Zürcher Kantonalbank

Research Indirect real estate investments of Zürcher Kantonalbank

ESG Compass Real Estate

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Source: Zug Estates

ZKB Indirect Real Estate Investment Research

Ken Kagerer
+41 44 292 40 13
ken.kagerer@zkb.ch

Philippe Züger
+41 44 292 48 48
philippe.zueger@zkb.ch

Joel Knup
+41 44 292 37 38
joel.knup@zkb.ch

Holger Frisch (Credit Research)
+41 44 292 33 37
holger.frisch@zkb.ch

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1 Executive summary

Switzerland has set itself the goal of achieving a 50% reduction in carbon emissions by 2030 compared to 1990, and net zero by 2050. At a political and regulatory level, the Swiss financial centre and thus Swiss investors have an important role to play in this. Our ESG ratings are designed to help investors better assess the sustainability efforts of issuers. In this study, we present our sustainability analysis for the real estate assets covered by the Zürcher Kantonalbank research universe. We discuss the ESG assessment methods used and show how, in our opinion, various issuers perform in terms of ESG.

Our sustainability analysis takes qualitative and quantitative factors into account. Our approach takes into account not only the current situation, but also the measures taken by companies, fund management companies and investment foundations, and the expected development (trend). We apply a structured approach to assess issuers in terms of the environment, social aspects and corporate governance. We analyse four categories in each of the three subject areas in order to obtain a comprehensive assessment with regard to ESG. Since sustainability reporting for real estate companies is generally more extensive than for real estate funds and investment foundations, the findings on real estate companies are examined more closely in this report.

With this study, we are publishing our sustainability rating for a total of 56 domestic real estate issuers and unlisted Swiss real estate investment foundations. Our current coverage includes 14 real estate companies, 30 real estate funds and 12 real estate investment foundations. We carried out a comprehensive analysis of ESG factors for all issuers using our methodology and assigned an ESG rating.

Overall, our ESG ratings cover almost 100% of the market capitalisation of the listed Swiss real estate segment. Our ESG approach is to be understood as spanning all sectors; further information on other sectors can be found in the "ESG Compass Equities 2023" dated 14 December 2023 and the "ESG Compass Credit 2024" dated 24 January 2024.

A total of 14 issuers (25%) were rated with 4 out of a maximum of 5 stars. A further 41 issuers (73%) were rated with 3 stars and only 1 issuer (2%) with 2 stars. This shows a homogeneous distribution of ESG ratings in the real estate sector, with no strong positive or negative outliers.

The four major industry association representatives among the public limited companies – SPS, PSP, Allreal and Mobimo – stand out positively, each with a 4-star rating. In our opinion, Zug Estates is the industry leader in the ESG sector and is rated 4 stars.

More than two-thirds of the real estate companies we analysed currently have a sustainability certificate. Ratings such as the Global Real Estate Sustainability Rating ("GRESB"), the Carbon Disclosure Project ("CDP") or the Swiss Sustainable Real Estate Index ("SSREI") are applied. The latest guidelines from the Asset Management Association Switzerland ("AMAS") standardise the CO_2 measurements and reduction targets for real estate funds, making them easier to compare.

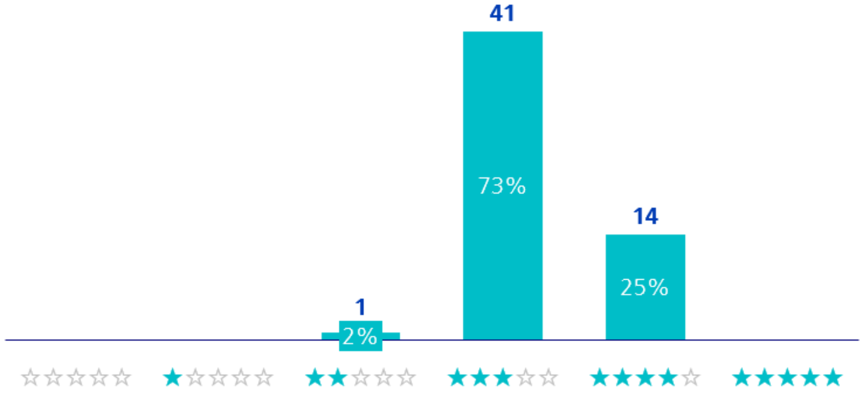
The vast majority of real estate companies have already published net zero targets. However, the majority of issuers analysed base their net zero targets on the Paris Agreement, which is why they principally set long-term targets for the year 2050.

2 ESG analysis results in the real estate sector

A homogeneous distribution of coverage can be observed across the entire real estate sector, with no extremely positive or extremely negative outliers. Across our entire coverage of 56 issuers, we do not rate any issuer with 5 stars. 14 issuers receive 4 stars (25% of all issuers). A further 41 issuers (73% of all issuers) receive 3 stars. Only 1 issuer (2% of all issuers) is currently rated with 2 stars. No issuer currently receives less than 2 stars.

We currently rate 56 issuers in the categories of real estate public limited companies, real estate funds and real estate investment foundations using our ESG approach

Figure 1: ESG rating distribution of analysed issuers



Source: Zürcher Kantonalbank

The analysed issuers receive 3.25 stars on average.

An average score of 3.25 stars results across our entire coverage, taking into account quantitative and qualitative aspects.

In the area of environmental ("E") the majority of the issuers analysed for the real estate public limited companies base their net zero targets on the Paris Climate Agreement, which is why they principally set long-term targets for 2050.

In the ESG rating distribution, it is noticeable that across our entire coverage, issuers tend to achieve the lowest scores on average in the area of governance ("G") and the highest scores on average in the area of social aspects.

In the area of social ("S"), many issuers have impressive results in the category of "health & working conditions" and in social commitment, added value & purpose. In general, the data situation for real estate public limited companies is better than for real estate funds and real estate investment foundations.

2.1 Real estate public limited companies

According to our analysis, the distribution of real estate public limited companies is homogeneous, with no extremely positive or extremely negative outliers. The four largest representatives of the sector among the public limited companies – Swiss Prime Site, PSP Swiss Property, Allreal and Mobimo – each have a 4-star rating and the sector leader Zug Estates also has a 4-star rating. Only one company is currently rated with 2 stars.

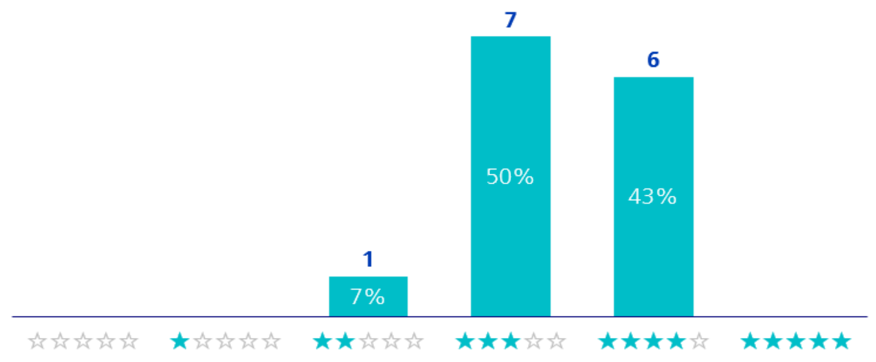
We have made four changes to our ESG ratings in the real estate sector compared to last year's publication of the ESG Compass Equities study. Fundamenta Real Estate AG, Intershop, Ina Invest and Warteck Invest were able to improve their ratings compared to the previous year, with all of them receiving an additional star. Fundamenta Real Estate AG was able to improve in the areas of social and governance. Ina Invest already performs well in the areas of environmental and social, and was able to improve even further thanks to additional quantitative data from external providers. Intershop and Warteck Invest also benefited from the improved quantitative data.

Figure 2: ESG rating distribution

Public limited companies	ESG rating
Allreal	★★★★☆
EPIC Suisse	★★★☆☆
Fundamenta Real Estate	★★★☆☆
HIAG	★★★☆☆
Ina Invest	★★★★☆
Intershop	★★★☆☆
Investis	★★☆☆☆
Mobimo	★★★★☆
Plazza	★★★☆☆
PSP Swiss Property	★★★★☆
SF Urban Properties	★★★☆☆
Swiss Prime Site	★★★★☆
Warteck Invest	★★★☆☆
Zug Estates	★★★★☆

Source: Zürcher Kantonalbank

Figure 3: ESG rating distribution – public limited companies



Source: Zürcher Kantonalbank

An average score of 3.12 stars results across our entire coverage of real estate companies, taking into account quantitative and qualitative aspects. Across our entire research universe of Swiss public limited companies, the average score is 3.48 stars, with only 5 companies (3.5% of all companies) achieving 5 stars.

In addition to environmental aspects such as emissions, waste and resource consumption as well as the health and safety of residents, the public limited companies we cover, such as Ina Invest, HIAG and Zug Estates, also take social issues into account when developing sites.

More than two-thirds of the listed Swiss real estate public limited companies we analysed currently have a sustainability certificate. GRESB ratings, the Carbon Disclosure Project or the Swiss Sustainable Real Estate Index ("SSREI") are used to assess sustainability performance.

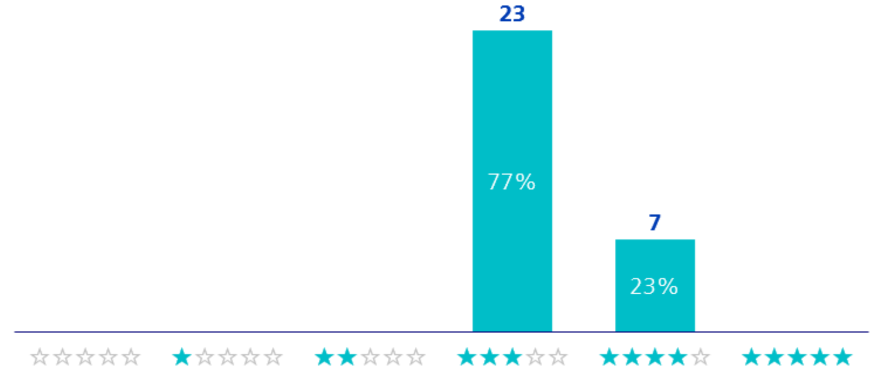
In the area of ESG reporting, 43% of the companies analysed already comply with the EPRA or GRI standards, thus helping to create transparency and comparability and making information on relevant industry topics accessible quickly and clearly.

Among real estate companies, 14% of issuers are at the initial stage of focussing on reducing emissions, while the vast majority have already published net zero targets.

2.2 Real estate funds

According to our analysis, the distribution of real estate funds is highly concentrated. Just under 80% of the real estate funds received 3 stars while seven funds achieved a 4-star rating (23%).

Figure 5: ESG rating distribution – real estate funds



Source: Zürcher Kantonalbank

An average score of 3.29 stars results across our coverage of real estate funds, taking into account quantitative and qualitative aspects.

Real estate funds are more heavily regulated than real estate public limited companies and are subject to special statutory regulations and supervision. Investment funds are generally regulated by the Swiss Financial Market Supervisory Authority ("FINMA") and the Federal Act on Collective Investment Schemes ("CISA"). With the CISA, the federal government aims to protect investors and ensure proper functioning and transparency of the market (CISA, Art. 1). Like other public limited companies, real estate companies are subject to the Swiss Code of Obligations ("CO") and the Stock Exchange Act ("SESTA"), provided they are listed on the Swiss stock exchange.

In contrast to most real estate companies, real estate funds report standardised key figures and detailed information on all real estate in the real estate schedule. In addition, there are generally no statutory leverage requirements for real estate public limited companies. The average loan to value ratio ("LTV") of real estate shares listed on SIX was around 40% at the end of 2023 (real estate funds around 22% at the end of 2023). The LTV of real estate funds is limited to a maximum of 33% (however, there are certain exceptions).

In the case of open-ended collective investment schemes, investors are entitled to the redemption of their units at the net asset value ("NAV"). In the case of contractual investment funds, units can be redeemed at NAV after a certain notice period at the end of the financial year.

In comparison to public limited companies, we believe that fund structures may be subject to inherent conflicts of interest due to the payment of the management fee by the investor, measured by the Total Expense Ratio Real Estate Fund Gross Asset Value; "TER REF GAV"), including with regard to the fund size.

The fund structure results in a 100% free float and typically a high level of investor diversification. In the case of open-ended collective investment schemes, which can be organised either as a contractual investment fund or as an investment company with variable capital ("SICAV"), we consider the participation rights to be below average compared to a public limited company. We assume that the interests of investors can be better represented in SICAV structures than in traditional fund structures. A fund in a SICAV structure (e.g. Bonhôte Immobilier, ERRES, Realstone) is a legal entity. Investors may participate in the general meeting and represent their interests

Figure 4: ESG rating distribution

Real estate funds	ESG rating
Baloise Swiss Property Fund	★★★☆☆
Bonhôte Immobilier	★★★☆☆
CS 1A Immo PK	★★★☆☆
CS Green Property	★★★★☆
CS Hospitality	★★★☆☆
CS Interswiss	★★★☆☆
CS LivingPlus	★★★★☆
CS REF LogisticsPlus	★★★☆☆
CS Siat	★★★☆☆
ERRES	★★★☆☆
Fonds Immobilier Romand	★★★☆☆
Immo Helvetic	★★★★☆
IMMOFONDS	★★★★☆
La Foncière	★★★☆☆
Patrimonium SREF	★★★☆☆
Procimmo 1	★★★☆☆
Realstone	★★★☆☆
Schroder ImmoPLUS	★★★☆☆
SF Retail Properties Fund	★★★☆☆
SF Sustainable Property Fund	★★★☆☆
Solvalor 61	★★★☆☆
Sustainable Real Estate	★★★☆☆
Swiss Life ESG Swiss Prop.	★★★☆☆
Swissinvest RE	★★★☆☆
UBS Anfos	★★★☆☆
UBS Direct Residential	★★★☆☆
UBS Direct Urban	★★★★☆
UBS Foncipars	★★★★☆
UBS Sima	★★★☆☆
UBS Swissreal	★★★☆☆

Source: Zürcher Kantonalbank

accordingly. In addition, the board of directors, which appoints the executive board, is elected by the annual general meeting.

The real estate funds perform their investor relations function well, but in our opinion lag behind the leading real estate companies.

2.3 Real estate investment foundations

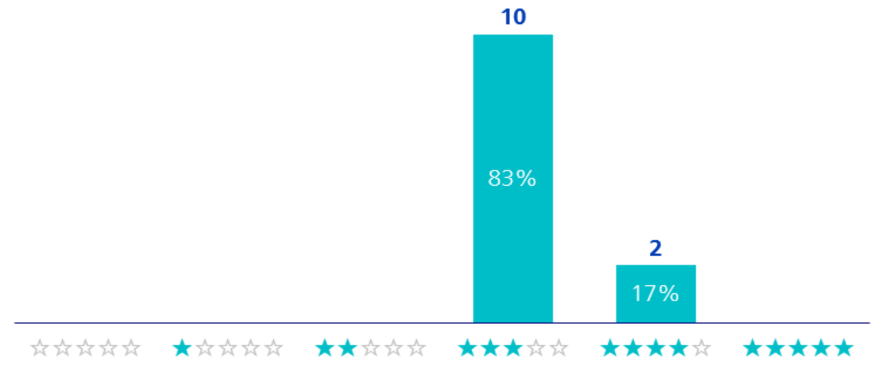
According to our analysis, the distribution of real estate investment foundations is very homogeneous, with around 83% of investment foundations having a 3-star rating. In our opinion, however, sustainability reporting is less transparent and comprehensive than that of real estate public limited companies.

Figure 6: ESG rating distribution

Investment foundations	ESG rating
AST Assetimmo Wohnen	★★★☆☆
AST Avadis Wohnen	★★★☆☆
AST Pensimo Casareal	★★★☆☆
AST Turidomus Casareal	★★★☆☆
CSA Real Estate Switzerland	★★★★☆
CSA Real Estate Switzerland Com.	★★★☆☆
SPA Immobilien Schweiz	★★★★☆
Swiss Life AST Geschäftsimmob.	★★★☆☆
Swiss Life AST Immobilien	★★★☆☆
UBS AST Immobilien Schweiz	★★★☆☆
UBS AST Kommerzielle Immob.	★★★☆☆
Zuerich AST Immobilien Wohnen	★★★☆☆

Source: Zürcher Kantonalbank

Figure 7: ESG rating distribution – investment foundations



Source: Zürcher Kantonalbank

An average score of 3.17 stars results across our coverage of investment foundations, taking into account quantitative and qualitative aspects.

Investment foundations are investment vehicles for professional and cost-effective collective investments for Swiss pension funds (pillars 2 and 3) and naturally more heavily regulated than public limited companies. They are subject to Swiss foundation law and the Occupational Pension Supervisory Commission ("OPSC"). In contrast to real estate shares and funds, units in investment foundations can only be acquired when the investment foundation is opened or by assignment. This means that there is no stock exchange trading in units, only a right of redemption or assignment.

The conservative risk profile of real estate investment foundations is evident in various areas. As with real estate funds, the maximum LTV is limited to 33%. At the end of 2023, the LTV of the investment foundations in our coverage averaged around 11% (vs. real estate funds: around 22%; vs. real estate public limited companies: around 40%). In addition, real estate investment foundations can be active in the development business to only a limited extent. For example, building land, buildings under construction and properties in need of renovation may not account for more than 30% of an investment group's assets. The market value of a property may not exceed 15% of the investment group's assets. Investment foundations are also obliged to maintain an appropriate level of liquidity in order to maintain solvency. In the long term, we therefore consider investment foundations to be less risky than real estate companies due to their conservative risk profile, but they also offer lower returns.

With regard to the governance of the investment foundations, we rate the participation rights as above average compared to real estate funds. There is an investors' meeting at which relevant issues are voted on.

Investor diversification is often below average for investment foundations. Every potential investor must first be accepted by the investment foundation. We consider the principal-agent conflict that exists in many investment foundations to be negative.

Compared to public limited companies, investment foundations may have inherent conflicts of interest with regard to the size of the investment group due to the compensation of the performance by the investor, measured by the Total Expense Ratio of the Gross Asset Value (TER GAV). The owners of investment foundations may be incentivised to constantly increase the assets under management (AuM) of the investment group, even if this is not in the best interests of the investment foundation's investors. Overall, we assume that investor interests can be better represented in real estate investment foundations compared to traditional fund structures, but we are of the opinion that there is a greater alignment of interests in real estate public limited companies.

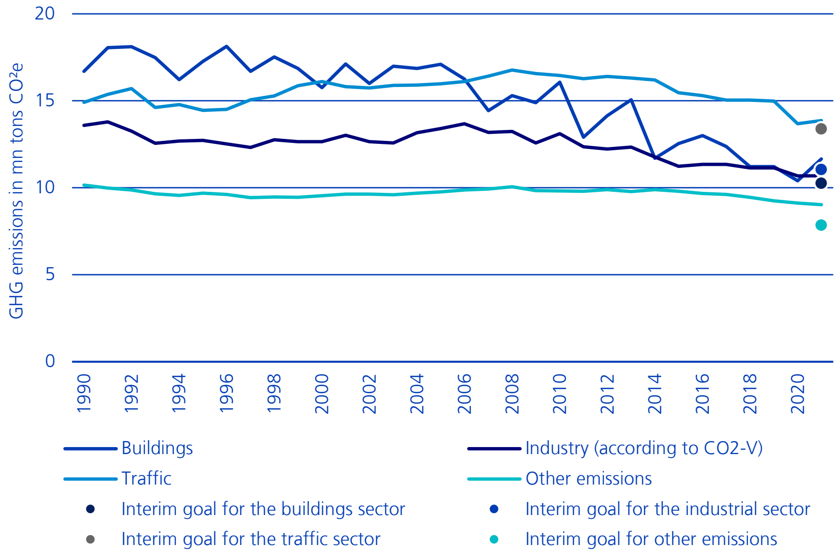
In the environmental area, Swiss real estate investment foundations are recommended to follow the recommendation of KGAST ("Konferenz der Geschäftsführer von Anlagestiftungen", conference of managing directors of investment foundations) titled "Umweltrelevante Kennzahlen für Immobilien-Anlagegruppen" (environmentally relevant key figures for real estate investment groups, not available in English). This is based on the "Environmental indicators for real estate funds" developed by AMAS and valid since 1 July 2022 and on AMAS Circular No. 06/2023 "Best practice regarding the environmental indicators for real estate funds". They include information on the degree of coverage, mix of energy sources, energy consumption (Scope 1 and 2), energy intensity, greenhouse gas emissions and the intensity of greenhouse gas emissions. KGAST recommends that real estate investment groups collect these key figures in accordance with the AMAS technical information and report them at portfolio level.

Overall, we consider the improvement of sustainability reporting for investment foundations to be particularly beneficial, as the investor relations function in the ESG area is significantly less extensive, especially in comparison to real estate public limited companies. In our view, investment foundations should therefore attach particular importance to sustainability reporting in order to stand out positively from the competition.

3 Sustainability in the real estate sector

Swiss building stock after construction accounts for about 26% of national greenhouse gas (GHG) emissions. This is partly because older properties were often not built with a view to reducing emissions, and are in many cases heated using fossil fuels such as oil or gas.

Figure 8: greenhouse gas emissions by sector



Note: "CO_2 Ordinance" is the Federal Council's "Ordinance for the Reduction of CO_2 Emissions"

Sources: BAFU, Zürcher Kantonalbank

Issuers on the Swiss real estate market are aiming to maintain long-term building quality and ensure the distribution of appropriate returns to investors based on careful use of non-renewable energy and climate protection. This is why many issuers have expanded their real estate investment policies and strategies and set binding sustainability targets.

The careful use of resources is increasingly being incorporated into planning right from the start of a project

For every construction project and refurbishment, issuers focus in accordance with their energy strategy on sustainable materials, improving energy efficiency and using renewable energy sources. The careful use of resources is increasingly being incorporated into planning right from the start of a project. Resource-saving potential is determined by means of material flow analysis, life cycle assessment or cost analysis. Where possible, the use of concrete is reduced and existing properties are preserved. To reduce dependence on fossil fuels, the industry is increasingly turning to district heating, photovoltaics and heat pumps, as well as improving energy efficiency in building shells.

The construction materials used in new buildings typically produce more greenhouse gases than they will do while operating on renewable energy over the next 50 years. The choice of building materials is therefore of particular relevance for the carbon footprint of new replacement buildings. If materials that have already been used are employed, the cycle is closed and embodied greenhouse gas emissions are reduced. More and more issuers are therefore orientating themselves towards the principles of the circular economy.

Construction projects are usually planned and implemented according to established sustainability standards

When it comes to existing real estate, issuers are focusing in particular on replacing fossil fuel heating systems and improving energy efficiency. They plan and implement most construction projects in accordance with established sustainability standards. Aspects of sustainability are thus incorporated into the entire investment process and implemented throughout the life cycle of the properties – from acquisition or new construction to refurbishment and ongoing operation.

Besides environmental aspects such as emissions, waste and resource consumption, and health and safety of residents, the issuers we analyse – such as Zug Estates, HIAG and Ina Invest – have also takensocial issues into account when developing sites. This includes the installation of parks and play facilities or the creation of a pleasant and lively atmosphere within the sites developed or to be developed.

In addition to environmental aspects, social issues are increasingly being taken into account in site development and in some cases also certified (SNBS-Areal)

Most of the real estate companies we analyse currently have a sustainability certificate. We use ratings such as the Global Real Estate Sustainability Benchmark (GRESB), the Carbon Disclosure Project or the SSREI Index to assess the sustainability performance of real estate investments worldwide. Swiss real estate issuers are endeavouring to use only green electricity in future. Furthermore, reduction targets for real estate portfolios are being continually tightened.

Thanks to new standards and the use of forward-looking technologies, issuers are confident of reducing the intensity of relative carbon emissions for their existing properties to net zero by 2050 under the Paris Climate Agreement and/or of being able to offset unavoidable emissions. About half of the companies we analysed in the real estate sector only record Scope 1 & 2 emissions at present, whereas Scope 3 emissions, which are responsible for the greatest share of emissions, are ignored.

Based on new standards and the use of forward-looking technologies, Swiss real estate companies are confident that they can reduce the intensity of relative carbon emissions to net zero by 2050, in accordance with current regulations

3.1 Political dimension of sustainability

In the last decade, the topic of sustainability has steadily gained in importance and is playing an ever greater role. At a political level, an important step was taken in September 2015 when the member states of the United Nations (UN) adopted the 2030 Agenda with 17 Sustainable Development Goals (SDGs). It expands on the principles of the UN Global Compact, which has been in existence since 2000, and deals with aspects such as human rights and environmental protection.

Switzerland has set itself the goal of achieving a CO_2 reduction of 50% by 2030 compared to 1990 and net zero by 2050

Switzerland aims to implement these goals as part of its 2030 Sustainable Development Strategy (2030 SDS). In December 2015, the 21st UN Climate Change Conference was held, at which the Paris Agreement was negotiated. It commits 195 UN member states to reducing greenhouse gas emissions in order to limit global warming to below 2°C compared to pre-industrial times. Switzerland aims to reduce its CO_2 emissions by 50% by 2030 compared to 1990 and to be climate-neutral by 2050. The remaining emissions are due to be offset with negative emission technologies.

The EU is pursuing similar goals: The European Green Deal, which was adopted in 2019, aims to make Europe the first continent to achieve climate neutrality by 2050. With the EU Taxonomy Regulation, the EU Commission has created a framework to classify "sustainable" economic activity in a generally applicable way within the EU. However, in the context of promoting Western independence from Russia, both the EU Commission and the EU Parliament adopted a delegated act in July 2022 to include fossil natural gas and nuclear power in the EU Taxonomy.

The 28th UN Climate Change Conference took place in Dubai from 30 November to 13 December 2023. Representatives from 197 countries spent two weeks discussing environmental and climate protection. After lengthy debates, a final declaration was agreed, which contains the following key points:

– In the resolution, the global community agreed on a "transitioning away" from fossil fuels. At least on paper. However, there is no commitment to a "clear phaseout" in the document.
– Renewable energy capacities are to be tripled by 2030 and energy efficiency is to be doubled.

28th UN Climate Change Conference in Dubai: The conference lasted longer than planned due to the dispute over the phaseout of fossil fuels. The final document agreed on "transitioning away" from fossil fuels instead of a "phaseout"

– Countries in the Global South can expect support in future if they are affected by climate damage such as floods, droughts and storms. Several countries pledged funds. A total of around USD 800 mn was collected.

3.2 Influence on the Swiss financial centre

Sustainable development in Switzerland is set out as a national objective in the Swiss Federal Constitution

Sustainable development is in general not a voluntary task for the federal government or the cantons. Article 2 ("Aims") of the Swiss Federal Constitution declares sustainable development to be a state aim. Sustainability is increasingly influencing the Swiss financial market. Making a name for itself as a competence centre for sustainable investments can be seen as an opportunity to open up fresh prospects for the Swiss financial centre. In comparison to 2020, the volume of sustainable investments across Switzerland rose by 30% in 2021 to just under CHF 2,000 bn. From the end of 2021 to the end of 2022, however, the volume in the field of sustainability fell by 19% to CHF 1,600 bn. The decline can be explained by several factors, including the negative market performance in 2022 (Swiss Leader Index Total Return -16.5%), the stricter definitions of the investors surveyed, and lower reported volumes for asset owner stewardship approaches. Similar to last year, the volume of sustainability-related funds corresponds to around 52% of the entire Swiss fund market.

The Swiss Climate Scores are intended to ensure greater transparency and comparability between financial investments in terms of their climate friendliness

Financial market participants resort to ESG classifications most frequently when choosing their investments. Switzerland, however, has so far lacked specific regulatory requirements for sustainability-related financial products and services. This increases the risk that clients and investors will be misled about the sustainable characteristics of financial products and services (so-called greenwashing). For this reason, the Federal Council launched the Swiss Climate Scores in June 2022, which are intended to ensure greater transparency and better comparability between financial investments in terms of their compatibility with international climate targets.

The Federal Council in 2020 presented a report on sustainability in the financial sector and unveiled guidelines to ensure that the Swiss financial market remains a leading location for sustainable financial services. It is envisaged that the Swiss financial industry will remain competitive internationally in the future and continuously improve its position. This is to be achieved in part by exploiting the potential that lies in the green fintech sector and through effective sustainability contributions by financial market players.

Swiss pension funds, insurance companies, banks and asset managers have the opportunity to create transparency about their investments by participating in the climate impact tests that are offered by the Federal Office for the Environment (FOEN) and the State Secretariat for International Finance (SIF). In addition, the Federal Council's report calls for new standards for the financial industry. The Federal Department of Finance (FDF), in collaboration with the Federal Department of the Environment, Transport, Energy and Communications (DETEC), the Federal Department of Economic Affairs, Education and Research (EAER) and FINMA, is currently examining amendments to financial market law to prevent greenwashing. As long as the law has not yet been amended, the Federal Council appeals to the industry to follow the measures taken so far.

When greenhouse gas emissions are put next to wealth creation, Switzerland is the most efficient country in the world

Switzerland's international standing in terms of sustainability is discussed in detail in the literature. On the one hand, the amended CO2 Act was rejected in June 2021. The new law would have provided for a 50% reduction in Switzerland's greenhouse gas emissions by 2030 compared to 1990 levels. The rejection makes it more difficult to achieve the emissions targets. On the other hand, the Global Sustainable Competitiveness Index (GSCI) ranks Switzerland in third place in 2021, as an efficient use of resources and good living conditions have a very positive impact. Switzerland is in a comparatively good position internationally thanks to its large share of value added in service industries and the country's largely decarbonised electricity generation.

3.3 Reporting obligation for public limited companies

Swiss companies, e.g. those with more than CHF 40 mn in revenue, must declare their carbon emissions as of FY 2024

Swiss companies and investors are facing numerous changes both now and in the future regarding sustainability reporting. Although a sustainability-related popular initiative (For responsible businesses – protecting human rights and the environment (RBI)) failed in November 2020, the Swiss Parliament's indirect counterproposal came into force as a consequence. This law contains several stipulations, including a reporting obligation for non-financial matters of large companies (with at least 500 full-time employees, total assets of at least CHF 20 mn or revenue of at least CHF 40 mn) and a due diligence obligation (regarding minerals and metals from conflict areas and child labour). The new provisions for a better protection of people and the environment have been enshrined in the Swiss Code of Obligations and have been applicable since 1 January 2022. The law gives companies one year to adapt to the new obligations. They will therefore be applied for the first time in the 2023 financial year.

Disclosure obligations will apply from 2024 in the following three areas:

- **ESG reporting incl. CO_2 targets**
- **due diligence obligations**
- **climate reporting in accordance with the TCFD**

The Federal Council adopted the Ordinance on Climate Disclosures at the end of November 2022 and brought it into force as of 1 January 2024 (one year later than originally planned). Reporting is required for the first time on the 2024 financial year. This Ordinance specifies disclosure obligations in three areas: a) non-financial reporting on environmental and social matters, employee issues, human rights and corruption; b) due diligence obligations on child labour and conflict minerals; and c) climate reporting in accordance with the guidelines set out by the Task Force on Climate-Related Financial Disclosures (TCFD) on governance, strategy, risk management, key figures and targets.

The new regulations clarify some reporting obligations, but also leave details open. A transition plan comparable with the Swiss climate goals must be presented. This plan must include transition risks, quantitative CO2 targets and GHG reduction measures. Information must be provided on all greenhouse gas emissions along the entire value chain, i.e. including Scope 3 emissions. According to the principle of double materiality, two perspectives must be provided so that stakeholders have a more comprehensive picture. First, the report should disclose the financial risk to which a company is exposed due to climate change. Second, the impact of a company's business activities on the climate should be highlighted.

The ISSB framework (IFRS), which was finalised in mid-2023, aims to create a standardised global disclosure framework that consolidates existing reporting standards and avoids duplicate reporting. Switzerland is striving for regulatory harmonisation with the Corporate Sustainability Reporting Directive (CSRD).

3.4 High reporting costs for smaller issuers

Not all issuers have the same publication obligations, as not all are listed on the stock exchange. Our analysis admittedly indicates that a large proportion of Swiss listed real estate companies currently measure their emissions, but small and mid-sized public limited companies often lack the resources to comply with the EU Disclosure Regulation (SFDR) and the standards required by ESG rating agencies. The collection (especially of Scope 3 emissions) and analysis of data and the preparation of comprehensive ESG reporting can be very time-consuming and costly.

Creating a comprehensive ESG report is very time-consuming and costly

In addition, significantly more ESG data (from relevant rating agencies) are available on large-cap companies than on small-cap companies. The risk of distortion in interpretation and language barriers, specifically the lack of reports in English, can play a role too.

Most ESG ratings available in the market rely on methodologies that perform an absolute evaluation of the data. If the information was not found, no points are awarded and the field is given the minimum score on the scorecard. This leads to distortions in the ESG ratings in terms of market capitalisation. Although the relevant rating agencies are aware of this fact, it is not easy to change the methodology or adapt it for smaller companies.

We take into account the resource constraints of many SMEs with regard to ESG reporting and offer added value for investors with our analysis regarding such companies in particular

We are aware of the resource constraint for smaller companies and some real estate funds and investment foundations in terms of ESG reporting and take this into account in our ESG analysis. As we have the largest real estate coverage in Switzerland, we want our ESG rating to be a source of assistance and substantial added value for investors. To this end, we analyse annual and sustainability reports written in several languages. We also seek direct exchange with representatives of the issuers. We believe it is important that smaller issuers have recognised the need for action and are taking initiatives, at least to the extent possible, and are working on detailed ESG reporting.

It is important that smaller companies have recognised the need for action and are taking initiatives, at least to the extent that they are able, and are working on detailed ESG reporting

3.5 Minimum requirements and transparency for real estate funds

Investments in sustainable Swiss financial products continue to increase, according to FINMA. Swiss funds must therefore ensure sufficient transparency. To strengthen investor confidence in the Swiss financial centre, AMAS and Swiss Sustainable Finance (SSF) have issued recommendations on minimum requirements for sustainable investment products. The Recommendations on Minimum Requirements and Transparency for Sustainable Investment Approaches and Products focus on sustainable products developed by the fund and asset management industry and distributed to investors by financial service providers. They define minimum criteria for sustainable investing, as well as minimum requirements for investor information and investment approaches that best meet investors' objectives.

For real estate funds, there are recommendations on minimum requirements and transparency for sustainable investments

In future, Swiss property funds will report their environmentally relevant key figures on a standardised and broad-based database. AMAS has expanded its corresponding best practice in this regard and thus aims to achieve better standardisation and comparability of Swiss real estate funds in terms of environmental and climate compatibility. A standardised calculation basis, such as that being pursued by the Real Estate Investment Data Association (REIDA), should further increase comparability. On 31 May 2022, AMAS published the first environmentally relevant key figures for Swiss real estate funds with the aim of increasing transparency and comparability for investors. AMAS recommends the immediate application of best practice on environmental indicators for all real estate funds. Application is mandatory in all annual reports of Swiss real estate funds from 31 December 2024.

Application is mandatory in all annual reports of Swiss real estate funds from 31 December 2024.

4 Widespread ESG standards in the real estate sector

Worldwide, there are currently over 600 different standards, initiatives, frameworks and guidelines on sustainability reporting. It is obvious that this variety is not conducive either to the development of a common understanding of sustainability, or to transparency. On a positive note, there are already numerous collaborations in place with the aim of standardising sustainability reporting. The Global Reporting Initiative (GRI), for example, entered into a collaboration with the IFRS Foundation in 2022. Under this collaboration, their projects and activities will be coordinated in the future. This coordination will help to harmonise reporting and reduce the workload for companies. In addition, the GRI has been working with the European Reporting Advisory Group (EFRAG) since 2021 to develop a common European framework. EFRAG is responsible for the development of the EU CSRD, with the GRI fulfilling a supporting function. In addition to voluntary sustainability standards, there is also an increasing trend towards regulatory requirements such as the EU's Corporate Sustainability Reporting Directive (CSRD).

Among the plethora of sustainability reporting standards, GRI, GRESB and EPRA sBPR are particularly widespread among Swiss real estate companies

Nevertheless, voluntary sustainability standards are still very relevant for Swiss real estate companies. In addition to the GRI standards, the GRESB rating and the European Public Real Estate Association Sustainability Best Practices Recommendations (EPRA sBPR) are also widely used in the real estate sector. While large players usually have the necessary resources to apply several sustainability standards, detailed sustainability reporting is particularly challenging for smaller companies and organisations. Some of the most relevant sustainability standards in the real estate sector are examined in more detail below.

The SSREI Index was launched to map the sustainability profile of existing Swiss properties, to standardise a corresponding assessment that enables transparency and comparability in this respect and to provide the market with an important benchmark.

4.1 GRI Standards

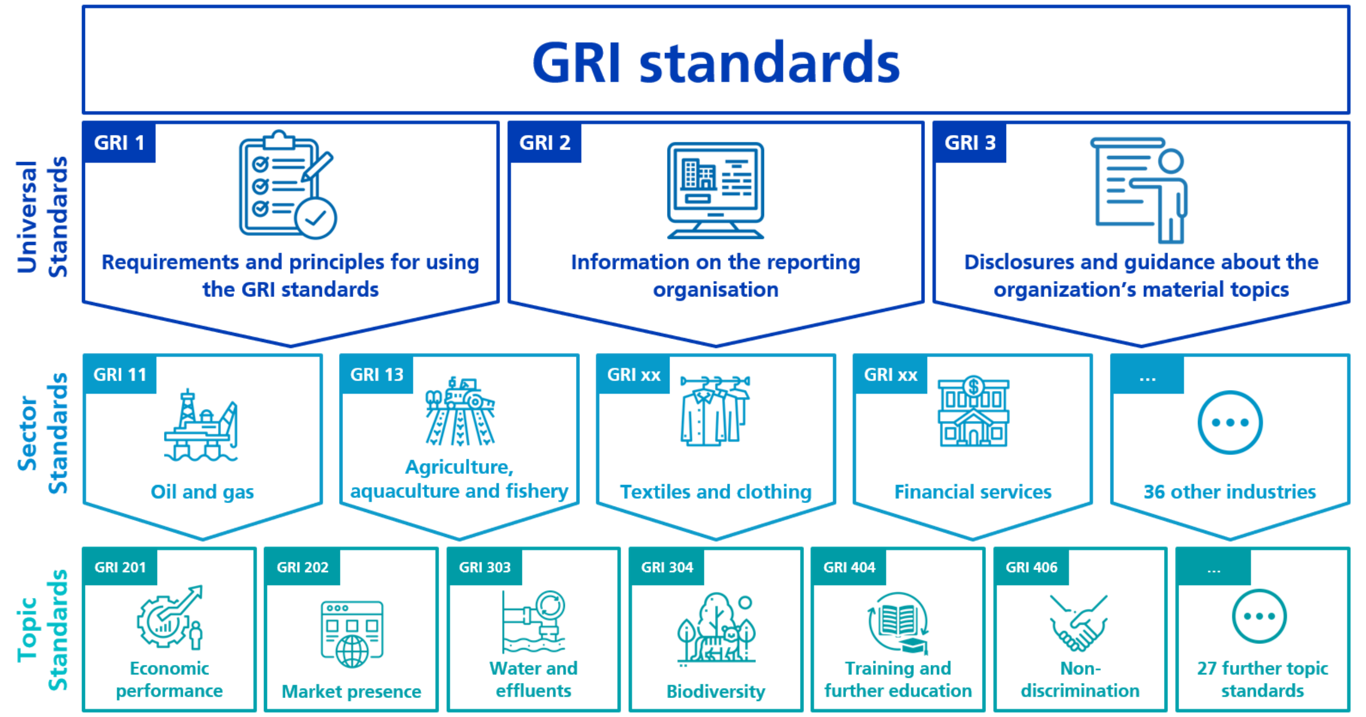
The aim of the GRI Standards is to create transparency; to offer companies, governments, investors, employees and the interested public a decision-making and orientation aid for investments; to make organisations comparable with each other in terms of sustainability; and to support sustainable development. The GRI Standards are in line with internationally recognised guidelines for responsible business conduct, such as the UN Guiding Principles on Business and Human Rights, the ILO conventions and the OECD Guidelines for Multinational Enterprises.

The GRI Standards have established themselves as the leading standard for sustainability reporting across all sectors in Switzerland

GRI has established itself as a cross-industry sustainability reporting standard. It serves as a basis or supplement for other standards and is therefore well established. The GRI Standards are applied by more than 10,000 organisations in over 100 countries. According to a study by KPMG, 78% of the G250 used the GRI Standards in 2022, making them the most widely used sustainability standard worldwide. The GRI Standards are also applied on a cross-sector basis in the Swiss financial centre. A survey conducted by the Swiss Business Council for Sustainable Development (öbu) for the 2021 financial year revealed that 75% of the 151 (predominantly listed) analysed Swiss companies reported pursuant to GRI Standards, compared to 59% in 2017. Among the SPI companies we analysed, 76% applied GRI Standards in 2023. In this respect, though, the published sustainability report is not part of the annual financial statements for the vast majority of Swiss companies. Even so, increasing efforts to integrate sustainability reporting into financial reporting on a mandatory basis (the Integrated Reporting framework), including by the International Accounting Standards Board (IASB), indicate a trend reversal.

The latest GRI Standards have been in force since 1 January 2023 and are to be understood as a sequence of interlinked standards (universal, industry and topic standards).

Figure 9: Structure of the GRI Standards



Source: GRI, illustration by Zürcher Kantonalbank

In contrast to financial reporting, sustainability reporting in accordance with GRI Standards is still not subject to a legal obligation to apply specific standards. However, any organisation reporting in accordance with GRI Standards must comply with the three universal standards (GRI 1–3).

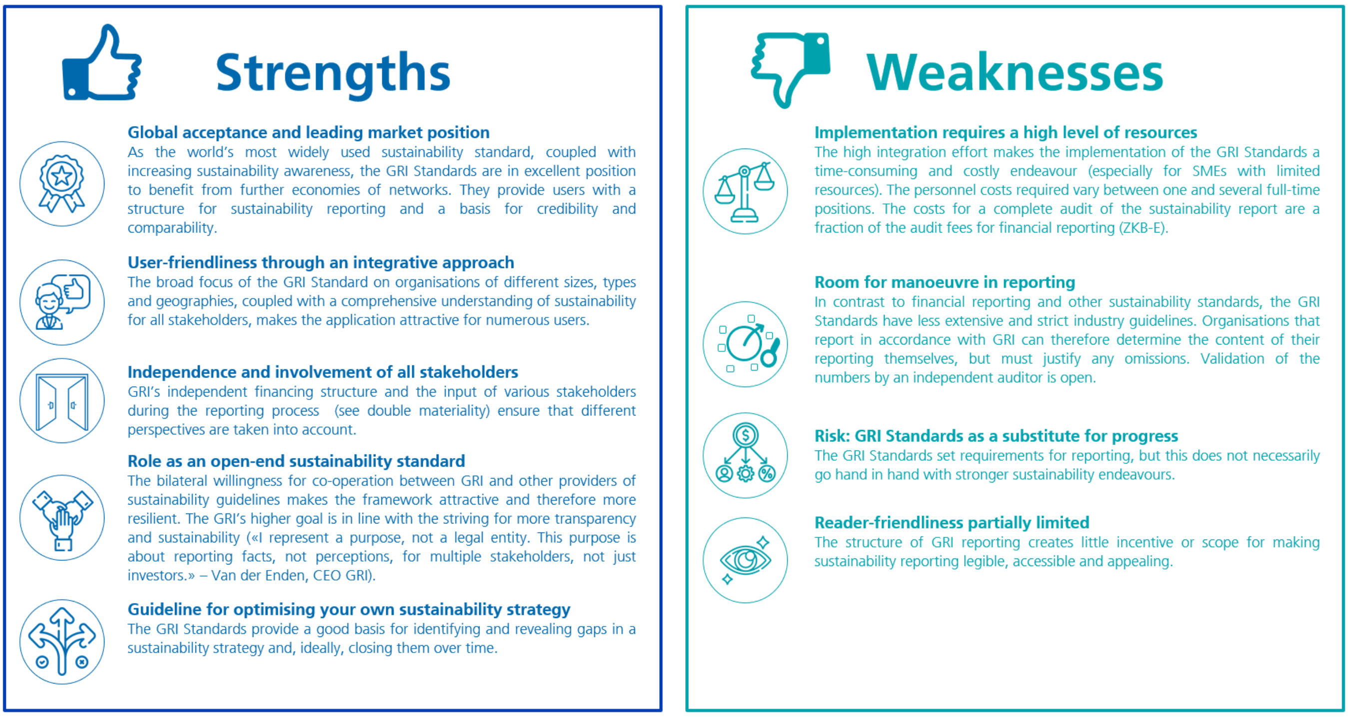
– GRI 1 explains the key concepts, requirements and reporting principles that organisations must follow in order to report "in accordance with" GRI Standards.
– GRI 2 contains guidelines on several topics, including the disclosure of internal company reporting practices, the handling of risks and the involvement of stakeholders. This standard aims to create greater transparency about an organisation's business practices.
– GRI 3 provides a framework for determining the materiality of a topic for sustainability reporting. In this context, the guiding principle of double materiality should be mentioned in particular. Under this principle, the more important a topic is for both the organisation itself and its stakeholders, the more comprehensively it should be presented in sustainability reporting.

The GRI Standards are to be understood as a sequence of universal, sector and topic standards in which the topics relevant for reporting are determined by means of a materiality analysis

GRI's industry standards (GRI 11 to GRI 50) require reporting organisations to apply the applicable industry standards if they are already available. Industry standards support organisations in identifying the most relevant issues for the industry in terms of sustainable development. These are issues which stakeholders expect to be examined more closely. Precise explanations of these industry-relevant topics are recommended, but are not mandatory. At the same time, the application of industry standards does not exempt organisations from determining the key issues themselves based on their own specific situations.

The 33 topic standards are divided into three series that belong to the ESG spectrum: GRI 200 (economic topics – G), GRI 300 (environmental topics – E) and GRI 400 (social topics – S). If an individual topic is considered material, the corresponding topic standard contains helpful information and detailed reporting requirements. However, topics that are not relevant to the organisation's ESG impact do not have to be disclosed.

Figure 10: Strengths and weaknesses of GRI-based reporting from Zürcher Kantonalbank's perspective



Source: Zürcher Kantonalbank

It is likely that the increasing transition from voluntary sustainability reporting to mandatory reporting will lead to the emergence of a global sustainability standard in the near future. The GRI's collaborations and current studies suggest that the existing GRI principles will be integrated into the statutory sustainability standards. It is unclear, however, which role the GRI will play in this and whether there will still be a need for voluntary standards such as those of the GRI in the future. Studies, such as the research conducted by de Villiers et al. (2022), argue that the GRI Standards, which are characterised by double materiality (2 pillars: shareholder and stakeholder perspective), will continue to exist in the future, whereas statutory standards and the ISSB will take into account primarily the interests of investors (shareholder perspective). In addition, the GRI requirements benefit from their established position and legitimacy resulting from their increasing acceptance over the last 20 years.

4.2 EPRA Sustainability Best Practices Recommendations

The standards applicable to the real estate sector include not only the frequently selected GRI Standards, but also the EPRA standards, provided that the respective company's reporting is in accordance with IFRS. The EPRA standards contain sustainability KPIs, definitions, topics and justifications that are based on the GRI Standards and the CRESD (Construction and Real Estate Sector Supplement Disclosure) guidelines. In the real estate sector, the application of GRI Standards or EPRA standards is a prerequisite for achieving more than 2 points in the reporting category.

The European Public Real Estate Association (EPRA) is a non-profit association representing European listed real estate companies. Its main task is to increase the understanding and transparency of this sector. That should make it more accessible to investors and analysts and thus strengthen it. It primarily achieves this by publishing and updating the EPRA Best Practice Recommendation Guidelines (EPRA BPR), which also include the Sustainability Best Practice Recommendations (EPRA sBPR).

These recommend a European standard in reporting by real estate companies, which has applied from the 2020 reporting year. The guidelines define and explain material KPIs that real estate companies should include in their annual reports. The six EPRA performance measures are not to be included as part of the audited annual financial statements, and are instead generally to be reported in the front section of a company's annual report. In addition, the guidelines also provide recommendations for reporting on valuations, investment assets, development activities, rental income, investments, etc. Real estate companies that adopt the EPRA recommendations must adhere to all recommendations or provide an explanation for their non-compliance. Companies that best implement these standards also have the chance to win the Best Practice Award, which is presented annually by the EPRA together with Deloitte.

Unlike the GRI Standards, the EPRA sBPR are not applicable to the real estate sector. They are generally less flexible and the key figures are more strictly defined, which in turn increases the comparability of real estate companies

Compared to the GRI Standards, the EPRA sBPR differ in particular in their focus on the European listed real estate sector, the provision of clear, comparable key figures for improved comparability, and the relatively strict definitions of real estate-specific indicators. In contrast, the GRI Standards are global and cross-sectoral, and provide a comprehensive framework for reporting on a wide range of sustainability topics. They are also more flexible on the whole, however, which is probably one of the main reasons for their widespread use.

The real estate stock corporations we analysed that meet the EPRA sBPR standard are PSP Swiss Property, Swiss Prime Site and Mobimo. It is not possible for HIAG to fulfil the standard because it reports under Swiss GAAP FER. HIAG's reporting, however, also discloses the details required by the standard.

PSP Swiss Property, Swiss Prime Site and Mobimo fulfil the EPRA sBPR standard

4.3 Global Real Estate Sustainability Benchmark

The GRESB standard is a rigorous and independent framework for assessing the ESG performance of real estate funds and companies. Founded in 2009, the GRESB rating is a joint initiative of major institutional investors, real estate companies and renowned academics and universities. On the one hand, participants should be given the opportunity to identify those areas in which they can improve their sustainability performance. On the other hand, the GRESB rating provides real estate investors and banks with useful information to closely monitor and manage the sustainability risks of their portfolios and prepare for increasingly stringent ESG obligations. Participating companies are provided with annual surveys on topics such as energy and water consumption, waste and carbon emissions as well as the treatment and training of employees. These involve a great deal of administrative effort, which is a major hurdle for many smaller real estate funds and companies when it comes to using the GRESB. There is also time pressure associated with acquiring a GRESB rating, especially because the GRESB reporting period is limited to the time from 1 April to 1 July each year. The GRESB Real Estate Scoring Document gives an impression of the scope of this survey.

GRESB's ESG assessment methodology for real estate funds and companies is based on a number of different components:

The GRESB rating is shown for existing properties (standing investments) and development properties (developments), and ranges from a minimum of 0 to a maximum of 100 points.

- Management components measure a company's sustainability strategy, the guidelines and processes, risk management and the approach to stakeholder involvement.
- Performance components measure the ESG performance of the real estate portfolio and therefore include aspects that are assessed at the level of individual real estate portfolios. These include energy intensity, greenhouse gas intensity, water consumption, tenancy, data monitoring and verification, and building certifications.
- Development components measures a company's efforts to take ESG aspects into account in the planning, construction and renovation of buildings. These

components are therefore particularly suitable for organisations involved in new construction projects and/or major renovation projects. The development components include aspects such as construction requirements, building materials, building certifications, energy consumption, stakeholder involvement etc.

Finally, the Standing Investments (existing portfolio) and Developments (development portfolio) categories are given a score from 0 (worst ESG score) to 100 (best ESG score), which is then translated into the widely used one-star to five-star rating.

GRESB participants: HIAG, Ina Invest, Intershop, Mobimo, PSP, SF Urban and Swiss Prime Site

Among the real estate companies we analyse, HIAG, Ina Invest, Intershop, Mobimo, PSP, SF Urban Properties and Swiss Prime Site meet the requirements of the GRESB standard.

In contrast to financial reporting, no external audit of the sustainability report is required. We generally recommend that companies use an external auditor for their sustainability reporting, especially as this, in addition to ratings such as the GRESB, significantly increases the credibility of the reporting.

4.4 Swiss Sustainable Real Estate Index

The SSREI Index was launched in June 2020 with the aim of creating transparency and market comparability for real estate portfolios (real estate funds, real estate stock corporations, investment foundations and pension funds) in terms of their long-term value. The SSREI tools make it possible to estimate the potential for improvement and the associated investment that is required. The aim is to incentivise owners to adapt their properties to the increasing relevance of sustainability requirements in a timely and cost-effective manner.

The index is based on a clearly defined matrix of requirements, the structure and content of which are based on the Swiss Sustainable Building Standard ("SNBS"), the official and publicly accessible standard of Energy Switzerland. A prerequisite for inclusion in the SSREI is verification (external assurance) by an independent auditor in order to guarantee security and credibility vis-à-vis the market. One of the world's leading certification bodies, the listed Swiss company SGS, was engaged for this purpose. As a long-standing SNBS certification body, SGS has a proven track record in the field of sustainable property management.

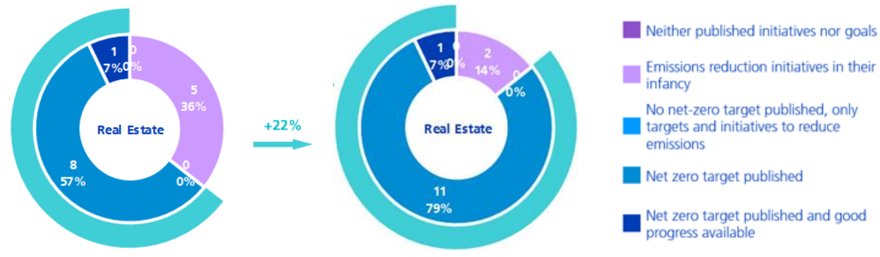
GRESB has recognised the SSREI since 2022, in particular for portfolio certification and portfolio analysis as well as for other thematically overlapping requirements.

5 Carbon reduction path and emissions offsetting

As part of our analysis, Swiss real estate companies were assessed in terms of their carbon reduction path towards net zero and the credibility of the implementation measures published in this regard. The result of our analysis shows that net zero targets in the real estate sector have become even more important from the 2022 financial year to the 2023 financial year. As of the end of 2023, 86% of Swiss real estate companies have already published net zero targets.

Almost all Swiss real estate companies have already published net zero targets as of the end of 2023.

Chart 11: Real estate companies' net zero targets, 2022-2023



Sources: corporate reports, Zürcher Kantonalbank

5.1 Recording carbon emissions

The identification of a company's own greenhouse gas volumes and the respective emission sources, and the associated data collection, form the basis for an effective and credible reduction in emissions. When collecting data and calculating greenhouse gas emissions, most companies in Germany, Austria and Switzerland (the DACH region) follow either the DIN ISO 12062-1 scheme or the Greenhouse Gas Protocol corporate standard (GHG Protocol), which divides carbon emissions into three groups (Scopes 1 to 3) (see *chart below*).

Scope 1 comprises directly caused emissions, Scope 2 emissions from purchased energy, and Scope 3 indirect emissions.

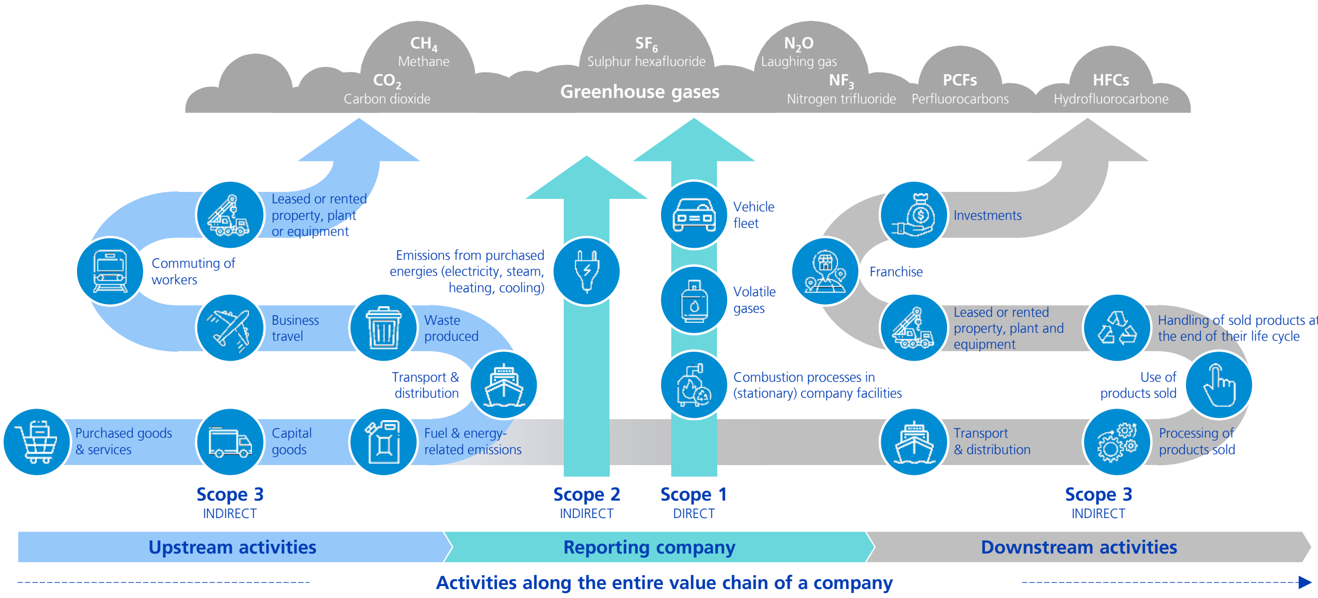
– **Scope 1:** Direct emissions from sources owned or covered by the company (e.g. operation of the company's own boiler or vehicle fleet).

– **Scope 2:** Emissions from purchased energy (e.g. the company's own electricity consumption, heating, cooling, etc.). If the company itself generates the electrical energy used, then this electricity is not attributed to Scope 2, but the fuel used is accounted for under Scope 1 (direct emissions).

– **Scope 3:** Indirect emissions from activities not directly caused by the company (e.g. from commuting, business travel, orders or waste management).

Once the company has compiled these data, they are converted into carbon equivalents. These tell where and what level of emissions are caused. Over a multi-year period, this analysis provides an indication of the company's sustainable management. The net-zero standard covers the emissions from a company's entire value chain, including emissions generated by its own processes (Scope 1), purchased electricity and heat (Scope 2), and by suppliers and end consumers (Scope 3). Most companies will require a comprehensive decarbonisation of 90-95% to reach net zero in accordance with the SBTi standard. There are three main avenues available to companies in order to achieve this: emissions avoidance, emissions reduction and emissions offsetting. In the following, we discuss in greater depth the concept of emissions offsetting as a supplement to avoidance.

Figure 12: Emission categories according to the Greenhouse Gas Protocol



Note: Colouring according to different scope categories

Source: EnergieAgentur.NRW, Zürcher Kantonalbank

5.2 Emissions offsetting and CO_2 markets

The core idea of emissions offsetting is to offset unavoidable greenhouse gas emissions (or emissions that would be costly to reduce) in one place by making equivalent and economically more favourable savings elsewhere. In this way, emissions are to be reduced by market forces, as it is not important for the global climate where exactly the CO_2 reduction takes place. Emissions offsetting projects enable companies to achieve emissions reductions without considerable expense. They are particularly an option if reducing emissions is technologically very difficult, very costly or even impossible.

Ideally, when offsetting emissions, greenhouse gas emissions that are difficult to avoid in one place are offset in another place on more favourable economic terms.

In practice, emissions are offset mainly in two carbon markets: Compliance Carbon Markets (CCMs) and Voluntary Carbon Markets (VCMs). CCMs, which are mandatory for some companies, have an estimated market volume of USD 260 bn. That makes them much more important for emissions offsetting than VCMs with USD 1 to 2 bn. Experts expect, however, that VCMs will grow much faster over the coming years, as many organisations will eventually also have to rely on voluntary offsetting to achieve their ambitious net zero targets. Prices in CCMs are higher on average than in VCMs, especially as the demand for emission allowances is supported by the statutory obligation.

In practice, emissions are offset mainly in the following carbon markets:
- **Compliance Carbon Markets (CCMs)**
- **Voluntary Carbon Markets (VCMs)**

CCMs are marketplaces created and regulated by regional, national or supranational governments to enable market participants to achieve their emissions targets efficiently and cost-effectively. CCMs function via market mechanisms that incentivise emission reduction through transfer payments between high-emissions and low-emissions market participants. They are legally binding for participants. The best-known and most comprehensive emissions trading system is the EU Emissions Trading System (EU ETS), to which the Swiss Emissions Trading System (CH ETS) has also been linked since 2020. It obliges organisations whose activities generally cause substantial or very substantial emissions to participate in emissions trading. In Switzerland, with a few exceptions, these are companies from high-emissions sectors defined by the federal government, including the cement, steel, aluminium, glass, insulation and refinery sectors. There is also the option of voluntary participation, which is known as "opting in". Generally speaking, however, the mandatory Swiss emissions trading system is currently relatively insignificant for real estate companies. A list of participants in the CH ETS can be found in the Swiss Emissions Trading Registry.

VCMs are used by organisations, NGOs and private individuals worldwide to voluntarily offset their own emissions by purchasing emission compensation certificates. Each certificate represents the reduction, avoidance or removal of one tonne of CO_2 from the atmosphere. A recent study of 24 international corporations, which together account for 4% of global emissions, shows that, on average, 23% of the emissions reductions promised in the annual reports are attributable to the purchase of these carbon offset certificates, a large proportion of which are for the benefit of reforestation and forest protection projects. In order to bring supply and demand together, numerous individual traders and brokers are active in VCMs. They buy large quantities of carbon offset certificates from project developers – for example Southpole, myclimate and firstclimate – and bundle them into portfolios, which they then sell to end users such as organisations, NGOs and private individuals, usually for a commission. While most transactions are currently still conducted over the counter, there is an increasing trend towards centralised and more price-efficient and information-efficient marketplaces, similar to stock exchanges. The largest exchanges for carbon offset certificates currently include Xpansiv in New York and the AirCarbon Exchange (ACX) in Singapore.

In contrast to VCMs, CCMs only play a subordinate role for Swiss real estate companies.

Unlike in CCMs, each carbon offset certificate in VCMs is backed by a project that reduces or removes emissions in some way and has been accredited by a standard setter, such as Verra or Gold Standard, for the achievement of the specified emissions reduction target. The variety of projects for carbon offsetting often brings additional benefits, such as the protection of biodiversity, the improvement of public health and the creation of jobs. The characteristics of an offsetting project are also the main factor for the price of the certificate. The price for a tonne of carbon is generally higher for projects that require larger investments. These are traded as a more effective tool against climate change. In addition, the price range per tonne of carbon offset is significantly greater in VCMs than in CCMs. For example, one tonne of carbon can be offset for just a few francs or, in exceptional cases, even a few centimes for poor-quality projects. At the same time, several hundred francs must be paid for high-demand, technology-based emissions-offsetting solutions (e.g. direct air capture). VCMs are therefore an important instrument for channelling private capital into projects that would otherwise hardly attract any investment due to cost-benefit considerations.

5.3 Options for voluntary emissions offsetting

The various options available for voluntary emissions offsetting differ greatly in terms of their functionality, complexity and costs. It is difficult to determine precisely which methods are currently the most effective, as many approaches and technologies are still in development. In addition, their use is heavily dependent on subsidies and regulatory requirements. Generally speaking, however, the University of Oxford has developed clear principles (the "Oxford Principles for Net-Zero Aligned Carbon Offsetting"), which state that emissions reduction should take precedence over emissions offsetting. For the latter, carbon removal projects with long-term carbon storage are recommended. Investments in forest protection projects are currently the most widespread.

We divide the options and technologies for offsetting emissions into the following three categories:

Nature conservation

These methods relate to measures that maintain the ability of natural ecosystems to capture carbon by preventing their degradation, destruction or conversion. One example is the prevention of deforestation through forest conservation projects. By preserving (rain)forests, large quantities of carbon continue to be absorbed and stored, instead of the stored carbon being released into the atmosphere. The latter is already happening today, for example in parts of Southeast Asia, where heavy deforestation means that certain forests are net positive carbon emitters. Scientists also assume that by 2050, the Amazon will also release more carbon than it absorbs.

Options and technologies for voluntarily offsetting emissions:

- Nature conservation
- Natural removal and storage of emissions
- Technology-based capture and storage of emissions

Natural removal and storage of emissions

Plants extract carbon from the air naturally. This carbon can then be stored in wood and soil with the help of photosynthesis. This approach is widely used. In a study of 24 major global companies, 75% of the climate certificates purchased were backed by forest projects. One reason for this is that carbon sequestration by trees generally costs less than USD 50 per tonne of carbon, making it much cheaper than other options. However, there are also critical aspects. For example, the stored carbon can be released back into the atmosphere in the short term through fires, droughts, diseases or pest infestations, or in the medium term through the natural death of trees. This method is therefore seen as a short-term solution and the offsetting values are often overly optimistic. The focus is currently on the number of newly planted seedlings, but too little is being invested in methods to keep existing trees alive in the long term. This is essential because the ability to actively capture and store carbon increases with the age of a tree. An old, large tree can capture more carbon per year than a medium-sized tree has stored during its entire lifetime. It takes about 40 years, for example, for an average tree to absorb four tonnes of carbon.

Other ecosystems besides traditional forests should be considered too. Studies show, for example, that mangrove forests have the highest carbon density of all land-based ecosystems and can capture up to four times as much carbon as tropical forests. A single mangrove tree can capture up to 300 kg of carbon over its lifetime of just under 25 years. In addition, mangroves are cheap to grow and easy to care for, which significantly increases the likelihood of survival. Mangroves also offer more than just carbon storage; they provide important habitats for animals and are natural defences against strong waves and tsunamis.

Work is also underway on various additional measures to capture emissions naturally. Examples include:

- Carbon storage in agricultural soils: Soils naturally capture carbon, which is then released during agricultural use. Researchers are working on methods to increase the amount of carbon stored in the soil.
- Carbon storage in biomass: The aim of this method is to utilise the carbon storage capacity of plants beyond their natural life cycle, so that trees continue to store carbon even after they die and rot.
- Carbon mineralisation: The process of "accelerated weathering" involves specific minerals reacting with carbon and converting the gas into a solid. This method exists in nature, but takes a very long time. Scientists are currently showing that the process can be accelerated.
- Ocean-based approaches: These aim to accelerate the natural carbon cycles in the oceans. Examples of such cycles include utilising the photosynthesis of coastal plants and algae, adding certain minerals to seawater that react with dissolved carbon and capture it, or passing an electric current through seawater to accelerate reactions that contribute to carbon sequestration.

Technology-based capture and storage of emissions

Direct air capture is a technology for filtering carbon from the air and then storing it either underground or in durable products such as concrete. The advantages of this technology are enormous, but direct air capture is currently still very costly and energy-intensive (considerable heat and electricity consumption). In recent years, however, it has attracted large sums of investment, meaning that costs are expected to fall significantly.

5.4 Criticism of the certificate market

The purchase of carbon offset certificates in VCMs is often viewed critically, as it is not always backed by a real reduction in emissions. In January 2023, for example, media reports claimed that 94% of the carbon offset certificates issued by Verra (market leader in the issue of carbon certificates with a market share of 67%) were not backed by genuine emission reductions. The business model with certificates itself is also being criticised. In 2021, around one third of all carbon offset certificates were based on forest conservation projects. The basic concept behind such projects is that carbon can be offset by protecting the forest, because the disappearance of the forest would release emissions and stop the emissions from being captured. The potential deforestation over decades must be estimated in order to determine the number of certificates to be issued. However, if, in retrospect, the forest would not have disappeared, or would have disappeared to a lesser extent than predicted without the conservation projects, there would ultimately have been no offsetting, or if so then less than promised. At the same time, SRF research indicates that certificate issuers such as Verra or South Pole sometimes claim for themselves around 25% of the money collected. This means they are incentivised to issue more certificates than necessary because they benefit financially. In addition, issuers rarely have to guarantee that the emission savings associated with the certificates will actually be realised. Independent supervisory authorities are also currently lacking. As a result, the carbon offsetting industry is structurally criticised for having issued too many certificates, most of which achieve practically no reduction in emissions. The inadequate transfer of funds to the actual project organisers is also criticised.

Annex

A Our ESG rating

Sustainable business practices are crucial for everyone. By taking ESG factors into consideration and integrating them into our analyses, we can better identify and assess risks and opportunities

We believe that sustainable business practices are central to long-term economic growth and prosperity, and that issuers and investors have a major role to play in this. Our goal is to provide our clients with a more reliable investment recommendation by means of data evaluation (quantitative) and the expert opinion of our analysts (qualitative). By taking ESG factors into consideration and integrating them into our analyses of issuers, we can better identify and assess risks and opportunities. Thus, in our view, sustainability analysis is not only complementary, but an indispensable addition to traditional financial analysis.

In most of the ESG assessments available on the market, the ESG quality of issuers is measured using checklists and point scores.

Most of the ESG assessments available in the market rely on methodologies that involve an absolute evaluation of data. This means that the ESG quality of issuers is measured using checklists and point scores. If an issuer does not meet specific standards or if it does not report the metrics required, it often does not receive a rating or is awarded a low one. However, many smaller issuers do not have the resources required to collect comprehensive data on their own activities with regard to emissions, other environmental factors and various social aspects. This has an impact on the reporting as well as their evaluation compared to issuers with bigger teams working in the field of sustainability. We want to close this gap with our ESG approach.

The ESG rating of Zürcher Kantonalbank's research department is based on a combination of quantitative and qualitative assessments.

Comprehensive quantitative and qualitative analyses of issuers

There are multiple facets to the quantitative approach. We collect data from various providers (e.g. MSCI, Thomson Reuters, RepRisk) and filter out problem areas, which are examined and then evaluated in the Environmental, Social and Governance areas. Using a proprietary sustainability model, we consolidate external data points and incorporate them into our assessments accordingly.

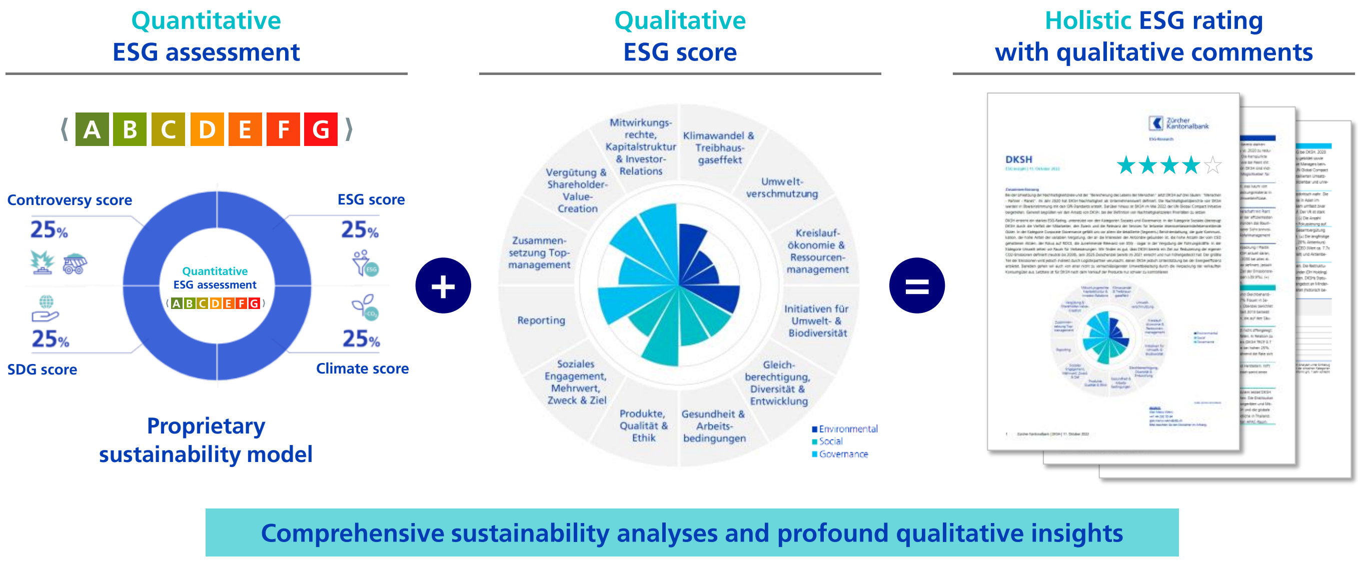
Our analysts are aware of their important role to raise issuers' representatives' awareness of critical issues

In our view, the qualitative approach is particularly relevant for small issuers, as the data available for them is often less comprehensive and there are therefore gaps in the quantitative analysis. As our analysts are in close contact with the issuers, specific, relevant topics can be discussed directly with the individual representatives. We apply a strict approach to assess issuers in terms of the environment (E), social aspects (S) and corporate governance (G). When doing so, we consider not only the current situation, but also trends and future-oriented measures. Our analysts are aware of their important role to raise issuers' representatives' awareness of critical issues (such as too little disclosure, relatively high compensation, little progress on reducing emissions). In this way, we aim to create added value and greater transparency for investors.

The assessment carried out for the quantitative analysis, combined with the score from the qualitative analysis, result in our ESG rating.

A1 Methodology of the qualitative analysis

Figure 13: Cornerstones of our ESG approach

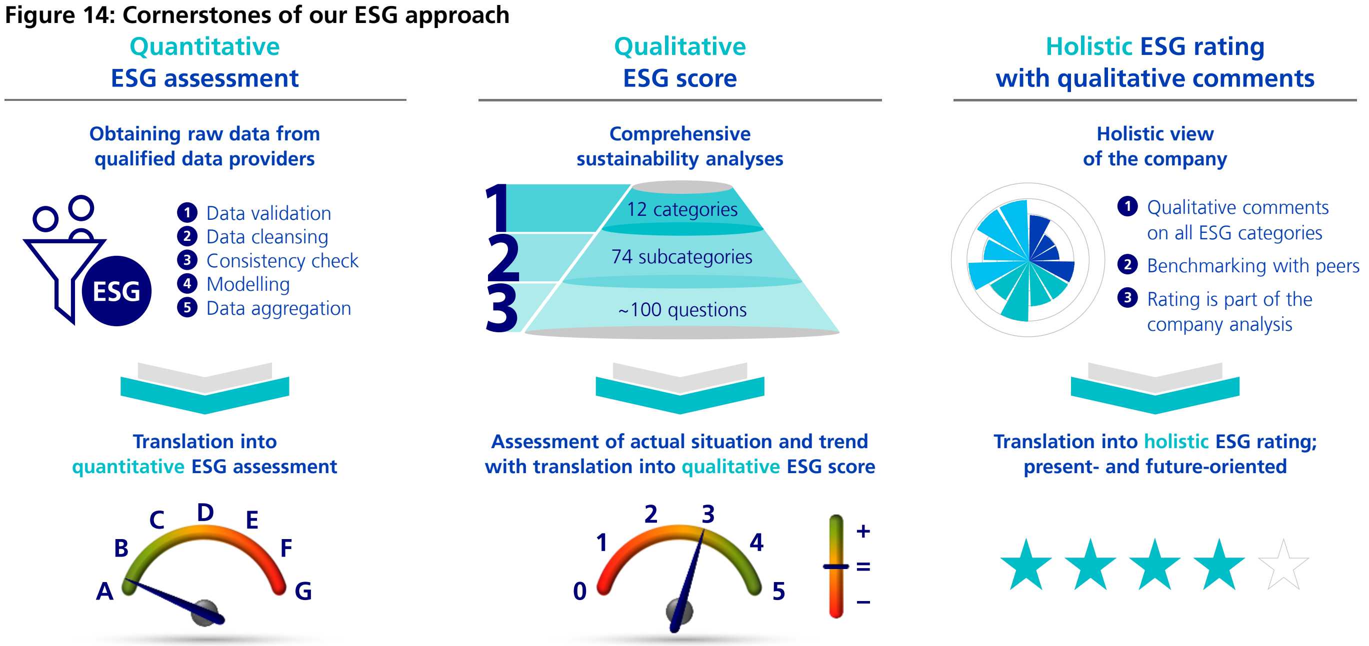


Source: Zürcher Kantonalbank

Structured approach based on 12 categories

In the field of sustainability, there are various aspects that need to be analysed and reflected in evaluations. We have already taken this into account to some extent in our analyses in the past, but have not explicitly reported it. Our approach is holistic, and we believe it can be communicated simply and transparently. It can also be used for stock corporations, real estate funds and real estate investment foundations and the results are comparable. The 12 categories listed *in Chart 15* provide a basis for addressing the relevant aspects of sustainability and providing as comprehensive an assessment as possible.

Figure 14: Cornerstones of our ESG approach



Source: Zürcher Kantonalbank

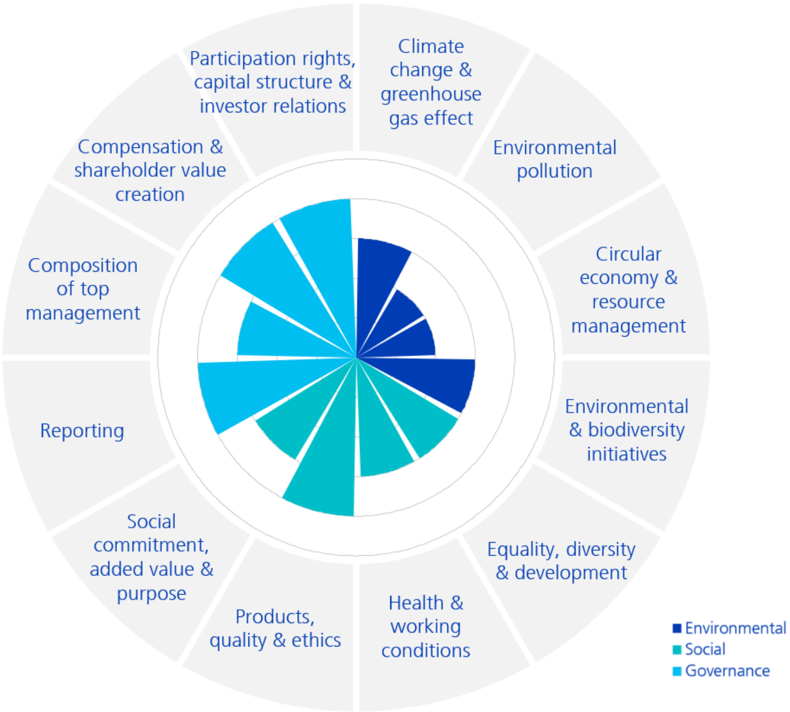
As *shown above*, the ESG rating of Zürcher Kantonalbank's research department is based on a combination of quantitative and qualitative assessments. In addition to obtaining raw data from qualified data providers for quantitative assessment, we conduct comprehensive qualitative sustainability analyses. This results in our holistic ESG star rating.

We apply a strict, structured approach in our qualitative, fundamental analysis to assess issuers in terms of the environment, social aspects and corporate governance (ESG). When doing so, we consider not only the current situation, but also trends and future-oriented measures.

We consider not only the current situation, but also trends and future-oriented measures

We divide the three topic areas (Environmental, Social and Governance) into four categories each. While each area has equal relevance for the overall score, the weighting of the four categories within the area may differ slightly depending on our assessment of its importance. When assessing each of the 12 categories, we assign a score (0-5) and an assessment of the trend (negative, neutral or positive). This, in combination with the quantitative approach, results in an ESG star rating for each issuer.

Figure 15: The 12 categories of our ESG approach



Note: Numerous aspects of sustainability are analysed and reported in a consolidated form in the 12 defined ESG categories. The illustration shows an example of the points achieved per category.

Source: Zürcher Kantonalbank

In order to carry out a structured, consistent analysis within these twelve categories, our analysts have a comprehensive set of standardised questions at their disposal. We assess issuers in relation to the competitors in the real estate sector, and relative to other sectors. Comparing issuers between sectors is a balancing act, however.

The comparability of issuers between sectors is a balancing act.

The current situation is assessed by assigning points (1–5), with 0 as not ESG-compliant, 1 as very poor and 5 as very good. If a category is so poor that 0 points are awarded (for example in the event of a serious scandal), then we automatically assign a 0-star rating to that company.

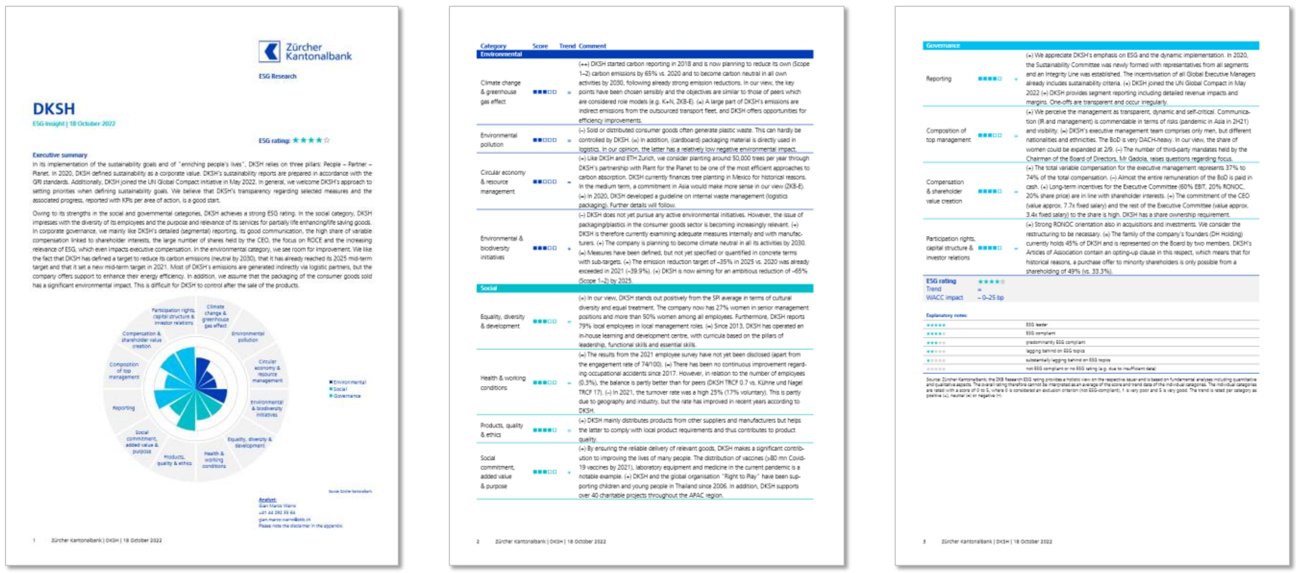
Significant changes can be anticipated on the basis of the information on the trend at the level of the individual ESG categories. The trend is assessed as positive (+), neutral (=) or negative (-) and can influence the ESG rating if a positive or negative trend is evident across several categories.

This means that an issuer that currently still shows weaknesses can still positively influence the overall rating with concrete and credible measures. Significant improvements can include the appropriate replacement of the board of directors or management (for example after a scandal) when it comes to governance, strong initiatives to reduce emissions with respect to the environment, or significant improvements in working conditions in connection with social issues. The important thing here is that the trend is only judged to be positive if the company successfully implements significant and credible measures. Similarly, only significant negative developments are categorised as a negative trend.

Assessment of the current situation and trend, with translation into a qualitative score

With the "ESG Insight" publication, we provide our clients an assessment of the current situation and trend for stock corporations, together with an in-depth discussion of each of the twelve categories. In addition, an executive summary summarises the ESG highlights for each stock corporation (*see example below*). No "ESG Insight" is currently published for funds or investment foundations.

Figure 16: Example of an "ESG Insight" for a stock corporation



Source: Zürcher Kantonalbank

Issuers are assessed at least once a year, or promptly and reactively when relevant events occur

When performing the ESG analysis, we rely on information provided by issuers in sustainability reports and other publications. The results of the quantitative analysis help to rapidly identify problem areas for further in-depth qualitative investigation and cross-comparisons. Finally, we discuss problematic, relevant or missing points directly with the individual issuers' representatives. The entire assessment takes place at least once a year, or promptly and reactively when relevant events occur.

A2 The ESG rating

The number of stars in the ESG rating shows how "sustainable or ESG-compliant" we consider an issuer to be

We combine our findings from the quantitative and qualitative analyses (including the trend) to arrive at an ESG rating of one to five stars for each issuer, after applying an internal translation matrix. The star-based rating shows how "ESG-compliant" we consider an issuer to be.

If the data basis is insufficient, which can be the case for smaller issuers in particular, we rely more on the result of the qualitative analysis than on that of the quantitative analysis.

The chart below shows the ESG rating categories and what they signify. We classify issuers with five stars as ESG leaders. This means that we rate those issuers as outstanding in all three categories (Environmental, Social and Governance). We classify issuers that are rated with four stars as "sustainable" or "ESG-compliant". Companies with three stars are "mostly ESG-compliant". These issuers still have scope for improvement in certain areas, or are still in the early stages of addressing individual sustainability issues. It is additionally challenging to achieve an ESG rating of four or five stars in the real estate sector on account of its relatively large carbon footprint. If the rating is less than three stars, we believe that there is room for improvement in terms of sustainability.

Figure 17: ESG rating categories and their meaning

★★★★★	ESG leader
★★★★☆	ESG-compliant
★★★☆☆	Mostly ESG-compliant
★★☆☆☆	Scope for improvement on ESG issues
★☆☆☆☆	Significant scope for improvement on ESG issues
☆☆☆☆☆	Not ESG-compliant or no rating available*

Source: Zürcher Kantonalbank

Disclosures and disclaimer

The prices stated in this report correspond to the closing prices of the previous day, unless otherwise stated. Prices and availability of financial instruments are indicative only and subject to change without notice. For the complete legal information on issuers outside Switzerland (no listing in Switzerland), please refer to the last published study on the respective issuer.

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The financial analysts responsible for the content of this report hereby represent that no part of their compensation was, is, or will be directly or indirectly related to any specific recommendation or views contained herein or linked to the pricing of any of the securities discussed herein.

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If the primary financial analyst directly or indirectly holds securities of an issuer, the date and price of the most recent purchase are shown below.
– Equity research analysts: Lonza (28.04.2021), Novartis (18.09.2016), Roche (06.03.2014), Sandoz (04.10.2023)
– Credit research analysts: Bell Food Group (18.08.2015), Emmi (01.11.2007), Holcim (27.03.2020), SGS (21.09.2015)

Participation in capital market transactions
Zürcher Kantonalbank has participated in the following capital market transactions in the last 12 months:
Allreal, Amag Leasing AG, Baloise, BancaStato, Barry Callebaut, BC Neuchâteloise, BNP Paribas S.A., Carlo Gavazzi, Cembra Money Bank, Credit Suisse (Schweiz) AG, Dottikon ES, EFG International, Emmi Finanz AG, ENAG, Engadiner Kraftwerke, Ez Gem. Wohnbauträger, Galenica, GAM Holding, Givaudan, Glarner KB, Hilti, Insel Gruppe, Julius Bär , Kanton Tessin, Kanton Zürich, Kantonsspital Baden, Kantonsspital St. Gallen, KEBAG, LGT Bank AG, LLB, Lonza, Lonza Swiss Finanz AG, Luzerner KB, Meier Tobler, Meyer Burger, Mobimo, Münchener Hypothekenbank, Municipality Finance Plc, Nant de Drance SA, Nestlé, OC Oerlikon, Pfandbriefzentrale, PSP, Raiffeisen Schweiz, Schweiter Technologies, Schweizer Lebensvers. und Rentenanstalt, SGS, Sika, Société Générale S.A., Stadt Bern, Stadt Genf, Stadt Lausanne, Stadt Lugano, Stadt Winterthur, Stadt Zürich, Swiss Life, Swiss Pr St Fin, Swisscom, Swissgrid, Temenos, UBS AG (London Branch), UBS Group, Valiant, Viseca, Walliser KB, Zürcher Kantonalbank

Shareholdings of Zürcher Kantonalbank
– According to the latest notification, Zürcher Kantonalbank holds over 10% in Viseca Payment Services SA and over 5% in BC du Jura.
– According to the latest notification, Zürcher Kantonalbank holds over 10% in Pfandbriefzentrale der schweizerischen Kantonalbanken (Pfandbriefzentrale) and refinances part of its mortgage business through Pfandbriefzentrale. This may result in conflicts of interest affecting the Pfandbriefzentrale rating assessment.

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In the case of net long positions, Zürcher Kantonalbank benefits from rising prices. In the case of net short positions, Zürcher Kantonalbank benefits from falling prices. Zürcher Kantonalbank holds the following net long and net short positions of at least 0.5% of the share capital of the following companies:
– Net long positions: BC du Jura
– Net short positions: None

Disclosure of large loans
Disclosures are made for large loans for which there is a bilateral disclosure agreement between the borrower, on the one hand, and Zürcher Kantonalbank as the lender, on the other hand, and where the financial analysts may therefore become aware of the business relationship. Other loan relationships are subject to bank client confidentiality, and Chinese walls within Zürcher Kantonalbank prevent the financial analysts from being aware of such business relationships.

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Paid equity research
Zürcher Kantonalbank produces research as part of the "Stage Program" of SIX Swiss Exchange (https://www.six-group.com/dam/download/the-swiss-stock-exchange/listing/equity/services-for-equity-issuers/stage-program-en.pdf). Zürcher Kantonalbank is financially remunerated by SIX Swiss Exchange for this. The issuer covered by Zürcher Kantonalbank with research reports pays a fee to SIX Swiss Exchange.

Zürcher Kantonalbank currently covers the following companies with "Paid Equity Research" within the framework of the "Stage Program": Addex Therapeutics, Basilea, Cicor, CPH Chemie + Papier Holding, HIAG, Ina Invest Holding AG, Mobilezone Holding AG, Orascom Development, Orell Füssli, Romande Energie, SF Urban Properties AG, Titlis Bergbahnen, Warteck Invest, Zug Estates

Disclosure of further conflicts of interest
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A description of the rules and information barriers for dealing with conflicts of interest can be found at https://www.zkb.ch/en/legal/trading-and-investment-business/trading-capital-market.html.

If contributions to this report were produced by organizational units that are not subject to the "Directives on the Independence of Financial Research" (issued by the Swiss Bankers Association, the "Directives"), this is noted in the footer. The present legal information applies only to those contributions that qualify as financial research within the meaning of the Directives.

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– a physical separation exists between the financial analysts involved in producing investment research and other relevant persons whose responsibilities or business interests may conflict with the interests of the persons to whom the investment research is disseminated;
– Zürcher Kantonalbank, its financial analysts and other relevant persons involved in producing investment research do not accept inducements from anyone with a material interest in the subject-matter of the investment research;
– Zürcher Kantonalbank, its financial analysts and other relevant persons involved in producing investment research do not promise issuers favourable research coverage;
– before the dissemination of investment research, issuers, relevant persons other than financial analysts and any other persons are not permitted to review a draft of the investment research for the purpose of verifying the accuracy of factual statements made in that research, or for verifying compliance with Zürcher Kantonalbank's legal obligations, where the draft includes a recommendation or a target price.

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A list of all reports and the ratings contained therein, disseminated on any issuer or financial instrument in the past 12 months, can be found at https://zkb-finance.mdgms.com. If you do not have access to the Finanzinfos+ portal, please contact your relationship manager.

Rating distribution of companies in the Swiss Research Universe
– Distribution of ratings in absolute terms (Outperform 65; Market Perform 98; Underperform 14)
– Percentagewise distribution of ratings (Outperform 36.72%; Market Perform 55.37%; Underperform 7.91%)
– Clients with IB services by category (Outperform 66.15%; Market Perform 53.06%; Underperform 35.71%)
The overview is updated at the beginning of each quarter and currently reflects the status at 31.12.2023

Relevant equity and real estate fund recommendation changes in the last 12 months
Adecco Group
2023-08-02 from marketperform to outperform
Allreal
2023-08-09 from outperform to marketperform
ams OSRAM
2023-12-08 from marketperform to outperform
Autoneum
2023-07-07 from marketperform to underperform
Avolta
2023-08-07 from underperform to marketperform
Basilea
2023-04-03 from not rated to marketperform
BC de Genève
2023-12-15 from not rated to outperform
Calida Group
2024-01-10 from marketperform to underperform
2023-03-27 from outperform to marketperform
Carlo Gavazzi
2023-10-24 from not rated to marketperform
Cicor
2023-10-05 from marketperform to outperform
Comet
2023-06-20 from outperform to marketperform
CS Green Property
2023-06-29 from underperform to marketperform
CS Interswiss
2023-12-15 from marketperform to outperform
CS REF LogisticsPlus
2023-11-17 from underperform to marketperform
Dätwyler
2023-07-24 from outperform to marketperform
Feintool
2024-01-12 from underperform to marketperform
2023-12-04 from outperform to underperform
Flughafen Zürich
2023-05-26 from marketperform to outperform
Fonds Immobilier Romand
2023-12-18 from marketperform to underperform
Glarner KB
2023-12-15 from marketperform to underperform
Graubündner KB
2023-12-15 from outperform to marketperform
Ina Invest Holding AG
2023-12-15 from marketperform to underperform
INFICON
2023-06-21 from underperform to marketperform
Interroll
2023-06-16 from outperform to marketperform
Julius Bär
2023-05-25 from marketperform to outperform
Komax
2023-10-11 from marketperform to underperform
Kühne + Nagel
2023-10-30 from marketperform to outperform
La Foncière
2023-12-15 from marketperform to underperform
Leonteq AG
2023-03-23 from outperform to marketperform
Logitech
2023-06-15 from outperform to marketperform
Medacta Group AG
2023-10-24 from not rated to outperform
Meyer Burger
2024-01-31 from outperform to underperform
Mobilezone Holding AG
2023-05-22 from outperform to marketperform
Novartis
2023-08-14 from outperform to marketperform
Orascom Development
2023-05-17 from outperform to marketperform
Partners Group
2023-09-26 from marketperform to outperform
R&S Group
2024-02-27 from not rated to marketperform
Richemont
2024-03-18 from outperform to marketperform
Romande Energie
2024-01-30 from not rated to marketperform
Sandoz
2023-10-04 from not rated to outperform
Schweiter Technologies
2023-08-14 from outperform to marketperform
2023-05-02 from not rated to outperform
Sensirion
2023-10-10 from not rated to marketperform
SF Retail Properties Fund
2024-03-19 from marketperform to outperform
SIG Group AG
2023-12-20 from not rated to marketperform
SoftwareONE
2024-03-11 from outperform to marketperform
Straumann
2024-03-04 from outperform to marketperform
2023-03-24 from marketperform to outperform
Sustainable Real Estate Switzerland
2023-07-31 from not rated to marketperform
Swissquote
2023-12-05 from marketperform to outperform
u-blox
2023-07-06 from underperform to marketperform
UBS Group
2023-03-20 from marketperform to outperform
VAT Group AG
2023-06-16 from outperform to marketperform
VP Bank
2023-10-27 from marketperform to underperform
V-ZUG
2023-06-07 from outperform to marketperform
Warteck Invest
2023-03-24 from marketperform to underperform
Zug Estates
2023-12-07 from marketperform to outperform

Relevant Credit rating changes / outlook changes in the last 12 months
Allreal
2024-03-11 from BBB+/negativ to BBB/stabil
Aryzta
2023-10-11 from BB-/positiv to BB/positiv
Burckhardt Compression
2023-06-07 from BB+/stabil to BB+/positiv
Cembra Money Bank
2024-02-26 from A-/negativ to A-/stabil
Dormakaba
2023-07-07 from BBB-/stabil to BBB-/negativ
Flughafen Zürich
2024-03-12 from A/stabil to A/positiv
Georg Fischer
2023-06-13 from BBB+/stabil to BBB+/negativ
2023-11-21 from BBB+/negativ to BBB/stabil
HIAG
2024-03-15 from BBB-/stabil to BBB-/positiv
Kudelski
2024-02-23 from B/negativ to B-/negativ
Kühne + Nagel
2023-12-19 from NR to A/stabil
Luzerner KB
2023-06-12 from RESTRICTED to AA+/positiv
OC Oerlikon
2023-08-04 from BBB/stabil to BBB-/stabil
2024-02-29 from BBB-/stabil to BBB-/negativ
Swisscom
2024-02-13 from A-/stabil to A-/positiv
UBS Group
2023-03-20 from A-/stabil to REVISION
2023-04-26 from REVISION to BBB+/negativ
2024-02-09 from BBB+/negativ to BBB+/stabil

Fact check
For the purpose of reviewing the factual aspects, Zürcher Kantonalbank may send this report to the issuer and other third parties prior to publication in an edited version limited to the facts. Neither ratings nor price targets or other key assessments will be communicated or discussed.

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The Research team of Zürcher Kantonalbank does not publish absolute recommendations such as "Buy", "Hold" or "Sell". Its ratings are relative to a benchmark ("Outperform", "Market Perform", "Underperform"). For Swiss equities, the Swiss Performance Index (SPI) serves as a benchmark. The expected relative performance is defined as the anticipated total return over the coming 12 months, which consists of the share price performance (price gain or loss) plus distributions (e.g. dividends). Compared to the expected total return of the benchmark, the "Outperform" rating implies a considerable outperformance. "Market Perform" refers to a comparable performance (+/–5%), whereas "Underperform" predicts an overall performance which is markedly lower than that of the benchmark. "Restricted" indicates, that for legal reasons, research coverage of the corresponding security has been temporarily suspended. It cannot be ruled out that a temporary suspension may extend over a longer period or even lead to the definitive discontinuation of coverage.

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A variety of factors can influence the course of business and cause the actual development to deviate from the original forecast. These include exchange rate fluctuations, changes in management, economic factors, regulatory changes, the competitive situation, technical problems with products, changes in demand, problems with inputs/raw materials, mergers and acquisitions, etc. This list is not exhaustive. Accordingly, the classification and relative price potential may change at any time based on new available information.

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