was the war in Ukraine, which brought grain exports from Ukraine and Russia almost to a halt. Closed borders disrupted supply chains, which caused additional food loss. The grain shortage was exacerbated by extreme weather events that are likely linked to climate change in many parts of the world. For example, yields dropped in France[8] and the US[9] due to dry, hot weather, while floods destroyed 15% of Pakistan's rice crop.[10]

These crises have contributed to a spike in food prices, which threatens food security not only in low- and middle-income countries, but also in high-income countries. The Food and Agricultural Organization (FAO) defines food insecurity as a lack of regular access to enough safe and nutritious food for normal growth and development and an active and healthy life.[10] Against this backdrop, reducing food loss and waste is an important step toward fighting food insecurity, especially with a predicted world population of 10 billion people by the end of this century.[12]

The food industry is a key player in tackling food insecurity by managing food loss and waste. For example, avoiding losses at harvests and in food processing increases the amount of food available for consumption, while donating excess food to food banks and charities provides food to people in need. A company that wastes food by leaving edible products on the field or by wasting and discarding food products runs a reputational risk amid increasing food insecurity. Lastly, reducing food loss and waste makes business sense, particularly with a view to rising production costs.

[8] EURACTIV. August 24, 2022. Europe's summer crops severely affected by extreme weather. https://www.euractiv.com/section/agriculture-food/news/europes-summer-crops-severely-affected-by-extreme-weather/
[9] The Washington Post. September 5, 2022. The summer drought's hefty toll on American crops. https://www.washingtonpost.com/business/2022/09/05/crops-climate-drought-food/
[10] The Diplomat. September 26, 2022. Pakistan Floods Raise Fears of Hunger After Crops Wrecked. https://thediplomat.com/2022/09/pakistan-floods-raise-fears-of-hunger-after-crops-wrecked/#:~:text=Nearly%2015%20percent%20of%20its,lost%20due%20to%20the%20floods
[11] FAO. 2022. Hunger and food insecurity. https://www.fao.org/hunger/en/
[12] https://ourworldindata.org/grapher/world-population-by-region-with-projections

Good for business and investors

Apart from alleviating food insecurity, it is also a robust business and investment case. For example, reducing food loss can save costs, and upcycling waste into new products can present new business opportunities. A publication by the UK-based Water and Resources Action Programme (WRAP) prepared on behalf of Champions 12.3 in 2017 (see 10x20x30 initiative) analyzed roughly 700 companies and 1,200 business sites across the food value chain that have food loss and waste management programs in place. The analysis found that 99% of the sites earned a positive return on investment. The median ratio was 14:1, that is, for every USD 1 invested in food loss reduction, the company realized a return of USD 14.[13]

From an investor's perspective, companies that tackle food loss and waste in their operations are generally better able to match food supply with food demand. Companies that track and analyze consumer behavior to manage their inventory are better able to avoid food waste caused by overstocking. Information about expected demand helps producers avoid overproduction upstream, which means more efficient use of resources.

Furthermore, investors should consider benefits such as positive effects on farmers and local communities, lower GHG emissions, lower water consumption, and lower impact on biodiversity. Consequently, investors can engage with companies and encourage them to address food loss and waste in their own operations as well as in their supply chain.

Impact on climate and resources

Food loss and waste also have a large environmental footprint. GHG emissions from food loss and waste account for around eight percent of global emissions, and water consumption linked to food loss and waste amounts to approximately one-fourth of the world's freshwater supply, according to a McKinsey study[14] (see The case for cocoa).

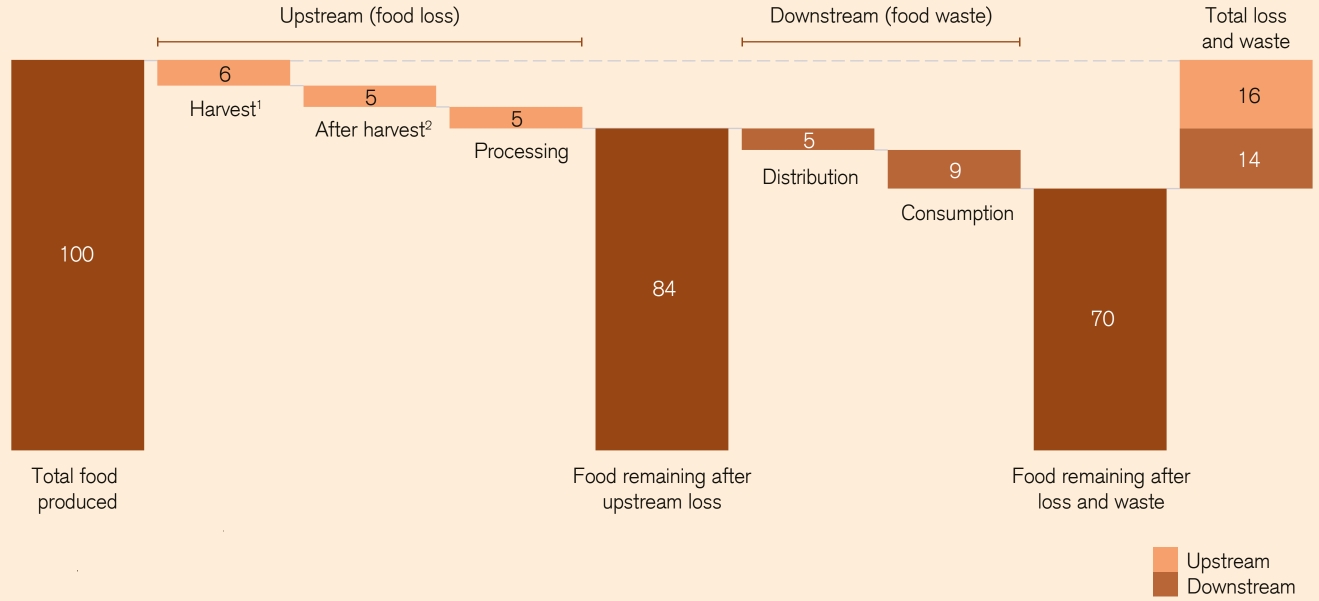
The study found that more than 2 billion tonnes of food are lost or wasted globally every year, of which 11%, the equivalent of USD 600 bn, is lost during and after harvest, and an additional 5% in processing.

Post-harvest losses

Food loss during and after harvest is one of the main hot spots in the food value chain. Surprisingly, the amount of loss at this stage is not so different in developing versus developed countries. In fact, the World Wildlife Fund found in a meta study that food loss and waste on farms is higher in high-income countries than in low-income countries.[15] The report estimated that 2.5 billion tonnes of food are lost or wasted worldwide every year.

[13] Hanson, C., and P. Mitchell. 2017. The Business Case for Reducing Food Loss and Waste. https://champions123.org/sites/default/files/2020-08/business-case-for-reducing-food-loss-and-waste.pdf
[14] McKinsey. September 7, 2022. Reducing food loss: What grocery retailers and manufacturers can do. https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/reducing-food-loss-what-grocery-retailers-and-manufacturers-can-do
[15] WWF. August 19, 2021. Driven to Waste: The Global Impact of Food Loss and Waste on Farms. https://www.worldwildlife.org/publications/driven-to-waste-the-global-impact-of-food-loss-and-waste-on-farms

Global food loss and waste along the value chain
% of total production



Sources McKinsey, Food and Agriculture Organization (FAO), Credit Suisse
[1] Primary crops for crops, carcass weight for meat, live weight equivalent for fish, and total production leaving manufacturer for processed commodities
[2] Post-harvest handling and storage

In low-income countries, food loss is often the result of poor logistics and infrastructure. Journeys from field to storage are often long, and storage facilities are not always equipped with suitable cooling. Issues also occur when there is no access to electricity.[16] In high-income countries, food loss at the farm level is often driven by costs and changing demand from retailers. A study by the US Department of Agriculture (USDA) found that farmers were confronted with rising labor costs. This contributed to a situation where harvesting crops did not make economic sense. Therefore, crops were left in the field because the cost of harvesting and selling the produce would result in a net loss.[17]

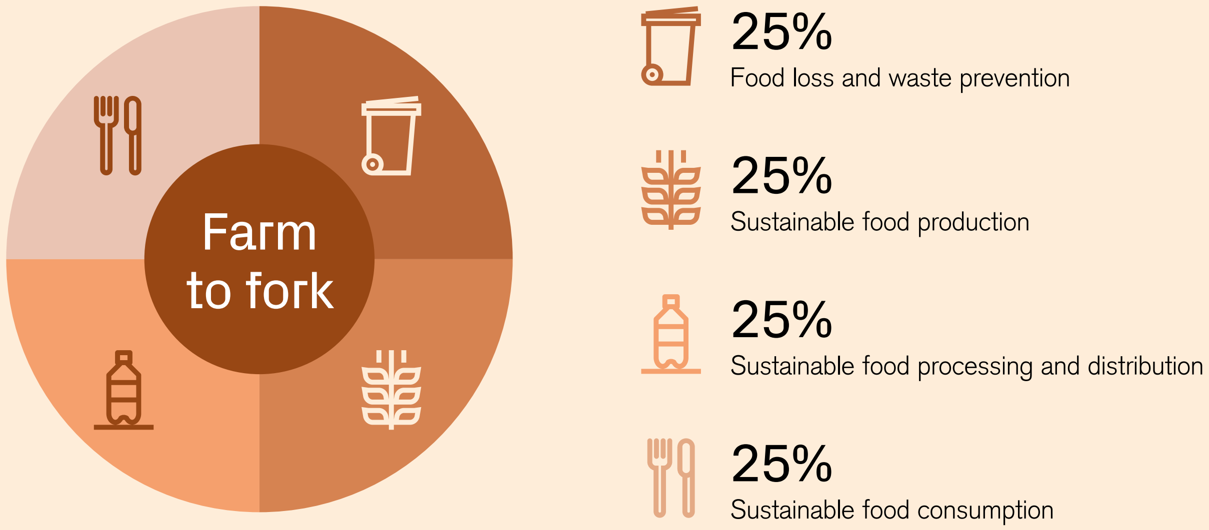
Lack of transparency and communication

In high-income countries, food loss is mainly due to inefficiencies between producers and the wholesale and retail sector, according to McKinsey.[18] McKinsey estimates that one-third of food loss at farms is linked to production surplus and that another third is edible but does not meet strict consumer specifications.

A report by Feedback EU, a nonprofit organization that focuses on the situation in the European Union (EU), has reached a similar conclusion. Its study found that food loss at the producer level often reflects unequal power dynamics between farmers and retailers.[19] In a survey conducted by Feedback in the UK, four in ten farmers said that "retailers use cosmetic standards as an excuse to reject produce when they can get a lower price elsewhere or their demand has fallen."[20] Supermarket contracts with farmers can often be inflexible for farmers. Supermarkets can cancel orders, amend their demand forecasts at short notice, and change preagreed supply quantities, leaving farmers with little control. This does not even include events like unpredictable ripening patterns and other factors like weather, pests, and diseases. In 2020, 21% of farmers experienced at least one termination or significant reduction of order volume without being given reasonable notice.[21]

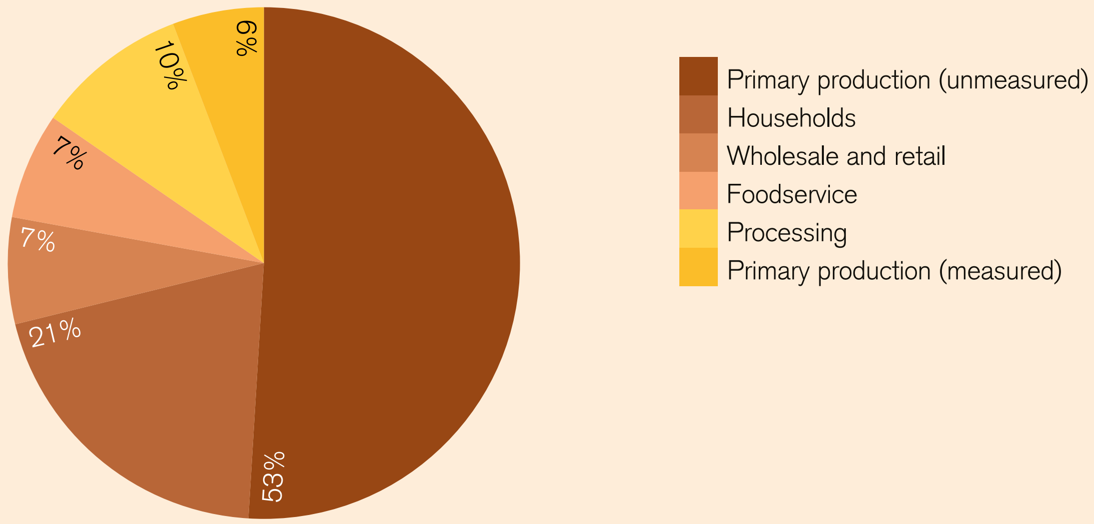
[16] International Food Policy Research Institute (IFPRI). December 2017. The Reality of Food Losses: A New Measurement Methodology. http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/131530/filename/131741.pdf
[17] United States Department of Agriculture. January 2020. Economic Drivers of Food Loss at the Farm and Pre-Retail Sectors. https://www.ers.usda.gov/webdocs/publications/95779/eib-216.pdf
[18] McKinsey. September 7, 2022. Reducing food loss: What grocery retailers and manufacturers can do. https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/reducing-food-loss-what-grocery-retailers-and-manufacturers-can-do
[19] Feedback EU. 2022. No time to waste: Why the EU needs to adopt ambitious legally binding food waste reduction targets. https://feedbackglobal.org/wp-content/uploads/2022/09/Feedback-EU-2022-No-Time-To-Waste-report-1.pdf
[20] Feedback. 2018. Farmers talk food waste: supermarkets' role in crop waste on UK farms. https://feedbackglobal.org/wp-content/uploads/2018/08/Farm_waste_report_.pdf
[21] Groceries Code Adjudicator, GCA annual survey 2020. GCA annual survey 2020 (publishing.service.gov.uk)

Farm to fork



Sources European Commission, Credit Suisse [22]

Unmeasured versus measured food loss and waste under current EU delegated decision on food waste measurement



Source Feedback EU. 2022. No time to waste: Why the EU needs to adopt ambitious, legally binding food waste reduction targets.[25]
Note: This chart assumes that roughly 10% of the EU's primary production food waste, as estimated by WWF-UK (2021), is currently within scope of the EU measurement methodology.

Legally binding reduction targets in the EU
In the EU, more food is lost to food loss and waste than is imported every year. The EU is working on legally binding targets for its member states. The European Commission is expected to propose those targets by the end of 2023.[23] The options under discussion vary in scope (farm to fork or retail and consumers only) and ambition (reduction targets from 20% to 50%).

Feedback EU is calling for a reduction target of 50% across the entire food supply chain. According to its calculations, 12% of food loss and waste in the EU happens at the primary production level and 21% at the processing level. Feedback EU fears that excluding production and processing from the EU target would incentivize the wholesale and retail sectors to push losses onto producers in order to meet their own reduction targets. Feedback EU is of the opinion that a 50% reduction in food loss and waste across the entire food supply chain is feasible and needed if the EU wants to fulfill its commitment to the Sustainable Development Goal (SDG 12.3) to halve food waste by 2030.

A material risk to investors
Feedback EU is calling for a reduction target of 50% across the entire food supply chain. According to its calculations, 12% of food loss and waste in the EU happens at the primary production level and 21% at the processing level. Feedback EU fears that excluding production and processing from the EU target would incentivize the wholesale and retail sectors to push losses onto producers in order to meet their own reduction targets. Feedback EU is of the opinion that a 50% reduction in food loss and waste across the entire food supply chain is feasible and needed if the EU wants to fulfill its commitment to the SDG 12.3 to halve food waste by 2030.

A material risk to investors
As an article in Food Technology Magazine noted, many food producers have little data on where food losses occur.[24] They will need to build monitoring and analysis tools first before they can address food loss in their own operations. Examples from the food processing industry show that there is not just one single point where waste can be avoided. Minimizing food loss can mean using different ingredients, changing recipes, upgrading machinery, or doing all of this at once.

It is still unclear when regulations with binding targets will take effect and how far-reaching they will be. The mounting pressure due to planned EU regulation is only further increasing the material risk that food loss and waste pose to companies. Companies need to make efforts to build resilience and to prepare to mitigate any risk of impact from regulation. Otherwise, they risk being adversely affected by potential binding targets. For example, they may face fines for missing targets or risk having to pay higher fees for waste treatment, landfills, and incineration. They may face reputational risks as consumers become increasingly aware of the problem. This potential lack of resilience would be a material risk for investors.

[22] Farm to Fork Strategy (europa.eu).
[23] European Commission. Food waste reduction targets.
https://food.ec.europa.eu/safety/food-waste/eu-actions-against-food-waste/food-waste-reduction-targets_en
[24] Food Technology Magazine. July 1, 2022. Holding the Line on Food Loss.
https://www.ift.org/news-and-publications/food-technology-magazine/issues/2022/july/features/holding-the-line-on-food-loss

Industry pioneers
In 2015, executives from government, business, and society founded the Champions 12.3 initiative, inspired by a UN summit on food waste. The name is derived from UN Sustainable Development Goal Target 12.3, which calls for cutting food waste and loss by 50% at all levels by 2030. The Champions 12.3 initiative aims to establish an integrated approach to reducing food loss and waste (see 10x20x30 initiative).

Its 2022 Progress Report noted that by the end of 2021, out of 50 of the world's largest food companies, 39 had a food loss and reduction target in place, 28 were measuring their food loss and waste, and 19 reported their figures. Of the 50 largest food companies, 29 had active programs to reduce food loss and waste in place. However, only one-third of companies with active programs have involved their suppliers so far.[26]

Our engagements
When we began our thematic engagement on food loss and waste in 2020, we focused on gathering information on the issue and the various solutions and initiatives already implemented in the industry. Overall, we found that companies are taking the topic seriously and are investing resources in reduction measures.

In 2021, we looked mainly at the downstream side of the value chain, that is, the foodservice industry, where food loss and waste are easier to track. In 2022, we shifted our focus upstream to production and processing, and we conducted investor dialogues with 16 companies. The main challenge for upstream food loss is a lack of data and transparency in the supply chain. In 2022, the war in Ukraine and the threat to food security were seen as the most disruptive factors. However, all companies we were in contact with are moving ahead with their food loss reduction initiatives.

Since we now have a good idea of what best practices look like on the downstream side, we expanded the list of companies in 2022 and reached out to a total of 34 companies operating at all levels of the value chain. We focused on food loss in upstream businesses, that is, farming, processing, and distribution of food.

Environmental impact
In our 2022 dialogues, it became clear that there is a strong link between food loss and negative impacts on biodiversity, GHG emissions, and land and water use. The impact depends on the type of product and the overall volume of a food crop. It therefore makes sense for companies to prioritize reducing waste of coffee and cocoa beans, oils and fats, fish, meat, dairy products, and eggs because these products have the largest environmental footprint. This prioritization takes into account the natural resources required to produce a product.

[25] Feedback EU. 2022. No time to waste: Why the EU needs to adopt ambitious, legally binding food waste reduction targets.
Feedback-EU-2022-No-Time-To-Waste-report-1.pdf (feedbackglobal.org)
[26] Champions 12.3. 2022. SDG Target 12.3 on Food Loss and Waste: 2022 Progress Report. https://champions123.org/sites/default/files/2022-09/22_WP_SDG%20Target%2012.3_2022%20Progress%20Report_v3_0.pdf

The case of cocoa: Food loss at the production level and its pressure on natural resources

When assessing food loss, we tend to focus on how we can increase the share of a crop or product that safely reaches consumers. However, there is an additional dimension to food loss that is equally important, namely farming, which uses natural resources, such as agricultural land and fresh water. Overuse can lead to degradation and depletion of those resources.

According to the International Cocoa Organization (ICCO), cocoa is susceptible to a range of pests and diseases, mostly caused by fungi, that can cause losses as high as 30%–40% of global production.[27]

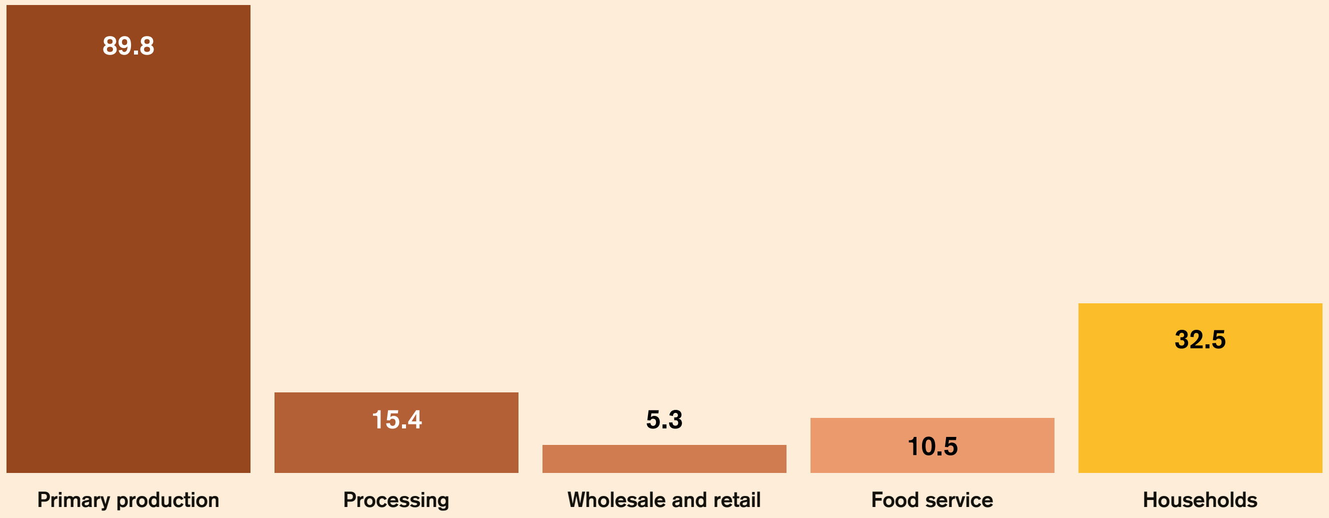
On average, cocoa beans have a water footprint of 20,000 l/kg, which makes cocoa one of the most water-intensive food crops. Other foods pale in comparison, for example potatoes with 290 l/kg, oranges with 560 l/kg, bananas with 790 l/kg, and tea with 8,860 l/kg.[28]

In the 2021/2022 cocoa year (October–September), the harvest was forecast to amount to 4.9 million tonnes.[29] If we assume a 30% crop loss at the production level, farmers lost 1.8 million tonnes of cocoa beans to diseases in this period. If this loss could be cut in half, farmers would be able to save 18 trillion liters of water.

Since global warming is expected to increase the spread of diseases affecting plants and to put natural resources under even more strain, efforts to reduce food loss at the production level can go a long way to alleviate the pressure on natural resources.

[27] International Cocoa Organization. Pests & Diseases. https://www.icco.org/pests-diseases/#toggle-id-31
[28] Water footprint network. https://waterfootprint.org/en/resources/interactive-tools/product-gallery/
[29] International Cocoa Organization. 2022. August 2022 Quarterly Bulletin of Cocoa Statistics. https://www.icco.org/august-2022-quarterly-bulletin-of-cocoa-statistics/

Food loss and waste in the EU per sector
(in million tonnes)



Primary production includes products left on the field or lost to disease, transport, on-farm processing, or storage.

Processing includes processing, manufacturing, transport, storage, distribution, and packaging.

Wholesale and retailers include logistics, supermarkets, markets, and other points of distribution.

Foodservice includes restaurants, hotels, caterers, and canteens

Households includes private consumption.

Sources Feedback EU. "No Time to Waste", WWF-UK, Fusions, UNEP, Credit Suisse

There are a multitude of solutions to this issue. The authors of a paper by the SGH Warsaw School of Economics advocate for integrating strategy, culture, risk management, and transparency into a company's sustainable supply chain management in order to successfully tackle food loss and waste.[30]

The solution often includes a large number of small adjustments throughout the process. There are many industry initiatives along the entire value chain working on solutions to reduce food loss and waste, such as avoiding food loss at harvest, upcycling inedible parts or processing waste, marketing or processing edible food that does not meet high consumer standards, extending the shelf life of food, and encouraging consumers to avoid food waste (see case studies on pages 49 to 54).

[30] Scientific Journal of Logistics. 2018. Food Waste Reduction as a Challenge in Supply Chain Management. http://www.logforum.net/pdf/14_4_9_18.pdf

The 10x20x30 initiative

The 10x20x30 initiative was launched by Champions 12.3 in 2019. Champions 12.3 is a coalition dedicated to mobilizing action and accelerating progress toward achieving SDG target 12.3 by 2030. The coalition consists of executives from governments, businesses, international organizations, research institutions, farmer groups, and civil society.

The 10x20x30 initiative brings together ten of the world's largest food retailers and producers, among them big players like Walmart, Carrefour, and Tesco. Each of the participants engages with at least 20 of its suppliers with the goal of reducing food loss and waste by 50% across the entire food production and supply chain by 2030.

Each participant commits to the "Target-Measure-Act" approach. Participants agree to set a reduction target, to measure and publish their food loss and waste inventories, and to take action to reduce their waste.

The name of this initiative echoes the third target of UN SDG 12, which calls for halving per capita food waste at the retail and consumer levels and reducing food losses along production and supply chains, including postharvest losses, by 2030.

The initiative has drawn attention to the fact that food loss is a serious issue upstream. We view this as an excellent way for companies to nudge their suppliers to start reporting their losses and to coordinate reduction measures.

One of our investee companies participates in this initiative. In our discussions, it mentioned how helpful the guidance was for achieving its own reduction targets. The initiative was also an excellent platform for the company to exchange views on best-practice methods and tools. Based on the engagement, we view this as a useful multistakeholder initiative for companies seeking to reduce food waste in their supply chains.

Source Champions 12.3, 10x20x30

Examples of reducing food loss and waste per sector

Primary production:
According to McKinsey, two-thirds of food loss at the production level is either due to overproduction or the product not meeting strict consumer specifications. Better communication and more transparency between manufacturers and retailers could reduce food loss by 4%–7%.[31]

Processing:
The use of processing byproducts can reduce food loss and even create new value streams. Byproducts such as shells, peels, stems, or wastewater can be upcycled into new products. Fibers from fruit juice production, for example, can be used as ingredients in baked products, or sugar water can be used to grow fungi that are then ground into a flour that is suitable for use in alternative protein products.[32]

Wholesale and retail:
Grocery stores can manage their food waste by better matching stock levels to demand, offering discounts for products close to sell-by dates and donating food to charities. For example, spurred by regulation, a French retailing group managed to reduce its food waste by 29% in 2020 compared to 2016. It achieved this by adopting measures like the ones cited above and by collaborating with suppliers and promoting food waste reduction among its customers.[33]

Foodservice:
Restaurants, canteens, and caterers often have perishable food left over after peak times. Waste can be reduced by upcycling leftovers or selling them at a discount. Platforms like Too Good to Go connect foodservice businesses with customers who buy excess food at a reduced price.

Households:
Better information can help consumers avoid unnecessary food waste. If people are able to assess whether a product is still safe to eat, they are less inclined to dispose of products that are still edible. Information about correct food storage and interpreting sell-by and use-before dates as well as meal planning contribute to reducing food waste.[34]

[31] McKinsey & Company. September 7, 2022. Reducing food loss: What grocery retailers and manufacturers can do. https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/reducing-food-loss-what-grocery-retailers-and-manufacturers-can-do
[32] IFT Foundation. July 1, 2022. Holding the Line on Food Loss. https://www.ift.org/news-and-publications/food-technology-magazine/issues/2022/july/features/holding-the-line-on-food-loss
[33] Carrefour. June 2021. Tackling food wastage. https://www.carrefour.com/en/csr/commitment/combatting-food-waste
[34] European Food Information Council (EUFIC). September 12, 2021. How to reduce food waste at home. https://www.eufic.org/en/food-safety/article/how-to-reduce-food-waste-at-home

01 Case study
Improving manufacturing processes and shelf life

Sector
Food processing, ingredients

Region
Global

Stage
Ongoing

Kerry Group is a leading producer of flavor, nutritional, and functional ingredients for the food processing industry. We met with the company twice – once in 2021 and again in 2022. It recognizes its influence on the processes practiced by its clients, which are mainly food manufacturers.

According to a study by Feedback EU[35], 15.4 million tonnes of food are lost in processing and another 5.3 million tonnes are lost in wholesaling and retailing in the EU alone each year. Optimizing products and processes as well as extending the shelf life of products can help reduce food loss and waste on a large scale.

For example, the company has developed a range of enzymes that help manufacturers reduce waste and that can extend the shelf life of a product without a loss of quality:

- A manufacturer of crackers had quality issues with its product, which caused losses of up to 30%. The company developed a customized baking enzyme that improved dough consistency and mixing. The optimized dough resulted in reduced waste and higher plant efficiency.
- A doughnut producer wanted to improve its product while also extending its shelf life. The company created an enzyme that maintained the texture of the product and improved eating quality. Additionally, the shelf life of the doughnuts could be extended from seven to ten days.

Conclusion
Kerry Group has found creative ways to turn food loss into value. It has a portfolio of preservation techniques that are considered a key growth area. Its contribution to reducing food loss enables its clients to reduce waste in their manufacturing processes. The company has little impact upstream but is actively looking for opportunities to engage with suppliers. Currently, it only reports food waste figures within its own operations; however, the company plans to eventually publish key figures on how much waste is avoided as a result of its products. It is also working on quantifying the use of recovered materials. Another example of the company's leadership in this area is the development of its Food Waste Estimator tool, the Kerry Food Waste Estimator, which can be used by manufacturers and consumers as a guide on their waste reduction journey. Overall, the company is focusing on first reducing and then reusing waste, a strategy that we support.

[35] Feedback-EU-2022-No-Time-To-Waste-report.pdf (feedbackglobal.org).

02 Case study
Considerable potential amid a lack of transparency

Sector
Food products and ingredients

Region
Global

Stage
Ongoing

The company is a world-leading manufacturer of high-quality food products. It operates along the entire value chain, from sourcing and processing raw materials and manufacturing ingredients for food producers to creating its own brands. We met with the company twice, once in 2021 and again in 2022. We found that it measures food loss and waste in its own operations but excludes preharvest and postharvest losses in its reporting. It also only measures its main source product, which accounts for only half of its production.

Preventing preharvest and postharvest losses of its core product, cocoa, would be crucial because producers face losing 30%–40% of their harvests on average due to plant diseases.[36] However, some countries restrict the introduction of robust plant species that could improve yields. Additionally, the food product in question is a water-intensive crop. Reducing losses would also reduce pressure on freshwater resources.

Measuring and preventing food loss for this particular product remains a challenge. Many producers are small farmers, and the company mostly works with local cooperatives that collect and process crops. There is a lack of transparency on losses at the farm level because there are no established monitoring and reporting processes in place.

The company engages in improving the situation for local farmers and cooperatives by means of a multistakeholder platform. The platform offers consultations and training in cultivation and postharvest management. The aim of the platform is to improve living conditions for farmers, to protect natural resources, and to promote biodiversity.

Conclusion
We acknowledge the company's support for farmers and cooperatives. In our view, these efforts should aim to reduce food loss and boost yields. The lack of disclosure regarding preharvest and postharvest losses is a material risk for investors that should ideally be addressed. However, we understand that disclosure is difficult because there are very few measuring and reporting frameworks that include the entire value chain and source products.

[36] International Cocoa Organization. Pests & Diseases. https://www.icco.org/pests-diseases/#toggle-id-31

03 Case study
A wholesaling pioneer

Sector
Wholesale

Region
Global

Stage
Ongoing

Metro operates wholesale stores in 22 countries worldwide and is additionally present in nine countries with a pure delivery business (Food Service Distribution, FSD). We met with this company three times between 2019 and 2022 and were continually impressed by its efforts to reduce food waste in its own operations and in its upstream value chain. The company has a comprehensive measuring and reporting framework in place, which has enabled it to identify the locations where the most food waste occurs (Germany and Russia) and to pinpoint operational hotspots.

We view this company as a pioneer in the field for the following reasons:

- Publication of a report on Metro's progress with preventing food waste[37]
- Food waste reporting covers 94% of business
- A documented 15.3% drop in food waste and 34% increase in food donations within a three-year period
- Goal of reducing food waste by 50% by 2025, well ahead of the target set by the 10x20x30 Initiative

Metro is cooperating closely with food banks in 23 countries to avoid spoilage of unsold food products. In the 2020/2021 fiscal year, it donated close to 20,000 tonnes of food worth EUR 46 mn.

As a member of the 10x20x30 Initiative (see The 10x20x30 initiative), the company sees great potential for reducing food loss and waste upstream, that is, at the producer level. The challenge is the loss of food that does not meet specified quality standards and is thus returned to the producer. The company currently has no transparency or control over returned products.

Conclusion
Metro's efforts and achievements in fighting food loss and waste deserve recognition. It has established best practices in its field that will be helpful for peers in their efforts. The company is currently well on track regarding its operations. The next step will be to continue engaging with suppliers to improve cooperation and help them reduce food loss at their level. We would like to use this case study as an example of a best practice for our engagements with other companies in this sector.

[37] METRO reports on progress with preventing food waste.

04 Case study
Fruitful engagement

Sector
Consumer packaged goods

Region
Asia-Pacific

Stage
Ongoing

Del Monte Pacific is a food and beverage manufacturer headquartered in Singapore. Its main products are canned and fresh pineapples, pineapple concentrate, tropical mixed fruit, tomato-based products, and canned beans. In the Philippines, the company controls roughly 95% of the farms where its products are grown.[38]

The company started tracking food loss and waste in 2018. This has enabled it to identify the largest causes of food loss and waste in its operations. The causes are extreme climate conditions like El Niño, market-driven losses due to lock-downs in China, and staff shortages caused by COVID-19. Postharvest storage and transport apparently are not a hotspot for food loss and waste because the company's logistics are well managed and efficient due to the large volumes harvested on a daily basis.

One of its environmental goals is to receive the Rainforest Alliance label, which requires applicants to avoid harmful pesticides. The company has already started to reduce and/or replace pesticides. For example, it mostly uses traps instead of pesticides to control pests and small animals that damage crops.

It is common for farms to chemically treat their fruit to stop ripening until it is sold or processed. While this can reduce food loss to a certain extent, the chemicals can be harmful. The company's main food crop, pineapples, is mostly harvested when ripe because its biggest markets – China, Japan, and Korea – are relatively close. Only pineapples destined for the Middle East are harvested early.

Conclusion
Since Del Monte Pacific owns most of the farms where its products are grown, it has control over its supply chain and, in particular, over the use of chemicals and pesticides to control food loss and waste. As a result of the company's efforts to reduce the use of harmful substances and our engagement, waste reduction was added to Del Monte Pacific's top five sustainability goals with a reduction target.

> "We published the five Key Sustainability Goals of Del Monte Pacific Ltd. for the first time in our FY 2022 Sustainability Report in July 2022. One of these goals is waste reduction. While our company has been tracking this as one of several operational key performance indicators for many years, our sustainability team thought it would be better to highlight this as one of our key sustainability goals in order to further reinforce and highlight its importance in an ESG context. We have also drawn inspiration from our discussions with Credit Suisse Asset Management focusing on food loss and food waste. Such emphasis on this area by a leading global asset management firm validated the importance of waste reduction.

Ignacio C.O. Sison
CEO of Del Monte Pacific

[38] According to information provided by the company in 2022.

05 Case study
When tech goes grocer

Sector
Food retailing

Region
Global

Stage
Ongoing

HelloFresh sells meal kits to private households. Customers receive recipes with the exact amount of fresh ingredients needed to cook a meal. The company believes that its services can help its customers better plan meals and reduce food waste.

This is an interesting case because the company is rooted more in tech than in traditional food retailing. Its data-driven approach enables it to monitor food loss and waste very closely throughout the entire value chain. We met with the company for the first time in 2022, and it is the first tech company that we have engaged with on the topic of food loss and waste.

According to a peer-reviewed life cycle analysis that the company published in 2022, its model generates 25% fewer emissions than traditional meal preparation with products bought in a supermarket. A recently published research paper emphasizes that cooking with HelloFresh substantially reduces household food waste by 38% compared to traditionally cooked dinners. The company recently added a carbon tag to its recipes to raise customer awareness of the carbon footprint of their meals.

The company set a 50% food waste reduction target for the 2019–2022 period. The target included all operations in all locations. At the time of writing, it had donated 52% of surplus food to food banks and charities. The management takes the topic seriously. For example, 10% of the company's long-term incentive plan for its C-suite management is linked to reducing food waste. Reduction targets are also included in the objectives for managers working at distribution centers.

Conclusion
We found the combination of tech and food retailing very interesting. We see innovative approaches here that could be used by other companies in the sector. HelloFresh plans to extend its reduction targets to suppliers and to further help consumers avoid food waste and consider the sustainability impacts of their food choices.

06 Case study
A good track record in an inefficient industry

Sector
Aquaculture and seafood products

Region
Europe

Stage
Ongoing

The company is a world-leading seafood company that mainly operates salmon farms in Europe and the Americas. We engaged with the company for the first time in 2021, focusing mostly on postharvest food waste. In our second engagement meeting in 2022, we shifted our focus to food loss.

A recent study assessed the actual food loss in the farmed salmon production system by quantifying protein flows and stocks.[39] The study found that the invested feed protein is about four times higher than the protein of the harvested salmon, and that only 60% of the harvested protein is actually used for human consumption. According to the study, the ratio between invested and harvested protein could be improved, and as much as 91% of the harvested protein could be used for human food.

Against the backdrop of food insecurity and a growing population, minimizing food loss should be a priority. Since the company is one of the world's largest producers of farmed salmon, we wanted to engage with it on this topic. We found that it categorizes food loss as a byproduct or coproduct to which it applies its circular economy concept. It also admits that it is possible that fish species with a high nutritional value could be used as fish feed, which – strictly speaking – could also be considered food loss.

The company currently does not measure food loss or waste in terms of protein and macronutrient loss. However, it addresses food loss from pollution and extreme weather events by adapting its equipment.

Conclusion
The company has a good track record of using all of the parts of its fish and upcycling waste. It produces fish oil and fish meal from the byproducts of its salmon production. Given the fact that wild fish species and other protein sources are commonly squandered for fish feed in aquaculture, and given the low percentage of the harvest that is actually used for human consumption, we feel that more needs to be done on this topic at the industry level before we can expect specific and binding targets from individual companies.

[39] Foods. August 2020. Food-Loss Control at the Macronutrient Level: Protein Inventory for the Norwegian Farmed Salmon Production System. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7465451/

Responsible production and consumption:

The rise of antimicrobial resistance poses a serious threat

"Antimicrobial resistance (AMR) poses a systemic risk to global health and the financial system that, if left unchecked, will have far-reaching and long-term impacts on people and the planet. Without antibiotics, routine operations that we take for granted, like hip replacements and c-sections, will become almost impossible. Since 70% of the world's antibiotics are given to animals, mostly for unnecessary purposes, ensuring moderate and responsible use practices within animal agriculture is key to stemming the "silent" pandemic of AMR.

Emma Bertman, Ph.D.
Senior Engagement Specialist at FAIRR

The World Health Organization (WHO) has declared AMR one of the top ten global health threats. An analysis published in The Lancet estimated that AMR was associated with 4.95 million deaths worldwide in 2019. Of that total, 1.27 million deaths were directly attributed to AMR, a figure that could rise to as many as ten million by 2050.[40,41] In addition to loss of life on this tragic scale, the World Bank has estimated that AMR could lead to a loss of 3.8% of GDP per year by 2050.[42]

Widespread use of antibiotics in livestock

Over two-thirds of global antibiotics are used on animals. In livestock farming, antibiotics are often administered to healthy animals to prevent diseases. In some countries, antibiotics are even added to animal feed to enhance growth. These practices are problematic. The UN Food and Agriculture Organization (FAO), for example, recognizes the misuse of antibiotics in livestock as a major concern and a significant risk leading to AMR.[43]

The World Bank believes that addressing antibiotic use in livestock farming is central to tackling these issues. In 2017, the WHO recommended that farmers and the food industry stop using antibiotics in healthy animals altogether to prevent the spread of AMR.[44] We see an additional risk in the production process: ingredients for antibiotics are manufactured in India and China, both of which are AMR hotspots mostly due to the poor treatment and disposal of wastewater.

[40] The Lancet. January 20, 2022. Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2902724-0
[41] Health Europa. February 1, 2022. Sanitation's role in reducing the spread of AMR. https://www.healtheuropa.com/sanitations-role-in-reducing-the-spread-of-amr/113200/
[42] World Bank Group. March 2017. Drug-Resistant Infections: A Threat to Our Economic Future. https://documents1.worldbank.org/curated/en/323311493396993758/pdf/final-report.pdf
[43] FAO. 2022. Antimicrobial Resistance. https://www.fao.org/antimicrobial-resistance/en/
[44] World Health Organization (WHO), November 7, 2017. Stop using antibiotics in healthy animals to prevent the spread of antibiotic resistance. https://www.who.int/news/item/07-11-2017-stop-using-antibiotics-in-healthy-animals-to-prevent-the-spread-of-antibiotic-resistance

> Through Credit Suisse's active participation in FAIRR's Animal Pharma & AMR engagement, it has helped to elevate AMR as a material issue for seven of the world's largest animal pharmaceutical companies, shining a light on what was previously an underscrutinized sector that produces, markets, and sells antibiotics for use in animals.

Emma Berntman
Ph.D., Senior Engagement Specialist at FAIRR

FAIRR: Antimicrobial stewardship in the animal pharma industry
Even though the risk related to using antibiotics to promote growth and prevent illnesses is well known, manufacturing and marketing for these purposes continue in the industry. AMR can render antibiotics and other drugs ineffective, which in turn can potentially affect the revenues of animal pharma companies. Therefore, exposure to animal pharma companies in our portfolios is a material issue. Given the general lack of disclosures about revenues and production processes, it is difficult for investors to assess this risk.

So far, regulation has proven to be the most effective tool for reducing antibiotics in meat production. Scandinavian countries phased out antibiotic growth promoters in the 1990s and early 2000s. The EU banned the use of antibiotics for nonmedicinal purposes in 2006.[45] Animal pharma companies with exposure to antibiotics should preempt the risk from further regulation. Given the urgency, we decided to join a collaborative engagement by FAIRR.[46]

A push for greater transparency
Along with the group of investors, FAIRR has initiated an engagement with several animal pharma companies with the aim of encouraging companies to disclose their approach to antimicrobial stewardship, including AMR mitigation efforts in key areas.

We have exposure to five of the target companies and have held investor dialogues with three of them on this topic. During our discussions, all three companies confirmed verbally that AMR was a material risk for them, but this risk was not always reflected in their disclosures. One company indicated that it would broaden and improve its disclosures.

What we discussed
We asked companies to disclose their data on antimicrobials and their research and development expenditures on alternatives. We also asked whether they acknowledged their role in addressing AMR as well as market pressure and the potential impact of AMR on their revenue. We also wanted to learn about their approaches to antimicrobial stewardship, their risk management strategies concerning waste treatment, and their policies and practices to reduce the overuse and misuse of antibiotics.

Conclusion
None of the companies we spoke with promotes antibiotics to enhance growth. They have minimal exposure to emerging markets where AMR is a serious problem due to lax regulations and poor governance of marketing practices. Despite growing awareness, some companies still struggle to understand that AMR is a material risk to their profits. Some consider their exposure immaterial, overlooking how rising AMR could impact other products in their portfolios. It often appears that there is little incentive for animal pharma companies to improve their disclosures on the situation. We observed that some companies are shifting R&D resources from antibiotics to alternatives.

Antimicrobial resistance: the ability of microbes such as bacteria, viruses, fungi, and parasites to grow in the presence of an antimicrobial substance that would normally kill them or limit their growth. Resistance is a consequence of evolution via natural or artificial selection.

Source Antimicrobial resistance (who.int)

[45] Regulation 1831/2003/EC on additives for use in animal nutrition.
[46] https://www.fairr.org/engagements/animal-pharma/

Responsible production and consumption:

Hazardous chemicals – here forever

> Hazardous chemicals pose a great health risk and pollute the environment. Even though the need to replace toxic substances is becoming ever clearer, the chemical industry is slow to address this issue. This is a risk that investors should not overlook.

Emma Farrell
Active Ownership Specialist

Hazardous chemicals are substances that can be harmful to humans, animals, and the environment. Exposure to these substances can cause rashes, breathing problems, and allergic reactions, and they are believed to have adverse long-term health effects. Even though the long-term effects of prolonged low exposure to hazardous chemicals are complex to determine, there is mounting evidence that they play a role in developmental and behavioral problems in children and may cause cancer and other severe illnesses. According to the International Chemical Secretariat (ChemSec), studies link toxic chemicals to a decrease in sperm counts in men, early puberty in girls, and the loss of IQ points in children.[47]

A global threat
Despite the risks, these chemicals are present everywhere in our homes, at work, and outdoors. They are used in everyday products such as paint, furniture, clothing, cosmetics, and plastics. One example of the cocktail of ubiquitous hazardous chemicals are so-called "forever chemicals," per- and polyfluoroalkyl substances (PFAS) that are used to make coatings and products that resist heat, oil, stains, grease, and water in a broad range of products such as food wrappings, water-resistant fabrics, and cleaning products.

Hazardous chemicals not only affect the health and development of humans and animals, but also impact ecosystems and are believed to drive biodiversity loss. Plastic waste and other pollutants are released in large quantities into nature, where they accumulate and threaten the health of animals and fragile ecosystems. PFAS chemicals and microplastics have been found in places as remote as Antarctica[48] and the Mariana Trench[49].

[47] ChemSec. This is why you should care about hazardous chemicals. https://chemsec.org/about-us/why-care-about-hazardous-chemicals/
[48] Greenpeace. 2018. Microplastics and persistent fluorinated chemicals in the Antarctic. https://storage.googleapis.com/planet4-international-stateless/2018/06/4f99ea57-microplastic-antarctic-report-final.pdf
[49] National Geographic. December 6, 2018. Microplastics found to permeate the ocean's deepest points. https://www.nationalgeographic.com/environment/article/microplastic-pollution-is-found-in-deep-sea

> The production and use of hazardous chemicals are linked to major material risks for investors. It is also – though often overlooked – a key driver of ongoing biodiversity loss. It is therefore important that responsible investors engage with the companies that produce these chemicals. We are happy to have Credit Suisse Asset Management on board for this engagement initiative. The next step for 2023 is to create investor groups with leads that can engage with the companies ranked in ChemScore.

Chemsec
International Chemical Secretariat

A looming business risk

The global chemical industry and its product portfolios are huge. ChemSec expects the value of the industry to exceed USD 10 tn by 2030. A UNEP report estimates that the total number of industrial chemicals in commerce lies between 40,000 and 60,000.[50] According to Eurostat, the amount of chemicals used in the EU in 2021 totaled 299 million tonnes, of which 226 million tonnes were considered hazardous.[51] For a while now, scientists and researchers around the world have been convinced that hazardous chemicals pose a global threat comparable to climate change. A survey published by Eurostat back in 2017 showed that a majority of citizens were concerned about hazardous chemicals.[52]

The harmful effects of hazardous chemicals on health and ecosystems are becoming clearer. As a result, tighter regulations, such as the European chemicals legislation REACH and the US Toxic Substances Control Act, are expected to be instituted worldwide. New or tightening regulation can lead to product recalls and costly approval processes, as well as litigation and reputational risks for harming consumers, workers, and the environment. Companies that do not invest in phasing out toxic substances from their products may face these risks, making it a material risk for investors.

Engaging with the industry

Against this backdrop, we joined 47 asset managers representing USD 8 tn in assets under management in an engagement initiative started by ChemSec and coordinated by Aviva Investors and Storebrand Asset Management. ChemSec, an independent nonprofit organization founded in 2002, is advocating for the substitution of toxic chemicals. It has established a SIN List and other online tools to guide companies in their efforts to reduce the use of hazardous chemicals.[53]

A letter was sent to the largest chemical companies asking for disclosures on the volume of hazardous chemicals they produce and urging them to undertake actions to improve their chemicals management. According to ChemScore, a ranking tool established by ChemSec, only 4 out of 54 of the companies assessed have a public phaseout strategy. Despite a surge in lawsuits against producers of PFAS, many companies are taking little to no action.

Conclusion

In our view, the production and use of hazardous chemicals carries a financial risk and could have a significant impact on investee companies' future performance. One way of minimizing this risk could be by considering hazardous chemicals in the investment analysis. This can be done by accounting for a company's approach to producing safer chemicals or to minimizing or phasing out hazardous chemicals in the production of goods. It is important for companies to be aware of upcoming regulations and how these might impact their production due to restrictions and higher costs.

We plan to engage in individual and collaborative investor dialogues on the topic of hazardous chemicals going forward. In our future engagements, we may also refer to the SIN List managed by ChemSec.

SIN List

SIN stands for Substitute It Now and lists substances of very high concern according to REACH criteria. The list is managed by ChemSec. Companies can use this list to find substitutes for hazardous chemicals in their production processes.

[50] United Nations Environment Programme. 2019. Global Chemicals Outlook II. https://www.unep.org/explore-topics/chemicals-waste/what-we-do/policy-and-governance/global-chemicals-outlook
[51] Eurostat. December 12, 2022. Consumption of chemicals by hazardousness – EU aggregate. https://ec.europa.eu/eurostat/databrowser/view/sdg_12_10/default/table?lang=en
[52] European Commission. June 2017. Special Eurobarometer 456. Chemical safety. https://europa.eu/eurobarometer/surveys/detail/2111
[53] ChemSec. Substitute It Now. https://sinlist.chemsec.org

Biodiversity loss and extinction:

Moving into the spotlight

> Biodiversity loss and extinction had long been overshadowed by climate change despite their strong interconnectedness. This changed with the United Nations Biodiversity Conference (COP15) in December 2022. Already in 2021, we started looking into biodiversity and extinction in depth. We found that politics, society, and businesses are starting to pay attention to the risks that companies' impacts and dependencies on biodiversity pose to their business models. There is still time to avert the worst, but decisive action is needed on all levels.

Dr. Christoph Biehl
Senior Active Ownership Specialist

The latest Global Assessment Report on Biodiversity and Ecosystem Services, which the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) published in 2019, paints a dire picture of the state of fauna and flora worldwide.[54] The authors of the report see a faster decline in biodiversity today than at any point in human history. One million species could face extinction in the coming decades. The IPBES defines five drivers of biodiversity loss: changes in land and sea use, direct exploitation of organisms, climate change, pollution, and invasive species, all of which are mostly tied to economic activity.

A threat to nature is a threat to businesses
Biodiversity is key to ecosystem services such as fresh water, soil quality, and protection against natural hazards. Biodiversity is therefore of the utmost importance for economic activity. Businesses depend on resources provided by nature. For example, up to 75% of food crops rely on pollinators.[55] These resources can only be provided by ecosystems that are intact and functioning. The loss of biodiversity poses a direct threat to the resources on which businesses depend. Certain industries like agriculture and pharmaceuticals are especially affected. According to IPBES, land degradation has caused a 23% decrease in productivity on global land surfaces. For the pharmaceutical industry, biodiversity is essential, not only because functioning ecosystems provide raw materials, but more importantly because research and development of new treatments depend inter alia on microbial biodiversity.

Land-based biodiversity is only part of the picture. In coastal areas, the consequences of biodiversity loss are striking. IPBES estimates that the loss of coastal habitats and coral reefs exposes 100 to 300 million people to an increased risk from floods and hurricanes because biodiversity loss leads to decreasing natural coastal protection. Are current business models accounting for these developments?

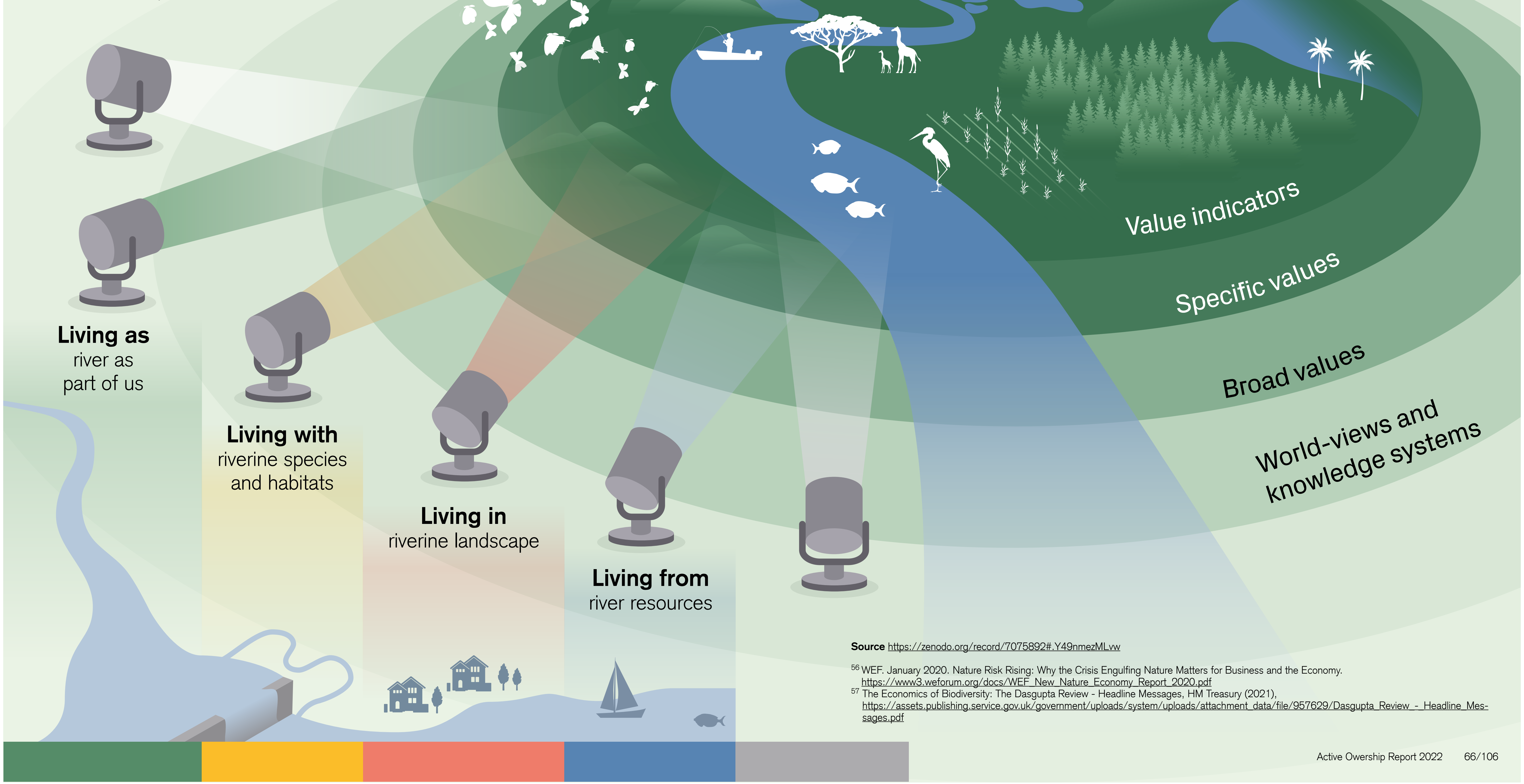
[54] IPBES. 2019. Global Assessment Report on Biodiversity and Ecosystem Services. https://ipbes.net/global-assessment
[55] FAO. 2018. Why bees matter. https://www.fao.org/3/i9527en/i9527en.pdf

The World Economic Forum (WEF) estimates that over half of global gross domestic product (GDP), USD 44 tn, is dependent on nature.[56] The WEF sees three risks to businesses: direct dependence on nature for their operations, consequences from their impact on nature, and social and market disruption due to the loss of nature. IPBES illustrates this interconnectedness with nature using a river ecosystem: society and therefore businesses that are part of it live from, live in, live with, and live as biodiversity.

Business models need to account for biodiversity loss, as the 2021 Dasgupta review[57] states: "The solution starts with understanding and accepting a simple truth: our economies are embedded within nature, not external to it."

Interconnectedness with nature

Illustrative examples of how different values are highlighted by certain frameworks:



Source https://zenodo.org/record/7075892#.Y49nmezMLvw

[56] WEF. January 2020. Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy. https://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf

[57] The Economics of Biodiversity: The Dasgupta Review - Headline Messages, HM Treasury (2021), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957629/Dasgupta_Review_-_Headline_Messages.pdf

> The IUCN Global Standard for NbS (Nature-based Solutions) should be used to design a robust and resilient NbS in order to address the urgent challenges of climate change and biodiversity loss, sustaining nature and people together, now and into the future.[58]

Nature-based Solutions for Climate, IUCN

Measuring nature-related risks
It is important for companies to incorporate nature-related risks and opportunities into their strategies and risk management. However, there still seems to be a lack of understanding of how nature impacts the operations and performance of a company and what financial risks may arise from business models that depend on nature.

In 2021, we started a pilot phase with an initial sample of ten companies from a broad range of industries to find out how they address biodiversity in their operations. In a second step, we identified eleven leading companies in the technology sector that face the additional challenge that biodiversity issues appear mostly at the supplier level.

We saw in the pilot phase that companies were increasingly identifying biodiversity as a material issue. Roughly half the companies included biodiversity at least partially in their materiality analyses. Linking climate change and biodiversity projects makes sense because climate change is one of the main drivers of biodiversity loss. However, it was apparent that biodiversity projects were often "afterthoughts" of carbon offset projects, which often are not designed to address biodiversity loss and extinction.

Our engagement
For our biodiversity engagement, we use a set of different tools from the engagement toolbox: individual engagements, collaborative engagements, and engagements with industry associations. In our individual engagement program, we hold investor dialogues to identify best practices among companies and to develop an understanding of how different industries deal with material dependencies and impacts on biodiversity. Since we had seen a certain misalignment between the activities of industry associations and their corporate members, we initiated dialogues on biodiversity loss and regulation with industry associations in 2022. In terms of structured collaborative engagement, we have joined FAIRR initiatives to address systemic impacts and dependencies on biodiversity in the protein supply chain.

Individual engagements
In 2022, we extended the pilot phase for our individual engagements in the industries we selected, that is, chemicals, food products, insurance, pharmaceuticals, real estate management and development, semiconductors and semiconductor equipment, software, textiles, apparel, and luxury goods, as well as the technology sector.

Our aim was to identify best practices in those industries from the wide range of approaches that we saw in 2021. We also wanted to identify risks linked to how companies address impacts and dependencies on biodiversity in their operations. Apart from that, we sought to raise awareness of the hidden cost of biodiversity loss and of the potential benefits of addressing it. In a second step, we wanted to apply those findings to our engagement with other investors and with industry associations. Of the investee companies that we reached out to this year, ten accepted our invitations for meetings. Four investee companies answered questions via email, explaining that no progress had been made since our last meeting and referring us to existing disclosures. Six investee companies did not respond at all, and one asked for the meeting to be postponed until after its new biodiversity plan has been published.

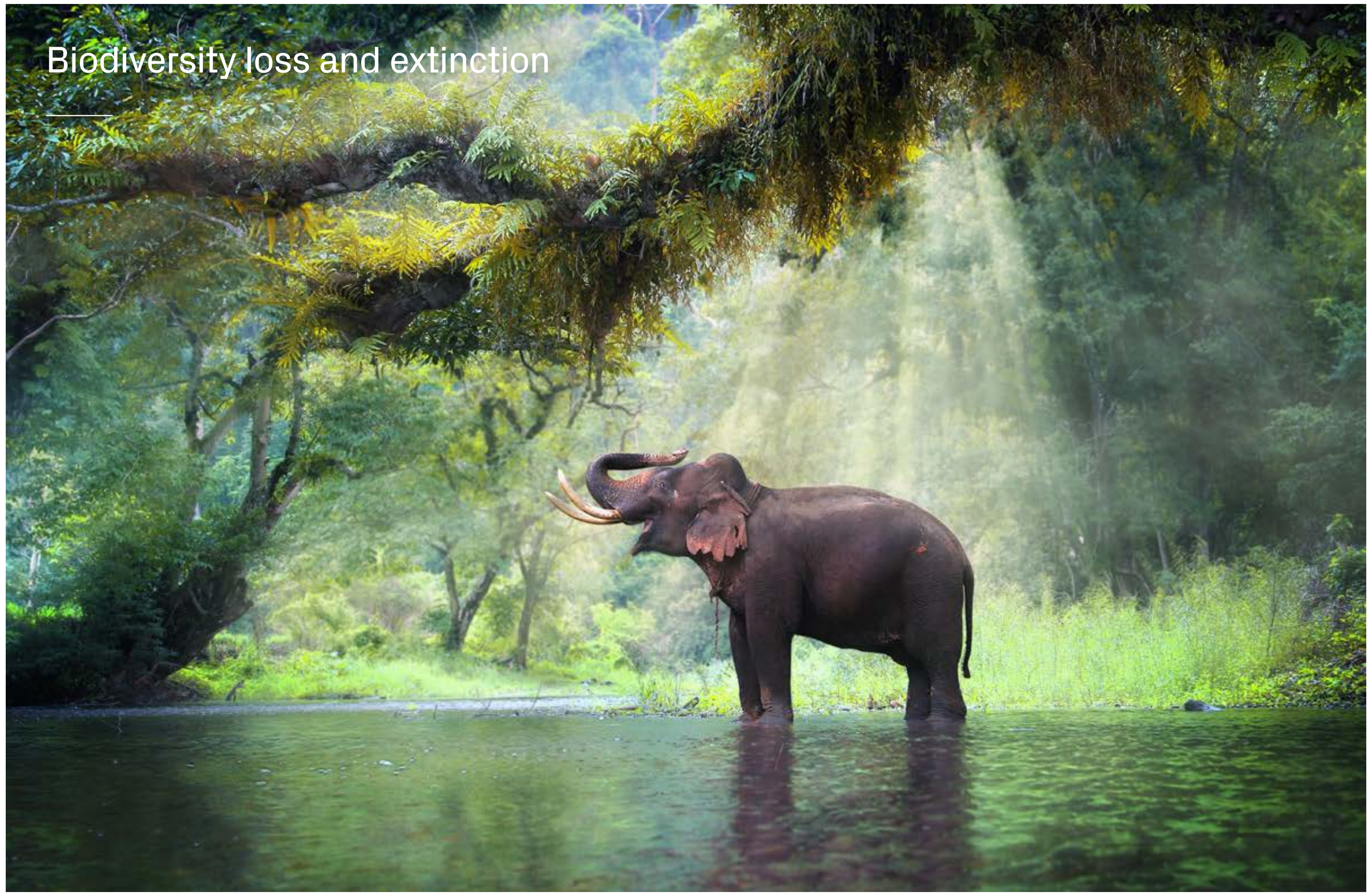
Waiting for standards and tools
The year 2022 posed unpredicted external challenges, such as the war in Ukraine and spiraling energy prices. Still, the topic of biodiversity gained traction, but very few specific actions were taken. The topic and potential measures were stuck in limbo waiting for decisions from COP15 and recommendations from the Taskforce on Nature-related Financial Disclosures (TNFD), both of which only came out toward the end of 2022.

We found that almost no company pursued new initiatives since our initial meetings in 2021. The main reason why, in addition to dealing with the aforementioned external challenges, was a focus on climate change mitigation and net-zero reduction targets.

According to the majority of companies we engaged with, addressing biodiversity loss and the associated risks continues to present a challenge. This is mainly due to a lack of certainty and clear standards. Even though more than half of global GDP depends on nature,[59] it is difficult for a company to pinpoint how the loss of a species or the degradation of an ecosystem will affect its business. Similarly, there is uncertainty about how to measure a company's impact on biodiversity. This task becomes even more difficult when adding suppliers and clients into the equation. Finally, many companies state that they are waiting for standards to measure dependencies and the impact of their operations and products, as well as for suitable tools for planning and monitoring biodiversity-related efforts.

[58] UCIN. Nature-based Solutions for Climate.
[59] WEF. January 2020. Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy. https://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf.

Biodiversity loss and extinction



A global political framework on biodiversity
In 2022, representatives of 188 countries adopted the Kunming-Montreal Global Biodiversity Framework (GBF) at the COP15 summit in Montreal.[60] The GBF contains four overarching goals and 23 targets to achieve by 2030, most notably the protection of 30% of the world's lands, oceans, coasts, and inland waters, and a reduction to near-zero loss of areas of high biodiversity importance. Other targets include the phasing out of harmful subsidies and the mobilization of USD 200 bn in biodiversity-related funding from private and public sources per year. These agreements are expected to reduce uncertainties around standards and tools, which were frequently cited by companies in 2022 as posing a roadblock to addressing biodiversity loss.

Conclusions from individual engagements
During our 2022 engagements, we found that the majority of companies had carried on their projects from 2021 without addressing the weaknesses we had identified in our previous report. One particular weakness was that biodiversity efforts were mostly related projects and were not linked to the overall sustainability strategy. Overall, biodiversity continued to be perceived only as a part of climate change and net-zero efforts.

Misalignment between companies and industry associations
As awareness of the biodiversity crisis grows, we are observing a number of national and international policy initiatives, such as the 2030 Biodiversity Strategy in the EU and the Recovering America's Wildlife Act in the US.[61] This trend is expected to accelerate with the passing of the Kunming-Montreal GBF. At the same time, there is noticeable pushback from industry associations, as shown in a recent study by the think tank InfluenceMap.[62] The pilot study looked at industry associations representing five key sectors with a great impact on biodiversity in the EU and the US: oil and gas, forestry and paper, fisheries, mining, and agriculture.

In 2022, we contacted industry associations for investor dialogues for the first time. Out of the five industry associations analyzed in the pilot study, two agreed to a call with us. During our discussions, the industry associations pointed out that they were, in fact, supporting biodiversity efforts. They stated that they collaborated with policymakers, bringing an industry perspective to the political decision-making process. They also claimed to work with scientists to promote science-based approaches to addressing biodiversity loss.

[60] Convention on Biological Diversity. December 19, 2022. COP15: Nations adopt four goals, 23 targets for 2030 in landmark UN biodiversity agreement. https://www.cbd.int/article/cop15-cbd-press-release-final-19dec2022
[61] https://www.nature.org/en-us/newsroom/rawa-clear-us-house/
[62] InfluenceMap. October 2022. Industry Influence on Biodiversity Policy. https://influencemap.org/report/Industry-Associations-Biodiversity-Policy-19612

This stands in stark contrast to the InfluenceMap study, which found that the analyzed industry associations opposed relevant policies and regulations. As much as 89% of their policy engagements were aimed at blocking progress on addressing biodiversity loss. The findings of the study paint a different picture in comparison to the responses we received in our engagement meetings. In those engagement interactions, we found that companies were responsive and interested in integrating biodiversity considerations into their strategy and risk planning. This discrepancy needs to be addressed in upcoming engagements.

Our dialogue with industry associations was a first step in the engagement process. Going forward, we want to intensify our research into their activities. It is important that any meaningful engagement activity, either on an individual or collaborative basis, also addresses the alignment of companies' positions with those of their respective industry associations.

Collaborative engagements
Aside from our individual engagements with investee companies and industry associations, we have also started to join forces with other investors in collaborative engagements (see Overview of our engagement). Collaborating with other investors increases leverage to drive change, especially in larger companies. This requires a thorough analysis of companies and sectors, which means that in a collaborative engagement, participants can benefit from sharing in-depth know-how and information within the investor group. Under our biodiversity theme, we have joined the following collaborative engagements:

FAIRR: Managing biodiversity and climate risks in aquafeed
Global production of fish and seafood has quadrupled over the past 50 years. While capture fisheries have largely stagnated since the 1990s, aquaculture has seen a stellar rise, producing 88 million tonnes of seafood worldwide in 2020, up from an annual average of 22 million tonnes in the 1990s.[63] Overfishing and depleted fish stocks have been the main drivers of aquaculture production. It is often seen as a solution to protect wild fish and to satisfy a growing demand for animal protein.

Apart from its positive attributes, aquaculture can have a significant impact on the environment. Fish farms can spread disease and parasites to wild fish populations and pollute water systems with nutrients and feces. At the same time, aquaculture also depends on natural capital. Fish feed in aquaculture relies on fish meal and fish oil, which is sourced from wild fish and soy, wheat, or pea proteins, which also contribute to GHG emissions. FAIRR considers feed a material risk to the salmon industry, but also addresses disease, animal welfare, environmental degradation, and community resistance as key impacts. FAIRR engagements generally consist of three phases. In the first phase, seven out of the eight companies contacted by FAIRR took actions to address the aforementioned issues, ranging from increased disclosures to improvements of company policy. Phase two of this initiative was supported by 75 investors representing USD 16 tn in assets under management.

> “
>
> Our two-century-long experiment with burning fossil fuels, destroying forests, wilderness, and oceans, and degrading the land has caused a biosphere catastrophe.
>
> **António Guterres**
> UN Secretary-General

[63] FAO. 2022. The state of world fisheries and aquaculture 2022. https://www.fao.org/3/cc0461en/online/sofia/2022/world-fisheries-aquaculture.html#ref-note-1_1

> Companies with a dependency on natural capital, such as those in the food industry, should have an understanding of how this dependency may be affected by climate change. In this specific case, this could be the migration of fish due to changing sea conditions. Food producers are closely exposed to the double materiality of environmental degradation and should therefore be at the forefront of assessing and mitigating this risk.

Dr. Christoph Biehl
Senior Active Ownership Specialist at Credit Suisse Asset Management[64]

FAIRR has concluded phase two of its engagement, during which it discussed the companies' approach to the diversification of feed sources with regard to biodiversity and climate change risks.[65] FAIRR found that companies were mainly focused on disclosing and reducing GHG emissions, and that biodiversity risks were often out of scope. No company was able to present a holistic approach to reducing its environmental impact. Currently, views on the best alternative feed ingredients differ greatly, which may slow the transition to sustainable feed for salmon farming.

FAIRR made five recommendations to aquaculture companies in order to boost investor confidence:

- Disclosure of biodiversity risk management strategies
- Full disclosure of fish meal and fish oil volumes
- Outline of risk assessments for all feed sources
- Disclosure of use of trimmings
- Sending of clear signals to the alternative ingredients market

We actively collaborated with FAIRR in phase two: We supported FAIRR's engagement with six companies and actively participated in one engagement. Due to our active involvement, our biodiversity expert is quoted in the phase two report.

For phase three, FAIRR plans to expand its research and assessments to other companies in the fishing sector and to look into the current allocation of subsidies within the fishing industry.

FAIRR: Biodiversity loss from waste and pollution
The sheer number of animals raised and used for the production of meat, milk, and eggs is staggering: Livestock biomass is 50% greater than human biomass and ten times greater than that of wild mammals and birds.[66] Meat production has increased worldwide from 71 million tonnes in 1961 to 337 million tonnes in 2020. Drivers of this growth are a growing population and an increasing share of meat in the diet of an emerging middle class. In China, for example, meat consumption per capita and year is predicted to reach 53 kg in 2029 compared to just 16 kg in 1990.[67]

Meat and other animal-based food products have a large environmental footprint – larger than that of plant-based foods. According to Our World in Data, 77% of agricultural land is used for livestock and 23% for crops. However, livestock (meat and dairy) provide only 18% of the global calorie supply and 37% of the global protein supply.[68]

Meat production with a large footprint
The pollution of bodies of water and ecosystems by runoff nutrients and manure is a major issue in addition to the aforementioned negative impacts.[69] Farm animals produce more than 3 billion tonnes of waste each year. Although manure could be a source of nitrogen and phosphorus fertilizer, it is often treated as a waste product. Excessive or inappropriate spreading of manure in areas of concentrated livestock production can lead to local biodiversity loss, pollution of water, algal blooms, and eutrophication.[70]

This collaborative engagement initiative is currently in the first phase. The target companies are ten listed meat producers and two fertilizer companies. The objective of the initiative is to understand how companies assess the risks arising from manure at every level of the value chain and what measures they take to address those risks. At the time of writing, the engagements were planned for the period from Q4 2022 to Q1 2023.[71]

In line with our fiduciary duty, we are supporting FAIRR in its engagements with companies that are material to us. In one case, we are leading the engagement process. Since this engagement is ongoing, we will present the outcome in our next Active Ownership Report.

[64] FAIRR 2022 Oceans and Biodiversity Impact Report, page 12.
[65] FAIRR. November 3, 2022. Phase 2 Sustainable Aquafeed Engagement Update and FAIRR's Action on Fisheries. Managing Biodiversity & Climate Risks in Aquafeed – FAIRR.
[66] https://ourworldindata.org/biodiversity-and-wildlife#humans-make-up-just-0-01-of-earth-s-life-what-s-the-rest
[67] OECD Data. 2021. Meat consumption. https://data.oecd.org/agroutput/meat-consumption.html

[68] Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. Science, 360(6392), 987-992.
[69] https://ourworldindata.org/environmental-impacts-of-food#eutrophying-emissions-from-food
[70] FAIRR. 2022. Creating a Stink: Mismanagement of Manure Drives Pollution and Biodiversity Risk. https://www.fairr.org/engagements/biodiversity-engagement/
[71] FAIRR. 2022. Biodiversity Loss from Waste & Pollution. https://www.fairr.org/engagements/biodiversity-engagement/

01 Case study
Assessing and monitoring biodiversity

Sector
Building materials

Region
Global

Stage
Ongoing

Holcim is a global leader in innovative and sustainable building solutions. We initiated an investor dialogue with the company as part of our biodiversity engagement. We wanted to better understand the impacts and dependencies of Holcim's business model on biodiversity.

The company developed the Biodiversity Indicator and Reporting System (BIRS) in partnership with the International Union for Conservation of Nature (IUCN). The IUCN is the global authority on the status of the natural world. Its Red List of Threatened Species is the world's most comprehensive information source on the global extinction risk of all species.

A standardized system
BIRS is a standardized system for calculating an annual biodiversity condition index. It represents a balance sheet of biodiversity assets and summarizes the value of a company's landholdings for supporting biodiversity. The system helps companies understand how their operations are affecting habitats and how biodiversity is changing over time. It also helps them to identify issues that require changes in company practices. BIRS was developed for the cement and aggregates sector, but the practical and robust system is intended for wider application.[72]

The methodology was assessed in two Business and Natural Capital Accounting studies within the framework of the NCAVES Project,[73] which was established to advance the knowledge agenda on environmental-economic accounting, particularly ecosystem accounting:

- Quarry rehabilitation in Yepes, Spain: Holcim has implemented specific measures to speed up the process of ecological restoration and the reintroduction of diverse fauna and flora. BIRS has proven to be a robust methodology to measure the effectiveness of the applied measures.
- Assessment of "natural capital" and the uniqueness and ecological importance of the habitats at two quarry sites of the recently divested Holcim subsidiary Ambuja Cement in Gujarat and Rajasthan, India.

The assessments found that the applied tools were scientifically robust and that the science-based approach was a strength in Holcim's biodiversity preservation strategy.

Conclusion
Holcim may serve as a role model in the measurement and accounting of biodiversity at its sites. We like Holcim's science-based approach, which has been validated by a respectable organization like the IUCN. Holcim's approach could be used as a blueprint for other companies in the sector addressing the biodiversity and ecosystem impacts of their operations.

[72] IUCN. 2014. Biodiversity management in the cement and aggregates sector: Biodiversity Indicator and Reporting System (BIRS). https://portals.iucn.org/library/sites/library/files/documents/2014-055.pdf
[73] The Natural Capital Accounting and Valuation of Ecosystem Services project https://seea.un.org/content/about-ncaves-project

02 Case study
Reconciling industrial growth with the environment

Sector
Semiconductors

Region
Asia

Stage
Ongoing

The Taiwan Semiconductor Manufacturing Corporation (TSMC) is a leading chip manufacturer that was founded in 1987. Its production sites are located mainly in Taiwan, with subsidiaries in the US, China, and Japan. While biodiversity plays a minor role in TSMC's sustainability efforts, the company has invested in an initiative to restore a habitat for fireflies. We initiated an investor dialogue with TSMC to learn more about how extinction risk is being addressed.

Firefly habitat restoration
There are around 2,000 species of fireflies worldwide. Some of them share the fate of many other insect species facing extinction due to habitat loss, pesticides, and light pollution. Restoration of habitats is a way to mitigate this risk. In 2015, TSMC started planning a habitat restoration project to reintroduce fireflies at its Tainan site.

Tainan was selected because the site is surrounded by diverse forest and natural vegetation. The recycled water from the chip manufacturing process feeds the local ecosystem. Key aspects of the restoration were a stable water environment free of hazardous agents to create suitable breeding and pupation conditions for fireflies.

TSMC employees were involved in the entire process. Tasks included vegetation management, that is, controlling plant density and preventing the ponds from drying out. Another task was to keep invasive species from crowding out indigenous species, which is another driver of biodiversity loss.

The habitat restoration was monitored throughout the process. Three years after the initiative started, over 60 adult fireflies appeared in the habitat in Tainan. The species will be assessed and used as an indicator for water and environment monitoring going forward.

Following the successful reintroduction of fireflies at the Tainan site, TSMC transformed the initiative into a systematic management process and extended its scope. Two more sites were added in 2019. By 2022, more than 1,600 adult fireflies were counted at all three sites.

Conclusion
Extinction risk poses a risk to business and financial markets but is seldom addressed explicitly by companies.[74] With this project, TSMC demonstrates how it first recognized extinction risk in terms of its operations at these three plants and then employed a well-designed and well-managed science-based approach to mitigate this risk.

[74] Routledge. 2022. Extinction Governance, Finance and Accounting. Implementing a Species Protection Action Plan for the Financial Markets. https://www.routledge.com/Extinction-Governance-Finance-and-Accounting-Implementing-a-Species-Protection/Atkins-Macpherson/p/book/9780367492984

Climate change:

The transition to net zero

"The impacts of climate change are increasingly affecting society and businesses. Since we are in the decade of action, not only commitments to net zero, but also the implementation of credible decarbonization plans will be at the top of the agenda. We have strengthened our efforts in net zero and will continue to focus on climate change in our engagement activities.

Dr. Ece Satar Pfister
Climate Specialist – Active Ownership

Global temperatures have risen within the range of +1 to +1.2°C compared to preindustrial levels. The effects of climate change can be observed on all continents. A changing climate leads to changes in the frequency and intensity of extreme weather events. In its Sixth Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) reaffirmed that global warming is man-made and that temperatures will keep rising unless GHG emissions are reduced significantly in the coming decade.[75]

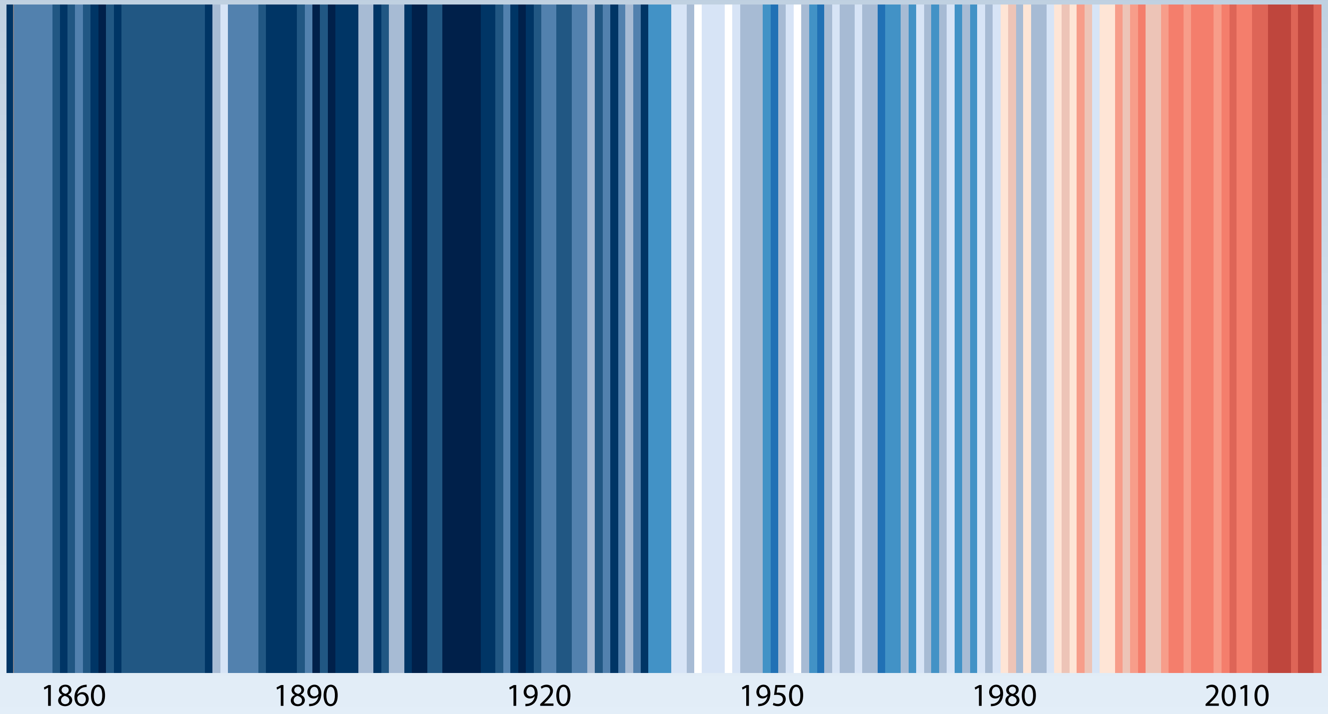
Yet, 25 years after the Kyoto Protocol and seven years after the Paris Agreement, the concentration of CO_2 in the atmosphere is still on the rise and is more than 50% higher than preindustrial levels.[76] The scientific consensus on climate change is well established, and in order to prevent irreversible impacts of climate change, deep reductions in GHG emissions are necessary. As of November 2022, around 140 countries have announced or are considering net-zero targets.[77] However, Climate Action Tracker, an independent scientific analysis, rates the targets of only five countries and the EU as being "acceptable." On the business side, 1,082 companies have targets approved by the Science Based Targets initiative (SBTi), and 2,253 companies have committed to the initiative. SBTi companies account for one-third of the global market capitalization.[78]

[75] IPCC. 2021. Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change https://www.ipcc.ch/report/ar6/wg1/chapter/summary-for-policymakers/
[76] Carbon dioxide now more than 50% higher than pre-industrial levels | National Oceanic and Atmospheric Administration (noaa.gov)
[77] Climate Action Tracker. November 2022. CAT net zero target evaluations. https://climateactiontracker.org/global/cat-net-zero-target-evaluations/
[78] SBTi Progress Report 2021 - Science Based Targets

> This outcome moves us forward, said UN Climate Change Executive Secretary Simon Stiell. We have determined a way forward on a decades-long conversation on funding for loss and damage – deliberating over how we address the impacts on communities whose lives and livelihoods have been ruined by the very worst impacts of climate change.

COP27 Reaches Breakthrough Agreement on New "Loss and Damage" Fund for Vulnerable Countries, UNFCCCe

Global temperature change (1850-2021)



Source Ed Hawkins, NCAS, UoR

The effects of rising temperatures
IPCC Working Group II states that reaching 1.5°C in the near term would cause unavoidable increases in multiple climate hazards and would present multiple risks to ecosystems and humans.[79] The McKinsey Global Institute researched physical climate risks in a study published in 2020.[80] It found that the effects of global warming, such as extreme weather, are already manifesting and are likely to worsen going forward. This is particularly the case in the absence of decisive mitigation and adaptation efforts. The impacts of those climate hazards are not equally distributed globally because they depend on a variety of geographic and socioeconomic factors.

Extreme weather events
The impacts of climate risks affect nature, people, infrastructure, and businesses in many ways, such as by disrupting food systems and causing flooding of coastal cities and the destruction of natural capital. For example, in summer 2022, heatwaves in France, Germany, Spain, and Britain reportedly caused more than 20,000 excess deaths. [81]

In 2022, Hurricane Ian caused losses totaling around USD 100 bn and was the second-costliest tropical cyclone on record. The year's greatest humanitarian disaster was the severe flooding in Pakistan resulting from record-breaking monsoon rainfall, which was between five and seven times heavier than usual. At least 1,700 people were killed by the flooding.[82]

The cost of transition
Given the risks of unmitigated global warming, a transition to a net-zero world is seen as inevitable and will require collective and global action. However, the manner and timing of the transition are still open. According to Climate Action Tracker, the current commitments are not sufficient to keep temperatures in line with the objective of limiting global warming to 1.5°C above preindustrial levels.[83] These commitments have yet to be realized. The difficulty lies in switching to a net-zero economy while maintaining economic growth. The cost of transition is high, according to a study by McKinsey Global Institute. The price of inaction, however, could be much higher. The study estimates that a transition

[79] IPCC_AR6_WGII_SummaryForPolicymakers.pdf
[80] McKinsey Global Institute. January 16, 2020. Climate risk and response: Physical hazards and socioeconomic impacts. https://www.mckinsey.com/capabilities/sustainability/our-insights/climate-risk-and-response-physical-hazards-and-socioeconomic-impacts
[81] Reuters. November 24, 2022. Europe's heatwave may have caused more than 20,000 'excess' deaths. https://www.reuters.com/business/cop/europes-heatwave-may-have-caused-more-than-20000-excess-deaths-2022-11-24/
[82] Climate change and La Niña driving losses: the natural disaster figures for 2022 | Munich Re
[83] CAT Emissions Gap | Climate Action Tracker

to net zero by 2050 could cost up to USD 9.2 tn per year on average for physical assets for energy and land-use systems. This amounts to USD 3.5 tn more than in 2020. Spending would be the highest at the beginning at around 8.8% of GDP between 2026 and 2030, and would subsequently decrease to below the 2020 level of 6.8% of GDP by 2050. The question of who will finance this transition is an open one. Most likely it will be a combination of public and private actors. Public financing, for example, could come from taxes, which would in itself pose an additional cost to businesses.[84]

On the flipside, companies that work on solutions to facilitate and accelerate the transition to a net-zero economy and society often have superior growth opportunities and more resilient business models. Investing in decarbonization leaders or businesses globally can provide attractive financial returns, creating a favorable dynamic for both society and our clients.

Breakthrough for "loss and damage"
Measures against climate change are not limited to mitigation, that is, emissions reductions, but also include adaptation. Adaptation is equally important and encompasses adjustments to existing systems to enhance their resilience. However, some impacts, such as sea-level rise and ecosystem collapse, cannot be completely mitigated or adapted to. Those impacts on developing countries predominantly located in the global south are disproportionally severe, although their contribution to historic emissions is disproportionally low. They have long pushed for funding to compensate for the losses and damage from climate disasters.[85]

The 27th Conference of the Parties of the UNFCCC (COP27), which was held in Sharm el-Sheik, disappointed many due to the lack of progress on cutting fossil fuel emissions. However, it delivered one important breakthrough: The parties to the conference finally adopted the creation of a "loss and damage" fund. This fund is being set up to finance the impact of climate disasters on vulnerable countries. The adoption of a financial instrument underscores the pressure of covering the costs of climate-change-related damage.[86]

[84] McKinsey Global Institute. January 2022. The net-zero transition. https://www.mckinsey.com/capabilities/sustainability/our-insights/the-net-zero-transition-what-it-would-cost-what-it-could-bring
[85] Chatham House. December 6, 2022. What is loss and damage? https://www.chathamhouse.org/2022/08/what-loss-and-damage
[86] COP27 Reaches Breakthrough Agreement on New "Loss and Damage" Fund for Vulnerable Countries | UNFCCC

Our Climate Action Plan

The path toward net zero involves not only society and national and international politics, but also businesses across the entire value chain. The financial sector is in a unique position to not only decarbonize their own operations, but also their portfolios. Investors can play a vital role in encouraging businesses to commit to net zero and thereby support the transition to a net-zero economy while generating financial returns. Many companies have made net-zero commitments and have already taken steps to calculate and reduce their GHG emissions. Not all emissions reduction trajectories show the necessary sharp decline in emissions needed to achieve net zero by 2050. Often, current plans do not take the entire value chain into consideration. It is paramount for net-zero targets and initiatives to be science-based and for their implementation to follow best practices.

We believe that asset managers have a responsibility to act as stewards of capital in order to generate and protect long-term value for clients. Since the transition to net zero can have a major impact on the future of a company, it is important to include the risks and opportunities related to climate change in our investment process and engagement activities. Credit Suisse Asset Management and Investment Solutions & Sustainability, part of Credit Suisse Wealth Management, have established a Climate Action Plan that reaffirms our commitment to the transition to net zero and defines the necessary goals and actions. In 2023, we will initiate a pilot phase guided by the Net Zero Categorization Principles introduced in the Climate Action Plan.[87] Our engagement efforts will focus on the categories (see table titled Net Zero Categorization Principles) where companies have not yet set clear targets to be met by 2030 and lack a clear 2050 transition plan, or where the credibility and feasibility of their transition plans can be improved.

How we engage with investee companies

We plan to use the Net Zero Categorization Principles, which were inspired by the work of the Institutional Investors Group on Climate Change (IIGCC), to assess companies' commitments to achieving net zero, the credibility and feasibility of their transition plans, and how net-zero strategies are reflected in their compensation plans for executive management.

We plan to encourage investee companies to establish the following metrics:

- Climate policy and strategy – this includes targets for 2050, potential sector-specific metrics, and measures to initiate change, such as incentives for executive boards
- Interim targets for 2030, potential sector-specific metrics, and measures to initiate change
- Disclosure of Scope 1 and 2 and material Scope 3 emissions
- Disclosure of climate risks and their integration in risk management, as well as the availability of a scenario analysis

Our engagements

In 2022, we started including climate themes in the existing investor dialogues on food loss and waste and biodiversity loss. These themes are closely connected. For example, climate change is one of the major drivers of biodiversity loss,[88] while food loss and waste are responsible for 6% of global GHG emissions.[89] The majority of the companies we have engaged with on these two themes were advanced in their emissions reporting, including their Scope 3 emissions. Scope 3 disclosures require an in-depth understanding and analysis of the supply chain. Companies will need to increasingly engage with their respective supply chains in order to better track and reduce emissions and to reduce the risk of supply-chain disruptions due to climate change. These insights can then be used to supplement missing information in other areas, for example upstream food loss. This illustrates the interconnectedness of our engagement themes.

Collaborative engagement

Collaborating with other investors increases leverage to drive change, especially in larger companies. This requires a thorough analysis of companies and sectors, which means that in a collaborative engagement, participants can benefit from sharing in-depth know-how and information within the investor group. For this purpose, we have been a participant in Climate Action 100+ since 2020.

[87] Credit Suisse Asset Management and Credit Suisse Wealth Management. December 2022. Climate Action Plan. Toward a net-zero future. https://am.credit-suisse.com/ch/de/asset-management.html
[88] IPBES. 2019. The global assessment report on biodiversity and ecosystem services. https://ipbes.net/global-assessment
[89] Food waste is responsible for 6% of global greenhouse gas emissions - Our World in Data

Net Zero Categorization Principles

Engagement strategy		Engage or divest		Engagement focus			Grow	
Category		1. Unaware	2. Aware	3a. Strategic – Committed to aligning	3b. Strategic – Aligning toward net zero	3c. Strategic – Aligned targets and plans	4. Aligned	5.Achieving net zero
Criteria								
Emission reporting/disclosure[90]			✓	✓	✓	✓	✓	✓
Commitments and targets	Climate-related targets			✓	✓	✓	✓	✓
	Long-term net zero commitment			✓	✓	✓	✓	✓
	Interim targets (min ambition: 2°C)				✓	✓	✓	✓
	Commitment recognized by third party				✓	✓	✓	✓
	Targets validated by third party					✓	✓	✓
Decarbonization plan	High-level plan				✓	✓	✓	✓
	Credible plan[91]					✓	✓	✓
Carbon performance	In line with targets						✓	✓
	At (or close to) net zero							✓
Critical enabler							✓[92]	

Climate Action 100+

The aim of this investor-led initiative is to ensure that the world's largest corporate GHG emitters take necessary action on climate change. At the time of writing, 700 investors representing USD 68 tn in assets under management were engaging with 166 companies that together account for 80% of global industrial emissions.[93] There are five investor networks supporting the initiative, including the IIGCC and the Principles for Responsible Investment (PRI), to both of which Credit Suisse is a signatory.

The initiative recognizes that decarbonization will require unique strategies and approaches depending on the sector, business, or region in which a company operates.

All companies are required to commit to three tasks:

- Implement a strong governance framework
- Take action to reduce GHG emissions across the value chain
- Provide enhanced corporate disclosure

Business strategies should fully align with the Paris Agreement and net-zero emissions by 2050 or sooner.

In 2022, we participated in a collaborative engagement with Climate Action 100+. Going forward, we plan to expand our collaborative engagement efforts in line with the Climate Action Plan. Our focus will be on companies contributing to the highest financed emissions in our portfolio.

[90] Disclosure of Scope 1 and 2 emissions and Scope 3 emissions, where material. Proof of accounting is required at a minimum; public reporting is strongly preferred.
[91] As determined by third-party assessment, including capital expenditures being aligned with net zero and executive oversight or incentives being linked to achieving the targets.
[92] Category 4 includes companies that are critical enablers of net zero through their products and services irrespective of targets or commitments. However, it is not a requirement to be such a critical enabler to qualify for the category.
[93] https://www.climateaction100.org

> Limiting human-induced global warming to a specific level requires limiting cumulative CO_2 emissions, reaching at least net zero CO_2 emissions, along with strong reductions in other greenhouse gas emissions.[94]

IPCC Working Group I

Green leases

Green leases are rental contracts that aim to improve sustainability in the building, furnishing, management, and use of real estate, particularly commercial real estate. Green leases may include a broad range of clauses and measures that contribute to meeting the sustainability targets of both landlords and tenants. Possible measures are energy contracts, that is, the use of renewable energy or energy use caps, facility management, and waste management and recycling. Other measures are sustainable construction materials and circularity in the renovation and refurbishment of buildings.

These measures may raise costs or require upfront investments, but overall they can be beneficial for real estate companies and tenants because they improve the attractiveness of a real estate portfolio and lower utility costs for tenants. For commercial real estate in particular, green leases help companies measure their emissions and achieve their own net-zero targets.

There are no certifiable standards thus far that rate lease conditions as “green” or “sustainable.” The lack of standards for measures underpinning green leases is a risk for real estate companies and tenants alike. In the absence of standardized clauses, meeting the agreed upon targets might not be aligned with meeting net-zero targets.

Nevertheless, if done well, green leases can be great instruments for the real estate sector to improve its sustainability. Real estate companies and tenants should structure green leases in line with current and upcoming regulations, such as the EU taxonomy for sustainable activities.[98]

Focus on real estate

Population growth and urbanization are two megatrends driving the real estate sector, which is one of the largest contributors to climate change. According to the International Energy Agency (IEA), in 2018, the building and construction sector accounted for 36% of final energy use and 39% of energy- and process-related CO_2 emissions, 11% of which resulted from building materials such as steel, cement, and glass.[95] Energy use in buildings is divided into roughly 1/3 for commercial and 2/3 for residential real estate (see the graphic Global greenhouse gas emissions by sector). We have focused on this sector since 2019 due to the relatively large financial exposure of Credit Suisse Asset Management.

When we started our pilot phase with listed real estate companies, we found that most companies had set net-zero targets and that most were on track to meet those targets. In 2021, we engaged with industry leaders in Switzerland and Germany to determine best practices and trends in the market.[96] In 2022, we continued this approach, leading to engagements with a similar pool of companies in Germany and Switzerland.

Sharing costs and benefits

In 2021, we found that tenants were driving sustainability innovations in listed real estate. We therefore wanted to focus on collaborations between tenants and real estate companies via green leases in the following year. Commercial tenants often have their own climate targets. They increasingly demand sustainable state-of-the art technology, particularly when it comes to energy use, air conditioning, and heating. All companies we engaged with in 2022 were looking into green leases.

Usually, real estate owners are responsible for building upgrades while tenants cover the utility bills. However, in order to be on track with their net-zero commitments, real estate companies need to retrofit their buildings for energy efficiency. Green leases aim to better align the interests of both parties. For example, tenants and landlords may agree to share the costs of investments in energy efficiency. Green leases are customized and may include concessions, such as reducing waste in operations, allowing maintenance during the day, or closing shades in hot and sunny weather. If done well, green leases are a powerful tool for achieving net-zero targets.[97] Through their co-benefits for all stakeholders, green leases can increase the market appeal of a property.

Focus on emissions reductions

The companies we engaged with have clear trajectories and commitments to net zero by 2040. Real estate companies showed a clear interest in further reducing emissions and were on track with regard to their own emissions reduction pathways. The companies we spoke with preferred emissions reductions over carbon-offset measures. The reason for this may be that energy-efficient – that is, low-emission – buildings meet tenants’ demands, increase the value of the portfolio, and potentially result in better financial returns.

Embodied carbon

The carbon footprint of a building consists not only of the operation of the building, that is, heating, cooling, lighting, etc., but also of all GHG emissions associated with the building materials, that is, raw materials, transport, and installation on-site, as well as end-of-life emissions in demolition and disposal of those materials.

When embodied carbon is taken into account, the refurbishment of an existing building often has a better carbon footprint than the construction of a new building. One company that we engaged with in 2021 found that if it reused parts of old buildings, it could save between 30% and 60% of embodied carbon.[99] We found that companies are increasingly including embodied carbon in their considerations. However, we have observed that this is rarely done before the start of a project. The real estate companies we engaged with approach embodied carbon as an independent topic rather than combining it with their net-zero trajectories and emissions in operations.

During our meetings, one company made it clear that carbon emissions are not the only criterion in its decision-making process for real estate projects. It also has to take the well-being of tenants into account. Some older buildings do not offer the necessary amenities. However, all companies aim to preserve old structures wherever possible. The leaders in the listed real estate industry are increasingly considering circularity principles in their projects.

[94] IPCC. 2021. Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.
[95] Global Alliance for Buildings and Construction. 2019. The 2019 Global Status Report for Buildings and Construction. https://iea.blob.core.windows.net/assets/3da9daf9-ef75-4a37-b3da-a09224e299dc/2019_Global_Status_Report_for_Buildings_and_Construction.pdf
[96] Credit Suisse Asset Management. 2022. Active ownership report 2021. https://am.credit-suisse.com/ch/de/asset-management/insights/sustainable-investing/active-ownership.html
[97] aquicore. What is a Green Lease. https://www.aquicore.com/blog/what-is-a-green-lease
[98] European Commission. 2020. EU taxonomy for sustainable activities. https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en
[99] Credit Suisse Asset Management. 2022. Active ownership report 2021. https://am.credit-suisse.com/ch/de/asset-management/insights/sustainable-investing/active-ownership.html

What is net zero?

According to the Intergovernmental Panel on Climate Change (IPCC), net-zero emissions are achieved when anthropogenic emissions of GHG to the atmosphere are balanced by anthropogenic removals over a specified period.[100]

One of the goals of the Paris Agreement is "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels." [101]

One key metric is the carbon budget, that is, the estimated cumulative amount of global CO_2 emissions to limit global surface temperature rise to a given level above a reference period. The IPCC has set this budget at 500 gigatonnes of CO_2 from 2020 onward for limiting warming to 1.5°C with a probability of 50%.[102] Following the IPCC Special Report on Global Warming of 1.5°C, it was widely accepted that the world needs to reach net-zero CO_2 emissions by 2050.

Against this backdrop, companies are increasingly adopting net-zero targets. The Science Based Targets initiative developed the net-zero standard, which launched in October 2021, for this purpose.[103] According to the net-zero standard, corporate net zero is defined as reducing all direct and indirect emissions to zero or to a residual level that is consistent with reaching net-zero emissions and is compatible with a 1.5°C-aligned pathway. It also requires neutralizing any residual emissions by the net-zero target year and any GHG emissions released into the atmosphere thereafter.

From linear to circular

The intended lifespans of buildings are usually 70 to 100 years for residential properties and 30 to 40 years for logistics and industrial buildings.[104] However, many buildings are demolished well in advance due to changing demands. In the EU, construction and demolition waste accounts for more than one-third of all waste generated. Recycling and recovery figures vary between 10% and 90% among the member states. The EU plans to increase this amount to a minimum of 70% under its Waste Framework Directive.[105] In Switzerland, this number is even higher: excavated and quarried materials add up to just under two-thirds of all waste (57 million tonnes), and one-fifth of the waste stems from the demolition of buildings, roads, and railway lines (17 million tonnes).[106]

Since construction is still mainly a linear business, the sector is responsible for a considerable part of resource use and waste. A transition to a circular model would also reduce the amount of embodied carbon. This highlights the interconnectedness of responsible consumption and production and emissions reduction.

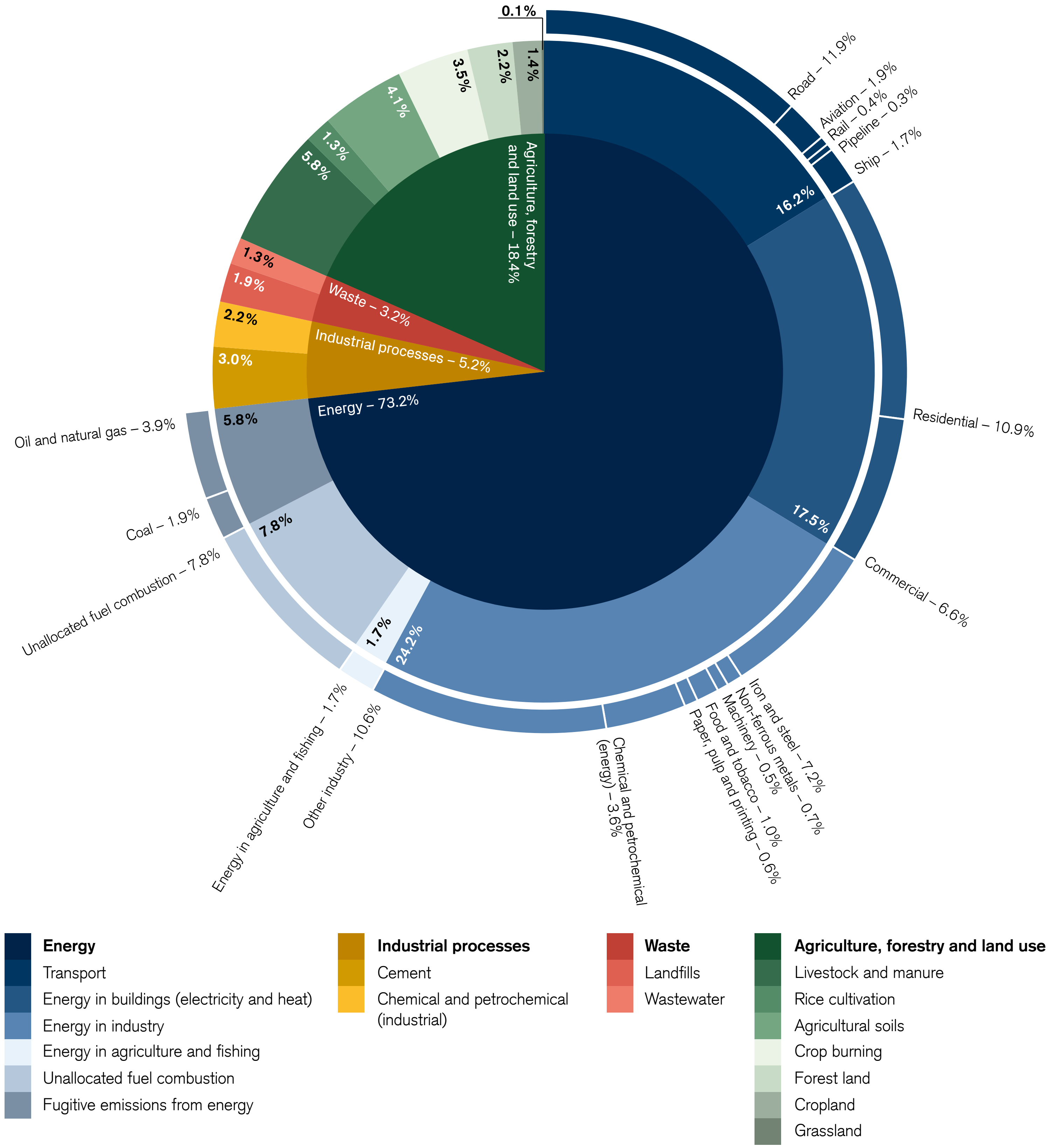
The main challenges for circularity in the real estate sector are hazardous materials, such as asbestos and polychlorinated biphenyls, time pressure, and a lack of preparation for selective deconstruction to salvage reusable components. In order to support the reuse and recycling of construction materials, circularity needs to be considered early on in the design phase. This idea is slowly gaining traction in the real estate sector. One of the companies we engaged with, for example, started to incorporate circularity into its building planning in 2021. Its pilot project showed that sustainable renovations are possible while meeting deadlines and cost estimates.[107] Our engagement with that company continues to integrate circularity principles in its upcoming projects.

In the years ahead, we will likely see a potential intersection of the themes of "climate change in listed real estate" and "responsible consumption and production" given the direction in which the market is headed.

[100] IPCC. 2018. Annex I: Glossary. https://www.ipcc.ch/sr15/chapter/glossary/.
[101] Paris Agreement English (unfccc.int).
[102] IPCC. 2022. Climate Change 2022. Mitigation of Climate Change. Summary for Policymakers. P 10. https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SPM.pdf.
[103] Science-Based Targets Initiative Corporate Net Zero Standard 2021 Net-Zero-Standard.pdf (sciencebasedtargets.org).
[104] ETH Zurich. February 1, 2022. Challenges and Opportunities for Circular Economy Promotion in the Building Sector. https://www.research-collection.ethz.ch/handle/20.500.11850/529733
[105] European Commission. Environment. Construction and demolition waste. https://environment.ec.europa.eu/topics/waste-and-recycling/construction-and-demolition-waste_en
[106] Federal Office for the Environment (FOEN). Raw materials, waste and the circular economy. https://www.bafu.admin.ch/bafu/de/home/themen/abfall/inkuerze.html
[107] Credit Suisse Asset Management. 2022. Active ownership report 2021. https://am.credit-suisse.com/ch/de/asset-management/insights/sustainable-investing/active-ownership.html

Greenhouse gas emissions by sector

Energy use in buildings was responsible for 17.5% of total GHG emissions (49.4 billion tonnes of CO_2 equivalent) in 2016, which highlights the sector's importance.



Source Our World in Data, Credit Suisse

Our commitment – the Net Zero Asset Managers initiative
In March 2022, Credit Suisse Asset Management joined the Net Zero Asset Managers initiative (NZAMi).[108] This commitment sets out a range of actions that are required to accelerate the transition to net zero and to achieve emissions reductions in the real economy. These include engaging with clients and investee companies, undertaking policy advocacy and stewardship, and setting goals for assets under management in line with net-zero pathways.

NZAMi is an international group of asset managers committed to supporting the goal of net-zero GHG emissions by 2050 or sooner. As of December 31, 2022, the initiative had 301 signatories representing USD 59 tn in assets under management.

What is GHG accounting?

The Greenhouse Gas Protocol, launched in 2001 and revised in 2004, is a widely accepted standard for businesses that aim to report their GHG emissions.[109] The standard covers six gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). Emissions are categorized into three scopes:

Scope 1 – direct GHG emissions. Emissions that occur from sources that are owned or controlled by a company, for example, emissions from burning fuel for heating or vehicles, as well as emissions from industrial processes.

Scope 2 – indirect GHG emissions for electricity. Emissions from the generation of purchased electricity consumed by a company. Scope 2 emissions physically occur at the facility where electricity is generated.

Scope 3 – other indirect GHG emissions. All other emissions associated with a company's operations that occur from sources not owned or controlled by the company. Examples include business travel, waste generated, and products both upstream (in the supply chain) and downstream (use of the products and end of life). Scope 3 emissions typically account for the largest proportion of a company's emissions.

[108] https://www.netzeroassetmanagers.org.
[109] The Greenhouse Gas Protocol. 2004. Revised Edition. https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf.

The Network of Central Banks and Supervisors for Greening the Financial System
In its Net Zero 2050 scenario, the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) makes decarbonization of the power sector the central pillar of the transition to a net-zero economy. In such a scenario, the fast phaseout of fossil fuel power plants could threaten the profitability of those plants and could turn them into stranded assets, which could pose a risk for investors.[110]

The case for immediate and smooth action
According to the NGFS, half of the building, industry, and transport sectors need to be electrified by 2050 to reach the targets in its main scenario, that is, Net Zero 2050.

Additionally, the world will need to switch to carbon-neutral fuels, improve energy efficiency, decarbonize land use, and – on top of that – remove five gigatonnes of carbon from the atmosphere each year. However, current policies are largely insufficient to limit warming to 1.5 °C. Labor productivity could decline by 10%, damage due to floods could increase by 300%, and damage due to cyclones by 47%. This scenario would double global GDP losses from acute physical risks by 2040.

Delays and uncoordinated policies could result in transition risk associated, for example, with stranded assets. The NFGS scenarios illustrate the need for decisive and coordinated action to minimize physical and transition risks.[111]

The Institutional Investors Group on Climate Change (IIGCC)

This group is the leading European organization for investor collaboration on climate change, with more than 400 investor members in Europe representing more than EUR 51 tn in assets under management. Its mission is to support and enable the investment community to drive progress toward a net-zero and resilient future. The group is one of the five regional investor networks forming Climate Action 100+.[112]

Credit Suisse Asset Management joined the IIGCC in July 2022. The IIGCC supports investors in their individual efforts through research on and analysis of climate risks and opportunities across sectors, best practices, and guidance.

The IIGCC is also runs a policy program that helps shape sustainable finance and climate policy and regulation for key sectors of the economy, as well as an investor practices program that helps members and the investment community to better integrate climate risks and opportunities into their investment processes and decision-making.

Source www.iigcc.org, 2023

[110] Network of Central Banks and Supervisors for Greening the Financial System (NGFS). Six different scenarios to assess transition and physical risks. https://www.ngfs.net/ngfs-scenarios-portal/explore.
[111] https://www.ngfs.net/ngfs-scenarios-portal/explore/.
[112] https://www.iigcc.org.

01 Case study
Recycling skyscrapers

Sector
Construction and materials

Region
Oceania/Australia

Stage
Completed

Sika is a specialty chemicals company occupying a leading position in the development and production of systems and products in the building sector and motor vehicle industry. We included the company in our investor dialogues in 2020.

During our investor dialogue in 2022, we discussed the company's role in enabling decarbonization of the construction sector. We would like to highlight an example of a best practice. The company mentioned its contribution to the renovation of the Quay Quarter Tower in Sydney. After four decades of use, the skyscraper no longer met modern requirements. Instead of tearing it down in order to build something new, an architectural firm based in Copenhagen proposed an alternative: They would instead renovate the existing building, retaining 95% of the core building, while also delivering a modern structure with double the space. The existing concrete had to be strengthened to meet modern standards and extend the lifecycle of the building. Sika's products were key in carrying out this project. Carbon-fiber reinforcing systems were used to strengthen the structure while allowing for increased building height and additional floor space.

The renovation significantly reduced the environmental burden: 23,000 cubic meters of concrete and 12,000 tons of CO_2 were saved. In addition to the environmental benefits, the building owners saved time and CHF 85 mn in building costs.

Conclusion
In our investor dialogues with real estate companies, we have seen an increased interest in renovating and repurposing old buildings instead of building new ones. This example illustrates the economic and environmental benefits of this trend. Innovative products extending buildings' lifetimes could help decarbonize the real estate sector. This best practice example will help us in our future engagements on this topic with peer companies in the real estate sector to support decarbonization while creating long-term value for our clients.

Corporate governance:

The quest for best practices

> Since the beginning of our thematic engagement activities in 2019, we have focused our thematic engagement on corporate governance on the independence of companies' board of directors and other crucial deliberative bodies, particularly audit and compensation committees, and on the compensation structure for executive boards and BoDs. Following best practices in these areas serves the companies' best interests.

Stephan R. Scharrer
Head of Active Ownership

It is our fiduciary duty to protect our clients' investments and to make decisions that are in our clients' best financial interests. We aim to ensure that companies follow best practices, particularly in terms of corporate governance, because we see a link between good corporate governance and financial performance.

Our approach to corporate governance engagement is to collect relevant information during our proxy voting activities. We then follow up on the most substantial cases after concluding the bulk of our proxy voting in the third and fourth quarters. Generally, we accompany companies over an extended multiyear period as we pursue medium- to long-term goals through our engagements. In 2022, we held 27 structured engagements on corporate governance.

Board of directors independence is a key to success

We require majority independence of BoDs, audit committees, and compensation committees (depending on the market, we may require full independence) in order to protect companies against potential adverse developments resulting from governance deficiencies. In some countries, we also require that all members or a majority of the members of the nomination committee be independent. The system of checks and balances between a majority-independent supervisory body and the nominated executives ensures that power is well split between the different functions. For example, business strategies are adjusted more often today than in the past, and CEOs, CFOs, and other top executive management are thus replaced more frequently than before. On the one hand, defining a strategy is a complex process that takes time. On the other, a strategy is set for the long term and should not be modified too often. The fine line of responsibility between the BoD and top executives presents another challenge that can cause friction. In our experience, an independent BoD is one of the key factors to a company's success. We therefore support and enforce BoD independence as much as we can.

Our second area of focus is compensation packages for executive management. In a competitive environment, compensation needs to be attractive. However, compensation must offer the right incentive structure that ultimately benefits the company in the long run and gives executive management a requisite material interest in the long-term future of the company for which they have a major responsibility. In our engagements, we focus on companies that lack an appropriate compensation plan for executive management and BoDs. We require robust long-term stock compensation programs with a minimum three-year cliff vesting period. The funding for such long-term incentive plans (LTIPs) must be secured. Shares for the plans must be bought mainly on the open market and may only be created to a limited extent through dilution, that is, the creation of new shares through authorized capital. We take a critical view of cash compensation in LTIPs because shares offer a better incentive for management to adopt a long-term perspective.

LTIPs should be linked exclusively to performance, and targets need to be measurable. In past years, we saw that some companies excluded "exceptional items" from performance measurements. This led to an overly positive presentation of those companies' financial performance and in turn led to the disbursement of compensation even though targets would have been missed had these "exceptional items" not been stripped out. We are critical of this approach because we judged the vast majority of these "exceptional items" to be part of a normal business cycle. We continue to take a negative view on discretionary special payments because they are not underpinned by performance measures. We are still opposed to variable compensation and especially to stock options for BoD members.

Multinational coverage

Based on the insights we gained during the 2022 proxy voting season, we selected 32 companies for further engagement. We chose a balanced mix based on material holdings across different regions while also considering smaller-stake investee companies from regions where we generally have less exposure. Secondly, we balanced our engagements between ongoing and new ones. The materiality criteria were the number of our funds invested in the respective corporation and – from the companies' perspective – the weighting of our holdings.

We initiated engagements in Asia for the first time in 2022 with two companies in Japan. Of the other companies we selected, 16 were based in Switzerland, 4 in the EU, and 10 in North America. Of the 32 companies contacted, 31 acknowledged our engagement request. One company did not respond at all. One company immediately turned down our request for a dialogue. Two companies did not reply to our requests to schedule a meeting despite several attempts from our side.

All engagement meetings with the remaining companies took place in the second half of 2022. Twenty-five meetings were held online and three in person. Our counterparts, in order of frequency, were BoD chairpersons, remuneration committee chairpersons, lead independent directors, lead representatives of legal departments, human resources, and/or investor relations.

BoD and core committee independence

One of the focus areas of our engagements was the independence of the BoD as an overall body and of various committees. We had some cases where the BoD did not even have a nomination committee. We also noted a lack of independence of audit committees and/or remuneration committees. Examples were cases in which the BoD chairperson was also chairing the audit committee or the remuneration committee. In such a situation, the compensation of the chairperson might not be scrutinized as critically as it should be. Overall, the companies we engaged with did not have a fully independent BoD or a majority of independent BoD members.

Germany is a special case because the law stipulates that employee representatives are delegated to the supervisory board, bypassing election at the annual general meeting. We therefore exclude employee representatives when assessing the independence of the overall board. However, we discussed the issue of employee representatives in core committees of the supervisory board with several German investee companies that did not meet the criterion of majority independence. This was the case, for example, if the number of anchor shareholder representatives and employee representatives on the same committee was too high for the committee to be considered independent.

Executive and BoD compensation

Our second focus topic was the compensation structure for executives. We view a split of the overall compensation into a cash portion, a short-term incentive plan (STIP), and a long-term incentive plan (LTIP) as standard. An STIP should have a vesting period of one to two years, while an LTIP should have a minimum cliff vesting period of three years or longer. LTIPs should be 100% performance-based with the exception of North America, where we require a minimum of 50% of an LTIP to be based on performance, that is, up to a maximum of 50% may be time-based. In general, vesting should be in shares, not in cash.

In 2022, we engaged with North American investee companies on the topic of staggered vesting of LTIPs. This type of program starts in year one with annual vesting. We consider this a transfer in the first and second years of short-term vesting, which in fact is a cross-subsidy into the STIP. This commingling of long-term and short-term plans shifts weight to the STIP, which can cause a misalignment of risks. Management might be motivated to take excessive risks to boost short-term performance in order to optimize their payout. We made it clear that we require a strict separation of STIPs and LTIPs given the different time horizons of the short- and the long-term incentive plans because the latter ensures the best alignment of the executive management's incentives with long-term investor interests.

Performance measurement

The successful alignment of incentives via the LTIP depends not only on the vesting period, but also on the performance metrics that underpin the LTIP. In our view, performance measurements should be based on the materiality of the investee company in question (the companies define their key financial metrics). We believe that the weight of sales in these key performance indicators (KPIs) should not be too high because the focus should lie on the sustainable, profitable long-term growth of a company. We prefer external measurements like relTSR (total shareholder return relative to an index or peer group), or internal key measurements like profitability (EBIT or EBITDA margin, EPS), cash flow returns (we prefer free cash flow to firm), and sustainability or ESG targets as KPIs relevant to compensation in the framework of an LTIP.

We saw a growing number of investee companies including sustainability targets in their STIPs for the first time. We support this development and we are aware that this will be an iterative process over the coming years. We will probably see frequent adjustments of these targets as more and more programs to achieve carbon neutrality are implemented and also due to the short-term horizon of STIPs. We encourage our investee companies to plan for the next steps and to adopt sustainability and ESG objectives in their LTIPs as soon as they come up for revision. So far, the feedback from some investee companies has been very positive, though most of them are still hesitant to commit their management to sustainability and ESG targets.

As we can see from the sustainability and climate reports of investee companies, most have started to disclose materiality analyses of these factors. In our view, integrating sustainability or ESG targets into LTIPs is the logical next step in order to focus and incentivize management activity appropriately.

Cash payouts in Germany
In Germany, we began to target investee companies for engagement on the issue of cash settlement of their LTIPs. Payouts in cash instead of in shares at the end of the LTIP period is clearly not in line with best practices in Europe. The reason is tax-related because LTIP payouts immediately incur high taxes in Germany.

We noted a few positive cases where the proceeds of the LTIP payout were split into a cash portion for tax payments and a cash portion that must be reinvested in shares. This approach gives executive management a requisite material interest in the long-term future of the company for which they work. We encourage German companies to adopt this approach because this would align them with European best practices and would meet investor needs without burdening their managers with tax payments that need to be covered from other sources.

Encouraging outcomes
Looking back at four years of thematic engagements with investee companies on corporate governance issues, we have noted improvements or at least incremental improvements over time. Changes to corporate governance and compensation must be disclosed publicly to all investors at the same time. Therefore, we often learn about improvements with a time lag through disclosures like annual reports. Tracking takes a lot of time and is a very manual process, which makes reporting a complex task for us. Therefore, the impact of our engagements still remains to be seen.

There are many different reasons why a given company fails to meet required governance standards or falls short of common best practices. Best practices and standards develop over time to meet investor demands and new regulations. Some companies stick to outdated standards. In our experience, the ones that do so are often controlled by anchor or family shareholders. They resist change until pressure from a broad investor base compels it.

Some companies, on the other hand, are early movers. They are interested in adopting new standards because they see the benefits before their competitors do. Some companies that may have adhered to standards in the past have missed recent developments because they may be unaware of current best practices and the progress achieved over time in their markets or sectors.

As a professional asset manager, we have the advantage of possessing in-depth expertise in these matters. Through our engagements, we want to help companies improve their corporate governance and align their standards with current best practices, which is also part of our fiduciary duty.

Engagements on business conduct

Nowadays, because of the complexity that corporations are confronted with, breaking national or international rules or conventions may become commonplace. Such violations pose a significant risk to our investments in these companies. To ensure reliable monitoring of these kinds of incidents, a systematic risk review of Credit Suisse's investment universe is conducted by Group Sustainability to flag potential business conduct violations. An internal committee consisting of stakeholders across Credit Suisse Group then assesses these violations and categorizes them based on whether the issue is systematic or not, that is, whether it is a single severe violation. One possible outcome of this assessment could be a recommendation for divestment.

In 2022, Credit Suisse Asset Management integrated an engagement step into this conduct violation review process to take an active approach to managing sensitive cases that pose a material risk to our assets. We believe this as an important step in the verification process to obtain information through direct exchange with the companies and corroborate the allegation claim directly with the companies themselves. The internal committee is then informed of the additional insights before a final decision regarding divestment is made.

The Active Ownership team discusses the matter with investee companies to ensure that efforts are being taken to comply with international norms and agreements (UN Global Compact, UN Declaration of Human Rights, or ILO labor conventions, to name just a few). During our initial discussions with the companies, we request confirmation of the allegation from the company itself. Subsequently, we try to ascertain whether the company is addressing or has already addressed these issues by putting appropriate measures and safeguards in place. This will ensure that a well-informed decision is made using all publicly available information when deciding whether to stay invested or to divest. Needless to say, we will continuously monitor the company's progress until we can ensure that all necessary measures have been implemented and a potential future violation can be mitigated.

Engagement interactions in 2022

ABB Ltd	Fair Isaac Corp.	Münchener Rückversicherungs-Gesellschaft AG
Accor SA	Galenica AG	Nestlé SA
Adecco Group AG	Emmi AG	Novartis AG
Alcon AG	Georg Fischer AG	Partners Group Holding AG
Alteryx Inc.	Grieg Seafood ASA	PSP Swiss Property AG
Amazon.com Inc.	HealthEquity Inc.	Rapid7 Inc.
Apple Inc.	HelloFresh SE	Salmar ASA
ASML Holding N.V.	Holcim AG	Shop Apotheke Europe N.V.
AstraZeneca PLC	Hypothekarbank Lenzburg AG	Siegfried Holding AG
Bakkafrost P/F	Idorsia Ltd	Sika AG
Baloise Holding AG	Inficon Holding AG	Software AG
Banca d'Italia	Innergex Renewable Energy Inc.	Straumann Holding AG
Banque Cantonale Vaudoise SA	Kerry Group PLC	Swiss Prime Site AG
Barry Callebaut AG	Kuros Biosciences AG	Swiss Re AG
Bunge Ltd	Leroy Seafood Group ASA	Swisscom AG
Cembra Money Bank AG	Liverperson Inc.	Swissquote Group Holding SA
Chocoladefabriken Lindt & Sprüngli AG	Logitech International SA	Sysco Corporation
Compagnie Financière Richemont SA	Lonza Group AG	Tassal Group Ltd
Credit Suisse Group AG	M3 Inc.	Tate & Lyle PLC
Dalata Hotel Group PLC	Marel HF	Transmedics Group Inc.
Dechra Pharmaceuticals PLC	Marriott International Inc.	Unilever PLC
Del Monte Pacific Ltd	Mediobanca Banca di Credito Finanziario S.p.A.	UT Group Co. Ltd
Dormakaba Holding AG	Meier Tobler Group AG	Vonovia SE
Drägerwerk AG & Co. KGaA	Metro AG	Zoetis Inc.
Dufry AG	Mobimo Holding AG	Zur Rose Group AG
Elanco Animal Health Inc.	Mowi ASA	Zurich Insurance Group AG

Industry associations

Euracoal
International Association of Oil and Gas Producers (IOGP)

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Outlook

Outlook

Further expansion of the Sustainable Investing team

Over the past two years, the Sustainable Investing team at Credit Suisse Asset Management has grown significantly, which has enabled us to further expand our active ownership activities. We not only substantially increased the coverage of our proxy voting activities, but we also added new themes as part of our individual and collaborative engagement. We will continue on this path in 2023 and further build up our expertise.

Dr. Christine Chow will join us from HSBC Asset Management as the new Head of Active Ownership and Managing Director on April 1, 2023. She was an Adjunct Professor of Finance at the Hong Kong University of Science and Technology and an Emeritus Governor of the London School of Economics and Political Science. Currently, she is an appointed advisor to the Hong Kong Accounting and Financial Reporting Council, the independent regulator of the accounting profession. Christine holds an undergraduate degree in Economics from the London School of Economics and Political Science and a PhD in Responsible Investment from the University of Melbourne. In 2022, she won Investment Week's Sustainable and ESG Investment Woman of the Year Women in Investment Award (large firms).

Also on April 1, 2023, Stephan R. Scharrer will become the new Head of Governance and Voting within Active Ownership. He will continue to lead the further expansion of the global proxy voting coverage across Credit Suisse Asset Management. On the engagement side, he will continue to drive our corporate-governance-related engagements.

Dr. Nisha Long will join us in January 2023 as the Head of Sustainability Research. She will join us from Citywire, where she led ESG and cross-border investment research. In 2022, she won a Rising Star Award for her work on gender diversity in the asset management industry. Nisha has a PhD in Chemical Engineering from Imperial College, London, and is an EFFAS Certified ESG Analyst (CESGA). She also holds a CFA UK Diploma in Investment Management (ESG) and the CFA Institute's Certificate in ESG Investing.

In addition to both Christine and Nisha, several other professionals joined the team in 2022. This ongoing expansion will allow us to broaden our proxy voting, engagement, and ESG integration activities. The following key developments are planned for 2023:

Proxy voting

Gender diversity at the board level (developed markets)

In cooperation with our stakeholders, we reviewed our current proxy voting methodologies and made further specifications, such as introducing a minimum requirement for gender diversity, adapting it to regional and country-specific best practices. Previously, we considered gender diversity to be the responsibility of the companies' BoDs, particularly of the nomination committee and its chairperson, but we acknowledged that the overall thin talent pool has not been beneficial to a hard-coded diversity rule. An analysis of our holdings revealed that a significant number of companies are still not taking diversity seriously enough, that is, there are too many companies with no diversity at all or a very low percentage of diversity. The lack of suitable candidates has been resolved over time, and we see a good (not minimal) level of diversity now becoming best practice. Therefore, we decided to address this topic now with a hard-coded minimum requirement.

Monitoring shareholder proposals on environmental and social topics

We continue to actively screen our small-cap holdings below the materiality threshold on the markets that we have been covering for environmental and social shareholder proposals. This allows us to analyze agenda items that will be submitted by NGOs and other investor groups and to support those that are aligned with the Credit Suisse Sustainable Investment Framework or our Climate Action Plan.

In 2023, we will expand our coverage by increasing the number of small caps analyzed to date in both emerging and developed markets. We will also expand our emerging market coverage this year, adding South Africa to the mix.

Engagement

The engagement activities conducted by the Active Ownership team will be aligned with the following key themes:

Thematic engagements on corporate governance

Our thematic engagement on corporate governance continues to focus on priorities established over the past few years. A new focus will be BoD gender diversity aligned with the requirements set in proxy voting. We will target the outliers that have no or very little board diversity. We will explain why we have addressed it in a hard-coded way. We aim to start a constructive dialogue with companies that do not follow best practices in order to discuss commitments and plans on how to increase board diversity. Our second new goal will be aiming to ensure the independence of BoDs and other crucial deliberative bodies, particularly audit and compensation committees. Finally, we will also continue to address our commitment to an appropriate compensation structure for executive management and BoDs. This includes the adoption of suitable incentive plans for their executive management members. We will not only build on existing engagements but also add new companies to our engagement efforts.

Climate change

The Climate Action Plan, published in December 2022, and the Net Zero Categorization Principles will guide our engagements with the companies that we believe can be encouraged to transition. Our engagement efforts will continue to be a mix of both individual and collaborative engagements. Going forward, we aim to include some of the largest carbon emitters in the fossil fuel sector in our engagement activities.

Biodiversity

In 2023, we will continue to engage with investee companies individually and in collaboration with peers. This includes engagement interactions with investee companies, but also with industry associations to ensure alignment between the position of investee companies and their respective industry associations. Regarding our collaborative engagement efforts, we will not only continue our existing work (see Collaborative engagements), but we will further expand it. In 2022, we joined the FAIRR Biodiversity Loss from Waste & Pollution collaborative engagement, which assesses biodiversity risks based on pollution. Regarding biodiversity in general, regulation standards and frameworks are rapidly changing. We therefore expect the standardization process to continue. We will continue to share our expertise to support this process.

Social – PRI Advance

We joined the PRI Advance initiative, which is a stewardship initiative on human rights and social issues that was launched in September 2022. Phase 1 of the engagements, scheduled to begin in Q1 2023, will focus on companies in the metals and mining and renewables sectors. Companies that we will engage with on this topic will be expected to: 1) fully implement the UNGPs – the guardrail of corporate conduct on human rights, 2) align their political engagement with their responsibility to respect human rights, and 3) deepen progress on the most severe human rights issues in their operations and across their value chains. For an overview of our collaborative engagements, see Overview of our engagement.

Business conduct violations

Companies that violated national or international law or standards pose a significant risk. For engagements on business conduct, Credit Suisse Asset Management engages on a number of cases. In addition, for 2023, we are also planning collaborative engagements, where possible, in order to join forces with other investors and have a stronger voice.

Responsible consumption and production

In 2022, we introduced the theme of responsible consumption and production. Within this theme, we continued our work on food loss and waste, and started working on antimicrobial resistance and hazardous chemicals. In 2023, we will focus on collaborative engagement. In terms of antimicrobial resistance, we will work with FAIRR with the aim of encouraging companies to disclose their approach to antimicrobial stewardship, including antimicrobial resistance mitigation efforts in key areas. We will be part of the "Investors Initiative on Hazardous Chemicals" (IIHC), an investor coalition that is launching collaborative engagements regarding hazardous chemicals. The IIHC is facilitated by ChemSec, a Swedish NGO with a long track record in chemical stewardship.

ESG integration

In 2022, the ESG Integration team implemented the EU Taxonomy of the EU Sustainable Finance Disclosure Regulation (SFDR). SFDR introduces further disclosure requirements for ESG integration. The directive requires financial market participants to ensure transparency regarding the Principal Adverse Impacts (PAIs) of investment decisions on sustainability. Active ownership is an important tool for meeting SFDR requirements. Of the 18 mandatory PAIs, for example, Credit Suisse Asset Management has extended its proxy voting policy to address biodiversity loss and board gender diversity. Further information on the relevance of active ownership in a regulatory context can be found on www.credit-suisse.com/esg.

Imprint

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