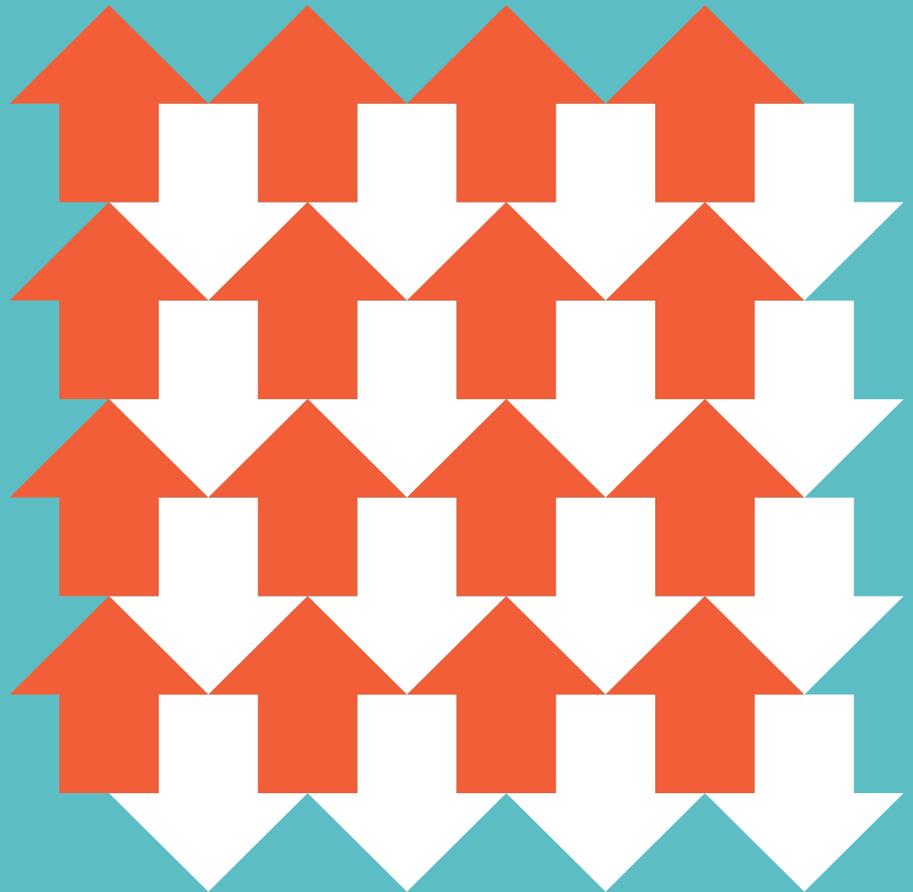


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Unpacking the finance sector's climate-related investment commitments

Authors

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IKEA Foundation



Summary

This report aims to provide insights into the magnitude and ambition of climate-related investment targets, and investigates their relationship with GHG emissions in the real economy.

To meet the objectives of the Paris Agreement it is key that all sectors, including the finance sector, set and take steps to reach ambitious climate targets. In recognition of the important role of finance and the impact it has, Article 2.1c of the Paris Agreement specifically calls for “Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”. This puts the alignment of finance flows on par with the overall mitigation and adaptation goals.

Financial institution’s climate-related investment targets have rapidly grown in recent years. We find financial institutions with cumulative assets of at least US\$ 47 trillion under management are currently committed to climate-related investment targets. This represents 25% of the global financial market, which is around US\$ 180 trillion. The number and growth of such targets is significant and represents considerable momentum – even if the individual targets vary in their ambition and do not cover all assets under management.

While the trend and efforts of the financial sector are promising, it should be noted that financial institutions do not have full control over their investees’ emissions. Reducing the carbon intensity of a portfolio by divesting, with the objective of aligning it with the Paris Agreement does not necessarily always lead to emission reductions in the real economy, as others can invest in the emission intensive assets that were sold. Only if a large share of the financial sector sets and works to actualise robust climate-related investment targets and effectively implements them, investees have to react and reduce their emissions.

Currently, most financial institutions that have set such targets are located in Europe, the United States of America, and Australia. To align all financial flows with the Paris Agreement temperature goal, it is crucial that institutions in other parts of the world also commit to ambitious investment targets.

We distinguish between three main types of climate-related investment targets – or mechanisms - that financial institutions can use to influence global GHG emissions: divestment, positive impact investment, and corporate engagement. These mechanisms influence the actions investee companies must take – and correspondingly, global GHG emissions – in different ways. (Figure ES1).

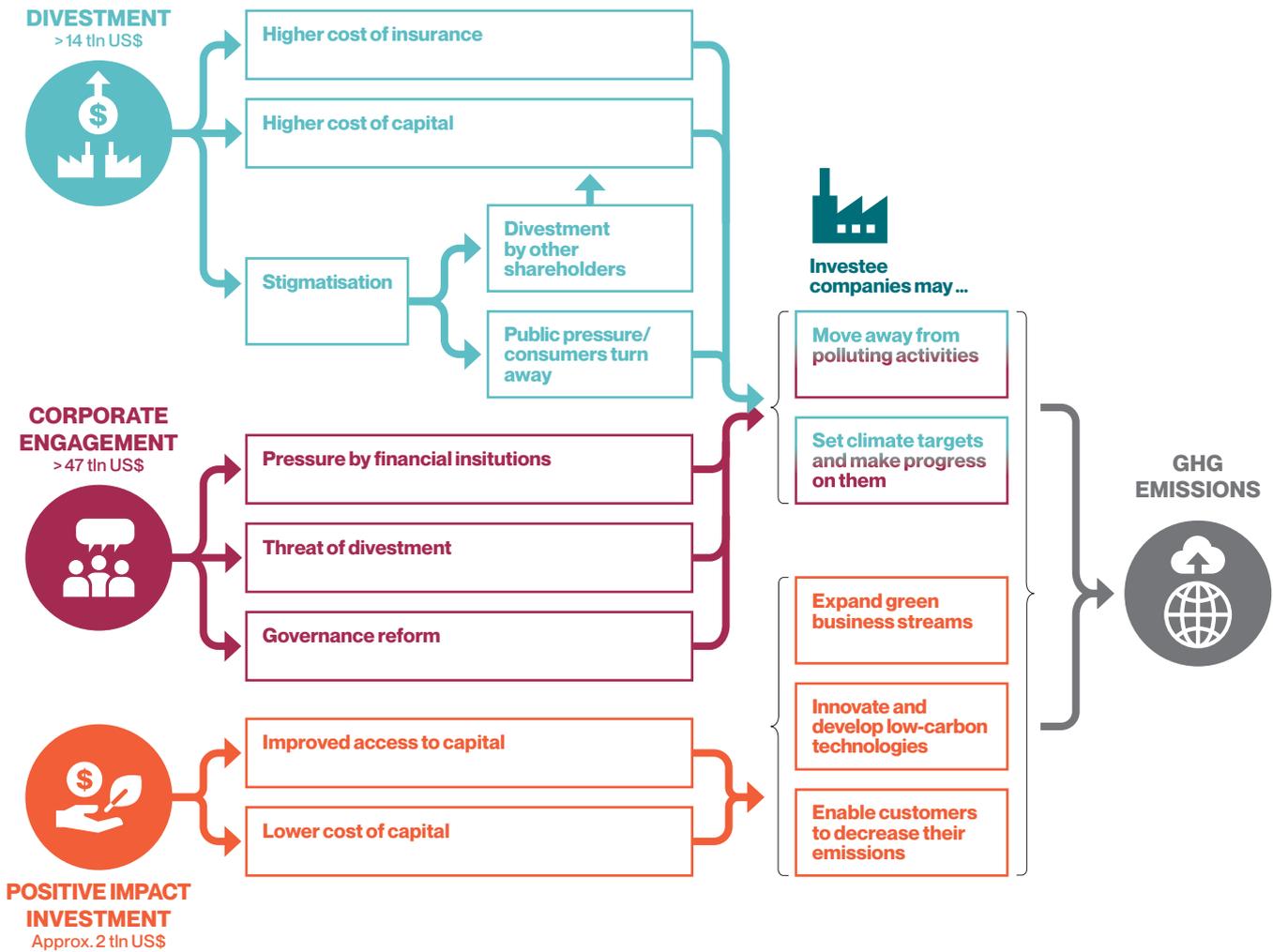
We identified a number of factors at the financial institution, company, and country level that can increase the likelihood that a climate-related investment targets will have an impact on actual emission levels. These include for example the size of a financial institution (measured by assets under management) and whether the targeted investee company has previous experience with ESG. The more these factors point in the right direction, the more likely that investment targets will lead to emissions reductions.

The factors play out differently per asset class and per target type. For example, a divestment target related to a government bond share may produce a different outcome than a divestment from a corporate bond; and corporate engagement is usually more effective if there is direct access to investee’s management.

Insights into the factors or impact conditions may support financial institutions in setting potentially more effective targets, policymakers to consider effective regulation and the scientific community, and the wider public, to better assess financial sector targets.

Figure ES1

Cause effect relation between the different mechanisms, investee companies and global GHG emissions¹



Data on climate-related investment targets is scarce and does not allow for a quantification of impact on real economy emissions. To better gauge the size and potential impact of such targets, we recommend that financial institutions transparently disclose their climate-related investment targets and underlying financed emissions data. Further, leading global data platforms would need to better track and report those commitments. Finance-related international cooperative initiatives should also track their members' targets and progress towards them. Efforts by the Task Force on climate-related financial

disclosures (TCFD) calling for better assessments and disclosure, financial supervisory bodies mandating disclosure, CDP's new portfolio impact module for financial institutions and other similar efforts may help to close this gap in the future.

Similarly, to enable more financial institutions set ambitious climate-related investment targets, we recommend both the finance and scientific community to further advance methodologies and understanding about what specific sector Paris-aligned pathways mean for investment decisions and different asset classes.

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Abbreviations

A

AGM	Annual General Meeting
AuM	Assets under Management

C

CA100+	Climate Action 100+
CCUS	Carbon Capture Utilisation and Storage
CO₂	Carbon Dioxide

E

ESG	Environmental, Social and Governance
------------	--------------------------------------

G

GCAP	Global Climate Action Portal
GHG	Greenhouse Gas

I

ICI	International Collaborative Initiative
IIGCC	Institutional Investors Group on Climate Change

N

NAZCA	Non-state actor zone for climate action
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P

PAII	Paris Aligned Investment Initiative
PCAF	Partnership for Carbon Accounting Financial
PRI	Principles for Responsible Investment

S

SBTi	Science based targets initiative
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T

TCFD	Task Force on Climate related Financial Disclosures
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U

UNEP FI	United Nations Environment Programme Finance Initiative
UNFCCC	United Nations Framework Convention on Climate Change
UNGC	United Nations Global Compact

W

WRI	World Resources Institute
WWF	World Wildlife Fund

1 Introduction

1.1 Background and objectives

Financial institutions play a vital role in achieving the Paris Agreement's long-term temperature goal. Article 2.1c of the Paris Agreement acknowledges the need to align all finance flows with a pathway towards low greenhouse gas (GHG) emissions (UNFCCC, 2015).

The number of climate mitigation targets set by financial institutions has increased substantially in the last years. The UNFCCC's Global Climate Action Portal (GCAP, also known as NAZCA), which captures climate-related commitments by non-Party stakeholders, includes more than 1,100 financial institutions that have pledged to take climate action, representing more than 2,300 actions (UNFCCC, 2020). Some of these actions target the financial institutions' direct emissions, while others focus on emissions caused by the financial institution's investments. In this report we focus on the latter, since downstream emissions arising from financed emissions (investments) constitute by far the largest source of emissions of the finance sector (verbraucherzentrale Bremen, 2015; WRI, UNEP-FI and 2° Investing Initiative, 2015). While the number of climate-related investment targets is growing rapidly, very little is currently known about the scale, ambition and potential impact of these targets on GHG emissions.

This report aims to provide insights into the magnitude and ambition of these targets, and investigates their relationship with GHG emissions in the real economy.² Specifically, this report maps out the financial sector's climate-related investment targets against a range of indicators, such as monetary investments in 'green' projects, and required 'green' investments and GHG emission reductions. It thereby considers both climate-related investment pledges made by individual financial institutions as well as those made by major finance-related international cooperative initiatives (ICIs). This includes major holders of capital, such as pension or sovereign wealth funds, but excludes financial pledges made by companies that offer financial services but are not financial institutions such as car manufacturers that also offer insurance.

Chapter 2 presents a landscape analysis of financial sector climate-related investment commitments and discusses the challenges related to quantifying the impact of those commitments on GHG emissions. Chapter 3 analyses the cause-effect-chain between the financial sector's climate-related investment commitments and global GHG emissions. While the impact of those targets on GHG emission levels is difficult to quantify, the paper outlines what factors make impact more likely. Understanding why these factors are relevant and when impact is most likely to materialise can help observers to assess commitments.

² We refer to the term "real economy" in this report to differentiate from the "financial economy" which designates part of the economy which consists of financial transactions and services (Cambridge Dictionary, 2020).

1.2

Terms and definitions used in this report

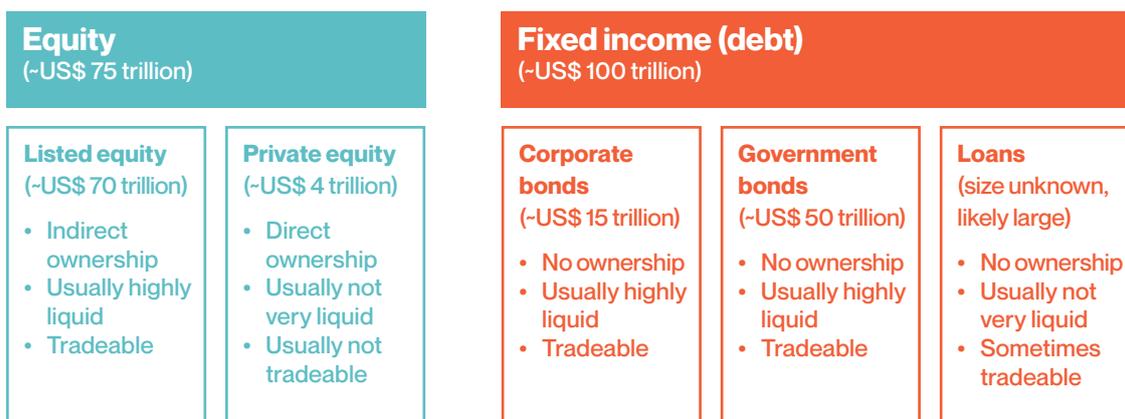
The finance sector comprises a variety of different actors which can be loosely divided into three groups: banks, institutional investors, such as pension funds, and insurance companies^{3,4}. In this report, we use the terms ‘financial institutions’ and ‘investors’ interchangeably to refer to these three groups, and exclusively consider their investment portfolios. Together, these actors hold around US\$ 180 trillion in assets under management (AuM), distributed over different asset classes (SIFMA, 2019). The main asset classes are equities and fixed income (debt)⁵, which can further be divided into sub-asset classes with different characteristics (Figure 1).

Equity holdings represent a shareholder’s ownership in a company. Fixed income – or debt - represents capital that is lent for a specific time period, earning interest over the principal amount. Overall, the global debt market (debt outstanding) is

larger (~US\$ 100 trillion AuM) than the global equity market (capitalisation) (~US\$ 75 trillion US\$) (SIFMA, 2019). The largest sub-asset classes are listed equity (~US\$ 70 trillion AuM) (World Bank, 2020) and government bonds respectively (~US\$ 50 trillion AuM) (Jones, 2019).

Financial institutions can achieve their climate-related investment targets through strategic initiatives along a number of different fronts. These include shifting capital allocation by re-directing funds away from polluting activities or assets and towards low-carbon projects or companies, triggering changes of behaviour in their investee companies, and engaging with clients (AIGCC *et al.*, 2014). We group these various activities into three main types: (1) divestment, (2) positive impact/green investment and (3) corporate engagement. Divestment is the process of selling equity holdings or fixed income securities for ethical, political or financial reasons. Positive impact/green investment refers to selecting investments with the aim of making a positive contribution to the environment and/or society. Engagement involves a financial institution leveraging its assets for the purpose of triggering a change in company behaviour.

Figure 1
Overview of major asset and corresponding sub-asset classes considered in this report



Source: Authors’ own elaboration

3 With multiple combinations thereof.
 4 This may also include companies that offer financial services, which are not included in this paper.
 5 Cash holdings are considered another major asset class, but are beyond the scope of this paper.

2

Landscape of targets

An increasing number of financial institutions are committing to climate-related investment targets. This chapter provides a landscape analysis of these targets in order to assess their proliferation. We differentiate between targets by individual financial institutions and those by international cooperative initiatives (ICIs), which bring together various actors such as national governments, NGOs, investors, companies and subnational actors (Hsu *et al.*, 2018).

We analysed two datasets (see Appendix) that are standardly used for the assessment of climate action by non-state actors. UNFCCC's Global Climate Action Portal is an online platform which displays climate-related commitments by cities, regions, companies, investors, and other non-state and subnational organisations⁶. We also analysed the 2019 climate change disclosure dataset provided by CDP (2019), a not-for-profit organisation running a global environmental disclosure system for companies, including financial institutions.

GCAP collects data from a number of different sources but seems to only include a subset of existing climate-related investment commitments. This may relate to the fact that many of those targets were only recently announced. A few recent examples include the announcement of BlackRock to divest from thermal coal, Barclays to become net zero by 2050 and 50 Dutch financial institutions to commit to national 2030 goals⁷.

GCAP lists 1,133 financial institutions that have committed to different types of climate actions, covering a broad range of targets put forward as part of an ICI membership or individually. The CDP dataset containing GHG reduction targets and internal carbon prices is included in the GCAP dataset. We consider those actors that are labelled 'investors' on GCAP as financial institutions, as well as those whose primary sector is classified as 'Financial Services' in the CDP dataset. Small differences between the two definitions might be possible.

2.1

Targets from individual financial institutions

There are currently 447 financial institutions that report individual targets on GCAP. These targets fall into three main categories: emission reductions that are not per se investment related (514 targets, 45%), issuing green bonds (480 targets, 42%) and setting an internal carbon price (153 targets, 13%). This means that most of the individual targets by financial institutions featured on GCAP are scope 1 or 2 targets and therefore do not target scope 3 emissions from assets under management. Divestment or engagement targets by individual financial institutions are mostly missing. GCAP reports these under cooperative initiatives.

The CDP dataset, that is also included in the GCAP data, includes 350 financial institutions, of which 250 reported absolute or intensity targets. In total, the dataset contains 600 emission reduction targets. From the financial institutions, almost 20% report scope 3 investment emissions (assets footprint). However, only seven of them have reported explicit investment targets, of which three are financial institutions, all three located in the EU and UK.

Current databases only rarely include financial institutions' individual climate-related investment targets, and only some asset footprint data. More data exists but is scattered and often only reported in financial institution's annual or sustainability reports. While a number of financial institutions have put forward a variety of individual investment targets, they often do not fully disclose those targets, do not indicate how they aim to reach those targets, and generally do not provide sufficient data to make a full assessment.

⁶ We analysed the commitments featured on GCAP as of 10 August 2020.
⁷ <https://www.nvb.nl/english/50-financial-institutions-sign-up-for-climate-goals/>

2.2 International cooperative initiatives

Information on international cooperative initiatives seems to be more readily available than for individual financial institutions. In this section, we analyse a selection of seven major finance-related ICIs that have large assets under management or are expected to (indirectly) influence GHG reductions. Three of these are included on GCAP (Climate Action 100+, Net Zero Asset Owner Alliance and DivestInvest).⁸ We showcase their targets, membership and size and compare this to evaluate the size of their contribution to the global financial market (also see Figure 5).^{9,10}

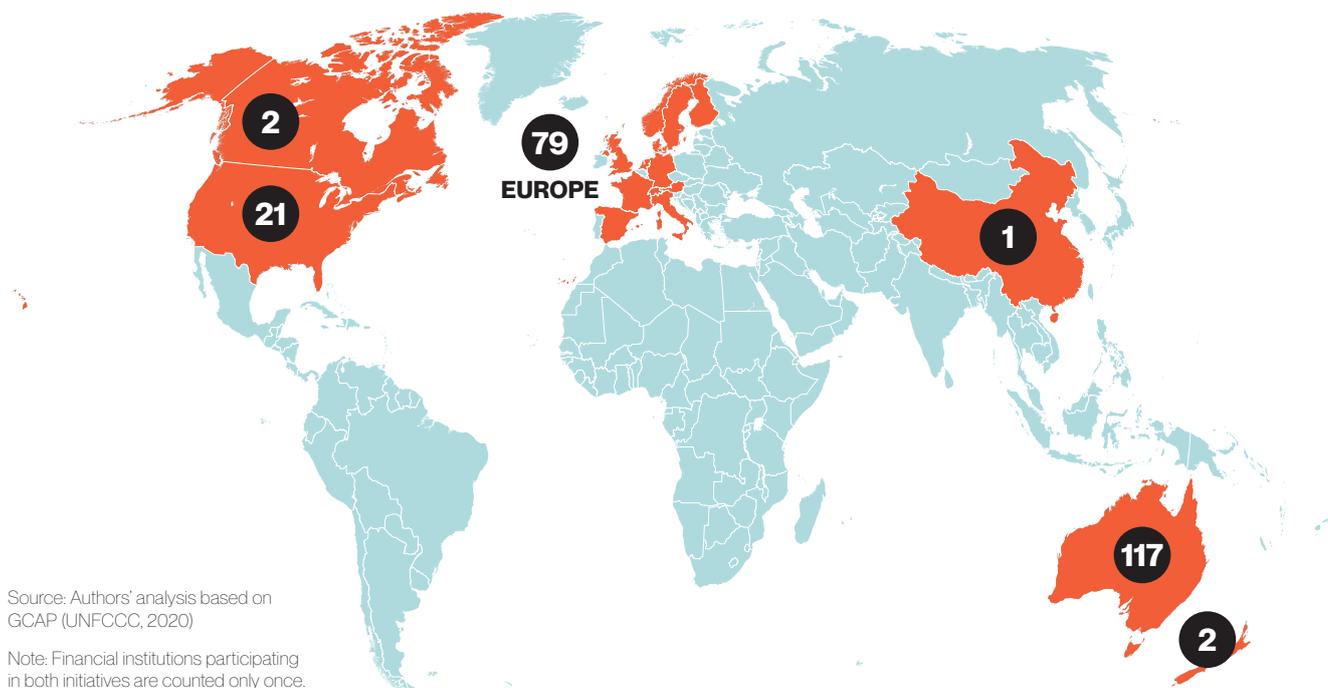
Most climate-related investment commitments found on GCAP are made through international cooperative initiatives (see Section 2.1). Of the 2,313 actions by investors listed on GCAP, 362 (15.6%) relate to investments, all in the form of cooperative actions (UNFCCC, 2020).¹¹

GCAP reports that close to 250 financial institutions are engaged in nine investment-related initiatives, most of which aim to mobilise finance to low-carbon technologies. Two initiatives – DivestInvest and the Net Zero Asset Owner Alliance – aim to reduce the emission intensity of investment portfolios. 222 financial institutions from 18 different countries have committed to climate-related investment targets under one or both of these initiatives¹² (see Figure 2). 221 financial institutions are located in Oceania, North America and western Europe, and only one in China (Rs Group). This suggests that financial institutions in Asia, Latin America, Africa and eastern Europe either not set climate-related investments targets, do not disclose them or that GCAP does not report on them. Interestingly, a large share of financial institutions with such targets are located in Australia, which economy is heavily dependent on fossil fuel extraction.

Climate-related investment targets do not necessarily imply the financial institution aligns all finance flows with the Paris Agreement temperature goals. Recent research reveals that three of the biggest Australian funds that are member of DivestInvest have invested in fossil fuel companies (Grieve, 2020).

Figure 2

Overview of financial institutions participating in DivestInvest and/or the Net Zero Asset Owner Alliance



Source: Authors' analysis based on GCAP (UNFCCC, 2020)

Note: Financial institutions participating in both initiatives are counted only once.

⁸ ICIs were chosen on the basis of their size (membership and/ or AuM) and their level of activity (based on the authors' knowledge).

⁹ Not of all them are currently featured on GCAP.

¹⁰ Please note that a number of financial institutions participate in more than one ICI, therefore AuMs under different ICIs should not be summed up.

¹¹ Please note that this number does not account for positive impact investments, e.g. green bond issuance made by individual financial institutions (also see section 2.1).

¹² Six financial institutions participate in DivestInvest as well as the Net Zero Asset Owner Alliance. These are Allianz SE, CNP Assurances, Fonds de Réserve Pour Les Retraites, Storebrand ASA, Swiss Re and Zurich Insurance Group.

Climate Action 100+

Climate Action 100+ is a cooperative initiative of more than 500 investors. It currently engages 160 large emitting companies, encouraging them to set net-zero targets, improve governance and disclose strategies for achieving their targets (Climate Action 100+, 2020a; Mitchell *et al.*, 2020). In 2020, the investors represented over US\$ 47 trillion AuM across 28 markets and engaged with 160 companies that covered up to 80% of global industrial emissions (Climate Action 100+, 2020a).

It is difficult to quantify the initiative's potential impact on GHG emissions due to limited information about the emissions and targets of the targeted companies. Only 122 of the 160 targeted companies disclosed such information to CDP (CDP, 2020). This subset was responsible for annual emissions of 17.9 GtCO₂e in 2018, of which 3.6 GtCO₂e were the companies' own emissions (scope 1) and 0.4 GtCO₂e were from their electricity use (scope 2) emissions. Of these 122 companies only 92 reported sufficient information that we could use to assess the impact of their targets¹³. We consider 2030 emission reduction targets for the assessment. The reduction targets from these companies (92 out of 160) cover only a small subset of the global total emissions: 1.3 GtCO₂e annually in 2018, of which 1.2 GtCO₂e are scope 1, and 0.1 GtCO₂e are scope 2 emissions. Under a number of assumptions, we estimate that the pledges of these 92 companies could reduce annual GHG emissions by 0.3 GtCO₂e/yr (22%) by 2030, in addition to the impact from current national policies (see Annex for the method).

How much Climate Action 100+ contributes to reduce emissions is hard to say. The initiative seeks to encourage action among the companies responsible for 80% of global industrial emissions, but we were only able to quantify emissions reduction targets from a limited subset of such companies. The maximum potential of this initiative would be achieved when all targeted 160 companies commit to the goals of the Paris Agreement and reduce their emissions

to net-zero by 2050 or by 2070 to align with the 1.5°C limit (IPCC, 2018). It could even be higher if the initiative catalyses change outside of its membership, e.g. technological learning that leads to emission reductions by companies outside of this initiative.

DivestInvest

The DivestInvest initiative aims to make participating investors and other members divest from polluting assets and instead use those funds to invest in climate solutions. The initiative grew quickly, from around 100 organisations, representing close to US\$ 1 trillion in 2013 to over 1,200 organisations, including 223 financial institutions, today. Collectively, current members hold around US\$ 14.1 trillion across different asset classes and sectors, including fossil fuels. The signatories all commit to apply some form of exclusion policy to their current and/or future investments (DivestInvest, 2020).

Because financial institutions may apply specific criteria to only exclude investee companies that obtain a certain revenue out of fossil fuels or only apply it to future operations (e.g. Novethic, 2017), only a portion of the US\$ 14.1 trillion is divested from fossil fuels.

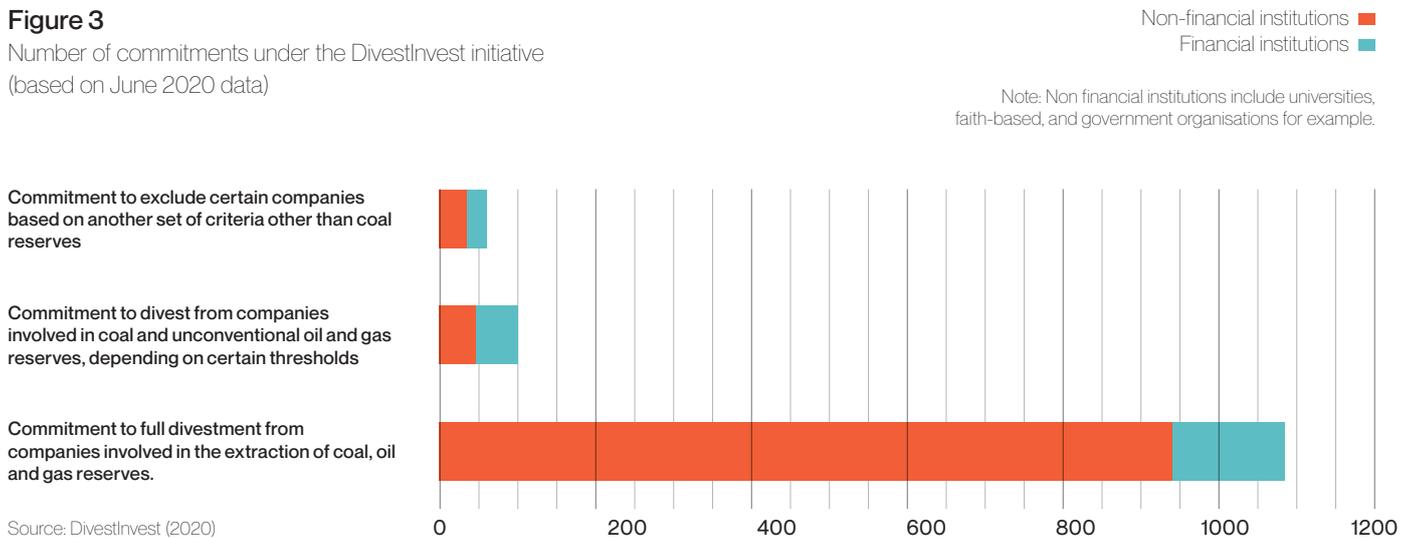
As of June 2020, 1,084 organisations (including 144 financial institutions, mainly pension funds) made a commitment to exclude *all* companies that are involved in the extraction of coal, oil and gas reserves. Another 101 organisations (including 54 financial institutions) committed to exclude companies involved in coal and unconventional oil and gas reserves, but may apply specific thresholds, for instance, an investor may exclude companies that derive 20% of their revenue from coal operations¹⁴. Lastly, 60 organisations (including 25 financial institutions) committed to exclude certain companies based on another set of criteria other than coal reserves. For example, this may mean that a company is excluded because it is deemed to be unaligned with the Paris Agreement (see Figure 3 for an overview of commitments under DivestInvest).

¹³ The assessment in this report is based on the 2019 CDP disclosure data retrieved through environmental questionnaires.

¹⁴ Financial institutions may apply specific thresholds to not significantly limit its investment universe. Some large energy companies have highly diversified business streams and therefore implementing a blanket exclusion would potentially eliminate all those companies from an investment universe.

Figure 3

Number of commitments under the DivestInvest initiative (based on June 2020 data)



Source: DivestInvest (2020)

Net-Zero Asset Owner Alliance

The Net-Zero Asset Owner Alliance was launched in 2019 and is convened by the United Nations Environment Programme Finance Initiative (UNEP FI) and the UN-supported Principles for Responsible Investment (PRI). It consists of 29 large investors¹⁵ representing nearly US\$ 5 trillion. These financial institutions pledge to align their investment portfolios with net-zero GHG emissions by 2050. To reach this goal, each asset owner may use its own tools and strategies, although the Alliance has been developing a shared target-setting methodology and a strong focus is placed on engagement with investee companies (UNEP FI; PRI, 2019).

Partnership for Carbon Accounting Financials (PCAF)

PCAF aims to align the financial sector with the Paris Agreement, by providing a global carbon accounting standard and increasing the numbers of financial institutions that follow a common standard (PCAF, 2020a). As of August 2020, it brings together 73 financial institutions with a combined US\$ 11.7 trillion that have committed to disclose the carbon footprint of their portfolio, using the PCAF methodology. Sixteen out of the 73 financial institutions (6 commercial banks, 8 asset managers/owners and 2 insurance companies), which jointly represent close to US\$ 2 trillion, have already disclosed this information publicly, all but one of these have their headquarters in Europe.

Paris Aligned Investment Initiative (PAII)

The PAII - managed by the Institutional Investors Group on Climate Change (IIGCC), a European network of institutional investors collaborating on climate change - brings together over 70 members and US\$ 16 trillion of AuM. It aims at encouraging and enabling investors to align their portfolios with the goals of the Paris Agreement and support the decarbonisation of the real economy. To achieve this goal, the initiative develops methods and approaches for the alignment of portfolios with the Paris Agreement and tests the accompanying financial implications. In July 2020, it launched its draft Net Zero Investment Framework to support investors that are committed to achieving decarbonisation in accordance with the Paris Agreement (IIGCC, 2020a).

Science-Based Targets initiative (SBTi)

SBTi, a collaboration between CDP, the UN Global Compact (UNGC), the World Resources Institute (WRI) and the World Wildlife Fund (WWF), and establishes sector-specific science-based frameworks for companies to adopt appropriate GHG reduction targets, and certifies consistency of companies' plans with these frameworks and targets. As of August 2020, 55 financial institutions have committed to set a science-based target (Science Based Targets initiative, 2020a) and the initiative aims for a hundred participating institutions by the end of 2021. In July 2020, SBTi launched a temperature

rating methodology for setting targets for unlisted and listed equity and corporate debt portfolios. Full methods, criteria and guidance will be launched in Fall 2020 (Science Based Targets initiative, 2020b).

Climate Bonds Initiative

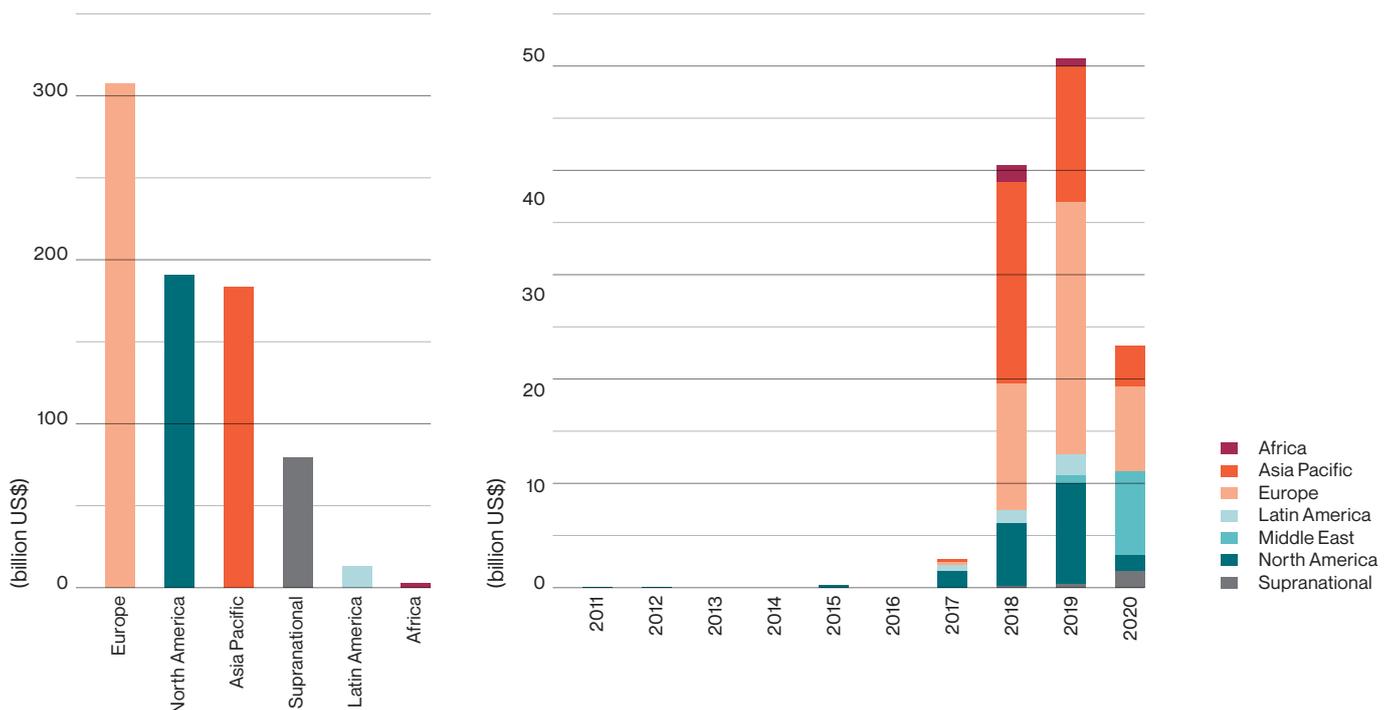
The Climate Bonds Initiative mobilises capital necessary for a transition to a low-carbon and climate-resilient economy and aims to decrease the cost of capital by developing a liquid green bond market. This initiative reports on the propagation of green bonds and guides regions or countries to facilitate their issuance. Green bonds can be issued by governments, financial institutions, and non-financial companies. Only bonds with at least 95% of dedicated green assets and projects and alignment with the Climate Bonds Taxonomy are allowed and included in the Climate Bonds library (Climate Bonds Initiative, 2020c). This library gives an overview of new green bonds issuers but does not include repeated issuances. It contains 576 climate bonds that detail information on tenor and issued amount, together representing over US\$ 250 billion (see Figure 4). The total cumulative amount issued (new and repeated)

is US\$ 750 billion and the top three issuing countries are USA, China and France (Climate Bonds Initiative, 2020c). The first bonds were issued in 2007, but since 2017 the number of issuances has increased significantly (see Figure 4). The total annual investment of Climate Bonds Taxonomy aligned green bonds is estimated to be around US\$ 75 billion (see appendix).

The effect of these climate bonds on GHG emissions remains unclear for several reasons. First, green investments are not necessarily 100% low carbon as indicators used to define green investments allow for projects that have a small amount of carbon activities. For example the screening indicator for solar electricity investments indicates that investee facilities should have no more than 15% of their electricity generated from non-renewables (Climate Bonds Initiative, 2020b). Second, there is no evidence that these bonds are additional to business-as-usual conduct or scale up green investments (2° Investing Initiative, 2018a). According to Ehlers, Mojon and Packer (2020), current green bond labels do not necessarily signal that issuers have a relatively low or a decreasing carbon intensity. Further research and development of methodologies is necessary.

Figure 4

Total issued bonds per region in the period 2007-2019 and total annual new issued green bonds per region



Source: Climate Bonds Initiative (2020a, 2020b)

2.3 Discussion

It is challenging to determine the exact scale of the finance sector’s climate-related investment targets. Commitments are not yet transparently disclosed and/ or systematically captured by global data providers and platforms, such as GCAP. Individual investment targets in particular are not well covered. A number of financial institutions have signed up to different finance related initiatives. However, determining the overlap between commitments is challenging. Data availability is limited and only part of a financial institution’s assets might be connected to specific investment target(s). For example, as discussed above, a divestment target might only apply to a subset of fossil fuel assets of a financial institution, which in turn is only a subset of the full assets under management.

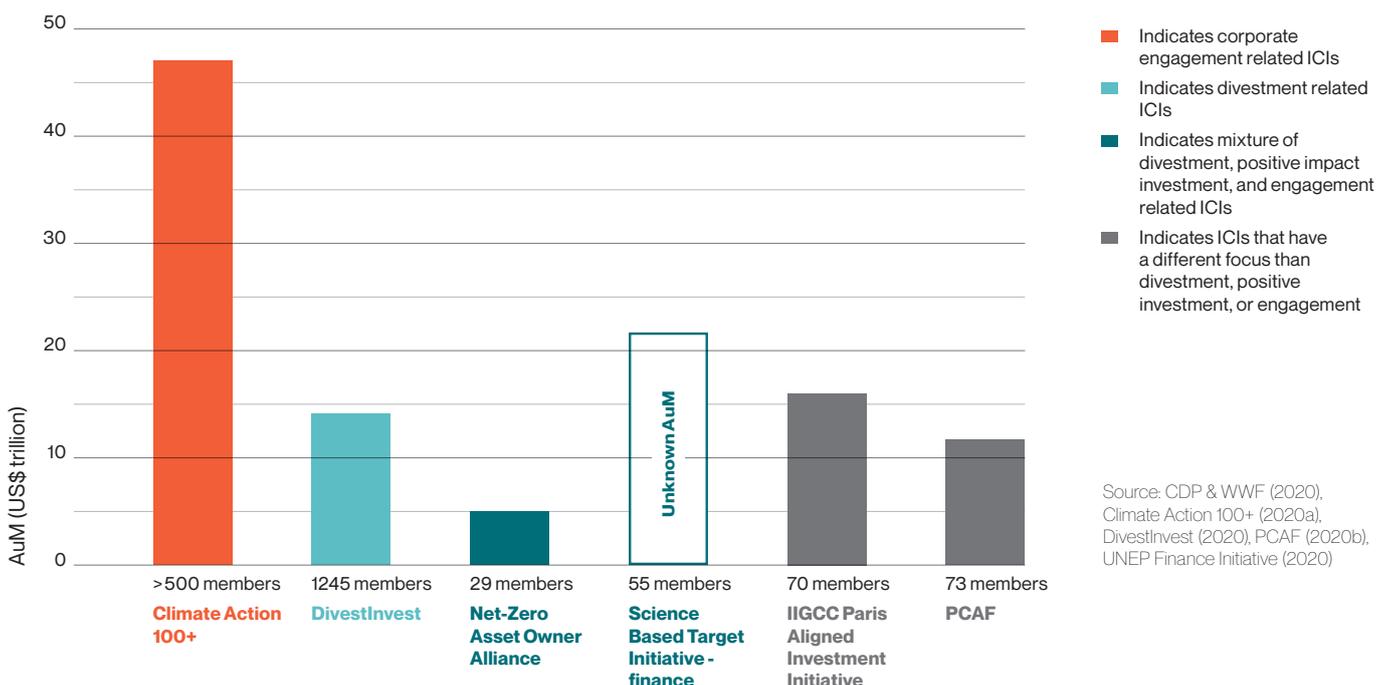
We find that financial institutions with cumulative assets of at least US\$ 47 trillion under management (as represented by Climate Action 100+) are currently committed to climate-related investment targets. This represents 25% of the global financial market. As

investors can be included in more than one initiative, we also checked for overlaps (see Annex for simplified methodology).

The Assets under Management covered by the individual initiatives range from US\$ 5 to 47 trillion (Figure 5). Among finance-related ICIs, the scale of initiatives targeting engagement is largest in terms of AuM, encompassing Climate Action 100+. However, the scales of initiatives targeting divestment and green bond targets (positive impact investment) are also significant. Initiatives aiming to align their portfolios with the Paris Agreement temperature goals will make use of one or more of those mechanisms (but individual financial institutions will not necessarily sign up to an ICI). We discuss strategies for divestment, positive impact investment and corporate engagement further in Chapter 3.

The membership of the initiatives is growing very quickly. For example, the number of ClimateAction100+ initiative’s investor signatories grew by 65% since its launch in December 2017 (Climate Action 100+, 2020b), the DivestInvest by 1250% between 2013 and today (DivestInvest, 2020) and the Net Zero Asset Owner Alliance by close to 250% in its first year (UNEP Finance Initiative, 2020). Other initiatives focusing on the Paris alignment of portfolios are even younger; the PAII, for example was only launched in 2020.

Figure 5
Size of selected finance-related ICIs¹⁶



¹⁶ AuM for those financial institutions that have committed to set a science-based target are unknown to the authors. The Climate Bonds Initiative is not included in this graph, because they do not have “members” and thus also do not report on AuM of issuers of green bonds. Not all members of the IIGCC PAII are committed to align all investments with the Paris Agreement.

Impact of climate-related investment targets on GHG emissions

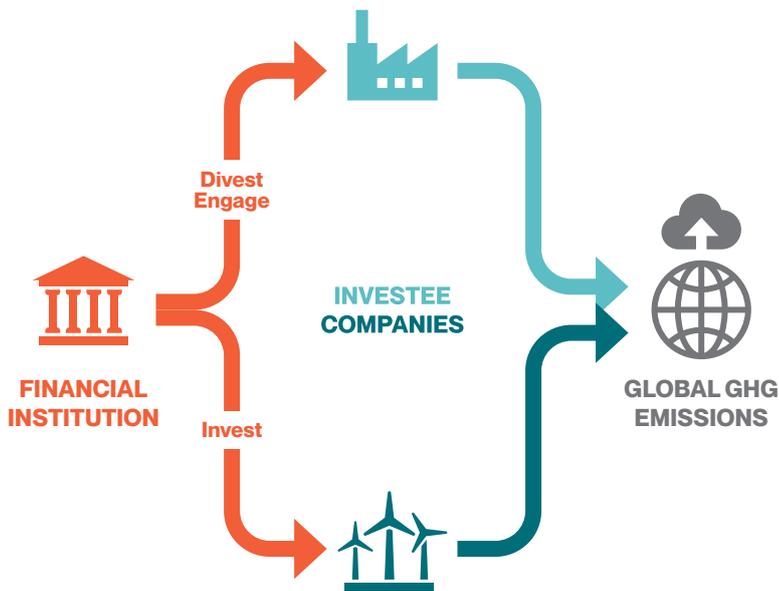
While divestment, corporate engagement and positive impact investment may help minimise investment risks and reduce the carbon intensity of the portfolio, the impact and magnitude of these actions on global GHG emissions remains uncertain.¹⁷ Our literature review shows that no systematic appraisal of financial sector’s investment commitments’ impact on GHG emissions currently exists due to lack of empirical evidence (Heinkel, Kraus and Zechner, 2001; Fama and French, 2007; Gollier and Pouget, 2014; Luo and Balvers, 2017; Kölbel *et al.*, 2019).

The main challenge in determining the impact of climate-related investment targets is the indirect influence of financial institutions on real economy emissions. Targets result in lower emissions levels only if they successfully incentivise the investee to change its activities, output and behaviour (see Figure 6). For example, if an investor divests from carbon intensive assets, it has reduced the carbon footprint of its portfolio, but global GHG emissions may not have been reduced, as someone else invested in the emission intensive assets that the first investor sold.

Therefore, we focus our analysis on the cause-effect chain between those targets and emissions levels and do not attempt to fully quantify the aggregate impact of climate-related investment targets on GHG emissions in this report.

While useful, assessing whether or not the carbon footprint of a financial institution’s portfolio is aligned with the Paris Agreement temperature goals is not sufficient to determine the direct impact on GHG emissions. Methodologies to assess the alignment of portfolios are starting to emerge, such as the Paris Agreement Capital Transition Assessment method (2° Investing Initiative, 2018b) and SBTi’s temperature scoring method (CDP & WWF, 2020). However, a general lack of reported data on targets and financed emissions and conflicting methodologies make an independent assessment of alignment difficult (Mitchell *et al.*, 2020).

Figure 6
Relationship between financial institutions’ emissions and targets and their impact on global GHG emissions



Source: Authors’ adapted from Kölbel *et al.* (2019)

¹⁷ It is important to keep in mind that while financial institutions can influence GHG emissions through their finance decisions, the scope of their impact is limited in certain realms. In many of the world’s largest developing economies, state-owned enterprises dominate high-emitting sectors, notably the power sector. These companies are either not listed, or only very partially listed through subsidiaries (Benoit, 2019).

3

How can the financial sector shape global GHG emissions?

This chapter identifies the cause-effect chain between financial sector climate-related investment commitments and global GHG emissions. The financial sector can use three mechanisms to influence global GHG emissions: divestment and exclusion policies, positive impact investment and corporate engagement. The potential impact of these three mechanisms varies with the asset class. For example, a divestment target corresponding to a listed equity share will play out differently than a divestment from a corporate bond. Before diving into a more extensive analysis of investor impact and asset classes, this chapter presents some general factors or conditions that make investor impact more likely and sheds light on the key mechanisms through which this impact may materialise.

3.1 Factors that can increase impact

While no systematic appraisal of the impact of climate-related investment targets exists, a number of studies evaluate the impact of divestment and exclusion policies, corporate engagement and positive impact investments on company outputs and company behaviour. Based on these studies, we identify a set of factors at the financial institution's, company and country level that increase the likelihood that climate-related investment targets by financial actors actually translate to measurable GHG emissions (see Table 1).

Generally, the more powerful the financial institution is – due to either the type of assets it holds, the value of its assets under management, or the institution's relationship with the investee company – the more likely it is that the target will result in real economy emission reductions (Dimson, Karakaş and Li, 2018; ISS-Climate, 2° Investing Initiative and EIT Climate-KIC, 2018; Kölbel *et al.*, 2019). Financial institutions can increase success by taking concerted action and bringing together a critical mass of investors. In recent years, initiatives like the Climate Action 100+ have given like-minded financial institutions the platform to act in concert and increase the likelihood that their climate-related investment targets have an impact on investee companies' behaviour and outputs. Further, any impact on real economy emissions is more likely if the targeted investee company has previous experience with environmental, social and governance (ESG) issues and/or is concerned about its reputation (Dimson, Karakaş and Li, 2015; Barko, Cremers and Renneboog, 2018; Kölbel *et al.*, 2019). Companies that are less well-established and face financial constraints (e.g. start-ups), as well as those that can take action at a relatively low cost and those that can relatively easily change their business model, are also more likely to comply with their investor's demands.

Governments and the general public also play a role in the likelihood that climate-related investment targets translate to real economy emission reductions. The higher the climate awareness amongst consumers and the more ambitious and comprehensive national climate change legislation, the more likely targeted investee companies are to change their behaviour and activities (Choi, Gao and Jiang, 2020).

Table 1

Impact conditions, based on a literature study

Impact condition	Argumentation	Sources
High level of control due to type of asset	If the financial institution can exert a high level of control over its investee company, it is more likely that the latter will change its behaviour and, consequently, that the investee's GHG emissions will decrease.	ISS-climate, 2° Investing Initiative and EIT Climate-KIC (2018); Dimson, Karakaş and Li (2018).
Concerted action	Potential impact on GHG emissions is higher if a critical mass of financial institutions come together. The higher the market share of financial institutions that are involved and the higher the monetary value of their investment, the likelier it is that financial institutions influence company behaviour.	Fama and French (2007); Gollier and Pouget (2014); Heinkel, Kraus and Zechner (2001); Kölbel <i>et al.</i> (Kölbel <i>et al.</i> , 2019); Luo and Balvers (2017).
Action cannot easily be reversed or offset by another investor or governmental actor	Potential impacts from financial institutions' targets may be offset through opposing actions by other actors (e.g. other financial institutions may want to take on the equity share that another financial institution is divesting from, governments may put in place a subsidy scheme for fossil fuels when a financial institutions withdraws its fossil fuel investments in that country). The impact on GHG emissions is higher if that risk is minimised.	ISS-climate, 2° Investing Initiative and EIT Climate-KIC (2018) .
Position and influence of the investor	Potential impact is higher if the financial institution has a significant amount of assets under management and therefore exerts influence over other financial institutions. Generally, the more AuM a financial institution holds, the larger its influence on investee companies. Additionally, large financial institutions are generally more likely to get other shareholders on board.	Dimson, Karakaş and Li (2018) Kölbel <i>et al.</i> (2019).
Previous company experience with environmental, social and governance (ESG) considerations	Potential impact is higher if the targeted investee company has previous experience with ESG issues. Further, companies that have high ESG ratings prior to shareholder engagement, are more likely to comply with engagement requests.	Barko, Cremers and Renneboog (2018); Dimson, Karakaş and Li (2015); Kölbel <i>et al.</i> (2019).
Substitutability of the affected asset	The more difficult it is to replace an asset or business stream the more unlikely it is an investee company will change its behaviour.	Barko, Cremers and Renneboog (2018); Dimson, Karakaş and Li (2015).
Reputational concerns	The higher the reputational concerns of the investee company and the greater is reliance on advertising, the likelier it is the company will change its behaviour. For example, firms in competitive consumer-faced markets generally face high reputational risks if their activities negatively impact the environment.	Dimson, Karakaş and Li (2015).



Impact conditions at the financial institution's level



Impact conditions at the company level



Impact condition	Argumentation	Sources
Stringency of the policy framework & general awareness on climate change within a country	In countries with a high awareness on climate change and a comprehensive climate policy framework, as well as requirements on company transparency and disclosure of emissions, companies are more likely to change their behaviour and reduce GHG emissions.	Choi, Gao and Jiang (2020).
Liquidity of markets	The more liquid a market, the more difficult it is to impact GHG emissions.	WRI, UNEP-FI and 2° Investing Initiative (2015).

3.2 Through which means can climate-related investment targets translate to emission reductions?

In addition to contextual factors at the financial institution, investee, and country levels, the specific strategies financial institutions employ to fulfil their pledges can be equally important for increasing the likelihood of achieving impact. In the following section, we focus on three mechanisms that correspond to the three main climate-related investment targets that we observe: divestment, corporate engagement and positive impact investment.

Divestment

Divestment is the process of selling equity holdings or securities for ethical, political, or financial reasons. Out of the three mechanisms mentioned above, it has been the focus of the most research. It also constitutes one of the most commonly made climate-related investment related pledges (see Chapter 2).

The divestment movement has grown rapidly since it first emerged at universities in the USA in 2012 (Ansar, Caldecott and Tilbury, 2013). It aims to encourage, facilitate or pressure investors – in

particular large financial institutions - to divest from fossil fuels (Ayling and Gunningham, 2017). According to the Fossil Free divestment campaign about 1,250 institutions, representing US\$ 14.1 trillion – including universities, government authorities and pension funds, amongst others - have divested from fossil fuel (Fossil Free, 2020). The largest share of divestments target coal. Today, 46% of the reinsurance market and 37% of the insurance industry’s global assets – worth US\$ 8.9 trillion - are covered by coal exit policies (Bosshard *et al.*, 2019).

Divestment may have an impact on GHG emissions by increasing the cost of capital for targeted companies and making it more difficult for them to access the capital markets (see Figure 7). Impact is most likely to materialise if the divestment is coordinated and large in scale. For example, the two largest publicly traded prison operators in the United States of America – Geo Group and CoreCivic – have become the target of divestment activists, which has limited their ability to access capital markets. As a result, both companies have cut their dividend and allocated more funds to lower their debt (Kasumov, 2020). Relatedly, targeted companies might face higher underwriting costs, with some experiencing difficulties in underwriting projects. As a result, they may alter the scope of their activities or exit the market (Beltratti, 2005; Bosshard *et al.*, 2019). This effect is more likely to materialise in illiquid markets – where the divestment is not easily offset by neutral financial institutions - and if a critical mass of financial institutions divests.

Divestment may also indirectly impact GHG emissions through stigmatisation of carbon-intensive companies (WRI, UNEP-FI and 2° Investing Initiative, 2015; Kölbel *et al.*, 2019) and increasing awareness

amongst neutral financial institutions regarding the dangers of holding potentially stranded assets (Curran, 2020). Indeed, companies view divestment announcements – especially from powerful and legitimate stakeholders - as a market risk (Dordi and Weber, 2019). Royal Dutch Shell (2020) for instance, recognised divestment as a material risk in its most recent Annual Report, even though only 5.5% of its shareholders supported a resolution from the grassroots organisation Follow This and which called for Shell to become ‘a renewable energy company by investing the profits from fossil fuels in renewable energy’ in 2018¹⁸ (Royal Dutch Shell PLC, 2018b, 2018a).

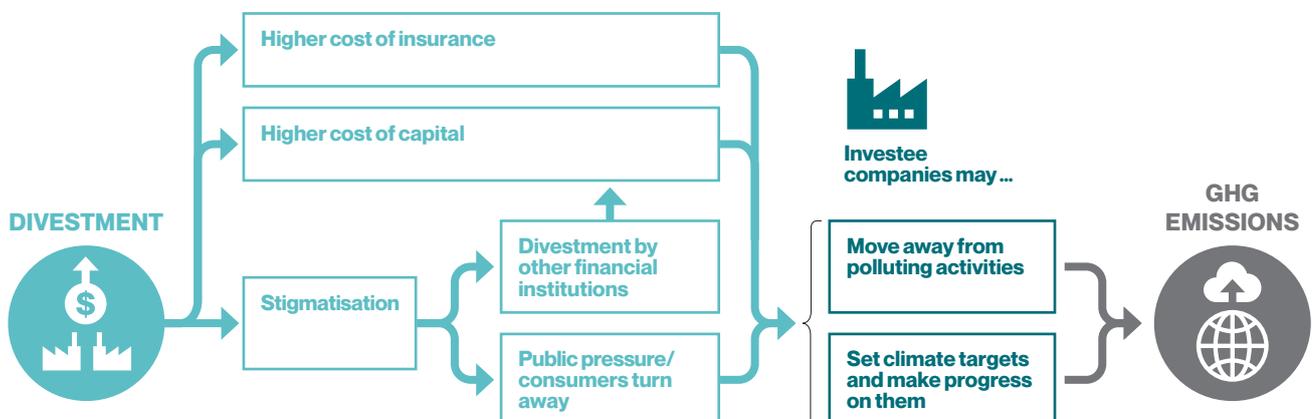
Some evidence of the impact of divestment on GHG emissions exists. Choi, Gao and Jiang (2020b) found that companies reduce their scope 1 and 2 emissions (emissions divided by total assets) under divestment pressure in the country. However, these reductions may not have been a consequence of divestment pressure alone. Companies may also reduce their scope 1 and 2 emissions in anticipation of more stringent regulations or to attract climate-conscious customers. Cojoianu *et al.* (2019b, 2019a) found that the more actors divest in a country, the harder it becomes for oil and gas companies to secure capital. This effect is stronger in countries with stringent legislation and weaker in countries where the fossil fuel industry is heavily subsidised.

Further, insurers’ divestment from coal causes tangible impact: insurance brokers reported that the cost of insuring coal is increasing as the market shrinks and several coal companies have confirmed that a shrinking insurance market affects their operations. In Australia, for example, the Adani Group struggled to find insurance to develop the Carmichael mine, which would produce 4.6 billion tonnes of carbon dioxide over its lifetime. In the end, at least 16 international insurers ruled out the underwriting the project (Bosshard *et al.*, 2019). However, while the mine’s scope and scale were reduced, the project still is still going ahead (Curran, 2020).

Ultimately, divestment can decrease the carbon intensity of a financial institution’s portfolio; however, its effect on global GHG emissions is still uncertain. This is in part because divestment is often offset by passive or neutral investors who are not necessarily interested in addressing climate change (Ansar, Caldecott and Tilbury, 2013; Ritchie and Dowlatabadi, 2015). Other investors may take advantage of the increased costs of capital for targeted firms and cash in on higher returns. Indeed, a large portion of the financial market (US\$ 18 trillion of listed equity, US\$ 8 trillion of corporate bonds as well as unknown amount of unlisted debt hold by the banking sector) continues to finance the fossil fuel system (Carbon Tracker, 2020). This amount seems to be growing (Carbon Tracker, 2020) and therefore is likely to at least diminish the effect that divestment commitments may have on real economy emissions.

Figure 7

Cause-effect relation between divestment and real economy emissions



Source: Authors’

18 A shareholder resolution calling for Shell to ‘set and publish targets that are aligned with the goal of the Paris Climate Agreement to limit global warming to well below 2°C’ was withdrawn in 2019 (Royal Dutch Shell PLC, 2019). At the AGM in 2020, 14.39% of Shell’s shareholders voted in favour of a shareholder resolution supporting Shell to set and publish Paris-compatible targets and requested that Shell ‘base these targets on quantitative metrics such as GHG intensity metrics [...]’ A shareholder resolution calling for Shell to ‘set and publish targets that are aligned with the goal of the Paris Climate Agreement to limit global warming to well below 2°C’ was withdrawn in 2019 (Royal Dutch Shell PLC, 2019).

Positive impact investment

Positive impact investments actively aim to deliver benefits to the environment and/or society that would not exist in the investment's absence in addition to yielding financial returns (Brest and Born, 2013; UNEP-FI, 2017). The term covers investments with a wide range of objectives, including reducing global GHG emissions and creating job opportunities (UNEP-FI, 2017).

Positive impact investment may lead to GHG emissions reduction if investee companies (see also Figure 8):

1. Expand their low-carbon business and potentially replace (more polluting) competitors
2. Develop low-carbon technologies that are consequently adopted by the market
3. Decrease downstream scope 3 emissions, i.e. the emissions that occur when customers use the investee's product or service.

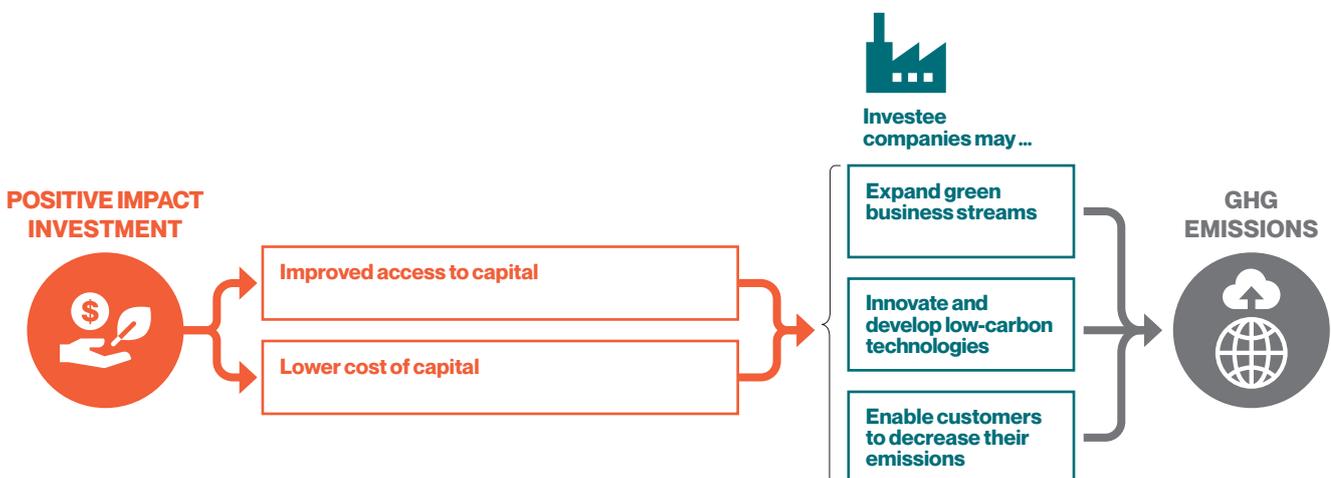
Some positive impact investments entail financial institutions providing 'green' companies with capital on concessionary or more favourable than market terms. In other words, they provide capital under better conditions than they would provide to non-sustainable companies (Kölbel *et al.*, 2019)¹⁹. Some investors, for example private equity investors or business angels might also be interested and willing to accept higher risk investments to

achieve positive environmental outcomes. Similarly, the interest in those types of investments, including from the wider public, has increased rapidly over the last years (Responsible Investment Association and Rally Assets, 2019).

Brest and Born (Brest and Born, 2013) list six ways investors can provide concessionary capital: (1) offering prices below market investments; (2) providing loan guarantees; (3) taking subordinated debt or equity positions; (4) accepting longer terms before exit; (5) providing flexibility in adapting capital investment to the company's needs; and (6) recognising investment opportunities that impact-neutral investors do not identify. Brest, Gilson and Wolfson (2018) found that concessionary impact investors can affect the output of portfolio companies on *private* markets by accepting lower financial returns than neutral investors would require. To realise any impact on GHG emissions, however, it is necessary that the investor provides a large enough amount of finance (Chowdhry, Davies and Waters, 2019). Further, financial institutions are most likely to create impact on real economy emissions if they target new and small firms that are constrained in their growth by external market conditions, especially in less mature markets (Kölbel *et al.*, 2019). Impact is more difficult to materialise for large and well-established companies that generally enjoy good financing conditions (Hadlock and Pierce, 2010), but also generally have a higher impact on global GHG emissions.

Figure 8

Cause-effect relation between positive impact investment and real economy emissions



Source: Authors'

Many financial institutions claim to engage in positive impact investments. For example, of the 325 financial institutions included in the 2019 CDP data set (disclosing data for 2018), more than 150 reported engaging in positive impact investments (or ‘low-carbon investments’). Nevertheless, positive impact investments account for a relatively small share of the global market. The market size for total assets of impact investors was approximately US\$ 505 billion in 2019 (Mudaliar and Dithrich, 2019; Gregory and Volk, 2020). Almost half of these assets took the form of green bonds, which amounted to US\$ 247.7 billion in 2019²⁰ (Climate Bonds Initiative, 2020c). If other funds and direct investments with impact objectives are also included, the total market size could be approximately US\$ 2 trillion (Gregory and Volk, 2020)– compared to a total market size of about US\$ 180 trillion.

Current levels of positive impact investments are insufficient to limit global warming to well below 2°C or 1.5°C. To limit global warming to 2°C, the Paris Agreement’s long-term temperature goal requires median global GHG emissions to decrease by 36% to 45% by 2030, relative to the current policies scenario (Roelfsema *et al.*, 2020).²¹ This implies that the share of low carbon investments by 2030 would range between US\$ 0.65 trillion and US\$ 2.7 trillion in the 2°C scenario (McCollum *et al.*, 2018; Roelfsema *et al.*, 2018).²²

Corporate engagement

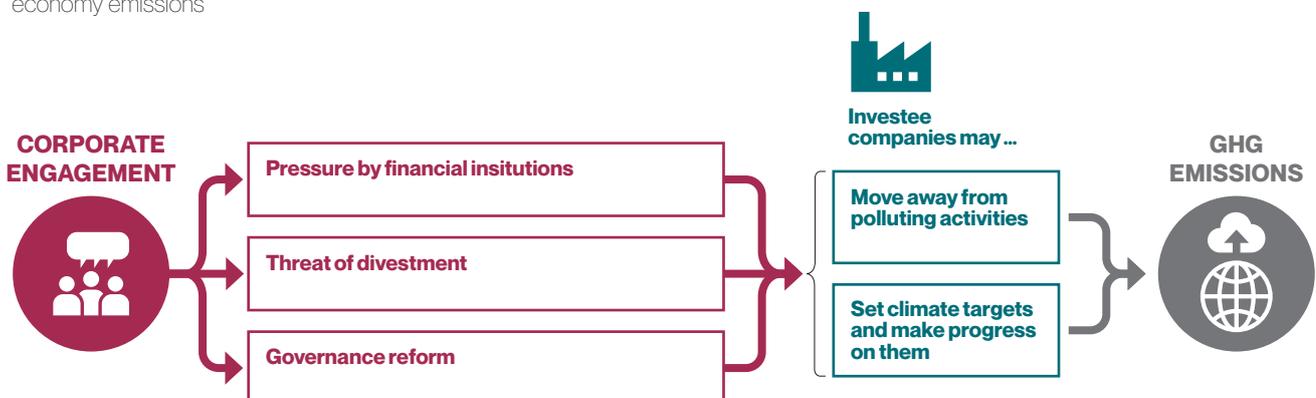
Financial institutions may engage with investee companies on climate change related issues with the goal of motivating these companies to change their behaviour/activities and/ or set a GHG emissions reduction target and/ or make progress on already existing targets. In these cases, corporate engagement may effectively contribute and/ or lead to emission reductions by the investee company. Financial institutions can use divestment and corporate engagement in combination, such that the threat of divestment puts pressure on investee companies to meet the financial institution’s demands (Amenc *et al.*, 2020) (see Figure 9).

The possible forms and manifestations of corporate engagement differ from one asset class to another, depending on the ownership structure of the underlying asset. For example, financial institutions may ask for environmental covenants before providing loans or buying corporate bonds. Private equity corporate engagement usually takes the form of directly approaching management. This is also common for listed equity, but shareholders may also file shareholder resolutions.

Engagement with investee companies on climate change issues has gained traction in recent years. The 2019 CDP data records over 110 financial institutions engaging with their costumers/ clients and investee companies in 2018 to encourage increased disclosure regarding climate related risks. However, it is unclear how many of these engagements go beyond encouraging disclosure and also involve pressuring companies to pursue emissions reductions.

Figure 9

Cause-effect relation between engagement and real economy emissions



Source: Authors’

20 Global green bonds and loans amounted to US\$ 257.7 billion in 2019, of which US\$ 10 billion were green loans.

21 The “Current national policies” scenario considers the likely path of emissions under current implemented national policies.

22 The large range of investments results from the uncertainty around the level of projected energy investments, which depends on the assumed viability of demand-side energy efficiency and conservation measures. In addition, differences are the result of varying definitions, lack of full transparency of financial flows, and the nature of expenditures that makes estimating specific investments categories difficult, such as energy efficiency investments (McCollum *et al.*, 2018; IEA, 2020).

There is some evidence that engagement has been effective in encouraging companies to set climate related targets. According to Ceres, an investor network, putting forward a climate-related shareholder proposal might already be enough to achieve desired outcomes (NEI Investments, 2020). The network reports that in 2019, 39% of climate-related shareholder proposals were withdrawn by the financial institution in exchange for the company committing to take action on the issues raised in the proposals. These percentages are higher for easier-to-implement actions, such as sourcing clean energy (up to 90%) (Ceres, 2020). Partially due to investor engagement through Climate Action 100+, Total - a major oil and gas company - committed to net zero emissions across its operations and products (covering scopes 1, 2 & 3 emissions) by 2050 (IIGCC, 2020b). Climate Action 100+ also played an important role in driving climate commitments from BP and Royal Dutch Shell, as did investor engagement through the grassroots organisation Follow This, which filed shareholder resolutions at the companies' annual general meetings (AGM). Although Follow This represents a negligible share of shareholders, it has managed to get an increasing number of bigger shareholders on board – including Aegon (Aegon, 2018) and Aviva (Aviva, 2018).

In addition, there is evidence that engagement can also lead to companies achieving earlier set targets. Another Ceres report found that over 70% of companies that had been engaged, met their stated commitment (Ceres 2017). Shareholder proposals are also associated with subsequent increases in the ESG ratings of targeted companies (Barko, Cremers and Renneboog, 2018; Dyck *et al.*, 2019).

However, it is important to understand that the actions taken or targets set by investee companies do not necessarily translate to reduced GHG emissions (NewClimate Institute and Data-Driven EnviroLab, 2020). To some extent, companies may commit to targets that seem ambitious, but will hardly reduce emissions to avoid further pressure from its shareholders. Total's net-zero 2050 commitment, for instance, is not as ambitious as it seems at first sight, because the company plans to rely to a large extent on negative emission technologies, especially reforestation and carbon capture, utilisation and storage (CCUS) (Total, 2020). This is problematic, because achievement of the Paris Agreement temperature goal of 1.5°C requires negative emissions *in addition* to rapid emission reductions (IPCC, 2018). Therefore, investments in reforestation and CCUS

cannot replace actual emission reductions. Further there are large concerns about the environmental integrity of negative emissions technologies, in particular surrounding their permanence (or lack thereof). In other words it is likely that a share of the captured carbon will be released in the future (Jeffery *et al.*, 2020).

While engagement might be a powerful tool for financial institutions to target especially high-emitting companies and contribute to the setting of ambitious emissions reduction targets by investee companies, it is unlikely to be enough to reach a global emissions level that is consistent with the Paris Agreement. For example, while high-emitting investee companies might be reducing their emissions, it is unlikely that they will change their entire business model.

3.3 Likelihood of impact through the various mechanisms per asset type

Whether or not climate-related investment targets are likely to result in a decrease of GHG emissions differs per mechanism (i.e. divestment, positive impact investment or corporate engagement) and per asset type. Figure 10 provides an overview of the likelihood for obtaining impact on GHG emissions for each major target type and asset class.

Different investment targets will potentially be more effective if they consider the characteristics of the asset class(es) they are targeting. While engagement is found to be usually more effective than divestment in achieving real economy emissions reductions, its effect is likely to vary depending on the asset class. Similarly, we find that the effect of divestment on real economy emissions is likely to be uncertain, except for loans. This relates to the illiquidity of a loan, comparatively high transaction costs and the possibility to directly influence borrowers. Generally, we identify private equity and loans as those asset classes where the effect on GHG emissions is likely to be stronger compared to other asset classes. Lastly, however, investments across all asset classes will need to align with the objectives of the Paris Agreement.

Figure 10
Impact matrix, based on a literature review

- Impact on GHG emissions is likely
- Impact is uncertain
- Not applicable

		Asset class				
		Equities		Fixed income		
		Public/ listed equity	Private equity	Corporate bonds	Govern- ment bonds	Loans
Size of market (appr.) – latest available data		74 trillion US\$	4 trillion US\$	15 trillion US\$	50 trillion US\$	Unknown
Target type	Divestment	■	■	■	■	■
	Positive impact investment	■	■	■	■	■
	Corporate engagement	■	■	■	■	■

Divestment

The effect of divestments on global GHG emissions is likely to be stronger in the realm of lending decisions (e.g. to corporates) (e.g. WRI, UNEP-FI and 2° Investing Initiative, 2015a). The lending market is generally less liquid than, for example, public equity markets, which makes it more difficult for corporates that are targeted by divestment to quickly respond and easily find another sponsor. Depending on how significant the divestment is, the investee company might be faced with higher financing costs, which may cause the company to abandon or shut down a specific project or business activity.

On very liquid markets, such as listed equity and governmental bonds, the effect of divestment decisions on GHG emissions remains uncertain. Actors in those markets usually face fewer financial constraints and divestment action by one financial institution is usually offset by other financial institutions (Kölbel *et al.*, 2019). Divestment on liquid markets is most likely to materialise in a reduction of GHG emissions if a critical mass of financial institutions divests jointly (Heinkel, Kraus and Zechner, 2001; Fama and French, 2007; Gollier and Pouget, 2014; Luo and Balvers, 2017; Kölbel *et al.*, 2019).

Positive impact investing

Similar to divestment, positive impact investing is most likely to produce an effect on GHG emissions on the private equity market as well as generally in the realm of lending decisions. This is due to the

fact that investee companies in these asset classes often face financial constraints and are less well-established than publicly listed companies (Kölbel *et al.*, 2019). Actively supporting companies on the private market and/or seeking loans might therefore lead to emission reductions in the real economy, if these companies manage to expand their low-carbon services or production. The likelihood of impact is further increased if governments play an active role in facilitating positive impact investments by stimulating supply, directing capital and regulating demand (Tekula and Andersen, 2019).

Corporate engagement

Engagement is the target or mechanism through which the impact on GHG emissions is most likely to materialise. Engagement may directly lead to a company changing its behaviour, setting ambitious GHG reduction targets and/or following through on them. This effect will be more likely the more direct the ownership of the investee company and/ or its assets, and thus the more access to management. Therefore, private equity and loans are most likely to benefit from engagement, while in case of listed equity, where ownership is less direct, engagement might still be impactful but will likely require a bigger mass of financial institutions acting jointly (by means of a shareholder proposal) or more regular engagement. In addition, financial institutions can increase likelihood of success by engaging with employees, consumers and regulatory authorities (Brest, Gilson and Wolfson, 2018).

4

Conclusion and recommendations

To meet the objectives of the Paris Agreement it is key that all sectors, including the finance sector, set and take steps to reach ambitious climate targets. In recognition of the important role of finance and the impact it has, Article 2.1c of the Paris Agreement specifically calls for “Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”. This puts the alignment of finance flows on par with the overall mitigation and adaptation goals.

Financial institution’s climate-related investment targets have rapidly grown in recent years. We find financial institutions with cumulative assets of at least US\$ 47 trillion under management are currently committed to climate-related investment targets. This represents 25% of the global financial market. The number and growth of such targets is significant and represents considerable momentum – even if the individual targets vary in their ambition and do not cover all assets under management.

While the trend and efforts of the financial sector are promising, it should be noted that financial institutions do not have full control over their investees’ emissions. Reducing the carbon intensity of a portfolio by divesting, with the objective of aligning it with the Paris Agreement does not necessarily always lead to emission reductions in the real economy, as others can invest in the emission intensive assets that were sold. Only if a large share of the financial sector sets and works to actualise robust climate-related investment targets and effectively implements them, investees have to react and reduce their emissions. Currently, most financial institutions that have set such targets are located in Europe, the United States of America, and Australia. To align all financial flows with

the Paris Agreement temperature goal, it is crucial that institutions in other parts of the world also commit to ambitious investment targets.

We distinguish between three main types of climate-related investment targets – or mechanisms - that financial institutions can use to influence global GHG emissions: divestment and exclusion policies, positive impact investment, and corporate engagement. These mechanisms influence in different ways the actions the investee company make take and global GHG emissions (Figure 11).

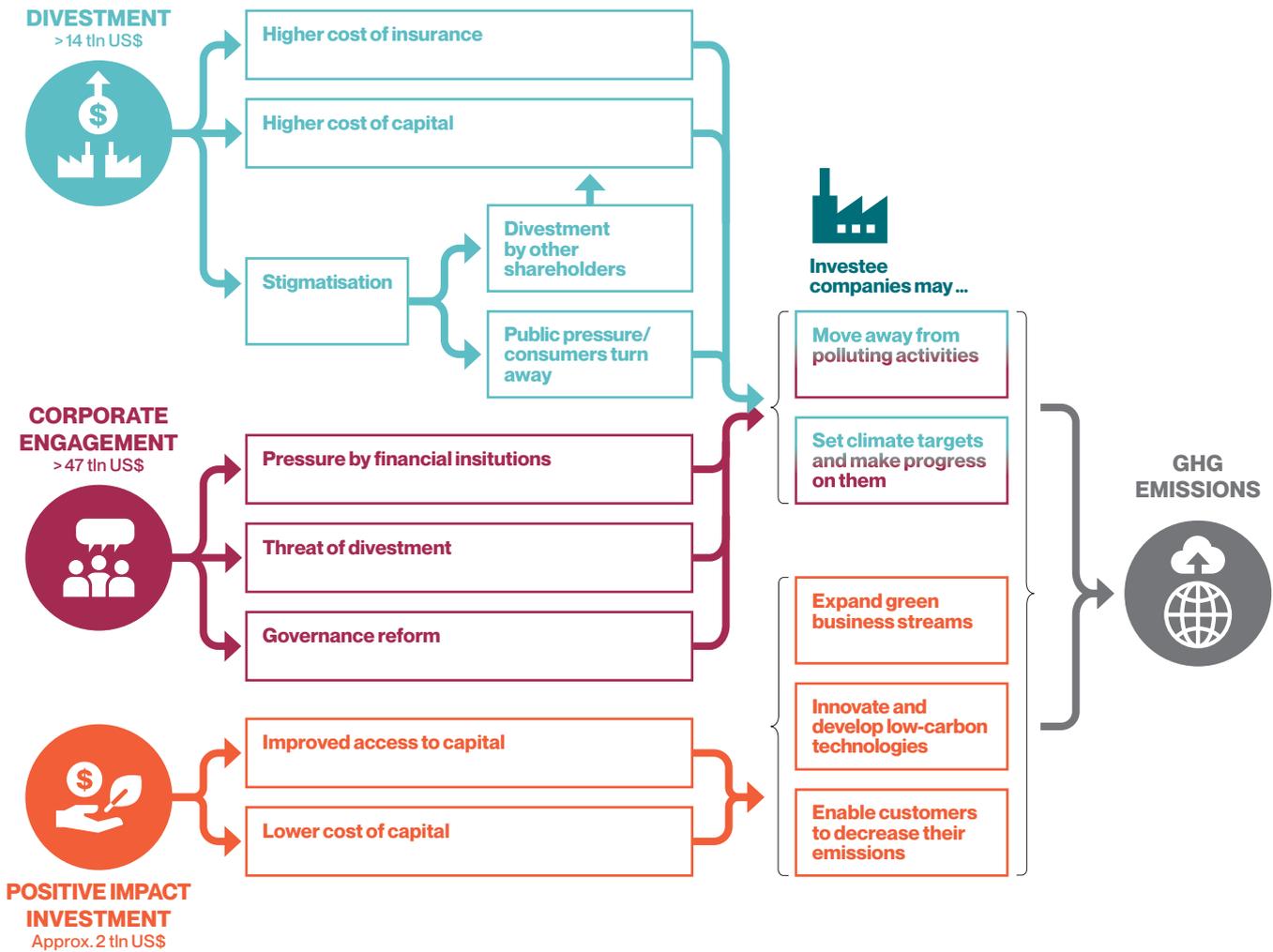
We identified a number of factors at the financial institution, company, and country level that can increase the likelihood that a climate-related investment targets will have an impact on actual emission levels. These include for example the size of a financial institution (measured by assets under management) and whether the targeted investee company has previous experience with ESG. The more these factors point in the right direction, the more likely that investment targets will lead to emissions reductions.

The factors play out differently per asset class and per target type. For example, a divestment target related to a government bond share may produce a different outcome than a divestment from a corporate bond; and corporate engagement is usually more effective if there is direct access to investee’s management.

Insights into the factors or impact conditions may support financial institutions in setting potentially more effective targets, policymakers to consider effective regulation and the scientific community, as well as the wider public, to better assess financial sector targets.

Figure 11

Cause effect relation between the different mechanisms, investee companies and global GHG emissions



Data on climate-related investment targets is scarce and does not allow for a quantification of impact on real economy emissions. To better gauge the size and potential impact of such targets, we recommend that financial institutions transparently disclose their climate-related investment targets and underlying financed emissions data. Further, leading global data platforms should better track and report those commitments. Finance-related international cooperative initiatives should also track their members' targets and progress towards them. Efforts by the Task Force on climate-related financial disclosures

(TCFD) calling for better assessments and disclosure, financial supervisory bodies mandating disclosure, CDP's new portfolio impact module for financial institutions and other similar efforts may help to close this gap in the future.

Similarly, to enable more financial institutions set ambitious climate-related investment targets, we recommend both the finance and scientific community to further advance methodologies and understanding about what specific sector Paris-aligned pathways mean for investment decisions and different asset classes.

Annex: Data sources and calculations for Climate Action 100+ and Climate Bonds Initiative

Data for analysis of financial commitments

We have used data from the Global Climate Action Portal (GCAP)²³ which is an online platform for actors such as cities, regions, companies and investors that report their actions on climate change. The data was collected in August 2020. From this portal we have collected data on climate related investment commitments. Most of the investor data on GCAP is supplied by CDP or the Climate Bonds Initiative. It includes (1,147) individual and (1,166) cooperate actions from investors. Each record in this dataset contains the name, country, climate action timeframe, commitment type (individual/cooperate), commitment and type of climate action (e.g. emission reduction, carbon price) and business activity (e.g. banks, insurance, real estate).

The dataset of companies' actions was provided by CDP. It is based on the 2019 responses to CDP's climate change and supply chain programmes. It contains 2,629 absolute and 2,167 intensity targets from 2,497 companies that each apply to a combination of scope 1, 2 and 3 emissions. We have filtered this dataset for financial institutions that have 'financial services' as primary sector. Each record includes the

fields scope that indicates the scopes (1-3) to which the target applies, percentage of emissions in scope targeted, percentage emission reduction, base year to which the percentage reduction applies, start year of target and target year. In addition, it provides emission figures beyond the target's scope, such as scope 3 investment emissions.

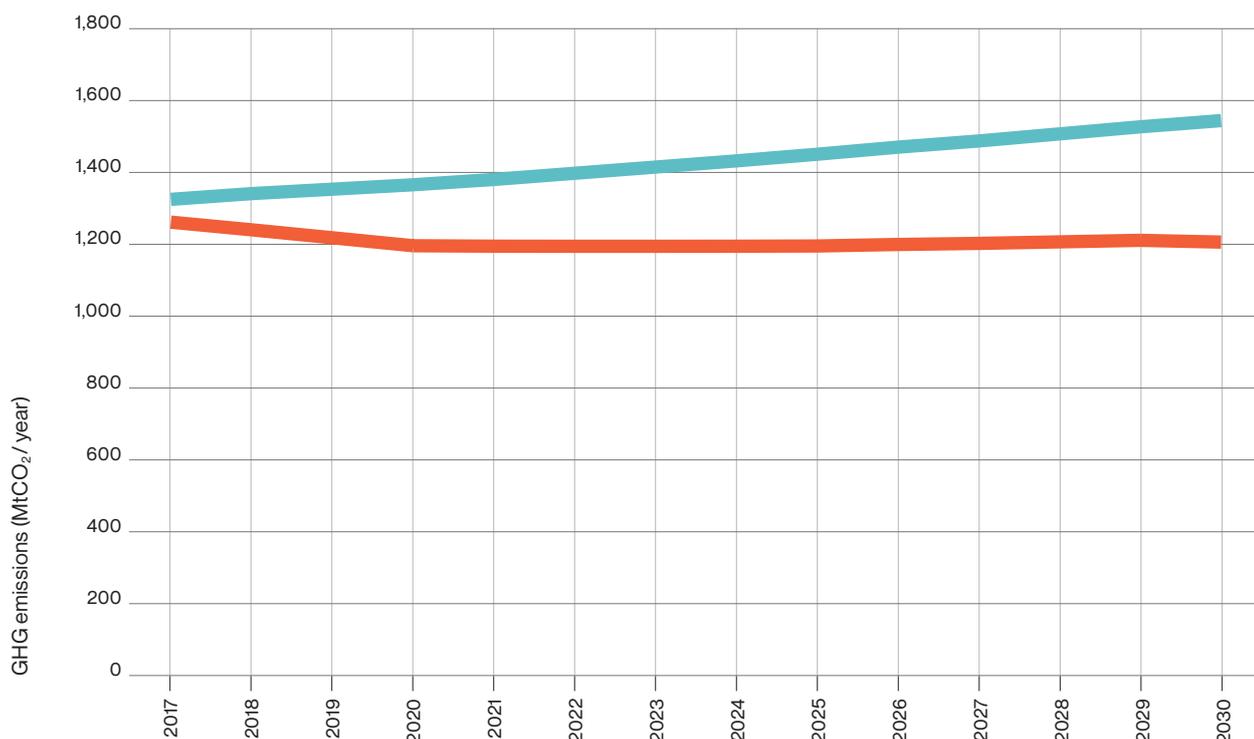
Climate Action 100+ (CA100+)

We quantified the potential impact of CA100+ using the method described in Kuramochi *et al.* (2020). The quantification is based on the CDP dataset (CDP, 2019). This dataset contains information on targets, base year emissions, and most recent accounting year emissions. We identified 92 companies from the CA100+ initiative that reported targets, base year and most recent accounting year emissions. For each company, one target was selected for which the year was closest to 2030. For this target, we identified the related emissions, taking into account the scope and percentage of scope, but only if they were scope 1 (direct emissions) or scope 2 (emissions from indirect electricity or heat). If target years were before 2030, they were extrapolated by assuming global emission trends based on the current policies scenario.

Figure A1

Projected emission levels from Climate Action 100+ initiative compared with projections based on the annual change from the current policies scenario (CPS) applied to the start year emissions of identified CA100+ companies

Total of actors' emissions with current policy trends ■
 Total of actors' emissions after achieving targets ■



The aggregated emission level for the 92 identified companies from CA100+ in 2017 is 1.3 GtCO₂e. To determine the potential impact of these companies on GHG emissions, we compared the aggregated emission trajectory based on the targets for the selected companies with a trajectory for these companies if they would concur with implementation of current domestic policies. The CA100+ target realisation trajectory aggregates all available CA100+ targets, and runs from 2017 to 2030 (see Figure A1). The trajectory implied by current policies starts at the same emission level, but projections are based on emission growth rates from the current policy scenario (CPS) (Kuramochi *et al.*, 2020). Absolute GHG reductions for CA100+ are calculated by comparing the projected CA100+ emission levels for 2030 with projections from the trajectory implied by current policies.

Climate Bond Initiative

To calculate the annual issued amount of green bonds we relied on the Climate Bonds Library (Climate Bonds Initiative, 2020a) that registers bonds issued by new parties, but does not include re-issued bonds. We were able to retrieve 593 new green bonds issuers, but removed 17 that did not report issued amounts. The total issued amount of bonds in the library was US\$ 250 billion. The average tenor is 10.6 years. For 36 issuers that did not report the tenor, we used the average tenor of the other bonds. Issued amounts that were not reported in US dollars, were converted²⁴. The final step of the

Table A1

Assets under Management for CA100+, DivestInvest and Net Zero Asset Owner Alliance

Financial Initiative	Number of participating institutions
CA100+	510
DivestInvest	223
Net Zero Asset Owner Alliance	29
Total	762
Institutions participating in more than one initiative	58
Total (corrected for double counting)	704

assessment was the scaling up of results to account for re-issued bonds. This was done based on the Global State of the Market 2019 report (Climate Bonds Initiative, 2020c) that shows that between 2007 and 2019 a total of US\$ 754 billion has been issued, resulting in a scaling factor of three for total issued amounts. Therefore, total annual investments in green bonds in this initiative is estimated at US\$ 75 billion.

Assets under Management for international cooperative initiatives

The CA100+, DivestInvest and Net Zero Asset Owner Alliance partly target the same financial institutions. We know that the current assets under management for these ICIs are respectively US\$ 47, US\$ 14.1 and US\$ 5 trillion (see Table A1). To determine the overlap in terms of assets under management we used three sources that report this for the largest asset managers and pension funds in the world. The Thinking Ahead Institute published two reports on the largest pension funds and largest

assets managers (Thinking Ahead Institute, 2018). In addition, Investment and Pensions Europe published the Top 400 asset managers (Investment & Pensions Europe, 2018).

We first identified those financial institutions that participate in two or three of the identified ICIs. As institution names are reported differently between sources, we used a fuzzy lookup algorithm to determine the overlapping institutions based on their names. For this, we did not distinguish between holding companies and daughter companies, and only looked at assets under management (for clients), and not own assets. We found 58 financial institutions that overlap between the initiatives, and assets under management were identified for 40 of them in the three sources. Two institutions (BlackRock, Allianz Group) already cover US\$ 8.5 trillion.

Note that this is a first step in determining overlap in terms of asset under management. Taking into account the assets under management of the holding company instead of the daughter company might overestimate the overlap. Improvements would include a list of possible names that relate to the same institutions, more sources of assets under management to include all institutions that overlap, include own assets of financial institutions, and a distinction between holding companies and daughter companies.

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