

Sustainable Funding

Principles, Concepts and Instruments

Prof. Dr. Thomas K. Birrer
Jean-Dominique Bütikofer, CFA
Ante Basic, PhD
Ralph Caluori, CFA
Nadine Woolley

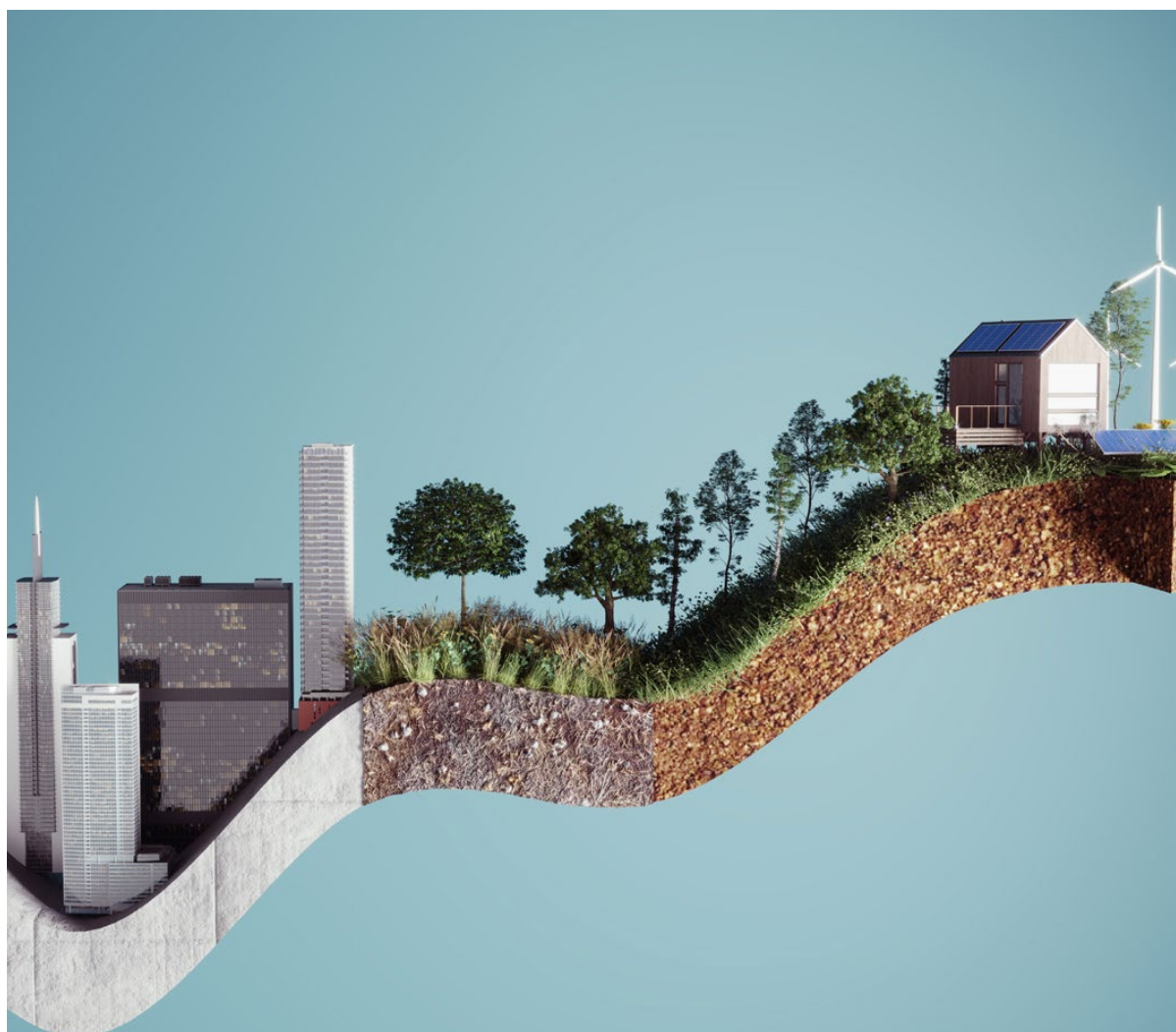


Table of contents

Preface	1
1 Sustainability in the context of financing activities	2
1.1 Definitions of Sustainability and Sustainable Finance	2
1.2 The Interconnection of ESG and ESG Data	3
1.3 ESG-Ratings	5
1.3.1 Differentiation from credit ratings	5
1.3.2 The Nature of ESG Ratings	6
1.4 Stakeholders	10
1.5 Double materiality	11
1.6 Sustainable investment strategies and sustainable financing instruments	12
2 Sustainable Bonds	15
2.1 Green Bonds	17
2.1.1 Use of Proceeds	18
2.1.2 Process of Project Evaluation and Selection	20
2.1.3 Management of Proceeds	21
2.1.4 Reporting	22
2.1.5 External Review	23
2.2 Green Convertible Bonds	28
2.3 Social Bonds	28
2.4 Sustainability Bonds	29
2.5 Sustainability-linked Bonds	30
2.6 Transition Bonds	33
2.7 Blue Bonds	34
3 Sustainable Loans	39
3.1 Green Loan	39
3.2 Social Loan	41
3.3 Sustainability Loan	41
3.4 Sustainability-linked Loan	41
3.5 Climate-related sustainability risks and loan defaults in Swiss retail banks - An analysis in SME financing	43
4 Additional sustainable debt financing instruments	46
4.1 Sustainable Supply Chain Finance	46
4.2 Green Leasing	49
4.3 Green mortgage	50
4.4 Green Deposit and Green Commercial Paper	50
4.5 Green promissory note / ESG-linked promissory note	52
4.6 Green ABS	52
4.7 Direct financing, subsidies, grants and guarantees	53
5 Green Equity	56
6 What is the appropriate financing instrument?	58
7 Greenwashing, points of criticism and challenges	61
8 Outlook	64

Authors _____	66
Contributors _____	67
List of abbreviations _____	68
List of companies _____	70
Appendix _____	72
Bibliography _____	74

Preface

Sustainable corporate financing is a topic of critical importance for both society and companies. At a time when ecological and social responsibility are increasingly in focus, corporate financing plays a key role in shaping a sustainable future. Through sustainable financing strategies and instruments allow companies to contribute to achieving global sustainability goals as well as secure long-term economic benefits.

Despite the growing importance of sustainability in corporate finance, many financial specialists still possess a considerable degree of superficial knowledge. Often, there is a lack of clear differentiation from traditional financing approaches, which leads to uncertainties and misunderstandings. This study aims to help close these knowledge gaps and elucidate both the differences and the significance of sustainable financing practices and instruments.

We regard this text as a companion to the [Handbook of Financial Management](#) published by NZZ and the [Sustainability Handbook](#) published by SIX. It offers deep insights and practical guidance to promote the integration of sustainability into corporate financing strategies.

We would like to express our sincere gratitude to Michael Füglistner and Tobias Lehmann from SIX for their valued partnership, which contributed to the publication in the SIX Sustainability Handbook. Furthermore, we extend our heartfelt thanks to Kam Hessling from the London-based Loan Market Association, Ueli Schieferli from UBS, Robert Eigenheer from SBB, Markus Unternährer from Holcim, John Feigl from Graphax, Giacomo Balzarino from PSP Swiss Property, Andreas Wolfisberg from Kowema, Sascha Kiser from Zug Estates, Arsène Demenga from Axpo, Janko Hahn from Autoneum, Oliver Lotto from dormakaba, Stefan Welter from SoftwareOne, Thomas Wenger from Geberit, as well as Prof. Dr. Philipp Lütolf, Prof. Markus Rupp, Dr. Marius Fuchs and Nadine Berchtold from HSLU for their valuable feedback and suggestions on the draft of this text. Their contributions have significantly enhanced the quality and clarity of the content.

Our special thanks go to Chantal Zosso for summarizing her Master's thesis on climate-related sustainability risks and credit defaults at Swiss retail banks. We would also like to thank Nathalie Ehrler and Dianai Ibishi for their valuable support with the formal preparation and the English translation.

With these thoughts, we now present you with the following chapters and hope that you will gain valuable insights and inspiration for achieving truly sustainable corporate financing.

Thomas K. Birrer
Jean-Dominique Bütikofer
Ante Busic
Ralph Caluori
Nadine Woolley

1 Sustainability in the context of financing activities

This first section provides a detailed description of key terminologies, the interconnection between ESG and ESG data, ESG ratings, as well as the actors within the key stakeholders within the sustainable finance ecosystem. It also outlines the basic concepts.

1.1 Definitions of Sustainability and Sustainable Finance

The modern understanding of sustainable development was established in 1987 by the Brundtland Report "Our Common Future" of the World Commission on Environment and Development of the United Nations (WCED). In this report, sustainable development is defined as "development that ensures that the needs of the present generation are met without compromising the ability of future generations to meet their own needs"¹. This definition is based on two core concepts. Firstly, it stresses the importance of meeting the basic needs of current and future generations, including food, clean drinking water, and healthcare. Secondly, it underscores the existence of planetary, social, and technical limits within which these needs can be met without unduly straining the environment or jeopardizing social justice.

The United Nations 2030 Agenda for Sustainable Development was developed to facilitate the transition to a sustainable economy. The 17 United Nations Sustainable Development Goals (SDGs) are political goals aimed at promoting comprehensive sustainable development at an economic, social and environmental level.² They include goals such as ending poverty worldwide (SDG 1), reducing inequality within and between countries (SDG 10) and taking immediate action to combat climate change and its effects (SDG 13). In addition to the Sustainable Development Goals, the Paris Agreement of 2015 was the first legally binding international treaty to counteract climate change and promote the gradual reduction of greenhouse gas emissions.³

The financial industry can play a leading role in promoting sustainable development. According to a projection by the Swiss Bankers Association from 2021, the annual investment requirement (in Switzerland) is around CHF 13 billion in order to achieve the net zero target by 2050.⁴ Terms such as "sustainable finance" (SF) or "ESG" have become important concepts at the interface between finance and the implementation of sustainability goals. Although there is no completely uniform definition of SF and the distinction from other terms is often unclear, there are the following aspects that can characterise the concept. The area of Sustainable Finance (SF) or Sustainable Finance and Investments (SFI) deals firstly with the interaction between investments and lending in the context of economic, social or environmental issues.⁵ Secondly, SF addresses long-term orientated financial decisions in the context of sustainable development.⁶ Thirdly, Cunha et al. define SFI as "the management of financial resources and investments with the aim of promoting long-term, positive and measurable social and environmental impacts"⁷. Fourthly, the European

¹ WCED, 1987, p. 37

² UN, online

³ UNFCCC, online

⁴ Benz et al, 2021

⁵ Schoenmaker & Schramade, 2019, p. 4

⁶ Busch et al, 2016; Krauss et al, 2016; Urban & Wójcik, 2019

⁷ Cunha, 2021, p. 3826

Commission's definition of SF integrates environmental, social and governance (ESG) considerations, which are taken into account in investment decisions in the financial sector.⁸ This study is based on the following definition of sustainable finance:⁹

Sustainable Finance (SF)

Sustainable finance refers to the process of incorporating environmental, social, and governance (ESG) aspects into financing decisions. The integration of these aspects aims to promote increased investment in sustainable economic activities and projects over the long term.

1.2 The Interconnection of ESG and ESG Data

Environmental, social, and governance (ESG) issues are closely interconnected and mutually influence each other. This interconnectedness is based on the fact that corporate decisions and activities invariably affect multiple dimensions simultaneously, and sustainable outcomes can only be achieved if all three aspects are taken into account. The integration and joint consideration of ESG issues is essential for the following reasons:

1. There is an interdependency between ESG factors: Decisions in one ESG area have both direct and indirect impacts on the other areas. For instance, environmentally friendly technology may not only provide ecological benefits but also have social (e.g., job creation or loss) and governance implications (e.g., regulatory compliance). If companies consider only one area in isolation, they may overlook potential risks or fail to seize opportunities.¹⁰
2. A holistic approach to risk management is recommended: An integrated approach to ESG issues enables more comprehensive risk management.¹¹ Environmental risks, such as climate change, can have substantial social and economic consequences. By adopting a holistic analysis, companies can be better prepared for future challenges and enhance their resilience.¹²
3. It contributes to long-term value creation: Sustainable corporate governance that incorporates all ESG aspects supports long-term value creation. Companies that operate in an environmentally conscious manner, fulfil their social responsibilities, and maintain sound corporate governance are perceived more positively by stakeholders, including investors, customers, and employees. This can result in a stronger reputation, increased customer loyalty, and more stable financial performance.¹³

By recognizing the interconnectivity of ESG issues and addressing them together, companies can act sustainably and responsibly. This not only contributes to a better world but also enhances competitiveness and supports long-term business success.

Corporate ESG data refers to factors that are intended to make the sustainability of investments or companies measurable. The collection of raw ESG data stems from company publications (self-disclosure), standardised reporting (mandatory reports and voluntary frameworks), news and media, NGO reporting, company assessments (due diligence

⁸ Based on European Commission (a), online

⁹ Cunha, 2021, p. 3826

¹⁰ Porter & Kramer, 2011

¹¹ Refer to, for example, the discussion on Enterprise Risk Management (ERM) in Lütolf et al., 2018.

¹² WEF, 2019

¹³ Eccles et al., 2014

questionnaires) or internal models that use statistical models to fill in missing or distorted data. Once cleansed, the data can be used to calculate ESG indicators. These indicators are in turn grouped and assigned to various ESG themes, such as biodiversity or human rights, which are categorized under the three pillars of environmental, social, and governance.¹⁴

The ESG themes used to rate companies can vary significantly depending on the rating agency and methodology used.¹⁵ The following chart lists the most frequently used ESG themes used by leading rating agencies such as Bloomberg, MSCI or LSEG (formerly Re-finitiv / Thomson Reuters):¹⁶

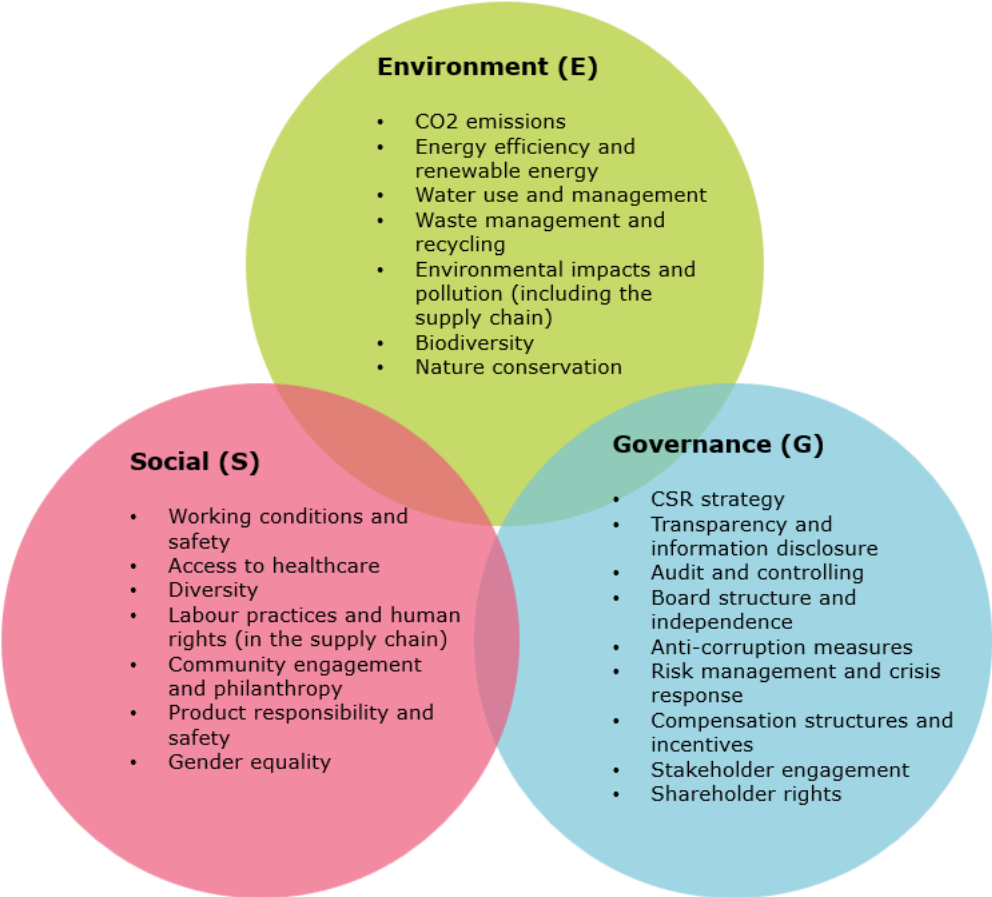


Figure 1: Selection of ESG Criteria¹⁷

¹⁴ Roncalli 2024, p. 59-61

¹⁵ Berg et al. 2022

¹⁶ Bloomberg, online; LSEG, online; MSCI, online

¹⁷ Own illustration based on the rating agencies Bloomberg, MSCI, and LSEG

ESG data can present challenges, as illustrated by the following excursus.

Excursus: The Challenge of ESG Data

ESG data collection, procurement, and quality face various challenges and barriers. ESG factors are often qualitative in nature, making it difficult to convert them into quantitative and aggregated data. Assigning scalable values to aspects such as a company's CO2 emissions, its adherence to human rights, or its executive compensation strategy, and subsequently evaluating these values, can be particularly challenging.¹⁸ Additionally, uncertainties regarding time horizons, intensity, and frequency complicate the quantification of environmental or social risks.¹⁹ Another challenge lies in the classification of ESG themes. From an external corporate perspective, this classification is often opaque, and it is not always clear which specific aspects fall under which pillar of sustainability (see Figure 1). Environmental and social issues are frequently complex and interconnected. For example, the supply chain can be seen as a social issue when assessing whether suppliers respect human rights. At the same time, it may also be considered an environmental issue if the goal is to measure a supplier's environmental footprint.

1.3 ESG-Ratings

This section first addresses the differences between ESG ratings and credit ratings before providing a more detailed discussion on ESG ratings.

1.3.1 Differentiation from credit ratings

Credit ratings are significantly more well-known than **ESG ratings**. The two types of ratings serve distinct yet complementary purposes. ESG ratings focus on environmental, social, and governance practices, assessing sustainability risks and social or environmental impacts. Credit ratings, by contrast, evaluate financial risks, particularly a company's ability to repay debt and avoid payment default. Credit ratings follow standardized, widely accepted, and transparent methodologies. ESG ratings are not standardized, with different providers using different criteria, leading to inconsistent results, as illustrated in more detail below.

However, even before the introduction of ESG ratings, ESG issues were taken into account in the credit rating process:

- Environmental risks (E): Even before ESG gained widespread attention, environmental regulations and associated costs were taken into account. For example, companies in the chemical and oil industries faced lower ratings if costly remediation measures, such as the clean-up of contaminated sites, were necessary.
- Social risks (S): Labour disputes and social tensions often influenced refinancing costs. In the 1980s, car manufacturers in the US and Europe were significantly affected by strikes.
- Governance risks (G): The assessment of corporate governance, transparency, and control mechanisms has long been an integral part of credit ratings. Scandals like those involving Enron (in 2001) or WorldCom (in 2002) resulted in severe downgrades and demonstrated how governance failures can negatively affect creditworthiness.

Credit ratings are solicited and paid for by issuers, while ESG ratings are typically unsolicited and based on publicly available data. ESG ratings are financed by investors or service providers, which can lead to limited issuer engagement or misinterpretation. Despite their

¹⁸ CFA Institute, 2015

¹⁹ CISL & UNEP FI, 2014

differences, ESG factors such as climate risk and governance issues are increasingly impacting financial performance and overlapping with credit ratings.

Credit ratings are subject to strict regulation to ensure transparency and reliability, while ESG ratings are less regulated. Together, ESG and credit ratings provide a comprehensive view of both financial and non-financial risks. ESG ratings complement credit ratings and help investors align their financial objectives with sustainability goals.

1.3.2 The Nature of ESG Ratings

An **ESG rating** is, therefore, a measure of how effectively a company addresses ESG issues in its day-to-day operations. It evaluates the sustainability profile of companies. ESG ratings are typically issued by external ESG rating agencies that specialise in assessing companies based on their performance in these areas. These ratings can vary significantly, often ranging from 0 to 100. On such a scale, scores below 50 are considered poor, while scores above 70 are regarded as excellent.²⁰

There is a broad range of ESG ratings available. Table 1 lists a selection of leading ESG rating agencies and their profiles, according to Staub-Bisang et al.²¹

	MSCI ESG Research	Sustainalytics	Vigeo Eiris V.E. (Moody's)	LSEG (Refinitiv)	ISS ESG	Inrate
ESG-Rating Name	MSCI ESG Rating	ESG Risk Rating	V.E. ESG Rating	Refinitiv ESG Score	ISS ESG Corporate Rating	ESG Impact Rating
Value Proposition	Identification of financially material ESG risks and opportunities	Assessment of business model and operations based on sustainability criteria	Identification of financially material ESG risks and opportunities	Measurement of material ESG performance based on verifiable, publicly available data	Measurement of both material ESG risks and negative impacts on society and the environment	Measurement of the ecological and social impacts of a company's products and practices
Rating Scale	7 levels: CCC to AAA, 3 categories: Laggard, Average, Leader	Scores from 0 to 50, 5 risk categories: Severe, High, Medium, Low, Negligible	Scores from 0 to 100, 12 levels: D3- to A1+	Scores from 0 to 1, 12 levels: D- to A+	Scores from 0 to 1, 12 levels: D- to A+, 4 categories: Poor, Medium, Good, Excellent	Scores from 0 to 1, 12 levels: D- to A+
Coverage	8,500 companies	Over 16,300 companies ²²	5,000 companies	Over 15,000 companies ²³	Over 8,000 issuers ²⁴	3,000 companies

Table 1: Established ESG Rating Agencies in German-speaking Regions²⁵

²⁰ Tayan, 2022; Hashemi-Pour & Kerner, online; Krychiw, 2023

²¹ Staub-Bisang et al., 2022, p. 63

²² Sustainalytics, online

²³ LSEG, online

²⁴ ISS, online

²⁵ Based on Staub-Bisang et al., 2022, p. 63, where Moody's acquired Vigeo Eiris V.E. and Moody's ESG has recently begun collaborating with MSCI. Additionally, IMUG Rating, as part of the European Ethifinance Group, could also be included.

ESG ratings help investors evaluate a company's sustainability practices and its impact on various stakeholders. They can also provide insights into how effectively the company manages ESG risks and opportunities.

The process of developing an ESG rating is presented in Figure 2 and can be divided into five steps.



Figure 2: Steps for the development of an ESG rating ²⁶

ESG data forms the foundation of an ESG rating. Companies publish this data either voluntarily or in compliance with legal requirements, typically in annual and sustainability reports or other publications. ESG rating agencies collect, compile, and analyse this data, which is then standardised and aggregated. A central challenge in this context is the significance and comparability of the data, as company-specific factors and external influences can impact ESG metrics. Representing such effects in the life cycle assessment (LCA) is complex and requires a meticulous methodology. Therefore, it might be advisable to consider general principles for addressing these challenges.

Different models are applied by the respective rating agencies to select, define, and weight ESG criteria. These criteria and their weighting are subjective, value-driven, and vary depending on the rating provider. Some models prioritise financial materiality, while others focus on eco-social impact and negative externalities. Within a sector, the selected criteria are usually homogeneous. Controversial issues, such as legal violations or strikes, are also factored into the assessments, although their qualitative nature complicates evaluation.

The processed ESG data is assessed according to the selected and weighted criteria. Each criterion is assigned a score on a scale indicating the extent to which the company meets the criterion. Qualitative criteria are operationalised through detailed descriptions and grading scales. To ensure the quality and plausibility of the data, it may be advisable to collect and validate it several years before its publication. The ESG criteria are gradually aggregated to generate sub-scores, followed by an overall ESG score. This score is normalised on a scale, resulting in an agency-specific ESG rating. The final rating reflects either an absolute value (as seen with Sustainalytics) or a relative ranking (as used by MSCI ESG). The following figures illustrate the corresponding process.

²⁶ Based on Staub-Bisang et al., 2022, p. 68

Sustainability in the context of financing activities

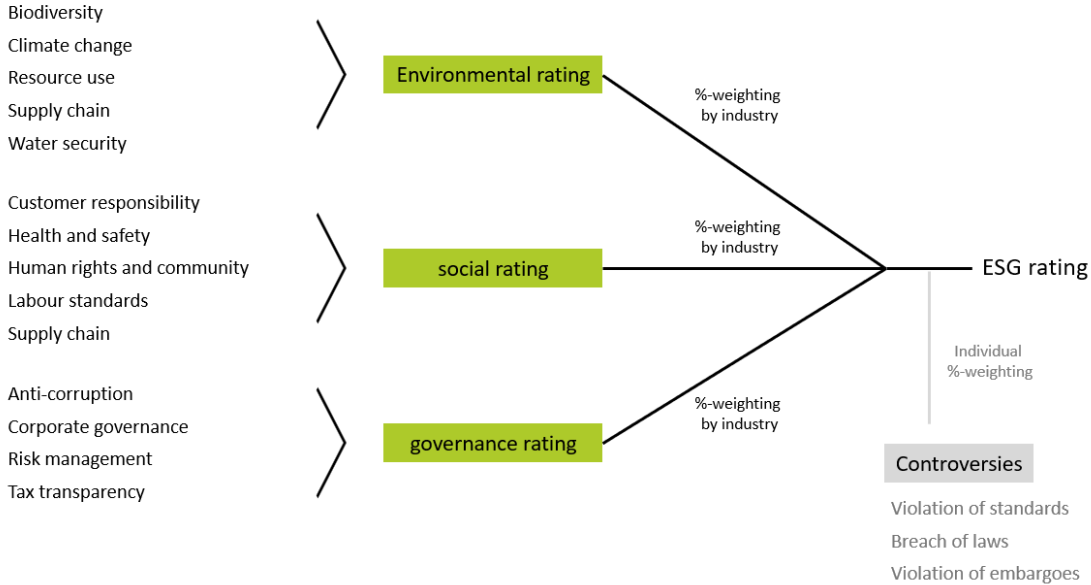


Figure 3: Example of an ESG Rating Model ²⁷

Investors and index providers use ESG ratings to implement their sustainability strategies by selecting companies with high ESG ratings or excluding those with low ratings. Index providers develop sustainable index concepts based on these ratings, which serve as a basis for passive investment products and benchmarks in portfolio management.

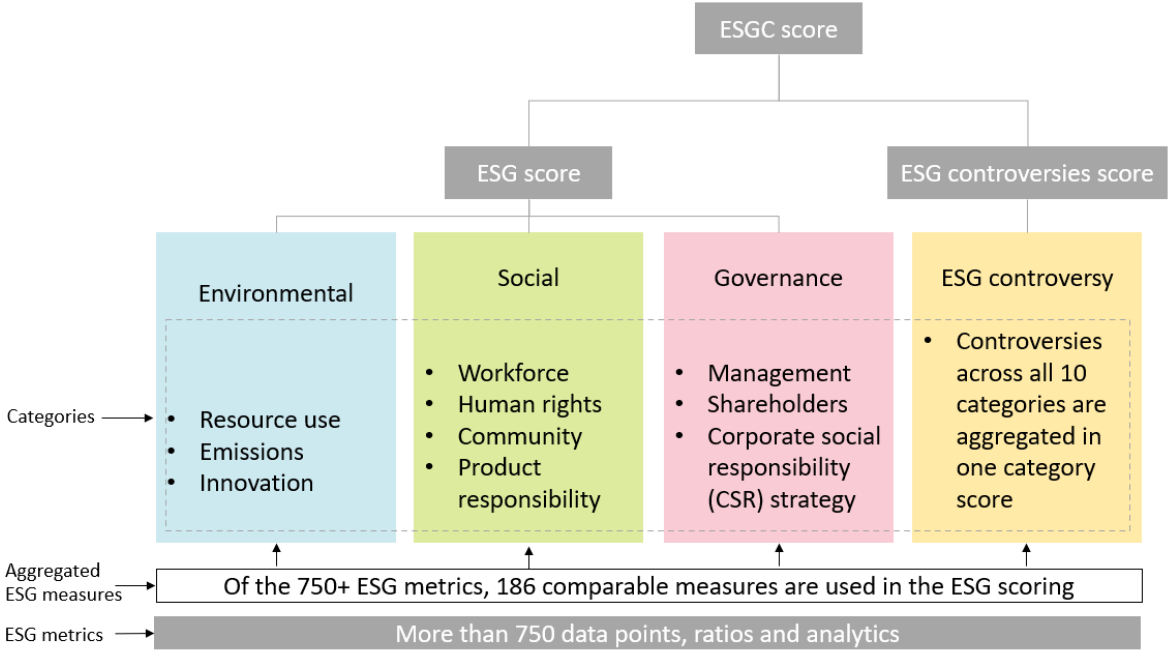


Figure 4: Case study LSEG²⁸

²⁷ Based on Staub-Bisang et al. 2022, p. 69 and LSEG, 2024

²⁸ Based on LSEG, online

Overall, ESG rating processes are complex and vary across agencies. As the European Securities and Markets Authority (ESMA) and Berger et al. point out, this can lead to inconsistent and weakly correlated ratings.²⁹ This is not necessarily a negative outcome, since, as noted above, both absolute and relative ratings exist. However, major globally active asset managers have begun to develop their own ESG research and incorporate these ratings into portfolio selection and index construction.

The phenomenon of companies receiving divergent ESG ratings from various agencies is fairly common and highlights the challenges associated with standardising ESG evaluations. The following example illustrates this issue.

Tesla, Inc. is a prominent example of a company that has received very different ESG ratings from different agencies:³⁰

- MSCI rating: MSCI has consistently given Tesla a high ESG rating and has often ranked the company at the top of the automotive industry. In 2022, Tesla received an "A" rating from MSCI, which is considered above average.
- S&P Global rating: In stark contrast, S&P Global removed Tesla from its S&P 500 ESG Index in 2022. This decision gave Tesla a significantly lower ESG rating compared to many of its competitors in the automotive industry.
- Sustainalytics rating: Sustainalytics rates Tesla as a "medium risk", placing the company in the midfield of car manufacturers.

The significant differences in Tesla's ESG ratings can be attributed to several factors:

1. Methodological differences: Each agency employs its own methodology to evaluate ESG performance.³¹
2. Weighting of factors: Agencies assign different levels of importance to the various ESG components. For instance, MSCI places greater emphasis on Tesla's contribution to reducing carbon emissions, while S&P Global focuses more on governance and social factors.³²
3. Data sources: Rating agencies rely on different data sources or interpret the same data in different ways.³³
4. Scope of assessment: Some agencies concentrate on a company's operations, whereas others prioritise the impact of its products and services.³⁴

The example of Tesla demonstrates how ESG ratings can vary significantly depending on the agency. But for which companies are these discrepancies most pronounced? The characteristics of companies with divergent ratings are:

- a. Companies in certain industries: Firms in sectors such as oil and gas or other environmentally sensitive industries often receive highly varied ESG ratings. For example, Chevron Corp. was classified as high ESG risk by Sustainalytics but received an A rating from MSCI.³⁵
- b. Companies with complex ESG profiles: Companies exhibiting both positive and negative ESG aspects may be rated differently depending on how agencies prioritise various factors.
- c. Companies with extreme average ratings: The largest discrepancies among ESG providers typically occur when a company's average ESG rating is either significantly above or below the median rating.³⁶

²⁹ ESMA, 2021a; Berger et al, 2022

³⁰ IRIS CARBON, 2023; Pictet Asset Management, 2023

³¹ IRIS CARBON, 2023

³² Pictet Asset Management, 2023

³³ Euronext Corporate Services, 2024

³⁴ Mintz, 2024

³⁵ Pictet Asset Management, 2023

³⁶ DPAM, 2021

It is evident that the phenomenon of divergent ESG ratings is both widespread and significant. The correlations between ESG ratings from different providers range from 0.38 to 0.71, which is considerably lower than the correlations between credit ratings (0.96 to 0.98).³⁷

These discrepancies underscore the importance for investors and other stakeholders to understand the methodologies behind ESG ratings and to consult multiple sources when evaluating a company's ESG performance. For investors, this could mean that when performance is measured against a benchmark, a relative rating may be more appropriate. Conversely, when not using a benchmark, an absolute rating might be more suitable.

1.4 Stakeholders

Various stakeholders are involved in the system that has evolved around sustainable finance (SF) over the past 20 years. See Figure 5.

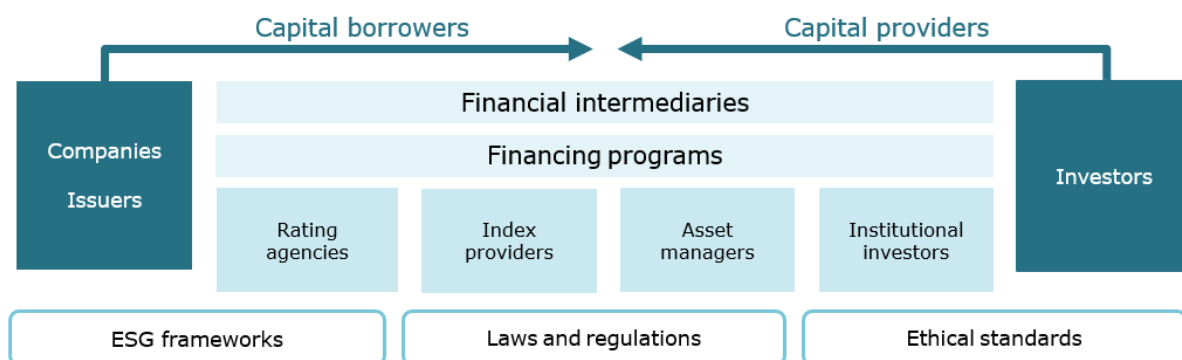


Figure 5: Stakeholders in the Sustainable Finance System ³⁸

On one side are investors who integrate ESG ratings, indices and information into their investment processes. On the other hand, there are issuers that disclose ESG data and maintain ESG ratings. These issuers range from governments and multinational corporations to SMEs. As financial intermediaries, entities such as research providers, index providers, asset managers and institutional organisations influence ESG investment practices.

Research providers are companies that produce ESG ratings based on sustainability metrics and quantitative methodologies. Major ESG rating agencies include Bloomberg, LSEG, Moody's and MSCI. Many of these agencies also develop ESG indices to facilitate benchmarking of ESG-focused market portfolios. In addition, public institutions are using ESG factors to promote long-term financial sustainability. Other key players in the ESG ecosystem include ESG framework providers such as the Global Reporting Initiative (GRI), which provides guidelines and best practices for ESG disclosure. Market regulators and supervisory authorities that develop and implement ESG reporting laws and regulations are also key. Finally, international organisations such as the UN or OECD are important players in setting standards for ethical and responsible corporate behaviour.³⁹

Swiss and European companies have further opportunities to benefit from environmental, impact, and sustainability initiatives, either through direct access to funding programmes or by strategically positioning themselves within core sectors targeted by these

³⁷ Berg et al., 2022

³⁸ Based on Boffo & Patalano, 2020

³⁹ Boffo & Patalano, 2020

programmes. Swiss companies operating in Europe and emerging markets, in particular, benefit from a variety of EU and non-EU funding initiatives that support sustainable, impact-driven, and environmentally friendly projects. While these initiatives are not limited to Swiss firms, they provide essential access to financial resources designed to foster green and sustainable innovation.

One key European initiative to support these efforts is the European Green Deal, which aims to mobilise at least EUR 1,000 billion for sustainable investments over the next ten years. This comprehensive investment strategy provides a wide range of financing mechanisms and incentives to foster the development of environmentally friendly projects, support a greener economy, and accelerate the transition to a green and sustainable future.

Multilateral development banks (MDBs), international financial institutions (IFIs) and European supranational agencies can play a key role in enabling the private sector to mobilize capital for sustainable projects. Their support goes beyond financing and offers a combination of financial and non-financial support measures to reduce risks, improve access to capital markets and encourage private investment.

European (or global) supranational agencies such as the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD), the KfW Development Bank, the Agence française de développement (AFD), the Nordic Investment Bank (NIB) and the Council of Europe Development Bank play a central role in the implementation of green and sustainable financing programs. These institutions provide not only financial support, but also technical expertise and government support to pave the way for green financing and create a solid framework for sustainable growth. Through favorable lending conditions, guarantees and tailor-made financial solutions, European agencies reduce investment risks, attract private capital and promote markets for sustainability-focused initiatives.

With their regional expertise and international reach, European supranational agencies fill a gap that traditional financial institutions cannot address. They are particularly well-positioned to support high-impact projects that align with ambitious climate goals and broader sustainable development objectives. The available programmes and financing structures enable Swiss and European companies to benefit from a diverse range of financial support, alternative financing options, and tailored solutions.

1.5 Double materiality

The concept of double materiality is central to ESG reporting. It involves examining a company's sustainability aspects from two perspectives: the outside-in and the inside-out perspective.

The **outside-in perspective** pertains to financial materiality, describing the impact that environmental or social factors have on a company. Both direct and indirect financial effects are considered.

The **inside-out perspective** focuses on environmental and social materiality (also referred to as impact materiality) and examines the influence a company exerts on society and the environment. On the financial level, the objective is to capitalize on return opportunities and mitigate sustainability risks, while on the real economic level, the aim is to achieve specific sustainability goals. Consequently, the financial and real economic effects of a sustainability strategy do not necessarily correlate. A key challenge lies in distinguishing the financial impact on the capital provider side from the real economic impact on the capital recipient side.

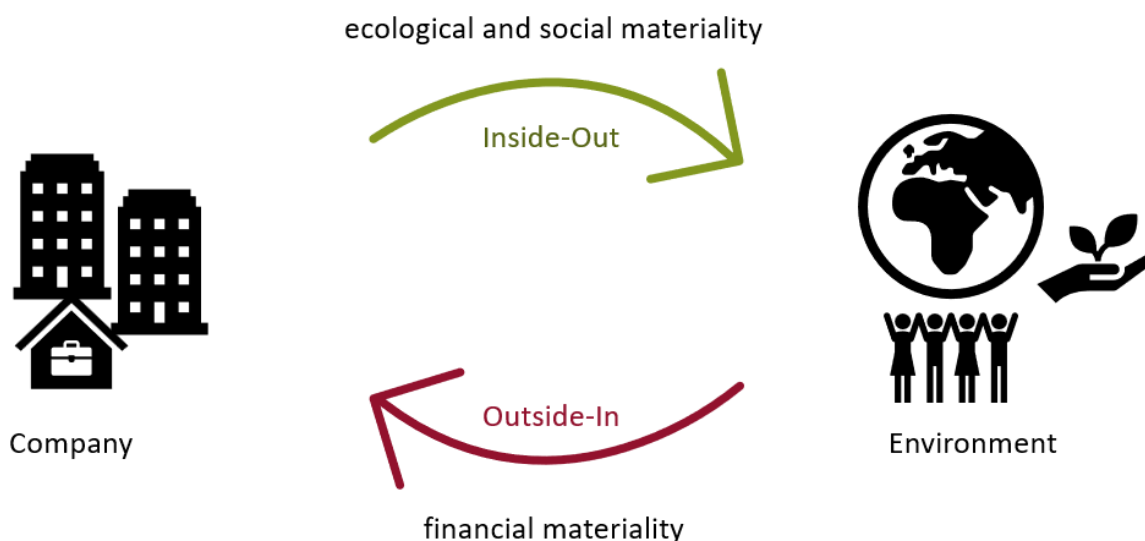


Figure 6: Double Materiality ⁴⁰

Double materiality plays a central role in the development of sustainable investment strategies. These strategies address both the financial impacts of sustainability risks and the real economic opportunities to drive sustainable transformations.

1.6 Sustainable investment strategies and sustainable financing instruments

Sustainability factors are increasingly being incorporated into investment strategies. Institutions such as the OECD, the Global Sustainable Investment Alliance and the CFA Institute offer categorisations of sustainable investment strategies. These strategies can be broadly divided into four approaches:⁴¹

- (1) The (rudimentary) exclusion of industries or companies,
- (2) An approach based on ESG ratings and metrics, for example, to select best-in-class companies,
- (3) Financing transformation projects, and
- (4) Financing sustainability solutions.

The first two strategies are risk-focused. The exclusion strategy (1) seeks to remove companies and governments from investment portfolios if their practices do not comply with specific sustainability standards or social values. This makes financing for such companies and governments more difficult or costly. In theory, this should incentivise companies to align their strategies more closely with sustainability. However, empirical evidence suggests it is challenging to demonstrate the extent to which financing exclusions impact funding costs.⁴²

The integration of ESG metrics (2) involves a strategic focus on ESG indicators to actively manage sustainability-related risks. This approach may include best-in-class investing, which focuses on investing in companies with the highest ESG ratings.

⁴⁰ Own illustration based on Berchtold, 2023

⁴¹ Based on Boffo & Patalano, 2020; Schweizer et al., 2022

⁴² Kacperczyk & Peydró, 2024

In contrast, the approaches of financing transformation (3) and financing sustainability solutions (4) focus on opportunities and possibilities. Specific financing instruments can play a key role in this context. Transformation financing (3) aims to support a holistic corporate transformation towards sustainability and to reduce the company's environmental or social footprint. Sustainability-linked bonds are particularly relevant in this context, as they link the achievement of sustainability targets to the terms of the financing instrument. The financing of sustainability solutions (4) focuses on financial products that earmark funds for specific sustainable projects. (so-called "use of proceeds"). These include in particular Green, social, and sustainability bonds.

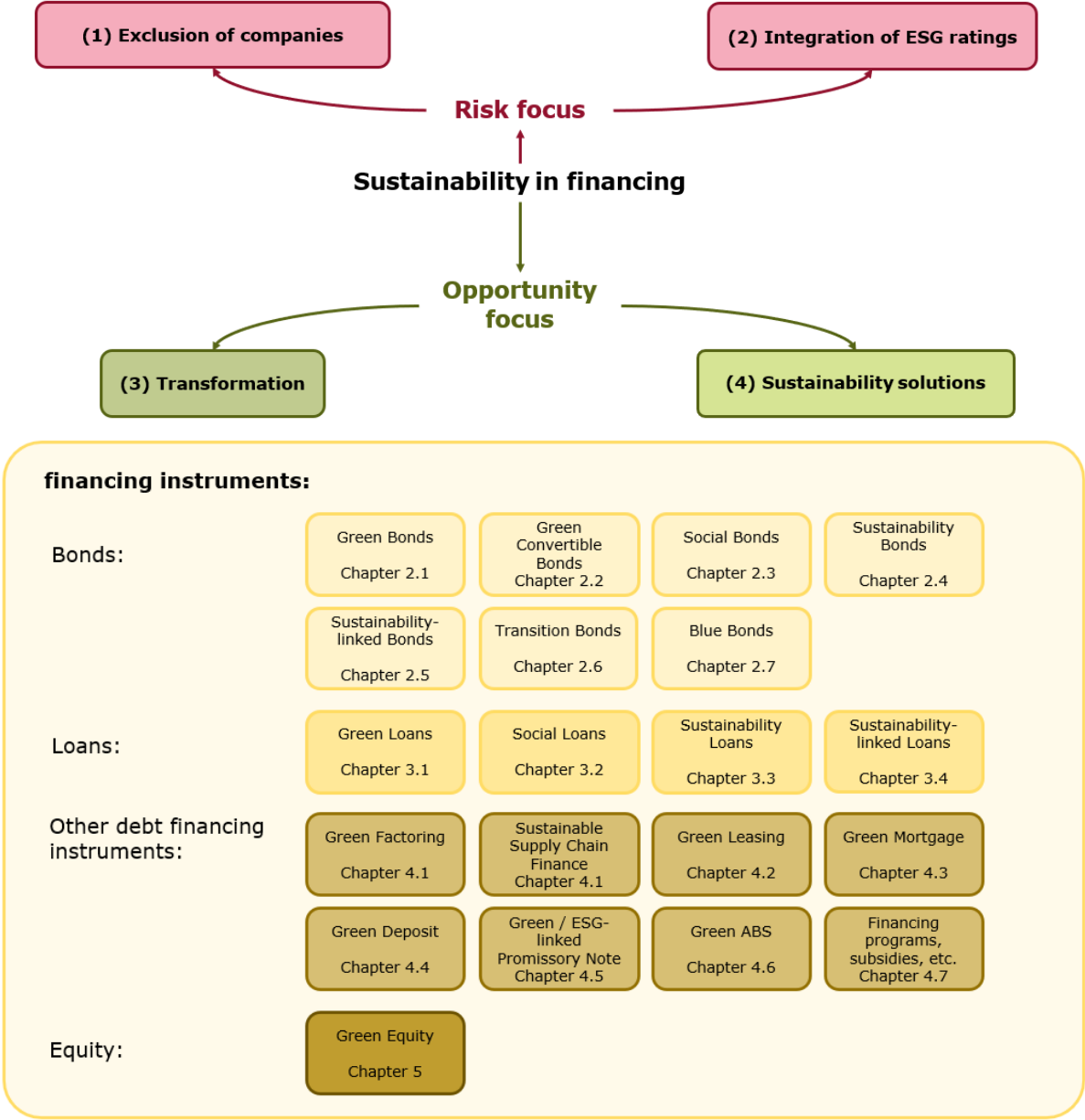


Figure 7: Sustainability in Financing ⁴³

⁴³ Own illustration based on Boffo & Patalano, 2020 and Schweizer et al., 2022

Sustainability in the context of financing activities

The focus below is on key financing instruments that can be used to fund transformation or sustainability solutions. These include, in particular, green bonds, which serve to illustrate essential aspects of sustainable corporate financing that are also relevant to other instruments discussed. Alongside green bonds, the discussion covers social, sustainability, sustainability-linked, transition, and blue bonds, as well as sustainable loans in the form of green, social, sustainability, and sustainability-linked loans.

Additionally, important aspects of other debt financing solutions, such as green factoring, green leasing, and green promissory notes are highlighted. Finally, the section concludes with critical reflections and challenges that should be taken into account when applying the financing options mentioned above.

2 Sustainable Bonds

Sustainable bonds are debt securities whose proceeds directly or indirectly finance environmental, social, or governance (ESG) objectives or projects.⁴⁴

To date, the green bond is the most significant and widely used instrument, representing 67.5% of the nominal value of sustainability bonds issued.⁴⁵ The green bond sub-sector has the longest history within the sustainability bond market. The first green bond was issued by the European Investment Bank (EIB) in 2007 and was labelled a "Climate Awareness Bond".⁴⁶ According to Ehlers and Packer, a key catalyst for further market development was the launch of the Green Bond Principles⁴⁷ by the International Capital Markets Association (ICMA) in January 2014.

The **International Capital Market Association (ICMA)** is a self-regulatory organisation and trade association for capital market participants. Founded in Zurich in 1969, ICMA's mission is to promote high standards of market practice, effective regulation, trade support, education, and communication within the industry. The ICMA produces standardized transaction documents, including equity and debt issuance agreements and repo transactions, and establishes market conventions and standards that have been essential to the international debt securities market for nearly 40 years. The ICMA plays a crucial role in providing guidance, support, and standards to global capital markets, particularly with a focus on debt securities markets. The organisation currently has approximately 620 members from all segments of the debt capital markets, spanning nearly 70 countries worldwide.⁴⁸

The Green Bond Principles (GBP) are voluntary non-binding recommendations on transparency and disclosure designed to promote the integrity and development of the green bond market. However, compliance with the GBP is implicitly expected by the market. The goal was achieved in that the USD 100 billion milestone was reached just two years after the launch. In the following years, the ICMA expanded its publications to include additional recommendations, namely the Social Bond Principles⁴⁹ and the Sustainability Bond Guidelines⁵⁰ in 2017, and the Sustainability-Linked Bond Principles⁵¹ and the Climate Transition Finance Handbook⁵² in 2020. These additional recommendations have fueled the growth of sustainable new issues, and led to sustainability bonds gaining broader support beyond the green bonds. The strong growth, reaching USD 1 trillion in 2021, is shown in Figure 8.

⁴⁴ ICMA, 2023a

⁴⁵ Climate Bonds Initiative, 2023

⁴⁶ Ehlers & Packer, 2017

⁴⁷ ICMA, 2021a

⁴⁸ ICMA, online

⁴⁹ ICMA, 2023b

⁵⁰ ICMA, 2021b

⁵¹ ICMA, 2023c

⁵² ICMA, 2023d

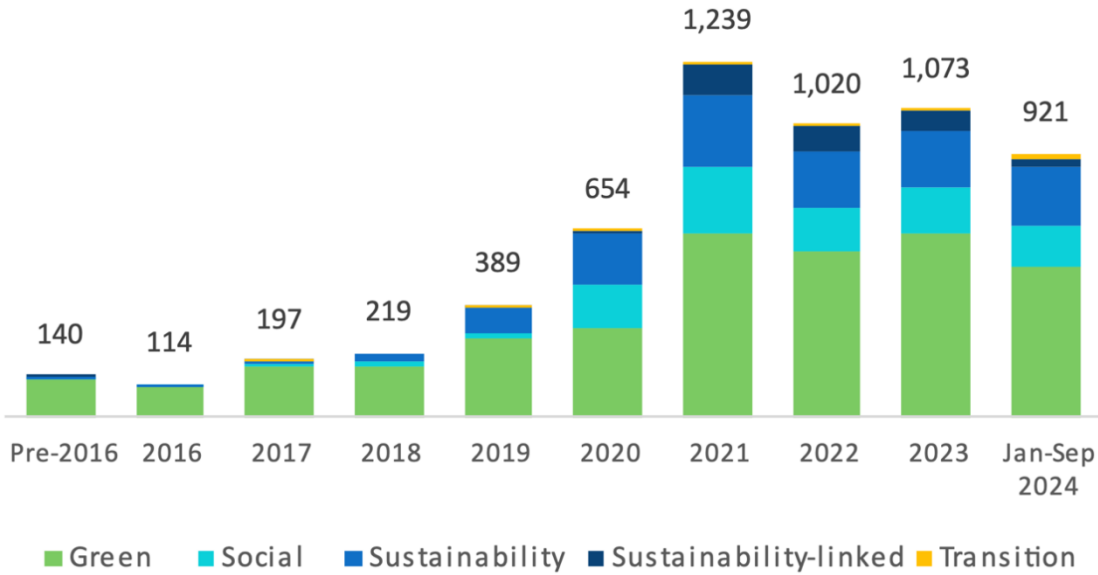


Figure 8: Development of Sustainable Bond Issuances in USD Billion by Type ⁵³

The bonds, which serve a variety of purposes, can be broadly classified into two types:

- The **“Use of Proceeds”** type includes green bonds, social bonds, and sustainability bonds. In this case, an amount equivalent to the net proceeds of the bond is allocated to finance eligible projects. Specifically, the use of the bond proceeds is restricted to predefined purposes.
- The **“General Purpose”** type allows for unrestricted use of proceeds. However, sustainability-linked bonds within this category require the issuer to define and disclose clear key performance indicators (KPIs) and ambitious sustainability performance targets aligned with them. The definitions of these two terms follow below.

A key performance indicator (KPI) is a metric that evaluates the success of an organisation or a specific activity in which it is engaged. KPIs are used to focus efforts on strategic and operational improvements, provide an analytical foundation for decision-making, and help focus attention on critical priorities. They are quantifiable business metrics used to monitor and analyse factors that are considered critical to an organisation's success.⁵⁴ KPIs can vary significantly based on an organisation's priorities and can cover areas such as finance, marketing, sales, customer service, manufacturing, supply chain, human resources, and IT operations. They provide objective data on progress towards achieving desired results, support informed decision-making, and measure key aspects such as efficiency, effectiveness, quality, governance, compliance, behaviour, profitability, project performance, workforce performance workforce performance, and resource utilisation.⁵⁵

⁵³ Worldbank, online based on Bloomberg
⁵⁴ KPI.org, online; Gartner, online; Hennigan, online
⁵⁵ Sheldon et al., online

Sustainability Performance Targets (SPTs) are measurable improvements in key performance indicators (KPIs) that issuers commit to achieving within a predefined timeframe. These targets are an integral part of sustainability-linked financial instruments, such as sustainability-linked bonds and loans, where financial terms are tied to the attainment of predetermined sustainability targets. SPTs allow organizations to track their progress toward specific sustainability objectives, and enhance transparency and accountability with respect to their sustainability performance.⁵⁶

In the following chapters, we will delve deeper into the various types of bonds. The methodology of the 'Use of Proceeds' type is explained in the Green Bond chapter.

2.1 Green Bonds

Green bonds are bonds that finance investments with an environmental or climate-related benefit.⁵⁷ This type of bond accounts for the majority of sustainability bonds ever issued and is therefore one of the most important instruments for financing investments in an environmentally sustainable future (EU 2023/2631). When issuing a green bond, the issuer promises to use the proceeds for projects with an environmentally sustainable benefit that has been defined in advance in a green bond framework. This limits the use of the funds. To further increase transparency with regard to sustainability, the International Capital Market Association (ICMA) also recommends an external review. Due to clear investor preferences and requirements on the part of various green bond index providers, external verification, usually in the form of a so-called second-party opinion, has become established as the market standard.

In view of the higher costs associated with issuing and the simultaneous restriction on the use of funds, the question arises as to why issuers choose to issue green bonds. Flammer identifies three possible reasons for green corporate bonds:⁵⁸

1. signalling argument: green bonds can serve as a credible signal to communicate a company's commitment to environmental protection to a broad (investor) community;
2. Greenwashing: Green bonds can be used to make unfounded claims about a company's environmental commitment without taking tangible action;⁵⁹
3. Argument of capital costs: If green bond investors are willing to forgo a certain return in favour of a social benefit, green bond financing enables lower interest costs.⁶⁰

Flammer's findings suggest that both the signal argument and the cost of capital argument have an empirical impact on green bond issuance. She empirically refutes the greenwashing argument and notes that concerns about greenwashing stem from a lack of public governance.⁶¹ The green bond market relies on private governance, such as external reviews or certifications, which lack the enforcement mechanisms present under state regulation.

To address the lack of unified public governance, the ICMA has recommended that issuers undergo external reviews since the publication of the second edition of the Green Bond Principles (GBP) in March 2015. In recent years, ESG ratings have also gained increasing

⁵⁶ ICMA, 2023c; Agreda, 2023

⁵⁷ Ehlers & Packer, 2017

⁵⁸ Flammer, 2021

⁵⁹ Further details can be found in the section 7 under the term "greenwashing".

⁶⁰ Further details can be found in the section 2.1.5 External Review under the term "Greenium".

⁶¹ Flammer, 2021

importance for investors—and consequently for issuers. However, as with external reviews, there is no unified or official definition for ESG ratings either.⁶²

The EU Green Bond Framework, cited earlier, seeks to address this issue regarding green bonds. To date, there is no internationally recognised definition of what constitutes environmental or climate-related benefits. The ICMA's widely-used, voluntary Green Bond Principles (GBP) provide a non-exhaustive list of green project categories but explicitly state that assessing the environmental benefits of individual categories is not within their scope. In contrast, the EU Green Bond Framework⁶³ relies on the politically legitimised EU taxonomy.⁶⁴

The **objectives of the EU Taxonomy** can be summarised as follows:⁶⁵

- Establishing clear definitions for economic activities deemed environmentally sustainable.
- Reducing greenwashing risks by clearly specifying requirements.
- Preventing market fragmentation by defining environmental sustainability for investment purposes.
- Requiring mandatory disclosure of taxonomy-relevant revenues and investments by financial market participants and large companies.

According to Article 3 of EU Regulation 2020/852 ('EU Taxonomy'), an investment in an economic activity is considered environmentally sustainable if the activity makes a significant contribution to achieving one or more environmental objectives, does not cause significant harm to one or more environmental objectives (the 'do no significant harm' principle), applies a minimum level of protection (including the OECD Guidelines for Multinational Enterprises and Human Rights), and meets certain technical assessment criteria.

The structures of the ICMA Green Bond Principles, the EU Green Bond Regulation, and the China Green Bond Principles⁶⁶ are fundamentally similar. The following section provides a detailed discussion of the four core components of a green bond framework, using the ICMA GBP as an example.

2.1.1 Use of Proceeds

The most important cornerstone of a green bond is the allocation of proceeds to eligible projects. Specifically, green project categories are defined, such as renewable energy, clean transport, or environmentally friendly buildings. The ICMA provides a non-exhaustive list of these categories, which has evolved over the years. It remains to be seen to what extent the EU taxonomy will influence non-EU issuers in the future.

In the Green Bond Principles (GBP), the ICMA specifies that the intended use of proceeds of a green bond should be adequately described in the bond documentation. The November 2023 Guidance Handbook⁶⁷ clarifies that a description of the use of proceeds in the bond prospectus is sufficient to ensure compliance with the Green Bond Principles. To ensure that market participants meet the high transparency requirements, the GBP emphasizes the importance of the two key recommendations: the green bond framework and external verification. Only the two key recommendations, together with the four core components, enable all relevant market participants to conduct a full assessment of the sustainability of the corresponding green bond program. In practice, this is implemented by referencing the

⁶² ESMA. 2021b

⁶³ Regulation (EU) 2023/2631, 2023

⁶⁴ Regulation (EU) 2023/2631, 2023

⁶⁵ BMK, online

⁶⁶ As at mid-2024

⁶⁷ ICMA, 2023e

use of proceeds in the documentation to the corresponding green bond framework or by 'issuing the bond under the green bond framework.'

The inclusion of the Green Bond Framework in the legal documentation raises the question of whether failure to comply with the Green Bond Principles could result in a default. The ICMA argues that compliance with the core components is voluntary and will not lead to default. At the same time, they recognize that there is substantial reputational risk for the issuer. Doran and Tanner from BakerMcKenzie come to the same conclusion in a publication in the *International Financial Law Review*⁶⁸, albeit from a different perspective. They note that the intended use, among other elements of a green bond, is generally not included as a covenant in the terms and conditions of the bond. This means that a breach of the intended use does not legally qualify as a default and does not grant investors the ability to call their bonds early.⁶⁹

Beyond the intended use in the narrower sense, the GBP recommends providing an estimate of the proportion of new financing versus refinancing. Where possible, issuers should indicate which investments or portfolios are being refinanced. Additionally, the look-back period should be defined where applicable. The look-back period refers to the time elapsed since the implementation of a green project during which the project can still qualify for a new green bond. The ICMA is not very specific about this, as long as the assessment that a project has a significant positive impact on environmental sustainability remains valid. It should be noted that investors distinguish between CapEx and OpEx and generally expect a shorter look-back period for the latter.⁷⁰ An analysis of publicly available frameworks (green, social, sustainability bond) from Swiss issuers is illustrated in Figure 9. Nearly half of the issuers do not limit the look-back period, most of whom operate frameworks related to direct or indirect real estate financing. An emerging market standard involves limiting the period to two to three years. Longer look-back periods, similar to those without defined limits, are typically associated with durable capital assets, such as real estate or, in the case of Eurofima, rolling stock in the railway sector.

⁶⁸ Doran & Tanner, 2019

⁶⁹ Doran & Tanner, 2019

⁷⁰ CapEx (Capital Expenditures) and OpEx (Operational Expenditures) differ in their objectives and financial treatment. CapEx includes investments in long-term assets such as buildings, machinery, or IT systems, which are depreciated over several years and provide long-term benefits. OpEx, on the other hand, refers to ongoing operating expenses such as salaries, rent, or energy costs, which are immediately recognised in the profit and loss statement of the relevant financial year.

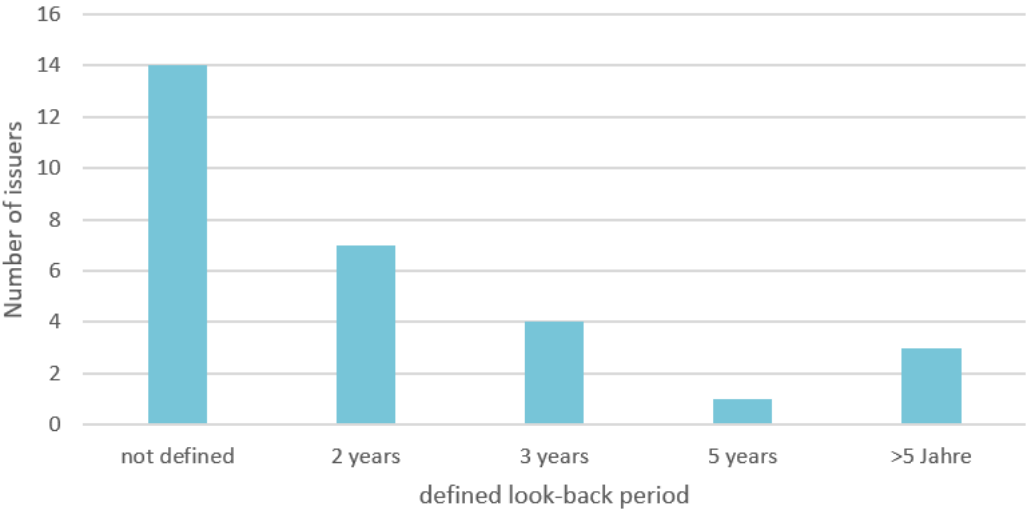


Figure 9: Evaluation of the Look-back Period in Publicly Available Frameworks of Swiss Borrowers ⁷¹

2.1.2 Process of Project Evaluation and Selection

The green bond issuer should clearly communicate the environmental sustainability goals of the eligible green projects. Additionally, the process used to determine which green project categories a project belongs to should be disclosed. In addition, supplementary information is to be provided on the methods used by the issuer to manage identified social and environmental risks.

Bond issuers are instructed to position the project selection and objectives of the green bond in the context of the company's overall sustainability strategy. This may include assigning projects to the five overarching environmental objectives⁷² and to the appropriate GBP green project categories. In addition, information on the alignment of projects with the taxonomies, associated criteria, and any exclusion criteria should be provided. Any green standards or certifications used for project selection must also be disclosed. Figure 10 shows an extract from the Swiss Confederation's Green Bond Framework and how this alignment is presented.

⁷¹ Own Analysis Based on Bloomberg Data

⁷² Climate change mitigation, adaptation to existing climate change, conservation of natural resources, biodiversity conservation, pollution prevention and control


Green category of eligible expenses	Description of eligible green expenses	Examples of eligible expenses
<p>Clean transportation SDG classification:</p>  <p>EU environmental objectives:</p> <ul style="list-style-type: none"> Mitigation of climate change Prevention and control of environmental pollution 	<p>Eligible expenses for reducing dependence on transportation using fossil fuels:</p> <ul style="list-style-type: none"> Passenger and freight transport on rail and road, including the following vehicles: <ul style="list-style-type: none"> Trains and passenger cars without CO₂ exhaust emissions Buses without CO₂ exhaust emissions or those that, by 2025, belong to categories M1 and M2, have structures classified as CA, CB, CC, and CD, and comply with the latest EURO VI standards 	<ul style="list-style-type: none"> Subsidies for financing railway infrastructure fund (expansion of transportation infrastructure to improve transportation services, operations, and maintenance of railway infrastructure) Subsidies for financing licensed transportation companies (private railway and bus companies), such as Swiss Federal Railways (SBB), PostAuto Schweiz AG, BLS AG, Rhaetian Railway AG (RhB), and Thurbo AG

Figure 10: Excerpt of Green Project Categories in the Green Bond Framework of the Swiss Confederation ⁷³

The Swiss Confederation includes six different project categories in its Green Bond Framework, giving it the largest number of project categories. On average, Swiss issuers incorporate two to three different project categories, as shown in Figure 11.

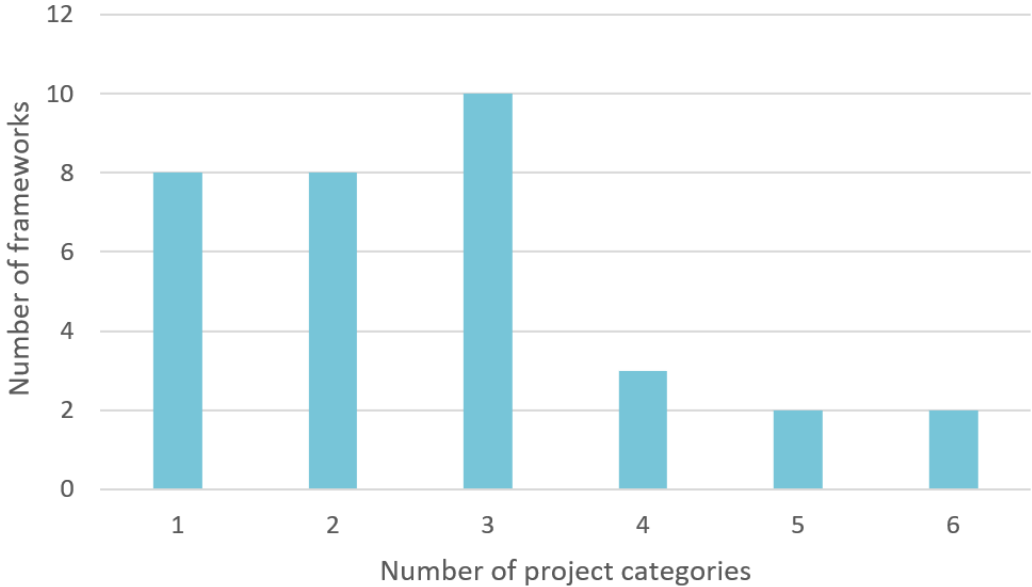


Figure 11: Number of Different Project Categories within Individual Swiss Frameworks ⁷⁴

2.1.3 Management of Proceeds

The issuance proceeds are defined as "net proceeds", i.e. after deducting the issuance costs. The GBP requires that an amount equivalent to the issue proceeds be transferred to a separate account or otherwise appropriately tracked by the issuer. The proceeds may be managed on a bond-by-bond basis or on an aggregated basis for all green bonds (portfolio approach). Experience shows that managing the proceeds in separate accounts can be operationally burdensome. In practice (as illustrated by Swiss Life or PSP Swiss Property),

⁷³ EFD, 2022
⁷⁴ Own analysis based on data from Bloomberg

a review is conducted at least annually to determine whether the balance sheet value of the selected green projects exceeds the total green bond proceeds.

Issuers are not always able to promptly and fully invest the proceeds in green projects. According to the ICMA, this should be done 'as soon as possible'. Noteworthy is the – for once – more cautious approach of the EUGB, which requires that the proceeds of European green bonds only need to be fully allocated in line with requirements before the bond's maturity (EUGB Art. 4). Additionally, it may occur that there are not enough eligible green projects available during the term of the green bond. In such cases, the Green Bond Framework should specify how the surplus will be managed. Certain investors prefer that interim investments comply with ESG criteria.

2.1.4 Reporting

Bond issuers are required to publish an annual Green Bond Report. This report must clearly disclose both the portion of the issue proceeds invested in green projects and the amount of any remaining liquidity holdings. Additionally, where feasible, the projects financed through the green bond(s) should be listed with a brief description. If this is not practical, information can be provided in a more generic manner and on an aggregated portfolio basis.

Transparency is particularly critical in the area of reporting. The GBP therefore recommend the use of qualitative performance indicators and, where appropriate and feasible, quantitative performance measures. Methodologies and assumptions must be clearly disclosed. The templates of the Harmonised Framework for Impact Reporting⁷⁵ can serve as a guideline.

Since 2022, the indirect counter-proposal to the Responsible Business Initiative has been in force in Switzerland. The relevant provisions are based on the EU's Non-Financial Reporting Directive.⁷⁶ Accordingly, public-interest entities with an annual average of more than 500 full-time employees, a balance sheet total of CHF 20 million, or sales revenue of CHF 40 million are required to report on non-financial matters. However, the EU has further tightened sustainability reporting with the "Corporate Sustainability Disclosure Directive".⁷⁷ Additionally, the European Parliament has approved another directive⁷⁸ regulating companies' explicit due diligence obligations concerning sustainability.

Considering these developments at the EU level, the Swiss Federal Council opened a consultation on new corporate reporting provisions on 26 June 2024. Specifically, the amendment to the Swiss Code of Obligations (Art. 964a OR) stipulates that in the future, 3,500 companies – rather than the current 300 – will be required to report on risks related to the environment, human rights, and corruption, as well as the measures taken to address these risks. The scope of application is to be broadened by lowering the threshold to 250 full-time positions. Furthermore, meeting two out of three thresholds (full-time equivalents, sales revenue, and balance sheet total) in two consecutive financial years will be sufficient to trigger the reporting obligation. The option to waive the reporting requirement will also be abolished. Additionally, reports will need to be verified by an external audit firm or a conformity assessment body.

⁷⁵ See the following ICMA webpage:

<https://www.icmagroup.org/sustainable-finance/impact-reporting/green-projects/>

⁷⁶ Directive 2014/95/EU, 2014

⁷⁷ Directive 2022/2464/EU, 2022

⁷⁸ Regulation (EU) 2024/1760, 2024

2.1.5 External Review

The external review is one of two key recommendations of the GBP and an important pillar of the market's private governance. There are various options for obtaining an independent external review. The ICMA Guidelines for External Reviews⁷⁹ outline four options that can be pursued individually or in combination:

1. **Second Party Opinion:** An independent institution provides a second opinion on compliance with the GBP, the appropriateness of the objectives, and typically the integration of those objectives into the corporate strategy.
2. **Verification:** The issuer obtains independent verification based on a set of defined criteria, usually related to KPI performance or sustainability targets, as in the case of sustainability-linked bonds.
3. **Certification:** An issuer has the green bond certified in accordance with a recognised standard or label, for example the Climate Bond Initiative (CBI) or the Science Based Targets initiative (SBTi).
4. **Bond Scoring/Rating:** Similar to credit ratings, green bonds or other sustainable bonds can also be rated based on their sustainability performance.

In Switzerland, obtaining a second-party opinion prior to issuance holds the greatest significance. As of 4 February 2024, a total of 33 Swiss issuers had sustainable public bonds outstanding.⁸⁰ An analysis of publicly accessible investor relations websites revealed that all issuers had obtained a second-party opinion for their bond issues.

The green bond format can be applied across various tiers, from covered bonds to senior unsecured and subordinated (hybrid) bonds. Bonds with restricted use of proceeds, such as green asset backed securities (ABS), project bonds, revenue bonds, or infrastructure bonds, can also be issued as green bonds.

It can be noted that adhering to the key recommendations has become more than a best-practice approach; it has now evolved into the Swiss market standard. The additional requirements introduced by the EU Green Bond Regulation are not yet reflected in Swiss practices, likely due to the regulation's recent implementation. However, for issuers with a significant equity investor base or sales markets in European countries, it may be beneficial to integrate existing efforts related to the EU taxonomy into a green bond framework.

Largest green bond in Switzerland to date

The largest green bond issue in Switzerland to date was the Swiss Confederation's inaugural green bond issued in 2022, raising CHF 766 million. This issue marked a significant step towards promoting sustainability and environmental spending in Switzerland. Investor interest was strong, with total bids amounting to CHF 974 million. The Federal Finance Administration (FFA) ultimately raised CHF 766 million at an annual yield of 1.47%. The FFA cannot determine with certainty who subscribed to the bond, as these bonds are purchased by banks on behalf of investors and are not registered securities. Similar to conventional bonds, most green bonds are likely held by domestic investors, primarily insurance companies, investment funds, and pension funds.⁸¹

⁷⁹ ICMA, 2022

⁸⁰ Issuers domiciled in Switzerland with bonds denominated in CHF and listed on the SIX Swiss Exchange (SIX Group (a), online)

⁸¹ EFV, 2022

Sustainable Bonds

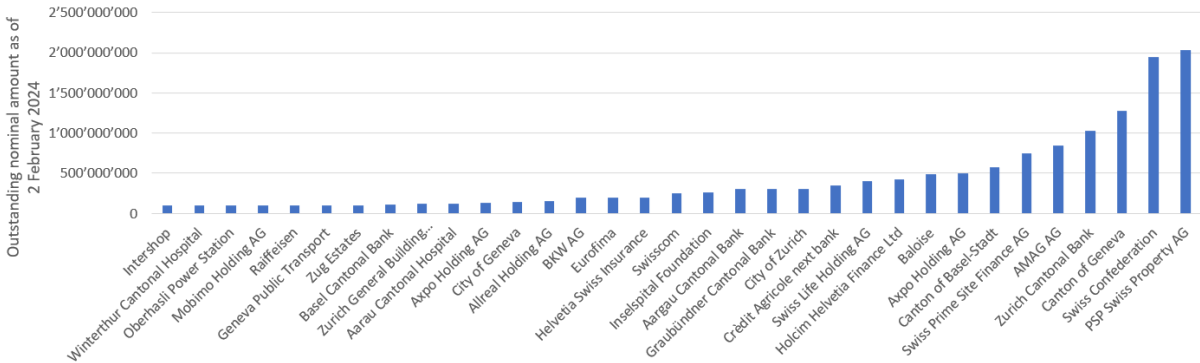


Figure 12: Outstanding nominal amounts of green bonds, sustainability bonds and sustainability-linked bonds issued by Swiss issuers as of early February 2024⁸²

Yield and cost considerations for a green bond

The strong investor demand for sustainable bonds continues to be met by a comparatively small supply. According to the Climate Bond Initiative, such bonds will account for only about 4% of the global bond market by the end of 2023.⁸³ This excess demand can result in a pricing advantage (or yield discount) for the issuer over conventional bonds and is referred to as a "greenium".

But how can the greenium be calculated? New issues are marketed and priced at a spread over a benchmark, also known as the credit spread. Institutional investors also use it to price bonds in the secondary market. In contrast to pricing based on the market value, changes in underlying market interest rates do not immediately play a role, nor do other bond-specific characteristics unrelated to the issuer, such as the coupon rate. To determine the new issue premium, one calculates a "fair value" for the new maturity in question over the interpolated borrower's outstanding credit curve (with the use of two bonds).⁸⁴ Based on the average premium paid for comparable new issues in the recent past ("new issue premium"), adding this to the fair value provides an expected new issue spread for a conventional bond. The premium to be paid for a green bond is then compared ceteris paribus. The difference corresponds to the green premium and is expressed in basis points.⁸⁵

In practice, a greenium is observed (at least partially), but it seems to depend on the issuer, circumstances, and sometimes the currency of the issuance. Ultimately, there is no "magic formula" to achieve a greenium. It generally cannot be guaranteed in advance.⁸⁶

Calculation example for the issue of a green bond
 The fictitious issuer *GreyGreen* has two outstanding conventional bonds, which are available on the secondary market at the following conditions:

Remaining term to maturity	Spread [in bps]	
	Sale (bid)	Purchase (ask)
4 years	+74	+68
6 years	+86	+80

⁸² Own analysis based on data from Bloomberg
⁸³ https://www.climatebonds.net/files/reports/cbi_sotm23_02h.pdf
⁸⁴ Slimane et al., 2020
⁸⁵ 1 basis point corresponds to 0.0001 or 0.01%.
⁸⁶ An overview of the development of greenium can be found in the 2024 Financing and Treasury Study, see the article by Zhang & Garvey in Birrer et al, 2024 on p. 131f.

The fair value of a new bond is determined using the same method as that introduced earlier. In highly liquid markets, such as EUR- or USD-denominated investment-grade corporate bonds, the bid spread is interpolated. In less liquid markets, such as the CHF market, the mid-spread $[(bid + ask) / 2]$ is generally used. For a new Swiss franc bond with a five-year term, the fair value is +77 basis points.

Scenario 1: In the assumed market environment, investors demand a new issue premium of 5 basis points for a conventional bond. This allows GreyGreen to place the bond at a total spread of +82 basis points. This results in the following bond conditions:

Term	5 years
Credit spread	+82 bp
5-year market interest rate	0.6525%
Bond yield (credit spread + market interest rate)	1.4725%
Coupon (rounded to the nearest eighth)	1.5000%
Redemption	100.0000%

Using the Excel *PRICE()* function, the issue price for the bond is 100.132%. This can also be calculated using a financial mathematics calculator or a TVM solver with the following parameters:

T = 5 years
 i = 1.4725%
 PV = Calculate → -100.1316 → 100.132%
 PMT = 1.5000
 FV = 100
 C/Y = 1
 P/Y = 1

Scenario 2: The issuer *GreyGreen* decides to issue a green bond. The fair value remains unchanged at +77 basis points. However, due to the green bond characteristics, investors now demand only a 2 basis point new issue premium. The bond can thus be launched at a spread of +79 basis points. Using the *PRICE()* function in Excel or a financial mathematics calculator or a TVM solver, the new yield of 1.4425% in this scenario results in an issue price of 100.276%.

The green bond under scenario 2 could be placed at a price that was 3 basis points lower than would have been the case for a conventional bond. The “greenium” is thus around 3 basis points.

The future cash flows in both scenarios, i.e., for the conventional and the green bond, are identical: a 1.5% coupon in years 1 to 4, and a coupon and repayment (101.5%) in year 5. However, the proceeds from the issue differ by the difference in the issue prices, i.e., 0.143%. In the case of a CHF 100 million bond, the additional proceeds of the green bond would therefore amount to CHF 143,000. From a purely financial point of view, this has to be weighed against the additional costs of external verification (e.g., second-party opinion) and annual reporting.

The following two examples illustrate the development of green bond issues in Switzerland. As mentioned in the second practical example, companies in the real estate sector in particular are significant issuers in the Swiss green bond market.

First Swiss franc green bond from Eurofima

Eurofima is the European Company for the Financing of Railway Rolling Stock. This supra-national financing company is based in Basel and was founded in 1956. Eurofima offers its 26 European railway companies, which are also its shareholders, short- and long-term loans for the purchase of rail vehicles.

In 2021, Eurofima initiated an investor roadshow for its 'Invest in Sustainable Mobility' campaign. According to its statement, the associated campaign paved the way for the issuance of a 10-year green bond. The bond was initially launched with a volume of CHF 200 million and an initial guidance of SARON +4-7bps and was two times oversubscribed within half an hour. With a revised guidance of SARON +2-4bps, the books were closed and the bond was finally priced at SARON +2bps with a negative yield of -0.0225%. Strong investor demand enabled Eurofima to set the price with a negative new issue premium and a single-digit greenium. Demand was exceptionally strong from dedicated ESG investors, who accounted for the vast majority of demand. These investors include asset managers, pension funds, banks and insurance companies.⁸⁷

Eurofima has again published a Green Bonds Allocation & Impact Report in 2024, illustrating its contribution to the fight against climate change. A total of almost EUR 5.5 billion in net proceeds was allocated to the member railways under the Green Bond Framework (GBF)⁸⁸ to finance rolling stock for electric passenger rail transport. The following figure illustrates Eurofima's Green Bond Framework.



Figure 13: Green Bond Framework of Eurofima⁸⁹

As of March 2024, the loans granted by Eurofima under the GBF were used to finance 1,899 vehicles with zero CO2 emissions. According to their own reports, this electrified rolling stock is helping them to save 3,183,781 tonnes of CO2 equivalent emissions and 4,341 GWh of energy annually.⁹⁰

⁸⁷ Eurofima, 2021
⁸⁸ Eurofima, online
⁸⁹ Eurofima, online
⁹⁰ Eurofima, 2024

The real estate sector is a major issuer of green bonds in Switzerland

In 2019, Zug Estates became the first listed Swiss real estate company to issue a green bond. Zug Estates conceives, develops, markets and manages properties in the Zug region. It focuses on centrally located sites that allow for a wide range of uses and sustainable development. The majority of the real estate portfolio is located on two sites in Zug and Risch-Rotkreuz and is broadly diversified by type of use. With greenhouse gas emissions of less than 1 kg per m² (Scope 1+2) for 95% of the buildings in operation, Zug Estates is one of the industry leaders in the area of sustainability. Zug Estates' bond portfolio now consists entirely of green bonds (CHF 300 million).

In 2019, it was not yet clear that this practice would become established in the Swiss real estate industry. The high-profile issue marked the beginning of numerous other green bond issues in the real estate sector. Today, the real estate industry is one of the largest issuers of green bonds in Switzerland. The industry benefits from the fact that real estate is particularly well suited for eligible projects aimed at reducing greenhouse gas emissions. Some real estate companies have now converted a significant portion of their bonds to green bonds. Due to the increasing prevalence of green bonds in the Swiss real estate market, premiums in the form of a greenium have become less common. Nevertheless, there is still a strong incentive for the industry to increase its green financing, as it is one of the major contributors to greenhouse gas emissions.

Process of the first green bond issue in the Swiss real estate market

On 4 September 2019, Zug Estates issued the first green bond by a listed Swiss real estate company. The CHF 100 million green bond, which refinanced existing short-term debt in the virtually emission-free Suurstoffi site in Risch-Rotkreuz, was issued with a 6-year term and a coupon of 0.1%. The bond was launched with a spread of 95-105 basis points (bps) over Saron. Within an hour of the announcement, the books were closed three times over-subscribed. Due to the strong demand, the green bond was priced at 90 bps and a negative new issue premium of 10 bps. It was calculated that the greenium amounted to approximately 3-5 bps compared to other outstanding bonds. The investor base was as follows: 75% asset managers, 9% insurance companies, 7% banks, 5% pension funds, 3% retail, and 1% corporates. Around one-third of investors stated that they had explicitly purchased the bond for sustainability reasons.⁹¹

Other companies followed

Other real estate companies followed the trend in the years that followed, and in November 2022 PSP Swiss Property reclassified all of its outstanding bonds as green bonds.⁹² More recent transactions include the issuance of HIAG Immobilien Holding AG's inaugural green bond on 3 January 2025 for CHF 100 million⁹³ and Swiss Prime Site (SPS)'s issuance of a CHF 210 million green bond on 13 January 2025.⁹⁴

⁹¹ Based on information from Zug Estates, 2024

⁹² Grimm & Radler, 2022

⁹³ Bond Guide, 2025

⁹⁴ Real Estate Business, 2025

2.2 Green Convertible Bonds

As described in detail in the financial management handbook, a convertible bond is an equity-linked bond. In this case, a company takes out a bond. The bond is convertible into a certain number of shares of the bond issuer over a predefined period. Thus, the convertible bond is a combination of a bond with an option on the corresponding shares.⁹⁵

Green convertible bonds from Meyer Burger

Meyer Burger Technology Ltd has issued the following two green convertible bonds:⁹⁶

First green convertible bond, issued in July 2021

- Issue volume: EUR 145 million
 - Maturity: 2021 to 2027
 - Coupon: 3.50% per year, payable semi-annually
 - Initial conversion price: EUR 0.5868 (25% premium to the reference share price)
 - Intended use: financing/refinancing of eligible green projects under the Green Financing Framework
- Second green convertible bond, issued in May 2023
 - Issue volume: EUR 216.3 million
 - Maturity: 2023 to 2029
 - Coupon: 3.75% per year
 - Initial conversion price: EUR 0.6953 (27.5% premium to the reference share price)
 - Reference share price: EUR 0.5453
 - Intended use: financing/refinancing of eligible green projects, particularly for the procurement of materials and equipment, as well as the ramp-up of module and solar cell production

Green convertible bonds from Meyer Burger These two bonds share several common features. Primarily, they comply with Meyer Burger's Green Financing Framework, and they are structured as non-subordinated and unsecured. The bonds can be converted into new or existing registered shares of Meyer Burger. While they have not been listed on the stock exchange, there is an option for later listing. Meyer Burger issued these financing instruments to accelerate its transformation into a leading European manufacturer of solar cells and modules, while also supporting sustainable projects.

2.3 Social Bonds

As with the green bond described in section 2.1 Green Bond, the social bond is also a "use-of-proceeds" bond. The basic structure of the Social Bond Principles (SBP) corresponds to the structure of the green bond introduced above, with four core components and two key recommendations.

The cornerstone of a social bond is the dedicated use of the proceeds. In line with its own objectives, the ICMA SBP is designed to support issuers in financing socially responsible and sustainable projects that achieve greater social benefits. Social projects address specific social problems or seek to achieve positive social outcomes. The SBP recommends identifying the target groups. Social project categories can, among other things, provide or promote the following:

⁹⁵ Lütolf et al., 2018, p. 550f

⁹⁶ Meyer Burger Technology (a), online and Meyer Burger Technology (b), online

- Affordable basic infrastructure, e.g., clean drinking water
- Affordable housing
- Security of supply and a sustainable food industry

Although only a selection is shown here, ICMA makes it clear that the list in the SBP is not exhaustive and that the definition of social projects can vary depending on the sector and region.

Examples of social bonds issued are:

- **Basler Kantonalbank** issued a social bond in September 2022. The bond, with an issue volume of CHF 110 million, is intended to contribute to social development in the region. Basler Kantonalbank wants to use it to enable low-cost financing for projects that create social added value. In the city of Basel, for example, affordable housing is in short supply. In providing affordable housing, housing cooperatives, in particular, fulfil a key function. Other non-profit and social construction projects, such as hospitals, nursing homes, or other facilities, also contribute to improving the quality of life. Thanks to the corresponding financing transaction of Basler Kantonalbank, such institutions in the fields of social housing, health, and care should have access to affordable financing. The issue resulted in the following:⁹⁷
 - Volume: CHF 110 million (with a reopening clause⁹⁸)
 - Coupon: 1.75% p.a.
 - Issue price: 100.229%
 - Maturity: 2022 to 2029
 - Listing: SIX Swiss Exchange
 - Issuer rating: S&P AA+/stable
- **Unédic**: The French unemployment agency issued a EUR 4 billion social bond in May 2020, followed by a second EUR 4 billion bond a month later. These bonds aimed to support social initiatives related to unemployment and economic stability.⁹⁹
- **Ford Foundation**: In 2020, the Ford Foundation issued USD 1 billion of social bonds to support various social causes. This issuance highlights the increasing role of corporations in the social bond market and their commitment to addressing societal challenges.¹⁰⁰

2.4 Sustainability Bonds

A sustainability bond is a combination of a green and a social bond. Certain social projects can also have an environmental benefit. Similarly, green bond projects can have a social benefit. The ICMA recommends classifying bonds as green, social, or sustainability bonds based on the primary objectives of the underlying projects.

In Switzerland, only two sustainability bonds totalling CHF 220 million were outstanding as of 4 February 2024. The issuers were Allgemeine Baugenossenschaft Zürich (ABZ) and Raiffeisen Switzerland:

- **Allgemeine Baugenossenschaft Zürich (ABZ)** was the first housing cooperative to issue a 10-year bond in 2021, with a volume of CHF 120 million. ABZ used the corresponding sustainability bond to refinance the following three sustainable construction projects: the Glattpark, Entlisberg 2, and Toblerstrasse developments. Together, these projects provide 660 affordable housing units in the Zurich area.¹⁰¹

⁹⁷ BKB, 2022

⁹⁸ A reopening clause allows an issuer to issue additional amounts of a previously issued bond.

⁹⁹ Takhtayeva, 2021

¹⁰⁰ Takhtayeva, 2021

¹⁰¹ ABZ, online; ABZ, 2021

- **Raiffeisen** issued a sustainability bond with a volume of CHF 110 million. Raiffeisen uses the bond proceeds to finance or refinance loans to energy-efficient, non-profit housing developers.¹⁰²

Internationally, the following transactions are among the best known:¹⁰³

- **Adidas**: Adidas issued EUR 500 million in sustainability bonds to support environmental and social projects, reflecting the fashion industry's growing focus on sustainability.
- **Alphabet Inc. (Google)**: Alphabet Inc. issued USD 5.75 billion in sustainability bonds in 2020, the largest corporate issuance of its kind. The proceeds are used to finance projects in areas such as energy efficiency and support for small businesses.
- **Schneider Electric**: Schneider Electric, a multinational corporation specialising in energy management and automation, issued EUR 650 million in bonds in 2020 that are linked to sustainability. These bonds are tied to performance indicators for reducing CO2 emissions, increasing gender diversity, and training underprivileged individuals in energy management.

2.5 Sustainability-linked Bonds

In contrast to the sustainability bonds presented in the previous chapters, a sustainability-linked bond ("SLB ") does not contain any restrictions on the intended use of the issue proceeds. This is a "general purpose" bond. In its Sustainability-linked Bond Principles (SLBP), the ICMA defines SLBs as an instrument in which the future cash flows of the bond depend on whether the issuer achieves defined sustainability or ESG targets. SLBs are therefore a forward-looking, performance-based instrument, whereby the issuer explicitly undertakes to improve its own sustainability performance within a predefined period of time. The targets and their achievement are measured against key performance indicators (KPIs) and assessed on the basis of predefined sustainability targets (SPTs).

The SLBP provide guidance to issuers on how to structure a credible and ambitious SLB. The SLBP consist of five core components:

1. Selection of key performance indicators (KPIs)
2. Calibration of sustainability performance targets (SPTs)
3. Bond design
4. Reporting
5. Verification

The recommendations suggest that issuers should publicly address:

- The rationale for selecting the specific KPIs (relevance, materiality);
- The motivation for setting the SPTs (level of ambition, consistency with strategic planning and benchmarking);
- The potential changes in cash flows and the events that would trigger them;
- The planned reporting and independent verification after issuance.

The credibility of an SLB hinges on the selection of the KPIs. These KPIs can be internal or external but must be materially significant to the issuer's sustainability and business strategy. Additionally, KPIs should relate to sector-specific ESG challenges and be under management control. They must also be measurable or quantifiable, externally verifiable, and benchmarkable. Issuers are encouraged to use KPIs that have already been publicly reported, and if not feasible, they should disclose externally verified values for the past three years.

¹⁰² Raiffeisen, 2019

¹⁰³ LISAM, 2021

Issuers must provide a clear definition of the KPIs, including their scope (e.g., percentage of total emissions affected), calculation methods, and baseline values.

The calibration of SPTs is critical to structuring an SLB, as these targets demonstrate the issuer's level of ambition. The SLBP stipulate that SPTs should be established in good faith, accompanied by disclosures of strategic factors influencing target achievement. These targets must be ambitious and go beyond business-as-usual scenarios. Additionally, a defined timeline must accompany the targets, with both elements being established and communicated before or simultaneously with the bond issuance. The ICMA recommends that target-setting rely on a combination of benchmark approaches, including the issuer's past three years of performance, peer group performance, scientific scenarios, and official target levels. The disclosures accompanying the targets should detail the timeline, monitoring and calculation dates, and trigger events. If applicable, situations where recalculations or pro forma baseline adjustments might occur should be explained.

Although obtaining a second-party opinion is not one of the five core components of the SLBP, it is highly recommended. This independent review should focus on the relevance, robustness, and reliability of the KPIs, as well as the appropriateness and ambition level of the SPTs.

Key feature of SLBs is that their financial or structural characteristics may change depending on whether the SPTs are achieved. The most common variation, according to the ICMA, is a change in the coupon, although other variations are possible. The SLBP recommend that these variations—particularly in the financial component (e.g., coupon adjustments)—be significant and meaningful for the issuer. For investors to recognise these changes, the definitions of KPIs, SPTs, calculation methods, and potential variations must be specified in the bond prospectus. A pure framework with a reference to how this is done, for example in a green bond, is not sufficient for an SLB. To mitigate legal risks, the ICMA suggests including fallback mechanisms, which could be activated if the SPTs cannot be measured or monitored or if extraordinary events occur, such as transformative M&A activities or drastic regulatory or technical changes.

Issuers of Sustainability-Linked Bonds (SLBs) should provide regular, up-to-date reports on the performance of their selected Key Performance Indicators (KPIs). Additionally, they must obtain an external audit certificate verifying their performance against the Sustainability Performance Targets (SPTs) and its impact on any potential adjustments to the bond's characteristics. It is recommended that this information be published annually.

To ensure compliance with the five core components of SLBs, reporting must occur at least within the periods that could trigger changes to the bond's terms. An independent, qualified external auditor should verify performance against each SPT, and the results of this verification must be made publicly available.

Holcim: CHF 425 million sustainability-linked bonds

In January 2022, Holcim issued a dual tranche of sustainability-linked bonds with nominal values of CHF 325 million with a coupon of 0.375% and a term until 2026 and CHF 100 million with a coupon of 1.000% and a term until 2032 respectively. These bonds followed the EUR 850 million bond issued in November 2020, which was the first of its kind in the building materials industry.

With the sustainability bonds, Holcim wants to reaffirm its commitment to achieving its CO₂ reduction target for 2030. Investors will receive a higher coupon if Holcim does not meet or exceed its target for the reduction of net CO₂ emissions per tonne of cementitious material. This is an incentive for the company to achieve its sustainability target.¹⁰⁴ The issuance of this bond is in line with Holcim's broader strategy to integrate sustainability into its financing framework and operations and demonstrates the company's commitment to environmental responsibility and sustainable practices.¹⁰⁵

Holcim's Sustainability-Linked Bond is aligned with ICMA's Sustainability-Linked Bond Principles and the key points of the bond are:¹⁰⁶

1. **Selection of key performance indicators (KPIs):**
CO₂ intensity calculated as kg net CO₂ emitted/t cementitious material (kg net CO₂/t.cem), scope 1
 The selection of the central KPI is in line with the comprehensive review of Holcim's material topics in 2019, which included the views of external and internal stakeholders on the most relevant topics for future value creation.
2. **Calibration of the Sustainability Performance Targets (SPTs):**
 Sustainability Performance Target (SPT1 / SPT2): Reduction in net CO₂ emissions per tonne of cementitious material of at least 9.7 % and at least 17.5 % compared to the base year 2018 by 31 December 2025 and 31 December 2030 respectively.
 In September 2020, SBTi validated Holcim's SPT 2 reduction targets for Scope 1 as consistent with a "well below 2°C" scenario. To increase the transparency and robustness of the climate pathway, Holcim added a target for 2025 that is consistent with a well below 2°C scenario and on track with the 2030 target.
3. **Bond design:**
 If the sustainability performance target has not been met on the target achievement date, Holcim will pay a premium at maturity, which will be published in the annual reporting after the target achievement date.
4. **Reporting**
 Holcim will communicate annually on the relevant KPIs and SPTs and provide up-to-date information and reports on its website.
5. **Verification**
 Holcim will apply the following levels of external verification: (1) ISS ESG has provided a second party opinion; and (2) performance in relation to the SPT is externally verified by an independent third party.

If Holcim does not achieve the SPTs, the payment at the due date will increase as follows:

- Tranche 1 maturing in 2026: Premium of 37.5 basis points on the nominal amount
- Tranche 2 maturing in 2032: premium of 75.0 basis points on the nominal amount

The following diagram illustrates the two tranches and their possible premiums:

¹⁰⁴ Holcim, 2020; Holcim 2021

¹⁰⁵ Holcim, 2022

¹⁰⁶ Holcim, 2022

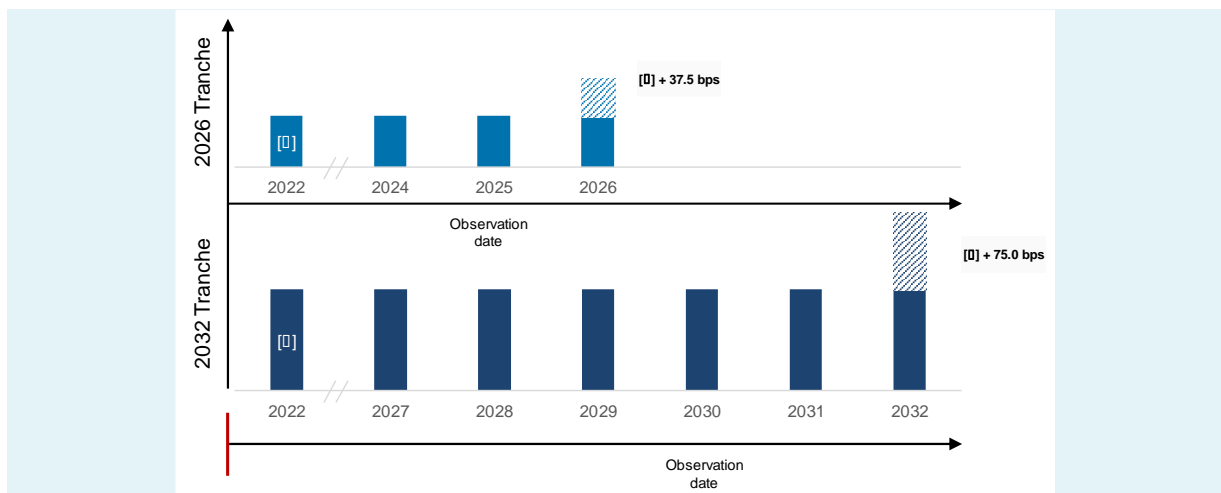


Figure 14: Coupon and premium payments on the Holcim EUR 850 million sustainability-linked bond

Consequently, there are two cash flow scenarios for each bond: one assuming that the SPTs are achieved and the other assuming that the targets set are not met, and the premium is not paid.

An IRR calculation of the cash flows shows that the premium increases the costs (i.e. the annualised return) for Holcim by a good 9 basis points in the 2026 tranche and a good 7 basis points in the 2032 tranche.

2.6 Transition Bonds

The Climate Transition Finance Handbook¹⁰⁷ (CTFH) published by ICMA in 2020 characterises "transition" as a challenge at the level of the entire organisation/company. Transition is understood to mean the reduction of greenhouse gas emissions. This results in financing issues for both use-of-proceeds bonds and SLBs. However, this does not result in a definition for transition finance. For example, the OECD concludes that there is neither a standardised definition of transition finance nor a set of technical criteria or qualifying sectors or technologies that have been jointly agreed upon.¹⁰⁸ In February 2024, the ICMA published a paper entitled Transition Finance in the Debt Capital Markets.¹⁰⁹ In it, it identifies three different overlapping definitions of transition finance:

- Macroeconomic transformation: Transformation of entire economic systems and goals beyond the Paris Agreement;
- Climate transformation: Goal of implementing the Paris Agreement, but typically with a narrower sector/industry focus;
- "Hard-to-abate" transformation: refers to the specific challenges in reducing emissions from fossil fuels or from so-called hard-to-abate sectors.¹¹⁰

According to the ICMA publication from 2024 mentioned at the beginning, bonds labelled "Climate Transition Bonds" account for only 0.4% of all sustainability bonds. One of the possible reasons for this is that climate transition and thus also transition bonds are directly linked to the credibility of an issuer's greenhouse gas reduction strategy, commitments and measures. The challenge for issuers or even industries is to provide market

¹⁰⁷ ICMA, 2023a

¹⁰⁸ OECD, 2022

¹⁰⁹ ICMA, 2024

¹¹⁰ Hard-to-abate sectors such as the cement, steel and chemical industries are responsible for a substantial proportion of CO₂ emissions. However, these emissions are difficult to reduce as they pose major challenges both technologically and financially.

participants and investors with as much guidance as possible on technologies, industry trends and reduction pathways without exposing themselves to controversy or concerns about greenwashing.

In principle, transition bonds can be issued in the guise of all the sustainability bonds described above. The CTFH lists four core elements that are also recommended for issuers of transition bonds:

1. Transformation strategy and governance: clear communication and detailed information on how the business model is to be adapted over time in order to achieve the goals of the Paris Agreement. The transformation strategy should be based on the science-based targets ("SBT").
2. Ecological materiality in the business model: transition financing should relate to greenhouse gas reduction in the core business or to diversification into new, less greenhouse gas-intensive business areas.
3. SBT-orientated transformation strategy and climate targets: SBT-aligned business plans are seen as more credible and make future external measurement and benchmarking easier.
4. Transparency around implementation: it is advisable to be transparent about planned CapEx and OpEx and at the same time to disclose the qualitative and quantitative expectations of the individual measures. In the case of R&D expenditure, it should be shown to what extent this goes beyond normal business.

Some examples of transition bonds issued by companies are

- **European Bank for Reconstruction and Development (EBRD)**: The EBRD issued a transition bond in the amount of USD 216.6 million to finance projects to decarbonise the existing energy infrastructure.¹¹¹
- **Mitsubishi Heavy Industries (MHI) Group**: The MHI Group issued a JPY 10 billion five-year transition bond in September 2022. The proceeds from this bond will be used to finance projects focusing on the decarbonisation of existing energy infrastructure, the development of hydrogen infrastructure and the implementation of solutions for the capture, storage and use of CO₂.¹¹²
- **Marfrig**: Brazilian beef producer Marfrig issued a transition bond in 2019 after unsuccessfully attempting to issue a green bond. The transition bond was intended to support projects to clean up the supply chain and reduce the environmental impact.¹¹³

2.7 Blue Bonds

This section first introduces the concept of the "blue economy" before discussing various blue bond issuances.

The global blue economy is a vital part of the broader economic system, currently valued at approximately USD 2.5 trillion per year. It supports the livelihoods of over 3 billion people and is projected to grow at a compound annual growth rate (CAGR) of 5–6% over the next decade. This expansion is driven by rising demand for marine resources, advancements in technology, and a global shift toward sustainable practices.¹¹⁴

The blue economy has the potential to make a substantial contribution to global economic growth. According to the Organisation for Economic Co-operation and Development

¹¹¹ Spectra, 2023

¹¹² Spectra, 2023

¹¹³ Riordan, online

¹¹⁴ Bosmans & de Mariz, 2023.

(OECD), the ocean's contribution to global economic output could surpass USD 3 trillion by 2030. However, realizing this potential will require an estimated USD 1.5 trillion in annual investments in sustainable ocean-based activities.¹¹⁵

Before defining these different industries and sectors, a clear distinction must be made between the blue economy and the associated sectors. In the article "The Rebuilding the Classification System of the Ocean Economy" by Park & Kildow, it is shown how important it is to distinguish between business and industry.¹¹⁶ The latter is mainly concerned with the private sector of goods and services. The blue economy, however, covers a wider area and includes both the private and public sectors. As Park & Kildow summarise, the blue economy can be defined as the economic activities that take place directly or indirectly in the ocean and use the results of the ocean.

As the blue economy matures, researchers from multilateral development banks and development finance institutions, government agencies and other think tanks have widely accepted the following ten sectors of the blue economy

- Aquaculture,
- Blue biotechnology,
- Blue renewable energies,
- Blue technology and observation,
- Coastal and marine tourism,
- Environmental protection and regeneration,
- Fishing,
- Shipbuilding and ship conversion,
- Shipping and harbours and
- Water management.

The bond market for blue bonds has its origins in the issue of the first blue bonds by the Republic of Seychelles in 2018, a full eleven years after the issue of the first green bond.

¹¹⁵ OECD, 2016 and Bosmans & de Mariz, 2023.

¹¹⁶ Park & Kildow, 2014.

Blue Bond of the Seychelles

The first example of a blue bond is the **Seychelles** bond issued in 2018 (BB+, Fitch Ratings). This bond (NR: Not Rated) has the following key figures: ¹¹⁷

- Nominal value USD 15 million
- Term 10 years
- Supported by the World Bank and the Global Environment Facility, i.e. partial guarantee from the World Bank (USD 5 million) and concessional loans from the Global Environment Facility (USD 5 million)
- Credit enhancement: The bond has a coupon of 6.5 %; the credit enhancement means that the coupon payable by the Government of Seychelles will be reduced to 2.8 %.

The blue bond is part of the World Bank's South West Indian Ocean Fisheries Governance and Shared Growth Programme (SWIOFish3). This project aims to improve the management and conservation of marine areas and strengthen the seafood value chains in the Seychelles.¹¹⁸

The proceeds will be used to capitalise a Blue Grants Fund (USD 3 million) and a Blue Investment Fund (USD 12 million), each of which will provide funding for marine and ocean-related activities that contribute to the transition to sustainable fisheries. These funds will be managed by the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT) and the Development Bank of Seychelles (DBS), which will manage the loans from the Blue Investment Fund. ¹¹⁹

The primary beneficiaries are the people of Seychelles, whose livelihoods rely on marine resources and the ocean. This includes artisanal and semi-industrial fishers, stakeholders in tourism, and those involved in the seafood value chain, such as aquaculture businesses. Additionally, national and local institutions responsible for marine resource management, including fishers' associations and government agencies, stand to gain. Ultimately, the entire population will benefit from a healthier marine environment and improved food security.¹²⁰

This first issue marked the beginning of a progressive but steady development of blue bond activities with a total of 26 issues until 2022. These issues represent a total value of around USD 5 billion.¹²¹ Blue bonds were predominantly issued by government agencies and development banks. This is particularly the case in emerging countries whose economies are heavily dependent on marine resources. Blue bonds are currently associated with sovereign issuers from emerging markets that have a poor credit rating and a burdened default history. These issues do have an obvious environmental impact. However, unless backed by MDBs and DFIs, they can be constrained by high credit risks associated with low-income countries and poor secondary market liquidity.

A pivotal moment in the evolution of blue bonds was the publication of the *Guidelines for Blue Finance* by ICMA, IFC, and ADB in September 2023. These guidelines built upon established sustainable finance frameworks, including the Green Bond Principles (GBP), Social Bond Principles (SBP), and Sustainability Bond Guidelines (SBG). They provided much-needed clarity on the use of proceeds, standards, and impact metrics for blue bonds, marking significant progress toward greater standardization and market confidence in this emerging asset class.

¹¹⁷ World Bank Group, 2018

¹¹⁸ World Bank Group, 2018

¹¹⁹ World Bank Group, 2018

¹²⁰ World Bank Group, 2018

¹²¹ Bosmans & de Mariz, 2023.

The release of the *Blue Bond Directive* by ICMA in 2023 represented a decisive step toward formalizing the blue bond market. By aligning blue bonds with existing global market standards, the directive ensures that proceeds are directed toward eligible marine and ocean-related initiatives. This alignment with green and social bond principles offers issuers and investors a structured approach to engaging in blue finance with increased confidence and transparency.

The ICMA guidelines may also signal the beginning of a broader transformation in the blue bond market. While initially considered a subset of green bonds, blue bonds are now emerging as an asset class. Drawing on lessons from the green bond market—where cumulative issuance took nearly 12 years to reach USD 1 trillion—blue bonds could benefit from the strong and growing demand for sustainable investments.

For blue bonds to reach the scale and impact of their green counterparts, several key factors must be addressed. While the ICMA guidelines provide a strong foundation, the market still requires more robust frameworks and methodologies to ensure consistent standards and the effective use of proceeds. Multilateral Development Banks (MDBs), Export Finance Institutions (EFIs), and other key stakeholders or sponsors of blue bonds play a critical role in promoting and enforcing this standardization. Establishing clear and standardized impact reporting indicators is essential to prevent “bluewashing” and to build investor trust in the long-term viability and credibility of blue bonds.

Blue bonds can therefore be defined as bonds issued to raise capital to finance marine and ocean-based projects that have a positive impact on the environment, economy and climate. These bonds are intended to support investments in healthy oceans and thus in the “blue economy”.¹²² Blue bonds can be characterised as follows:¹²³

- Purpose: Blue Bonds finance projects for marine conservation, sustainable fisheries, marine ecosystem management and other ocean-friendly initiatives.
- Issuers: Governments, development banks and companies can issue blue bonds.
- Investors: Impact investors and socially responsible institutions are usually the main buyers of blue bonds.

In the history of the development of blue bonds, government issuers were the first to issue blue bonds, followed by various supranational agencies and financial institutions. Since 2022, blue bonds have also been issued by private companies. This market is still very young and the volume of new issues was still moderate in 2023 and 2024. Nevertheless, companies are entering the market, supported by growing demand from institutional and sustainability-oriented investors.

The differentiation and labelling between blue and green emissions may seem complicated. In addition, there is no clear and precise definition of ocean-related activities and impact measurement is still in the early stages of standardisation.¹²⁴ In principle, the use of proceeds is about the same thing: raising capital for sustainable development and financing effective blue economy activities.

Seafood companies such as Mowi ASA and Grieg Seafood from Norway were the first companies to issue green bonds with blue features. The proceeds from these bonds were invested in sustainable farming methods and environmental projects. Their activities and the utilisation of the proceeds thus justified the issue of blue bonds. They were followed by various issuers from the shipping sector (e.g. Blue Transition Bond from Seaspan Corporation in Hong Kong), the water supply and sanitation sector (e.g. BRK Ambiental in Brazil)

¹²² World Bank Group, 2018 and Asian Development Bank, 2023

¹²³ Based on World Bank Group, 2018 and Asian Development Bank, 2023 and Man Group, 2023

¹²⁴ Bosmans & de Mariz, 2023.

and Ørsted, a Danish energy company, which was the first company in this sector to issue a blue bond.

To illustrate the nature of blue corporate bonds, the blue bond issues of DP World are discussed below.

Blue Bond from DP World

DP World Ltd. , headquartered in Dubai, UAE, a leading global provider of logistics and supply chain solutions, has issued the first corporate blue bond in the Middle East and North Africa region (MENA). This issue reflects the company's commitment to driving the sustainable blue economy and supporting projects in the areas of marine conservation, clean energy and water. The bond underlines DP World's leadership in sustainable finance and represents a significant milestone in financing ocean and water initiatives worldwide and addressing global ocean and environmental challenges. The key terms of the corresponding bond are as follows:

- Issuer: DP World Ltd, Baa2 (Moody's), BBB+ (Fitch)
- Issue volume: USD 100 million
- Maturity: 24 December 2029
- Term: 5 years
- Coupon: 5.25 %, payable semi-annually
- Issue spread: 99.6 bp over US government bonds (T4.125% 11/30/2029)
- Issue price: 100% of the nominal amount

The proceeds from the issue are earmarked for the financing or refinancing of projects that comply with DP World's Sustainable Finance Framework. The eligible Blue Projects are: Sustainable Maritime Transport, Marine Conservation, Sustainable Water Management, Pollution Prevention, Renewable Energy and Energy Efficiency and Socio-Economic Empowerment.

The issue complies with the following global standards: Green Bond Principles (ICMA, 2021), Social Bond Principles (ICMA, 2023) and Sustainability Bond Guidelines. The sustainable financing complies with the following UN Sustainable Development Goals (SDGs) SDG 6: Clean Water and Sanitation, SDG 13: Climate Action, SDG 14: Life Below Water and SDG 15: Life on Land.

The bond received a Second Party Opinion (SPO) from ISS Corporate Solutions, which confirms compliance with the global sustainability principles. This external certification can be withdrawn or is subject to withdrawal if the methods change or the project results deviate from the original objectives.¹²⁵

As the blue bond market continues to mature, lenders are looking beyond issuances from state and development banks. Increasingly, blue loans and other debt instruments focused on private sector projects, companies, and initiatives are expected to enter the market.

Issuers from Switzerland or Europe can readily take advantage of the blue bond framework and its favorable financing conditions, provided that their projects align with the relevant sectors. This expansion of blue finance beyond sovereign and multilateral issuers will further drive investment in sustainable ocean-based activities, fostering innovation and growth in the blue economy.

¹²⁵ DP World, 2025

3 Sustainable Loans

Another important yet less publicly visible form of debt capital procurement is loans, which may also be syndicated. As issuance activity in the green bond market has grown, there has been a rising demand for green loans as part of the broader sustainable finance movement. The first green loans were structured under the ICMA Green Bond framework¹²⁶ before the Green Loan Principles were published in 2018. Similar to the Green Bond Principles, the Green Loan Principles (GLP) are a voluntary framework with recommendations on market standards, which also deliberately guarantee the familiar flexibility of the loan product. The GLP were drawn up and published under the aegis of the Loan Market Association (LMA ; Europe) and the Asia Pacific Loan Market Association (APLMA ; Asia), with the American Loan Syndications and Trade Association (LSTA) joining in later. One year after the GLP, Sustainability-Linked Loan Principles (SLLP) were published under the same leadership, followed by the Social Loan Principles (SLP) in 2021.

The GLP and SLP are "use of proceeds" instruments, whereas the proceeds under the SLLP can be used as "general purpose" instruments.

3.1 Green Loan

The Green Loan Principles (GLP) aim to support borrowers in financing environmentally sustainable projects that contribute to a net-zero economy, protect and restore the environment, enhance climate change adaptation, and deliver other environmental benefits.¹²⁷ The GLP are to be applied by market participants depending on the underlying characteristics of the transaction. The GLP recommend transparency and disclosure and should clearly show what has led to the loan being categorised as "green". With regard to the type of green loan, the Guidance on Green Loan Principles states that any type of loan instrument or contingent facility such as guarantee lines or letters of credit that are used exclusively for the full or partial financing, refinancing or guarantee of new or existing qualifying projects are suitable.

The recommendations for a green loan are very similar to the recommendations for a green bond and are divided into the four pillars already familiar from section 2.1:

1. Intended use
2. Project evaluation and selection process
3. Revenue management
4. Reporting

The **intended use** of funds, the key criterion for a green loan, is not explicitly defined in the Green Loan Principles (GLP). Similar to ICMA's approach for green bonds, APLMA, LMA, and LSTA do not specify particular technologies, standards, or initiatives that offer the most significant sustainability benefits. While the GLP includes a non-exhaustive list of eligible green project categories, it primarily refers borrowers to various ongoing international and national initiatives that are developing taxonomies and guidelines. Additionally, the GLP acknowledge that the definition of "green" may vary depending on the sector and region, allowing for a degree of flexibility in project classification.

Borrowers of green loans should clearly communicate their environmental sustainability goals to lenders, outlining both the **selection process** for individual projects and how

¹²⁶ BBVA, 2018

¹²⁷ APLMA, LMA & LSTA, 2023

potential or existing environmental and social risks are managed. Additionally, they should integrate the green loan criteria within their overall corporate sustainability strategy and, where relevant, demonstrate alignment with applicable taxonomies or sustainability standards.

The **management of proceeds** follows a structure similar to that of green bonds (see section 2.1.3). In principle, green loan proceeds must be adequately monitored, either through a portfolio-based approach or by tracking each loan individually. For credit lines with multiple tranches, a loan can only be classified as green under the Green Loan Principles (GLP) if all tranches meet the four core requirements.

Borrowers should prepare a **report on** an annual basis that discloses the green projects, the amounts invested in them and the expected or already achieved ecological impact. The use of qualitative and, where practicable, quantitative metrics is recommended. The underlying methodology, including any assumptions, should also be disclosed. The major difference to the Green Bond Report is that the Green Loan Report is not made available to the entire market and therefore the entire public but is limited to the institutions involved in the loan.

As part of the Green Bond Principles, ICMA makes one of two key recommendations that an external verification of the annual report should take place. Under the Green Loan Principles, this **external review** merely has the character of a normal recommendation. As an alternative to an external review, self-certification can also be used, as the loan market is traditionally a relationship-orientated market and lenders generally have extensive knowledge of the borrower and its activities. In this context, however, it is recommended that the internal processes involved and the existing experience and knowledge of the employees involved be disclosed to the lenders. Where possible and feasible, the parameters used to categorise a project as green should also be made available to the public.

Green Loan of USD 5 billion to Northvolt

The transaction announced by Northvolt in January 2024 was presented as a significant milestone in the European battery industry. The company secured USD 5 billion in project financing, marking the largest green loan in Europe to date. This financing was primarily for the expansion of the Northvolt Ett Gigafactory site in northern Sweden and also included the refinancing of a previous USD 1.6 billion financing.

The funds were earmarked for the expansion of cathode production and cell manufacturing as well as for the expansion of the neighbouring Revolt Ett recycling plant. The financing was provided by 23 commercial banks, the European Investment Bank (EIB) and the Nordic Investment Bank (NIB), supported by the European Commission's InvestEU programme. Additional guarantees and direct financing came from various national and international institutions.

It is noteworthy that this loan was granted under Northvolt's Green Finance Framework, which has received the highest "dark green" rating from CICERO. This underlines Northvolt's commitment to sustainability and circular economy in battery production.

The financing was based on long-term off-take agreements worth more than USD 55 billion with renowned partners from the automotive industry and was granted as part of a total financing of more than USD 13 billion for Northvolt's expansion in Europe and North America. This transaction was intended to consolidate Northvolt's position as a leading player in sustainable battery production for the electric vehicle industry.¹²⁸

¹²⁸ Northvolt, 2024a

Despite the initial euphoria, Northvolt ran into serious financial difficulties in the following months:

- Production problems: The plant in Skellefteå achieved less than 1% of its planned 16 GWh capacity in 2023.¹²⁹
- Loss of orders: Important customers such as BMW cancelled contracts worth USD 2 billion.¹³⁰
- Mass redundancies: Around 1,600 employees were made redundant.¹³¹

On 21 November 2024, Northvolt filed for Chapter 11 bankruptcy in the USA.¹³² Northvolt's financial distress has a significant impact on the original USD 5 billion loan. Among other things, a loan guarantee for USD 1.5 billion has been suspended¹³³ and Germany is also facing high potential losses. The estimated losses for Germany alone amount to EUR 620 million.¹³⁴

3.2 Social Loan

A social loan differs from a green loan only in its intended use. While green loans focus on environmental sustainability, social loans are designed to address or alleviate specific social challenges and generate positive social outcomes for the target population—though not exclusively. The Social Loan Principles (SLPs) outline six potential project categories and ten target population groups, which may include the general public. To provide further guidance, the SLPs reference existing market selection criteria and acknowledge that the definition of social projects may vary depending on the sector and region. This flexibility allows for a broad range of initiatives that align with social impact goals while adapting to local contexts.

3.3 Sustainability Loan

To date, the APLMA, LMA and LSTA have not published any Sustainability Loan Principles analogous to the other Loan Principles or the ICMA Sustainability Bond Principles. Based on these principles, however, it should be possible for a borrower to set up a sustainable loan structure with mixed environmental and social objectives if required.

3.4 Sustainability-linked Loan

The Sustainability-Linked Loan Principles (SLLP) define a sustainability-linked loan as any credit instrument whose economic characteristics may change depending on the borrower's success in achieving pre-defined, ambitious, material, and quantifiable sustainability targets. These targets, known as Sustainability Performance Targets (SPTs), are measured using Key Performance Indicators (KPIs). Unlike green or social loans, the direct use of proceeds is not a determining factor, making a sustainability-linked loan a “general-purpose” instrument, similar to a sustainability-linked bond.

¹²⁹ Petras, 2024

¹³⁰ Tagliapietra & Trasi, 2024

¹³¹ Savage, 2024

¹³² Northvolt, 2024b

¹³³ Mannes, 2024

¹³⁴ Tagliapietra & Trasi, 2024

The SLLP provide a framework consisting of five core components:

1. Selection of KPIs
2. Calibration of the SPTs
3. Loan arrangement
4. Reporting
5. Verification

The borrower should explain to lenders the rationale behind selecting specific KPIs, highlighting their relevance and materiality to the business model. They should also clarify the ambition level of the SPTs and how they will be achieved. For larger syndicated credit lines, the principles recommend appointing one or more "Sustainability Coordinators" or "Sustainability Structuring Agents."

First and foremost, the KPIs must be relevant to the borrower's central sustainability and business strategy. However, the relevant ESG challenges of the industry must also be taken into account. The credibility of the SLL product stands and falls with the **selection of the KPIs**, which

- are relevant, central and material to the overall business and are of high strategic importance;
- are measurable or quantifiable on a consistent basis;
- can be benchmarked against an external reference value; and
- can be controlled by the company itself.

The **calibration of SPTs** directly reflects the borrower's commitment level. The recommendations for calibrating the SPTs in the SLLP are the same as those in the SLBP and can be found in section 2.5 Sustainability-linked Bond. This applies with one exception: the SLLPs recommend an annual SPT for each KPI over the term of the loan. This ensures that the conditions of the loan reflect the borrower's sustainability performance every year. A margin grid can be agreed in the **loan structure**, which is based on the current KPI performance. The margin decreases if the targets are met or increases if the targets are missed. This mechanism is much more dynamic than is typically the case with a sustainability-linked bond, where the final settlement is binary via the last coupon (usually as a surcharge if the set targets are missed).

Reporting is also given appropriate weight under an SLL. Borrowers are required to provide corresponding information at least on an annual basis. As transparency is particularly important in this market, borrowers are encouraged to publish information about the SPTs and include it in the annual report or sustainability report. However, due to the private nature of the underlying lending business, a borrower may choose to share this information only within the group of lending institutions.

The borrower's performance in relation to the various SPTs for each KPI must be subject to external **verification** if it has a direct influence on the conditions of the loan. Verification can, for example, be carried out by an auditor via limited assurance or reasonable assurance. Alternatively, this can also be carried out by sustainability consultants or independent rating agencies.

The following two Axpo transactions serve as illustrative examples.

Axpo Holding AG: EUR 7.0 billion sustainability-linked loan

In February 2024, Axpo Holding AG secured one, if not the largest, credit facility in Switzerland with a sustainability component. To refinance two existing credit lines, Axpo agreed an unsecured, revolving committed credit line with a sustainability component totalling EUR 7.0 billion with an international consortium of over 30 banks.¹³⁵ The credit line can be used flexibly for both bank guarantees and loans and is available for financing current business as well as growth initiatives.

The amount of interest to be paid depends on the achievement of targets for the expansion of renewable energies, the proportion of women in management positions and the number of apprentices. The exact details are not publicly available.

Axpo Holding AG: JPY 42 Bio. Sustainability-linked Samurai Loan

Axpo Holding AG has secured a so-called "samurai loan" totalling the equivalent of around CHF 250 million from a consortium of more than 20 Japanese banks. The facility has a term of three years and is available to the company to finance ongoing business and growth initiatives, such as renewable energy projects in Switzerland and abroad

The loan again includes the following three performance indicators for sustainability: the expansion of renewable energies, the proportion of women in management positions and the number of apprentices employed. The transaction was well received by the Japanese credit market and closed oversubscribed.¹³⁶

3.5 Climate-related sustainability risks and loan defaults in Swiss retail banks - An analysis in SME financing

Note: The present analysis focuses on the topic of SME financing and was written by Chantal Zosso as part of her master's thesis.

As climate change progresses, companies are facing increasing challenges that could threaten their financial stability and long-term viability. Growing environmental regulations, shifting customer demands, and supply chain disruptions are some of the key factors. Since the 2009 climate conference in Copenhagen, there has been broad international agreement on the need to limit global temperature rise to below 2°C compared to pre-industrial levels. In 2019, Switzerland committed to achieving net-zero emissions by 2050, signaling a significant economic transformation.¹³⁷ In this context, the Swiss financial sector is positioned to take a leading role in sustainability efforts, aligning financial stability with sustainable practices. The introduction of the new FINMA circular "Nature-related Financial Risks" for banks and insurance companies highlights the growing focus on these risks, expanding the obligations to include a more comprehensive view of climate-related challenges.¹³⁸ Lastly, banks face potentially significant credit risks due to these changes.

As part of a Master's thesis for the MAS in Corporate Finance at Lucerne University of Applied Sciences and Arts, Chantal Zosso investigated **how climate-related sustainability risks influence the credit defaults of Swiss commercial banks in the context of corporate financing for small and medium-sized enterprises (SMEs)**. This customer segment represents a relevant customer group for retail banks in Switzerland. The research objective was to analyse the impact of climate-related sustainability risks on loan

¹³⁵ Axpo, 2024a

¹³⁶ Axpo, 2024b

¹³⁷ The Federal Council (2019). Federal Council wants a climate-neutral Switzerland by 2050 (Online 30.10.2023) <https://www.admin.ch/gov/de/start/dokumentation/medienmitteilungen.msg-id-76206.html>

¹³⁸ Swiss Financial Market Supervisory Authority FINMA (2024). Circular 24/xx "Nature-related financial risks". Online (14.10.2024)

defaults in SME financing. In order to answer the research question, qualitative interviews were conducted with experts from the banking and credit rating sector. The potential effects of climate-related sustainability risks on the default risk of companies were discussed by analysing various impact chains. The study also analysed existing risk assessment models and practices.

The results of the study show:

- Climate-related sustainability risks influence credit defaults in combination with other factors such as economic conditions and corporate governance.
- The financial impact on companies is diverse and does not only affect large or international companies.
- Through cascade effects, SMEs that operate globally and are integrated into international supply chains may also be affected by transition risks.
- There is a danger that physical risks, which can directly affect the continuity of business processes and the supply of raw materials, will be underestimated
- These risks are not new, but they represent a new and significant driver for the future credit risk management of banks.

Risk-minimizing and risk-increasing factors can be identified in relation to climate-related risks and their potential impact on companies' financial stability. For physical risks, the insurability of natural hazards and the related costs are critical factors. In terms of transition risks, the pace at which political efforts drive transformation and the corresponding rise in regulatory requirements are key considerations.

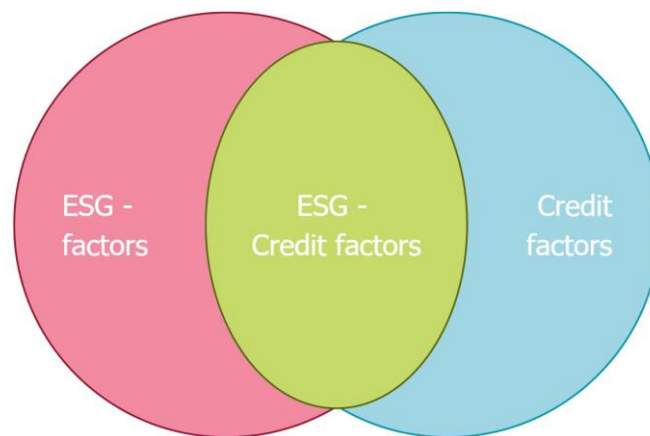


Figure 15: Sustainability risks and credit defaults
Source: based on S&P Global, 2021

The focus here is on ESG credit factors, see Figure 15, which comprise variables that significantly influence a company's ability and willingness to fulfil its financial obligations to minimize the risk of default, a strong business model and competent management are essential. A solid financial foundation is also crucial for resilience against the risks posed by climate change. According to statistics from the Swiss National Bank, the volume of loans not secured by real estate amounts to CHF 94 billion.¹³⁹ When looking at this absolute figure, it becomes clear that this is a significant amount, even if a large proportion of SME loans are collateralised. When granting loans, it is therefore crucial that the focus is not primarily on asset value, but rather on assessing the creditworthiness and affordability of financing.

¹³⁹ Swiss National Bank SNB (2024), Data portal of the Swiss National Bank. Online (30.10.2024)

The results highlight the importance of qualitative data in risk assessment, especially since climate-related risks typically only appear in the balance sheet and income statement, and thus impact credit ratings in the medium to long term. Currently, the availability of quantitative data, especially individual data, is still insufficient. In the medium term, the focus will shift to methods of quantifying qualitative factors and integrating them into credit assessment models to better account for climate-related sustainability criteria.

If quantitative data is not available in sufficient quantity and quality, there is a risk that banks will not be adequately compensated for the credit risk they assume. One promising approach is the development of an "industry radar" for individual loan assessments. This involves identifying companies in high-risk sectors (e.g., emissions-intensive industries according to the PCAF standard) or finding touchpoints within their value chains. By systematically collecting qualitative data, such as from customer meetings, potential risks can be identified early and addressed during the lending decision process, even in the absence of comprehensive quantitative data. The key indicators to focus on include the long-term viability of business models and corporate management.

Raising awareness of climate-related financial risks in credit risk management is crucial. This is a complex issue that demands thorough assessment and informed decision-making. To address this, it is essential to build expertise in this area across the board. Swiss retail banks would benefit from developing this knowledge and effectively integrating it into their processes to ensure they are well-prepared for the evolving risks associated with climate change.

4 Additional sustainable debt financing instruments

In addition to bonds and loans, several other debt financing instruments can be used for sustainable financing. This chapter outlines additional financing instruments, though it is not an exhaustive list.

4.1 Sustainable Supply Chain Finance

Supply chain finance involves the use of financing and risk management techniques to optimize working capital and liquidity within a supply chain. It helps businesses improve cash flow by ensuring suppliers are paid promptly while buyers can extend payment terms.¹⁴⁰ The financing is triggered by events in the supply chain. The financial service providers' insight into the corresponding trade flows is a necessary component of this type of financing. The Global Supply Chain Finance Forum, an initiative of various industry associations, distinguishes between financing techniques involving the purchase of receivables (on the sales side) and those involving loans and advances (on the procurement side).

Sales-side financing instruments include receivables discounting and various types of factoring. In factoring, a company sells its receivables from the delivery of goods or services to a third party, known as the "factor," typically a bank or its subsidiary. For a fee, the factor assumes responsibility for managing the trade receivables and the associated debtor management. In return, the company receives immediate liquidity, improving its cash flow and making revenue planning easier. This form of financing enhances the company's liquidity and financial flexibility.¹⁴¹

Green factoring is a specialized form of factoring where the factor exclusively finances receivables from sustainable and environmentally friendly transactions. This includes receivables arising from the sale of products or services with clear ecological or social benefits. Similar to other financial instruments, sustainable factoring can be classified into green and ESG- or sustainability-linked categories. Green factoring supports green projects, where both the seller of the receivables and its debtors must meet green financing criteria. In sustainability-linked factoring, the costs of factoring are tied to the achievement of specific sustainability targets, which are based on the company's ESG score or the fulfillment of certain ESG KPIs.¹⁴²

Unlike traditional factoring, which does not require specific sustainability criteria for the financed transactions, green factoring focuses on environmental, social, and governance (ESG) factors. While traditional factoring primarily aims to improve liquidity and manage risk, green factoring incorporates sustainability criteria, which can result in a bonus (lower factoring costs) or a malus (higher factoring costs). These adjustments are based on certain ESG KPIs and are reflected in the interest margin, with the factoring costs being either reduced (bonus) or increased (malus) depending on the achievement of the sustainability targets.¹⁴³

¹⁴⁰ Global Supply Chain Finance Forum, 2016

¹⁴¹ SECO, online

¹⁴² Reiser, online

¹⁴³ Reiser, online

Additional sustainable debt financing instruments

On the procurement side, financing instruments include loans or advances in connection with trade receivables. In general, this type of supply chain finance (SCF) brings a source of financing into a supplier relationship that benefits both the buyer and the seller.

This SCF solution is introduced by the buyer together with a financial institution. This provides suppliers with additional liquidity at attractive conditions.¹⁴⁴ The supplier can utilise the SCF facility at its own discretion. The financial institution pays the invoice before the payment term agreed with the buyer. The supplier receives this pre-financing at the credit conditions (reference rate plus margin) that the financial institution estimates for the buyer. The following Figure 16 illustrates the mechanics of an SCF programme.

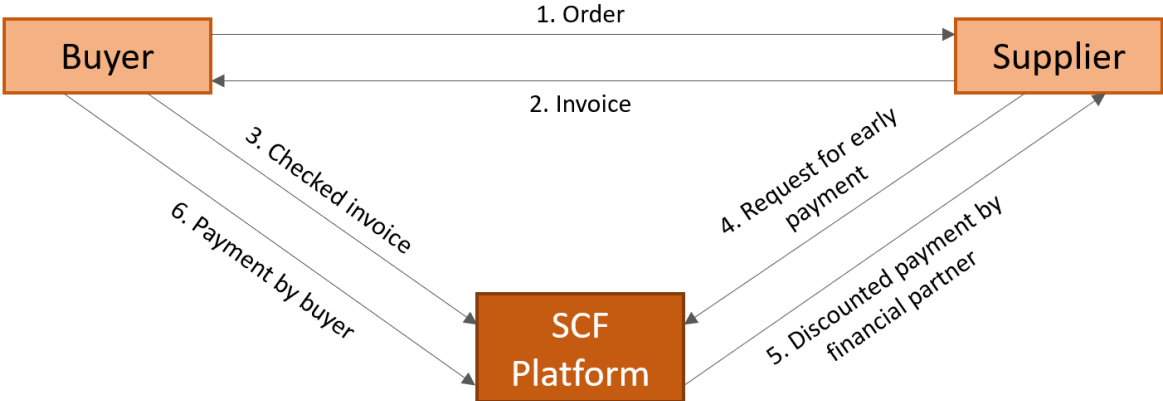


Figure 16: Mechanics of an SCF program ¹⁴⁵

Sustainable supply chain finance combines supply chain finance with ESG criteria. As with the previous explanations on factoring, the margin - and therefore the discount rate or financing costs - depends on the supplier's sustainability rating. See Figure 17. According to Bancilhon et al. (2018), independent standards, ESG ratings or KPIs can be used for the ESG classification of suppliers.¹⁴⁶

¹⁴⁴ Merkun, 2022 in Birrer et al., 2022
¹⁴⁵ Based on Merkun, 2022 in Birrer et al., 2022
¹⁴⁶ Bancilhon et al, 2018

PRICING		Margin	+	-10 bps	+/- 0bps	+10 bps
Exceeding the KPIs / ESG ratings	Supplier A			X		
	Supplier B			X		
	Supplier C			X		
Meeting the KPIs / ESG ratings	Supplier A				X	
	Supplier B				X	
	Supplier C				X	
Not meeting the KPIs / ESG ratings	Supplier A					X
	Supplier B					X

Figure 17: ESG margin matrix and supplier segmentation¹⁴⁷

Sustainable supply chain finance on the procurement side allows companies to optimise Scope 3 emissions via direct financial incentives.

ENI's Supply Chain Finance Programme
 In 2023, ENI, the Italian oil and energy group, offered its suppliers the opportunity to optimise the management of their liquidity via a supply chain finance programme and at the same time created incentives to improve their ESG profiles. The programme allows suppliers to apply for early payment of invoices to ENI via a platform. The conditions for access to the programme are linked to their commitment to sustainable development. This means that the opportunity to improve financial management is directly linked to ESG performance.¹⁴⁸

Within factoring, there are many different types¹⁴⁹ such as genuine, non-genuine, open or silent factoring. What they have in common is that the seller of the receivables can receive the liquidity early, whereby this pre-financing is discounted. The interest rate is calculated using the defined benchmark plus margin. Similar to ESG bonds or ESG loans, this margin represents the starting point for sustainable finance. Similar to the two examples mentioned above, there are also two approaches to factoring: "green finance" and "ESG-linked finance"¹⁵⁰

Proof of a clearly defined use of funds¹⁵¹ is rarely possible with factoring. In terms of this project approach, the tangential debtors must also be categorized based on ESG criteria, which requires a great deal of effort. The implementation of ESG-linked factoring, which is based on KPIs or an ESG rating of the seller of the receivables, is simpler. The development of the KPIs or the rating is reflected in the margin, as is the case in procurement-side supply chain finance (see Figure 17). In contrast, however, sustainable factoring does not include an incentive to optimise Scope 3 emissions.

¹⁴⁷ Based on Merkun, 2022 in Birrer et al., 2022
¹⁴⁸ ENI, 2023
¹⁴⁹ Financing.com, online
¹⁵⁰ Orth & Krug, 2022
¹⁵¹ in the sense of 2.1.1 Use of Proceeds

4.2 Green Leasing

Leasing is an alternative to financing with bonds or bank loans. A leasing transaction is a form of renting and leasing capital and consumer goods. The leased asset is either purchased from the manufacturer by a specialized leasing company and then transferred to the lessee (indirect leasing) or leased directly from the manufacturer (direct or manufacturer leasing). The contracts can be structured in different ways; the basic forms are as follows:¹⁵²

- a) Operating leasing, which is similar to rental agreements. Cancellation of the contract is usually provided for in the contract, subject to certain deadlines, and the lessor bears the entire investment risk.
- b) With financial leasing, the leasing transaction cannot be cancelled during a certain basic rental period. At the end of this period, the lessee is normally granted a renewal or purchase option. With this type of lease, the lessee bears the investment risk.
- c) In sale-and-lease-back agreements, the leasing company first buys the leased property from the lessee and then leases or rents it back. Sale-and-lease-back transactions are particularly common for commercial property. For example, the company sells a previously acquired property to an investor. The company then leases or rents the property back from the new owner.¹⁵³

Investment goods leasing may be suitable for companies with limited freely available funds. While it primarily serves as an alternative to overdraft facilities and loans for smaller credit amounts, it is often considered an alternative to fixed advances or even fixed loans for larger volumes.¹⁵⁴

Green leasing can be defined as a leasing contract that is specifically designed to promote sustainable and environmentally friendly investments. Leased assets can include buildings, vehicles, machinery and equipment that are highly energy efficient, have low CO₂ emissions or are made from environmentally friendly materials. Green leasing often includes additional agreements and requirements designed to ensure that a leased asset is operated in an environmentally friendly manner during the term of the contract.

Green leasing can offer the incentive of a reduced interest rate or the incentive of being able to lease goods that have a higher risk. The higher risk may, for example, result from comparatively lower liquidity in the event of a sale.¹⁵⁵

Green leasing of bicycles from Jobrad Leasing

Jobrad Leasing offers companies in Germany the opportunity to lease bicycles for their employees, which is both environmentally friendly and also offers tax advantages. The employer pays the leasing instalments, which reduces the employees' taxable income. According to Jobrad, the resulting non-cash benefit is taxable for employees - but since 2020 only at 0.25 % of the gross list price. In addition to these financial benefits, companies often also use company bikes for marketing purposes, as employees use the bikes to make the company logo visible.¹⁵⁶

¹⁵² Gabler Business Dictionary, online

¹⁵³ Lütolf et al, 2018

¹⁵⁴ SECO, online

¹⁵⁵ Berchtold et al, 2023

¹⁵⁶ Merten, 2023 and Jobrad, online

4.3 Green mortgage

A green mortgage is a property loan that is used to finance energy-efficient buildings or retrofits that improve the environmental compatibility of a property. Borrowers can take out green mortgages if the building meets sustainable building standards, such as the Swiss Minergie certificate¹⁵⁷, or if energy-saving modernisations are planned.

Green mortgages often offer incentives such as lower interest rates or higher loan amounts for properties that meet environmentally friendly standards.¹⁵⁸ Another advantage of green mortgages is the lower ancillary costs due to the higher energy efficiency of the building as well as government incentive programmes that promote environmentally friendly new buildings or renovations. Some banks offer support measures for the green certification of a building.¹⁵⁹

One disadvantage can be the additional time and costs associated with the certification of sustainable properties or retrofitting to fulfil green standards. In addition, green mortgages have so far mainly been offered to private individuals, while companies have been less able to benefit from them.¹⁶⁰

Green mortgages

In Switzerland, around 36% of banks¹⁶¹ offer green mortgages, such as Raiffeisenbank with its "Minergie mortgage" program¹⁶², which offers preferential conditions for properties that are built or renovated in an energy-efficient or environmentally friendly way. Nevertheless, the proportion of green mortgages in the total volume of mortgages in Switzerland is still very low.¹⁶³ Pension funds, such as the SBB, also offer their policyholders assistance with the sustainable renovation of buildings.¹⁶⁴

4.4 Green Deposit and Green Commercial Paper

Green deposits are eco-friendly money market deposits where the funds are used exclusively to finance environmentally sustainable projects. Unlike green bonds, which are typically designed for long-term investments, green deposits are more suited for companies seeking short- to medium-term capital for green projects. The funds can be allocated to various sustainability-focused initiatives. Similar to traditional money market investments, the lender agrees to a fixed amount, term, and interest rate. Typically, the lender is a financial services provider offering investment products with an environmental focus.

A key advantage of green deposits is the relatively quick access to capital from investors who are increasingly interested in supporting environmental projects. They can also enhance a company's public image as a leader in sustainability. However, a potential disadvantage is the need to meet green certification criteria, which must be demonstrated when proving the use of funds.

¹⁵⁷ Cf. Minergie, online

¹⁵⁸ Aeschlimann, 2022

¹⁵⁹ Swiss Sustainable Finance, 2024

¹⁶⁰ Kraft & Schmidiger, 2022

¹⁶¹ Berchtold et al, 2024

¹⁶² Raiffeisen, online

¹⁶³ WWF Switzerland, 2021

¹⁶⁴ SBB Pension Fund, online

Green Deposits a niche product in Switzerland

While some Green Deposits are widespread abroad, they are a niche product in Switzerland. Deutsche Bank and Citigroup, for example, have launched green deposit programmes that are based on the international standards of the International Capital Market Association for the classification of funds.¹⁶⁵

Commercial paper (CP) is a short-term, unsecured debt instrument issued by companies to cover their short-term financing requirements. The most important features of commercial paper are¹⁶⁶

- Term: Typically between 1 and 270 days, often around 30 days
- Issuers: Large companies with good credit ratings
- Intended use: Financing of short-term liabilities such as accounts payable or inventories
- Minimum amount: Usually USD 100,000 or more
- Interest rate: Issued at a discount from the nominal value and repaid at nominal value

Green commercial paper (GCP) is a variant of conventional commercial paper that focuses on sustainable financing. The issuance of Green Commercial Paper requires additional processes and documentation compared to conventional CP, but offers companies the opportunity to combine their sustainability goals with flexible financing options, as the following example shows.

SNCF Green Commercial Paper

The Green Commercial Paper (GCP) programme of SNCF (Société Nationale des Chemins de fer Français) is an innovative financing instrument with several important aspects. At the end of 2021, SNCF launched the world's first commercial paper programme that complies with the Green Bond Principles. It is part of SNCF's 100% sustainable financing strategy, which aims to convert all of the Group's financing and investment products to responsible investment criteria by 2025.

The programme comprises Green Euro Commercial Paper (ECP) and, where possible, Green Negotiable European Commercial Paper (NEU CP). The proceeds are used exclusively to finance the operating costs of rail transport, including the maintenance of electric rail vehicles, the operation of railway stations and track access charges.

In 2022, SNCF used sustainable financing to raise a total of EUR 500 million in medium to long-term funds and over EUR 370 million in short-term debt. The GCP programme complements SNCF's existing Green Bond programme and expands the range of sustainable financing instruments.

SNCF is committed to annual reporting on the use of proceeds and the impact of the projects financed. The company has developed a special Green Commercial Paper Framework that defines the processes and criteria for issuing GCP.¹⁶⁷

¹⁶⁵ Deutsche Bank, 2021

¹⁶⁶ Gabler Banklexikon, online

¹⁶⁷ SNCF, online and ISS ESG, 2022

4.5 Green promissory note / ESG-linked promissory note

The promissory note is a debt instrument originating from Germany, typically with a term of two to ten years. It is transferable but not listed on the stock exchange, meaning there are no publicity obligations, resulting in lower issuance costs compared to bonds.¹⁶⁸ Unlike traditional promissory notes, a green promissory note requires proof that the funds are being invested in sustainable projects. To verify this, external agencies or third-party experts are often consulted.¹⁶⁹ Due to the requirement for verification, the costs of green promissory notes are generally higher than those of conventional promissory notes.¹⁷⁰

Green promissory note issued by the City of Hanover

In Germany, Hanover was the first German city to place a EUR 100 million green promissory note in 2018.¹⁷¹ In addition, a number of companies have successfully placed green promissory notes in Germany¹⁷², while this type of green financing is not yet very widespread among Swiss companies.

A sustainability-linked promissory note loan can also be issued under the legal construct. The German Dürr Group pioneered this approach in December 2019.¹⁷³ The interest rate on the proceeds of EUR 200 million is linked to the Group's sustainability rating. Depending on the development of the rating, the interest rate increases or decreases by up to 2 basis points.

4.6 Green ABS

Asset-backed securities (ABS) are a special form of securities that are collateralised by a pool of assets or receivables. These securities are created through a securitisation process in which illiquid assets are converted into tradable securities.¹⁷⁴

There are different types of ABS, depending on the underlying assets¹⁷⁵

- Mortgage-backed securities (MBS) are collateralised by mortgage loans,
- Residential mortgage-backed securities (RMBS) are backed by private residential property loans,
- Commercial Mortgage Backed Securities (CMBS) are backed by commercial property loans and
- Collateralised debt obligations (CDOs) are a special group of ABSs that are divided into tranches with different risk classes.

¹⁶⁸ Hessling, 2016

¹⁶⁹ LBBW, 2019

¹⁷⁰ Scheller et al, 2023

¹⁷¹ Brand & Steinbrecher, 2019

¹⁷² CHG-Meridian, online

¹⁷³ Dürr Group, online

¹⁷⁴ Vontobel, online

¹⁷⁵ Vontobel, online

In the case of green ABS, the underlying assets to cover the receivables are linked to environmentally sustainable projects. These assets can include renewable energy projects, energy efficient loans or electric vehicle financing.¹⁷⁶ Green ABS enable companies to raise capital for environmentally friendly initiatives by bundling such loans or projects into tradable securities. Issuing Green ABS helps companies demonstrate their commitment to sustainability, improve their public image and fulfil the expectations of regulators and consumers in terms of corporate responsibility.

Examples of green ABS transactions

Credit Suisse structured the first green ABS in Switzerland, which was backed by a portfolio of loans for energy-efficient construction projects. Mercedes was the first foreign company to place a green ABS on the Chinese capital market, according to its own statements. The bond was placed in the amount of RMB 765 million (EUR 100 million).¹⁷⁷

4.7 Direct financing, subsidies, grants and guarantees

To reduce or optimize financing costs or fund long-term green or sustainability projects, Swiss and European companies must be aware of the diverse financing options available. However, the challenge lies in the constantly evolving framework conditions, as the financing solutions provided by both private and public institutions are continuously changing.

Therefore, Swiss and European companies should adopt a mix of conventional and less conventional financing methods to leverage alternative solutions offered by various stakeholders. Below, we outline some key financing schemes, funding facilities, and other financing options.

Grants, loans and subsidies

European green financing initiatives such as the Just Transition Mechanism (JTM) and the LIFE programme offer direct grants, subsidies and low-interest loans to support sustainable environmental projects. Companies can apply for this funding to finance initiatives focusing on energy efficiency, investment in renewable energy, waste management solutions and climate change adaptation measures.

The JTM aims to mitigate the socio-economic impact of the transition to a climate-neutral economy, particularly in regions that are heavily dependent on carbon-intensive industries. It comprises three main pillars¹⁷⁸

1. Just Transition Fund (JTF): A fund with EUR 19.7 billion for grants to the most affected regions.
2. InvestEU "Just Transition" scheme: A programme designed to mobilise EUR 10 to 15 billion in mainly private investment.
3. Public Credit Facility: A combination of EU grants and EIB loans to mobilise EUR 13.3 to 15.3 billion in public investment.

For the period 2021-2027, the LIFE programme has a budget of more than EUR 5 billion. The programme is divided into two main areas with a total of four sub-programmes:¹⁷⁹

- A. Environment:
 - o Nature conservation and biodiversity
 - o Circular economy and quality of life
- B. area of climate policy:

¹⁷⁶ German Stock Exchange, online

¹⁷⁷ Teckentrup, 2024

¹⁷⁸ European Commission (b), online

¹⁷⁹ Funding database, online

Additional sustainable debt financing instruments

- Climate protection and climate adaptation
- Energy transition

The LIFE programme is an instrument for implementing the European Green Deal and contributes to achieving EU goals in the areas of environmental protection, climate neutrality and sustainable development.

InvestEU projects

Companies can participate in the InvestEU programme, which aims to promote private sector investment in sustainable infrastructure, research and innovation. By submitting eligible green projects, companies can access a range of financial instruments, including equity and debt financing, to support initiatives linked to sustainability goals.¹⁸⁰

European investment plan for the Green Deal

Companies can also participate in projects supported under the European Green Deal that mobilise a combination of public and private funding. Sectors and projects focussing on carbon neutrality, circular economy initiatives or renewable energy infrastructure will be given special consideration so that companies can benefit from synergies in public-private financing. The plan aims to mobilise at least EUR 1 trillion in sustainable investments by 2030 from the EU budget, national co-financing, the aforementioned InvestEU investments and other innovation and modernisation funds.¹⁸¹

Loans, equity investments and guarantees from MDBs and IFIs

Multilateral development banks (MDBs) and international financial institutions (IFIs) offer direct loans, equity investments and guarantees for private sector projects. The International Finance Corporation (IFC) often invests in sustainable and impactful projects together with private investors, providing capital for sustainable initiatives.¹⁸²

Concessional financing

Multilateral development banks and international financial institutions provide additional financial incentives for sustainable investments by offering loans on favorable terms, such as lower interest rates and extended repayment periods. These preferential financing conditions help support projects that may not otherwise receive commercial financing due to perceived risks, thereby promoting sustainable development.

Credit Enhancement and guarantees

The following options exist in the area of loan collateral and guarantees:

- **Partial risk guarantees (PRG for short):** Multilateral development banks such as the World Bank offer guarantees to cover project-specific risks (e.g. political risks and country risks), thereby improving creditworthiness and mobilising private investors for sustainable initiatives. This insurance protects against losses caused by political events such as breach of contract, expropriation or currency conversion problems. They are often used for large infrastructure projects or cross-border investments. A PRG covers debt servicing in the event of defaults caused by government breaches of contract.¹⁸³
- **Partial Credit Risk Guarantees (PCGs for short):** These guarantees, which are also offered by multilateral development banks, ensure that investors are repaid, thereby reducing the assumed risk and lowering the borrowing costs for green projects. PCGs protect against losses due to payment defaults, regardless of the cause of the default. They are often used for infrastructure projects and to support SMEs.

¹⁸⁰ European Investment Bank (a), online

¹⁸¹ European Commission (c), online

¹⁸² Federal Ministry of Finance, 2024 and European Investment Bank (b), online

¹⁸³ World Bank, 2003

- **Bond guarantees:** Multilateral development banks can provide guarantees for green, social or transition bonds issued by private companies, thereby reducing the risk of default and making these bonds more attractive to investors.

Mixed financing mechanisms

The following mixed financing options can also offer valid financing alternatives:

- **Pooling of public and private capital:** In the combination of financing mechanisms, financial resources from development institutions are leveraged to mobilize additional private sector capital for sustainable development projects. This approach allows multilateral development banks to absorb higher risks in the early stages, encouraging private sector investment and boosting overall funding for sustainability initiatives.¹⁸⁴
- **Risk mitigation instruments:** Examples include first-loss tranches in financing structures, subordinated liabilities or hedging instruments that protect private investors from specific risks and thus further boost their participation in sustainable projects.¹⁸⁵

Risk minimisation instruments

The following instruments can help to significantly minimize risks:

- **Insurance against political risks:** This insurance is offered by institutions such as the Multilateral Investment Guarantee Agency (MIGA), which is part of the World Bank Group. It covers non-commercial risks, including expropriation and political instability, to protect private sector investors operating in emerging markets.¹⁸⁶
- **Mitigating currency risk:** Multilateral development banks such as the World Bank Group's International Finance Corporation (IFC) can offer products to hedge against currency fluctuations, which can be particularly important for projects in emerging countries as they reduce exchange rate risks that can undermine the profitability of projects. Specifically, loans in local currencies, interest rate swaps or cross-currency swaps are sometimes offered¹⁸⁷

These initiatives, concepts, and programs provide Swiss and European companies with a wide range of financial support and incentives. This enables them to pursue sustainable and impactful projects at attractive capital and financing costs, ultimately contributing to environmental protection and the transition to a green, sustainable economy.

¹⁸⁴ See, for example, the Emerging Market Climate Action Fund (EMCAF) or European Investment Bank (c) (2024)

¹⁸⁵ Colla, 2019

¹⁸⁶ MIGA, online

¹⁸⁷ IFC, online

5 Green Equity

In contrast to green debt, where the company can define the purpose of the financing in advance (e.g. for specific green projects), green equity seeks to attract investors who pursue investments in companies with sustainable business models.¹⁸⁸ These can include switching to renewable energies or reducing environmental footprints. Another difference between green equity and green bonds is that a higher degree of control can usually be exercised through the participation in the company, such as through opportunities to have a say at shareholder meetings or divestment.¹⁸⁹

To qualify for green equity, a portion of the company's turnover and investments must typically be classified as green, meaning they are directed towards environmentally sustainable projects or initiatives. In Sweden, for example, there is the Green Equity Designation, which is awarded to companies that generate more than 50% of their turnover and investments from green business activities.¹⁹⁰ These and other conditions for green equity classification are awarded by third parties such as NASDAQ¹⁹¹, while the World Federation of Exchanges (WFE) issues voluntary guidelines.¹⁹²

SIX 1.5°C Climate Equity Flag

In Switzerland, the SIX Group published the framework for the SIX 1.5°C Climate Equity Flag in August 2024. This confirms an existing independent review of companies' future greenhouse gas emissions (GHG). The designation enables investors to identify issuers whose shares are listed on the SIX Swiss Exchange and have a credible transition plan, verified by an independent third party, that is consistent with the international goal of limiting global warming to 1.5°C above pre-industrial levels and includes measures for implementation. The requirements are based on the relevant WFE Green Equity Principles (2023), whereby the interpretation and application of these principles is at the discretion of SIX.¹⁹³

¹⁸⁸ Grönroos, 2023

¹⁸⁹ Babic, 2023

¹⁹⁰ Swedbank, online

¹⁹¹ Nasdaq, 2023

¹⁹² WFE, 2023

¹⁹³ SIX Group (b), online

The following table contains the most important requirements for granting the Climate Equity Flag of the SIX Group.

<p>1. Transition Plan</p>	<p>The Issuer must have a 1.5°C aligned, credible net-zero plan (the Transition Plan), which at a minimum requires:</p> <ol style="list-style-type: none"> 1. GHG-emissions reduction targets of the Issuer align with Recognized (sub-)sectoral 1.5°C pathways that correspond to the Issuer’s mix of activities; 2. GHG-emissions reduction targets of fossil-fuel activities align with Recognized (sub-)sectoral 1.5°C pathways; 3. The Transition Plan provides specific (short-, medium-, and long-term) GHG-emissions reduction targets; 4. The Transition Plan details associated actions, addresses the implied financing needs, and is embedded in the overall business strategy; 5. Sound governance and procedures are in place to enact change; 6. Short-term actions are being undertaken; and 7. Implementation of the plan is not overoptimistic.
<p>2. Revenue threshold</p>	<p>More than 50 percent of the Issuer’s annual revenues must come from 1.5°C aligned activities. Expected total annual revenues must be used for pre-revenue companies.</p>
<p>3. Investment threshold</p>	<p>More than 50 percent of the Issuer’s annual investments (sum of OPEX and CAPEX) must be deployed into 1.5°C aligned activities.</p>

Table 2 : Requirements for granting the SIX 1.5°C Climate Equity Flag¹⁹⁴

According to the SIX Swiss Exchange, there were no Swiss companies with the corresponding Climate Equity Flag at the end of 2024. Only time will tell how many companies will apply for this award from SIX and what the response from investors will be.

Regarding Green Equity, the question arises of how to accurately measure a company's sustainability. This is especially relevant if a company adjusts its business structure through acquisitions and/or divestitures. For example, publicly traded companies might relocate or sell parts of their business abroad, resulting in an improved life cycle assessment in the short term, even though the actual environmental standards of the affected business units may not have improved. Such developments highlight the challenge of designing Green Equity criteria in a way that leads to long-term, real ecological improvements, rather than simply allowing for a changed presentation of sustainability metrics.

¹⁹⁴ SIX Group (b), online

6 What is the appropriate financing instrument?

The appropriate choice of financing instruments depends on the specific needs and circumstances of a company. In this context, the financial management handbook refers to a "magic hexagon," where financing options must be selected to best meet the company's objectives. This selection should align with key financial policy principles, which include the following aspects:¹⁹⁵

- Security
- Profitability
- Liquidity
- Flexibility
- Independence
- Financial image

In principle, the same principles and decision criteria can be applied to the choice of sustainable financing instruments as for conventional financing. Typical decision criteria can be the time horizon and the capital structure. Bonds are suitable for long-term financing, while loans are ideal for covering short-term financing requirements in order to maintain flexibility. An overview of suitable conventional sources of financing and their advantages and disadvantages can be found on the portal of the State Secretariat for Economic Affairs (SECO) or in the aforementioned financial management handbook.¹⁹⁶

Additional sustainability-specific factors should be considered when deciding whether to choose sustainable or conventional financing, and which sustainable financing instrument is most appropriate. The decision tree in Figure 18 can be a useful tool, though it should not be seen as a final solution but rather as a way to structure the decision-making process and address key questions. Further analyses and professional advice may be necessary to identify the best financing option.

The first step is to determine if sustainability is a priority for the company in relation to its financing. Various decision criteria (C) can be considered, such as measurability, costs, regulations and taxes, publicity, values, and preferences.

- C₁ Measurability: Financing instruments such as sustainability-linked bonds or loans require clear measurability of the environmental or social benefits. Companies must report this to investors on a regular basis and have the achievement of targets reviewed. If the impact of sustainable projects cannot be measured, but such measurement is necessary, the only option may be conventional financing, despite the desire for sustainability.

¹⁹⁵ Lütolf et al, 2018

¹⁹⁶ SECO SME portal, online; Lütolf et al, 2018

What is the appropriate financing instrument?

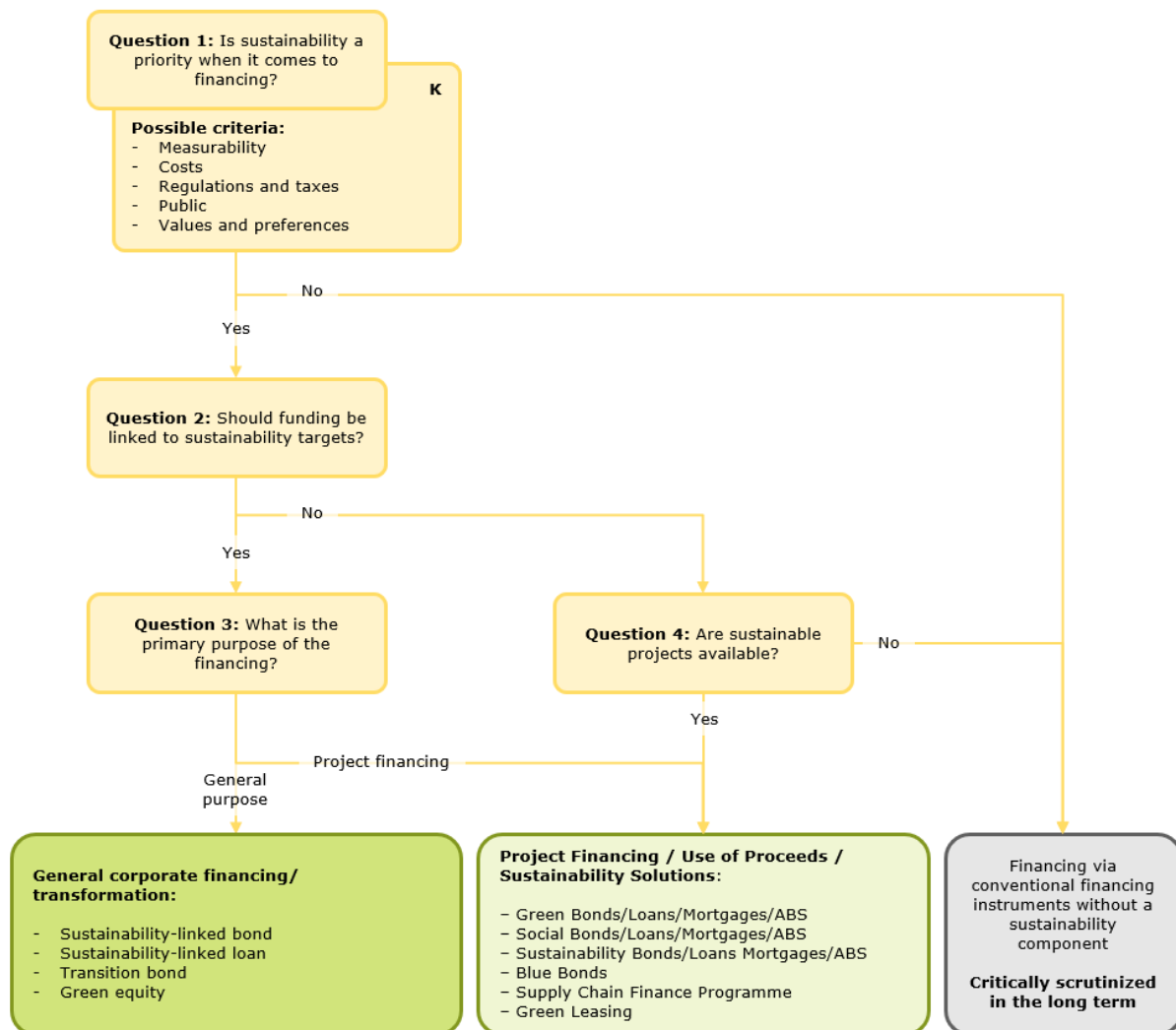


Figure 18: Decision tree for choosing a sustainable financing instrument

C2 Costs: The financing instruments embed different types of costs..

- Interest costs: The differences in interest rates between sustainable and traditional financing are difficult to measure, as both types of financing, apart from the sustainability aspect, would have to be offered on the capital market at the same time and with the same conditions as a green bond. However, this is difficult to realize in practice. Many available studies have nevertheless been able to confirm a greenium for green bonds, especially for investment grade bonds and government bonds, and those that follow defined governance and reporting procedures for green bonds.¹⁹⁷
- Reporting costs: Certain sustainable financing instruments such as green bonds require a significant amount of reporting, which makes them less attractive than traditional financing from a cost perspective.
- Transaction costs: The transaction costs of sustainable instruments can be higher when they are placed, e.g. in the case of green ABS due to the great complexity of their structuring.

¹⁹⁷ See Zhang & Garvey, 2024 and MacAskill et al., 2020

What is the appropriate financing instrument?

- C₃ Regulations and taxes: Various regulatory frameworks and standards in the sustainable finance area contain regulations and guidelines for certain financial instruments, such as ICMA's Green Bond Principles, which increases the complexity of issuance. On the other hand, some countries offer tax incentives for certain sustainable financing products.
- C₄ Publicity: In a difficult market environment, green financing instruments may be better placed than conventional ones due to increasing public demand for environmentally friendly activities. A company can signal its commitment to sustainability through sustainable financing, potentially enhancing its reputation.
- C₅ Values and preferences: If sustainable goals are firmly anchored in the corporate culture and environmental and social aspects play a role alongside financial ones, this should be considered when deciding between conventional and sustainable financing.

If sustainability is not a priority, conventional financing is suitable. However, if sustainability is important, the second question (2) arises as to whether the financing instruments should be linked to sustainability goals.

If yes, the purpose of the financing is determined: Is it for general corporate financing or to finance specific sustainable projects (3)?

- General corporate financing: Here, the instruments are aimed at making the company more sustainable overall, for example through green equity or products with interest rate structures that are linked to sustainability targets.
- Concrete Sustainable Projects: Tailored sustainable financing instruments specifically designed to use funds for specific sustainable projects.

If no sustainability goals are to be pursued, it's still worth assessing whether specific projects can be classified as sustainable, which corresponds to the fourth question in the decision tree. Green, collateralized financing options (e.g., green mortgages) require collateral in the form of sustainable investments. If such projects do not exist, this type of financing would not be suitable, and conventional financing instruments would need to be considered instead.

When selecting suitable sustainable financing options, both for general financing and for specific sustainable projects, similar criteria can be applied as with traditional financing. This includes considering the financing and reporting costs of the sustainable instruments. For example, annualized costs are often higher for factoring than for bonds. However, financing instruments like green bonds come with high reporting requirements, which may make them less attractive for smaller financings compared to green loans.

Regarding reporting, while it incurs additional costs, these are usually low compared to the importance and complexity of accurate data collection. Many companies gather and validate the necessary data through existing consolidation processes. However, capturing complex changes, such as shifts in the value chain or acquisitions, can be challenging and often requires more than just additional personnel resources.

The political environment, social and media pressures, as well as the evolving legal framework surrounding ecology, sustainability, and ESG, are likely to continue intensifying and becoming more complex. Regardless of a company's strategy, industry, maturity stage, or commitment to "green" or sustainability goals, every company needs to assess its current and future business portfolio. Aligning sustainable activities with the right financial instruments enables a company to improve its debt profile, reduce financing costs, and better match its financing plans with the most suitable instruments.

7 Greenwashing, points of criticism and challenges

From a corporate perspective, a key criticism of sustainable financing is greenwashing, where companies exaggerate their environmental efforts, misleading stakeholders and undermining trust in such instruments. Greenwashing can be defined as follows:

Greenwashing is the fraudulent practice of making false or misleading claims about the environmental benefits of a product or practice. It involves portraying a company as environmentally friendly while it continues or expands its environmentally damaging behavior, ultimately misleading consumers and investors who want to support environmentally conscious companies.¹⁹⁸

The following scandals highlight the prevalence and impact of greenwashing allegations in Europe, where companies have been accused of misleading consumers with false environmental claims. Such cases demonstrate the importance of transparency, accountability and genuine sustainability efforts to effectively combat greenwashing practices.

Greenwashing scandals at Volkswagen, IKEA and H&M

The most well-known greenwashing scandals in Europe to date are probably the following:¹⁹⁹

1. Volkswagen's Dieselgate scandal : In 2015, Volkswagen was caught cheating on emissions tests by installing 'defeat devices' in its diesel vehicles that made them appear to emit fewer pollutants than they actually did. This scandal, known as "Dieselgate", revealed that Volkswagen's clean diesel vehicles emitted up to 40 times the legal limit of nitrogen oxides, leading to lawsuits and fines totalling several billion dollars.
2. The controversy surrounding IKEA's timber sourcing: In 2020, an analysis by the non-governmental organisation Earthsight revealed that IKEA's most important partner, the Forest Stewardship Council, was allegedly not taking action against the use of illegal timber from Ukraine. This lack of transparency in timber sourcing led to greenwashing accusations against IKEA, which cast doubt on the credibility of the company's sustainability claims.
3. H&M's fast fashion greenwashing: Fast fashion giant H&M has been criticised for its sustainability claims, particularly its eco-friendly clothing line "Conscious Collection". Although H&M advertises green activities, its lack of transparency in manufacturing processes has raised suspicions of greenwashing in the fast fashion industry.

Greenwashing can not only undermine customer and investor confidence, but also have short and long-term effects on company value. For example, a significant negative relationship between greenwashing and company value has been identified. This impact is attributed to the ability of investors to sanction companies that do not fulfil their environmental obligations.²⁰⁰

The literature distinguishes between external, organisational, and individual drivers of greenwashing. External drivers include non-market factors such as the regulatory

¹⁹⁸ Lindwall, 2023; de Freitas Netto et al., 2020

¹⁹⁹ Pellegrino 2023

²⁰⁰ Ghitti et al, 2024

Greenwashing, points of criticism and challenges

environment and pressure from NGOs, activists and the media, as well as market-related aspects such as consumer and investor demands and competitive pressures. Organisational drivers are shaped by company-specific characteristics (e.g. size, industry or debt), but also by incentive structures, corporate culture, internal communication, and organisational inertia, which can contribute to the tendency towards greenwashing. At the individual level, psychological factors such as short-term thinking, optimistic biases, and an underestimation of long-term risks play a role in the decision to greenwash.²⁰¹

The inconsistent conceptualization and measurement of ESG factors often complicates reaching a consensus on whether a particular action or claim constitutes greenwashing.²⁰² The following aspects must be considered with regard to ESG criteria:

- A. Measurement challenges: One of the main criticisms of ESG is the difficulty of effectively measuring its impact. While ESG measurement is critical for accountability and improvement, easily quantifiable inputs are easier to capture than complex outcomes and impacts. This limitation presents challenges for companies that want to understand the full extent of their ESG performance.²⁰³
- B. Data quality concerns: The lack of high-quality data on companies' performance in relation to their material ESG factors is a major concern. Studies have highlighted inadequacies in accounting metrics and ESG data and the need for more standardized and reliable data to accurately assess ESG performance.²⁰⁴
- C. Effectiveness of ESG metrics: Simply measuring ESG metrics without an accompanying strategy may not be effective. Some studies have shown that while high ESG performance can increase company value, a sole focus on ESG disclosures without tangible performance improvements can have a negative valuation effect.²⁰⁵
- D. Variability of ESG data: The lack of standardization of ESG data poses challenges for researchers, analysts and investors. Different companies are rated with different scores by different data providers, which leads to inconsistencies in the ratings. This variability makes comparisons difficult and hinders the accurate assessment of companies' ESG performance.²⁰⁶

These challenges can cause companies to worry about being perceived as greenwashers, which in turn can affect their motivation to issue sustainable financing instruments. This reluctance may explain the recent temporary decline of new issues for sustainability-linked-bonds (SLBs).²⁰⁷

Overall, ESG criteria have become increasingly important as a benchmark for evaluating companies' sustainability efforts. However, concerns about greenwashing often discourage companies from setting clear sustainability targets, fearing scrutiny or backlash. To enhance the credibility and impact of ESG practices in driving sustainable business strategies, it's essential to thoroughly address these challenges. This will help build trust, encourage transparency, and ensure that sustainability initiatives are genuinely impactful.

²⁰¹ Delmas & Burbano 2011

²⁰² See also the comments in the sections 1.2 The Interconnection of ESG and ESG Data and 1.3 ESG-Ratings

²⁰³ Howard-Grenville,

²⁰⁴ Whelan et al, 2021

²⁰⁵ Whelan et al, 2021

²⁰⁶ Whelan et al, 2021

²⁰⁷ In the third quarter of 2024, the volume of sustainability-linked bonds reached its lowest level since the end of 2020 at just USD 6.7bn and accounted for less than 3% of sustainable bonds, according to Environmental-Finance.com, online.

Greenwashing, points of criticism and challenges

In general, there are other points of criticism of current ESG efforts, including the following:

1. Limited impact on urgent challenges: Despite the increasing popularity of ESG investing, it is not primarily focused on addressing pressing environmental and social challenges such as climate. The large sums allocated to ESG investments are more focused on securing returns for shareholders than having a significant positive impact on the planet.²⁰⁸
2. Issues of credibility and transparency: There are concerns about the credibility of ESG ratings and the lack of consistency and transparency between rating agencies. This lack of consistency hinders greater efficiency in the capital markets and raises questions about the reliability of ESG ratings for investment decisions.²⁰⁹
3. ESG ratings are often based on a "single materiality": this focuses on the impact of the changing world on a company's profit and loss rather than the other way round. This can lead to companies that are likely to benefit from the climate crisis being rewarded, rather than those that are actively fighting it.²¹⁰
4. Conflicts of interest: The consideration of ESG factors is not necessarily favored by all stakeholders. If investors prioritize factors other than financial returns, this can influence management decisions and potentially reduce the financial benefit to shareholders. Understanding the trade-offs associated with ESG investing is critical for investors, managers and policy makers.²¹¹
5. Increasing regulatory density without impact: A study of large Swedish companies has shown that although the number of sustainability reports increased between 2008 and 2014 and the quality of ESG information improved steadily until 2018, the ESG performance of companies has stagnated since 2015. This automatically raises the question of whether the increasing regulatory density in Europe regarding non-financial disclosure obligations has the potential to lead to an improvement in ESG results or whether the focus should rather be placed on improving ESG outcomes.²¹²

These issues illustrate the criticism, which is justified from a corporate perspective regarding the effectiveness of tackling urgent societal challenges. Understanding these aspects of criticism is essential for informed decision-making in the area of sustainable corporate financing.

²⁰⁸ Pucker & King, 2022

²⁰⁹ Berg et al, 2022; Quatrini. 2021

²¹⁰ Pucker & King, 2022

²¹¹ Kenan Institute of Private Enterprise, 2022

²¹² Arvidsson & Dumay, 2022

8 Outlook

In 2019, Switzerland set itself the goal of becoming climate-neutral by 2050.²¹³ Financing the realisation of this sustainability goal is not secured through public funds alone²¹⁴, which is why the financial sector plays a crucial role in providing capital through bonds, loans and other sustainable financing instruments.

As sustainability factors become more integrated into the capital market, they are increasingly influencing loans and other financing instruments, driven in part by stricter regulations. These changes primarily impact large financial service providers. Simultaneously, corporate clients are under growing pressure to incorporate sustainability into their strategies due to regulatory measures, which will lead to a higher demand for suitable financing solutions.²¹⁵

Until now, sustainability requirements have primarily applied to large companies. However, SMEs are now increasingly impacted, as they are indirectly bound by the obligations of larger companies through their business relationships. This includes the EU Supply Chain Act, which requires Swiss companies with trade relations with the EU above a certain size to identify and mitigate risks in their value chain related to environmental protection and human rights.²¹⁶ Sustainability strategies are expected to become more important for SMEs in the future, which will likely result in their financing becoming increasingly aligned with sustainability goals.

An increasing trend is being observed in the supply of bonds and loans, particularly in the environmental sector, as more focus is placed on sustainable financing. In contrast, the supply of social financing programs that promote the social aspect of sustainability remains low. While countries such as the USA and the UK finance social projects through targeted programs, for example to integrate young people into the labor market or to facilitate access to mortgages for low-income households, Switzerland is still very cautious in this area.²¹⁷ Possible reasons for the lower level of financing activities in the social sector are that social impacts are more difficult to define and quantify compared to green financing. In addition, there are currently fewer regulatory requirements and incentives for social financing. It is to be expected that more rules will be introduced in this area in the future.

Sustainability is expanding beyond the capital and credit markets into other areas, such as the insurance industry. Similar to sustainable bonds and loans, insurance premiums are now based on the achievement of sustainability targets. Other examples of sustainability-linked financial products include ESG-related derivatives, crowdfunding platforms for sustainable projects, impact investments, circular economy funds, sustainability-oriented property funds, and energy-as-a-service solutions where costs are linked to energy savings or emissions reductions.

²¹³ The Climate and Innovation Act provides the framework for reducing the consumption of fossil fuels and promoting climate-friendly technologies, see Uvek, online.

²¹⁴ FOEN, online

²¹⁵ Swiss Sustainable Finance, 2024

²¹⁶ Economiesuisse, 2024

²¹⁷ OECD, online

Example of the integration of sustainability targets at SBB Insurance AG

SBB Insurance AG is the direct insurance company (captive) of the Swiss Federal Railways SBB based in Liechtenstein. Together with the insurance companies AXA XL, Helvetia and Zurich Insurance, it is piloting the world's first "Sustainability-linked Reinsurance" in 2025. The Lucerne University of Applied Sciences and Arts provided academic support for the design of the insurance solution.

The CO₂ emissions (Scope 1 & 2) of the parent company were used as the key performance indicator (KPI). The Sustainability Performance Targets (STPs) were calibrated in such a way that, in addition to the existing reduction targets, there is an ambition to halve emissions by 2030. Depending on the achievement of these targets, the insurance premium is adjusted accordingly with a bonus or malus payment. Any payment will be used for sustainability projects and, in the case of SBB, will be paid into the SBB Sustainability Fund.²¹⁸

The market for sustainable financing is poised for further significant growth, driven by mounting regulatory requirements and a heightened awareness of environmental and social responsibility. As companies and investors increasingly incorporate sustainability criteria into their financing decisions, innovative instruments such as green and social bonds are poised to garner increasing significance.

²¹⁸ Handelszeitung, online; Captive International, 2024 and Commercial Risk, 2024

Authors

Prof. Dr **Thomas K. Birrer** heads the Competence Centre Corporate Finance at Lucerne University of Applied Sciences and Arts. He studied business administration at Lucerne University of Applied Sciences and Arts and earned his doctorate at the University of Basel. In his dissertation, he analysed the handling of currency risks in Swiss companies. At Lucerne University of Applied Sciences and Arts, he runs the MAS Corporate Finance and CAS Swiss Certified Treasurer (SCT®) programmes, among others. He also teaches in training and continuing education programmes with a focus on corporate treasury, financial risk management and corporate finance. Thomas K. Birrer is also an independent treasury and corporate finance consultant, a member of the Advisory Board of Swiss Treasury Partners and a member of the Board of Trustees.

Jean-Dominique Bütikofer, CFA is an experienced asset manager, non-executive board member, and investment advisor with a long career in the financial industry. He is recognized for his expertise in Global Fixed Income, Emerging Markets, and Credit Markets and has held senior positions at regulated financial institutions in CH, the EU and the US. Mr. Bütikofer holds mandates at Bonafide, a global fund manager specialising in sustainable investments in the fishing industry and blue economy, and at Atlantic Forfeiting Company Ltd, an investment company specialising in private securities in emerging markets. He also advises internationally active medium-sized SMEs, investment funds and multi-family offices on investment strategies and financing solutions. He holds a Master's degree in Economics from the University of Neuchâtel, CH, and completed the Swiss Certified Treasurer (CAS SCT).

Ante Basic is the founder of the Behavioural Think Factory, a think tank that develops and implements innovative solutions to environmental and social challenges. He advises and teaches in the field of sustainable risk management strategies and has extensive experience in the financial industry and research, including work in treasury, asset management and risk management at the Swiss National Bank. He is passionate about translating the latest scientific findings into practical projects. He holds a PhD in sustainable investment from the University of Cambridge, UK, a Master's degree in Finance from the University of Zurich and has completed the Chartered Financial Analyst (CFA) and Financial Risk Manager (FRM) programmes.

Ralph Caluori, CFA, is an internationally recognised capital market expert. In the course of his long career, he has advised and supported numerous sustainable capital market financings. He also has extensive experience from a treasury perspective with regard to green bond frameworks. He works at the leading Dutch sustainability bank ING Bank as Senior Relationship Manager for corporate clients. His passion lies in the combination of sustainability and financial strategy and the associated inclusion of sustainable financing approaches. Ralph Caluori holds a Bachelor's degree from the University of St.Gallen (B.A. HSG) and successfully completed the Chartered Financial Analyst (CFA) and Financial Risk Manager (FRM) programmes. He also completed the Swiss Certified Treasurer (CAS SCT) programme and the Certificate in ESG Investing from the CFA Institute.

Nadine Woolley is a Master's assistant in the Corporate Finance Competence Centre at the Institute of Financial Services Zug at Lucerne University of Applied Sciences and Arts. She is also studying for a Master's degree in economics, specialising in political economy, at the University of Lucerne. She previously studied social and economic sciences at the University of Bern and worked as a research assistant at the Institute of Management Accounting and Control at the University of Bern.

Contributors

Nathalie Ehrler is an assistant in the Corporate Finance Competence Centre at the Institute of Financial Services Zug at the Lucerne University of Applied Sciences and Arts. She is pursuing a Bachelor of Science in Business Administration with a major in Finance & Banking and a minor in Real Estate at the Lucerne University of Applied Sciences and Arts. Before starting her studies, she completed a bank apprenticeship while simultaneously earning a vocational baccalaureate.

Diana Ibishi is a Master's assistant in the Corporate Finance Competence Centre at the Institute of Financial Services Zug at the Lucerne University of Applied Sciences and Arts. At the same time, she is pursuing a Master's degree in Computational Social Sciences at the University of Lucerne. Previously, she completed a degree in Sociology (major) and Philosophy (minor) at the University of Lucerne.

Chantal Zosso works as a Senior Credit Officer in credit risk management for corporate financing and has extensive experience in credit recovery for corporate clients. In 2023, she completed the Master of Advanced Studies (MAS) in Corporate Finance at the Lucerne University of Applied Sciences and Arts. In her master's thesis, she examined the impact of climate-related sustainability risks on credit defaults of Swiss commercial banks when financing small and medium-sized enterprises (SMEs). She explored this topic in depth in Chapter 3.5 of the study.

List of abbreviations

ABS	Asset-Backed Securities
ABZ	Allgemeine Baugenossenschaft Zürich
AFD	Agence française de développement
APLMA	Asia Pacific Loan Market Association
CapEx	Capital Expenditures
CBI	Climate Bond Initiative
CDOs	Collateralized Debt Obligations
CFA	Chartered Financial Analyst
CMBS	Commercial Mortgage Backed Securities
CTFH	Climate Transition Finance Handbook
DBS	Development Bank of Seychelles
EBRD	European Bank for Reconstruction and Development
EBWE	European Bank for Reconstruction and Development
ECP	Euro Commercial Paper
EFV	Federal Finance Administration
EIB	European Investment Bank
ESG	Environmental, Social and Governance
EUGB	European green bond standard
GBF	Green Bond Framework
GBP	Green Bond Principles
GCP	Green Commercial Paper
GHG	greenhouse gas emissions
GLP	Green Loan Principles
GRI	Global Reporting Initiative
ICMA	International Capital Markets Association
IFC	International Finance Corporation
IFIs	International financial institutions
ISS	Institutional Shareholder Services
JTF	Just Transition Fund
JTM	Just Transition Mechanism
KMUs	Small and medium-sized companies
KPI	Key Performance Indicator
LMA	Loan Market Association
LSEG	London Stock Exchange Group
LSTA	Loan Syndications and Trade Association

List of abbreviations

MBS	<i>Mortgage Backed Securities</i>
MDBs	<i>Multilateral Development Banks</i>
MENA	<i>Middle East and North Africa</i>
MHI	<i>Mitsubishi Heavy Industries</i>
MIGA	<i>Multilateral Investment Guarantee Agency</i>
MSCI	<i>Morgan Stanley Capital International</i>
NGOs	<i>Non-governmental organization</i>
NIB	<i>Nordic Investment Bank</i>
OECD	<i>The Organization for Economic Cooperation and Development</i>
OpEx	<i>operating expenses or expenditure</i>
OR	<i>Swiss Code of Obligations</i>
PCGs	<i>Partical Credit Risk Guarantees</i>
PRG	<i>Partial Risk Guarantee</i>
RMBS	<i>Residential Mortgage Backed Securities</i>
S&P	<i>Standard & Poor's</i>
SARON	<i>Swiss Average Rate Overnight</i>
SBB	<i>Swiss Federal Railways</i>
SBT	<i>Science-based Targets</i>
SBTi	<i>Science Based Targets initiative</i>
SCF	<i>Supply Chain Finance</i>
SDG	<i>Sustainable Development Goals</i>
SECO	<i>State Secretariat for Economic Affairs</i>
SeyCCAT	<i>Seychelles Conservation and Climate Adaptation Trust</i>
SF	<i>Sustainable Finance</i>
SFI	<i>Sustainable Finance and Investments</i>
SLB	<i>Sustainability-linked Bond</i>
SLBP	<i>Sustainability-linked Bond Principles</i>
SLL	<i>Sustainability Linked Loans</i>
SLLP	<i>Sustainability-linked Loan Principles</i>
SLP	<i>Social Loan Principles</i>
SNCF	<i>Société Nationale des Chemins de fer Français</i>
SPO	<i>Second Party Opinion</i>
SPTs	<i>Sustainability Performance Targets, Sustainability Performance Targets</i>
SWIOFish3...	<i>Third South West Indian Ocean Fisheries Governance and Shared Growth</i>
	<i>Project</i>
UN	<i>United Nations</i>
WCED	<i>World Commission on Environment and Development</i>
WFE	<i>World Federation of Exchange</i>

List of companies

Adidas..... 30

Agence française de développement 11

Alphabet Inc. 30

Axpo Holding AG 43

BakerMcKenzie 19

Basler Kantonalbank 29

CICERO 40

Citigroup 50

Council of Europe Development Bank 11

Credit Suisse..... 52

Deutsche Bank 50

DP World Ltd..... 38

Eni..... 48

Eurofima 26

European Bank for Reconstruction and Development..... 11

European Investment Bank..... 11

Fitch 38

Ford Foundation 29

General Building Cooperative Zurich 29

H&M 61

Holcim 32

IKEA 61

Jobrad Leasing 49

Marfrig 34

Meyer Burger Technology AG 28

Mitsubishi Heavy Industries 34

Moody's..... 38

Nordic Investment Bank 11

Northvolt..... 40

Raiffeisen 50

Schneider Electric..... 30

SECO 58

SIX Group 56

Société Nationale des Chemins de fer Français 51

Swiss Federal Railways..... 65

List of companies

Tesla..... 9
Unédic 29
Volkswagen 61
World Bank..... 36

Appendix

Bond Name	Issuance Year	Coupon Rate	Nominal issued	Maturity Date
Seychelles Blue Bond	2018	6.500%	\$15mm	2028
Nordic-Baltic "NIB Environmental" Blue Bond	2019	0.375%	SEK 1.5 bn	2024
Mowi Green Bond	2020	3.500%	EUR 200 mm	2025
Nordic-Baltic "NIB Environmental" Blue Bond	2020	0.100%	SEK 1.5 bn	2025
Grieg Seafood Green Bond	2020	NIBOR + 3.4%	NOK 1 bn	2025
Bank of China Blue Bond	2020	0.950%	\$500 mm	2023
Seaspan Corp Blue Transition Bond	2021	5.500%	\$750 mm	2029
Asian Development Bank 'ADB' dual tranche-Blue Bond (AUD & NZD)	2021	1.8% & 2.1525%	\$ 300 mm	2031 / 2036
Belize Blue Bond (Debt-For-Nature swap & Conservation bond)	2021	3.600%	\$365 mm	2041
TMBThanachart 'TTB' Bank Blue Bond	2022	SOFR + 1.15%	\$50 mm	2027
Bahamas Blue Bond (Tranche A & B)	2022	9% & 3.85%	\$385 mm	2029 / 2036
BDO Unibank Blue Bond	2022	Unspecified	\$ 100 mm	2027
Barbados Blue Bond (Debt-For-Nature swap)	2022	4.500%	\$147 mm	2037
Hainain Blue Bond	2022	2.420%	CNY 1.2 bn	2025
Maruha Nichiro Corporation Blue Bond	2022	0.550%	JPY 5 bn	2027
Banco Internacional Blue Bond	2022	SOFR + 3.90%	\$ 79 mm	2026
BRK Ambiental Blue Bond	2022	7.618%	BRL 1.95 bn	2042
Export-Import Bank of Korea	2023	5.125%	\$1 bn	2033
International Investment Bank 'IIB' marine and Ocean-based Blue Bond	2023	4.000%	CVE 250 mm	2028
Sanepar Blue Bond	2023	FRN	BRL 400 mm	2028
Galapagos Bond 'GPS Blue Financing' (Debt-For-Nature swap)	2023	5.645%	\$ 656mm	2041
Indonesia Blue Bond (Samurai Bonds)	2023	1.2% & 1.43%	JPY 27 bn	2030 & 2033
Orsted Blue Bond	2023	3.625%	EUR 100 mm	2028
Aegea Saneamento SLB (2 tranches)	2023	7.359% & 7.692%	BRL 5.5 bn	2034 / 2042
Iwate Prefecture Green/Blue Bond Banco Bolivariano C.A. Blue Bond	2023	0.628%	JPY 5 bn	2029
Banco Bolivariano C.A. Blue Bond	2023	SOFR + 3.85%	\$ 80 mm	2028
Gabon Blue Bond (Debt-For-Nature swap)	2023	6.097%	\$500 mm	2038
Prime Concrete Green/Blue Bond	2023	10.500%	\$ 7.500 mm	2027

Appendix

Bond Name	Issuance Year	Coupon Rate	Nominal issued	Maturity Date
Hainan Offshore Blue Bond	2023	2.450%	CNY 1 bn	2034
Multilateral development banks (MDBs) programs:				
World Bank "IBRD" Sustainable Development Bonds	2018, 2019, 2021	Varies	< \$ 100 mm	Various
Inter-American Development Bank 'IDB' Invest Blue Bonds	2021 & 2022	Varies	< \$ 100 mm	Various
Central American Bank for Economic Integration 'CABEI' Blue Bonds	2022 & 2023	Varies	< \$ 100 mm	Various

Bibliography

ABZ [Allgemeine Baugenossenschaft Zürich]. (online). *Information on the sustainable bond of ABZ*. Retrieved 16 October 2024 from <https://www.abz.ch/bauten/sustainability-bond/>

ABZ [Allgemeine Baugenossenschaft Zürich]. (2021). *ABZ Sustainability Bond-Framework*. https://www.abz.ch/content/uploads/2021/08/framework_abz_sustainability_bond.pdf

Aeschlimann, M. (2022). *Integration of climate targets in Swiss mortgage portfolios: Bumpy road ahead – an analysis of opportunities and barriers related to the operationalisation of net zero targets in Swiss mortgage portfolios* (Master's thesis, ETH Zurich).

Agreda, R. (2023). *Sustainability-Linked Financial Instruments: Creating Targets and Measuring Your Company's Performance*. Sustainalytics. Retrieved 16 October 2024 from <https://www.sustainalytics.com/esg-research/resource/corporate-esg-blog/sustainability-linked-financial-instruments-creating-targets-and-measuring-your-company's-performance>

APLMA, LMA & LSTA [Asia Pacific Loan Market Association, Loan Market Association & Loan Syndications and Trading Association]. (2023). *Green Loan Principles*. Retrieved 16 October 2024 from <https://www.lsta.org/content/green-loan-principles/>

Arvidsson, S., & Dumay, J. (2022). Corporate esg reporting quantity, quality and performance: Where to now for environmental policy and practice? *Business Strategy and the Environment*, 31(3), 1091–1110. <https://doi.org/10.1002/bse.2937>

Asian Development Bank. (2023). *Q&A: Developing the Blue Bond Market for Healthy Oceans*. Retrieved 16 October 2024 from <https://www.adb.org/news/features/qa-developing-blue-bond-market-healthy-oceans>

Axpo (2024a). *Press release: Axpo refinances with EUR 7.0 billion sustainability-linked credit line*. Retrieved on 16 October 2024 from https://www.axpo.com/content/dam/axpo19/master/files-master/media-releases/2024/240221_MM_Axpo%20RFC_DE.pdf

Axpo (2024b). *Axpo further diversifies financing with sustainability-linked Samurai loan*. Retrieved 16 October 2024 from https://www.axpo.com/content/dam/axpo19/master/files-master/media-releases/2024/240221_MM_Axpo%20RFC_DE.pdf

Babic, M. (2024). Green finance in the global energy transition: Actors, instruments, and politics. *Energy Research & Social Science*, 111, 103482. <https://doi.org/10.1016/j.erss.2024.103482>

BAFU [Federal Office for the Environment]. (online). *Sustainable Finance*. Retrieved 17 October 2024 from <https://www.bafu.admin.ch/bafu/de/home/themen/wirtschaft-konsum/fachinformationen/sustainable-finance.html>

Bancilhon C., Karge C. & Norton T. (2018). *Win-Win-Win: The Sustainable Supply Chain Finance Opportunity – Incentivizing Environmental, Social, and Governance Performance with Supply Chain Finance*. Retrieved on 12 November 2024 from https://www.bsr.org/reports/BSR_The_Sustainable_Supply_Chain_Finance_Opportunity.pdf

Bibliography

BBVA [Banco Bilbao Vizcaya Argentaria]. (2018). *Green Loans and Green Loan Principles*. Retrieved 16 October 2024 from <https://www.bbva.com/en/green-loans-and-green-loan-principles/>

Benz, A., Kessler, D., Leiendecker, J., Mosberger, H.-R., Reiterlehner, D., Rühl, T., Roch, A., & Schmid, C. (2021). *Sustainable Finance Investment and financing needs for a climate-neutral Switzerland by 2050*. Swiss Bankers Association. https://www.swissbanking.ch/Resources/Persis-tent/b/9/c/1/b9c1a91aeb941845873bd97ae92943dbee24699f/SBVg_Sustainable_Finance_2021.pdf

Berchtold, N., Fister, L., Illi, J. & Kraft, C. (2023). IFZ Sustainable Lending Monitor 2023. Risk and impact of sustainable finance. <https://zenodo.org/records/12751343>

Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate Confusion: The Divergence of ESG Ratings. *Review of Finance*, 26(6), 1315–1344. <https://doi.org/10.1093/rof/rfac033>

Berchtold, N., Fister, L., Illi, J. & Kraft, C. (2023). *IFZ Sustainable Lending Monitor 2023. Risk and impact of sustainable lending*. A publication of the Institute of Financial Services Zug IFZ of the Lucerne School of Business. Available at: <https://hub.hslu.ch/retailbanking/download/sustainable-lending-monitor/>

Berchtold, N., Ettl, J., Kraft, C. & Maras, V. (2024). *IFZ Sustainable Lending Monitor 2024*. A publication of the Institute of Financial Services Zug IFZ of the Lucerne School of Business. Available at: <https://hub.hslu.ch/retailbanking/download/sustainable-lending-monitor/>

Birrer, T. K., Lütolf, P., & Rupp, M. (2024). IFZ Financing and Treasury Study 2023. <https://www.hslu.ch/de-ch/hochschule-luzern/ueber-uns/medien/medienmitteilungen/2024/09/18/finanz-und-treasurystudie-2024/>

BKB [Basler Kantonalbank]. (2022). *BKB is the first Swiss bank to issue a social bond*. Retrieved 16 October 2024 from <https://www.bkb.ch/de/die-basler-kantonalbank/medien/medienmitteilungen/2022/die-bkb-emittiert-als-erste-schweizer-bank-einen-social-bond>

Bloomberg. (online). *ESG Data*. Retrieved 16 October 2024 from <https://www.bloomberg.com/professional/products/data/enterprise-catalog/esg/#overview>

BMK [Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology]. (online). *Green Finance and the EU Strategy for Sustainable Finance*. Retrieved 16 October 2024 from <https://www.bmk.gv.at/green-finance/finanzen/eu-strategie.html>

Boffo, R., & Patalano, R. (2020). *ESG Investing: Practices, Progress, and Challenges*. OECD. <https://www.oecd.org/finance/ESG-Investing-Practices-Progress-and-Challenges.pdf>

Bosmans, P., & de Mariz, F. (2023). *The Blue Bond Market: A Catalyst for Ocean and Water Financing*. *J. Risk Financial Manag.* 2023, 16(3), 184; <https://doi.org/10.3390/jrfm16030184>

Bondguide (2025). *HIAG goes green – the first green bond from the Swiss*. Retrieved 14 January 2025 from <https://www.bondguide.de/topnews/hiag-macht-auf-gruen-erster-green-bond-der-schweizer/>

Bibliography

Federal Ministry of Finance (2024). *General information*. Retrieved 3 December 2024 from <https://www.bmf.gv.at/themen/wirtschaftspolitik/internationale-finanzinstitutionen/allgemeines.html>

The Federal Council (2019). Federal Council wants Switzerland to be climate-neutral by 2050 (online 30 October 2023) <https://www.admin.ch/gov/de/start/dokumentation/medienmitteilungen.msg-id-76206.html>

Busch, T., Bauer, R., & Orlitzky, M. (2016). *Sustainable development and financial markets: Old paths and new avenues*. *Business & Society*, 55(3), 303-329. <https://doi.org/10.1177/0007650315570701>

Captive International (2024). *How to benefit from the rise of sustainable insurance*. Retrieved 10 January 2025 from <https://www.captiveinternational.com/how-to-benefit-from-the-rise-of-sustainable-insurance>

CFA Institute. (2015). *Environmental, social, and governance issues in investing: A guide for investment professionals*. <https://www.cfainstitute.org/-/media/documents/article/position-paper/esg-issues-in-investing-a-guide-for-investment-professionals.ashx>

CHG-Meridian. (2024) *CHG-MERIDIAN SUCCESSFULLY PLACES NEW €100 MILLION ESG-LINKED BONDED LOAN*. Retrieved 17 October 2024 from <https://www.chg-meridian.com/media-center/press/2023/ESG-linked-financing-transactions0.html>

CISL & UNEP [Cambridge Institute for Sustainability Leadership & United Nations Environment Programme]. (2014). *Stability and sustainability in banking reform: Are environmental risks missing in Basel III?* University of Cambridge. <https://www.cisl.cam.ac.uk/system/files/documents/stability-and-sustainability-basel-iii-final-repor.pdf>

Climate Bonds Initiative. (2023). *Sustainable Debt: Global State of the market 2023*. https://www.climatebonds.net/files/reports/cbi_sotm23_02h.pdf

Colla C. (2019). *Mobilisation of private capital in development finance: a stocktake*. Retrieved 5 December 2024 from https://www.kfw-entwicklungsbank.de/PDF/Download-Center/Materialien/2019_Nr.4_Mobilisierung-privaten-Kapitals_DE.pdf

Commercial Risk (2024). *Swiss captive SBB pilots first-ever sustainability-linked insurance contract*. Retrieved 10 January 2025 from <https://www.commercialriskonline.com/swiss-captive-sbb-pilots-first-ever-sustainability-linked-insurance-contract/>

Cunha, F. A. F. de S., Meira, E., & Orsato, R. J. (2021). *Sustainable finance and investment: Review and research agenda*. *Business Strategy and the Environment*, 30(8), 3821–3838. <https://doi.org/10.1002/bse.2842>

Delmas, M. A., & Burbano, V. C. (2011). *The drivers of greenwashing*. *California Management Review*, 54(1), 64–87. <https://doi.org/10.1525/cm.2011.54.1.64>

Deutsche Bank. (2021). *Deutsche Bank launches green deposits for its corporate clients*. Retrieved 16 October 2024 from https://www.db.com/news/detail/20210331-deutsche-bank-launches-green-deposits-for-its-corporate-clients?language_id=1

Deutsche Börse. (2024). *Asset-Backed Security*. Retrieved 17 October 2024 from <https://www.boerse-frankfurt.de/wissen/lexikon/asset-backed-security>

Doran, M. & Tanner, J. (2019). *Critical challenges facing green bond market*. Baker McKenzie. <https://www.bakermckenzie.com/-/media/files/insight/publications/2019/09/iflr--green-bonds-%28002%29.pdf>

Bibliography

Dürr Group (2019). *FINANCING LINKED TO SUSTAINABILITY*. Retrieved 16 October 2024 from <https://www.durr-group.com/en/duerrmore/2019/operate-sustainably/financing-linked-to-sustainability>

DP World (2025). *Bond Prospectuses*. Retrieved 14 January 2025 from <https://www.dpworld.com/investors/bonds/prospectuses>

DPAM [Degroof Petercam Asset Management]. (online). *Diving into Divergences*. Retrieved 16 October 2024 from <https://www.dpaminvestments.com/professional-intermediary/be/nl/angle/diving-into-divergences>

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). *The Impact of Corporate Sustainability on Organizational Processes and Performance*. *Management Science*, 60(11), 2835-2857 <https://doi.org/10.1287/mnsc.2014.1984>

Economiesuisse. (2023). *New EU supply chain law: for a targeted response from Switzerland*. Retrieved 16 October 2024 from <https://www.economiesuisse.ch/de/artikel/neues-eu-lieferkettengesetz-fuer-eine-zielgerichtete-antwort-der-schweiz>

EFD [Federal Department of Finance]. (2022). *Framework for the issuance of green bonds*. <https://www.efv.admin.ch/dam/efv/de/dokumente/brennpunkte/rahmenwerk.pdf.download.pdf/Beilage%2001%20Rahmenwerk%20f%C3%BCr%20gr%C3%BCne%20Eidg.%20Anleihen%20DE%20zu%20BRA%20EFD.pdf>

EFV [Swiss Federal Finance Administration]. (online). *Green bonds of the Swiss Confederation*. Retrieved 16 October 2024 from <https://www.efv.admin.ch/efv/de/home/aktuell/a/greenbonds.html>

Ehlers, T. & Packer, F. (2017). *Green bond finance and certification*. BIS Quarterly Review. https://www.bis.org/publ/qtrpdf/r_qt1709h.pdf

Swiss Financial Market Supervisory Authority FINMA (2024). Circular 24/xx 'Natural financial risks'. Online (14 October 2024)

ENI (2023). *ENI launches 'Sustainable Supply Chain Finance' programme to support access to credit for companies committed to sustainable development*. Retrieved 14 November 2024 from <https://www.eni.com/en-IT/media/press-release/2023/03/pr-eni-sustainable-supply-chain-finance.html>

Environmental-Finance.com (2024). *Sustainability-linked bonds becoming 'endangered species' in 2024*. Retrieved 1 November 2024 from <https://www.environmental-finance.com/content/news/sustainability-linked-bonds-becoming-endangered-species-in-2024.html>

ESMA [European Securities and Markets Authority]. (2021a). *Environmental impact and liquidity of green bonds*. https://www.esma.europa.eu/sites/default/files/trv_2021_2-environmental-impact-and-liquidity-of-green-bonds.pdf

ESMA [European Securities and Markets Authority]. (2021b). *ESG ratings: Status and key issues ahead*. https://www.esma.europa.eu/sites/default/files/trv_2021_1-esg-ratings-status-and-key-issues-ahead.pdf

Eurofima (2021). *Inaugural Swiss Franc Green Bond*. Retrieved 29 October 2024 from <https://www.eurofima.org/news/inaugural-swiss-franc-green-bond/>

Bibliography

Eurofima (2024). *EUROFIMA publishes its 2024 Green Bonds Allocation & Impact report*. Retrieved 29 October 2024 from <https://www.eurofima.org/news/eurofima-publishes-its-2024-green-bonds-allocation-impact-report/>

Eurofima (online). *Green Bonds*. Retrieved 29 October 2024 from <https://www.eurofima.org/investor-relations/securities/green-bonds/>

Euronext Corporate Services. (2024). *Why Your Organisation's ESG Rating IS (Increasingly) Important*. Retrieved 16 October 2024 from <https://www.corporateservices.euronext.com/blog/esg-rating>

European Investment Bank (a) (online). *InvestEU*. Retrieved 5 December 2024 from <https://www.eib.org/de/products/mandates-partnerships/investeu/index>

European Investment Bank (b) (online). *Multilateral development banks*. Retrieved 5 December 2024 from <https://www.eib.org/de/about/partners/development-banks/index>

European Investment Bank (c) (online). *Multilateral development finance mobilises more private finance*. Retrieved 6 December 2024 from <https://www.eib.org/de/press/news/new-report-on-mobilization-of-private-finance-by-multilateral-development-banks-and-development-finance-institutions>

European Commission (a). (online). *Overview of Sustainable Finance*. Retrieved 16 October 2024 from https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance_en

European Commission (b). (online). *The Just Transition Mechanism: making sure no one is left behind*. Retrieved 5 December 2024 from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism_en

European Commission (c). (online). *Finance and Founder Deal*. Retrieved 5 December 2024 from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/finance-and-green-deal_de

Finanzierung.com. (online). *Factoring Types*. Retrieved 16 October 2024 from <https://finanzierung.com/factoring/factoring-arten/>

Flammer, C. (2021). Corporate Green Bonds. *Journal of Financial Economics*, 142(2), 499-516. <https://doi.org/10.1016/j.jfineco.2021.01.010>

Financing.com (online). *Factoring Types*. Retrieved 6 December 2024 from <https://finanzierung.com/factoring/factoring-arten/>

Funding database (online). *EU LIFE – Programme for the Environment and Climate Action (2021–2027)*. Retrieved 5 December 2024 from <https://www.foerderdatenbank.de/FDB/Content/DE/Foerderprogramm/EU/verordnung-umwelt-und-klimapolitik-life.html>

de Freitas Netto, S. V., Sobral, M. F. F., Ribeiro, A. R. B., & Soares, G. R. D. L. (2020). Concepts and forms of greenwashing: A systematic review. *Environmental Sciences Europe*, 32, 1-12. <https://doi.org/10.1186/s12302-020-0300-3>

Gabler Banklexikon (online). Commercial Paper (CP). Retrieved on 10 January 2025 from <https://www.gabler-banklexikon.de/definition/commercial-paper-cp-56703>

Gabler Wirtschaftslexikon (online). *Leasing*. Retrieved on 16 October 2024 from <https://wirtschaftslexikon.gabler.de/definition/leasing-40697>

Bibliography

Gartner. (online). *KPI (Key Performance Indicator)*. Retrieved 16 October 2024 from <https://www.gartner.com/en/information-technology/glossary/kpi-key-performance-indicator>

Ghitti, M., Gianfrate, G., & Palma, L. (2024). The agency of greenwashing. *Journal of Management and Governance*, 28(3), 905–941. <https://doi.org/10.1007/s10997-023-09683-8>

Global Supply Chain Finance Forum (2018). Standard Definitions For Techniques of Supply Chain Finance. Retrieved 14 November 2024 from <https://www.trade-financeglobal.com/wp-content/uploads/2016/10/Standard-Definitions-for-Techniques-of-Supply-Chain-Finance-Global-SCF-Forum-2016.pdf>

Grimm, S. & Radler, C. (2022). *Green Bonds: Key to Financing Sustainable Growth*. Retrieved 14 January 2025 from <https://www.zkb.ch/de/blog/asset-management/2022/green-bonds-wachstum.html>

Grönroos, J. (2023). *Green Equity: Supporting the Transition Towards Sustainable Business Models*. World Federation of Exchanges. Retrieved 16 October 2024 from <https://focus.world-exchanges.org/articles/green-equity-lamor>

Handelszeitung (2024). *SBB Insurance AG: Sustainability-Linked Reinsurance*. Retrieved 2 November 2024: <https://www.handelszeitung.ch/insurance/sbb-insurance-ag-sustainability-linked-reinsurance-746609>

Hashemi-Pour, C., & Kerner, S. M. (online). *What is an ESG score?* TechTarget. Retrieved 16 October 2024 from <https://www.techtarget.com/sustainability/definition/ESG-score>

Hennigan, L. (online). *What is a KPI? Definition & Examples*. Forbes Advisor. Retrieved 16 October 2024 from <https://www.forbes.com/advisor/business/what-is-a-kpi-definition-examples/>

Hessling, R. (2016). *Schuldscheine: Made in Germany financing goes global*. BNP Paribas. Retrieved 16 October 2024 from <https://cib.bnpparibas/schuldscheine-made-in-germany-financing-goes-global/>

Holcim. (2020). *Holcim successfully launches first sustainability-linked bond for EUR 850 million*. Retrieved 16 October 2024 from <https://www.holcim.com/media/media-releases/first-sustainability-linked-bond-eur-850-million>

Holcim. (2021). *Holcim commits to 40% sustainable financing by 2024*. Retrieved 16 October 2024 from <https://www.holcim.com/media/media-releases/holcim-commits-to-40-sustainable-financing-by-2024>

Holcim. (2022). *Sustainability-linked bond investor presentation*. https://www.holcim.com/sites/holcim/files/documents/sustainability_linked_bond_investor_presentation_2022.pdf

Howard-Grenville, J. (2021). *ESG Impact Is Hard to Measure – But It's Not Impossible*. Harvard Business Review. Retrieved 17 October 2024 from <https://hbr.org/2021/01/esg-impact-is-hard-to-measure-but-its-not-impossible>

ICMA [International Capital Market Association]. (2021a). *Green Bond Principles*. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2022-updates/Green-Bond-Principles-June-2022-060623.pdf>

Bibliography

ICMA [International Capital Market Association]. (2021b). *Sustainability Bond Guidelines*. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Sustainability-Bond-Guidelines-June-2021-140621.pdf>

ICMA [International Capital Market Association]. (2022). *Guidelines for Green, Social, Sustainability and Sustainability-Linked Bonds External Reviews*. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2022-updates/External-Review-Guidelines-June-2022-280622.pdf>

ICMA [International Capital Market Association]. (2023a). *Climate transition finance handbook: Guidance for issuers*. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Climate-Transition-Finance-Handbook-CTFH-June-2023-220623v2.pdf>

ICMA [International Capital Market Association]. (2023b). *Social Bond Principles*. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Social-Bond-Principles-SBP-June-2023-220623.pdf>

ICMA [International Capital Market Association]. (2023c). *Sustainability-Linked Bond Principles*. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Sustainability-Linked-Bond-Principles-June-2023-220623.pdf>

ICMA [International Capital Market Association]. (2023d). *Climate Transition Finance Handbook*. <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Climate-Transition-Finance-Handbook-CTFH-June-2023-220623v2.pdf>

ICMA [International Capital Market Association]. (2023e). *The Principles: Guidance Handbook*. Retrieved 16 October 2024 from <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/The-Principles-Guidance-Handbook-November-2023-291123.pdf>

ICMA [International Capital Market Association]. (online). *About ICMA*. Retrieved 16 October 2024 from <https://www.icmagroup.org/About-ICMA/>

ICMA [International Capital Market Association]. (2024). *Transition Finance in the Debt Capital Market*. <https://www.icmagroup.org/assets/Transition-Finance-in-the-Debt-Capital-Market-paper-ICMA-14022024.pdf>

IFC (online). *IFC Local Currency and Hedging Solutions*. Retrieved 5 December 2024 from <https://www.ifc.org/content/dam/ifc/doclink/2017/201710-ifc-local-currency-and-hedging-solutions.pdf>

Immobilienbusiness (2025). *SPS issues green bond for over CHF 210 million*. Retrieved 14 January 2025 from <https://www.immobilienbusiness.ch/de/unternehmen/2025-01-13/sps-begibt-green-bond-ueber-210-millionen-franken/>

IRIS CARBON. (2023). *A Beginner's Guide to ESG Rating Agencies and Methodologies*. Retrieved 16 October 2024 from <https://www.iriscarbon.com/a-beginners-guide-to-esg-rating-agencies-and-methodologies/>

ISS. (online). *ISS ESG*. Retrieved 16 October 2024 from <https://www.issgovernance.com/esg/>

ISS ESG. (online). *Second Party Opinion (SPO). Sustainability Quality of the Issuer and Green Bond Framework. SNCF, 12 July 2022*. Retrieved 10 January 2025 from <https://www.iss-corporate.com/file/documents/spo/spo-20220712-sncf.pdf>

Bibliography

- Jobrad. (2024). *Frequently asked questions*. Retrieved 17 October 2024 from <https://www.jobrad.org/arbeitnehmer/ersparnis-berechnen>
- Kacperczyk, M. & Peydró, J.-L. (2024). *Carbon Emission and the Bank-Lending Channel*. Finance Working Paper No. 991/2024. http://ssrn.com/abstract_id=3915486
- Kenan Institute of Private Enterprise. (2022). *New Evidence of the Double-Edged Sword of ESG Investing*. Retrieved 16 October 2024 from <https://kenaninstitute.unc.edu/kenan-insight/new-evidence-of-the-double-edged-sword-of-esg-investing/>
- Klapper, L. (2006). *The Role of Reverse Factoring in Supplier Financing of Small and Medium Sized Enterprises*. The World Bank Development Research Group. https://www.factoring-mittelstand.de/19_experiences.pdf
- SME portal of the SECO [State Secretariat for Economic Affairs]. (online). *Financing: Overview of financing sources*. Retrieved 16 October 2024 from <https://www.kmu.admin.ch/kmu/de/home/praktisches-wissen/finanzielles/finanzierung.html>
- KPI.org. (online). *KPI Basics*. Retrieved 16 October 2024 from <https://www.kpi.org/kpi-basics/>
- Kraft, C. & Schmidiger, M. (2022). *Supply and potential of sustainable real estate financing in Switzerland*. Retrieved October 16, 2024, from <https://hub.hslu.ch/immobilienblog/2022/11/28/angebot-und-potential-von-nachhaltigen-immobilienfinanzierung-in-der-schweiz/>
- Krauss, A., Krüger, P., & Meyer, J. (2016). *Sustainable Finance in Switzerland: Where Do We Stand?* Swiss Finance Institute White Paper. Swiss Finance Institute.
- Krychiw, J. (2023, online). *ESG scores: The good, the bad, & why they matter*. Conservice ESG. <https://esg.conservice.com/esg-scores-why-they-matter/>
- LBBW. (2019). *Sustainable and increasingly in demand: the 'green' Schuldschein*. Retrieved 16 October 2024 from https://www.lbbw.de/artikelseite/banking-erleben/green-ssd_9uz79tmxu_d.html
- Lindwall, C. (2023). *What is Greenwashing? How the misleading marketing practice impacts consumers and communities and stands in the way of real environmental progress*. NRDC. Retrieved 17 October 2024 from <https://www.nrdc.org/stories/what-greenwashing>
- LISAM. (2021). *Companies issuing sustainability bonds*. Retrieved 16 October 2024 from <https://www.lisam.com/news/companies-issuing-sustainability-bonds/>
- LSEG. (online). *LSEG ESG Scores*. Retrieved 16 October 2024 from <https://www.lseg.com/en/data-analytics/sustainable-finance/esg-scores#company-esg-scores>
- Lütolf, P., Rupp, M. & Birrer, T.K. (2018). *Handbook of Financial Management. Assessments, Financing and Risk Management in the Context of Value-based Corporate Governance* (3rd corrected edition). NZZ Libro.
- MacAskill, S., Roca, E., Liu, B., Stewart, R. A., & Sahin, O. (2021). *Is there a green premium in the green bond market? Systematic literature review revealing premium determinants*. *Journal of cleaner production*, 280, 124491. <https://doi.org/10.1016/j.jclepro.2020.124491>

Bibliography

- Man Group. (2023). *Blue Bonds: The New Kid on the Block in Sustainable Debt*. Retrieved 16 October 2024 from <https://www.man.com/maninstitute/blue-bonds-sustainable-debt>
- Mannes, M. (2024). *Northvolt's \$1.5 billion funding guarantee on hold, Swedish debt office says*. Retrieved 20 December 2024 from <https://www.reuters.com/markets/europe/northvolts-15-billion-funding-guarantee-hold-swedish-debt-office-says-2024-10-02/>
- Merkun, L. (2022). *Supply Chain Finance and Sustainability*. Published in Birrer, T. K., Bauer, M. & Rupp M. (2022). *IFZ Financing and Treasury Study 2022*. Rotkreuz: Institute of Financial Services Zug IFZ of the Lucerne School of Business.
- Merten, M. (2023). *Tax traps can be ugly*. Handelsblatt. Retrieved 16 October 2024 from <https://www.handelsblatt.com/finanzen/steuern-recht/steuern/jobrad-erfahrung-steuer-fallen-koennen-haesslich-werden/19857702.html>
- Meyer Burger Technology (a) (2024). *Meyer Burger Technology launches private placement of up to 160 mn new shares and a private placement of approx. EUR 125 mn green convertible bonds due 2027 by way of accelerated book building process*. Retrieved 22 October 2024 from: [Meyer Burger successfully raises CHF 80 million from the private placement of new shares and EUR 145 million from the private placement of green convertible bonds](#)
- Meyer Burger Technology (b) (2024). *Meyer Burger's German subsidiary MBT Systems GmbH successfully places EUR 216.3 million of green, unsubordinated, unsecured and guaranteed convertible bonds due 2029*. Retrieved 22 October 2024 from: <https://www.meyerburger.com/de/newsroom/artikel/meyer-burgers-deutsche-tochter-gesellschaft-mbt-systems-gmbh-platziert-erfolgreich-gruene-nicht-nachrangige-unbesicherte-und-garantierte-wandelanleihe-mit-faelligkeit-2029-in-hoehe-von-eur-2163-million>
- MIGA (online). *Investment Guarantee Guide*. Retrieved 5 December 2024: https://www.miga.org/sites/default/files/archive/Documents/miga_documents/IGGge.pdf
- Minergie. (2024). *Certification according to the Minergie standard*. Retrieved 17 October 2024 from <https://www.minergie.ch/de/zertifizieren/minergie/>
- Mintz. (2024). *Understanding ESG Ratings: Legal Insights & Perspectives*. Retrieved 16 October 2024 from <https://www.mintz.com/insights-center/viewpoints/2151/2024-05-20-understanding-esg-ratings-legal-insights-perspectives>
- MSCI. (online). *ESG Ratings*. Retrieved 16 October 2024 from <https://www.msci.com/sustainable-investing/esg-ratings>
- Nasdaq. (2023). *Nasdaq Green Equity Principles*. https://www.nasdaq.com/docs/2023/11/02/Nasdaq_Green_Equity_Principles.pdf
- Northvolt (2024a). *Northvolt raises \$5 billion to enable expansion of first circular gigafactory in the western world*. Retrieved 22 October 2024 from <https://northvolt.com/articles/northvolt-financing-january2024/>
- Northvolt (2024b). *Northvolt takes major actions to support and enhance homegrown battery production platform*. Retrieved 20 December 2024 from <https://northvolt.com/articles/chapter11/>
- OECD [Organisation for Economic Co-operation and Development]. (2016). *The Ocean Economy in 2030*. Retrieved 14 January 2025 from https://www.oecd.org/en/publications/2016/04/the-ocean-economy-in-2030_g1g6439e.html

Bibliography

- OECD [Organisation for Economic Co-operation and Development]. (2022). What is transition finance? In *OECD guidance on transition finance: Ensuring credibility of corporate climate transition plans* (pp. 24-44). OECD Publishing. <https://doi.org/10.1787/b0d62d2b-en>
- OECD [Organisation for Economic Co-operation and Development]. (online). *Social Impact Bonds*. https://www.oecd.org/content/dam/oecd/en/topics/policy-issues/employment-services/social_impact_bonds.pdf
- Orth A. & Krug D. (2022). *Green and ESG-linked factoring: How sustainable is the industry becoming?* FLF Finanzierung Leasing Factoring 6, 69th year. Retrieved on 6 December 2024 from https://www.kreditwesen.de/mimas/system/files/content/inserts/2022/2022-06_flf_krug_orth_dsd.pdf
- Park, K. S. & Kildow, J. T. (2014). *The Rebuilding the Classification System of the Ocean Economy*. Journal of Ocean and Coastal Economics 1, Article 4, Volume 2014. Retrieved 14 January 2025 from <https://cbe.miiis.edu/cgi/viewcontent.cgi?article=1001&context=joce>
- Pellegrino, S. (2023). *Explainer: Household brands accused for greenwashing*. Capital Monitor. Retrieved 17 October 2024 from <https://capitalmonitor.ai/sector/consumer/explainer-household-brands-accused-of-greenwashing/>
- SBB Pension Fund. Sustainable building renovation? We support you! Retrieved 10 January 2025 from <https://www.pksbb.ch/de/hypotheken/nachhaltige-gebauedesanierung#wir-unterstuetzen-sie-bei-der-nachhaltigen-gebauedesanierung>
- Petras, K. (2024). *Northvolt to shift development of lithium-metal batteries to Sweden; US-based Cuberg to close*. Retrieved 20 December 2024 from <https://www.fastmarkets.com/insights/northvolt-lithium-metal-batteries-development-sweden/>
- Pictet Asset Management. (2023). *ESG ratings under the microscope*. Retrieved 16 October 2024 from <https://am.pictet.com/dk/en/intermediaries/investment-views/active-equity/2023/a-review-of-esg-ratings>
- Porter, M. E., & Kramer, M. R. (2011). Creating Shared Value. *Harvard Business Review*, 89(1-2), 62-77.
- Pucker, K.P. & King, A. (2022). *ESG Investing Isn't Designed to Save the Planet*. Harvard Business Review. Retrieved 17 October 2024 from <https://hbr.org/2022/08/esg-investing-isnt-designed-to-save-the-planet>
- Quatrini, S. (2021). Challenges and opportunities to scale up sustainable finance after the COVID-19 crisis: Lessons and promising innovations from science and practice. *Ecosystem Services*, 48, 101240. <https://doi.org/10.1016/j.ecoser.2020.101240> [Get rights and content](#)
- Raiffeisen. (2019). *Raiffeisen Sustainability Bond*. <https://www.raiffeisen.ch/content/dam/www/rch/pdf/information-in-english/investor-relations/Information-for-bondholders/raiffeisen-schweiz-sustainability-bond-konzept.pdf>
- Raiffeisen. (online). *Eco discount*. Retrieved 16 October 2024 from https://www.raiffeisen.ch/rch/de/privatkunden/wohnen-und-hypotheken/hypothekarmodelle-vergleichen/eco-verguenstigung.html#dteaccordionitem_cop187626066

Bibliography

Reiser, W. (2022). *The ESG approach in factoring*. inpact media Verlag. Retrieved 16 October 2024 from <https://www.inpactmedia.com/wirtschaft/der-starke-mittelstand/der-esg-ansatz-im-factoring>

Directive 2014/95/EU. (2014). *Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups*. Official Journal of the European Union, L 330/1. <https://eur-lex.europa.eu/legal-content/DE/TXT/HTML/?uri=CELEX:32014L0095>

Directive (EU) 2022/2464. (2022). *Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU as regards the disclosure of sustainability-related information by companies (Text with EEA relevance)*. Official Journal of the European Union, L 322/15. <https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=CELEX%3A32022L2464>

Riordan, R. (online). *Transition Bonds*. Institute for Sustainable Finance. Retrieved 16 October 2024 from <https://smith.queensu.ca/centres/isf/resources/primer-series/transition-bonds.php>

Roncalli, T. (2022). *Handbook of sustainable finance*. Université Paris-Saclay. <https://doi.org/10.2139/ssrn.4277875>

Savage, M. (2024). *Is Sweden's green tech in trouble?* Retrieved 20 December 2024 from <https://www.marketplace.org/2024/12/16/is-swedens-green-tech-in-trouble/>

Scheller, H., Raffer, C., Peters, O. & von Zahn, F. (2023). *Sustainable Finance and the public finance and budget management of municipalities*. German Institute of Urban Affairs. https://sfc-network.de/wp-content/uploads/2024/03/KlimKomInvest_Sustainable-Finance-und-die-oeffentliche-Finanz-und-Haushaltswirtschaft-der-Kommunen.pdf

Schoenmaker, D., & Schramade, W. (2018). *Principles of sustainable finance*. Oxford University Press.

Schweizer, A., Röthlisberger, P., & Affolter, B. (2022). Sustainability in debt financing: current developments in the capital and banking market and expected influence on SMEs. *Expert Focus*, 2022(12), 604–611.

Swiss National Bank SNB (2024), Swiss National Bank data portal. Online (30 October 2024) <https://data.snb.ch/>

SECO (State Secretariat for Economic Affairs). (online). *Factoring: Sale of accounts receivable*. Retrieved 16 October 2024 from <https://www.kmu.admin.ch/kmu/de/home/praktisches-wissen/finanzielles/finanzierung/sonderformen-der-aussenfinanzierung-/fremdkapital-factoring.html>

Sheldon, R., Yasar, K. & Stedman, C. (online). *Key Performance Indicators (KPIs)*. TechTarget. Retrieved 16 October 2024 from <https://www.techtarget.com/searchbusinessanalytics/definition/key-performance-indicators-KPIs>

SIX Group (a). (online). *Bond Explorer: Market data for bonds on the Swiss Stock Exchange*. Retrieved 16 October 2024 from <https://www.six-group.com/de/products-services/the-swiss-stock-exchange/market-data/bonds/bond-explorer.html>

SIX Group (b). (online). *SIX 1.5°C Climate Equity Flag – Framework*. Retrieved 17 October 2024 from <https://www.six-group.com/dam/download/the-swiss-stock-exchange/listing/equity/services-for-equity-issuers/climate-equity-flag-framework.pdf>

Bibliography

Slimane, M. B., Mahtani, V. & Fonesca, D. D. (2020). *Facts and Fantasies about the Green Bond Premium*. <https://ssrn.com/abstract=4713139>

SNCF (online). *Green Commercial Paper Framework 2021/2022*. Retrieved 10 February 2025 from https://www.groupe-sncf.com/medias-publics/2024-03/2021_green_cp_framework-1.pdf

Spectra. (2023). *Transition bonds: What are they and how do they help decarbonize?* Retrieved 16 October 2024 from <https://spectra.mhi.com/transition-bonds-what-are-they-and-how-do-they-help-decarbonize>

Staub-Bisang, M., Stüttgen, M., & Mattmann, B. (2022). *Nachhaltig investieren: Grundlagen – Strategien – Umsetzung*. NZZ Libro, Schwabe Verlagsgruppe AG.

Sustainalytics. (online). *Morningstar Sustainalytics Expands ESG Risk Ratings Coverage to Fixed Income, Private Equity, and China*. Retrieved 16 October 2024 from <https://www.sustainalytics.com/esg-data/esg-risk-ratings---brochure>

Swedbank. (online). *Green Equity*. Retrieved 16 October 2024 from <https://www.swedbank.com/corporate/advisory-services-and-investment-banking/corporate-finance/green-equity.html>

Swiss Sustainable Finance. (2024). *Swiss Sustainable Lending Market Study 2024*. <https://www.sustainablefinance.ch/api/rm/4RNZSVG4EK479HM/ssf-lending-market-study-en-final.pdf>

Tagliapetra, S. & Tasi, C. (2024). *Northvolt's struggles: a cautionary tale for the EU Clean Industrial Deal*. Retrieved 20 December 2024 from <https://www.bruegel.org/analysis/northvolts-struggles-cautionary-tale-eu-clean-industrial-deal>

Takhtayeva, M. (2021). *Social Bonds – A tool to effect positive social change*. Viewpoint. Retrieved 16 October 2024 from <https://viewpoint.bnpparibas-am.com/social-bonds-a-tool-to-effect-positive-social-change/>

Tayan, B. (2022). *ESG ratings: A compass without direction*. Harvard Law School Forum on Corporate Governance. Retrieved 16 October 2024 from <https://corpgov.law.harvard.edu/2022/08/24/esg-ratings-a-compass-without-direction/>

Teckentrup, L. (2024). *Mercedes-Benz: first green ABS transaction in China*. DerTreasurer. Retrieved 16 October 2024 from <https://www.dertreasurer.de/news/finanzierung/mercedes-benz-erste-gruene-abs-transaktion-in-china-40470/>

UN [United Nations]. (online). *The 17 Goals*. Retrieved 16 October 2024 from <https://sdgs.un.org/goals>

UNFCCC [United Nations Framework Convention on Climate Change]. (online). *The Paris Agreement*. Retrieved 16 October 2024 from <https://unfccc.int/process-and-meetings/the-paris-agreement>

Urban, M. A., & Wójcik, D. (2019). Dirty banking: Probing the gap in sustainable finance. *Sustainability*, 11(6), 1745. <https://doi.org/10.3390/su11061745>

DETEC (Federal Department of the Environment, Transport, Energy and Communications). *Climate and Innovation Act*. Retrieved on 20 December 2024: <https://www.uvek.admin.ch/uvek/de/home/uvek/abstimmungen/klima-und-innovationsgesetz.html>

Bibliography

- Regulation (EU) 2020/852. (2020). *Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088*. Official Journal of the European Union, L 198/13. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0852>
- Regulation (EU) 2023/2631. (2023). *Council Regulation (EU) 2023/2631 of 10 October 2023 concerning restrictive measures against persons and entities associated with nuclear weapons proliferation*. Official Journal of the European Union, L 263/1. https://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=OJ:L_202302631
- Regulation (EU) 2024/1760. (2024). *Regulation (EU) 2024/1760 of the European Parliament and of the Council of 25 September 2024 on sustainable investment and the transition to a climate-neutral economy*. Official Journal of the European Union, L 276/1. https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=OJ%3AL_202401760
- Vontobel (online). *Everything you need to know about asset-backed securities*. Retrieved 20 December 2024 from <https://am.vontobel.com/de/insights/everything-you-need-to-know-about-abs>
- WCED [World Commission on Environment and Development / Brundtland Commission]. (1987). *Our common future: Report of the world commission on environment and development*. United Nations.
- WEF [World Economic Forum]. (2019). *The Global Risks Report 14th Edition. Insight Report*. https://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf
- World Bank (2003). *Financial Solutions: Partial Risk Guarantee*. Retrieved 5 December 2024 from <https://thedocs.worldbank.org/en/doc/634711443560767054-0290022015/original/GuaranteesSummaryMozambiqueSARGPRGIBRDENCLAVE.pdf>
- WFE [World Federation of Exchanges]. (2023). *WFE green equity principles*. <https://www.world-exchanges.org/storage/app/media/WFE%20Green%20Equity%20Principles.pdf>
- Whelan, T., Atz, U., van Holt, T. & Clark, C. (2021). *ESG and Financial Performance: Uncovering the Relationship by Aggregating Evidence from 1,00 Plus Studies Published between 2015 - 2020*. NYU Stern Center for Sustainable Business and Rockefeller Asset Management. https://www.stern.nyu.edu/sites/default/files/assets/documents/NYU-RAM_ESG-Paper_2021%20Rev_0.pdf
- World Bank Group (2024). *Labeled Bonds. Market Update – November 2024*. Retrieved 6 December 2024 from <https://thedocs.worldbank.org/en/doc/70cdb690f0138e2b485fcedd7bc8fd71-0340012024/original/Labeled-bond-market-quarterly-newsletter-Q3-2024.pdf>
- World Bank Group (2018). *Sovereign Blue Bond Issuance: Frequently Asked Questions*. Retrieved 16 October 2024 from <https://www.worldbank.org/en/news/feature/2018/10/29/sovereign-blue-bond-issuance-frequently-asked-questions>
- WWF Switzerland. (2021). *Sustainability in Swiss retail banking: WWF rating of Swiss retail banking 2020/2021*. https://www.wwf.ch/sites/default/files/doc-2021-08/Nachhaltigkeit_im_Schweizer_Retailbanking_08_21.pdf
- Zhang, C. & Garvey, P. (2024). *Global sustainable finance market: changing for the better*. In Birrer, T., Lütolf, P. & Rupp, M. (Eds.), *Finanzierungs- und Treasurystudie 2024* (pp. 126-133). <https://www.hslu.ch/de-ch/hochschule-luzern/ueber-uns/medien/medienmitteilungen/2024/09/18/finanz-und-treasurystudie-2024/>

Bibliography

Zug Estates (2024). *Green Bond Reporting*. Retrieved 14 January 2025 from <https://zugestates.ch/green-finance>

In cooperation with:



**Lucerne School of
Business**
Institute of Financial
Services Zug IFZ
Campus Zug-Rotkreuz
Suurstoffi 1
6343 Rotkreuz

T +41 41 757 67 67
ifz@hslu.ch
hslu.ch/ifz



ISBN-Nr.
978-3-907379-48-6