

2018

Responsible Investment Report



tomorrow is today

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Foreword



Foreword

At APG we manage the assets of millions of people, including civil servants, teachers, construction workers, employees of housing associations and our own employees. Our aim is to enable our pension fund clients to provide them with a good pension in a pleasant, livable world.

This dual objective has a place in the heart of our company. Not only in order to offer a better risk-adjusted return in the long term, but also because we take our social responsibility seriously.

By looking at more than just financial factors, we can make better long-term investment decisions. Our portfolio managers assess all investments not only in terms of return, risk and costs, but also in terms of environmental, social and corporate governance performance. They also engage companies to encourage them to work in a sustainable and responsible manner.

In 2018, we made great progress with our 'inclusion policy'. This means that we assess all the companies in which we can invest by means of shares or bonds (the investment universe) in terms of risk, return, costs and how responsibly they operate. By 2020, our clients aspire to invest only in companies that are not only financially attractive, but also score well on corporate responsibility, or that show the ambition to improve in this area.

We have also taken significant steps forward with the investments that contribute to the achievement of the United Nations' sustainable development goals. We call these Sustainable Development Investments (SDIs). By the end of 2018, we had invested €69.2 billion in SDIs (15% of

assets under management), and our data analytics team ENTIS had reviewed 10,000 companies using artificial intelligence to determine which ones qualify as SDIs. For our work on SDIs, APG received the **IPE Award for ESG Investments** (investments with a focus on the environment, social aspects and governance) in 2018.

APG is at the top of the Global Climate Index of the Asset Owners Disclosure Project (AODP). The ranking shows to what extent the world's 50 largest asset managers take the consequences and risks of global warming into account in their investment policy. APG is the only asset manager with the highest rating (AAA).

Our ambition to be a leading responsible long-term investor is also reflected in our decision to move to a new location that meets the highest sustainability standards. In addition, we are actively working to increase the diversity of our employees, an issue that we also bring to the attention of the companies in which we invest.

We are proud of what we achieve for our pension fund clients and their beneficiaries, but of course not everything we do is a success. We regularly face challenges and dilemmas. We want to be open about them in this report. We hope you will read it with interest.

July 2019

Gerard van Olphen, *Chair of the APG Executive Board*
Ronald Wuijster, *Member of the APG Executive Board, responsible for Asset Management*

*By looking at more than
just financial factors,
we can make better long-term
investment decisions.*

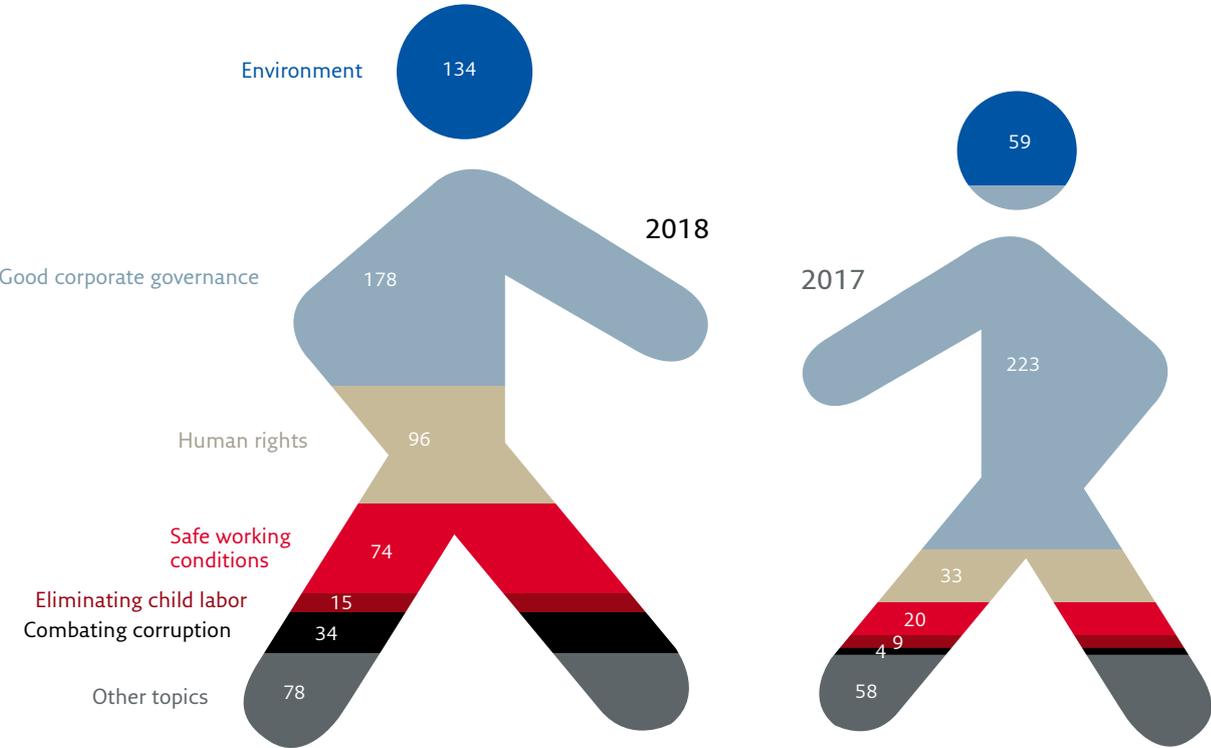
2018 in figures

What APG did as a responsible investor in 2018 can be summarized in the following figures.

Engagement with companies on sustainability and corporate governance

Number of companies we engaged with in 2018 366
 Number of companies we engaged with in 2017 322

Engagement by topic



Votes at shareholders' meetings

Shareholders' meetings at which we voted in 2018
 Shareholders' meetings at which we voted in 2017

4,732
 4,300

2018

2017

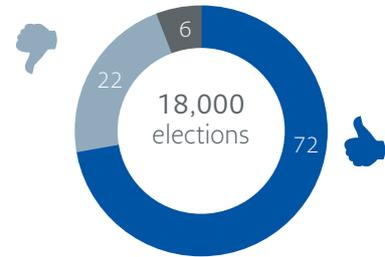
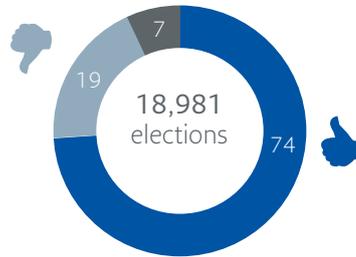
Remuneration proposals
 (in %)

-  In favor
-  Against
-  Abstention/vote not cast



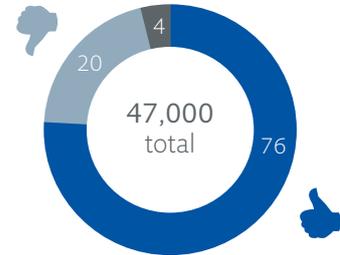
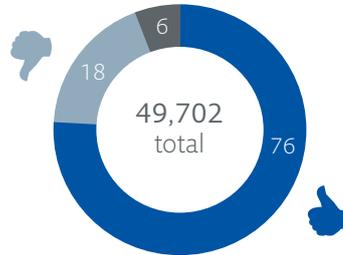
Election of directors
 (in %)

-  In favor
-  Against
-  Abstention/vote not cast



All proposals
 (in %)

-  In favor
-  Against
-  Abstention/vote not cast





Sustainable Development Investments

Sustainable Development Investments¹

2018 € **69.2** billion
 2017 € **55.3** billion
 2016 € **44.5** billion
 2015 € **38.5** billion

Investments in renewable energy

2018 € **5.8** billion
 2017 € **4.8** billion
 2016 € **3.2** billion
 2015 € **2.6** billion

Investments in green bonds

2018 € **6.9** billion
 2017 € **4.5** billion
 2016 € **1.9** billion
 2015 € **1.0** billion

Decrease in CO₂ footprint against 2014

2018 **-28.3** %
 2017 **-27.5** %
 2016 **-16.0** %

Inclusion and exclusion

Companies assessed as leader or laggard

2018 **7,700**
 2017 **600**
 2016 **0**

Countries (government bonds) on the exclusion list

2018 **11**
 2017 **10**
 2016 **10**

Companies on the exclusion list

2018 **153**
 2017 **22**
 2016 **19**

Total invested assets (in billions of euros)

2018 **459**
 2017 **470**
 2016 **443**
 2015 **406**

1. Since 2017, we have been reporting according to our SDI definition. For 2016 and 2015, HSI figures have been used. More about this on page 22.

Chapter 1



1 Our approach

We invest the pension contributions that members of our pension fund clients and employers pay each month in various asset categories, such as real estate, equities and bonds. In doing so, we aim for the best possible return at an acceptable level of risk. In addition we wish to invest in a manner that is sustainable and responsible. Research commissioned by our two largest clients, ABP and bpfBOUW, shows that the majority of their members expect this from them.

1.1 Responsible investment and our mission

We aim to generate a return befitting a socially committed company which, in the interest of the pension funds and their members, is both solid and financially stable. What we do benefits the pension funds and their members. This distinguishes our position from that of banks, pension insurers, asset managers and newcomers in the pension sector: we are always on the side of the member who deposits his pension euros with us via his or her pension fund.

Our mission is: 'Building your sustainable future together'. On the basis of collectivity and solidarity, we join forces to build a sustainable future for pension funds, members, employers, our own employees, and society as a whole.

1.2 Concrete goals

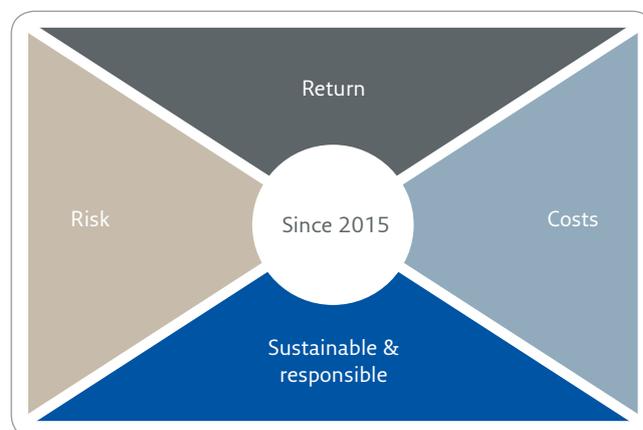
APG has three goals in the field of sustainable and responsible investment:

- Contributing to the financial return (adjusted for risk).
- Showing that we take social responsibility.
- Contributing to the integrity of financial markets.

In 2016 and 2017, our clients further enhanced their responsible investment policy. An important part of this is the setting of concrete, measurable targets to be achieved by 2020. This includes a substantial increase in investments in sustainable development, including renewable energy. In addition, the carbon emissions of the companies in the equity portfolio must be reduced by 25%.

1.3 More and more attention for sustainability

By 2020, we only want to have investments in companies that pay sufficient attention to people, the environment and good governance. Or in companies that we expect are willing to make an effort to improve their sustainability. This is why we started completely integrating sustainability and responsible business practices into our investment decisions in 2015. For each investment, we not only look at the expected return, risks and costs, but also at how sustainable and responsible the investment is.²



2. You can read more about this in chapter 2.

We are convinced that companies that have sufficient attention for people, the environment and good governance perform better in the long term, not only in terms of sustainability but also where financial returns are concerned. As a long-term horizon fits in well with our position as a pension fund investor, we are in an excellent position to invest sustainably and responsibly.

1.4 Implementation on track

By the end of 2018, we had assessed approximately 7,700 of the more than 10,000 companies in which APG can invest by means of shares or bonds in terms of sustainability and corporate responsibility (chapter 2).

In addition progress was made with:

- selling all investments in producers of tobacco and (components of) nuclear weapons (chapter 3);
- identifying investments that contribute to the UN Sustainable Development Goals (chapter 4);
- our thematic engagements in areas such as child labor and safe working conditions (chapter 5);
- updating our Corporate Governance Framework and voting policy (chapter 7).

1.5 Embedding in the organization

APG has a team of sixteen specialists in the field of responsible investment and governance at locations in Amsterdam, New York and Hong Kong. The tasks of the Global Responsible Investment & Governance team (GRIG) include:

- supporting portfolio managers in responsible investment;
- engaging with companies on responsible investment;
- assessing proposals for unlisted investments on sustainability and good governance;
- implementing the voting policy (active ownership);
- and engagement with regulators, supervisors and stakeholders.

Intensive collaboration between GRIG and the portfolio managers has contributed to a sharp rise in attention for and knowledge of sustainable and responsible investment within APG. The availability of reliable sustainability information is crucial for a good implementation of our policy and remains an attention point. One of the challenges is that uniform definitions are often lacking in the field of sustainability and responsible business practices, such as these do exist for financial data such as 'profit'. In other words: what is sustainable and what is not is partly a matter of definition.

Other parts of APG, such as Fiduciary Management and Risk Management, also employ specialists in the field of sustainable and responsible investment.

What is sustainable and what is not is partly a matter of definition.

1.6 VBDO scores of our pension fund clients

Our pension fund clients gained excellent scores in the annual ranking of sustainable pension funds of the Association of Investors for Sustainable Development (VBDO). ABP and bpfBOUW both obtained the maximum five stars; SPW obtained four stars. They were all among the seven best-performing funds in the Netherlands. They were praised for several aspects including their inclusion policy. The aim of this inclusion policy is to assess all companies in which we can invest on sustainability and responsible business practices (chapter 2).

1.7 Contributing to a good return

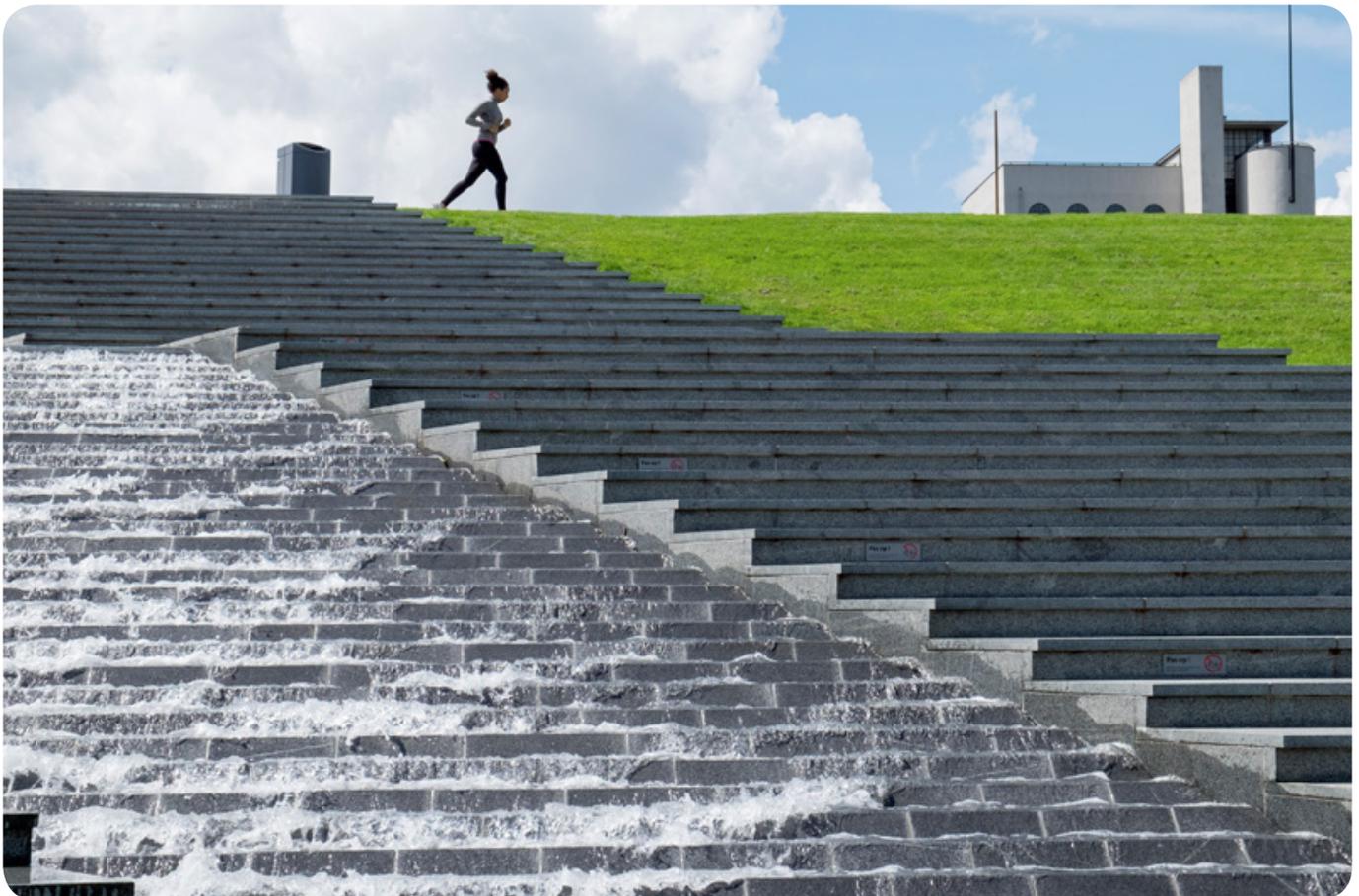
With the growing attention for sustainable and responsible investment the question arises: is taking people, the environment and good governance into account also positive for risk and return? After all, it is and remains our goal to provide members with a good pension.

A lot of academic research has been carried out into the relationship between responsible investment and financial performance. The large majority of the studies show that attention for ESG (Environment, Social, Governance) does not necessarily have a negative effect on returns. It can even result in higher returns and less risk.³

Academic research strengthens our conviction that we take better investment decisions when we pay structural attention to sustainability and responsible business practices. By taking this into account, we obtain better insight into the opportunities and risks of our investments.

Financial performance remains a condition in our choice of investments. In other words: even if an investment is good from an ESG perspective, we still will only invest if the expected return, risks and costs are favorable.

We expect from our portfolio managers that they can realize at least the same return as when they would not have taken ESG factors into account.



3. Friede, G., T. Busch and A. Bassen (2015), 'ESG and financial performance: aggregated evidence from more than 2000 empirical studies', *Journal of Sustainable Finance and Investment*.

Chapter 2



2 Actively investing in leaders and improvement potentials

As an active long-term investor, we have our own investment teams, which manage the largest part of the investments themselves. Our portfolio managers are closely involved in the policy for sustainable and responsible investment. ESG factors are always on their minds when making investment decisions.

Proposals for new investments (above a certain size) in non-listed companies and new mandates for external managers are also assessed by specialists in the field of sustainability and good governance. In addition to their advisory role, they are also involved in formulating the conditions to be included in the contracts that form the basis for the new investments.

2.1 Invest, sell or improve

An important part of the responsible investment policy that we implement on behalf of our clients is the inclusion policy. This means that we assess all companies in which we can invest by means of shares or bonds on four criteria: return, risk, costs and sustainability. We call companies that score well on all four criteria 'leaders'.

As of 2020, we will only invest in companies that are assessed as 'laggards' if the portfolio manager expects to be able to convince them to improve. He must find the risk, return and costs attractive enough to put time and effort into such an improvement process. If these criteria have been met, we can invest in these companies and we refer to them as 'improvement potentials'. We tell such companies which improvements we wish to see and we monitor the progress closely.

Such an improvement process (engagement) can be intensive and take a lot of time. If there are no or only insufficient results within a number of years, we may stop investing in this company. If we do succeed in getting a company to operate more sustainably and responsibly, we have achieved our goal: a better investment in a company that contributes to a sustainable future.

With this inclusion policy, we comply with the guidelines of the OECD (Organization for Economic Cooperation and Development) regarding, for instance, the systematic identification of ESG risks in the portfolio and exerting influence on companies to reduce these risks.

Dilemma: why don't we just exclude the laggards?

Beneficiaries and NGOs often ask our pension fund clients why they do not simply exclude polluting investments. These are usually producers of fossil fuels such as oil and gas.

The answer is twofold: the world cannot do without fossil fuels for the time being, and our clients expect to achieve more results with engagement than with exclusion.

Experts believe that the demand for energy will continue to increase considerably in the coming years. Hydropower, wind and solar energy will only be able to meet part of that demand. Today, alternative sources account for only 5% of the world's energy production. Even in a more stringent climate scenario, in 2040 no more than 30% of energy will come from renewable sources. Petrol and diesel will continue to be needed as fuel for vehicles for some time to come.

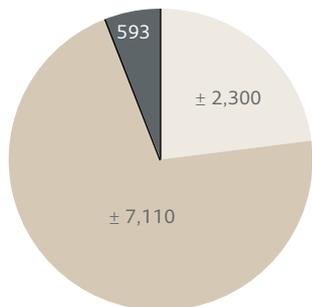
However, it is clear that the use of fossil fuels is finite. On behalf of our clients, we therefore urge companies to anticipate this in their strategy. That they contribute to the transition to sustainable energy. After all, this is also in their own interests. Our clients expect to achieve more this way than through the exclusion of these companies. By excluding fossil fuel companies we may send out a one-off signal, but we will no longer be able to exert any influence.

With this approach, we achieve concrete results. See the example of Shell, on page 39.

2018: Major progress in the inclusion policy

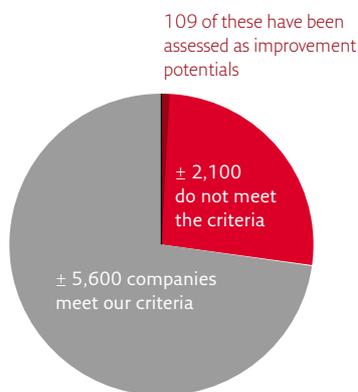
Companies assessed on inclusion criteria

Of a total of 10,000 companies in the investment universe, 7,700 have been assessed on inclusion criteria.

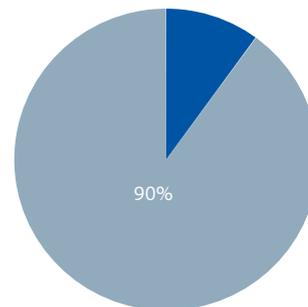


● 2017 ● 2018 ● 2019

Classification of the investment universe assessed (31-12-2018)



Percentage of portfolio value assessed on inclusion criteria. (31-12-2018)



2.2 How do we assess companies?

We assess all companies in which we can invest via shares or bonds on these criteria:

- Do they provide an attractive return?
- Is the risk acceptable?
- Are the costs not too high?
- Do the companies operate in a sufficiently sustainable and responsible way?

In order to determine whether a company is sufficiently sustainable and responsible, we check whether the company has a policy for the agreements the United Nations has made regarding corporate sustainability (the UN Global Compact). This concerns universal principles on human rights, labor, the environment and anti-corruption. For example, does the company communicate how waste is processed safely? Or how it takes the interests of local communities into account? Or protects the personal data of customers?

A policy on paper is not enough. We also check whether a company fulfills agreements in practice. Are incidents known, such as accidents or environmental pollution? How does the company deal with them? We have separate criteria for every sector that take the specific risks in that sector into account.

2.3 How far are we?

Our goal is to assess all over 10,000 companies in which we can invest via shares or bonds. By the end of 2018, we had assessed over 7,700 companies (approximately 90% of the value of our investments). We started selling our investments in 'laggards'. Furthermore, 109 companies were assessed as 'improvement potentials'. We will communicate to these companies which improvements we wish to see and within which term (you will find examples of this on page 17). We will assess the remaining companies in 2019.

2.4 Challenges

Assessing thousands of companies on various criteria is challenging. Systems cannot do everything and many changes have to be implemented manually. Seemingly obvious questions such as 'What is a company?' are sometimes more difficult than expected. For instance, a parent company and a subsidiary can be two totally separate companies that operate in a completely different sector and that therefore each have to be assessed on other criteria.

For instance, it occurs more than once that the parent company scores poorly on our sustainability criteria, while the subsidiary scores very well. Based on our inclusion policy, we would want to invest in the subsidiary but we would not want to invest in the parent company. However, public sustainability information is only provided at the level of the parent company. No distinction is made between the parent company and the subsidiary. In that case, we have to assess the difference ourselves and enter our conclusion into the system manually.

2.5 Aiming for improvement

Within the context of our inclusion policy, engagement plans were drawn up for 109 companies. Below, we provide examples of companies with which we entered into a dialogue.⁴

Wilmar

- *Industry: food (including palm oil)*
- *Engagement objective*
 - Implementation of 'No Deforestation, No Peat, No Exploitation Policy'. This policy is aimed at combating deforestation, the cultivation of palm oil on peat land and preventing exploitation.
 - Contribute to the improvement of labor conditions in the palm oil industry.

Volkswagen

- *Industry: cars*
- *Engagement objective*
 - Improvement of the company culture and more independence in the supervisory board, to ensure better supervision of the business activities and a better remuneration policy.

Formosa Plastics

- *Industry: plastics*
- *Engagement objective*
 - Ensuring the health and safety of workers. Improvement of environmental management.
- *Specific asks*
 - Adopt a health and safety policy in accordance with the guidelines of the International Finance Corporation (IFC) and implement concrete measures.
 - Adopt an environmental policy in accordance with the IFC guidelines. Develop a detailed system or norms for environmental issues such as water, waste and carbon.

Twenty-First Century Fox

- *Industry: mass media*
- *Engagement objective*
 - Effective measures against sexual harassment and discrimination.
- *Specific asks*
 - Provide evidence of an effective, anonymous complaints procedure that provides explicit guarantees that the employee who lodges a complaint will not be penalized.
 - Improve the company culture, also through training and by providing information on the policy against discrimination and sexual harassment.

HeidelbergCement

- *Industry: building materials, cement*
- *Engagement objective*
 - Termination or sale of activities in the West Bank.
- *Specifieke eis*
 - Take a decision to close or sell the Raba quarry. Carry out this decision before the end of 2019.⁵

Credit Suisse

- *Industry: financial services*
- *Engagement objective*
 - Preventing money laundering, bribery and corruption.
- *Specific ask*
 - Publish an anti-bribery and anti-corruption policy, including a ban on bribery, corruption and facilitating such payments.



4. The objectives and asks stated above are incomplete summaries.

5. The Board of HeidelbergCement has meanwhile decided to sell these activities.

‘Corporate culture is often the cause of inadequate safety’

Interview with Ben Rosado, Senior credit analyst at APG

What do you do as an investor when a car manufacturer fails to respond decisively to safety problems? Senior credit analyst Ben Rosado engaged with General Motors.

Why are you talking to General Motors?

‘General Motors (GM) has a history of serious safety incidents. For instance, the company failed to report serious defects of the ignition switch, whereas this had already been known within the company for years. In 2014, GM recalled all the cars with this faulty ignition switch. The company later acknowledged that the defect had possibly caused 124 deaths and hundreds of wounded. Due to, among other things, GM’s late response, we had our concerns about the company culture in which behavior with such serious consequences was possible.’

What did GM do subsequently?

‘The company has announced several initiatives to improve product safety since 2014. They looked good on paper, but as an investor we wanted more insight into their effectiveness in practice. Has safety really been improved, or is it just window dressing?’

What do you require from such a company?

‘That is difficult: determining exactly what we want from a company. Inadequate safety is often related to corporate culture. For example, workers that are concerned about the safety of a product, but do not dare report this. Therefore, the culture has to change. But how can a company demonstrate that its culture has improved?’

‘We have made agreements with GM’s senior management regarding measuring and disclosing, for example, the number of phone calls to their ‘Speak Up for Safety’ hotline. Employees, suppliers and dealers can report possible safety problems via this hotline. We provided constructive feedback and the company was open to our questions and comments.’

‘Ultimately, it boils down to being open and to what extent the management makes an effort to implement improvements. We hear from the managers of the sustainability and safety teams that the Board now discusses the safety of the cars in every meeting.’

Does that mean that the matter has been resolved?

‘Although GM’s receptiveness and openness are certainly signs of change, we do not simply accept this at face value. We assume that GM’s next sustainability report will report more and more honestly and we will remain in contact with the company about this.’



Chapter 3



3 Exclusion

There are companies, countries and products in which our clients do not want to invest in any case. These are listed on our exclusion list.

We do not invest in producers of weapons that are prohibited by international treaties to which the Netherlands is a signatory. Concretely, this concerns companies that are involved in the manufacture of cluster bombs, anti-personnel (land) mines and chemical and biological weapons. We already excluded nuclear weapons that were banned based on the non-proliferation treaty. According to this treaty from 1970, which was signed by the Netherlands, only five countries are allowed to possess nuclear weapons, i.e. the United States, the United Kingdom, France, Russia and China.

We can invest in manufacturers of weapons that are not prohibited. Not only for reasons of profitability, but also because we invest for, among other beneficiaries, employees of the police and the Ministry of Defense. Without weapons, the military would not be able to maintain public order, and an army would not be able to ensure peace and security.

3.1 New product exclusions: tobacco and nuclear weapons

In 2018 our clients decided to stop investing in tobacco manufacturers and all companies involved in the production of important parts of nuclear weapons.

We sold all our investments in producers of tobacco and nuclear weapons in the course of 2018. The proceeds were invested in various other sectors worldwide. We examined the effect of this operation on returns and costs. The costs were largely in line with the expectations. The gradual reduction of the interests in tobacco and nuclear weapons had a positive effect on the return over the sales period.

At the end of 2018, in total 150 listed companies were on our **exclusion list** based on their products.

3.2 Companies that do not comply with global agreements

We want the companies in which we invest to respect the UN Global Compact principles on human rights, labor conditions, the environment and anti-corruption. If a company does not respect these principles, we can put it on our exclusion list if we do not succeed in getting the company to improve.

At present, three companies are on our exclusion list due to violation of the UN Global Compact: the Chinese energy company PetroChina, the Japanese energy company Tokyo Electric Power Company and the US supermarket chain Walmart.

3.3 Unlisted companies

The above list of exclusions only includes listed companies. Contracts with external asset managers stipulate that they also apply our exclusion policy to non-listed companies. The list used for this purpose includes another 110 companies. External managers do not have to apply the exclusion policy to non-listed investments that were already in the portfolio before the introduction of the exclusion policy (or parts thereof). Index investments and ETFs (investment instruments that follow an index) are also excluded because they are needed to manage investments efficiently. We can guarantee for over 99% of the investment portfolio that there are no shares or bonds of companies that are on our exclusion list.

3.4 Exclusion of countries

When the UN Security Council imposes an arms embargo on a country, we no longer invest in government bonds of this country. South Sudan was added to our exclusion list in 2018. Eleven countries are now on our exclusion list.

Chapter 4



4 Sustainable investment in the UN goals

At the end of 2018, APG had invested € 69.2 billion in companies that contribute to the Sustainable Development Goals of the United Nations. This is approximately 15% of the assets under management.

We at APG invest all the assets entrusted to us in a responsible manner. This means that we include environmental, social and corporate governance (ESG) criteria in our assessment for all investments. We enter into discussions with listed companies that are lagging behind in this area in order to encourage them to improve. We impose similar conditions on unlisted investments.

In addition, our clients ABP and bpfBOUW have objectives that go even further. They want us to look for investments that are not only managed with respect for people, the environment and good corporate governance, but that also contribute to the sustainable development goals of the United Nations: SDGs.⁶ The aim of these goals is a better, livable world, such as ending poverty, reducing inequality and protecting the environment.

Together with pension fund service provider PGGM, we have developed a framework for determining which companies contribute to the UN Sustainable Development Goals with their products and services. We call these investments *Sustainable Development Investments* (SDIs). As is the case for all other investments in our portfolio, SDIs must satisfy our return, risk and costs criteria. If a company provides a real contribution to the realization of SDGs, we regard this as an important advantage and an extra argument to invest in that company.

4.1 Innovation: selecting SDIs with artificial intelligence

In order to determine whether a company contributes sufficiently to the UN Sustainable Development Goals, we must determine criteria and then make many choices based on these criteria. We did this manually in 2017 for thousands of companies. It requires a huge effort to do this every year again. That is why ENTIS, our data analysis team, has developed a unique method to assess SDIs with the aid of artificial intelligence.

ENTIS uses smart algorithms to determine whether an investment can be regarded as an SDI. This is based on criteria that we have formulated ourselves. Of course, human intervention is still required. This is due to, for example, the quality of the available data and the fact that the years of experience of investment and sustainability specialists in the interpretation of information cannot simply be replaced by technology. At the end of 2018, ENTIS had assessed all 10,000 companies in which we can invest via shares or bonds.

⁶ Before 2017, we defined our sustainable development investments as 'High Sustainability Investments (HSIs). These were inspired by the predecessors of the UN Sustainable Development Goals: the Millennium Development Goals. We report on SDIs since 2017.

SUSTAINABLE DEVELOPMENT GOALS



Source: www.unric.org/nl



Microfinance provider goes to the stock exchange

SDG 1 – No poverty

In 2018, ASA International, one of the world’s largest microfinance institutions, was listed on the stock exchange. It is the first stock-listed international microfinance institution.

In the ten years in which we have invested in ASA International, the number of customers rose from 150,000 to around two million. The investment produced a return that is considerably higher than the portfolio average in the past 10 years.

ASA International is an example of an investment that contributes to SDG 1 - No poverty. Microfinance meets the demand for small loans in developing countries. This concerns people with a low income, who are only able to borrow a very small amount or not at all from a regular bank. The loans (of on average € 300) are often too small to be profitable for regular banks.

In particular, women make use of microfinance. For example, they finance their own small company with a loan with which they can improve their living conditions and those of their children. As a result of the flotation, ASA International can provide small loans to more people in developing countries and thus help them to improve their standard of living.



Strengthening the Afsluitdijk Dam

SDG 13 – Climate action

The Afsluitdijk Dam has to be strengthened in order to continue to protect the Netherlands against the sea. In 2018, the Ministry of Infrastructure and Water Management awarded this contract to the Level consortium, in which APG participates.

This investment in infrastructure in the Netherlands contributes to SDG 13 - Climate action. This also includes limiting the consequences of climate change. This is extra important for a country like the Netherlands where a large part lies below sea level. As ice caps are melting and sea levels are rising due to global warming, strengthening dikes and dams is more necessary than ever.

Work on the 85-year old Afsluitdijk Dam started in the fall of 2018 and will be completed in 2023. After the dam has been renovated, it will be able to withstand the type of storm that statistically occurs once every ten thousand years.



Recycling steel dust

SDG 9 – Industry, innovation and infrastructure; SDG 12 – Responsible consumption and production

APG invests in corporate bonds issued by Befesa. This Spanish company specializes in recycling steel dust and other residual products from the production of steel. The company contributes to the efficient use of resources and reducing waste. With 17 recycling factories in seven countries, Befesa treats over 1.3 million tons of residual waste per year. It makes over 600,000 tons of new material from this waste.





Dilemma: palm oil an SDI?

SDG 2 – Zero hunger

Palm oil is an important source of nutrition and of employment in the places where it is harvested. At the same time, the production of palm oil can have negative consequences for people and the environment. How do we deal with this?

An important problem with palm oil production is deforestation, which is a danger for various (protected) species. In addition, cases are known of palm oil companies that intimidate local inhabitants and push them off their land or make use of child labor.

On the other hand, palm oil provides for 35% to 40% of the global demand for vegetable oils.⁷ Vegetable oils fall under basic foodstuffs and palm oil is the cheapest version, which also yields three to five times more than other oils per unit of land. As a result, it is an important food source for poorer population groups and contributes to UN Sustainable Development Goal 2 – Zero hunger. Moreover, just in Indonesia alone an estimated 14 million people are dependent on palm oil production for their income.⁸

APG is conducting tough discussions with the palm oil producers in the investment portfolio. We have a team of local specialists who talk to the companies on location to encourage them to produce palm oil in a more sustainable manner. We have been doing this since 2011. APG is one of the founding members of the PRI Investor Working Group on Sustainable Palm Oil. We ask companies to join the Roundtable on Sustainable Palm Oil. This organization is developing global criteria for sustainable palm oil.

*Palm oil is an important source of nutrition,
but can also harm the environment.
APG therefore engages intensively with
palm oil producers.*

⁷ CLSA 2018.

⁸ Golden Agri Palm Oil Industry factsheet. The calculations are based on four persons per household.



Arcadis: Dutch pioneer in sustainable goals

SDG 6 – Clean water and sanitation; SDG 9 – Industry, innovation and infrastructure; SDG 11 – Sustainable cities and communities; SDG 13 – Climate action; SDG 15 – Life on land

Hard figures on the contributions of companies to the UN Sustainable Development Goals are of great importance to increase the sustainability of the whole business community. The Dutch company Arcadis plays a pioneering role in this. As one of the first companies in the world, Arcadis publishes in its sustainability report which percentage of its turnover contributes to the UN Sustainable Development Goals. Working on sustainable solutions is a core activity for Arcadis; 80% of its turnover is related to the UN Sustainable Development Goals.

Arcadis helps governments and companies worldwide in the field of water, the environment, infrastructure and buildings, and has an excellent reputation in the field of coastal protection. For instance, the company is involved in coastal protection in New York and New Orleans. Arcadis is also working in the Netherlands to make our coast climate-proof.

As far as the environment is concerned, the company offers expertise in the field of remediation and making production processes more energy efficient and environmentally friendly. In the field of infrastructure and buildings, the company is involved in, for instance, the design, coordination and realization of building projects in which the energy transition and circular building play an important role. For example, Arcadis is involved in the iconic sustainable building project Wonderwoods, which will arise in the center of Utrecht in the coming years.

In September 2018, APG and Arcadis discussed whether the company, in view of its important position in the field of sustainability, could provide concrete numerical data on its activities in the area of sustainability. This contributed to Arcadis’s decision to include in its sustainability report which percentage of turnover is related to the UN Sustainable Development Goals.



Wonderwoods: a building with ‘vertical woods’, that is being built in Utrecht

4.2 Sustainable real estate plays an important role

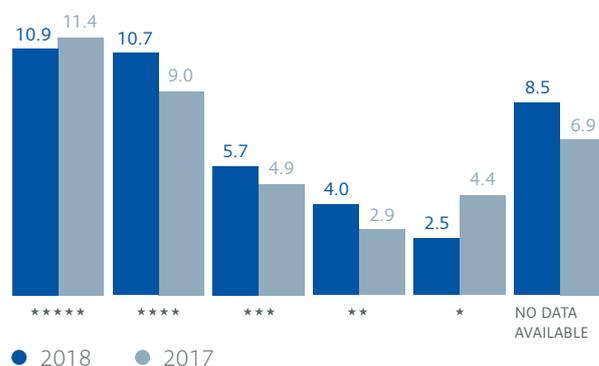
The largest share of the SDIs is real estate. We have invested € 28 billion in sustainable real estate, making a considerable contribution to SDG 11 – Sustainable cities and communities. Examples are East Village London, which is converting the Olympic Village of 2012 into a new residential area with shops, bars and restaurants, and SATO, which offers rental apartments in Finland and Russia. Real estate qualifies as SDI if it receives four or a maximum of five stars in the annual sustainability survey of the Global Real Estate Sustainability Benchmark (GRESB).⁹

We stimulate funds in our portfolio that have a lower assessment to improve their real estate so that they receive at least four stars in the next assessment. We also urge parties that already have four or five stars to implement further improvements, so that the benchmark becomes higher and higher.

Our aim is that all our funds report to GRESB. At present, 20% of the funds do not yet do this. This mainly concerns listed real estate. For our direct investments in real estate funds, we have made participation in GRESB obligatory. New investments must also have an assessment of at least four stars within three years. The GRESB scores of funds in which we were invested in 2018 are provided in the overview alongside.

How does our real estate score in the GRESB assessment?

In billions of euros



In 2018, GRESB also provided insight into the share of our real estate investments that have a sustainability certificate. At the end of 2018, this was around 20% of all square meters that were reported to GRESB.

Sustainable housing for APG

APG has three office locations in the Netherlands: the head office in Heerlen and two offices in Amsterdam. In 2018 we decided to merge all of our Amsterdam activities in our current building on the Basisweg in Amsterdam, near Sloterdijk train station. As such, we will eventually vacate our premises in the Zuidas business district (Symphony Tower). We are taking this step for cost reasons and because we want an office building that better suits who APG wants to be: an efficient pension service provider with a keen eye for costs and sustainability, and an employer who stimulates job satisfaction and vitality.

We expect to move mid-2021. The move will save us a total of €87 million in housing cost over the course of the rental

contract (17 years), contributing to our goal of reducing the cost per beneficiary.

The Basisweg building will be renovated to become one of the most sustainable buildings in the Netherlands. We are trying to minimize our ecological footprint. This means compensating the majority of our carbon emissions, realizing energy savings where possible, and only using green natural gas and green electricity. APG's head office in Heerlen is connected to the Mine Water Project, which allows us to use the water from local mining tunnels to cool or heat the building.

9. The GRESB rating indicates how sustainable a real estate company is in comparison with the other real estate companies that are assessed by GRESB. Real estate companies that belong to the highest 20% are awarded five stars. The 20% lowest scoring real estate companies receive one star. **More information is given here.**

4.3 Strong growth in green bonds

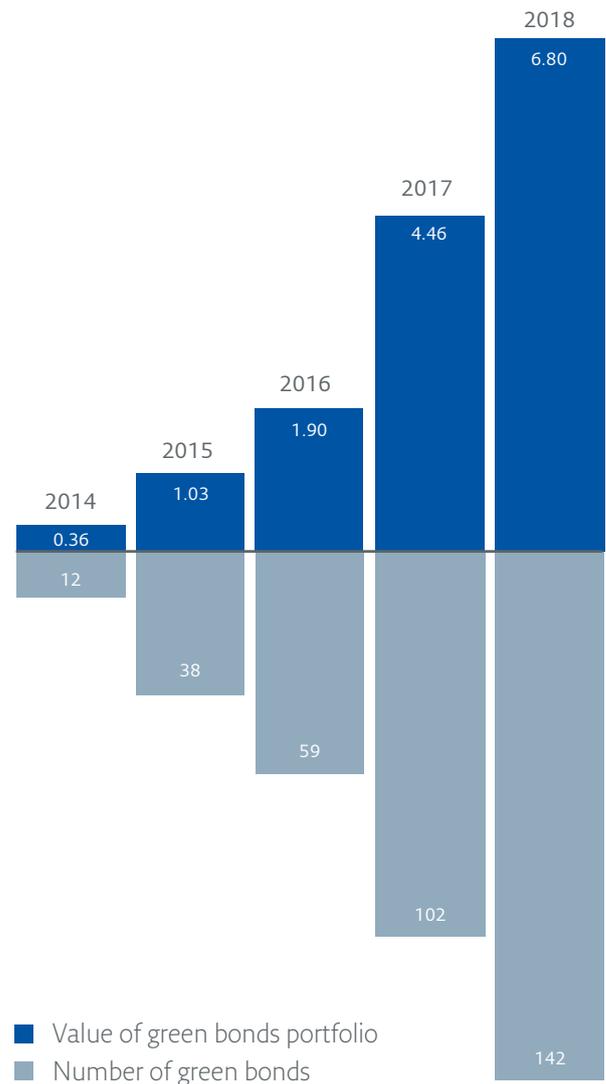
Our SDIs also include many green, sustainable & social bonds (referred to below as: 'green bonds'). These are bonds issued by companies and semi-government and government institutions for the funding of social and sustainability projects. In this manner, green bonds provide both a financial and a social return. At the end of 2018, we had 142 green bonds with a value of over € 6.8 billion.

In February 2018, we invested in a green bond issued by the Belgian State. The proceeds are being used for, among other things, the construction of wind farms and a system of fast rail connections in the Brussels region. In October 2018, we bought green government bonds issued by Ireland for the funding of sustainable water and waste management and projects aimed at mitigating the consequences of climate change.

APG also invests in green bonds issued by international institutions, such as the World Bank and regional development banks such as the African Development Bank and the Asian Development Bank. The proceeds are used to finance projects in the area of, for example, education, renewable energy and sustainable infrastructure.

Grid operator TenneT is the largest issuer of green bonds in the Netherlands. We further increased our investment in bonds issued by TenneT in May. In the coming years, TenneT plans to invest billions in, for example, connecting offshore wind farms in the North Sea to the high voltage grid.

Growth in our green bond portfolio 2014-2018
In billions of euros



Green bonds provide both financial and social return.

4.4 Green, sustainable and social bonds

Our investments in green bonds are growing in every respect: in Europe and elsewhere, in corporate and government bonds, for the financing of sustainability initiatives (sustainable bonds) and social projects (social bonds) or a combination thereof.

Paris: public transportation of the future

– *What: Grand Paris Express (GPE)*

– *Bond issued by the French state*

GPE is the largest infrastructural project in Europe.

The metro system in the Paris metropolitan area will be expanded with four new metro lines, 68 new stations and 200 kilometers of additional tracks. Two existing metro lines will also be extended. In this manner, car traffic will be reduced and the surrounding urban district will receive an impulse for development. GPE will transport 2 million people every day.

Reducing traffic congestion in Brussels

– *What: Gewestelijk ExpresNet (GEN)*

– *Bond issued by the Belgian state*

The Brussels region is becoming increasingly congested due to car traffic. GEN is a large-scale project for faster and more frequent connections between Brussels and the suburban districts. Traveling by train, metro, tram and bus will become easier due to better alignment of the schedules and the introduction of a payment card for all public transportation in the city.

Accessible education in Nigeria

– *What: Afe Babalola University*

– *Bond issued by the African Development Bank*

One million young talented people in Nigeria are not able to study due to a lack of capacity. The aim of this project is a substantial expansion of the university so that twice as many students can study at the university in 2025. This project includes the realization of a hospital with 400 beds for the medical faculty, a central library, better agricultural education for local farmers and a small hydrogen power plant.

Preparing for the energy transition

– *What: Development of the high voltage grid*

– *Bond issued by TenneT*

TenneT operates the high voltage grid and is the largest issuer of green corporate bonds in the Netherlands. The proceeds will be used to prepare the high voltage grid in the Netherlands and parts of Germany for the energy transition. This includes, for example, the connection of wind and solar parks and increasing the transport capacity for sustainable electricity.

Affordable housing

– *What: Affordable Housing Bonds*

– *Bond issued by Ned. Waterschapsbank (NWB)*

The NWB provides loans to Dutch housing associations. The associations' core task is building, letting and managing affordable rented housing up to € 710 per month (2018). They also let social property (such as a neighborhood library) and invest in the livability of neighborhoods. Part of the financing will be used to increase the sustainability of dwellings.

Clean energy in India

– *What: Solar Transmission Sector Project*

– *Bond issued by the Asian Development Bank*

The reliability of the electricity grid in India leaves much to be desired; 300 million people hardly have access to electricity. The aim of this project is to improve the high voltage grid and connect large-scale solar farms. With this clean energy, 7 million tons of carbon emissions can be avoided annually.



Chapter 5



5 Human rights and labor conditions

APG wants companies in which we invest to respect human rights. The starting point for this is the **United Nations Global Compact**. This includes principles for the actions of companies in the areas of human rights, labor conditions, the environment and the fight against corruption.

5.1 Human rights benchmark

The second report of the **Corporate Human Rights Benchmark (CHRB)**¹⁰ was published in November. In this report, the human rights performance of 101 listed companies in the clothing, extractives and agricultural sector are compared. Violations of human rights and labor rights still occur in these sectors. APG was one of the initiators of the index.

APG hopes that the annual publication of the human rights index encourages companies to work on improving human rights and incorporate this in the company's strategy. Furthermore, the ranking is important for us to:

- obtain insight into the human rights performance of the companies in which we can invest;
- increase the awareness of companies;
- have a starting point for discussing human and labor rights with companies.

5.2 What does APG want to achieve?

In the area of human rights, we pay special attention to the sectors in which problems tend to occur, such as the clothing industry and the extraction of natural resources. The following factors played a role in the selection of these sectors:

- Have we invested in these sectors?
- Is the problem serious and could this have an impact on our investments?
- Do we expect that we will be able to get companies to implement improvements?

We try to make agreements with companies in this sector to implement improvements. In addition, we consider it important that companies join initiatives in their sector to avoid and combat abuses.

¹⁰ The ranking takes into account, for example, wages, working hours, safety and child labor. It also takes into account how companies deal with allegations of human rights violations.

‘We can really inspire companies to change’

Interview with Anna Pot, Manager responsible investments at APG New York

APG can really make a difference by engaging with companies about human rights, says Anna Pot, Manager responsible investments in New York. This is what makes her work inspiring, but it also takes a lot of patience. ‘You plant a seed, but in some cases it takes a long time before it starts to grow.’

Looking back at 2018, what are you proud of?

‘The fact that we managed to encourage companies – even those that were not at all active in the field of human rights – to change. For instance, after we engaged with them, a number of American companies will now for the first time publish a sustainability report. It is important that companies demonstrate transparency and public accountability. Our efforts to promote safe working conditions in the clothing and apparel industry are also yielding results. To give an example: L. Brands – the company behind Victoria’s Secret – earlier this year published a list of all its clothing suppliers. To us, this is an indication that the company is willing to take responsibility for practices within the supply chain and share information about this.’

Why is it important for companies to respect human rights?

‘We want to be a sustainable and responsible investor on behalf of our pension funds and their participants. Respect for human rights is part of that. Moreover, companies need to be aware of the risks related to human rights violations. These may include reputational damage, expensive legal procedures, or fines. Companies that limit these risks will deliver better financial performance, too. And this contributes to the participants’ pension returns.’

Some companies don’t make much progress.

How do you handle this?

‘The Corporate Human Rights Benchmark does show that many companies are not yet making enough of an effort to prevent and address human rights violations. That is disappointing. But we also see that the publication of the benchmark encourages companies to go the extra mile. Adidas have actually said just that, and they are now first on the list. Other companies have also indicated that the CHRB has been a trigger for them to start a human rights program, for example. The lesson is that change takes time. You plant a seed, but in some cases it takes a long time before it starts to grow.’

What are the challenges of this job?

‘Before I started here in 2008, I worked for Amnesty International for a few years. There it was easy to be morally in the right. But in a broad, global investment portfolio like ours, not every company can be a human rights champion. That means we also invest in companies that still need to make significant changes. I sometimes find that difficult. At the same time, I have seen that our approach can make a real difference and inspire companies to change. That is what drives me, and what matters to APG as a responsible long-term investor.’



Dialogue on human rights

What are signs of risks?	Examples	Possible risks	What do we expect?	Example dialogue
Industry	Telecom- and software	Violations of the privacy of customers; government requests customer data	Company shows that it is aware of the risks and demonstrates willingness to take action; has human rights and privacy policy	Facebook
	Energy and mining	Negative impact on local community; excessive violence to guarantee safety	Company shows that it is aware of the risks and demonstrates willingness to take action; has human rights policy	Exxon Mobil
Country/region	Companies active in contested areas or countries where human rights are violated	Company can be linked directly or indirectly to violations of human rights	Company shows that it is aware of the risks and demonstrates willingness to take action; has human rights policy	Heidelberg-Cement
News/incidents	Companies in the news due to labor unrest accidents, discrimination, land conflicts or child labor	Incidents can indicate that operational processes are not in order and that human rights are possibly being violated	Company takes action to resolve issues, limit the impact and reduce the likelihood of recurrence	Wilmar

5.3 Theme: fair raw materials

In 2018, APG approached 25 companies in the commodities sector regarding their performance in the area of human rights; twelve of these were companies that score the lowest (among the lowest 30%) in the human rights benchmark.

We expect all companies involved to develop a human rights policy adopted by the Board, including the commitment to carry out investigations, resolve existing problems and adopt a complaints procedure. Nornickel is an example of a company that has clearly made progress. This Russian mining company now has a published human rights policy and reports about human rights in its sustainability report.

5.4 Theme: human rights in the ICT sector

If ICT companies do not handle their customers' personal data properly, this could lead to violations of human rights. Such as the right to privacy, freedom of speech and protection against discrimination.

We focus on nine companies in the sector. We expect that they pay attention to privacy and human rights up to the board level, that they are transparent about their policy and the implementation of this policy to protect these rights, and work together with other ICT companies in order to prevent digital rights from being violated.

In 2018, we entered into discussions with Facebook, among others (in response to the commotion about the access of Cambridge Analytica to user data), and Equifax (which had been affected by a major data breach in 2017). We also supported the proposal at Apple's annual general meeting to appoint a human rights committee at board level.

5.5 Theme: abuses in the clothing industry

APG introduced the Brooklyn Pledge to Accelerate Change in December 2018. We are asking clothing companies to take action on 57 recommendations, such as improving the rights of employees and enhancing the supplier policy. This initiative was set up together with Brooklyn Fashion + Design Accelerator (BF+DA), an institute for ethical fashion. Various institutional investors have now pledged their support.

We published a statement in September 2018 together with other large investors in which we advocate the continuation of the work of the organization behind the Bangladesh Agreement. This agreement provides for independent safety inspections at textile mills in Bangladesh since 2013. The future of the Bangladesh Agreement is uncertain after the ruling of the Supreme Court that the organization that carries out the inspections must close its office in the country.

5.6 Theme: safety in shipbuilding

Relatively many fatal accidents occur in shipbuilding. This is why we have asked shipbuilders to publicly acknowledge the importance of safety and to develop a safety improvement policy. Shipbuilders have been facing a strong decrease in orders and revenues in recent years. The number of companies has decreased and is still decreasing. It is a challenge in these circumstances to ensure that safety is placed high on shipbuilders' agendas.

We are focusing our efforts on eight shipbuilders (all located in Asia) and four large purchasers of ships. We see progress in particular among the Korean shipbuilders. After tightening its safety policy, Samsung Heavy Industries has taken further steps to improve safety. Hyundai Heavy Industries has tightened its procedures and has become more transparent about accidents and safety issues.

The involvement of a number of large ship buyers is crucial. We encourage customers to systematically raise safety issues with their suppliers. The buyers – including Shell and other oil companies – have taken this up energetically. An example is the common safety standard that they have developed for the Korean shipbuilders.



5.7 Theme: safety in infrastructure

APG wants to be able to assess whether our investments in infrastructure pay sufficient attention to safe and healthy working conditions and the environment. Our objective is that in 2020 at least half of the infrastructure investments participate in the annual GRESB Infra assessment, of which we are one of the initiators. 52% of our investments (based on invested capital) participated in this assessment in 2018 (2017: 43%).

Examples of APG's investments in infrastructure include the Route du Soleil in France and the Åskalen Park in Sweden, one of the most efficient wind farms in Europe.

5.8 Theme: labor conditions in cobalt mining

The international association of responsible investors PRI set up a working group in November 2018 to encourage companies to improve the human rights situation and labor conditions in cobalt mining. APG took a seat in the advisory committee and is actively involved in the initiatives of this working group.

APG initiated a collaboration of twenty large investors in 2016 to prevent child labor in cobalt mining in Congo, where 60% of global production comes from. Cobalt is an essential raw material in the production of batteries and rechargeable batteries for smartphones and electric cars.

After a difficult start, we are seeing an increase in awareness and transparency among cobalt buyers (particularly electronics, automotive and battery manufacturers). In 2018, Renault disclosed with which smelters it does business and announced inspections. Apple, too, is now disclosing which smelters supply the company and is actively tracking down child labor in the supply chain.

5.9 Theme: child labor in the cocoa sector

We expect large companies in the chocolate and cocoa industry to stop child labor on the plantations and to publicly commit to eradicating it. We also want them to develop policy for detecting child labor, to report about their efforts and to produce a large percentage of their cocoa in a sustainable manner.

We focus on a number of large buyers and traders of cocoa, who have been working together within **Cocoa Action** since 2015. This initiative aims to increase productivity on small-scale plantations and to strengthen the local cocoa-producing communities. This also includes improving education and organizing inspections to prevent child labor. Most cocoa companies have now set up such inspections.



Chapter 6



6 Climate change and the environment

The consequences of climate change are becoming more and more visible. APG is leading in identifying climate risks and their possible impact on our investments.

6.1 APG is a frontrunner

APG is the global asset manager that takes climate change best into account. This is the conclusion of research by the **Asset Owners Disclosure Project (AODP)**, which was published in June 2018. We see this as an acknowledgment that APG is a frontrunner where the inventory of climate risks and opportunities is concerned.

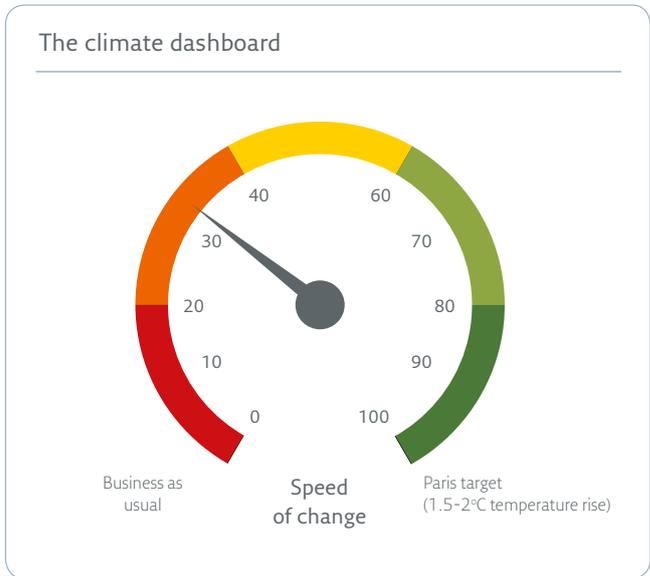
AODP publishes the Global Climate Index annually. This ranking shows the extent to which the fifty largest asset managers take into account the effects of global warming in their investments. APG is the only asset manager with the highest rating (AAA).

6.2 Insight into climate risks

APG has carried out an analysis to determine how fast the global energy transition is progressing and what impact climate change may have on our investments, and hence on the pensions of pension fund members. This shows that at the current rate the energy transition is proceeding too slowly to achieve the goal of the Paris Agreement of limiting global warming to a maximum of two degrees by 2030. And that climate change will have a major impact on more and more business sectors.

In order to obtain insight into how fast the energy transition is proceeding, APG has developed a climate dashboard. In this dashboard, we look at 25 indicators, such as the demand for oil and gas and investments in renewable energy. Only four indicators are on track for the realization of the Paris Agreement.

Climate change also has consequences for investors. It change is an opportunity for renewable energy producers, while it poses risks for coal companies, for example.



This may affect the long-term risk and return profile of investments in these sectors.

To take measures in good time, APG wants to gain an insight into the actual or potential impact on the sectors in which we invest. This is why we have made an inventory of the expected impact on 26 sectors for 2022, 2030 and 2040. This concerns opportunities and risks in the area of Policy & Regulations (for example carbon prices), Technology & Market (such as the introduction of clean alternatives), and Physical Impact (consequences of changing weather patterns).¹¹

As far as the impact of climate change is concerned, we have identified four clusters of sectors: 'solutions' (e.g. renewable energy), 'transition' (e.g. real estate), 'decreasing' (e.g. coal) and 'neutral' (e.g. telecom). Before 2030, we already foresee large transitions in the '2-degree scenario' in, for example, electricity production, real estate and the car industry. These are both risks and opportunities. The number of sectors that will be greatly impacted by the consequences of climate change will increase towards 2040.

11. Within these three categories, we distinguish in total 44 types of climate risks and opportunities.

Given the fact that APG invests worldwide and has a very diversified portfolio, we expect that the consequences of climate change and the energy transition will materialize gradually. We will however remain alert to sudden, unexpected changes.

We are also already taking measures now to make the portfolio climate-proof:

- When making investment choices, we already take the future costs into account that a company may need to make in connection with climate change, such as higher carbon emission prices.
- We are investing less in fossil energy (for example, no new investments in coal) and more in renewable energy.
- We engage with companies about their strategy for the transition to a low-carbon economy.

On the one hand, these measures enable us as an asset manager to contribute to the energy transition and, on the other hand, our investment portfolio is becoming less vulnerable to the consequences of climate change. This is in line with our aim to achieve a good pension for the members of our pension funds in a pleasantly livable world.

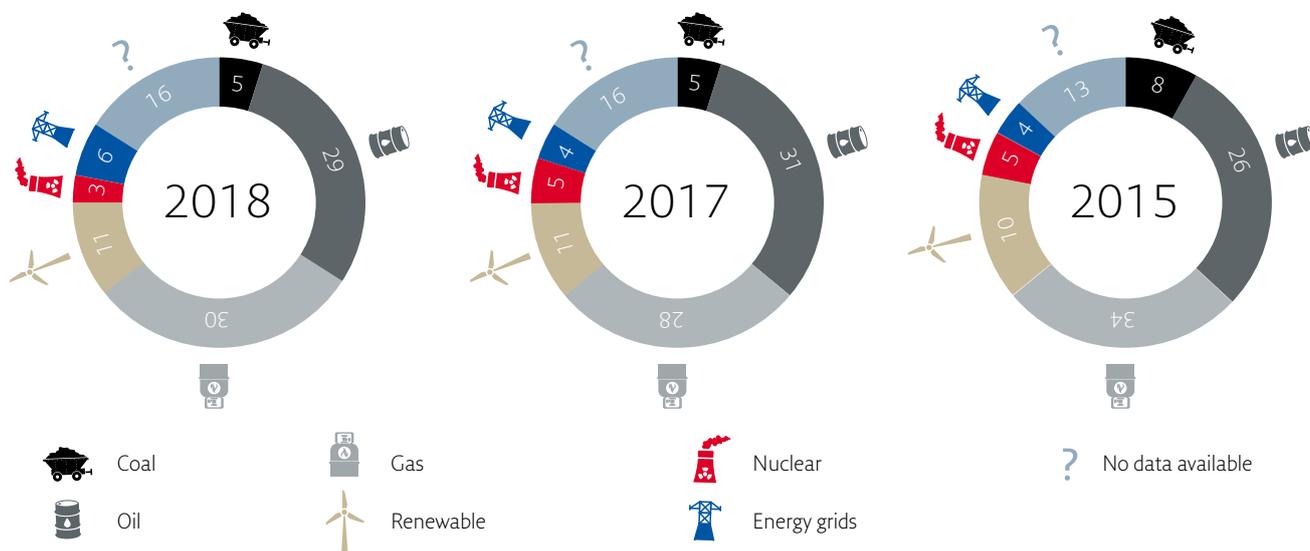
We will further refine this analysis in the future. A challenge in this case is that the physical risks are to a large extent locally determined and therefore cannot be determined on a sector level.

6.3 Investments in renewable energy

Our investments in renewable energy increased further in 2018. At the end of 2018, we had invested € 5.8 billion in renewable energy. At the end of 2017, this was still €4.8 billion.¹² Two pension fund clients have targets for investments in renewable energy.

An example of the increase of our investments in renewable energy is the expansion of our interest in the Norwegian energy company Småkraft in September 2018. Småkraft operates over one hundred hydroelectric power plants in Norway. By doubling the capacity, the production in 2020 should be enough to provide sustainable energy to 570,000 households. APG is the majority shareholder of Småkraft.

Distribution of APG's energy investments (in %)



In which energy sources does APG invest?

Our total investments in the energy sector amount to approximately € 29.5 billion. At the end of 2018, 11% of our energy portfolio consisted of renewable energy, compared to the previous measurement moment in 2017.¹³ We cannot allocate approximately 16% of the energy portfolio to an energy source because the necessary data are not available.

12. When calculating the investments in renewable energy, we only include a company if a certain minimum percentage of production is related to renewable energy. We also include green bonds the proceeds of which are used to invest in renewable energy or related technology.

13. When calculating the energy mix of the portfolio, we break down the value of a company into various energy sources and we allocate the percentages concerned to the energy sources in the mix. Part of the value of a company is thus allocated to a specific energy source. As we focus solely on energy here, green bonds or the manufacturers of wind turbines are not included.

Our infrastructure investments generate about 4,700 GWh in sustainable energy. Assuming an average annual consumption in the Netherlands of 3,500 kWh per household, our investments provide approximately 1.3 million households with fully green energy.

6.4 Climate Action 100+

Together with more than 300 other major investors, we are putting pressure on 161 companies worldwide that are responsible for the most carbon emissions in areas such as transport, energy and agriculture. This collaboration exists since 2017 under the name **Climate Action 100+**. By combining our forces, we can exert pressure effectively.

Climate Action 100+ asks companies to:

- develop a framework for determining and monitoring climate risks and opportunities;
- take measures to reduce greenhouse gas emissions;
- provide insight into the financial risks of climate change according to the standards of the **Task Force on Climate-related Financial Disclosures (TCFD)**.

In December, Shell announced, in a joint statement with Climate Action 100+, that the remuneration of senior executives will be linked to the company's carbon targets. We had engaged intensively about this matter with Shell prior to this announcement and had urged the company to formulate concrete targets for the short and medium term and to link them to the management's remuneration.

Shell is leading in setting concrete carbon targets and can serve as an example for other companies in the sector. Total has also promised to reduce carbon and other greenhouse gas emissions.

6.5 Follow This resolutie

APG abstained from voting at the Shell annual general meeting in May 2018 on the resolution put forward by Follow This, a platform that aims to get Shell to increase its sustainability via the shareholders. In this resolution, Follow This demanded that Shell step up its climate ambitions of November 2017.

We appreciate the aim of Follow This to urge Shell to achieve the goals of the Paris Climate Agreement. APG also contributes to this: we ask Shell to play an active role in the energy transition and to set concrete targets for the short and medium term.

However, we did not consider it necessary to demand from Shell that they already revise the climate ambition that they had only just formulated. It is more important that Shell delivers on this ambition and gradually further extends it. It is exactly for this reason that we have urged the company to link its ambition for the reduction of carbon emissions to its remuneration policy.

Together with more than 300 other major investors, we are putting pressure on 161 companies worldwide that are responsible for the most carbon emissions in areas such as transport, energy and agriculture.

6.6 Our carbon footprint

APG calculated how much carbon is emitted by the companies in which we invest and how much of this can be attributed to us (carbon footprint).¹⁴ The carbon footprint of our equity investments decreased by 28% in 2018 against the reference year 2014. Our pension fund clients all have targets for carbon reduction in the equity portfolio. We constantly monitor the carbon footprint of our equity investments and can take this into account in our investment decisions.

6.7 Dutch National Climate Agreement

The Dutch National Climate Agreement was signed in The Hague on 21 December 2018. This includes agreements between the government, companies and NGOs about the manner in which the Netherlands aims to achieve the Paris climate goals. The negotiations for this agreement were conducted at 'sector tables', each with its own carbon reduction target.

Our chairman Gerard van Olphen led the contribution of the Dutch financial sector to the Climate Agreement. The government did not impose a carbon reduction target on the financial sector; however, the financial sector voluntarily undertook to contribute to the target of a 49% reduction in emissions in 2030.

The financial sector, including pension funds, also wishes to assume its responsibility in financing the energy transition. The Financing task force has given the sector tables insight into the possibilities of market funding (thus with little or no government funding). The sector also has plans to resolve difficulties with the funding.

6.8 Combating deforestation

In 2018, APG joined the initiative of seventy food producers and supermarket chains to stop the deforestation of the Brazilian Cerrado region. This savannah area is one of the most important and endangered ecosystems in the world. Due to deforestation in connection with agriculture, large sections of these forests have disappeared in recent years.

Deforestation plays an important role in global warming; about 12% of all carbon emissions can be attributed to the felling of trees. Trees produce oxygen and absorb carbon from the air. In addition, greenhouse gases are emitted when forests are cut down and burnt.



14. For the calculation of our footprint, we determine what our share is in the carbon emissions of the companies in which we invest. We do this on 31 March. We take the emissions of the companies themselves into account and the emissions in connection with the production of energy that is purchased by these companies. Fluctuations in stock prices do not have any influence.

Steering on less carbon in the equity portfolio

Interview with Herman Bots, Head of Fundamental Equity Investments at APG

How will APG ensure that the carbon footprint of the equity portfolio is reduced by 25% in 2020 against 2014? By focusing on the best performing companies in the sector where the reduction of carbon is concerned and by shifting towards renewable energy, Herman Bots explains.

Why has APG opted for this approach?

'You can also opt to aim for a 25% reduction of carbon for the whole equity portfolio. But in some sectors, such as the pharmaceutical industry, there is little to gain. That is why we have chosen to set higher targets for sectors with relatively higher carbon emissions and lower targets for sectors where the emissions are already limited.'

Which sectors have the highest carbon emissions?

'This concerns sectors that consume a lot of fossil energy, such as oil and coal. For instance coal-fired power plants, mining and the chemical and steel industries. We look at the emissions of the company per euro that we invest in it. By investing in companies with lower emissions than other companies in the sector, we can reduce the amount of carbon in our equity portfolio.'

Why doesn't APG sell the investments in these sectors?

'Selling whole sectors is not our strategy. We aim for a shift from fossil energy to renewable energy. That is why we have no longer made new investments in coal-fired power plants for many years and, for example, why we sold our shares in the German energy company RWE. At the same time, we have started investing more in companies such as NextEra Energy, one of the largest producers of solar and wind energy.'

Doesn't steering on less carbon have a negative impact on returns?

'We are convinced that we can both reduce the carbon footprint of our equity portfolio and achieve the return target. NextEra Energy is an example of a company that is not only sustainable but also achieves good financial results.'

Why is it important to steer on less carbon in the portfolio?

'In this manner, APG and our clients show the companies in which we invest that we consider it important to take action in the field of climate change. Ultimately, the goal is that companies emit less carbon. In this manner, our equity portfolio will automatically become 'cleaner'. In order to achieve that we must continue to exert our influence as a shareholder and encourage companies to implement improvements.'



Chapter 7



7 Good corporate governance

Companies perform better when they are well managed, certainly in the long term. We see good governance as a precondition for sustainable and responsible business practices.

APG stimulated good governance in 2018 by voting at thousands of shareholders' meetings and engaging with 366 companies. On our [website](#) you will find an overview of these companies and the topics we have discussed with them.

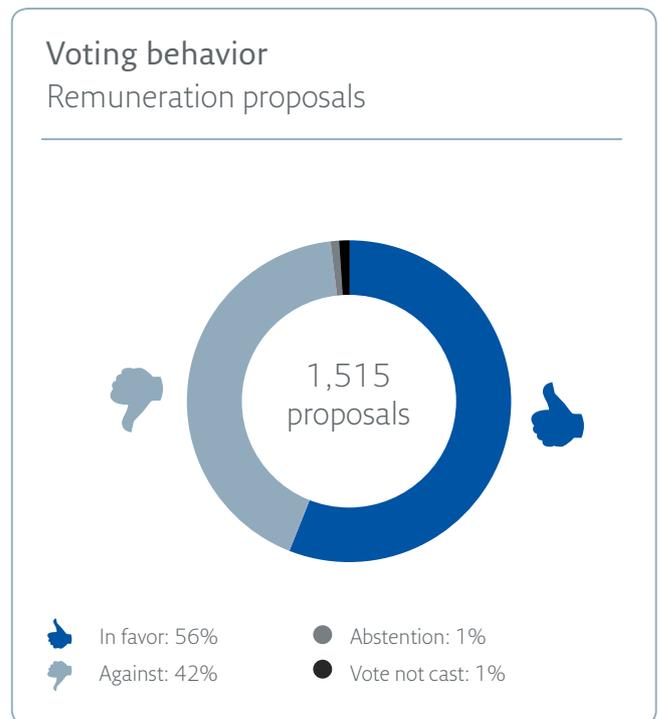
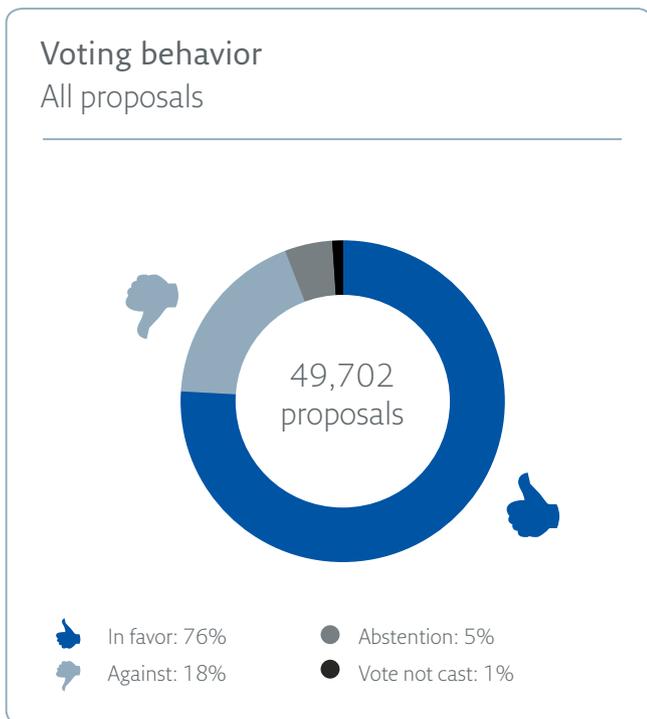
In total, we voted on over 49,000 proposals and resolutions in 2018. We can participate in so many votes because we make use of a proxy voting agency for standard agenda items that do not require any special attention. This agency votes on our behalf and in line with our voting policy. We vote manually for proposals or votes at companies that have our special attention.

7.1 Voting on remuneration

An important part of good corporate governance is a responsible remuneration policy. Excessive remuneration for senior executives can lead to increasing inequality, social discontent and social instability.

We are of the opinion that the remuneration policy for senior executives should be in line with the general remuneration policy for all employees of the company. The company should clearly state in its annual report how it deals with remuneration, what the targets are and the performance criteria that have to be achieved before the remuneration or bonus is paid.

Together with other pension investors, we engaged with thirteen companies with high remuneration packages and an unclear relationship between remuneration and performance in 2018. These are companies – such as Oracle, IBM and American Express – in which this group of investors has considerable interests. These discussions began in 2018 and will continue in 2019.



In 2018, we voted on 1,515 remuneration proposals. For 56% of the proposals this was a vote in favor, for 42% against. This is comparable to the percentages for 2017. Important reasons to vote against proposals were: overly generous severance schemes, insufficient relationship between remuneration and performance and unclear performance criteria.

7.2 What about APG's own remuneration?

At APG, we are working on a sustainable and responsible remuneration policy that will enable us to attract and retain qualified, principled employees. The policy is aimed at the long term.

We strive for balance within the organization. This means a balance between the remuneration of the Executive Board and employees and a balance between the remuneration of the various organizational levels. We also attach great importance to equality between men and women.

We look at what is customary in the market and use this as a benchmark for the remuneration of our employees. As a

major pension investor, we operate in an international, commercial and competitive market. At the same time, we do not lose sight of our place in Dutch society. More information about our remuneration policy can be found in our **annual report**.

A vote against a remuneration proposal of Van Lanschot Kempen

We voted against a proposal for increasing the remuneration of the CEO of asset manager Van Lanschot Kempen. According to the company, the proposed remuneration was below the market average. We questioned the peer group used, which included parties that were a lot bigger than Van Lanschot Kempen. In addition, the remuneration had already been increased strongly in the past. Despite various discussions that we held with the company, the remuneration proposal was adopted. This was due to the fact that the company had a foundation of certificate holders with the voting right on all shares that are not represented at the shareholders' meeting. The majority of other voters was against.

Bonuses

APG's Executive Board does not receive any variable remuneration (bonus). Variable remuneration is not customary for employees within APG Nederland either. In the Netherlands, only APG employees who have a direct influence on the investment result are eligible for variable remuneration. For APG Asset Management employees abroad, we look to strike a balance between what is acceptable in the Netherlands and what is common practice locally to get employees to commit to APG.

The reason for paying our portfolio managers variable remuneration is that APG makes three quarters of all investments itself and therefore needs to recruit good people. To attract good investors, it is customary in the market to pay performance-related bonuses. These pay for themselves because good investors are able to generate extra returns for the members in the long term.

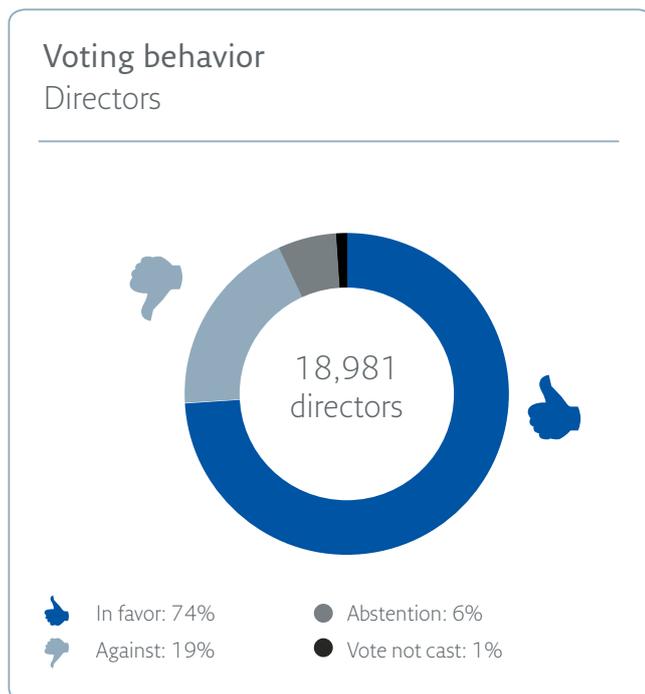
In 2018, APG paid out approximately € 31 million in variable remuneration. This corresponds to approximately 10% of our costs. Of this amount, approximately € 5 million was paid out in the Netherlands and the remainder abroad.

7.3 Voting on board members

A well-balanced composition of the board is also an important precondition for good corporate governance. When we vote on the appointment of new board members, we look whether there is a good balance between the number of executive and non-executive (supervisory) directors. In addition, the majority of non-executive directors must be independent. All directors must have the right knowledge and skills and be trained regularly.

We expect a director to stand as a candidate for reappointment every four years; if they have been board members for longer than twelve years, they should stand as a candidate annually. At larger companies, and in particular companies in industries with a big impact on people and the environment, we expect that there is an appointee at board level who is responsible for sustainability issues.

In total, we voted in 2018 on the appointment or reappointment of 18,981 directors. Of the proposed candidates, 74% could count on our support. This percentage is comparable to 2017.



15. For example: Credit Suisse, 'Thought Leadership from Credit Suisse Research and the World's Foremost Experts,' September 2016. www.glg.it; McKinsey & Company, 'Delivering Through Diversity,' January 2018. www.mckinsey.com; Catalyst, 'Companies Behaving Responsibly: Gender Diversity On Boards,' January 2015. www.catalyst.org; MSCI, 'Women on boards and the human capital connection', March 2018. www.msci.com

7.4 Diversity works

A well-balanced board also means a diverse board. More and more studies show that diversity in the boards of companies leads to better decisions and results.¹⁵ This does not only mean a well-balanced distribution between men and women. Board members with a different ethnic background or with specific knowledge and experience can also contribute to a better performance of the company and thus higher returns for shareholders.

APG, together with other large pension investors, which combined have \$2.5 trillion under management, have called sixty US companies to account on the diversity of their boards. Of the companies that were approached, 37 subsequently appointed more women to their boards. We also tightened our voting policy: we always vote against the chair of the appointment committee of companies if there is no female board member.

Diversity at APG

Diversity is very important to APG. On 6 December 2016, we signed the Diversity Charter. We have thus committed ourselves to making a concrete effort to achieve an effective diversity policy. Aside from that, we signed the Talent to the Top Charter, which specifically focuses on improving the man-to-woman ratio at the top level of the organization. In 2018, we made an important step in the right direction as two women were appointed to the Executive Board.

APG also investigated the pay gap between men and women in the organization. This study showed that women earn 2.2% less salary than a male colleague in a comparable position. We corrected this in 2019.

On 6 February 2018, Annette Mosman joined the Executive Board to take on the portfolio Finance and Risk Management. Francine Roelofsen-van Dierendonck was appointed to the Executive Board on 1 November 2018. She will take on the portfolio Member and Employer Services. With the appointment of two women to the Board in 2018, the Executive Board is now made up of 40% women and 60% men. As such, the board has achieved a balanced distribution in line with the Dutch Act on Balanced Allocation of Seats on the Executive Board and the Supervisory Board. The supervisory board also meets this requirement; 33% of its members are women and 67% are men.

A vote against at Clariant

Interview with Paul Andriessen, Senior portfolio manager equities at APG

As portfolio manager equities, Paul Andriessen is closely involved in voting at shareholders' meetings. For instance, on his advice, in 2018 we voted against an appointment proposal at Swiss company Clariant, a producer of fine chemicals.

What did the proposal entail?

'There was a board proposal to appoint four candidates, nominated by partner company SABIC, as non-executive board members. SABIC is a large chemical company with a 24.99% interest in Clariant.'

What was your objection?

'I did not agree with the disproportional representation of SABIC in the board, which would consist of twelve members. I also thought it was too early to appoint new board members as the financial details of an important deal between the two companies still had to be finalized. The board members nominated by SABIC could then be able to exert influence on this.'

Did it have an effect?

'I discussed my concerns with the company. However, despite our voting against the appointment, the board's proposal was ultimately adopted nevertheless.'



7.5 Supporting resolutions

We supported resolutions at three Italian companies in 2018 to appoint a candidate to the board on behalf of minority shareholders. In all three cases, this resolution was adopted. We thus made use of the possibility that Italian law offers to minority shareholders to appoint their own candidate to the board. Recent **academic research** shows that companies with a board member nominated by the minority shareholders pay out more dividend and steer more on the long-term prospects of the company.

7.6 Anti-money laundering procedures at banks

We started a program in 2018 to engage with all financial institutions in which we hold a large position about their anti-money laundering policy. We have spoken with various board members and managers about money laundering incidents in the past and which policies and measures are now in place to prevent this. In this manner, we want to assess the risk of money laundering practices at these institutions and whether this has improved after the changes that they have implemented.

Critical discussions with ING

We held critical discussions with ING in 2018 about the proposed change in the remuneration policy and the failing anti-money laundering measures. We considered the proposed increase in the remuneration of the CEO to be excessive and were – as were other shareholders and politicians – very critical about this proposal. ING ultimately withdrew the proposal under this pressure.

Furthermore, we asked ING which measures it had taken to prevent money laundering and the financing of terrorism. The reason for this was the € 775 million fine that was imposed on ING for shortcomings in its control procedures. The bank took various measures in 2018 to monitor money flows better. We will continue to discuss this matter with ING.

7.7 Protection legislation in the Netherlands strengthened in the future

When exercising their voting rights, shareholders often run into obstacles that make it difficult for them to actually cast their vote. We are actively tackling these obstacles to exercising voting rights. APG also believes in the principle 'one share, one vote', that grants equal rights to all shareholders.

APG is against excessive protection measures. In the 2018 Dutch government agreement, it was determined that the company's management must be given a statutory reflection period when shareholders propose a significant change in the strategy or an acquisition. This is intended as protection against hostile takeovers and was mainly in response to hostile takeover attempts of AkzoNobel and Unilever in 2017. We are of the opinion that Dutch laws and regulations already offer sufficient possibilities to keep aggressive, short-term oriented shareholders at bay.

Protection measures at Ahold Delhaize

The extension of a protection measure was on the agenda at Ahold Delhaize in 2018. This measure would give a special foundation, Stichting Continuïteit Ahold Delhaize (SCAD), the option to obtain shares with more voting rights than regular shares in the event of a hostile takeover bid. In this manner, the foundation can ward off undesired investors.

We spoke with Ahold Delhaize about their intention to extend this measure. At the annual shareholders' meeting, we asked the company to include a number of shareholder-friendly conditions in this measure.

With success. In line with our request, Ahold Delhaize agreed with the SCAD that six months after the option was exercised, a shareholders' meeting would be convened to discuss the situation with the shareholders. Furthermore, within one year after the option has been exercised, Ahold Delhaize will convene a shareholders' meeting to vote on the cancellation of the shares that were issued to the SCAD. The SCAD has no voting right at this meeting.

7.8 Corporate governance at real estate investments

With our real estate investors, we voted against board proposals of US real estate funds aimed at limiting the rights of shareholders to convene a shareholders' meeting.

In addition, we engaged with US company Vornado Realty Trust (VNO). This led to the company agreeing to the appointment of an independent director and the strengthening of this position. We are constantly engaging with this company on the diversity of the board. At our recommendation, VNO improved its sustainability report in line with the standards of the Task Force on Climate-related Financial Disclosures (TCFD).

We also engaged intensively with Taubman Centers. The Taubman family's large influence on the company was negatively impacting results and the interests of minority shareholders such as APG. Therefore, we successfully supported the nomination of an independent board member by another minority shareholder. In addition, Taubman appointed two independent female board members in January 2019. We expect that these appointments will have a positive effect on the management and the performance of Taubman.

7.9 Exercising influence in Asia

Corporate governance practices in Asia differ strongly from those in Europe and North America. In some countries, a number of entrepreneurial families have a lot of influence on companies and the rights of minority shareholders are usually less well regulated. However, we do see that the importance of good corporate governance is also increasingly being acknowledged in Asia. Our local team spoke with various parties in 2018, including companies and regulators, about the role and responsibilities of company boards. It is not a general practice in Asia that board members of companies discuss matters directly with shareholders. However, we have urged this for years and our tenacity has finally been rewarded.

We have a seat in committees and working groups in a number of Asian countries that advise policymakers and regulators about embedding good corporate governance. This is the case, for instance, in India and Hong Kong. We also accepted an invitation from the South Korean stock exchange to take a seat in a committee of international investors to act as a sparring partner for the authorities where it concerns good corporate governance.

Investing in Chinese equities

We entered into a dialogue with various Chinese companies in 2018. In these discussions, we indicated in which areas corporate governance was insufficient in our opinion and what the possible solutions could be. The Chinese companies were open to our suggestions. This may be related to the introduction of a Corporate Governance Code for listed companies in China, which is making companies more accessible for international investors. In China, there is a growing awareness that if the country is to remain attractive to international investors, companies need to operate in an increasingly sustainable and responsible manner.

In China, we invest in local A shares, which are traded on the Shanghai and Shenzhen exchanges. As is the case for our other equity investments, sustainability is one of the criteria on which we assess companies. However, little information is available about the sustainability performance of Chinese companies. Therefore, we spend a lot of time on our own analysis of each company in our portfolio.

7.10 Dutch Stewardship Code

APG participated in the drafting of the first Dutch Stewardship Code in 2018. This code lays down requirements for institutional investors in the area of sustainability and good corporate governance at listed companies. The aim is to increase their long-term involvement. The code entered into force on 1 January 2019.

7.11 New Corporate Governance Framework

We revised our **Corporate Governance Framework** in 2018. In comparison with the last revision in 2011, we provide a more specific explanation of our expectations and our voting policy for the most important corporate governance subjects. We also incorporated developments in the field of corporate governance and changes in laws and regulations.

APG aims to comply with the principles of the Dutch Corporate Governance Code. APG is not listed on the stock market and is therefore not required to adhere to the Code. However, in view of our role and responsibility as a pension service provider, we have opted to apply the Code on a voluntary basis.

Chapter 8



8 Making financial markets more sustainable

APG is actively seeking cooperation with other asset managers and financial institutions. By exchanging knowledge and experience and joining forces, we contribute to sustainable financial markets and we have more influence on the companies in which we invest.

8.1 International Responsible Investment covenant

Our pension fund clients signed the International Responsible Investment covenant in December 2018 (IMVB). In the covenant, the pension sector has concluded agreements with the government, trade unions, environmental and social organizations to prevent abuses in companies that they invest in. The covenant was signed by the Pension Federation and 73 pension funds that together represent nearly 90% of the Dutch pension capital. On behalf of our pension fund clients, APG was one of the pioneers and closely involved in the negotiations.

The parties that participate in the covenant can make use of each other's knowledge and experience in the global identification of environmental and social risks and the possible negative impact on investments, in combating and preventing abuses, and in exerting influence as shareholders to solve problems at companies in which they invest. A limited number of signatories are also working together on six specific projects to increase their influence as responsible investors.

The agreements laid down in the covenant are based on the guidelines for large asset managers of the Organization for Economic Cooperation and Development (OECD), and the UN Guiding Principles on Business and Human Rights. Covenants for international corporate social responsibility were signed earlier for sectors such as the clothing, banking and food sectors.

8.2 The EU's strategy for sustainable finance

The European Commission (EC) aims for a more sustainable financial system. The Commission published an action plan for reforms on 8 March 2018. One of the most important elements is the creation of an EU classification system (taxonomy) to determine which investments contribute to sustainable development.

The Commission's plan is inspired by the recommendations of the High-Level Expert Group on Sustainable Finance (HLEG) that published a **report** in January 2018. The HLEG – in which Claudia Kruse, APG's Head of responsible investment and governance had a seat – received the assignment from the EC in 2016 to make recommendations for the financing of sustainable growth.

The Taxonomy on Sustainable Development Investments (SDIs) developed by APG is cited by the European Commission as one of the possible frameworks for creating an EU-wide classification system.

The European Commission's approach can contribute to a shift of capital to sustainable solutions and the integration of sustainability into investment decisions. This is why we wish to stimulate the involvement of the financial sector. APG organized meetings in March and December 2018 on the impact of European sustainable finance regulations in the Dutch context. We also shared our knowledge and experience on other occasions.

8.3 Equal shareholder rights

It is a matter of principle for APG that shareholders are treated equally. This means: one share, one vote. We voice our concern when a company issues shares with various types of voting rights or only limited voting rights. By limiting the voting rights, some shareholders are less able to call the management of the company to account, for example, when the management takes unacceptable decisions.

In recent years, we have seen that a number of Asian stock exchanges are inclined to make dual share structures possible. At its own initiative and together with other large investors, APG has called on these stock exchanges and their supervisors to refrain from doing so. These efforts were unsuccessful. In 2018, the Singapore (SGX) and Hong Kong (HKEx) stock exchanges decided to allow dual share structures under certain conditions.

For some time now, we have been urging the Korean (KRX) stock exchange to strengthen the rules for good corporate governance and to provide better protection for minority shareholders. We have accepted the invitation to take a

seat in an official committee of international investors that provide feedback on the functioning of financial markets in South Korea.

It is possible that APG invests in companies that issue shares with different voting rights. For example, because the share is still attractive in the opinion of the portfolio manager.

8.4 Strengthening governance in the financial sector

The revised German Corporate Governance code was released for consultation in November 2018. The proposed updated code is stricter with regard to, among other things, remuneration policy and the independence of directors. For instance, the code demands an independent chair of the supervisory board, of the remuneration committee and of the audit committee. Furthermore, the code makes the link between sustainability and corporate strategies explicit. Claudia Kruse, APG's Head of responsible investment and governance, is a member of the committee that drew up the code.



Chapter 9



9 Outlook for 2019 and beyond

For APG, 2019 will be marked by, among other things, the development of the new responsible investment policy of our largest client, ABP, for the period after 2020.

9.1 Dutch Climate Agreement developments

It is expected that the Dutch National Climate Agreement will be signed in the course of 2019, after the provisional agreement was concluded in December 2018. The financial sector has voluntarily committed to the target of a 49% emission reduction in 2030. This means that a target for the reduction of the carbon emissions in the whole portfolio has to be included in the new policy. The existing target only pertains to equities.

9.2 Further implementation of International Responsible Investment

Moreover, in 2019, we will proceed with the implementation of the International Responsible Investment covenant that we concluded in December 2018. This means, among other things, that a limited number of members will identify themes on which they want to work with companies to achieve improvement processes (engagement). We will also enter into a dialogue with organizations in the fields of, for example, human rights and the environment.

9.3 Inclusion: classification completed

As part of our inclusion policy, in 2019 we will assess the remaining 2,300 companies in which we can invest by means of shares or bonds. We will sell the laggards and will draw up engagement plans for the new improvement potentials. But that does not mean the end of the process. New companies enter the investment universe regularly and we have to assess them. Also, a company that is a leader today could be a laggard tomorrow. Examples include a producer of low-energy light bulbs. What was first a sustainable solution has now been overtaken by LED technology. The inclusion policy will therefore require a constant effort on our part.

9.4 A platform for SDIs

In 2019 and beyond, we will continue our efforts to involve as many pension funds and asset managers as possible in our framework to invest in the UN Sustainable Development Goals. This not only concerns the methodology, but also the concrete implementation at company level. After all, the framework leaves room for interpretation. It is a considerable challenge to get the various parties on the same page. However, we are convinced that if we all succeed in this, it will give a major boost to the commitment of capital to a sustainable world.

Appendices



Appendix I

Addressing the risks and opportunities of climate change

Climate change has huge consequences for society and the economy, and thus also for investors. APG takes the consequences of climate change for the investment portfolio seriously. In this appendix, we describe which activities APG is undertaking to identify and manage climate risks and opportunities. In this report, we follow the framework established by the Task Force on Climate-related Financial Disclosures (TCFD).

In this report, climate change is not only discussed in a separate chapter, but also in chapters in which other themes are central. This appendix describes what APG has done in 2018, but also what we have already started in earlier years. Information about our climate policy can also be found in our report to the Principles for Responsible Investment (PRI).

1. How have we structured our governance regarding climate-related risks and opportunities?

On behalf of our pension fund clients, APG is responsible for integrating climate change into the investment process. APG's Global Responsible Investment & Governance team (GRIG) has a coordinating role in this. The various investment teams are responsible for managing the risk exposure within their strategies. Fiduciary Management takes climate factors into account in their macroeconomic models and strategic portfolio advice to the pension funds.

APG has included climate change as a separate category in the risk framework. This enables us to systematically monitor the development of climate-related risks and opportunities in the portfolio. An organization-wide steering group and working group were set up for this.

2. What are the actual and possible consequences of climate-related risks and opportunities for our business operations, strategy and financial planning?

We classify climate factors that could have an impact on our investments in the following manner:

Climate factor	Description
Policy & Regulations	The consequences of a stricter climate policy for companies and investors, e.g. pricing carbon emissions, stimulation measures for cleaner alternatives, or limitations for carbon intensive industries.
Technology, Market & Reputation	The consequences of cleaner alternatives for carbon intensive production methods and products becoming available (for example, electric cars or energy efficiency). Changes in the preferences of consumers, companies and investors with regard to the products that they buy or the companies in which they wish to invest.
Physical Impact	The impact of changing weather patterns, including more frequent and more intense extreme weather (such as floods) and structural changes (for example long dry spells).

Within these three categories, we distinguish in total 44 types of climate risks and opportunities. These factors can have negative consequences for our investments, such as a decrease in the value of investments in fossil fuels. However, they can also provide new investment opportunities in industries such as renewable energy, electric transportation and water management.

In order to identify such climate risks and opportunities for our portfolio, we have made use of scenario analysis. This technique is suitable because little historical information is available. Therefore, it is better to work with constructed future scenarios and to see what consequences it would have for the portfolio if such a scenario were to become reality.

We used two scenarios for the climate analysis. One scenario leads to a global warming of 3.7 degrees because governments take too little action and green technologies develop insufficiently fast (this is referred to as the 'business as usual' scenario). The second scenario describes a world in which governments seriously work on achieving the Paris climate goals and the markets respond to this (the '2-degree scenario').

Based on these scenarios, we elaborated the climate risks and opportunities for 26 economic sectors. Together, these sectors represent over half of the value of our investment portfolio. We looked ahead to 2022, 2030 and 2040.

These scenarios show that the effects of climate change will be huge and extensive in 2040. Towards 2040, the transition is gradual for a global and diversified portfolio as that of APG. However, the transition can proceed with disruptive changes and unexpected tipping points which we must continue to monitor closely.

Before 2030, we already see major transitions in the 2-degree scenario, with associated risks and opportunities, particularly in the following sectors: power plants, real estate, the cement industry, oil and gas, the aviation industry, food and consumer goods, the automotive industry, semiconductors and electrical goods, agriculture, chemicals, and the construction sector.

Sectors that are particularly vulnerable to the physical consequences of climate change but which also offer opportunities include: agriculture, forestry, real estate, hydroelectric power stations, oil and gas, food processing, road and rail transport, mining, power plants, healthcare and construction.

Besides inventorying the effects on sectors, we also took climate factors into account in the macroeconomic models that we used for our strategic investment plan. Via two scenarios ('climate pit' and 'good globalization'), we have identified the possible consequences for growth, inflation and other economic variables.

3. Which processes do we use for the identification, assessment and management of risks in connection with climate change?

The results of our climate scenario analysis have been recorded in a traffic lights model, which provides insight into the most important climate opportunities and risks in 2022, 2030 and 2040. We will perform this analysis every two years in order to incorporate the most recent developments and insights into the scenarios. In addition, we have developed a dashboard with 25 indicators that together provide an impression of the speed at which the transition to a low-carbon economy is proceeding. The dashboard will be updated six-monthly.

The portfolio managers and sector specialists of the various investment categories are primarily responsible for managing climate-related risks and capitalizing on opportunities, as they have specific knowledge about how climate change can impact the investments. As part of their investment analysis and risk management, they pay attention to climate risks in the short, medium and long term. The insights from the climate scenarios can provide attention points and priorities for further research. The portfolio managers thus form the first-line function within the risk management framework.

A few examples of how our investors analyze and manage risks and opportunities:

- The portfolio managers actively monitor all relevant developments in the fields of regulations, technology and markets. For instance, a portfolio manager who is responsible for utilities paid a visit to Germany in 2018 and spoke to politicians about the developments of the 'coal committee', that advises the German government about the phasing out of the lignite sector.
- APG has not been investing in new coal-fired power plants in its infrastructure portfolio for ten years and will not do so in the future. We ask coal companies in other portfolios to stop the expansion of coal-fired power plants and to develop a strategy for a transition to sustainable energy.
- We take financial risks into account in the calculation models, such as carbon prices and declining income from coal. For example, our investors closely monitor the costs of battery technology and the relative costs of energy sources (the Levelized Cost of Electricity).
- APG actively engages with companies to reduce their carbon emissions. We do this, for example, in the collective Climate Action 100+ initiative. We were able to achieve good results in the dialogue with Shell in 2018.

With the climate scenario analysis, we have taken steps to further integrate climate change into the second-line function for risk management as well. The traffic light model and the dashboard with indicators are available for management teams and the risk management department. This second-line function will be further elaborated in the coming years.

4. Which indicators and targets do we use to assess and manage climate-related risks and opportunities?

- We monitor a set of 25 indicators in order to obtain insight into the speed at which the transition is taking place. For example: demand for oil and gas, investments in renewable energy, consumption of animal products and the number of electric cars.
- We measure the carbon footprint of the equity portfolio and the real estate portfolio. For the listed equity portfolio, our pension fund clients have set targets with regard to carbon reduction.
- We measure how much we have invested in renewable energy. Two of our pension fund clients have targets for investments in renewable energy.
- We measure which sources our energy-related investments use for generating energy (coal, oil, gas, nuclear or renewable).
- We measure how much we invest in companies that contribute to achieving the UN Sustainable Development Goals (SDIs). Two of our pension fund clients have targets for SDIs.

Appendix II

Abbreviations

AODP	Asset Owners Disclosure Project; an organization that determines how the world's largest institutional investors identify the consequences of climate change
APG AM	APG Asset Management; APG's asset management company
CHRB	Corporate Human Rights Benchmark; a benchmark set up in 2017 to compare about 100 companies on human rights performance
ESG	Environmental, Social and Governance; issues that are relevant to responsible investment
ETF	Exchange traded fund; basket of investments that is traded on a stock exchange just like stocks
GRESB	Global Real Estate Sustainability Benchmark; organization jointly founded by APG to measure the sustainability performance of real estate
GRIG	Global Responsible Investment and Governance Team; APG specialists in sustainability and governance
HLEG	High-Level Expert Group on Sustainable Finance; group of specialists who advised the European Commission in 2017 and 2018 on increasing sustainability in financial markets
IMVB	Internationaal Maatschappelijk Verantwoord Beleggen [International Responsible Investment]
OECD	Organization for Economic Cooperation and Development
PRI	Principles for Responsible Investing; a global association of around 2,200 pension funds, asset managers and companies that seek to promote responsible investing
SDG	Sustainable Development Goal; development goal that the United Nations wants to achieve by 2030 to make the world more sustainable
SDI	Sustainable Development Investment; an investment that is both financially attractive and contributes to achieving the United Nations Sustainable Development Goals
TCFD	Task Force on Climate-related Financial Disclosure; working group led by Michael Bloomberg that issued a report in 2017 on how companies and funds could best report on climate change
UNGC	United Nations Global Compact; an initiative of the United Nations to encourage companies to adopt sustainable and socially responsible business practices

