

Sustainable investments

Making the future sustainable

A large, jagged iceberg floats in the middle of a dark blue ocean. The water is calm, reflecting the sky and the iceberg. In the background, there are dark, rocky mountains under a clear blue sky. The overall scene is serene but carries a message of environmental impact.

#beyondtomorrow?

Fifth Scope Award in a row!



Best asset manager for sustainable investments for the fifth consecutive time. At the 2019 Scope Awards, Union Investment has come top in the cross-national management category 'Socially Responsible Investing' for the fifth year in a row. This means that, according to Scope, Union Investment is the best asset manager in the field of sustainable investments in the German-speaking countries.

Thinking beyond tomorrow today



Alexander Schindler

Member of the Union Investment

Board of Managing Directors

Dear readers,

Times are changing. A few years ago, sustainability used to be a 'nice-to-have' feature of any portfolio. These days, it has become an investment criterion with concrete benefits for the investor that is definitely here to stay. After all, being proactive has always been the foundation of good management. At Union Investment, we are convinced that the sustainability of investments will become established as a permanent factor for assessment, alongside the existing factors of security, return and liquidity.

There are already plenty of indications to this effect. The European Union has introduced legislation to create a low-emission circular economy. The European Commission's action plan aims to direct more private capital into sustainability-oriented investments in order to achieve the climate-policy targets agreed in Paris and the United Nations sustainable development goals. Major players, such as the Norwegian sovereign wealth fund, are also doing their bit. Even the US military, hardly a hotbed of green activism, regards climate change as the greatest threat in the medium term.

Regulatory pressure is bound to increase over time, and voluntary commitments will no longer be sufficient. A raft of new legislation coming into effect across Europe this year is likely to have to be implemented in 2020. There is also no question that the entire value chain needs to become more resource-efficient – and that pretty much automatically includes the financial system.

But in addition to the huge challenges that this transformation process poses for all of us, it also offers great opportunities. The ones who will be best prepared for the competition ahead are those who are already thinking beyond tomorrow today.

As a member of the cooperative financial network, we have always put a lot of emphasis on sustainability, which is expressed through our core values of partnership, respect and responsibility in interactions with others. It is now almost 30 years since we launched our first investment fund that took sustainability criteria into account, and we have been steadfastly developing our expertise ever since.

Because we are already thinking beyond tomorrow today.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'A. Schindler'.

Alexander Schindler
Member of the Board of Managing Directors
of Union Investment



In 2015, the international community sent a very positive message from New York to the world. By adopting the 2030 Agenda for Sustainable Development, it made a clear commitment to a shared responsibility for ensuring that current and future generations around the world can enjoy good life prospects. The work on the agenda represents an excellent example of international collaboration, and the result shows that global solidarity on key issues affecting our future is possible.”

Source: Deutsche Nachhaltigkeitsstrategie, Bundesregierung Deutschland
(German Strategy for Sustainable Development, German Federal Government), revised issue 2016.



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Jennifer Paffen, sustainability analyst
at Union Investment



01

Beliefs



Sustainability means future viability



1. Alexander Schindler, Member of the Union Investment Board of Managing Directors

2. Dr Henrik Pontzen, Head of the ESG Department in Portfolio Management

3. Bernhard Kraus, Managing Director at Union Investment

4. Astrid Joost-van der Spek, Head of International Account Management at Union Investment

By considering sustainability as an additional risk management factor, the rather short-term outlook of quantitative company analysis is combined with a longer-term qualitative component that includes possible reputational damage and criminal proceedings as well as potential consumer boycotts and compensation payments.

Alexander Schindler, Member of the Union Investment Board of Managing Directors

1 "As responsible and proactive trustees, we must offer criticism and constructive support for the transformation of the economy. To this end, we maintain a regular dialogue with representatives from the worlds of politics and business, and from the finance industry. We need a holistic and consistent approach in order to shape a sustainable future. The environment, economy and society are all interrelated. Our aim is not to make an already green niche like progressive start-ups even greener, but rather to help large corporations and nation states to become more sustainable. While moving along this path, we must adhere to the principles of a market economy, because a sustainable planned economy does not result in a changed mindset."

Dr Henrik Pontzen, Head of the ESG Department in Portfolio Management

2 "In portfolio management, our aim is to combine conventional and sustainable investment. The systematic expansion of our ESG activities should therefore be combined with greater integration of sustainability factors into the whole investment process at Union Investment. The aim is not to make the niche bigger, but to take what we have learned from the niche and apply it to the entire portfolio management process and beyond. We are experiencing a shift in values and we can be and want to be the driving force behind this change through our investment decisions."

Bernhard Kraus, Managing Director at Union Investment

3 "About 5 per cent of these assets are currently managed sustainably. The growing number of EU regulations and some strong initial signals at the German Bundesbank's supervisory college in 2018 indicate upcoming changes that mean many more institutions will be tackling the issue of sustainability in future. The current challenges lie in the investment priorities. Investors' requirements still tend to be dominated by issues such as protecting returns and substantial regulatory challenges. But this perspective is gradually changing, and sustainability is increasingly becoming an additional investment dimension."

Astrid Joost-van der Spek, Head of International Account Management at Union Investment

4 "Sustainability has already become firmly established as an issue in Europe. This is also evident from the European Commission's comprehensive package of measures as part of the action plan that is intended to direct capital flows into sustainability investments in order to achieve the international climate and sustainable development goals. These facts alone make it essential to develop and demonstrate sustainability expertise in order to survive against international competition."

Florian Sommer (centre) at a sustainability meeting



Understanding risk better and adding value

For over 60 years, we have been operating in a spirit of professionalism, partnership and transparency. Our mission is to focus on the long term and to take a holistic view of the markets, of developments and of the needs of our investors.

Today's investment world is very different to that of a decade ago. Traditional fundamental research with its strong focus on the balance sheet, income statement and cash flow statement is no longer enough in terms of making a company's risks measurable and manageable. It needs to be extended to take account of sustainability criteria, i.e. non-financial criteria, in order to reflect today's complexities.

The additional risk categories include litigation, regulatory, reputational and event risks. Examples that have come to light include the network of corruption at the Brazilian oil giant Petrobras, the VW emissions scandal and, most recently, the dam breaches near mines owned by the Brazilian iron ore mining

company Vale. These risks are at the centre of an extended form of risk management that is very closely linked to the greater integration of traditional financial analysis and sustainability research.

As responsible asset managers, we combine financial parameters with sustainability criteria, thereby achieving comprehensive, long-term added value for our clients. Our aim is to reconcile our sustainability beliefs with investors' requirements for returns, without losing sight of risk-related aspects. As an active investor, we also exert a targeted influence on companies in the capital markets in order to promote sustainable corporate governance.



Achim Philippus

Managing Director

at Union Investment



For us as asset managers, sustainable business and investing are two sides of the same coin. This is why our clients asked us to launch an SRI fund as long ago as 1990 – with the result that we now have almost 30 years' experience in this area.



-73.29 %

The **DROP IN THE TEPCO SHARE PRICE** since the Fukushima disaster on 11 March 2011.

548

The number of days it takes the **EARTH TO REGENERATE** the amount of resources we consume in a year.

#beyondto

US\$ 595 billion

The **COST OF EXTREME WEATHER EVENTS** in the last three years alone.

90 %

The global proportion of people breathing **POLLUTED AIR**. Around the world, air pollution is responsible for one in every ten deaths.

***SOURCES:** downtoearth.org; weforum.org; Global Footprint Network National Footprint Accounts 2018; Munich Re NatCatService, 2018; The Global Risks Report 2019; Single-Use Plastics: A Roadmap for Sustainability, United Nations Environment Programme, 2018; advances.sciencemag.org; stateofglobalair.org; webuildvalue.com.

60%

The reduction in the **NUMBER OF VERTEBRATES** between 1970 and 2012. We are on the brink of the sixth global mass extinction.

> 2.1 billion

The **NUMBER OF PEOPLE SUFFERING FROM WATER SHORTAGES**. The cost of floods and drought is US\$ 5.4 and US\$ 31.4 billion respectively. Unless this changes, global GDP will fall by 45 per cent.

5

Among the five leading **GLOBAL RISKS** identified by the World Economic Forum (WEF) as being the most likely over the next ten years, environmental problems occupy the top three positions (extreme weather events, lack of adaptation to climate change and natural disasters). Climate change also heads the list of factors identified by the WEF as compounding future global risk.

tomorrow?

x3

If the use of plastic continues at current rates, by 2050 there will be **THREE TIMES AS MUCH PLASTIC IN THE OCEANS AS THERE ARE FISH.**

US\$ 2 trillion

The cost of **WORLDWIDE CORRUPTION IN 2018** – enough money to end global hunger, eradicate malaria or educate all of the world's children.

85%

The reduction in **CARBON EMISSIONS** in the developed countries compared to 1990 that is required to meet the Paris climate protection targets, according to the European Commission.

US\$ 86.300 billion

The total **ASSETS UNDER MANAGEMENT** of the 2,372 companies that have signed up to the UN PRI. This voluntary undertaking drawn up by the United Nations is the international benchmark for responsible investment. Union Investment was one of the first signatories of these principles in Germany, in April 2010.

#beyondto

72%

The proportion of institutional investors in Germany who now consider **SUSTAINABILITY CRITERIA** in their investment decisions. It has worked out well for them. Opting out of responsible investment is inconceivable for 89 per cent of sustainable investors. Source: Union Investment's 2019 sustainability study, based on 200 institutional investors.

€219.1 billion

STRONG GROWTH – the volume of sustainable investments amounted to €219.1 billion as at 31 December 2018, up by more than €8 billion year on year.

160, 000

The number of **NEW JOBS** created in the wind power industry by the switch to renewable energy sources.

< 2°C

The target is to limit global warming to **LESS THAN TWO DEGREES CELSIUS.**

tomorrow!

€ 175 to € 290 billion

The amount of **INVESTMENT REQUIRED** in the energy, manufacturing, agricultural and logistics sectors, according to EU estimates.

US \$ 16.7 trillion

INVESTMENT REQUIRED within the global energy sector to stay below the two degrees Celsius target until 2060.

The **ANNUAL ADAPTATION COST** required to stay below the two degrees Celsius target until 2050.

US\$ 500 billion

SOURCES: unpri.org (30 May 2019); German Wind Energy Association; IEA 2017; UNEP 2018; Paris International Climate Agreement, December 2015.

Success through sustainability

As a member of the cooperative financial network, we see ourselves as an active shareholder with a long-term focus, meeting international sustainability standards and constantly refining our business to take account of them. For us, sustainability is not an issue that we pay lip service to, but rather part of the way we do business. We were one of the first German signatories to the United Nations Principles for Responsible Investment (UN PRI). By signing, we voluntarily undertook to apply the ESG principles that are relevant to the financial markets, which we do systematically throughout our investment process.

Union Investment is committed to the United Nations Principles for Responsible Investment (UN PRI)

- We will incorporate ESG (environmental, social and governance) issues into investment analysis and decision-making processes
- We will be active shareholders and incorporate ESG issues into our ownership policies and practices
- We will seek appropriate disclosure on ESG issues by the entities in which we invest
- We will promote acceptance and implementation of the Principles within the investment industry
- We will work together to enhance our effectiveness in implementing the Principles
- We will report on our activities and the progress we are making towards implementing the Principles

The Principles set out above are each supplemented by a set of possible actions. The full version of the Principles is available at www.unpri.org.

Guidelines for Responsible Investment

Responsible investment has always been at the heart of Union Investment's business model, and in 2012 we enshrined these Principles in our Guidelines for Responsible Investment, which we are constantly refining.



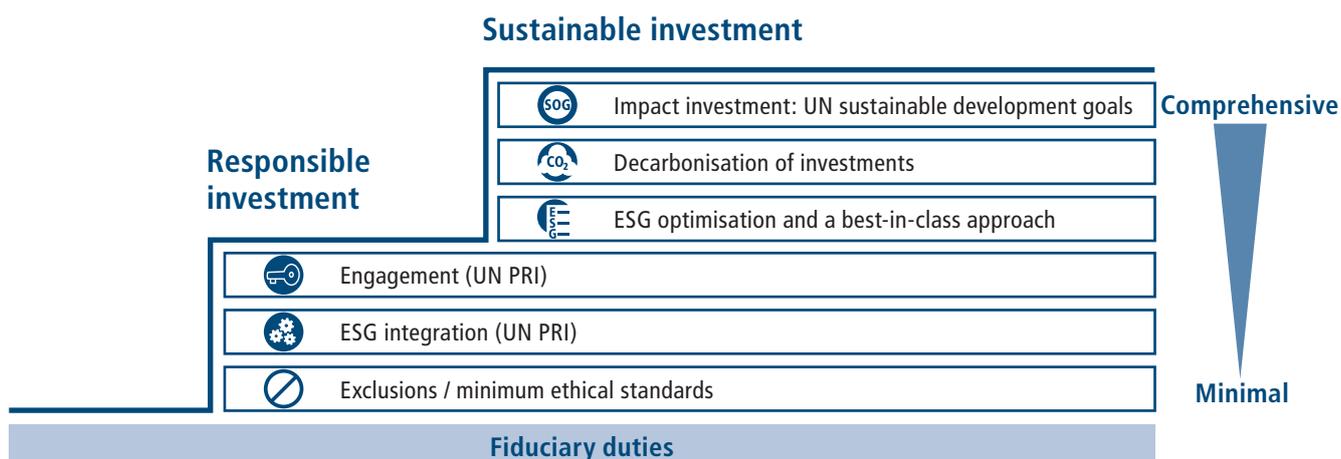
Alexander Schindler

Member of the Union Investment

Board of Managing Directors

"The United Nations PRI constitute an international standard that is consistent with our beliefs and to which we are committed."

Range of sustainable investment options



Differentiation: responsible investment / sustainable investment

Definition by the Sustainable Investment Forum

Responsible investors

Definition

Responsible investors and asset managers take appropriate account of environmental, social and corporate governance-related factors (ESG criteria) when designing their investment processes, and use suitable investment strategies. They comply with public standards and rules, and provide information about their activities, investment strategies and ESG principles.

Implementation

Commitment to public standards and rules, including:

- Code of conduct of the German Investment Funds Association (BVI)
- UN PRI statement
- Own investment guidelines
- Widely recognised international conventions (e.g. Oslo, Ottawa)

Sustainable investment

Definition

Sustainable investment is the general term for sustainable products and investment vehicles that explicitly feature ethical, social and environmental factors in their investment terms and conditions. It also includes having an explicit written investment policy for the application of ESG criteria.

Implementation

The following sustainable investment strategies are applied:

- Exclusions
- Best-in-class
- Engagement
- Impact investment
- Integration
- Sustainable themed funds
- Norm-based screening
- Exercising of voting rights



More information is available at www.union-investment.com

Henrik Pontzen, Head of the ESG Department
in Portfolio Management



02

Investment philosophy



As a partner for sustainable investment, we create customised sustainable investment solutions across all major asset classes based on our own research and taking into account customer-specific sustainability requirements. We aim to reconcile our customers' sustainability and return requirements while paying special attention to risk criteria.

Integrating ESG into portfolio management

We firmly believe that incorporating sustainability considerations into the investment process has a positive effect on investment performance. The ESG committee, the central driver of ESG integration, brings together portfolio management expertise and sustainability expertise in a formalised structure. As such, the ESG committee is responsible for defining a sustainable investment strategy and provides a platform for discussing and deciding key ESG issues within portfolio management.

The analysis of ESG factors supports fundamental research into understanding risks and issues relating to structural growth.

The ESG committee is the central driver of ESG integration in portfolio management (PM)



Our incorporation of ESG issues into portfolio management is based on four pillars

- 1. ESG committee:** Panel that defines a sustainability-oriented investment strategy and makes decisions on sustainability-related issues on behalf of the entire portfolio management.
- 2. ESG sector analyses:** All sectors are analysed with regard to their ESG-related risks and opportunities.
- 3. ESG academy:** All portfolio managers participate in our inhouse ESG academy training measures.
- 4. SIRIS:** All portfolio managers have access to SIRIS, our IT research platform for sustainable portfolio management.

OBJECTIVE: The systematic combining of expertise enables us to make better investment decisions and generates a positive impact on investment performance.

We have incorporated sustainability as an interdisciplinary skill into our portfolio management. This includes giving all of our portfolio managers for every asset class access to consistent SRI research via SIRIS, our multi-asset platform, in addition to enabling them to call on specialised SRI portfolio managers and analysts. Consequently, we have significant volumes of sustainable assets under management in every asset class.

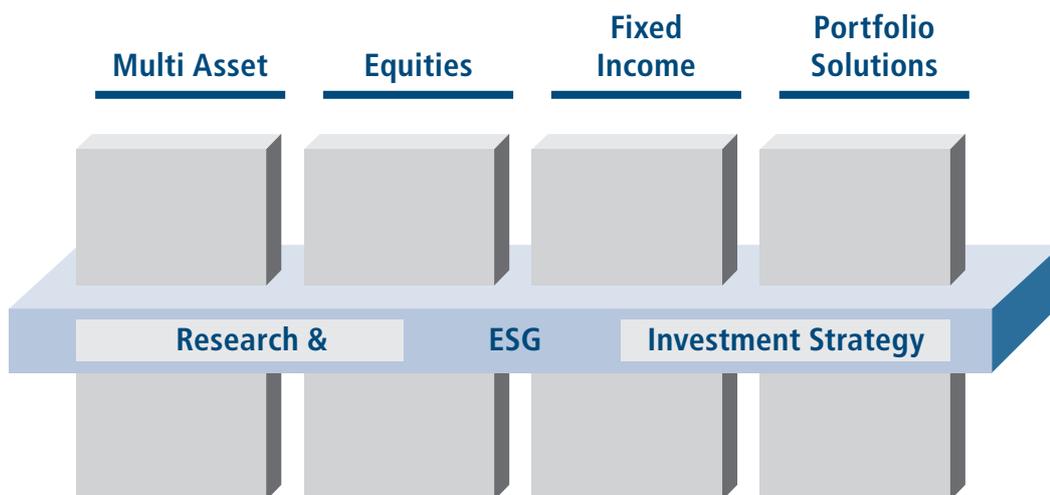
Consideration of sustainability criteria and successful value creation are not conflicting goals

Today's globalised investment world can no longer be reliably understood using traditional risk analysis models. A risk analysis model that has been expanded to include aspects of sustainability provides important information and is particularly advantageous when evaluating investments over the long term.

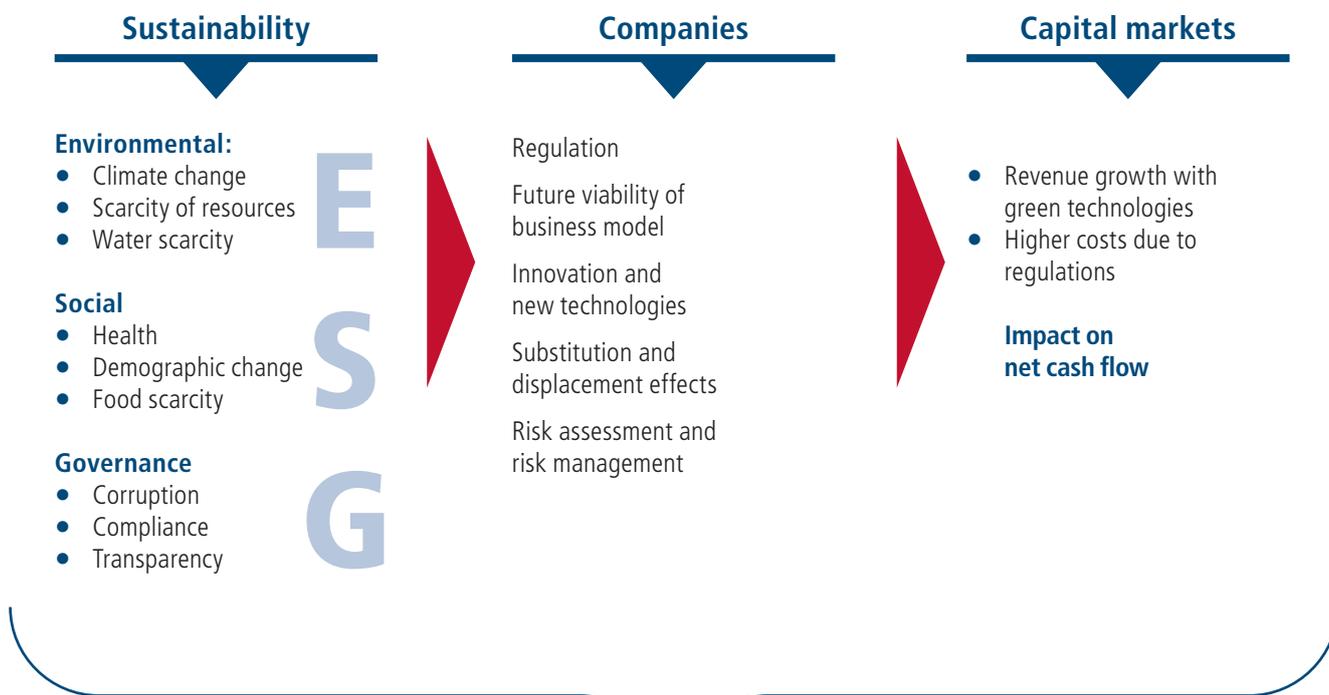
For example, companies with a focus on sustainability benefit from an improved image, use resources more efficiently, motivate their workforce better and can assess their own risks more accurately.

An excellent basis from which to achieve long-term economic success. This is why we have established an investment process within our portfolio management system that is specifically designed to take account of sustainability.

We have incorporated sustainability as an interdisciplinary skill in our portfolio management



Impact of ESG considerations on companies and capital markets



$$DCF = \sum_f \frac{NCF_f}{1 + [r_f + \beta \cdot (r_M - r_f)]^t}$$

Impact on risk

- Event risks
- Reputational risks
- Regulatory risks

Optimised risk management

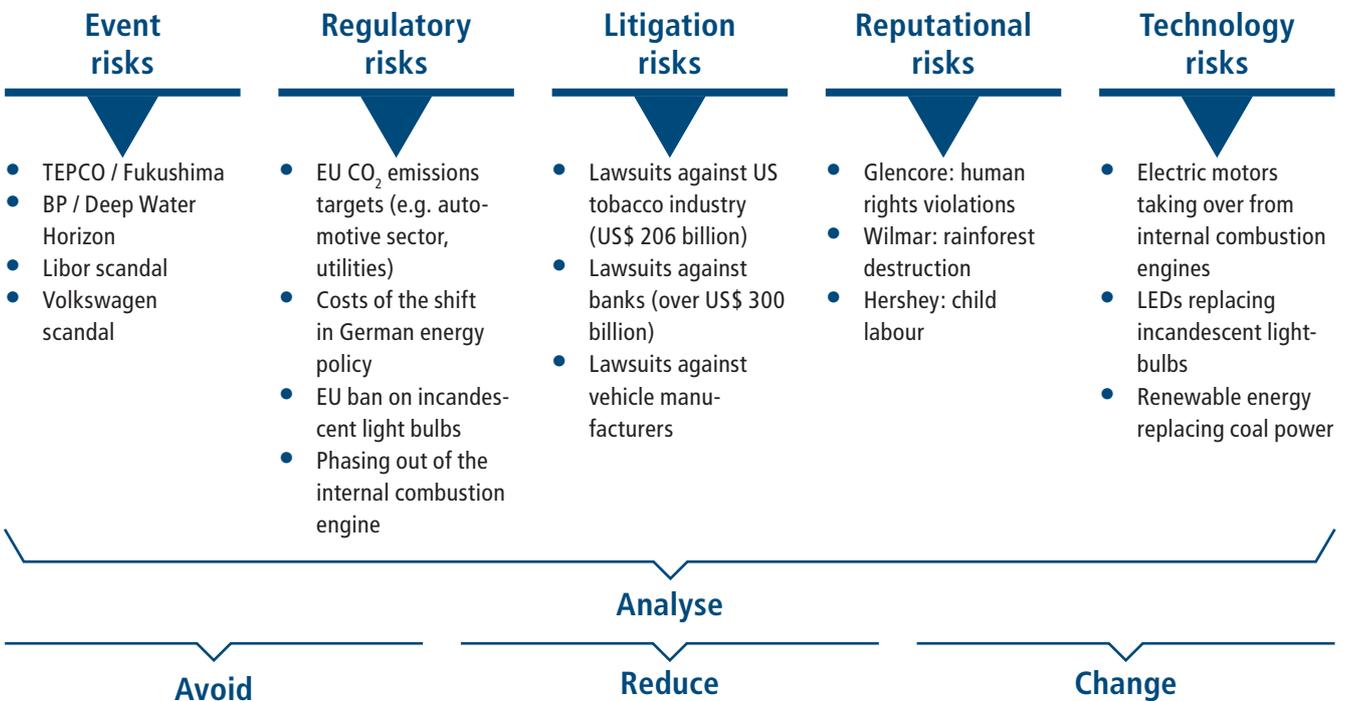
The inclusion of sustainability criteria significantly enhances the management of risks attaching to investments by adding a qualitative aspect to models that are overwhelmingly geared towards quantitative elements. Problems caused by issues such as CO₂ emissions, poor working conditions or inadequate control mechanisms within a company never appear completely out of the blue. If we look, we can see them coming, and in-depth ESG analysis brings these problems to light at an early stage.

Technology risks are another risk category. They include, for example, the risk of companies being unable to adapt their business

model when circumstances change. This could be in connection with the change in travel habits – think electric vehicles – or the switch from conventional light bulbs to LEDs.

As well as risks, these factors also create opportunities and it is up to investors to seize them. Having the expertise needed to evaluate risk makes it possible to assess which companies and which business models are most likely to thrive in a given environment. This allows us to judge investments using a range of dimensions, enabling us to provide optimised risk management to better exploit upside potential for our investors and minimise the risk of losses.

Analysing sustainability factors provides valuable information for investment decisions



Sustainable real estate

The real estate sector has also progressed well beyond aiming for long-term profitability without taking sustainability into account. At the beginning of 2009, Union Investment became one of the first fund management companies to start checking the sustainability of its real estate investments using its own rating system, the Sustainable Investment Check. It ensures the ongoing quality of our portfolio, enabling us to act in the best interest of our investors, the tenants and the climate. Union Investment applies strict checks and assessments to the sustainability aspects of all development projects and purchasing processes. If they fail to adhere to stipulated limits, the capital investment required to achieve

compliance must be factored into the price and integrated into the investment planning.

We used a range of international certification standards as guidance in the selection of the sustainability criteria. Our energy monitoring pilot project is currently collecting extensive digital consumption data with the aim of obtaining more detailed measurement data at shorter intervals. This enhanced data will allow us to identify any potential for increased energy efficiency much more quickly, which will benefit investors and tenants in equal measure. We aim to gradually introduce energy monitoring throughout our entire portfolio by 2025.

New analysis criteria for government bonds too

The need to integrate ESG criteria into the analysis process does not just apply to private issuers. Investment approaches that include sustainability filters are also useful for government bonds. However, the introduction of the extended concept of risk into the government bond segment presents investors with new challenges. The financial crisis and sovereign debt crisis clearly illustrate that choosing reliable government bonds is by no means a straightforward exercise any more. There is also a growing awareness that traditional and established ratings are no longer unequivocally helpful in this

respect. Their reputation has been tarnished as a result of the financial crisis.

To solve this dilemma, new approaches need to be integrated into established valuation models that are used to manage the risks attaching to government bonds. The goal must be a comprehensive and primarily quantitative analysis that follows a consistent logic and does not require country-specific special factors. All factors that could typically lead to a sovereign default have to be taken into account.

New Union Investment approach

Based on these considerations, Union Investment has developed a proprietary credit assessment model for government bonds which does not seek to replace standard rating procedures, but rather adds an additional analytical process. The main pillar, the macroeconomic fundamental rating, assesses a country's ability to repay its debts based on its economic performance.

The second pillar is an analysis of the willingness to pay. Thirdly,

the implementation of an early warning system ensures that developing crises are detected and included in the assessment process. One example of a key indicator that may be used is the degree of corruption in a country. The advantage of this crisis radar is that any adverse trends, which can crop up even in fundamentally high-scoring countries, can form part of the rating and thus allow the potential for default to be identified at an early stage.

The ESG country rating measures the degree of sustainability in different countries

Environmental (E)

1. Climate change
2. Air pollution
3. Water scarcity
4. Biodiversity
5. Ecosystems
6. Natural disasters

Social (S)

7. Education system
8. Healthcare system
9. Demographic change
10. Safety and security
11. Poverty
12. Social disparity

Governance (G)

13. Rule of law
14. Political stability
15. Democratic rights
16. Regulation
17. Bureaucracy
18. Corruption

Data sources

- World Bank
- United Nations
- Global Footprint Network

- World Bank
- United Nations
- WTO

- World Bank
- Transparency International
- Freedom House



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Thomas Deser, Senior Portfolio Manager

03

Experience and expertise

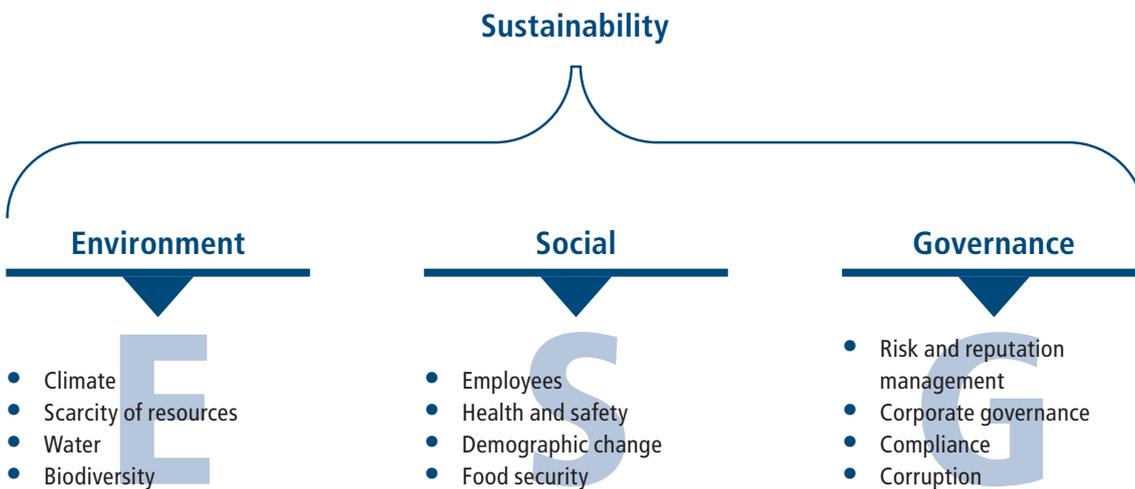


Selecting the sustainability criteria

We were using sustainability criteria long before there was a general demand for sustainable investments – initially when managing portfolios for churches and charities. Today, with more than €45 billion of assets under management, we are the leading provider of sustainable investment funds in the German market.

Our systematic, multi-stage investment process

Opportunities for sustainable investment are identified in all key asset classes by means of a multi-stage process. First, the investment universe is determined with reference to sustainability criteria that can be fine-tuned to suit investors' needs. For this process, we work with several carefully selected providers that supply sustainability data. This is followed by our sustainability research combined with the traditional investment process.



Our sustainability investment process



Our components for sustainable investment

Our portfolio management covers all key sustainability strategies across the major asset classes. Our sustainability competence centre assumes the role of coordinator, in order to apply our high quality requirements in the area of sustainability and to ensure that the investment strategies in our portfolios are up to date.

1

Screening criteria: Securing minimum standards, avoiding controversies

This approach defines one specific criterion or a range of criteria that rule out investments in certain companies, sectors or countries. The criteria can be individually specified on the SIRIS platform, for example companies that generate more than 5 per cent of their revenue from gambling can be excluded. Screening criteria are also examined in a two-stage research process. As part of our SRI research activities, we constantly analyse the reputational risks of companies by evaluating reporting on controversial topics and classifying reputational risks.

2

ESG rating as the basis for our best-in-class approach

This SRI component enables us to select the companies that are setting the highest environmental, social and corporate governance standards in their respective sector. Before this selection takes place, a systematic analysis of various ESG factors is performed, as a result of which an ESG rating is generated for each company. This then serves as the basis of our best-in-class approach, whereby companies with the lowest scores in the sector are avoided and those with the highest scores are favoured.

3

Sustainable segments

This approach focuses on companies whose core business is in sustainable segments – i.e. where at least 40 per cent of the revenue derives from the resolution of environmental and social problems.

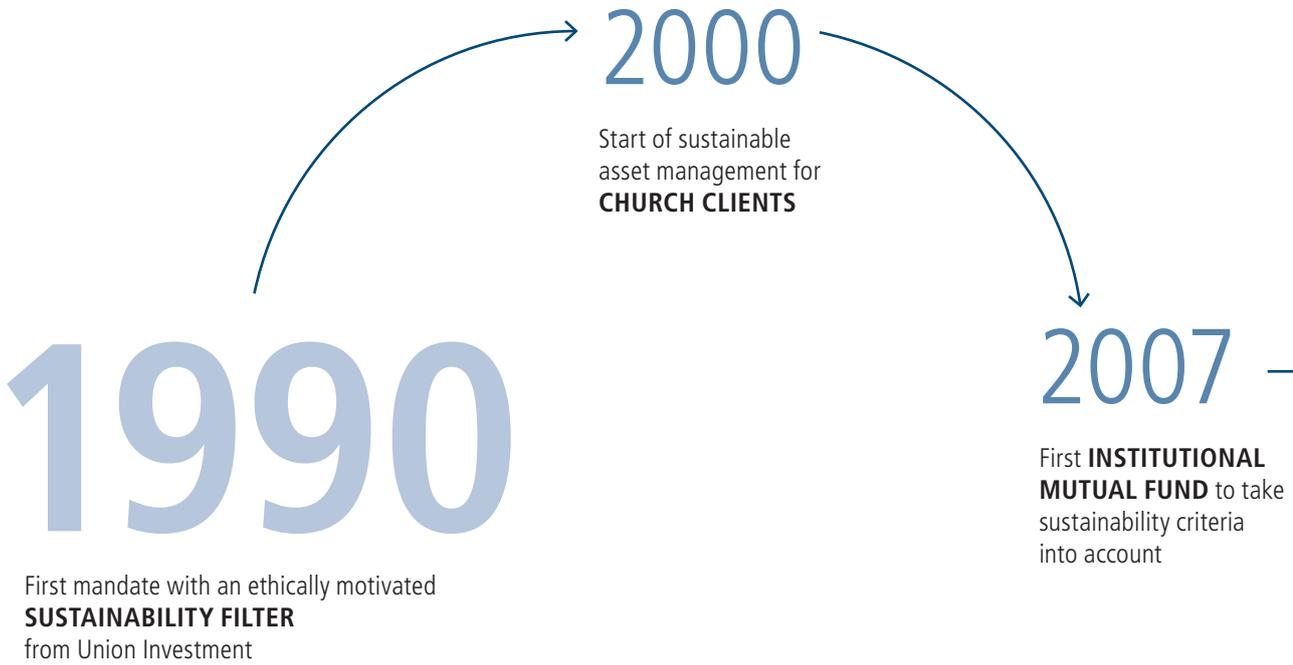
4

CO₂ intensity

For this approach, we calculate the CO₂ intensity of the portfolio – i.e. its carbon footprint. This considers the companies' CO₂ emissions (scope 1 and 2) per million US dollars of revenue.

- Scope 1 comprises all direct greenhouse gas emissions of the company
- Scope 2 comprises all indirect emissions produced by the provision of energy generated outside the company

Analysing sustainability factors provides valuable information for investment decisions



Sustainable Investment Research Information System (SIRIS)

Our sustainability research is managed using the Sustainable Investment Research Information System (SIRIS) developed specifically for Union Investment. SIRIS is a proprietary IT platform for analysing and managing sustainable investments. SIRIS has been used by our portfolio managers since 2013 and is operated by the Sustainability and Engagement team.

Our proprietary Sustainable Investment Research Information System

5 asset classes

on one SRI research platform

72,000

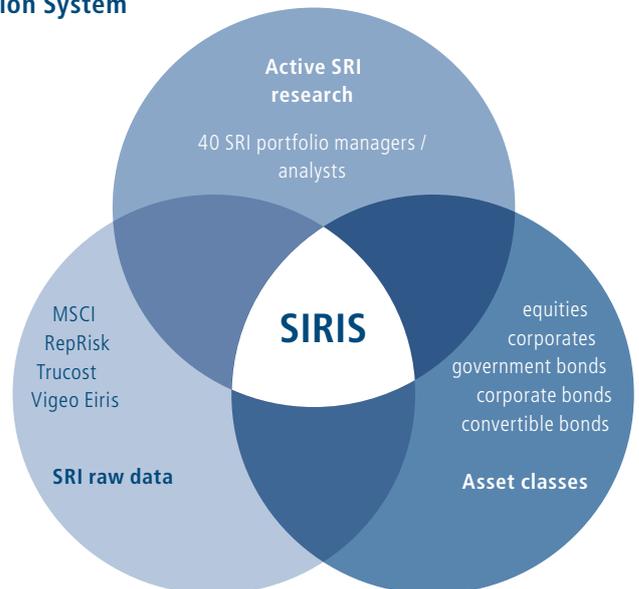
securities

10,000

companies

95

countries



2019

2013

Introduction of **SIRIS**, Union Investment's proprietary Sustainable Investment Research Information System in order to efficiently implement sustainability research within our portfolio management function.

At the **2019 SCOPE AWARDS**, Union Investment comes top in the cross-national management category 'Socially Responsible Investing' for the fifth year in a row. This means that, according to Scope, Union Investment is the best asset manager in the field of sustainable investments in the German-speaking countries.

2011

UNIONENGAGEMENT stands for our activities as an active shareholder with a total volume of €149.74 billion of assets under stewardship (as at 16 March 2011) across all formats offered.

The SIRIS cockpit

The SIRIS cockpit allows the different sustainability characteristics (e.g. ESG, screening filter, CO₂) of a portfolio to be analysed at the touch of a button. The SIRIS cockpit is a portfolio analysis tool that shows every portfolio manager the figures for the agreed sustainability components on a daily basis.

Portfolio, client portfolio	Benchmark	Delta
ESG score		
49.11	35.7	37.56
Fail rate		
0	19.35	-100
Sustainability impact rate (%)		
19.65	13.95	40.82
CO ₂ intensity: tonnes of CO ₂ / US\$ 1 million of revenue		
145.81	237.05	-38.49



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Dijana Bogdanovic,
sustainability analyst at Union Investment

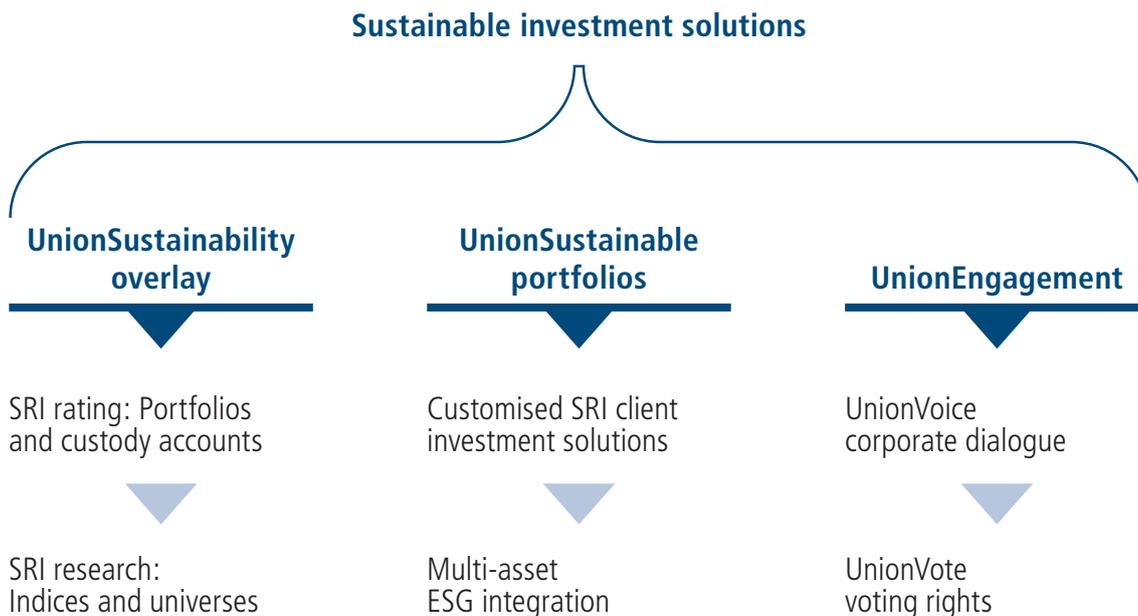
04

**Customised investment
solutions**



Tailor-made solutions for institutional clients

We offer our clients a range of different solutions for sustainable investment, which determine the individual make-up of the portfolio and can be freely combined.



UnionSustainability overlay

We advise investors on sustainability approaches and criteria and on how they are applied in the various asset classes. At the same time, we undertake active sustainability research using customer-specific criteria and monitor investments and reporting on an ongoing basis.

UnionSustainable portfolios

Customer-specific requirements covering the various asset classes can be individually implemented within the framework of individual portfolios. Portfolios are organised and continually adjusted according to these sustainability and capital market criteria. At the same time, Union Investment also offers attractive retail solutions in a variety of forms for institutional investors.



More information is available at www.union-investment.com

UnionEngagement – active shareholding

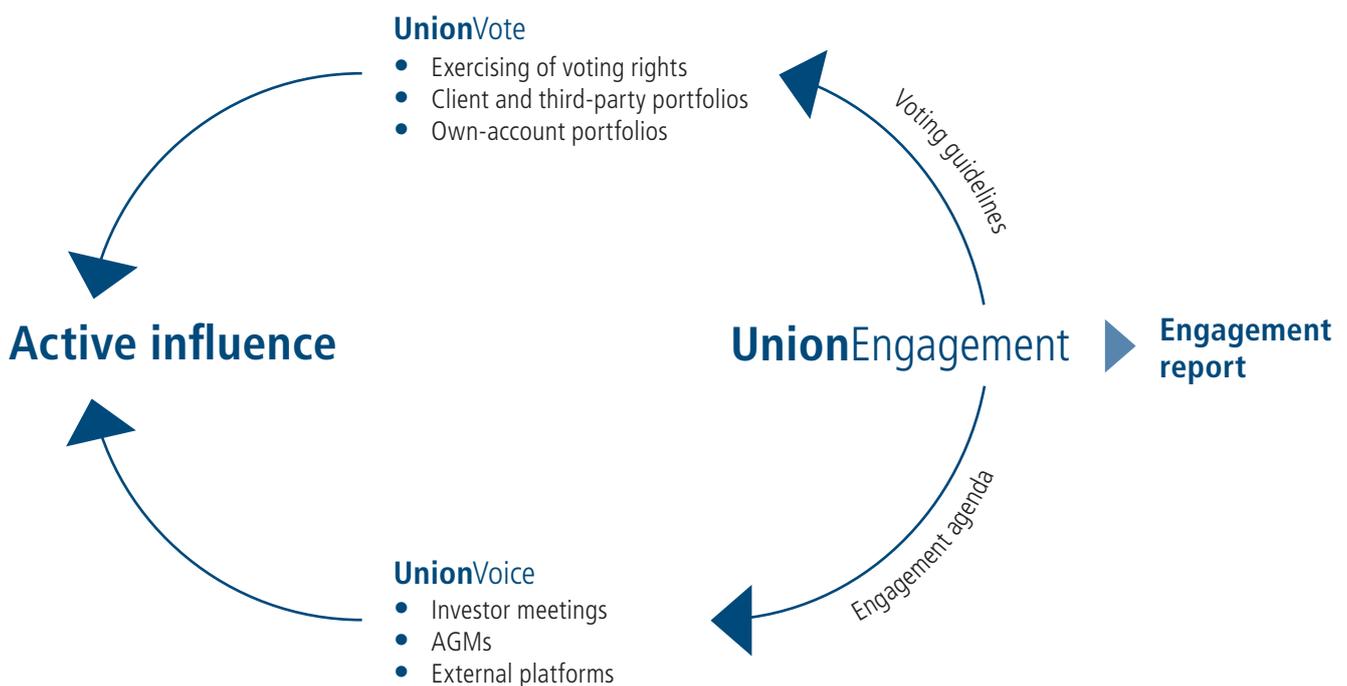
We pursue an engagement strategy that is based on active engagement and dialogue on the part of shareholders in order to influence company policies. Our aim is to achieve a sustainable increase in the value of the assets under our stewardship.

Constructive dialogue with companies is central to our role as an active shareholder. We support companies over the long term and provide crucial input by visiting them and by contributing to the debate and voting at shareholders' meetings.

In addition to purely economic aspects, active ownership specifically addresses environmental, social and regulatory issues.

Company visits, where senior executives field questions from Union Investment, represent a key component of our constructive dialogue. In addition, our fund managers are constantly exchanging ideas and information with the companies concerned. Our assessment of the business models and future viability of companies is based on more than 4,000 investor meetings (including visits to companies) of which 300 discussions are solely concerned with sustainability issues. In addition, we attend approximately 10 to 15 annual general meetings every year with the express purpose of contributing to debates.

UnionEngagement is a key tool in our engagement approach





05

Research and academic work



Research and academic work

We regularly conduct academic studies in partnership with prestigious university faculties in order to examine facts and their context. This is a selection of our most recent studies.

STUDY 1

Investing sustainably with no performance downside

When discussing the advantages and disadvantages of sustainable investments, one supposition – that sustainable investments do not perform as well as traditional investments – remains stubbornly central to the debate.

Our studies and reports confirm that this widely held prejudice constitutes the greatest obstacle to decisions in favour of sustainable investment strategies. This prompted us to support the research project 'Sustainable Investments in the Spotlight of Science: Value Proposition and Reality' conducted by the Research Center for Financial Services at Steinbeis University Berlin. This is the first study to analyse differences in the performance of sustainable and traditional investments. The Steinbeis study is based on an analysis of 195 scientific studies on relevant topics and on its own calculations.

Meta-study paints a nuanced picture

- The frequently harboured preconception that SRI delivers worse returns than conventional investing is false
- The majority of studies did not classify sustainable investments as having a worse risk/return profile
- Interestingly, the inclusion of sustainability factors actually tends to have a positive impact across all asset classes
- A few of the studies examined indicate that active managers enjoy an advantage when it comes to sustainable investment
- Sustainable investments are subject to lower event risk
- Very strict screening and exclusion criteria may have an adverse effect on the performance of sustainable investments because of the restricted investment universe
- In the case of sustainable funds, the greatest potential for success is frequently attributed to best-in-class approaches



More information is available in the analytical report at www.union-investment.com

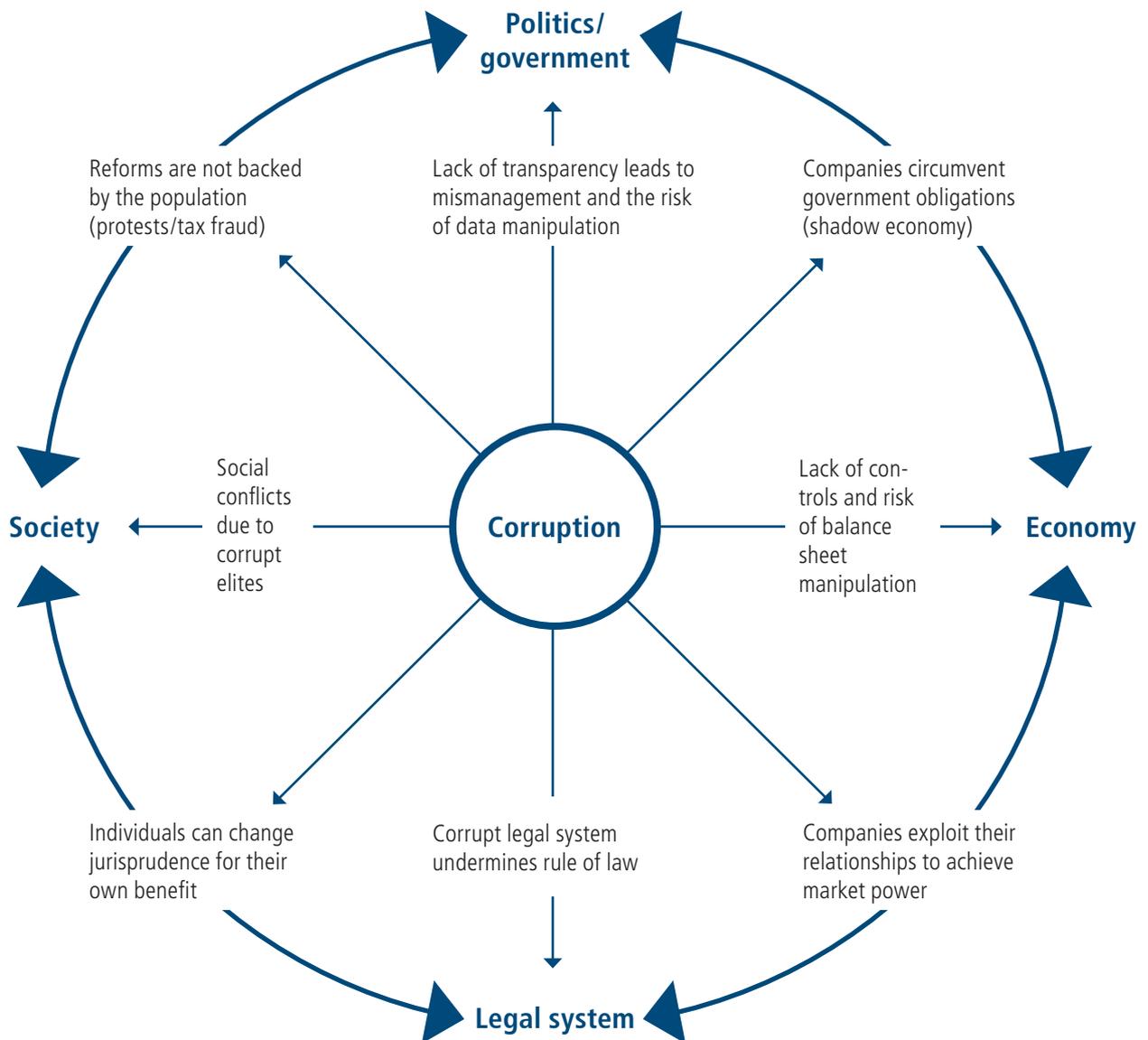
STUDY 2

Corruption and downside criteria for government bonds

Union Investment has devoted particular attention to the topic of corruption, and produced a study on this in 2014. Both in Europe and the emerging markets, corruption is one aspect of sustainability that should not be underestimated.

Experts have long noted a direct correlation between corruption and an increased risk of state bankruptcies. Are indicators now reliable enough to allow asset management to take more account of this issue? The study provides empirical evidence of the importance of the corruption element as part of a risk filter for credit ratings.

Effects of corruption that are relevant to credit ratings



More information is available in the analytical report at www.union-investment.com

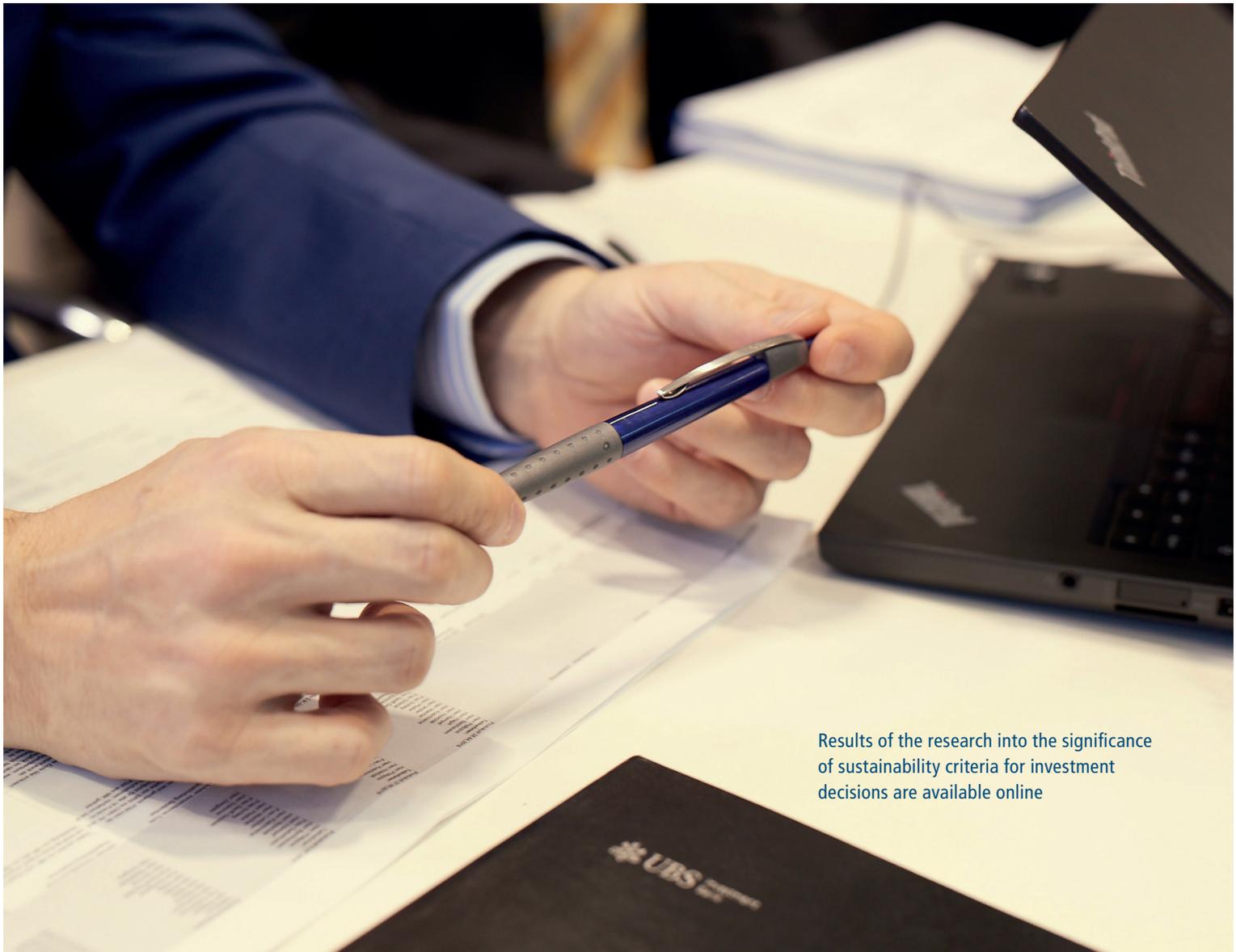


Political risks and their impact on government bonds

From an investor's perspective, the question whether a country is exposed to the risk of violent conflict has major implications for the prospective yields on bonds, equities and currencies. Political risk premiums therefore represent a key factor in the valuation of securities, which is why an early warning system is so very important. Drawing on the analysis by **Dr. Mauricio Vargas and Florian Sommer**, we have succeeded in developing such a system, and in putting a figure on political country risks. Corruption and inflationary price hikes play a very prominent role in this regard as explanatory variables.

However, the probability that social phenomena (such as violent conflict) will occur does not follow any directly discernible rules, so calculating it involves a considerable degree of difficulty. The process of identifying political country risk relevant to capital markets thus highlights the highly complex nature of the analysis required. For example, it is possible to identify any number of specific reasons why political unrest arose in a particular country. The range of identified causes is broad and includes ethnic, religious and social diversity, adverse trends and imbalances in the economy, and a whole spectrum of institutional and governance factors. Nevertheless, a comparative analysis covering a large number of countries also establishes that it is extremely difficult to find generally applicable causes that can be used as a kind of risk template; it is rather the country-specific factors referred to above that have been the critical contributing factors in determining local events.





Results of the research into the significance of sustainability criteria for investment decisions are available online

Study 4

Materiality of CO₂ emissions for investment decisions

The results of a study conducted on our behalf by **Professor Alexander Bassen and his team** show that equity portfolios with lower-emission stocks have already been outperforming high-emission portfolios. Nevertheless, companies with higher emissions were able to increase their profitability compared with other companies. This indicates that the inadequate pricing of emissions has been a revenue factor for companies that was not being fully taken into account by the capital markets.

But in future, the importance of CO₂ emissions for investment decisions is set to increase significantly. The resolutions of the World Climate Summit will prompt measures that are going to substantially increase the cost of greenhouse gas emissions. In the study, we examine the impact on companies' profitability in three different industries: the electricity sector, the commodities sector and the automotive sector.



Available at www.union-investment.com

Climate change as part of risk and opportunity management: Investing in an age of extreme weather events

Climate change is having a disruptive impact on our world – and therefore also on business models. Asset managers now have no choice but to take account of these issues in how they deal with risk and opportunity.

The effect of climate change on business models is to a large extent determined by timing and duration. Certain phenomena related to climate change, such as some extreme weather events, have a direct and immediate impact, but one that is usually temporary in nature. Although these kinds of ‘climate shocks’ hit businesses and equity markets in the short term, the investment case will only really begin to be influenced, either in a positive or negative sense, by long-term, structural changes. But should the short-term effects become more frequent, to the point where they achieve a degree of regularity, they may also trigger a fundamental change in the business landscape.

This category of short-term phenomena includes certain kinds of natural disasters that are occurring with ever greater frequency and thus increasingly becoming a structural factor.



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