

Case Study: Electronics, mining and urban mining

A case study for the Dutch Fair Bank and
Insurance Guide

EerlijkeBankwijzer®

Eerlijke
Verzekeringswijzer

Case Study: Electronics, mining and urban mining

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Insurance Guide**

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Summary

Recycling of metals is crucial in the transition to a sustainable circular economy. Many raw materials are becoming scarce, shifting mining to increasingly vulnerable areas, escalating both environmental and human rights problems. Land grabbing, forced relocation, water usage and water pollution are some of the main problems caused by mining and refining of metals. Mining requires more energy than reuse and recycling, and the current lack of recycling of metals in electronics also leads to waste problems. Furthermore, resource scarcity might increase metal prices. It is therefore also crucial for the economy to make sure we do not waste resources any longer.

Research framework

This case study assesses whether sixteen financial institutions, selected within the framework of the *Fair Bank Guide* and the *Fair Insurance Guide*, invest in recycling companies and/or in mining companies. The case study selected 60 mining companies that extract metals that are often used for electronics production and 65 companies involved in the recycling of electronics. The central question to this research was to which degree financial institutions finance both groups of companies and whether these financial institutions use strategies such as engagement and voting to promote a circular economy.

By investing in and promoting recycling of metals, also called urban mining, banks and insurance groups can support a closed metals loop. The recycling sector is an important player in ensuring a society in which metals are used and reused efficiently. Besides the investments, this study analysed company and sector engagement by the financial institutions to influence the conduct of companies in which they invest.

Results

This study shows that the main Dutch banks and insurance groups have different approaches to support the development of the (electronics) recycling sector. The major banks in the Netherlands take part in events or communicate about the concept of the circular economy on their website. Except for NIBC, their efforts are not reflected in their investments as they often invest in or finance companies in the mining sector more than in the recycling sector. ABN Amro, ING and especially Rabobank put a lot of effort in promoting the concept of circular economy but are not transparent about their investments in the recycling of electronics-related metals. This makes it difficult to state how much these financial institutions invest in such companies. NIBC on the other hand, considers recycling companies as an interesting and profitable investment opportunity.

The banks ASN Bank and Triodos Bank hardly invest in metals recycling because, according to them, many companies in the metals sector are linked to sustainability issues, such as pollution or have links to weapons producers. However, ASN Bank and Triodos Bank promote recycling when contacting clients and engage companies active in sectors where metals' recycling is relevant on the issue.

In the insurance sector, Achmea, ASR and Delta Lloyd stand out. Although they invest broadly to spread risks, they invest relatively more in recycling than others do. In absolute numbers APG, parent company of Loyalis, is the top investor in the recycling companies, while it has also huge investments in mining. ASR and SNS Reaal also actively engage with companies on, or communicate about recycling.

Major insurance companies Aegon, Allianz, Generali, ING (NN Group) and Legal & General hardly undertake efforts to promote recycling, neither through their investments, nor by engagement with companies in this sector or communicating about the issue. These five large insurers invest severely in mining companies and seem to ignore recycling companies. The following table presents an overview of the results.

Table 1 Overview research results

Financial institution	Value shareholdings and bond holdings in selected companies (in mln €)		Value loans in selected companies (in mln €)		Score other activities
	Mining	Recycling	Mining	Recycling	
ABN Amro	4.1	0.4	108.1	0.0	3
Achmea	2.5	0.6	n.a.	n.a.	5
Aegon	211.0	1.3	0.0	0.0	1
Allianz	844.0	9.0	n.a.	n.a.	1
APG	459.9	10.7	n.a.	n.a.	1
ASN Bank	0.0	0.0	0.0	0.0	6
ASR	0.1	0.9	n.a.	n.a.	6
Delta Lloyd	50.7	5.4	0.0	0.0	1
Generali	63.0	2.2	n.a.	n.a.	1
ING	654.5	2.2	700.0	11.0	2
Legal & General	749.9	1.0	n.a.	n.a.	1
NIBC	0.0	0.0	0.0	13.8	5
Rabobank	2.5	0.0	144.0	0.0	4
SNS Reaal	10.2	0.6	0.0	0.0	5
Triodos Bank	0.0	0.0	0.0	0.0	8
Van Lanschot	14.4	0.0	0.0	0.7	1

Commitments

As a result of this research, seven financial institutions have committed themselves to improve their investments in companies that enhance recycling and resource efficiency and/or to develop specific plans to contribute to (electronics) recycling in other ways. Aegon anticipates that recycling will play a bigger role in selecting companies for investment, while Allianz plans to develop an engagement framework, including the topic of recycling. Also SNS Reaal will study the feasibility of taking circular economy criteria in its investment decision process.

ASN Bank, ASR, NIBC and Triodos Bank committed themselves to improve their investments in companies that increasingly use recycling and promote the concept of circular economy. NIBC further commits to train senior management by organising a meeting about circular economy, Triodos Bank will study the relevancy of joining the platform Circle Economy for its financial products and sustainability criteria, and ASR has planned an evaluation of its sustainability criteria. Finally, Achmea intends to join the platform Circle Economy and to enhance cooperation with a number of other organisations to transition business models integrating the circular economy concept.

Recommendations

Based on the results of this case study on investments by Dutch bank and insurance groups in mining and recycling companies and their activities to stimulate the transition to urban mining, and more specifically electronics recycling, the Dutch *Fair Bank and Insurance Guide* makes the following recommendations to the financial institutions that were examined:

1. Include the concept of circular economy and the transition to urban mining in the environmental, social and governance (ESG) screening policy of the insurance groups and the credit risk assessments of banks. This will enable investors and financiers to select those companies leading the way in efficient recycling and introducing new and innovative technologies, also in the design of products, to improve the output of the recycling process.
2. Address the concept of circular economy systematically in engagement with mining and recycling companies, as well as with other companies within the supply chain of electronics.
3. Address the debate on circular economy and resource efficiency, and more specifically, the transition to urban mining, when exercising their voting rights.
4. Promote the transition to a circular economy amongst clients and other entrepreneurs, by communicating about, organizing of, or participating in events regarding recycling and resource efficiency. If banks and investors can also show they invest in these sectors themselves, their arguments in support of the circular economy would gain strength.
5. Be a lot more transparent about investments and about engagement and voting processes, without disrespecting the duty of care they have towards clients. Report for example the number of companies with which there has been engagement and in which sectors and regions they operate. Disclose the percentage of investments that does not comply with the financial institution's policy and which steps will be taken to change this.
6. The Dutch Fair Bank and Insurance Guide calls on the bank and insurance groups who did not cooperate to the fullest extent possible with this research project, to take their clients and other stakeholders, such as many Dutch citizens, seriously. Clients and other stakeholders deserve to know what their money is used for and whether financial institutions pay sufficient attention to mining and recycling issues with regard to their investments.

Samenvatting

Het recyclen van metalen speelt een cruciale rol in de transitie naar een circulaire en duurzame economie. Veel grondstoffen worden schaars, waardoor mijnbouwwerkzaamheden zich in toenemende mate verplaatsten naar onstabiele regio's met vaak een verhoogd risico op milieuproblemen en mensenrechtenschendingen tot gevolg. Landroof, gedwongen verhuizing en het gebruik en de vervuiling van water, behoren tot de meest voorkomende problemen veroorzaakt door mijnbouw en metaalverwerking. Bovendien verbruikt mijnbouw meer energie dan recycling en hergebruik. Ook leidt het huidige gebrek aan metaalrecycling van elektronica tot afvalproblemen. Daarnaast zou grondstoffenschaarste in de toekomst kunnen leiden tot hogere prijzen voor metalen. Het is daarom ook voor de economie van groot belang om een halt toe roepen aan het verspillen van grondstoffen.

Onderzoeksopzet

In dit praktijkonderzoek wordt beoordeeld of zestien financiële instellingen, geselecteerd binnen het kader van de Eerlijke Bank- en Verzekeringswijzer, investeren in recyclingbedrijven en/of mijnbouwbedrijven. In het praktijkonderzoek zijn 60 mijnbouwbedrijven geselecteerd, waarvan de gedolven metalen worden gebruikt voor de productie van elektronica en 65 bedrijven die zich bezig houden met het recyclen van elektronica. De onderzoeksvraag van dit praktijkonderzoek is: in hoeverre investeren financiële instellingen in beide groepen bedrijven en maken deze financiële instellingen gebruik van strategieën zoals engagement en stemrecht om de circulaire economie te bevorderen.

Door middel van investeren in en het promoten van metaalrecyclingbedrijven kunnen banken en verzekeraars de zogenaamde 'gesloten metaalcirkel' ondersteunen. De recyclingsector is een belangrijke speler in het waarborgen van een samenleving waarin metalen op een efficiënte manier worden gebruikt en hergebruikt. Naast een analyse van de investeringen, wordt er in het onderzoek ook gekeken naar bedrijfs- en sectorengagement van de financiële instellingen, door middel waarvan zij invloed uit kunnen oefenen op het gedrag van bedrijven waarin zij investeren.

Resultaten

Dit rapport toont aan dat de belangrijkste Nederlandse banken en verzekeraars een verschillende aanpak hanteren als het gaat om het ondersteunen van de ontwikkelingen in de (elektronica) recycling sector. De grootste Nederlandse banken nemen deel aan evenementen of vermelden het concept circulaire economie op hun website. Echter, op de NIBC na, wordt dit streven niet weerspiegeld in de investeringen van de banken, aangezien ze meer investeren in of kredietverlening verstrekken aan de mijnbouwsector dan aan de recyclingsector. Hoewel ABN Amro, ING en vooral Rabobank erg actief zijn in het promoten van de circulaire economie, geven zij geen openheid over investeringen in de recycling van aan elektronica gerelateerde metalen. Hierdoor is het moeilijk om aan te geven hoeveel financiële instellingen investeren in dergelijke bedrijven. NIBC echter, beschouwt recyclingbedrijven als een interessante en winstgevende investeringsmogelijkheid.

De ASN Bank en de Triodos Bank investeren nauwelijks in metaalrecycling, omdat, volgens hen, veel bedrijven in de metaalsector kampen met duurzaamheidsvraagstukken, zoals vervuiling of links met de wapenindustrie. Echter, ASN Bank en Triodos Bank promoten recycling in hun klantcontact en werken samen met bedrijven die actief zijn in sectoren waar metaalrecycling een relevant onderwerp is.

In de verzekeringssector vallen vooral Achmea, ASR en Delta Lloyd op. Hoewel zij breed investeren om risico's te spreiden, investeren zij relatief gezien meer in recycling dan anderen. In absolute zin is APG, moederbedrijf van Loyalis, de grootste investeerder in recycling bedrijven, terwijl het ook enorme bedragen investeert in de mijnbouw sector. Ook ASR en SNS Reaal hebben een engagementprogramma of communiceren met bedrijven over recycling.

Grote verzekeraars Aegon, Allianz, Generali, ING (NN Groep) en Legal & General ondernemen nauwelijks actie om recycling te promoten, niet door middel van hun investeringen, noch door middel van engagement met bedrijven in deze sector of communicatie over dit thema. Deze vijf grote verzekeraars investeren in grote mate in mijnbouwbedrijven en lijken recycling bedrijven te negeren. De volgende tabel laat een overzicht van de resultaten zien.

Table 2 Overzicht onderzoeksresultaten

Financiële instellingen	Waarde aandelen en obligaties in geselecteerde bedrijven (in mln €)		Waarde leningen in geselecteerde bedrijven (in mln €)		Score andere activiteiten
	Mijnbouw	Recycling	Mijnbouw	Recycling	
ABN Amro	4,1	0,4	108,1	0,0	3
Achmea	2,5	0,6	n.a.	n.a.	5
Aegon	211,0	1,3	0,0	0,0	1
Allianz	844,0	9,0	n.a.	n.a.	1
APG	459,9	10,7	n.a.	n.a.	1
ASN Bank	0,0	0,0	0,0	0,0	6
ASR	0,1	0,9	n.a.	n.a.	6
Delta Lloyd	50,7	5,4	0,0	0,0	1
Generali	63,0	2,2	n.a.	n.a.	1
ING	654,5	2,2	700,0	11,0	2
Legal & General	749,9	1,0	n.a.	n.a.	1
NIBC	0,0	0,0	0,0	13,8	5
Rabobank	2,5	0,0	144,0	0,0	4
SNS Reaal	10,2	0,6	0,0	0,0	5
Triodos Bank	0,0	0,0	0,0	0,0	8
Van Lanschot	14,4	0,0	0,0	0,7	1

Toezeggingen

Als gevolg van dit onderzoek hebben zeven financiële instellingen toegezegd om investeringen te verhogen in bedrijven die recycling en efficiënt gebruik van grondstoffen bevorderen en/of om specifieke plannen te ontwikkelen die bijdragen aan (elektronica) recycling op een andere manier. Aegon verwacht dat recycling een grotere rol gaat spelen in het selecteren van bedrijven voor haar investeringen, terwijl Allianz het plan heeft opgevat om een engagementbeleid op te zetten waarbinnen het thema recycling wordt opgenomen. SNS Reaal gaat onderzoeken of het haalbaar is om circulaire economie criteria te implementeren in het proces dat ten grondslag ligt aan haar investeringsbeslissingen.

ASN Bank, ASR, NIBC en Triodos Bank hebben zichzelf gecommitteerd aan het verbeteren van investeringen in bedrijven die in toenemende mate gebruik maken van recycling en het concept 'circulaire economie' promoten. Daarnaast committeert NIBC zich om haar senior management trainingen te geven over de circulaire economie. Triodos Bank onderzoekt de relevantie van een eventuele toetreding tot het platform Circle Economy voor haar financiële producten en duurzaamheidscriteria. ASR heeft een evaluatie van haar duurzaamheidscriteria ingepland. Tot slot heeft Achmea aangegeven zich aan te willen sluiten bij het platform Circular Economy en de samenwerking met een aantal andere organisaties te willen verbeteren om het concept 'circulaire economie' in bedrijfsmodellen te integreren.

Aanbevelingen

Op basis van de resultaten van dit praktijkonderzoek over de investeringen van Nederlandse banken en verzekeraars in mijnbouw- en recyclingbedrijven en hun activiteiten om de transitie naar 'urban mining', en in het bijzonder electronicarecycling, komt de Eerlijke Bank- en Verzekeringswijzer met de volgende aanbevelingen voor de onderzochte financiële instellingen:

1. Verwerk het concept 'circulaire economie' en de omschakeling naar urban mining in het environmental, social and governance (ESG) screening beleid van de verzekeraars en in de *credit risk assesment* van banken. Dit zorgt ervoor dat investeerders en financiers de bedrijven kunnen selecteren die voorop lopen in efficiënte recycling en die nieuwe en innovatieve technologieën introduceren, ook met betrekking tot het ontwerpen van producten, om zo het recycling proces te blijven verbeteren.
2. Bespreek systematisch het concept 'circulaire economie' in het contact met mijnbouw en recycling bedrijven, evenals met andere bedrijven in de elektronica toeleveranciersketen.
3. Bespreek het onderwerp circulaire economie en efficiënt grondstofgebruik, en meer in het bijzonder de transitie naar urban mining, wanneer stemrecht uitgeoefend kan worden.
4. Promoot de transitie naar een circulaire economie onder klanten en andere ondernemers door er over te communiceren, of door het organiseren/bijwonen van evenementen aangaande recycling en efficiënt grondstofgebruik. Als banken en investeerders laten zien dat zij zelf in deze sectoren investeren, draagt dit bij aan de ondersteunende argumenten voor de circulaire economie.
5. Meer openheid over investeringen, engagement en stemmingsprocedures, zonder daarbij de disrespectvol om te gaan met klantenbelangen. Denk bijvoorbeeld aan het rapporteren van het aantal bedrijven waarmee engagement heeft plaatsgevonden en in welke sectoren/regio's zij actief zijn. Rapporteer ook het percentage van investeringen dat niet overeenkomt met het beleid van de financiële instelling en welke stappen worden ondernomen om dit te veranderen.

6. De Eerlijke Bank- en Verzekeringwijzer vraagt banken en verzekeraars die niet volledig hebben meegewerkt aan dit onderzoeksproject, om hun klanten en andere belanghebbenden, zoals vele Nederlandse burgers, serieus te nemen. Klanten en andere belanghebbenden behoren te weten waar hun geld voor wordt gebruikt en of financiële instellingen genoeg aandacht schenken aan het thema mijnbouw en recycling bij het maken van hun investeringsbeslissingen.

Preface

The world is confronted with the task of fundamentally reorganising the economy to make the transition from current linear production methods to production methods based on circular economy principles. Circular production processes make far more efficient use of natural resources possible. Only in this way can the world remain within tenable ecological limits with world population and prosperity continuing to grow.

Large investments are needed to make the transition to a more sustainable, circular economy. In 2011, ING calculated that in order to meet European environmental targets, the Netherlands would have to invest €10 billion annually in green energy, while at that time investments were about € 2 billion per year. This research asks attention for all the other raw materials, metals and minerals upon which we have built our society. Because current infrastructure is becoming increasingly outdated, it must be radically 'rebuilt' in the coming years in order to realise a sustainable economy. As such, investment in the circular use of metals and minerals is crucial and urgent. Some examples include the metals used in electric cars, solar panels and ICT infrastructure.

Creating a circular economy involves major and collective effort and while there has been movement in the right direction, considerable acceleration is necessary. In order to make do so, both the financial sector as well as the government must place this theme considerably higher on the agenda. This study for the Dutch Fair Bank and Fair Insurance Guide finds that while financial institutions are taking steps, these have not been very promising when looking at the bigger picture of what is needed.

There are many more opportunities for investors to stimulate a circular economy. Generally, the ways for approving funding applications are still based on conventional practice and models. Partly because of this, available bank funds are insufficiently used for productive investments which will become profitable over the long term and could bring raw material productivity to a much higher level.

Furthermore, it is of the utmost importance that appropriate knowledge and funding models are developed. Of course, this is primarily the responsibility of the financial institutions themselves. At the same time, it would also be of great support for financiers if government and politicians would endorse the transition to a circular economy as a developmental direction and stimulate appropriate policy measures. Finely attuned cooperation would prove very helpful to make the type of fundamental economic change that is now presenting itself. A nationwide project could be made of this, in which the role of the financial sector could also be directly addressed.

I therefore hope that the study at hand will contribute to the work of financial institutions and the government to redevelop our economy with renewed energy and consistency.

Herman Wijffels, Utrecht, 6 November 2014

Introduction

In September 2013 the Dutch Fair Insurance Guide (*Eerlijke Verzekeringwijzer*) was launched. This Guide informs consumers about the financing and investment policies and practices of Dutch insurance companies. The Fair Insurance Guide builds on the methodology of the Fair Bank Guide (*Eerlijke Bankwijzer*), a project which was started in 2009. The foundation is a joint initiative of Amnesty International, FNV (Dutch Trade Union), Milieudefensie (Friends of the Earth Netherlands) and Oxfam Novib, with the Dierenbescherming (Dutch Society for the Protection of Animals) and PAX joining later. The Fair Bank Guide informs consumers about the financing and investment policies and practices of Dutch banking groups.

The Fair Bank Guide advocates the recycling of metals because many raw materials are becoming scarce, and this means that mining is shifting to increasingly vulnerable areas, which escalate both environmental and human rights problems. Furthermore, mining requires more energy than reuse and recycling, and the current lack of recycling of metals in electronics leads to waste problems. To close the metals loop in the circular economy, recycling infrastructure is a key link.

Therefore, Milieudefensie, (Friends of the Earth Netherlands) commissioned a case study for the Fair Bank and Insurance Guide, investigating to which degree financial institutions stimulate recycling of metals or 'urban mining', compared to how much they invest in mining virgin metals. Given the large scope of such a study, our research focused on the recycling of electronics and the mining of the metals that are often used in these devices. In addition, the research includes other actions by banks and insurance companies to promote recycling, such as communication and advice to clients. For these activities we used a wider scope as it was not possible to separate promotion of metals recycling from promotion of the 'circular economy' in general.

Banking groups and insurers are involved in this issue because they supply capital to both types of companies – electronics metals mining companies and companies involved in recycling electronics. As such, financial institutions can, to a certain extent, influence these companies' behaviour and promote their further growth. Banks and insurers also have influence on companies via their communication, advice and engagement activities.

Therefore, these activities are also taken into consideration in this research. This case study aims to determine to which degree the financial institutions investigated by the Fair Bank and Insurance Guide finance both groups and promote recycling in general. This will give financial institutions insight in the approaches their peers take. The primary goal for the Fair Bank and Insurance Guide is to use this study to stimulate investment in 'urban mining'. More generally, the study aims to give an indication of the pace at which our society is moving towards 'closing the metals loop'.

A summary of the findings of this report can be found on the first pages of this report.

Chapter 1 Background

Written by Evert Hassink, Milieudéfensie (Friends of the Earth Netherlands)

1.1 The need to use metals wisely and the impact of mining

1.1.1 The role of metals in our societies

With almost 3 tonnes per person per year, Europe is the continent with the highest net imports of resources. In Europe, consumption is around 45 kg per day. This is substantial compared to the situation in Africa, where people use only around 10 kg per day. Most of the resources we use remain invisible. A car of 1.6 tonnes represents a resource use of 70 tonnes, as a huge amount of ore has to be dug up and processed to obtain a much smaller amount of metals. A CD requires around 1.6 kg of resources. And even a computer download uses resources, because of the huge material and energy consumption of both the computer and the internet infrastructure we use.¹

1.1.2 The impact of mining around the world

Our resource use is linked to increasing water, climate and land footprints. Due to depletion of mineral deposits, miners have to dig deeper, dig more and process more ore, leading to increased energy use in the mining sector. Miners also take more risks, relating to social and environmental impacts. The rate of expansion has a major impact on the very conditions of life of local communities and societies at large: it impacts critical ecosystems, watershed areas and populated and food growing areas. Therefore, recycling of resources would not only save resources including water and land, but also energy. Other social and environmental reasons to focus on proper recycling of these materials are prevention of forced evictions and social unrest, availability of resources for developing societies and for the development of renewable energy and the social impacts which informal electronic waste handling 'recycling' has in slums in Africa and China.²

Some metals are becoming scarce. But for most metals the more urgent issue is the increasing social and environmental impact that is caused by their mining and refining, such as:³

- An increase in land grabbing as a result of the rapid expansion of mining and extraction, which impacts the land and people's lives and livelihoods;
- The forced relocation of communities and agricultural activities surrounding mine sites, which endangers economies and food security;
- Large amounts of water used by the mining industry in often water-scarce regions, which undermines watershed areas vital for agriculture, local economies and community livelihoods;
- The toxification of water and soil through dumping of chemicals, tailings leakages, acid mine drainage and (radioactive) heavy metal leaching; with devastating impacts on large areas of ecosystems over centuries, far beyond the mining site, as water travels.

The following examples illustrate the above mentioned impacts.

- **The Bangka Belitung islands: from paradise to a tin mining craters landscape**

The rapid spread of tin mining – on land and at sea – is turning parts of an Indonesian tropical island into a barren, cratered landscape. It is spoiling fresh water supplies, killing coral and wrecking the lives of local communities. A major reason for this is tin, which has become a vital ingredient in modern-day essentials such as the smart phone.

Mining ruins the landscape, leaving grey, sandy and acidic subsoil peppered with craters where once there was a lush forest. Despite some efforts there has been little effective restoration by the mining companies. Efforts at replanting often fail as even the toughest trees, such as acacia, may struggle to grow on what's left after mining. Mining companies also say that their efforts are frustrated by individuals or small groups of miners reopening old mines after they have left.

In some places, clean drinking water has become much harder to find and the soil has not just lost its fertility, but has been dug away, making it hard for families to grow their own vegetables. Meanwhile, doctors suspect that many reported malaria cases in recent years might be linked to the hundreds of abandoned mines that fill with stagnant water, allowing mosquitoes that carry the malaria parasite to thrive.⁴

- **Philippine mountain region and local tribe sacrificed for copper and gold**

The proposed Tampakan project is a copper and gold mine in the south-east of the southern Island of Mindanao in the Philippines. The Swiss company Glencore Xstrata is the main company behind the project. Its local subsidiary Sagittarius Mining International (SMI) has ploughed USD350 million into the USD5.9 billion project, which it describes as one of the world's largest undeveloped copper-gold deposits. The Tampakan project area contains 15 million tonnes of copper and nearly 18 million ounces of gold according to SMI/Xstrata. From the mining site in Tampakan, SMI will build a 100 km underground pipeline to ferry the minerals towards Maasim for loading to the ships. Alongside the pipeline will be the transmission lines to a dedicated 500MW power plant.

The project will destroy the way of life of the B'laan tribe, an indigenous people that once lived on large parts of Mindanao but has only managed to survive as a community up in the Tampakan mountains. Resistance by the B'laan against their forced eviction and subsequent army intervention has led to several deaths on both sides. The project also causes conflict in villages surrounding the hills where local farmers fear pollution while others hope for jobs in the mine.⁵

The mine produces overburden and tailings with a high arsenic content and potential for acid drainage on a tributary of Mal River, the region's biggest river system. The mine could also pollute five other rivers: the Altayan, Dalal, Manit, Manteo and Taplan. These rivers irrigate the rice fields of Mindanao, the rice belt of the Philippines.

The associated port, coal mine and coal-fired power plant, planned to provide the mine with cheap energy, will cause additional negative impacts.⁶

- **Mountain regions suffering from Lithium mining in the Andes and Tibet**

The Salar de Atacama in Chile is a salty wetland within the driest desert in the world. Surface water is limited. The present major concern is over groundwater usage and the extent to which the exploitation is sustainable. The Salar de Atacama holds over 40% of world lithium reserves; mining provides 12% of local employment and two-thirds of the regional GDP. It also consumes 65% of the water used in the region. Tourism is the second largest source of employment and income, and tourist facilities need fresh water. Local communities rely on water for subsistence agriculture and livestock farming. Most subsistence farmers do not have enough resources to buy water rights when bidding against the mining companies. Hence, the shortage of water is generating major conflicts over access and ownership rights among competing users.⁷

There are reports that lithium extraction poses human health risks, due to heavy-duty chemicals, such as isobutanol and chloroform, used to separate the minerals in the brine. A journalist described the Salar de Atacama as: “a landscape scarred by mountains of discarded salt and huge canals filled with blue chemically contaminated water. The scarce remaining water in the region has been contaminated by mines, and once-agricultural communities are deserted due to migration.”⁸

1.2 Future metal needs and the implications

As populations in emerging economies adopt similar technologies and lifestyles as currently used in OECD countries, global metal needs will be three to nine times larger than all the metals currently used in the world. This poses a significant call for increased secondary production of metals.⁹

Historically, the EU has been an important destination and major consumer of raw materials. In response to the rising demand for raw materials from developing countries, the EU started the 'Raw Materials Initiative' to ensure continued availability of raw materials for the European economy¹⁰.

Western economies have collected large stocks of metals in their infrastructure and products. Still more metals, especially specialty metals will be needed, for example for the construction of renewable energy systems and IT infrastructure.¹¹ Our economies will thus be further contributing to the rapid growth and scale of mining and extractive industries across the planet. Due to depletion of minerals deposits, miners have to dig deeper, dig more and take more risks. Nowadays, the rate of expansion has a major impact on the very conditions of life. As a matter of urgency, critical ecosystems, watershed areas, and populated and food growing areas must be protected from mining. Simultaneously we should shrink our materials footprint to slow down the extraction boom.¹² Due to the large stocks of metals in our Western societies, urban mining can provide most of the metals we need to replace old products and infrastructure with new and more efficient products and infrastructure.

People today extract and use around 50% more natural resources than only 30 years ago, at about 60 billion tonnes of raw materials a year. This is equivalent to the weight of around 41,000 Empire State Buildings. Increasing resource extraction does not just lead to environmental problems, but is often also linked to social problems such as human rights violations and poor working conditions. These negative environmental and social impacts are most strongly felt in countries with low environmental and social standards. Given current trends of growth, our extraction of natural resources could increase to 100 billion tonnes by 2030.¹³

1.2.1 Depletion of crucial metals and minerals

Depletion of metals and minerals is not only an important environmental issue in resource rich countries. Scarcity of metals and rare earth minerals also leads to rising prices. It could even hamper the roll out of essential technologies such as wind power and electric vehicles.¹⁴ See for example this list:¹⁵

- Tellurium: brittle, silvery-white metallic element used in solar panels;
- Germanium: hard, greyish-white element with metallic lustre; used in solar panels;
- Platinum: silvery-white, lustrous, ductile and malleable; used in pollution control devices for cars, and in fuel cells;
- Neodymium: bright, silvery rare-earth metal element; used in wind turbines and hybrid cars;

- Lithium: a soft, silver-white metallic element; used in wind turbines and lithium-ion batteries in hybrid cars.

1.2.2 Scarcity, a risk and a chance for investors

Especially for global investors, such as life insurance companies, long term economic growth is crucial to be able to fulfil future commitments. Energy crises are a threat to economic stability, but so is resource scarcity. Without the availability of crucial metals at fair prices, key products such as cars, electronics and (sustainable) energy production will become too expensive to be able to support economic activity. This scarcity problem, called *Peak Everything*, could be an opportunity for smart entrepreneurs, but for society at large it might become a major hurdle, causing an economic downturn. An investment policy that focuses on companies that are preparing for 'peak everything' might therefore make more sense than a diversified strategy that ignores global scarcity issues.¹⁶

This has also been recognized by the World Economic Forum: “Global markets in a sustainable world should transit into a circular economy to mitigate anticipated trends, such as a growing middle class (an additional 2 billion middle-class consumers by 2030), commodity price volatility, growing waste volumes and environmental regulations. The circular economy refers to a move from linear business models, in which products are manufactured from raw materials and then discarded, to circular business models where products or parts are repaired, reused, returned and recycled. The opportunity is immense – it is estimated that a subset of the European Union’s manufacturing sector will have realized a net material cost savings of up to US\$ 630 billion annually through 2025, stimulating economic activity in product development, re-manufacturing and refurbishment.”¹⁷

1.2.3 Metals and the electronics sector

This case study focuses on electronics recycling as there is much to gain in this sector. Note that in the report, the analyses of investments by financial institutions have a narrow scope and are limited to a group of metals typical for the electronics sector. The remainder of this report, which looks into other activities to stimulate recycling, has a broader focus on metals in the (circular) economy.

Case studies for the Fair Bank Guide and the Fair Insurance Guide are limited in scope because of budgetary and data availability restraints. Therefore, it was not possible to investigate all links between Dutch banks and insurance companies and the broader topic of circular production and consumption. The Fair Bank Guide and the Fair Insurance Guide instead opted for a focus on the crucial metals that are used in electronics, as they are becoming scarce and have substantial environmental and social impacts.¹⁸

The UN estimates that 20 to 50 million tonnes of electronic waste (*e-waste*)¹⁹ is created every single year. To grasp the scope, consider that in 1990, 19.5 million tonnes of electric and electronic equipment (EEE) were produced and sold globally. In 2000, this number rose to 34 million tonnes, in 2010 to 57.4 million tonnes and by 2015 it is estimated to reach 76.1 million tonnes.²⁰

The mobile phone currently is the iconic electronic device. The stock of actively used mobile phones in Europe is growing quickly: from 503 million in 2012 to 625 million in 2020. Mobile phones sold in Europe every year, will grow from 256 million in 2012 to 318 million by 2020. The number of phones reaching end-of-life treatment after active use amounted to 17.3 million in 2012, growing to 34 million in 2020. The stock of unused and not yet discarded phones grows from 1.6 billion in 2012 to 3.2 billion in 2020. This is more than three phones per capita in 2012 and 6 phones per capita in 2020.²¹

In the EU, a total of between 15 and 20 kg of electrical and electronic equipment (EEE) per inhabitant per year is marketed.²² In economic terms, this concerns the combination of end consumption of households and businesses (ca. € 7.5 billion in 2010, or 1.7% of the total end consumption in the Netherlands)²³ and investment in fixed capital or capital goods (ca. € 9 billion in 2010 or 8.6% of total investments in fixed capital in the Netherlands).

An average of 10 to 15 kg EEE is discarded by households in the Netherlands every year. A third of this, 3 to 5 kg, consists of electronic equipment. In the professional world (business, government and other institutions) 7 to 8 kg is discarded per year in the Netherlands; a good deal of this is likely to be ICT equipment.²⁴ TNO, a Dutch independent research organisation, has estimated the value of the current circular economy around the metal-electrical sector to be approximately € 3.3 billion.²⁵

The quantities of materials discussed above are relatively small compared to the total amount of materials (such as food crops) that flows through our societies. But as explained above, a small amount of metals requires a huge amount of rock to be mined and processed.

Apart from the extraction impacts of the metals, electronic products represent a great deal of energy. More than 60% of the energy that is used for a mobile phone during production and consumption is the result of extraction of resources needed for its production. TNO calculated that more circularity in the electronics sector would have large positive effects. The prevented CO₂ emissions in the Netherlands in the EEE sector alone is estimated at 747 kilotonnes. This is 9.7% of the current emissions produced in the EEE sector. Emissions prevented by the use of raw materials (Raw Material Equivalent, RME) still have to be added; these are emissions released abroad. The prevented RME contains 5.2 million kilotonnes of raw materials, 6.3% of the current RME in the metals-electrical sector in the Netherlands. The reduction was calculated in detail through consideration of specific product groups. Land-use and mining impacts were not quantified.²⁶

1.3 Urban mining and resource efficiency

Urban mining is the key to closing the metals loop in a circular economy. But urban mining or metals recycling is only a part of the broad path towards sustainable society. Thinking about a resource efficient society has a long tradition and encompasses many approaches.

The 'Sustainable Netherlands' ('Nederland Duurzaam') report that Milieudefensie published in 1992 on its 20th anniversary, clearly describes that we in Western societies use proportionately far more raw materials than would be entitled to us on the basis of a fair distribution of environmental space.²⁷ Governments and business organisations aim to improve resource efficiency. Environmental NGOs stress that efficiency is nice, but often leads to cheaper production, higher production levels and therefore an increase in resource use. NGOs therefore also stress the need for absolute resource use reductions.²⁸ In the past decades several approaches have been championed to reduce the impact of consumption and production on the environment. In this chapter we describe the wider context of urban mining.

1.3.1 Factor 4

Factor 4 is a formula which expresses the challenging concept that we need to move to an economy that not only brings about prosperity but also places less pressure on the environment. It has to do with an absolute de-coupling of economic growth and environmental pressure: the objective is to achieve economic growth while the pressure on the environment decreases, in an absolute sense. Factor 4 points the way to reduced energy and raw materials use, a major component of environmental pressure.

An illustration: if economic growth leads in time to a doubling of economic activity, energy and raw materials efficiency must increase by a factor of 4 in order to achieve a 50% reduction in the use of non-sustainable energy and raw materials in an absolute sense. This is how the Dutch Minister for the Environment, Margreet de Boer, explained the use of this concept as a guiding principle in 1997. She derived the Factor 4 concept from the book *Factor Vier, Doppelte Wohlstand – halbiertes Naturverbrauch*, that was published as a report for the Club of Rome in 1995 and received a great deal of publicity.²⁹

1.3.2 Cradle to Cradle

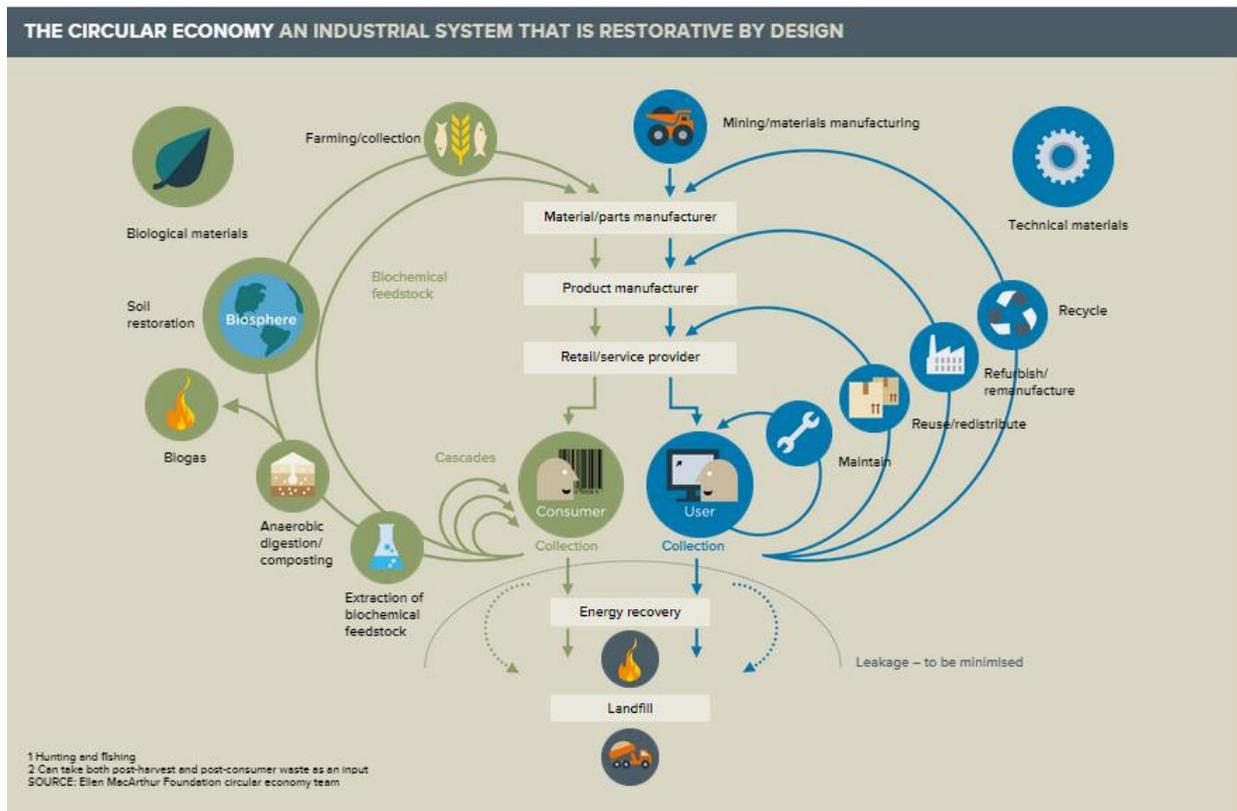
Although the EU and other OECD countries developed and implemented waste policies, it was clear that this remained an end of pipe solution, that missed the chance to transition to a real recycling economy. The Cradle-to-Cradle (C2C) approach is a move in the opposite direction, promoting perfect recyclability either technically (for metals and plastics) or through nature (compostable materials), with the aim of zero-impact products.³⁰

This approach has gained support from some major companies, but appears to be a bridge too far for most companies, as the approach prohibits the use of any substance that could have toxic effects. Environmental NGOs object to the suggestion in the C2C-approach that growth is no problem as long as products are C2C and therefore completely recyclable or compostable. They point to the fact that the production growth promoted by the C2C approach needs energy, which is seldom renewable energy in our societies, materials, if we gather more products, and in the case of agro-based materials, land and water. These are resources that are inherently scarce. Infinite growth on a planet that imposes limits on our economies is not possible.

1.3.3 Ellen McArthur foundation on the Circular Economy

The Ellen McArthur foundation, supported by companies such as Philips, Unilever and Ikea, promotes a circular economy in which products are designed and marketed in a way that optimises re-use of products and the materials they are composed of.³¹ Most companies support this approach and Dutch banks such as De Lage Landen Leasing / Rabobank and ABN Amro are working with the foundation. The Ellen MacArthur Foundation provides a very relevant and inspiring website, is the leading think-tank on circular economy and produces reports that are highly relevant for businesses and politicians.

Figure 1 Circular Economy System Diagram



Source: Ellen MacArthur Foundation (n.d.) "Interactive system diagram", online: <http://www.ellenmacarthurfoundation.org/>, last viewed in November 2014.

"The evolution of our economy from an increasingly resource-constrained 'take-make-dispose' model towards one that is circular and re-generative by intention poses a huge opportunity for business innovation. This report highlights the significant economic opportunities, both immediate and long-term, that are available across the EU. I believe the report offers the catalyst for a sector-wide re-design revolution", said Ellen Mac Arthur on the report *Towards the Circular Economy: Economic and business rationale for an accelerated transition*.³²

1.3.4 UNEP's International Resource Panel

In 2013 the United Nations Environment Programme (UNEP)'s International Resource Panel (IRP) published a report on metal recycling concluding that a product-centric approach is essential.³³ This approach is considered to be an essential enabler of resource efficiency by increasing recycling rates. The IRP report provides a techno-economic, product design and physics basis to address the challenges of recycling increasingly complex products in the 21st century.

The IRP considers that our contributions need to be systemic, for example through the promotion of resource efficiency, improved materials recycling and life-cycle thinking. Its report shows that sustainable metals management requires more than improving recycling rates of selected materials. We need to change the whole mind-set on recycling metals, moving away from a material-centric approach to a product-centric approach. Recycling has become increasingly difficult today and much value is lost due to the growing complexity of products and complex interactions within recycling systems. While common commodity metals like steel, magnesium and copper can be recovered relatively easily, as these are often used in relatively simple applications, the small amounts of metals in, for example, electrical and electronic waste can be harder to recover because they are often just one among up to 50 elements. As an example, a mobile phone can contain more than 40 elements including base metals such as copper and tin, special metals such as cobalt, indium and antimony, and precious and platinum-group metals including silver, gold, palladium, tungsten and yttrium.³⁴

IRP concludes that: “in order to boost historically low recycling rates, a global move from a material-centric to a product-centric approach, in which recycling targets specific components of a product and their complexity at its End of Life (EoL) and devises ways to separate and recover them, is essential. Optimising the recycling of EoL products can avoid losses in efficiency throughout the chain of recycling. The global mainstreaming of such a product-centric view will be a remarkable step towards efficient recycling systems, resource efficiency and a Green Economy.”

1.3.5 European Union policies

The European Commission supports resource efficiency and has established a high level European Resource Efficiency Panel. The Platform's members include European Commissioners, members of the European Parliament (MEPs), ministers, business CEOs, academia and representatives of NGOs. The Platform calls on Europe to double its resource productivity by 2030 – at least – in order to boost the competitiveness of our industry and maintain a high quality of life for citizens. One of their recommendations addresses: “moving towards a circular economy and promoting high-quality recycling.”³⁵

On financing, the platform advises the EU and Member States to encourage investment in resource-efficiency research and development, green innovation and their implementation. “We call on companies and large investors to take advantage of the forthcoming European reporting framework which improves transparency by including key performance indicators, to harmonise disclosure of non-financial information and provide information on resource efficiency to shareholders, investors and the wider public. The EU should also examine the responsibility of investors through fiduciary duty in order to see if it truly reflects the impact of resource use on the financial results and risk exposure of companies. In order to enable institutional investors to invest more broadly into resource efficiency, the potential of the bonds market should be explored, including for small projects and SMEs.”³⁶

The most recent report on the circular economy by the European Commission Directorate General for the Environment also acknowledges the crucial, but problematic role of the financial sector in creating a circular economy within the EU. The report identifies “insufficient investment in recycling and recovery infrastructure, innovation and technologies (related to this is the lock-in of existing technologies and infrastructure) and challenges in obtaining suitable finance for such investments as important barriers to the circular economy.”³⁷

Since the first EU Waste Framework Directive was adopted in 1975, legislation has expanded dramatically to cover many specific waste streams and various areas of waste management. Although the average recycling rate in 2006 was around 79%, this was not the case for waste electronic and electrical equipment (WEEE). Only 23% of WEEE placed on the market was reported as collected. This raises concerns as to the continuing impact of WEEE in the environment. Currently, the EU is working on the Circular Economy Package which includes a reinforcement of EU waste policies. This contains, amongst others, an increase recycling / re-use of municipal waste to 70% in 2030. Ambitions to promote recycling are unfortunately minimal.³⁸

1.3.6 Dutch government policy

The Dutch government attaches great importance to stimulating the circular economy. In a recent letter to the House of Representatives, the state secretary stated:³⁹ 'Opportunities for the Netherlands offered by the circular economy are becoming increasingly clear. A recent TNO study showed that at least € 7 billion per year could be earned, well over 50,000 jobs could be created and the impact on the environment could be sharply reduced'. Front runners within industry and government have shown that circular business models lead to better performance.⁴⁰

Therefore, the Dutch government has agreed 'Green Deal Circular Purchasing'. And the government is working toward an 'accelerator' as a significant component in its effort to transition to a circular economy. In the Green Deal, about 20 public and private parties have agreed to boost the circular economy through means of their purchasing policy. The Dutch government also views the scarcity of raw materials as a clear opportunity. The Cabinet wants to stimulate innovation, re-use and substitution, so that the Netherlands can play a leading role in Europe in this field. This could strengthen the economy and the Dutch trading position.⁴¹

Many interesting initiatives are taken, but the economic system and tax system that encourage the existing (linear) resource consumption patterns, remain untouched.

1.4 The transition to urban mining and the role of financial institutions

It clearly is crucial for our economy to make sure we do not waste resources and use fewer resources overall. To make this shift, the economic system needs to place a higher value on materials. Proposals for taxes on 'extracted value' instead of on labour have been developed by the Ex'Tax project.⁴² The EU and governments should also consider economic incentives such as taxation on resource imports or restrictions on scrap exports. Through such changes in the tax system and other incentives, companies would be stimulated to construct products in a way that makes repair, re-use and recycling easy and therefore economically attractive.

The goals of all stakeholders should go far beyond stimulating resource efficiency, as we need an absolute reduction of metals and minerals consumption. As a major transition is needed, the financial sector should play its role amongst other actors such as industries, governments, consumers and NGOs. There are several steps in the circular production and consumption process where financial institutions could play a role. These are described in the next sections.

1.4.1 Efficient production

The step in the circular production and consumption process on which industries have been focusing most is applying efficient production processes within companies. Banks also encourage efficient production as it raises profits and makes companies less vulnerable to price hikes for the resources they use. Recently major Dutch banks started to promote the circular economy and industrial ecology, two approaches in which efficiency is promoted beyond companies, through the supply chain or in cooperation with neighbouring companies that can use the waste streams of other companies. In some cases banks have played a role in raising awareness or in bringing parties together. But this role is generally difficult to substantiate and therefore difficult to capture in a Fair Bank Guide report.

1.4.2 Efficient consumption

In our society, purchasing products still remains the dominant type of consumption. However, in many cases sharing or leasing products fits better into a circular system. If products can be shared, fewer products are needed. Leasing products is a way to ensure that producers keep an eye on their products and can ensure the responsible processing of the next stage of their lifecycle, after they are no longer needed by the user. Financing the sharing economy, investing in leasing concepts or providing insurance for products that are shared by different users are ways in which banks and insurers can support more efficient consumption. Because a precise interpretation is essential for determining the environmental benefit of sharing and leasing constructions, and that is difficult to determine, this study does not focus on these activities.

1.4.3 Recycling: focus of this study

A circular approach to electronics ranges from expanding lifetimes, via refurbishment, modular design and reparability, to ultimately, recycling of electronic appliances into scrap metals. In our financial analyses, we focus on the collection and recycling phase because this is a step in the lifecycle of electronics that can be identified and because, like most products, electronic appliances become obsolete in a matter of years, with recycling into scrap metals as the only remaining option. This moment can be postponed, by repairing or refurbishing appliances, and will save energy as we need new products less often. But materials will still become available as scrap metal sooner or later. This should not be a problem as most metals can be recycled, in theory. Recycling metals is therefore not an end-of-pipe technology but a key link in the circular economy of electronics.

The Fair Bank and Insurance Guide therefore encourages financial institutions (private and public), recyclers and electronics companies to invest more in the European recycling infrastructure, a key element in a circular use of metals. The next paragraphs further focus on the recycling industry and its trends, initiatives and positive examples. Better recycling of metals in the electronics sector in Europe is beneficial for many reasons, as we explained above, but unfortunately there are some hurdles to be overcome.

1.5 Electronics recycling industry

1.5.1 Statistics

The European Electronics Recycling Association (EERA) consists of 38 recycling companies which are positioned in 17 countries. EU employment related to the recycling of materials increased by 45 % between 2000 and 2007 — the second largest increase of all eco-industry sub-sectors.⁴³ The total turnover of recycling of the group 'precious and other metals' in Europe, which includes most metals used in electronics except for copper, was in 2009 approximately € 5 billion.⁴⁴

1.5.2 Problems in the recycling industry: 4 trends

The European Electronics Recycling Association identifies four trends that are making recycling increasingly difficult from a technical and economic viewpoint:⁴⁵

- Miniaturisation: as products get smaller they contain less material and materials are packed so tightly that it is hard to separate them. The result is less materials to be recovered by recyclers;
- Shorter lifespans: technologies such as LCD-screens have ever shorter lifespans. Recyclers that invest in recycling infrastructure therefore have a shorter timespan to make money with their equipment. Investments have a shorter economic lifespan and costs go up;
- Complex materials: smaller and more sophisticated products use more sophisticated materials, alloys and components. These complex materials are often impossible to process by recyclers. Electronics brands are not transparent about the chemical composition of the components they use. In many cases they do not know which materials their suppliers have used in their products;
- Price reduction: low prices of electronics products make it difficult for electronics brands to invest in recyclability. In many sectors price is the overriding design argument.

Taking products and the materials inside them apart is often impossible, and never economical. Recyclers therefore use shredders and chemical refining to separate different materials. Total recycling through chemical processes is unfortunately not possible. Recyclers optimise recycling for certain metals and accept that other metals will disappear as waste or as impurities in the main products from the recycling process. Design for recycling and better technologies can improve the output of the recycling process.⁴⁶

But even when only existing technologies are used, more circularity could bring the Dutch economy huge benefits. The total added value in the metal-electrical sector is € 9,983 million. The total increase in the market value of the circular economy for metal-electrical products is substantial, amounting to € 573 million on an annual basis. This value has been corrected to reflect the decrease in the sales of new products. This amounts to 10,583 jobs in the metal-electrical sector.⁴⁷

At EU-level the huge opportunities are clear as well. Less than 10% of the materials in our new electronic equipment currently can be sourced from recycled WEEE material. Collected WEEE is recycled but the amount collected is relatively low. This is due to the significant exports of second-hand electronic and electrical equipment from the EU, increasing EU stocks of electronic and electrical equipment, and the lack of adequate collection infrastructure. In the case of rare metals in WEEE, dissipative use can reduce recycling rates, which may also contribute to low coverage of demand.⁴⁸

1.6 Financing recycling companies, opportunities and examples

A recent report for the European commission mentions as one of the constraints to the transition towards a circular economy, “the insufficient investment in recycling and recovery infrastructure, innovation and technologies (related to this is the lock-in of existing technologies and infrastructure)”.⁴⁹

For entrepreneurs, the financing of electronics recycling companies can be difficult because recyclers currently face costs that are going up faster than the prices for the resources they recover and prices are volatile. Another issue is that recyclers, especially the collectors of discarded products tend to be small companies, which are not very interesting for all banks. Advice on business development is important for these companies. On the other hand, resource prices are expected to rise, supporting longer term business cases.

1.6.1 Scrap metal collection and separation

Scrap metal collection is a sector that is crucial for efficient recycling. Effective and efficient collection and separation of metals is crucial to supply metallurgical industries. Quantity and quality are important. High quality means that different types of metals and alloys are separated before smelting.

In the Netherlands the electronics industry (NVMP) manages the Wecycle network of e-waste collection and scrapping installations.⁵⁰ In other European countries similar professionalised networks are still lacking, although European legislation calls for such systems

1.6.2 Metallurgical recycling

Construction of an integrated plant for recycling many metals is a very large investment, and will only be undertaken where it has 'bankable feasibility', for example where the desired return on investment is reliable and not subject to strong risk. The predictable availability of reliable scrap-input streams is a key determinant for how plants are set up. For example, over the past 14 years the Umicore facility in Belgium has invested around € 1400 million in a brown-field upgrade of their long-established metallurgical operation, setting up a world-class recycling facility that produces many metals on the basis of lead and copper metallurgy.⁵¹

Boliden has recently started up its new Kaldo e-waste expansion (from 45,000 to 120,000 tpa e-waste) with a total investment of SEK 1.3 billion (ca. € 1.145 million) in Skellefteå, Sweden.⁵² Where bankable feasibility is shown, financing is often available, especially for proven technology. However, finding money for introducing new and innovative technologies, not yet commercially proven, can be difficult due to the perceived financial risk and the multi-million-dollar nature of such projects. This holds back technological development.⁵³

1.6.3 EIB

The European Investment Bank offers support to small and medium-sized Enterprises (SMEs) through the 'Joint European Resources for Micro to Medium Enterprises'. Investors pool funds and knowledge in investment vehicles that are able to invest in relatively small or innovative SMEs.⁵⁴ This approach is needed in the recycling industry, especially to support new business initiatives.

1.6.4 Social and environmental issues connected to the recycling industry

Investing in and support of recycling companies is important as has been explained in this chapter. These companies, however, may be polluting or may be linked to labour rights issues. Several banks interviewed for this study indicated that they were reluctant to invest in recycling companies because of these kinds of issues. Like in other industries, banks and insurance companies should assess whether they can pursue an engagement strategy and convince these companies to improve their behaviour or should divest (or refrain from investing) from companies that cannot comply with environmental or other standards.

Chapter 2 Methodology

2.1 Approach

This case study assesses whether 16 financial institutions selected within the framework of the *Fair Bank Guide* and the *Fair Insurance Guide* invest in electronics recycling companies and compare these to how much they invest in electronics metals mining companies. Furthermore, this case study assesses how the 16 financial institutions contribute to electronics recycling and recycling in other ways.

The research approach consisted of several steps:

- selecting mining and recycling companies (for details, see section 2.3);
- designing methodology for scoring the financial institutions with regard to their investments in mining and recycling and for other steps taken to stimulate recycling;
- analysing the relationship between the financial institutions and the selected companies (for details, see section 2.4);
- analysing other steps taken by financial institutions to stimulate recycling, via interviews and/or a survey (for details, see section 2.5);
- writing the background and results chapter;
- asking feedback on the profiles and scores of the researched financial institutions; and
- writing final conclusions.

During this process the researched banking and insurance groups were repeatedly asked for feedback. Whenever possible and reasonable, and in consultation with the Fair Bank and Insurance Guide, the methodology has been adjusted.

2.2 Research group

Table 3 gives an overview of the ten banking groups that are included in the *Fair Bank Guide*, including the brand names they use in the Netherlands for banking services.ⁱ

Table 3 Banking groups included in the *Fair Bank Guide*

Banking group	Brand names for banking services in the Netherlands
ABN Amro	ABN Amro Bank, MoneYou
Aegon	Aegon, Knab
ASN Bank ⁱⁱ	ASN Bank
Delta Lloyd	Delta Lloyd Bank
ING	ING Bank, Nationale-Nederlanden Bank, WestlandUtrecht Bank
NIBC	NIBC Bank
Rabobank	Rabobank, Friesland Bank
SNS Reaal	SNS Bank, Region.Bank

ⁱ Nine banking groups have been selected by the *Fair Bank Guide* based on their market share of the Dutch market for current and savings accounts. Triodos Bank has been selected as the tenth banking group because the bank has a special position in the Dutch banking market. For background information, please see: http://www.eerlijkebankwijzer.nl/media/35819/eerlijke_bankwijzer_14e_update_140422_rapport.pdf

ⁱⁱ ASN Bank is a wholly owned subsidiary of SNS REAAL, but is treated separately because the bank carries its own formal policy and is part of the ten largest banks in the Dutch savings market on its own account.

Banking group	Brand names for banking services in the Netherlands
Triodos Bank	Triodos Bank
Van Lanschot	Van Lanschot

Table 4 gives an overview of the ten insurance groups that are included in the *Fair Insurance Guide*, including the brand names that they use in the Netherlands for insurance.

Table 4 Insurance groups included in the *Fair Insurance Guide*

Insurance group	Brand names for insurance in the Netherlands
Achmea	Achmea, Agis, Avéro, Centraal Beheer, De Friesland, FBTO, GoedGenoeg, Inshared, Interpolis, OZF, Prolife, Syntrus, Woonfonds, Zilveren Kruis
Aegon	Aegon, Kroodle, Optas
Allianz	Allianz, Allsecur, London Verzekeringen
APG (Loyalis)	Loyalis
ASR	a.s.r., Budgio, de Amersfoortse, Ditzo, Europeesche Verzekeringen, Ardanta
Delta Lloyd	ABN Amro Verzekeringen, Be Frank, Delta Lloyd, Erasmus Leven, Nationaal Spaarfonds, Ohra
Generali	Generali
ING (NN Group)	AZL, ING, Movir, Nationale-Nederlanden
Legal & General	Legal & General
SNS Reaal (Vivat Verzekeringen)	Proteq, Reaal, Zelf, Zwitserleven

A comparison of Table 3 and Table 4 shows that four of the banking groups selected for the Fair Bank Guide, namely Aegon, Delta Lloyd, ING and SNS Reaal, are also included in the Fair Insurance Guide. This brings the total number of financial institutions that were investigated to sixteen.

All business relationships of these financial institutions with the selected companies, including the business relationships of their sister companies and subsidiaries at home and abroad, are relevant to this study. Where relevant, the assessment distinguishes between different types of financial services and investment: investments in shares and bonds, loans and underwriting.

2.3 Selection of companies

As the first step in this study a selection of mining and urban mining companies was made. The two lists were sent to the researched financial institutions with the request for feedback during a period of a half year. The following sections explain how the lists were set up.

2.3.1 Selection of electronics metals mining companies

Given the large scope of a study on mining and recycling, our research focused on the raw materials that are often used in electronics, i.e. antimony, indium, cobalt, copper, lithium, ruthenium and tin. Alloys such as bronze (copper and tin) and brass (copper and zinc) were also considered relevant to this study.

In terms of revenue and number of mining companies, copper is by far the largest mineral. To also include companies active in the other minerals we therefore started our selection process with the other six minerals, identifying all specialized companies that were both listed on a stock exchange and had a significant market value, the latter depending on the mineral under review. For example a mining company specialized in antimony is typically much smaller than a mining company specialized in tin.

In this way we identified one company active in antimony mining, one company active in cobalt mining, five companies active in lithium mining, four companies active in tin mining and ten companies active in two or three of the selected minerals, including indium and ruthenium. This list of 21 mining companies was further complemented with 39 companies active in copper mining, including some of the world's largest mining companies such as BHP Billiton, Rio Tinto and Vale.

The selection was based on a range of sources, including the Mining Almanac, Infomine, Copper Investing News, Lithium Investing News, Mining.com, Metals.about.com and Mineweb.

For each mining company we determined the share of the selected minerals in total assets, revenues or production. Preferably, we tried to determine the share of total assets attributable to the relevant minerals. Often, companies provide segment reporting of their total assets. Sometimes each mineral makes up an separate segment, which makes it easy to determine the exact share of this mineral in total assets. However, often the reported segment is labelled 'Metals' or 'Non-ferrous metals'. Then we had to determine the share of the relevant metals within this segment. This was done by using revenues or production figures of the different metals in the segment. In short, we used a four-stage process:

- use assets per mineral, if not available;
- use revenues per mineral, if not available;
- use production figures per mineral, and if not available;
- use expected production figures per mineral.

The complete list of selected mining companies can be found in Appendix 1 .

2.3.2 Selection of electronics recycling companies

The second step of the study was to identify which companies are involved in the urban mining, also described as the recycling of electronics and electrical appliances and more specifically, the recycling of the raw materials that are often used in these devices, i.e. antimony, indium, cobalt, copper, lithium, ruthenium and tin.

The aim was to set up the most complete list possible for the Netherlands, supplemented with major foreign companies. To identify Dutch recycling companies we used the member list of the Bureau of International Recycling in the category Non-Ferrous. This list was further complemented with members of the European Electronics Recyclers Association. In this way, 24 Dutch companies were identified and 41 companies from other countries.⁵⁵

For eleven companies both the parent company as well as one of its subsidiaries is included in the list.⁵⁶ The subsidiary is a specialized company engaged in electronics or metals recycling. The subsidiary is included to take into account specific loans from financial institutions to this subsidiary. The parent is also included to take into account share- and bond holdings held by financial institutions.

For each recycling company we determined the share of relevant recycling activities. For 20 specialized electronics recyclers the share was set at 100%. In other cases, we often had to estimate for lack of financial information. For example, for a company that recycles ten different metals, including copper and tin, we set the share of relevant activities at 20%. For a company that is engaged in electronics recycling, but also in recycling of ferrous metals, we set the share at 50%. A company that recycles paper, plastics and electronics we set at 33%. A company that recycles ferrous and non-ferrous metals, the latter consisting of the relevant mineral copper and the non-relevant mineral zinc, we set at 25%.

The complete list of selected recycling companies can be found in Appendix 2 .

2.4 Financial analysis

After lists of electronics metals mining and electronics recycling companies were finalized, research was carried out on the degree to which financial institutions finance both groups of companies. Since all mining companies are listed on stock exchanges, the analysis of mining companies was performed entirely by Profundo through the use of financial databases such as Thomson ONE Banker and the Bloomberg financial database. In so far as the financial institutions publish lists of their investments these lists were also taken into account.

Regarding the analysis of recycling companies, Profundo researched eight companies that are listed on stock exchanges (Alba, Aurubis, Boliden, Galloo, Sims Metal Management, Suez Environnement, Umicore and Veolia Environnement). In addition, research into the financing of private recycling companies has been based on confidential information provided by the financial institutions. Eight financial institutions provided financial information about their investments in the selected recycling companies, one financial institution provided information but with insufficient detail to include in this study and seven financial institutions did not disclose any information about individual investments.

The input given by the financial institutions was combined with the research performed by Profundo on the public recycling companies. For each financial institution only the total numbers are published, not the names and amounts of each company invested in. Investments found per company are corrected for the degree to which the company is active in the relevant recycling activities.

Profundo used the following guidelines to determine relevant investments in researching the 60 mining companies and eight recycling companies:

- When there is a difference in value of share- and bond holdings between what a financial institution publicly reports and what we find in financial databases, we take the value with the most recent publication date.
- For loans and underwritings of shares or bonds, all deals since 1 July 2009 were researched. If the amount committed or underwritten per financial institution is unknown, it is estimated by using the following rules of thumb:
 - In the case of loans (corporate loans or revolving credit facilities), 40% of the total amount is committed by bookrunners and 60% by other participants of the syndicate. If, however, the amount of bookrunners is (almost) equal to, or higher than, the amount of participants, the reverse is used: 60% for the bookrunners and 40% for the arrangers.
 - In the case of share- and bond issuances, 75% of the total amount is committed by bookrunners and 25% by other participants of the syndicate. The amount provided by bookrunners should always be higher than the amount provided by participants.
- Revolving credit facilities to the parent company that are regularly renewed are only counted once and the most recent contract in which one of the financial institutions under review is engaged is selected.

- Bridge loans, term loans and underwritings to the parent company are all included as investments.
- Acquisition financing is included only when the to be acquired company is engaged in activities that are related to the focus of this study *and* the acquisition was finalized.
- Loans and underwritings to subsidiaries of the companies are only included when the subsidiary is involved in activities that are related to the focus of this study.
- Values of bond holdings and shareholdings are converted from US dollars to euros using a one-year-average of 0.74.
- Values of loans and underwritings since 1 July 2009 are converted from US dollars to euros using a five-year-average of 0.74.

2.5 Analysis of activities to encourage (electronics) recycling

Through their investments, regardless of the type of financing, financial institutions are related to the nature of the activities of the company they support financially. As such the degree to which financial institutions finance both groups of companies says a lot about the type of change financial institutions want to support. However, there are more ways in which financial institutions can influence changes in society. As shareholders of a company, depending on their mandate or contractual agreements, financial institutions can influence the conduct of companies in which they invest. Due to this leverage they are able to bring attention to the importance of recycling and the circular economy, and as such encourage companies to innovate in sourcing raw materials. Banks can also promote recycling and re-use amongst their clients by giving advice and bringing businesses together. To this end an assessment is made of activities financial institutions undertake to stimulate electronics recycling and recycling in general. A survey will be used to analyse these activities.

All of the financial institutions received a questionnaire on activities they potentially undertake to encourage (electronics) recycling. Questions answered positively needed to be motivated with documentation. The questions are divided in 3 categories: company engagement, sector engagement and commitment to improve.

2.5.1 Company engagement

The following questions aimed to investigate direct engagement with individual companies over the issue of recycling. Financial institutions were invited to present examples of the dialogues they had with individual companies in the past 5 years. An engagement programme targeting a whole sector was handled at the following category. With engagement we meant a dialogue with relevant persons at one company aimed at changing behaviour of the company, including specific targets, within a certain timeframe. It is relevant for the screening process of owners of shares and bonds as well as for financiers that grant loans, project or trade finance. The question regarding voting is relevant for asset owners only.

The answers were assessed by taking into account the following criteria:

- How many companies out of the total portfolio were engaged?
- What was the reason to start an engagement process or to file a shareholder resolution or ask questions at the shareholder meeting?
- What are the concrete objectives of the engagement process / resolution?
- After how much time the engagement process was/will be evaluated?
- When will the engagement process completed (if not successful)?

The following questions were discussed:

1. Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?

- Yes
- No

2. Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?

- Yes
- No

3. Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?

- Yes
- No

4. Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?

- Yes
- No

2.5.2 Sector engagement

This category aimed to investigate financial institutions' activities that communicate its vision regarding recycling to all clients / investors and the wider public. The publications and activities were assessed by taking into account the following criteria:

- Main message: stimulating recycling and circular economy, vision on use and supply of raw materials.
- Reach: various languages, number printed, distribution channels
- Number of pages
- Target group: relevant for sector mining and sector electronics
- In case of events: what was the specific contribution of the financial institution?

The following questions were discussed:

1. Do you manage a thematic (private equity) fund that especially focusses on the circular economy?

- Yes
- No

2. Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?

- Yes
- No

3. Did you organise events regarding recycling?

- Yes
- No

4. Did you participate in events regarding recycling?

- Yes
- No

5. Are you member of an organisation working on use of recycling?

- Yes
- No

2.5.3 Commitment

This category aimed to investigate the commitment of financial institutions to (continue to) work on financing and promoting a more circular economy in the electronics sector.

1. Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?

- Yes
- No

2. Have you planned activities (as described in the other categories) for the coming year?

- Yes
- No

2.5.4 Calculating the score

The score for the component “Other activities” was based on the number of questions answered affirmative. The total number of positively answered questions was divided by the total number of questions (11) and multiplied by 10. When the result is below 1, the final score is set to 1.

2.6 Limitations of this research

The following circumstances have limited the research and the conclusions that can be drawn from its results:

- The mining sector and the recycling sector, and more specifically the companies within this sector which recycle electronics, are very different in terms of size and capital needs. As a result financial institutions have been critical about comparing investments in these two sectors. However, these conditions are the same for all financial institutions, which makes a comparison still possible and interesting.

- The two sectors also differ in terms of opportunities to invest in these sectors. Companies in the recycling sector are often private companies, while companies in the mining sector are often publicly listed. Institutional investors like insurance companies can therefore invest fairly easily in the shares and bonds issued by mining companies, while they would need to search for or set up private equity funds to invest in recycling companies. As the asset class private equity is generally much smaller than the asset class listed equity, it can be expected that investments in the mining sector are much higher.
- Public sources were used for analyzing the business relationships of the financial institutions with the selected companies. Investments on behalf of the own account of the bank or insurance company are mostly not made public. The investments found for the asset management subsidiaries of the insurance groups, often appeared to be a combination of investments for the insurance division of the group and investments for external clients. As the distinction between these categories cannot be made for all financial institutions because of a lack of transparency, all investments found for all subsidiaries within the group are taken into account.
- The results of this study also depend on the cooperation of the financial institutions and their ability and willingness to submit the necessary information, both financial and non-financial data. Data regarding financial relationships between the financial institutions and the selected recycling companies were derived from the financial institutions themselves to give a more complete overview of the investments made. Profundo cannot fully guarantee the correctness and completeness of the financial data provided by the financial institutions.

Financial institutions have been critical about this study, as their responses to the research results show. The Fair Bank and Insurance Guide has addressed the concerns they raise with an individual comment. It seems that several banks and insurance companies do not see the relevance of comparing investments in mining versus investment in urban mining, as they perceive the scope to be too narrow. The Fair Bank and Insurance Guide is fully aware of the fact that this study sets the spotlight on a small sector, recycling of metals from electronic goods.

It is also convinced that this is necessary. Due to depletion of mineral deposits, miners have to dig deeper, take more risks and this leads to even more environmental and social impact than they currently cope with. Recycling of resources would not only save resources, including water and land, but also energy. When executed properly, recycling can be the key link in the circular economy of metals. Financial institutions can of course also invest in circularity in other ways: recycling of other materials, companies that design their products for reparability, re-use or refurbishment for example.

The Fair Bank and Insurance Guide would like to emphasize that most financial institutions were not transparent about other investment strategies that take resource-use issues into account. While some financial institutions claim that the focus of the study is too narrow, none of them suggested to add companies to the list of recycling(related) companies, or suggested related sectors that should have been taken into consideration in this research.

Chapter 3 Results

3.1 ABN Amro

3.1.1 Company profile

ABN Amro is a full-service bank in the Netherlands that offers a broad range of products and services to retail, private, commercial and merchant banking clients. The present ABN Amro is fully state-owned and is the result of the completed integration of the Dutch arm of the former ABN Amro and Fortis Bank Nederland in 2012, following the Dutch State's bailout program after the financial crisis in 2008. The Dutch Minister of Finance announced in 2013 its intention to privatize ABN Amro, possibly through an IPO.⁵⁷

The group has more than 24,000 employees in 23 countries. The bank's main segments are Retail, Private, Commercial and Merchant Banking. The bank generates 82% of its revenue in the Netherlands, where it is an important player in the consumer and business market. Internationally, the bank is mainly active in financing the energy, raw materials and transport industries. Furthermore, the bank conducts extensive private banking activities in the Netherlands, Europe and Asia.⁵⁸

At the end of 2013, ABN Amro's total assets amounted to € 372.0 billion, of which € 215.6 billion was due to customers (money put on current and savings accounts).⁵⁹ The total assets were invested in the following investment categories:⁶⁰

- Mortgage loans to private customers and SME: € 154.0 billion (41%)
- Loans to companies: € 114.1 billion (31%)
- Loans to banks: € 31.2 billion (8%)
- Investments in stocks, bonds and derivatives: € 53.1 billion (14%)
- Cash: € 9.5 billion (3%)
- Others: € 10.1 billion (3%)

In addition to the bank's own assets under management, it managed € 168.3 billion in assets for third parties.⁶¹ This mainly concerns private banking for wealthy private individuals in the Netherlands, Europe and Asia, but also the collective investment schemes of subsidiary Neufilize OBC (France). This company manages € 37.8 billion in assets.⁶²

3.1.2 Investments

ABN Amro has low investments in recycling and moderate investments in mining. It invested 10 times more in shares and bonds of mining companies than in recycling companies.

The research further only found loans of ABN Amro to mining companies, not to recycling companies. With a value of €108.1 million, ABN Amro ranks third amongst the three financial institutions of which loans in mining companies were found.

Please note that not all loans to and investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by ABN Amro itself. ABN Amro did not provide information to the researchers about their investments in and loans to recycling companies.

Table 5 Investments ABN Amro

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	4.1	0.4
Loans	108.1	0.0

3.1.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general.

ABN Amro has not responded to the questions about their efforts to stimulate recycling and other activities in the context of the circular economy. Based on public sources, 3 out of 11 questions are answered positively, which leads to a rounded score of 3.

From our own research we know that ABN AMRO is a participant in the Green Deal Circular Purchasing and a member of the Circle Economy.⁶³ On its website ABN Amro communicates about the circular economy: “Een voorbeeld is de opkomende Circulaire Economie. Dit model rekent af met het oude 'take-make-waste' principe en schetst een afvalvrije economie.”⁶⁴ One employee of ABN Amro wrote a blog about the Circular Economy Boostcamp he went to, concluding that through amongst other the network of the bank big and small players in the circular economy meet and become aware of the function of recycling.⁶⁵ We assess these references as examples of ABN Amro’s engagement on a sectoral level.

The financial institution did not mention any engagement activities within the mining, electronics or any other industrial sector. It also does not mention any commitments to improvements in investments or planned activities with respect to recycling.

Table 6 Assessment of activities ABN Amro

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	No	N.a.	0
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0
<i>Sector engagement</i>				

#	Question	Answer (yes/no)	Documentation	Score
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	Yes	Website, blog	1
3	Did you organise events regarding recycling?	No	N.a.	0
4	Did you participate in events regarding recycling?	Yes	Green Deal Circular Purchasing	1
5	Are you member of an organisation working on use of recycling?	Yes	the Circle Economy	1
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	No	N.a.	0
2	Have you planned activities (as described in the other categories) for the coming year?	No	N.a.	0
Score other activities				3

3.1.4 ABN Amro's response

ABN Amro responded to the research results as follows: ⁶⁶

“ABN Amro believes that the perception of the Circular Economy on which the Fair Bank Guide research methodology is based is too simplistic, and does not take into account that the subject is very complex. This is why ABN Amro has said, in due time and after several talks, that the bank will not cooperate with the research project. ABN Amro has repeatedly offered to do the research in a different way. However, in spite of our proposals, the methodology has not been altered significantly. Moreover, we have asked the Fair Bank Guide to participate in organizing a seminar on the Circular Economy. The banks organize this event in the first quarter of 2015, together with MVO Nederland (“CSR Netherlands”) and the Ministry of Infrastructure and Environment. Our proposal to regard the seminar as an alternative to the research has been rejected by the Fair Bank Guide.”

The Fair Bank and Insurance Guide has made several adjustments to the methodology in response to suggestions from the researched financial institutions, even in the last stages of the research process. During the summer, ABN Amro proposed to organise a seminar rather than continue with this study. Although the Fair Bank and Insurance Guide sees merit in organising such events, the research for this case study was almost finished. Moreover, the Fair Bank and Insurance Guide is convinced that this case study contains interesting information for future events regarding urban mining or circular economy and welcomes discussion about it.

3.2 Achmea

3.2.1 Company profile

Achmea is the largest insurance company in the Netherlands, insuring about 8 million customers for damage, healthcare and income under the brands: Achmea, Agis, Avéro, Centraal Beheer, FBTO, Interpolis, Zilveren Kruis, Syntrus, Inshared, OZF, Prolife and Woonfonds.⁶⁷ Achmea also provides banking and mortgage services under the brand names Achmea, Centraal Beheer, FBTO and Staalbankiers.⁶⁸

Apart from the Netherlands, Achmea operates in Greece, Turkey, Russia, Slovakia, Ireland and Australia.⁶⁹ Achmea's shares are largely owned by two parties: the Vereniging Achmea (65%) and Rabobank (29%).⁷⁰

In 2013, Achmea's gross written premium amounted to € 20.2 billion, of which € 13.6 billion were premiums for healthcare insurances and € 1.2 billion was realised outside the Netherlands.⁷¹ In 2013, Achmea paid out € 22.2 billion in insurance claims.⁷²

At the end of 2013, Achmea owned total assets with a value of € 94.3 billion. Of these, € 82.6 billion came from insurance investments and bank loans, divided amongst the different investment categories as follows:⁷³

- Investments for the risk of policy holders, mainly in shares and bonds: € 22.6 billion (27%)
- Mortgage and other loans to private customers: € 15.3 billion (19%)
- Government bonds: € 20.6 billion (25%)
- Corporate bonds: € 16.1 billion (19%)
- Derivatives: € 1.8 billion (2%)
- Real estate: € 1.2 billion (1%)
- Shares: € 1.3 billion (2%)
- Other: € 3.6 billion (4%)

Apart from the investments on its balance sheet, Achmea is also active in the field of asset management for third parties. At the end of 2013, its subsidiary Syntrus Achmea managed € 70.0 billion for institutional investors (pension funds) and subsidiary Staalbankiers managed € 1.9 billion for wealthy individual clients.⁷⁴

3.2.2 Investments

Achmea has low investments in recycling and moderate investments in mining. It invested 4 times more in shares and bonds of mining companies than in recycling companies. . Please note that not all loans to and investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by Achmea itself.

Table 7 Investments Achmea

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	2.5	0.6
Loans	n.a.	n.a.

3.2.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 8 shows the outcome of this survey.

Achmea receives a score of 5, as 5 out of 11 questions are answered positively. Achmea showed engagement on company level in the sectors metal, cement and electronics backed by confidential engagement reports reviewed by Profundo. Also on a sectoral level it organizes and participates in events regarding recycling. In addition, it intends to join Circle Economy, a Dutch non-profit open platform, later in 2014.

Furthermore, Achmea is participating, as insurance company, in realising transitioning business models of Rabobank clients, in coöperation with Royal Haskoning, MVO Nederland, Platform Circle Economy, Rabobank and De Lage Landen.⁷⁵

Table 8 Assessment of activities Achmea

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	Yes	Confidential engagement report on Eco-Efficiency in the Metal and Cement Industry	1
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	Yes	Confidential engagement report on sustainable value chain management Electronics	1
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0

#	Question	Answer (yes/no)	Documentation	Score
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	No	N.a.	0
3	Did you organise events regarding recycling?	Yes	Workshop at an Achmea conference, held in September '14	1
4	Did you participate in events regarding recycling?	Yes	Meeting on Circular Economy, organised by Rabobank	1
5	Are you member of an organisation working on use of recycling?	No	Intention to join Circle Economy later in 2014	0
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	No	N.a.	0
2	Have you planned activities (as described in the other categories) for the coming year?	Yes	Participant in realising transitioning business models of Rabobank clients	1
Score other activities				5

3.2.4 Achmea's response

Achmea did not respond to the research results.

3.3 Aegon

3.3.1 Company profile

Aegon N.V. is one of the largest financial institutions in the world in insurance, pensions and investments. The group is active in the Netherlands, the United Kingdom, the United States, Canada, Brazil, Mexico, Central & Eastern Europe, Asia, Spain and France⁷⁶ Aegon sells its products under the Aegon brand as well as under the labels Knab, Kroodle, Onna-Onna, Kruidvat Verzekeringen, Eneco Bronsparen and Menzis Zorgsparen.

At the end of 2013, Aegon N.V. had over 26,981 employees worldwide and total assets of € 353.6 billion.⁷⁷ In 2013, the Aegon Group had a premium turnover of € 19.9 billion, of which € 4.2 billion came from the Netherlands.⁷⁸

At the end of 2013, Aegon N.V. owned total assets with a value of € 353.6 billion.⁷⁹ These included € 300.4 billion of insurance investments, of which 45% at the company's own risk and 55% at the risk of policyholders. These investments were invested in the following investment categories:⁸⁰

- Bonds: € 123.0 billion (41%)
- Shares: € 27.5 million (9%)
- Mortgage loans to private customers: € 33.4 billion (11%)
- Real estate: € 2.5 billion (1%)
- Investment funds and other investments: € 114.0 billion (38%)

Aegon Bank N.V. is the banking subsidiary of the Aegon Group. The bank is only active in the Netherlands and offers savings accounts and mortgage loans to private individuals in the Netherlands and mediates between other Aegon products (investments, insurance and pensions).⁸¹

In 2013, of the 4,384 employees of Aegon Group, 126 worked for Aegon Bank.⁸² At the end of 2013, Aegon Bank owned total assets with a value of € 8.1 billion, of which € 4.3 billion was deposited as savings. Aegon Bank's investments were divided as follows:⁸³

- Mortgage and other loans to private customers: € 5.2 billion (64%)
- Investments in bonds and derivatives: € 2.6 billion (32%)
- Loans to banks: € 0.1 billion (1%)
- Cash: € 0.1 billion (1%)
- Other: € 0.1 billion (1%)

Besides the investments included on its balance sheet, Aegon Asset Management managed another € 174.8 billion in assets for third parties (private clients and institutional investors).⁸⁴

3.3.2 Investments

Aegon does not grant loans to mining or recycling companies. Aegon has low investments in recycling and high investments in mining. It invested 162 times more in shares and bonds of mining companies than in recycling companies.

Please note that not all loans to and investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by Aegon itself.

Aegon explains that it is difficult to invest more in the recycling sector considering that it largely exists out of private companies. This limits the investment possibilities.⁸⁵

Table 9 Investments Aegon

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	211.0	1.3
Loans	0.0	0.0

3.3.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 10 shows the outcome of this survey.

Aegon receives a score of 1, as 1 out of 11 questions are answered positively. In its Responsible Investment Report 2013, Aegon illustrates its engagement process with 6 cases of which one is about an international metals and mining company. Aegon has asked the company to improve its environmental performance but so far has not received any response and the dialogue has not been closed. Based on the information in the RI Report 2013, that does not include details, it is hard to assess whether recycling also was part of this engagement. Aegon states that it will report on four more cases with metals and mining companies in the RI Report 2014.

While Aegon does engage with individual companies, the financial institution also indicated it did not initiate any engagement activities with the mining, electronics or any other industrial sector on the subject of efficiency and recycling.

Aegon does commit to increase investments in companies that increase recycling as it is aware that “the use of recycled materials and/or recycled electronic goods is an important sustainability indicator that will become increasingly important in the investment decision-making processes.”⁸⁶

Table 10 Assessment of activities Aegon

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	Yes	Insufficient	0
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0

#	Question	Answer (yes/no)	Documentation	Score
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	No	N.a.	0
3	Did you organise events regarding recycling?	No	N.a.	0
4	Did you participate in events regarding recycling?	No	N.a.	0
5	Are you member of an organisation working on use of recycling?	No	N.a.	0
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	Yes	Recycling will become important in selection	1
2	Have you planned activities (as described in the other categories) for the coming year?	No	N.a.	0
Score other activities				1

3.3.4 Aegon's response

Aegon responded to the research results as follows: ⁸⁷

"Aegon does not invest more or less in mining companies than other comparable financial institutions. The same holds for recycling companies. Those choices are determined by the mandates and funds that we manage. Within these frameworks, we have limited space to manoeuvre. If we can choose within these boundaries for companies that perform better than others regarding various ESG factors, of which re-use is one, then we will do so. The list of recycling companies included in the study consists of mainly smaller private companies. Although we would like to invest in them very much, the investment opportunities of this type of business are limited."

The Fair Bank and Insurance Guide is aware of the limitations of investing in private companies such as the selected recycling companies. But it is also convinced that it is necessary to put the spotlight on this small sector, as mining of raw materials involves a tremendous environmental and social impact. This report would like to emphasise that recycling of metals would not only save resources, including water and land, but also energy. When executed properly, recycling can be the key link in the circular economy of metals. Therefore, the Fair Bank and Insurance Guide expects investors such as Aegon, to seek for innovative ways of investing in this sector and has, amongst other, questioned whether financial institutions manage funds that are dedicated to supporting companies in the recycling sector and is stimulating resource efficiency and the concept of circular economy. Moreover, Aegon and the other researched financial institutions have had the opportunity to submit company names to the list of recycling companies.

3.4 Allianz

3.4.1 Company profile

Allianz Netherlands is part of the German Allianz Group. Allianz is one of the largest financial institutions in the world. In the Netherlands Allianz is active in the field of damage and life insurance and has 1.3 million clients. The damage insurance arm of Allianz Netherlands also comprises of income, traffic and private insurance. Allianz operates under the brand names Allianz and Allsecur.⁸⁸

At the end of 2013, Allianz had 147,627 employees worldwide.⁸⁹ In 2013, the Allianz Group's premium turnover amounted € 66.6 billion while the company paid out € 47.8 billion in claims.⁹⁰ In 2013, Allianz Nederland Groep had 1,024 employees and a total gross premium income of € 977 million.⁹¹ At the end of 2013, Allianz Nederland Groep had € 5.5 billion of investments on its balance sheet.⁹²

At the end of 2013, the Allianz Group total assets had a value of € 711.5 billion, of which € 616.1 billion were investments. Investments were divided among different investment categories as follows.⁹³

- Government bonds: € 168.0 billion (27%)
- Corporate bonds: € 198.2 billion (32%)
- Shares: € 35.2 billion (6%)
- Loans to private customers: € 51.4 billion (8%)
- Loans to banks: € 65.4 billion (11%)
- Real estate: € 10.8 billion (2%)
- Derivatives: € 2.0 billion (0%)
- Investments for the account of policyholders (mainly shares and bonds): € 81.1 billion (13%)
- Other investments: € 4.1 billion (1%)

Apart from the investments on its own balance sheet, Allianz manages assets for third parties with a total value of € 1,361 billion. Of this amount, 82% is managed by Allianz's US subsidiary PIMCO, the largest bond investor in the world.⁹⁴

3.4.2 Investments

Of all researched financial institutions, Allianz is the largest investor in the selected mining companies and the second largest is the selected recycling companies. It invested 94 times more in shares and bonds of mining companies than in recycling companies.

Please note that not all investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by Allianz itself.

Table 11 Investments Allianz

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	844.0	9.0
Loans	n.a.	n.a.

3.4.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 12 shows the outcome of this survey.

Allianz receives a score of 1 as 1 out of 11 questions are answered positively. Allianz has not responded in detail to the questions about their efforts to stimulate recycling and other activities in the context of the circular economy. Instead it points towards its commitment to integrate ESG (Environmental, Social and Governance) criteria in its investment selection process. It covers amongst others waste handling and environmental management.

The financial institution did not mention any engagement activities within the mining, electronics or any other industrial sector.

Furthermore, Allianz is in the process of developing an ESG Engagement Framework, which will give guidance on the topics Allianz engages companies it invests in.⁹⁵

Table 12 Assessment of activities Allianz

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	No	N.a.	0
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	No	N.a.	0
3	Did you organise events regarding recycling?	No	N.a.	0
4	Did you participate in events regarding recycling?	No	N.a.	0
5	Are you member of an organisation working on use of recycling?	No	N.a.	0
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	No	N.a.	0
2	Have you planned activities (as described in the other categories) for the coming year?	Yes	Development of ESG Engagement Framework	1
Score other activities				1

3.4.4 Allianz' response

Allianz did not respond to the research results.

3.5 APG

3.5.1 Company profile

Loyalis provides supplementary insurance products for income security. Loyalis is a subsidiary of APG Groep N.V., a financial services provider in the group pension market, providing pension administration and communication, asset management and executive consultancy services for pension funds. APG manages the pensions of a total of approximately 4.5 million employees and former employees in the following sectors: government & education, construction, housing corporations, medical specialists, sheltered employment, cleaning & window cleaning, brick manufacturing and flowers and plants wholesaler industries.⁹⁶

APG has offices in Heerlen, Amsterdam, New York, Hong Kong and Brussels. APG Group has two shareholders, *Pensionfund ABP* (92.16%) and *Sociaal Fonds Bouwnijverheid* (7.84%).⁹⁷

In 2013, APG realised a turnover of € 1.05 billion, of which € 268.7 million was derived from the premium turnover of insurance subsidiary Loyalis.⁹⁸

At the end of 2013, APG owned total assets with a value of € 4.6 billion, of which € 2.8 billion consisted of Loyalis' insurance investments.⁹⁹ Of these investments, € 2.6 billion (92%) is made for the risk of Loyalis while € 214 million (8%) is made for the risk of policyholders. The break-down of these insurance investments over the different investment categories was as follows:¹⁰⁰

- Government and corporate bonds: € 2.4 billion (83%)
- Shares: € 0.4 billion (15%)
- Other investments: € 0.1 billion (2%)

Besides insurance investments, APG manages approximately € 343 billion in assets for Dutch pension funds.¹⁰¹

3.5.2 Investments

APG does not grant loans to companies. Of all researched financial institution's APG is the largest investor in the selected recycling companies. It also has significant investments in mining companies and invested 43 times more in shares and bonds of mining companies than in recycling companies. Please note that not all investments in mining and recycling companies could have been found and that the research is largely based on input regarding the investments in recycling companies by APG itself. APG did not provide information to the researchers about their investments in and loans to recycling companies.

Table 13 Investments APG

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	459.9	10.7
Loans	n.a.	n.a.

3.5.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general.

As APG did not respond to the survey, no questions could be answered positively and therefore APG receives a score of 1.

3.5.4 APG's response

APG did not respond to the research results.

3.6 ASN Bank

3.6.1 Company profile

The ASN Bank, wholly owned by SNS Reaal, is mainly active in the private market in the Netherlands. ASN Bank is assessed separately since the bank carries out its own formal policy and is independently one of the ten largest banks in the Dutch savings market.

At the end of 2013, ASN Bank had 137 employees and 600,000 clients in the Netherlands.¹⁰² Its total assets amounted to € 10.8 billion, of which € 10.1 billion was originating from funds entrusted by customers.¹⁰³ Total assets were invested as follows:¹⁰⁴

- Government bonds: € 3.1 billion (29%)
- Loans to local government: € 0.7 billion (6%)
- Loans to banks: € 0.1 billion (1%)
- Loans to companies and semi-governmental institutions: € 1.6 billion (15%)
- Mortgage loans to private customers: € 4.5 billion (42%)
- Cash: € 0.3 billion (3%)
- Others: € 0.4 billion (4%)

ASN Bank managed a number of collective investment schemes, mandates and private banking accounts, via its subsidiaries ASN Beleggingsinstellingen Beheer and ASN Asset Management. Assets managed for external clients amounted to € 1.76 billion in 2013.¹⁰⁵

3.6.2 Investments

ASN Bank does not invest through loans, shareholding and bondholdings in the selected mining companies (as it excludes this sector as a whole) or in the selected recycling of electronics companies (since most of the companies are active in activities that the ASN Bank excludes, like nuclear energy or more than 30% landfill).

3.6.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general.

ASN Bank does not invest in the mining sector. Therefore the question on company engagement in this sector is considered irrelevant. ASN Bank receives a score of 6, as 6 out of 10 relevant questions are answered positively.

ASN Bank indicates that it had no engagement activities within the mining sector. This is due to the fact that they do not pass ASN Bank’s sustainability criteria, since ASN Bank uses a policy of inclusion rather than exclusion.

ASN Bank does engage with electronics and recycling companies. A relevant case for this research is its dialogue with Alba in 2013, about its own recycling rate and in particular the percentage of waste buried in landfill. ASN Bank’s criterion is a maximum 30% landfill of the total amount of waste.¹⁰⁶

ASN Bank manages a fund that partially focusses on recycling (20%), in addition to water treatment (50%) and sustainable energy (30%).¹⁰⁷ And its “Groenprojectenfonds” (funding of green projects) is aimed at projects that are involved in recycling or ecological building, and sustainable energy.¹⁰⁸

ASN communicates about recycling through its own website and through ASN’s online platform ‘Voor de Wereld van Morgen’.¹⁰⁹

ASN participated in the Green Deal Community of Practice (CoP) Bedrijven en Biodiversiteit (Companies and Biodiversity). This community focusses on companies and biodiversity. Recycling is one of the issues they have discussed.¹¹⁰ The bank each year organizes a competition for innovative and sustainable business models, the ASN Bank Wereldprijs (World Award), in which one of the categories also includes resource efficiency and recycling.¹¹¹

ASN Bank commits to improvements in investments in companies that increasingly use recycling. Recently, ASN Bank adjusted its criterion in relation to waste going to landfill from accepting 50% of total amount of waste to maximum 30% landfill of the total amount of waste. This has also lead to excluding recycling and waste collecting companies based on this criterion, for example Pennon in 2014 as 38% of the total waste handled by Pennon goes to landfill and Suez Environnement in 2012 as more than 30% of the total amount of waste handled goes to landfill.¹¹²

Table 14 Assessment of activities ASN Bank

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	N.a.	N.a.	N.a.
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	Yes	Alba in 2013.	1
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund	Yes	Partially through ASN Milieu &	1

#	Question	Answer (yes/no)	Documentation	Score
2	that especially focusses on the circular economy? Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	Yes	Waterfonds. Own website and www.voordewereldvanmorgen.nl	1
3	Did you organise events regarding recycling?	Yes	ASN Bank Wereldprijs (World award) about environment, including resource efficiency and recycling.	1
4	Did you participate in events regarding recycling?	Yes	Green Deal Community of Practice Bedrijven en Biodiversiteit.	1
5	Are you member of an organisation working on use of recycling?	Yes	De Groene Zaak and Natural Capital Declaration are interesting but not directly focused on recycling.	0
Commitment to improvements				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	Yes	Recently, ASN Bank adjusted its criterion in relation to waste going to landfill from accepting 50% of total amount of waste to maximum 30% landfill of the total amount of waste.	1
2	Have you planned activities (as described in the other categories) for the coming year?	Yes	No documents	0
Score other activities				6

3.6.4 ASN Bank's response

ASN Bank responded to the research results as follows:¹¹³

“The study has a limited focus (mining and recycling companies): we look at recycling in a broader integrated manner at all our investments. We use the definition of circular economy from Circle Economy: “An essential element is to structure business models so that manufacturers are rewarded for keeping resources in use rather than for creating the cheapest products that are quickly disposed. Since products are kept in use, the embedded energy, materials and labour are preserved. This in itself adds values compared to maintaining the status quo.” Recycling is part of the circular economy, but not the only condition that makes the circular economy successful. Other conditions are: 1) using less materials, 2) closing the circle of an operation and eventually the whole system, 3) closing the biological circle and 4) the use of sustainable energy. We would like to see that the research takes more broader scope than only mining versus recycling.

We do analyse companies on a broad number of issues. Recycling is certainly one of them, but not the only one. We also look at involvement in exclusion activities and activities we avoid. Following this we dive into the policies and practices of the company in relation to human rights, climate and biodiversity. We analysed a lot of ‘circular’ companies but we notice many controversies in this sector such as activities in the field of nuclear energy or massive use of landfill. This is one reason only limited number of these type of companies is selected.

On the approach: the case study recycling presupposes that engagement is the most effective approach to enhance sustainable conduct by companies. This biases (mainstream) financial institutions that take engagement as their preferred strategy over des-investment when companies are underperforming. We use a multilayer approach: first strict selection criteria to come to an inclusion list (an approach that has been acknowledged by the Eerlijke Bankwijzer last year), second: dialogue with both companies that are accepted and those that are not but might be accepted on our inclusion list, thirdly: voting and last but not least: what we call “off-balance” advocacy and enhancement of sustainability together with other organisations.”

The Fair Bank and Insurance Guide is aware of the limited focus of this study, that had to be made for pragmatic reasons, but also considers recycling a key link in closing the metals loop. The primary goal for this study is to stimulate investment in 'urban mining' and promote further growth of recycling companies. But financial institutions can, to a certain extent, also influence companies' behaviour via their communication, advice and engagement activities, and therefore this has been added to the study, taking into account the feedback of the research banks and insurers.

The Fair Bank and Insurance Guide does consider the screening of companies, leading to either exclusion or inclusion, a useful strategy. It is fully aware of other social and environmental issues at both mining and recycling issues and that this could be a reason not to invest in companies. But taking into account this strategy as well would widen the scope of this study too much and does not add value to its main goal. According to the Fair Bank and Insurance Guide ASN Bank had many possibilities to present its approach and even when it did not lead to a higher score it has been described in the profile.

3.7 ASR

3.7.1 Company profile

ASR Nederland N.V. is one of the largest insurance companies in the Dutch insurance market. The Dutch government has been the 100% owner of ASR Nederland N.V. since 2008, when it acquired it from the former banking and insurance company Fortis Holding.¹¹⁴ ASR Nederland N.V.'s insurance products are sold under the following brands: ASR, de Amersfoortse (business market), Ditzo (damage, travel, healthcare), Europeesche Verzekeringen (travel, recreation) and Ardanta (funeral).¹¹⁵

In 2013, ASR Nederland N.V. achieved a premium turnover (gross written premiums) of € 3.9 billion and the company paid out € 5.1 billion in insurance claims.¹¹⁶ At the end of 2013, ASR Nederland N.V. owned total assets with a value of € 42.4 billion, of which € 40.4 billion consisted of investments and loans. The break-down of the different investment categories was as follows:¹¹⁷

- Government bonds: € 8.8 billion (22%)
- Corporate bonds and securitized: € 9.1 billion (23%)
- Shares: € 9.5 billion (24%)
- Loans to governments: € 0.2 billion (0%)
- Mortgage and other consumer loans: € 4.9 billion (12%)
- Loans to banks: € 2.5 billion (6%)
- Derivatives: € 1.1 billion (3%)
- Real estate: € 1.6 billion (4%)
- Cash: € 1.6 billion (4%)
- Other: € 1.0 billion (2%)

3.7.2 Investments

As an insurance company ASR does not grant loans to companies. ASR has low investments in recycling and low investments in mining. It invested 15 times more in shares and bonds of recycling companies than in mining companies.

Please note that not all investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by ASR itself.

Table 17 Investments ASR

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	0.1	0.9
Loans	n.a.	n.a.

3.7.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 6 shows the outcome of this survey.

ASR does not manage any thematic private equity fund. Therefore this question is considered irrelevant. ASR receives a score of 6, as 6 out of 10 relevant questions are answered positively.

ASR showed that questions about the company's environmental policy and resources efficiency is a regular agenda point in ASR's meetings (Engagement by dialogue) with the senior management of companies in the portfolio.

ASR does communicate about recycling, specifically in relation to the renovation of their headquarters in Utrecht, but also as a responsible investor. ASR claims to organize internal events regarding recycling to inform and train colleagues on its Environmental Policy and Circular Economy, but with insufficient documentation. ASR did however participate in events such as a brainstorm session on Circular Building in July 2014 organized by the *Platform Duurzame Huisvesting* from the *Rijksdienst voor Ondernemend Nederland*.

In November 2013, ASR signed the Green Deal Circular Purchasing. This is an initiative from The Circle Economy, De Groene Zaak and MVO Nederland.

The two questions on commitment to improvements were both answered affirmative by ASR. We assess ASR's commitment to improve investments as credible given its policy to invest in *'businesses that make a sustainable contribution to society, for instance by processing or recycling their waste, use of clean energies (solar and wind), reducing their environmental impact or energy consumption, and that – just as a.s.r. does – make a contribution to the circular economy. Further expansion took place in 2013, with a third round of investment in waste processing/recycling'*.¹¹⁸

In an e-mail ASR explained its plans for 2015 to organise a meeting with its service provider and review the current SRI screening criteria; “The objective of the meeting is to analyse the possibilities to improve/expand the screening, using –among others- the input from the Eerlijke Verzekeringswijzer policy and case studies, including the circular economy / recycling subject.”¹¹⁹

Table 18 Assessment of activities ASR

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	No	N.a.	0
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	Yes	List of topics discussed during meeting with company	1
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	N.a.	N.a.	N.a.
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	Yes	Website ASR, Annual Report 2013	1
3	Did you organise events regarding recycling?	Yes	Insufficient: focused on own operations	0
4	Did you participate in events regarding recycling?	Yes	‘Brainstorm Circulair Bouwen’ (July 2014) from the Platform Duurzame Huisvesting from the Rijksdienst voor Ondernemend Nederland	1
5	Are you member of an organisation working on use of recycling?	Yes	Green Deal Circular Purchasing, signed by ASR in November 2013	1
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that	Yes	Commitment	1

#	Question	Answer (yes/no)	Documentation	Score
2	increasingly use recycled materials and/or recycle electronic goods? Have you planned activities (as described in the other categories) for the coming year?	Yes	expressed in Annual Report 2013. Evaluation of SRI criteria in order to include recycling.	1
Score other activities				6

3.7.4 ASR's response

ASR responded to the research results as follows:¹²⁰

“a.s.r. is undoubtedly committed to recycling and the circular economy in various forms. In 2013 a.s.r. signed the Circular Procurement covenant, from The Circle Economy, De Groene Zaak and MVO Nederland. Since 2014 all tenders are subjected to a circular procurement test and there are incentives for suppliers to gain FIRA certification to disclose their CSR performance.

Also as institutional investor, a.s.r. invests extra in businesses making a sustainable contribution to society by recycling their waste, using clean energies, reducing their environmental impact or energy consumption and making a contribution to the circular economy.”

The Fair Bank and Insurance Guide welcomes the commitments made by ASR and applauds its various initiatives with respect to its own operations. At the same time, it also hopes that ASR will elaborate this experience and knowledge in order to apply it to its investments as well.

3.8 Delta Lloyd

3.8.1 Company profile

Delta Lloyd Group is a listed Dutch financial institution with products and services in the field of insurance, pensions, investments and banking. Delta Lloyd is active in the Netherlands, Belgium and Germany and focuses on consumers, but also on small and large companies, multinationals and pension funds.¹²¹ It sells products under three brands: Delta Lloyd, Ohra and ABN Amro Verzekeringen. In the field of pension products, Delta Lloyd works together with BinckBank in a joint-venture called BeFrank. Erasmus Leven provides life insurance policies and mortgage related insurance while Cyrte Investments is an investment boutique that manages funds for institutional investors.¹²²

At the end of 2013, Delta Lloyd had 5,788 employees.¹²³ The total assets of the group amounted to € 76.5 billion, including € 64.6 billion in insurance investments. These investments were divided among the different investment categories as follows:¹²⁴

- Bonds: € 27.8 billion (43%)
- Mortgage loans to private customers: € 13.4 billion (21%)
- Other loans: € 4.5 billion (7%)
- Shares: € 14.2 billion (22%)
- Real estate: € 2.2 billion (3%)
- Derivatives: € 1.3 billion (2%)

- Cash: € 1.3 billion (2%)

Banking services are offered by Delta Lloyd in the Netherlands and Belgium, via Delta Lloyd Bankengroep NV. In the first half of 2013, Delta Lloyd Bankengroep NV was restructured, however. In March 2013, the Belgium-based subsidiary Delta Lloyd Bank NV was sold to Delta Lloyd NV with the earmark of selling these activities to a third party. In May 2013 Delta Lloyd Bankengroep NV and the Netherlands-based subsidiary Delta Lloyd Bank NV were merged, and now operate under the name Delta Lloyd Bank NV.¹²⁵ Also, Delta Lloyd Group owns a 30.5% stake in the Van Lanschot banking group.¹²⁶

In 2013, Delta Lloyd Bank had 200 employees.¹²⁷ At the end of 2013, Delta Lloyd Bank's total assets amounted to € 4.2 billion, of which € 3.6 billion originated from funds entrusted by customers. Total assets were invested in the following:¹²⁸

- Mortgage loans to private customers: € 2.8 billion (67%)
- Loans to governments: € 0.4 billion (10%)
- Loans to companies: € 0.1 billion (2%)
- Loans to other banks: € 0.1 billion (2%)
- Investments in bonds and derivatives: € 0.6 billion (14%)
- Cash: € 0.2 billion (5%)

Additional to the investments included in its balance sheet, Delta Lloyd Group at the end of 2013 managed assets with a value of € 7.7 billion for third parties (private clients and institutional investors).¹²⁹

3.8.2 Investments

Delta Lloyd Bank does not grant loans to mining and recycling companies.

Delta Lloyd ranks third with its relatively high amount of investments in the selected recycling companies and it has moderate investments in the selected mining companies. It invested 9 times more in shares and bonds of mining companies than in recycling companies. Delta Lloyd states that these investments are not made on behalf of Delta Lloyd Bank, as it does not invest in both the mining and recycling sector.¹³⁰

Please note that not all loans to and investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by Delta Lloyd itself.

Table 19 Investments Delta Lloyd

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	50.7	5.4
Loans	0.0	0.0

3.8.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 6 shows the outcome of this survey.

Delta Lloyd receives a score of 1, as 1 out of 11 questions are answered positively. Although Delta Lloyd has responded to our survey, it did hardly provide any documentation or details to back its answers. We therefore cannot award a score for Delta Lloyd with respect to its company engagement activities. Delta Lloyd does communicate about recycling on its website, specifically in relation to the renovation of their headquarters in Amsterdam.¹³¹

Finally, Delta Lloyd states that it has excluded six of the selected mining companies from its investments universe due to serious and repeated violations of the UN Global Compact principles.¹³²

Table 20 Assessment of activities Delta Lloyd

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	No	N.a.	0
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	Yes	No documents	0
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	Yes	Website	1
3	Did you organise events regarding recycling?	Yes	No documents	0
4	Did you participate in events regarding recycling?	Yes	No documents	0
5	Are you member of an organisation working on use of recycling?	No	N.a.	0
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	Yes	No documents or details.	0
2	Have you planned activities (as described in the other categories) for the coming year?	Yes	No documents or details.	0
Score other activities				1

3.8.4 Delta Lloyd's response

Delta Lloyd responded to the research results as follows:¹³³

"We are aware of the fact that the activities of our company have impact on the environment. We exclude enterprises that deliberately harm or neglect the environment. Delta Lloyd Group pays a lot of attention to recycling. For example, we have developed a plan with regard to sustainable remedies through our network of remedies. At the moment this plan is in the feasibility phase. Moreover, while renovating our main office in Amsterdam we have applied cradle to cradle standards to the purchase of furniture and carpeting (using ForNature terms), the new auditorium has a sedum roof, and the new, energy effective neon light advertising is fed by our solar panels."

The Fair Bank and Insurance Guide welcomes the initiatives with respect to its own operations. However, it also hopes that Delta Lloyd will elaborate this experience and knowledge in order to apply it to its investments as well.

3.9 Generali

3.9.1 Company profile

Assicurazioni Generali S.p.A. (or Generali Group) is one of the largest insurance companies in Europe. The company is active in more than 60 countries, employs 77,185 people and has more than 65 million clients worldwide.¹³⁴ In the Netherlands, Generali Insurance group is active in the field of life and damage insurance.

In 2013, Generali Group realised gross premium income of € 62.7 billion and paid out € 64.4 billion in insurance claims.¹³⁵ At the end of 2013, the company owned total assets with a value of € 449.7 billion, of which € 401.2 billion were investments. These investments were divided over the following investment categories:¹³⁶

- Government bonds: € 139.3 billion (35%)
- Corporate bonds: € 111.0 billion (27%)
- Other fixed income investments: € 30.1 billion (8%)
- Shares: € 17.7 billion (4%)
- Real estate: € 15.0 billion (4%)
- Investments for the risk of policyholders (mainly shares and bonds): € 59.1 billion (15%)
- Cash: € 18.2 billion (5%)
- Other investments: € 10.7 billion (3%)

In addition to the Group's insurance investments, Generali at the end of 2013 had assets with a value of € 104.3 billion under management for third parties.¹³⁷

3.9.2 Investments

As insurance company Generali does not grant loans to companies. Generali has low investments in the selected recycling companies and moderate investments in the selected mining companies. It invested 29 times more in shares and bonds of mining companies than in recycling companies.

Please note that not all investments in both mining and recycling companies could have been found as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by Generali itself.

Table 21 Investments Generali

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	63.0	2.2
Loans	n.a.	n.a.

3.9.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general.

Generali did not respond to the survey, no questions could be answered positively and therefore Generali receives a score of 1.

3.9.4 Generali's response

Generali responded to the research results as follows:¹³⁸

“Generali Group is not used to disclosing detailed figures related on its exposure on single company shares.”

The Fair Bank and Insurance Guide did not only asked for details regarding single company shares but also invited Generali to show the results of engagement activities. The Fair Bank and Insurance Guide once again strongly encourages Generali to be more transparent with regard to its investments and engagement process.

3.10 ING Group

3.10.1 Company profile

ING Group (ING) is a global financial institution of Dutch origin, currently offering banking, investment, life insurance and retirement services.. ING has more than 47 million clients in Europe, the United States, Canada, Latin America, Asia and Australia: retail clients, small and medium-sized enterprises, large companies, organizations and governments.¹³⁹ At the end of 2013, ING had over 64.649 employees. The total assets of the group amounted to € 1,081 billion.¹⁴⁰

ING has substantially completed the separation of its banking and insurance operations. ING plans to continue its banking activities under the ING brand.¹⁴¹ The group divested the insurance and investment management activities in Asia (except Japan) and listed its US insurance and investment management activities (ING U.S.) in May 2013 on the New York Stock Exchange. Through a series of share sale transactions, ING Group has reduced its stake in that company - now renamed in Voya Financial - to 19% as of November 2014.¹⁴²

In July 2014, the European and Japanese insurance and investment management businesses were listed as an independent company, named NN Group, on Euronext Amsterdam. After this transaction, ING's ownership of NN Group was reduced to 68.1%.¹⁴³

Under the restructuring agreement with the European Commission, as amended in November 2013, ING has agreed to divest more than 50% of NN Group by year-end 2015 and complete the divestment of 100% of NN Group by year-end 2016. In accordance with the Relationship Agreement, NN Group continues to apply ING's Environmental and Social Risk Framework, until ING's ownership is reduced to 30%.

NN Group is a leading insurance and investment management company with a strong, predominantly European, presence in 18 countries. With more than 12,000 employees it offers retirement services, insurance, investments and banking to retail, SME, corporate and institutional customers. Brand names for insurance products in The Netherlands include Nationale-Nederlanden, RVS, ING Verzekeringen and Movir.¹⁴⁴ In 2013, NN Group realised a gross premium income of € 9.5 billion and incurred a gross underwriting expenditure of € 13.6 billion.¹⁴⁵

At the end of 2013, NN Group owned total assets with a value of € 145.6 billion, of which € 136.2 billion were investments. These investments were divided among the following investment categories:¹⁴⁶

- Government bonds: € 44.3 billion (33%)
- Corporate bonds: € 18.1 billion (13%)
- Mortgage loans to private customers: € 14.2 billion (10%)
- Other loans and debt securities: € 5.6 billion (4%)
- Shares: € 40.3 billion (30%)
- Investment funds: € 2.3 billion (2%)
- Real estate: € 4.7 billion (3%)
- Cash: € 6.7 billion (5%)

Additional to the investments include on the balance sheet of NN Group, ING Investment Management at the end of 2013 managed assets with a total value of € 104 billion on behalf of third party retail and institutional investors.¹⁴⁷

ING plans to continue its banking activities under the ING brand.¹⁴⁸ At the end of 2013, ING Bank owned total assets of € 787.6 billion, of which € 474.8 billion originated from funds deposited on bank accounts by customers.¹⁴⁹ Total assets were invested in the following investment categories:¹⁵⁰

- Loans to governments: € 44.3 billion (6%)
- Loans to banks: € 47.1 billion (6%)
- Loans to companies: € 147.4 billion (19%)
- Mortgage and other loans to private customers and SMEs: € 312.6 billion (40%)
- Investments in shares, bonds and derivatives: € 201.6 billion (26%)
- Cash: € 11.9 billion (2%)
- Other: € 22.8 billion (3%)

3.10.2 Investments

ING Group has low investments in recycling and high investments in mining. It invested 297 times more in shares and bonds of the selected mining companies than in the selected recycling companies.

The research further found loans of ING to mining companies and to recycling companies. With a value of €700 million, ING is the biggest lender amongst the three financial institutions of which loans in mining companies were found. This amount is 64 times larger than the amount of loans granted to recycling companies.

Please note that not all loans to and investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by ING itself. ING did not provide information to the researchers about their investments in and loans to recycling companies.

Table 22 Investments ING

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	654.5	2.2
Loans	700.0	11.0

3.10.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 23 shows the outcome of this survey.

ING Group receives a score of 2, as 2 out of 11 questions are awarded positively. ING Group has chosen not to participate in this study and has thus not responded to the questions about their efforts to stimulate recycling and other activities in the context of the circular economy. Instead it pointed towards its general website and reports on sustainability. In addition, it mentioned its support for the Green Deal Circular Purchasing initiative.¹⁵¹ ING is also a member of the Circle Economy.¹⁵² We assess these references as examples of ING's engagement on sector level.

No information about engagement activities within the mining, electronics or any other industrial sector was found. ING does not commit to improvements in investments or activities with respect to recycling.

Table 23 Assessment of activities ING

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	No	N.a.	0
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply	No	N.a.	0

#	Question	Answer (yes/no)	Documentation	Score
4	chain? Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	No	N.a.	0
3	Did you organize events regarding recycling?	No	N.a.	0
4	Did you participate in events regarding recycling?	Yes	Green Deal Circular Purchasing	1
5	Are you member of an organization working on use of recycling?	Yes	Circle Economy	1
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	No	N.a.	0
2	Have you planned activities (as described in the other categories) for the coming year?	No	N.a.	0
Score other activities				2

3.10.4 ING Group's response

ING responded to the research results as follows:¹⁵³

“ING considers the topic of circular economy to be important to the future success of the economy. However, we believe that the methodology in this study is representing the topic in an oversimplified manner. ING therefore decided not to actively participate in this research. We do play our part in addressing the topic; we advise and facilitate our clients on the matter and will continue doing so. Furthermore, we are implementing circular economy concepts in our own organization.”

Research models indeed simplify reality to be able to analyse it. The Fair Bank and Insurance Guide has repeatedly asked the financial institutions for feedback on the methodology. Whenever possible and reasonable the methodology has been adjusted, for example by adding the part 'other activities'. This invites financial institutions to show their efforts in addressing the topic of urban mining, recycling and circular economy. For that particular reason it is very disappointing that ING decided not to cooperate.

3.11 Legal & General

3.11.1 Company profile

Legal & General Netherlands is an insurance company that offers income security products. It is a 100% subsidiary of the UK listed insurance company Legal & General Group Plc, which has 10 million clients worldwide and has been in business for more than 175 years.¹⁵⁴

Legal & General Netherlands is operational since 1984 and has more than 150,000 clients.¹⁵⁵ In 2013, the company realised a gross premium turnover of € 236.0 million and paid out € 280.2 million in insurance claims.¹⁵⁶ At the end of 2013, Legal & General Netherlands owned assets with a total value of € 2.3 billion, of which € 2.2 billion were investments. These investments were divided over the various investment categories as follows:¹⁵⁷

- Government and corporate bonds: € 1,464 million (66%)
- Shares: € 691 million (31%)
- Loans: € 39 million (2%)
- Derivatives: € 31 million (1%)

In 2013, Legal & General Group realized gross written premiums of £ 6.2 billion (€ 7.3 billion) and paid out £ 5.8 billion (€ 6.8 billion) in insurance claims.¹⁵⁸ At the end of 2013, total assets amounted to £ 363.2 billion (€ 434.5 billion) including investments with a total value of £ 337.9 billion (€ 404.2 billion). These investments were divided over the various investment categories as follows:¹⁵⁹

- Shares: £ 172.7 billion (51%)
- Government and corporate bonds: £ 152.4 billion (45%)
- Derivatives: £ 4.7 billion (1%)
- Loans: £ 0.3 billion (0%)
- Real estate: £ 6.1 billion (2%)
- Other: £ 1.6 billion (0%)

Apart from the investments included on its own balance sheet, asset management subsidiary Legal & General Investment Management at the end of 2013 managed assets with a total value of £ 450 billion (€ 538.3 billion) for more than 2,800 institutional investors.¹⁶⁰

3.11.2 Investments

Legal & General does not grant loans to the selected mining or recycling companies. Legal & General has low investments in the selected recycling companies and high investments in the selected mining companies. It invested 750 times more in shares and bonds of mining companies than in recycling companies.

Please note that not all loans to and investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by Legal & General itself.

Table 24 Investments Legal & General

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	749.9	1.0
Loans	n.a.	n.a.

3.11.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general.

Legal & General did not respond to the survey, no questions could be answered positively and therefore Legal & General receives a score of 1.

3.11.4 Legal & General's response

Legal & General did not respond to the research results.

3.12 NIBC

3.12.1 Company profile

NIBC Bank was founded in 1945 by the Dutch government with the objective to provide financing for the reconstruction of the Netherlands after World War II. The bank has traditionally focused on financing projects and long-term assets in several (international) industries such as shipping, oil and gas services, infrastructure, sustainable energy and commercial real estate.¹⁶¹

At the end of 2013, NIBC Bank employed 596 persons.¹⁶² The total assets of the bank amounted to € 22.3 billion, of which € 8.6 billion was originating from funds deposited by customers.¹⁶³ The total assets were invested as follows:¹⁶⁴

- Loans to banks: € 1.8 billion (8%)
- Mortgage loans to private customers: € 7.6 billion (34%)
- Loans to companies: € 6.7 billion (30%)
- Investments in shares, bonds and derivatives: € 4.5 billion (20%)
- Cash: € 1.2 billion (5%)
- Other: € 0.2 billion (1%)

In addition to the assets on NIBC Bank's own balance sheet, the bank managed € 2.0 billion worth of assets for third party clients in 2013.¹⁶⁵

3.12.2 Investments

NIBC does not invest in shares and bonds of mining or recycling companies.

NIBC further states that it is not active in the mining sector and loans to the selected mining companies could indeed not be found. According to its own information, NIBC does grant loans to recycling companies. Of the financial institutions that lend to the selected recycling companies NIBC has done the most investments.

Please note that not all loans to and investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by NIBC itself.

Table 25 Investments NIBC

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	n.a.	n.a.
Loans	0.0	13.8

3.12.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 6 shows the outcome of this survey.

NIBC does not invest in the mining sector. Therefore the question on company engagement in this sector is considered irrelevant. NIBC receives a score of 5, as 5 out of 10 relevant questions are answered positively.

NIBC has defined the recycling sector as a focus subsector within the Industries & Manufacturing sector. A focus sector is a sector in which NIBC wants to broaden its activities and built further expertise. NIBC has performed studies into the characteristics of this sector and the relevant companies that are active in this sector. When meeting these companies NIBC discusses the different elements of their business, including various sustainability related topics. In an internal Sustainability Training for new employees, NIBC uses a recycling company as case-study.

NIBC claims to communicate about recycling, but only mentions an internal training and a short reference to Van Gansewinkel's approach to waste and recycling in its online magazine.¹⁶⁶ NIBC participated in an event of VNO-NCW about circular economy.

NIBC committed to improve investments in the recycling industry, it has defined the recycling sector as a focus subsector within the Industries & Manufacturing sector and has plans to train and involve senior management on this sector by organising an event about circular economy.¹⁶⁷

Table 26 Assessment of activities NIBC

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	N.a.	N.a.	N.a.
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	Yes	Shown during meeting and presentation	1
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	Yes	Shown during meeting and presentation	1

#	Question	Answer (yes/no)	Documentation	Score
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	Yes	No documents	0
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	Yes	Insufficient	0
3	Did you organise events regarding recycling?	No	N.a.	0
4	Did you participate in events regarding recycling?	Yes	Invitation VNO NCW Broodje B lunch meeting about Circular Business	1
5	Are you member of an organisation working on use of recycling?	No	N.a.	0
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	Yes	Shown during meeting and presentation	1
2	Have you planned activities (as described in the other categories) for the coming year?	Yes	Detailed e-mail explaining plans	1
Score other activities				5

3.12.4 NIBC's response

NIBC did not submit a response to the research results.

3.13 Rabobank

3.13.1 Company profile

The Rabobank group is an international financial service provider founded on cooperative principles and active in the fields of banking, asset management, leasing, insurance and real estate. Rabobank has a cooperative structure: the 136 local Rabobanks in the Netherlands, that jointly have more than 2 million members, are the joint owners of Rabobank. Rabobank Netherlands supports the local banks and is the holding company for the Dutch and foreign subsidiaries and affiliates. The local Rabobanks serve millions of Dutch private and business clients with a full range of financial services. Rabobank International aspires to a global position as the leading food and agriculture bank.¹⁶⁸

At the end of 2013, the Rabobank Group had more than 56,870 employees across 41 countries. In the Netherlands the group has more than 10 million private clients and 722 branches.¹⁶⁹

At the end of 2013, Rabobank Group's total assets amounted to € 674.1 billion, of which € 329.4 billion originates from funds deposited by customers.¹⁷⁰ At the end of 2013, the total assets of the Rabobank Group were invested as follows:¹⁷¹

- Loans to governments: € 2.8 billion (0%)
- Mortgage loans to private customers: € 235.3 billion (35%)
- Loans to companies: € 222.2 billion (33%)
- Loans to banks: € 40.8 billion (6%)
- Investments in shares, bonds and derivatives: € 96.4 billion (14%)
- Cash: € 43.0 billion (6%)
- Real estate: € 1.1 billion (0%)
- Other: € 32.6 billion (5%)

Rabo Asset Management was established in 2013, following the sale of the Robeco. Now, the local Rabobanks offer, together with specialists from Schretlen & Co, comprehensive asset advisory services to high net worth customers and retail. Assets under management for these services are not specified.¹⁷²

3.13.2 Investments

The research only returned investments in the selected mining companies, not in the selected recycling companies.

The research also only found loans of Rabobank to mining companies, not to recycling companies. With a value of €144 million, Rabobank ranks second amongst the three financial institutions of which loans in mining companies were found.

Please note that not all loans to and investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by Rabobank itself. Rabobank did not provide information to the researchers about their investments in and loans to recycling companies.

Table 27 Investments Rabobank

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	2.5	0.0
Loans	144.0	0.0

3.13.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 6 shows the outcome of this survey.

Rabobank receives a score of 4, as 4 out of 11 questions are answered positively. Rabobank has not responded in detail to the questions about their efforts to stimulate recycling and other activities in the context of the circular economy. Instead it points towards its annual reports and other public media such as the Rabobank Circular Economy Challenge, Life Cycle Asset Management by its subsidiary De Lage Landen and its memberships of the Circular Economy 100 of the Ellen MacArthur Foundation, the Circle Economy and the Circularity Center.¹⁷³ We assess these references as examples of Rabobank's engagement on a sectoral level.

The financial institution did not mention any engagement activities within the mining, electronics or any other industrial sector. It also does not mention any commitments to improvements in investments or planned activities with respect to recycling.

Table 28 Assessment of activities Rabobank

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	No	N.a.	0
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	Yes	Rabobank website, website of De Lage Landen	1
3	Did you organise events regarding recycling?	Yes	Rabobank Circular Economy Challenge; Event 'Pathways to a circular economy' together with Port of Rotterdam.	1
4	Did you participate in events regarding recycling?	Yes	Circular Economy Challenge	1
5	Are you member of an organisation working on use of recycling?	Yes	Circular Economy 100 of the Ellen MacArthur Foundation; the Circle Economy; the Circularity Center	1
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	No	N.a.	0
2	Have you planned activities (as described in the other categories) for the coming year?	No	N.a.	0
Score other activities				4

3.13.4 Rabobank's response

Rabobank did not respond to the research results.

3.14 SNS Reaal (Vivat Verzekeringen)

3.14.1 Company profile

SNS Reaal has both banking and insurance operations. Vivat Verzekeringen, trade name of Reaal N.V., is part of the SNS Reaal Group, a Dutch banking and insurance group. SNS Reaal has significantly changed in 2013 and is currently implementing a restructuring plan. In February 2013 it was nationalized by the Dutch State, as part of a bailout program. As a result, SNS Reaal has transformed from an operational to a financial holding company. Two separate units have been created that comprehend the banking and insurance activities independently. Furthermore, Property Finance has materialized in December 2013.¹⁷⁴

The division insurance activities, that now operates under the name Vivat Verzekeringen, is in the process of divestment from the holding SNS Reaal.¹⁷⁵ Vivat's brands offer the following products: insurance (life, damage, disability), mortgages, pensions and capital growth (saving and investing).¹⁷⁶ Insurance is offered under the brand names Reaal (savings, investments, insurance), Zwitserleven (pensions and savings), Proteq Dier & Zorg (insurance for cats and dogs), Zelf (Non-life and funeral insurance), Route Mobiel (Road assistance and car and travel insurance).¹⁷⁷

At the end of 2013, SNS Reaal had 6,400 employees and owned assets with a total value of € 124.6 billion.¹⁷⁸ The insurance activities of the group in 2013 realized a gross premium income of € 3.2 billion and paid out € 3.1 billion in insurance claims.¹⁷⁹

At the end of 2013, the total assets of SNS Reaal's insurance activities amounted to € 54.2 billion, of which € 47.8 billion were investments. These investments were divided over the various investment categories as follows:¹⁸⁰

- Government bonds: € 16.9 billion (35%)
- Corporate bonds: € 12.1 billion (25%)
- Investments for the risk of policyholders (mainly shares and bonds): € 13.5 billion (28%)
- Shares: € 1.2 billion (3%)
- Loans to private customers: € 2.8 billion (6%)
- Loans to banks: € 0.4 billion (1%)
- Real estate: € 0.3 billion (1%)
- Derivatives: € 0.6 billion (1%)

Apart from the investments included on the balance sheet of SNS Reaal, SNS Asset Management at the end of 2013 managed assets with a total value of € 2.7 billion for third parties.¹⁸¹ Recently, SNS Asset Management and SNS Beleggingsfondsen Beheer have merged and have been renamed Actiam.¹⁸²

SNS Bank NV will continue as an independent bank and will focus on the brands SNS Bank, ASN Bank, RegioBank and BLG Wonen. SNS Bank focuses mainly on the Dutch retail and SME markets. The product range consists of two core product groups: mortgages and SME finance, and asset management (savings and investments).

At the end of 2013, SNS Bank owned total assets of € 74.5 billion, from which € 43.9 billion originated from funds deposits by customers.¹⁸³ Excluding the assets of ASN Bank, this amounts to total assets of € 63.7 billion. At the end of 2013, SNS Bank's total assets were invested in the following investment categories:¹⁸⁴

- Loans to banks: € 6.1 billion (8%)
- Loans to governments: € 2.3 billion (3%)
- Loans to companies: € 3.8 billion (5%)
- Mortgage and other loans to private and SME customers: € 47.3 billion (63%)
- Investments in bonds and derivatives: € 8.1 billion (11%)
- Cash: € 5.5 billion (7%)
- Other: € 1.4 billion (2%)

Apart from the investments on the balance sheet of the bank, SNS Bank manages € 5.4 billion of assets for clients through its investment funds.¹⁸⁵

3.14.2 Investments

SNS Bank does not grant loans to mining and recycling companies.

SNS Reaal has low investments in mining companies as well as in recycling companies. It invested 17 times more in shares and bonds of the selected mining companies than in the selected recycling companies. Please note that not all investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by SNS Reaal itself.

Table 29 Investments SNS Reaal

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	10.2	0.6
Loans	0.0	0.0

3.14.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 6 shows the outcome of this survey.

SNS Reaal receives a score of 5, as 5 out of 11 questions are answered positively. SNS Reaal claims to engage mining companies and companies in other industrial sectors on the subject of efficiency and recycling, but only partially provides sufficient documentation to support these claims.

SNS Reaal does communicate about recycling, through its quarterly reports and online columns of an analyst of Actiam. SNS Reaal also participates in events such as the Community of Practice on Circular Economy (CoP CE) and stakeholder events with the VBDO and Vodafone on circular economy. SNS Reaal is also a member of the CoP CE.

The two questions on commitment to improvements were both answered affirmative by SNS Reaal, but without further documentation to give details on its intentions.¹⁸⁶ In its response dating from November, SNS Reaal explains that it expects to study the feasibility of taking circular economy criteria in its investment decision process and this way select investee companies preferentially based on the lower environmental impact.¹⁸⁷

Table 30 Assessment of activities SNS Reaal

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	Yes	No documents	0
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	Yes	Report on chemical company and agenda for meeting including topics resource efficiency and cradle-to-cradle program	1
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	Yes	Kwartaalrapport Verantwoord Beleggen, Zwitterleven Beleggingsfond en column medewerker	1
3	Did you organise events regarding recycling?	No	N.a.	0
4	Did you participate in events regarding recycling?	Yes	CoP Circulair Economy and stakeholder events with the VBDO and Vodafone on circular economy	1
5	Are you member of an organisation working on use of recycling?	Yes	CoP on Circular Economy	1
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	Yes	No documents	0
2	Have you planned activities (as described in the other categories) for the coming year?	Yes	Plans in response confirmed by e-mail	1

#	Question	Answer (yes/no)	Documentation	Score
	Score other activities			5

3.14.4 SNS Reaal's response

SNS Reaal responded to the research results as follows: ¹⁸⁸

"Actiam manages all of SNS Reaal's investments in a responsible manner. Circular economy is an important topic which resonates in our engagements in various sectors. An important element in our engagement activities is life-cycle analysis. This provides an assessment of whether the company has end-of-life product management programmes and targets, and whether initiatives are taken to take-back or recycle these products. (...)

Other activities with respect to (electronics) recycling and mining include our involvement in the Community of Practice on Circular Economy, where we study the feasibility of taking circular economy criteria in our investment decision process. It should commit Actiam to select investee companies preferentially based on the lower environmental impact of their products/services.

We have an extensive policy for the extractives industry and further communicate about recycling and mining through our quarterly reports and the columns written by our Head of Responsible Investment, Manuel Adamini. We regularly participate in stakeholder events as well as (responsible) investor meetings.

With respect to our own business, SNS Bank has recently signed the "Green Deal Circulaire Gebouwen" agreement, in which it pledges to apply circular economy-thinking to its buildings. The agreement focuses on the minimal use and recycling of commodities, products and other goods."

The Fair Bank and Insurance Guide welcomes the plans and activities of SNS Reaal regarding the issue of circular economy.

3.15 Triodos Bank

3.15.1 Company profile

Triodos Bank is active in financing companies, organizations and projects with an additional value in the social, environmental and cultural fields. The bank's three main segments are: Retail and Business Banking (Netherlands, Belgium, Germany, Spain, UK), Investment Management (Europe and Emerging Markets) and Private Banking (Netherlands and Belgium).¹⁸⁹

At the end of 2013, Triodos Bank had 911 employees and 517,000 clients.¹⁹⁰ At the end of 2013, the bank's total assets amounted to € 6.4 billion, of which € 5.7 billion were comprised of funds entrusted by clients.¹⁹¹ The total assets were invested as follows:¹⁹²

- Loans to companies and organizations: € 3.3 billion (52%)
- Loans to banks: € 0.6 billion (9%)
- Loans to private customers: € 0.3 billion (5%)
- Investments in government bonds: € 0.8 billion (13%)
- Investments in other bonds: € 0.4 billion (6%)
- Cash: € 0.9 billion (14%)

- Other: € 0.2 billion (3%)

In addition to the assets on the bank's balance sheet, Triodos Investment Management managed assets for clients, in the form of collective investment schemes and private banking mandates, with a total value of € 3.2 billion.¹⁹³

3.15.2 Investments

Triodos Bank does not invest in or grant loans to either the selected metals mining companies or the selected recycling companies on behalf of its own account.

Triodos Sustainable Investment Funds and Triodos Private Banking mandates do invest (clients' assets) in a wide range of companies, including companies that focus on recycling and waste management. Triodos Bank has also send examples of companies active in recycling that it has granted loans to, stating that they all comply with the strict minimum criteria. These investments could not be taken into account as the companies were not selected for this research.

3.15.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general.

Triodos Investment Management has engaged with companies in the sectors mining, recycling and other industrial sectors, even if it is not investing in it. According to Triodos Bank none of the companies selected for this research complies with their minimum criteria. The engagement reports provide interesting information on Triodos Bank's activities. Triodos Bank provided detailed information in an e-mail as well, which is quoted here:¹⁹⁴

"As at 31/7/14 Triodos Sustainable Investment Funds and Triodos Private Banking mandates hold positions in 170 stock market noted companies. With all these companies we regularly engage. We don't keep track of engagement on the specific issue of recycling, but by estimation this will have been the case with some 25 companies.

It is good to realize that every company we invest in, has been thoroughly assessed and approved. During this assessment we check whether a company meets a range of Triodos minimum standards. For some industries (e.g. Paper & Forest, Publishing, Metals & Mining, Containers & Packaging) we consider recycling as a relevant and material issue for which we seek contact with companies.

Furthermore, we also engage with companies on recycling that in the end don't proof to meet Triodos minimum standards and thus can't be approved for investing. By estimation this amounts to some 30 companies in the last five years. E.g., in 2011/2012 we engaged with some 12 Metals & Mining companies (after a pre-screening showed these to be the most promising companies) on recycling. In the end only 2 of them could be selected, the other companies were rejected for non-compliance with a number of our minimum standards.

Once we invest in (approved) companies, we regularly engage on diversified topics, such as recycling. By estimation this has been the case for 10 companies in the last five years."

According to Triodos Bank it works with the circular economy principles since it was founded. Organic agriculture is the ultimate form of circularity and as such it considers its thematic private equity funds aimed at organic companies as a fund that is focused on circle economy.¹⁹⁵ As this research and the specific question targets recycling and the electronics sector, this input is considered irrelevant.

Triodos Bank communicates about recycling and related topics through its e-zine and its offline magazine the Colour of Money, for example on e-waste in 2011, circular economy in 2012, recycling in 2013, scarce commodities in 2014. At the annual event for entrepreneurs in 2014 Triodos Bank invited Thomas Rau, founder of Turnto and architect of Triodos Bank head office, to talk about the concept of circular economy. The award *Hart-Hoofdprijs 2014* went to Roetz Bike, that works on a cradle-to-cradle bike concept. Triodos presents video reports about this on YouTube.¹⁹⁶

Furthermore it advises and works closely together with organisations like Circle Economy and Turnto to the greatest extent possible. This was shown in various e-mails. Triodos Bank often takes part in sessions organised by Circle Economy, amongst others at Springtij 2014. Despite that, Triodos Bank is not yet a member of Circle Economy because the projects are not linked to the type of companies Triodos Bank finances. At this moment Triodos Bank is studying for which industrial sector a product could be developed in which the Circle Economy platform adds value and helps the companies to start integrating the concept.¹⁹⁷

Triodos Bank further commits to improve both investing in and financing of companies that increasingly use recycled materials and/or recycle electronic goods, but also states that *'we remain critical on the ultimate goals to be achieved (responsible use of finite sources, prevention of pollution, saving energy) and on other sustainability aspects.'*¹⁹⁸

Table 31 Assessment of activities Triodos Bank

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	Yes	Survey	1
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	Yes	Survey, Engagement Report 2012	1
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	Yes	Survey	1
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	Yes	Survey	1
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters,	Yes	E-zine	1

#	Question	Answer (yes/no)	Documentation	Score
3	statements)? Did you organise events regarding recycling?	Yes	Triodos' day for entrepreneurs report and contribution of Thomas Rau	1
4	Did you participate in events regarding recycling?	Yes	Has joined a session on Circle Economy and the financial sector at Springtij 2014	1
5	Are you member of an organisation working on use of recycling?	Not yet	N.a.	0
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	Yes	Survey, e-mails	1
2	Have you planned activities (as described in the other categories) for the coming year?	Yes	E-mail: studying the relevancy of Circle Economy for finance products, integrating concept in SRI	1
Score other activities				8

3.15.4 Triodos Bank's response

Triodos Bank responded to the research results as follows: ¹⁹⁹

“Triodos Bank indicates that resources have to be handled with care, either by recycling or in efficiency. Triodos Bank would like to stress that recycling is a means to help achieving diversified goals: (a) responsible use of finite sources, (b) prevention of pollution, and (c) saving energy. Recycling should, however, not be a treated as a goal as such, therefore, Triodos Bank always keeps a critical eye on recycling, because we see it as an ‘end of pipe solution’. The goals stated above could be achieved with more emphasize on working towards a circular economy. We believe that our balanced choices on the positive side, our positive criteria, contribute to the transition to a more circular economy.”

The Fair Bank and Insurance Guide considers recycling metals as a key link in the circular economy of electronics and in closing the metals loop. The scope of a case study, and especially the financial research, however is limited for pragmatic reasons. The Fair Bank and Insurance Guide therefore much welcomes all kinds of other initiatives to encourage recycling and the circular economy.

3.16 Van Lanschot

3.16.1 Company profile

Van Lanschot is the oldest independent bank in the Netherlands, dating back to 1737. It provides services in private, merchant and corporate banking and asset management, predominantly to clients in the Netherlands and Belgium.

In 2013, Van Lanschot had 1,808 employees and 38 branches. Its activities service clients in the Netherlands, Belgium, Switzerland, the United States and Scotland.²⁰⁰

In 2013, total assets amounted to € 17.7 billion, of which € 10.2 billion were originating from savings and deposits entrusted by private and business clients.²⁰¹ Total assets were invested as follows:²⁰²

- Loans to banks: € 0.4 billion (2%)
- Mortgage and other loans to private customers: € 8.0 billion (45%)
- Loans to companies: € 4.5 billion (25%)
- Investments in shares, bonds and derivatives: € 2.2 billion (12%)
- Cash: € 2.0 billion (11%)
- Other: € 0.6 billion (3%)

Van Lanschot's subsidiary Kempen & Co. provides asset management and merchant banking services. In addition to the investments on the bank's balance sheet, Van Lanschot at the end of 2013 managed total assets of € 43.3 billion for clients, of which € 31.9 billion was managed in a discretionary way.²⁰³

3.16.2 Investments

The research finds investments in a few of the selected mining companies, not in the selected recycling companies. Van Lanschot does not grant loans to mining companies. According to its own information Van Lanschot has granted a loan to one recycling company.

Please note that not all loans to and investments in both mining and recycling companies could have been taken into account as not all information is publicly available and that the research regarding the investments in recycling companies is largely based on input by Van Lanschot itself.

Table 32 Investments Van Lanschot

Type of investment	Value investments in selected mining companies (in mln €)	Value investments in selected recycling companies (in mln €)
Shareholdings and bondholdings	14.4	0.0
Loans	0.0	0.7

3.16.3 Other activities

In addition to the financial analysis, a survey was held among the financial institutions to assess the activities financial institutions undertake to stimulate electronics recycling and recycling in general. Table 33 shows the outcome of this survey.

Van Lanschot receives a score of 1, as 0 out of 11 questions are answered positively.

Van Lanschot indicates that it does engage with mining companies but its engagements focus on the most material topics in the mining sector: human right abuses (including indigenous people), environmental hazards (a.o. pollution, water issues, protected areas, HCVF), labour issues (a.o. HSE), security issues, etcetera. According to Van Lanschot and its data provider recycling is important but not the most material topic.

The financial institution did not mention any engagement activities to communicate its vision regarding recycling nor does it show any commitment to improvements.²⁰⁴

Table 33 Assessment of activities Van Lanschot

#	Question	Answer (yes/no)	Documentation	Score
<i>Company engagement</i>				
1	Did you engage mining companies over the last 5 years on the subject of efficiency and recycling?	No	N.a.	0
2	Did you engage recycling companies, reuse companies and companies that make products from recycled materials with regard to electronics sector over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
3	Did you engage companies in other industrial sectors over the last 5 years on the subject of efficiency and recycling in their supply chain?	No	N.a.	0
4	Did you file any resolutions or ask questions at the annual meeting of shareholders regarding efficiency and recycling within a company and its supply chain?	No	N.a.	0
<i>Sector engagement</i>				
1	Do you manage a thematic (private equity) fund that especially focusses on the circular economy?	No	N.a.	0
2	Did you communicate about recycling through one or more communication channels (websites, brochures, mailings, position papers, open letters, statements)?	No	N.a.	0
3	Did you organise events regarding recycling?	No	N.a.	0
4	Did you participate in events regarding recycling?	No	N.a.	0
5	Are you member of an organisation working on use of recycling?	No	N.a.	0
<i>Commitment to improvements</i>				
1	Do you commit to improve investments in companies that increasingly use recycled materials and/or recycle electronic goods?	No	N.a.	0
2	Have you planned activities (as described in the other categories) for the coming year?	No	N.a.	0
Score other activities				1

3.16.4 Van Lanschot's response

Van Lanschot responded to the research results as follows:²⁰⁵

“According to Van Lanschot, this research touches on an important sustainability issue. At the same time, we are critical, especially about the research method. Even after an intensive dialogue with Profundo and the Fair Bank and Insurance Guide, that went on for a more than a year, the research method still contains several approaches that we do not agree upon. Because this report does not leave much room for a substantive debate, we will only briefly highlight three issues:

1. Why would the relation between bank investments and mining corporations on the one hand and bank investments and recycling companies on the other, be a good indicator for the importance that a bank attaches to recycling? As far as we can assess, the reality is a lot more complicated.

2. The involvement of Van Lanschot with respect to this research topic is minimal. We do not provide credit to mining companies, invest – according to the data of Profundo – only 0,03% of our AuM in mining companies and have only provided one credit to a recycling company (just 0,01% of our corporate credit portfolio). Hence, is it realistic to expect that recycling – as defined by this research – is at the top of our agenda?

3. According to the questionnaire, recycling is so important that every bank should touch upon it in its contacts with mining companies. We do not share this vision. We believe that there are other topics that are of more importance: environmental pollution, landgrabbing, human rights, labor conditions, water usage, etc. It is therefore, that in our contacts with mining companies we discuss these topics, instead of recycling.

In summary: We find the method used for this report is lacking nuance, therefore question the findings of this research and doubt whether it provides a useful and substantive contribution to the debate.”

Due to depletion of mineral deposits, miners have to dig deeper, take more risks and this leads to even more environmental and social impact than they currently cope with. Recycling of resources would not only save resources, including water and land, but also energy. When executed properly, recycling can be the key link in the circular economy of metals. Comparing these sectors therefore seems relevant to the Fair Bank and Insurance Guide.

The Fair Bank and Insurance Guide would like to point out to the fact that the relation between investments in the mining sector and the recycling study is not the only topic of this study. It has included other steps that financial institutions can take to stimulate recycling. The Fair Bank and Insurance Guide also understands that a financial institution considers the relevance and materiality of a topic when selecting the issues for selection of companies and engagement programs, and that recycling might not be the first issue on the agenda. However, it also hopes that this case study shows the links of recycling to other important topics, even at mining companies and especially in the whole supply chain from mining to manufacturing electronics and to waste collectors/processors.

Chapter 4 Analysis and conclusions

4.1 Introduction

This research project has two main components:

- **Investments:** A comparison is made between investments in the selected mining companies owned or managed by the financial institution (shareholdings and bond holdings and loans) and investments in selected recycling companies, as financial institutions are related to the nature of the activities of the company they support financially and the degree to which financial institutions finance both groups of companies says a lot about the type of change financial institutions want to support.
- **Other activities:** Activities like communication, engagement and voting, are studied because there are more ways besides financing or investing, in which financial institutions can influence changes in society. Financial institutions can influence the conduct of companies in which they invest. As shareholder they are able to bring attention to the importance of recycling and the circular economy, and as such encourage companies to innovate in sourcing raw materials, both on individual level and on sector level. Banks can also promote recycling and re-use amongst their clients by giving advice and bringing businesses together.

For the first component Profundo analysed the financial relations between the bank and insurance groups researched by the Dutch Fair Bank and Insurance Guide and the selected mining and selected recycling companies. The analysis of investments was partially based on the information provided by the financial institutions. Unfortunately, not all banks and insurers presented figures on their investments in and loans to recycling companies. ABN Amro, Allianz, APG, Generali, ING and Rabobank did not provide information on investments in recycling companies. The research results might have looked different if they had cooperated.

The financial institutions were also questioned through a survey, preferably during an interview, about their other activities. Unfortunately, not all banks and insurers filled in the survey or participated in an in-depth face-to-face interview. Some did answer in general terms on the headlines of the survey by e-mail, often referring to information on their website. Therefore, the profile of the following financial institutions might not give a comprehensive overview of their other activities (than investing and financing) to enhance urban mining and recycling: ABN Amro, APG, Allianz, Generali, ING, Legal & General and Rabobank.

The following two sections describe and analyse the research results of both components. Section 4.4 draws conclusions and section 4.5 provides recommendations.

4.2 Investments

This section summarizes the results of the analysis of the investments of the selected banks and insurers in mining companies on the one hand and recycling companies on the other hand. Two types of investments are discussed: shareholdings and bond holdings (section 4.2.1) and loans (section 4.2.2).

4.2.1 Shareholdings and bond holdings

Many financial institutions invest in shares and bonds issued by listed companies. They can do this for their own account or for the account of clients. For the purpose of this study, the shares and bonds owned and managed by the financial institution are taken together.

Of the researched financial institutions, three financial institutions invest over a 100 times more in shares and bonds issued by the selected mining companies than in shares and bonds of the selected recycling companies. Of those three, Legal & General invests 750 times more in mining companies than in recycling companies. ING (297 times more) and Aegon (162 times more) follow at a distance. In absolute numbers the biggest investor in mining companies is Allianz, which is not very surprising considering its size and the number of assets it manages for third parties. Just like APG, which also invests heavily in mining companies (with 0.13% of total assets), Allianz is not in the top three of biggest investors in mining, compared to recycling as the investments in the selected recycling companies are relatively high.

In fact, the highest investments in recycling companies are done by APG (€ 10.7 million), which is closely followed by Allianz (€ 9.0 million). Delta Lloyd ranks third (€ 5.2 million), followed by Generali and ING (both with € 2.2 million). In terms of the percentage of the total assets these investments are negligible.

Rabobank and Van Lanschot only invest in shares and bonds of mining companies for a relatively small amount. Finally, three financial institutions do not invest in the selected mining and recycling companies at all. According to ASN Bank and Triodos Bank companies in the mining sector do not comply with their minimum sustainability criteria. NIBC does not invest in shares and bonds at all, from that it follows that no investments in shares and bonds issued by mining companies were found.

Table 28 presents an overview of the investments in shareholdings and bond holdings by the financial institutions, showing the total of the values and expressed as percentage of the market capitalization of the selected companies.²⁰⁶

Table 28 Overview investments in selected mining and recycling companies

Financial institution	Value investments in selected mining companies (in mln €)	Share of total market capitalization selected mining companies	Value investments in selected recycling companies (in mln €)	Share of total market capitalization selected mining companies	Remarks
Allianz	844.0	0.57%	9.0	0.38%	94 times more investments found in mining companies than in recycling companies.
Legal & General	749.9	0.50%	1.0	0.04%	750 times more investments found in mining companies than in recycling companies.
ING	654.5	0.44%	2.2	0.09%	297 times more investments found in mining companies than in recycling companies.
APG	459.9	0.31%	10.7	0.45%	43 times more investments found in mining companies than in recycling companies.
Aegon	211.0	0.14%	1.3	0.05%	162 times more investments found in mining companies than in recycling companies.
Generali	63.0	0.04%	2.2	0.09%	29 times more investments found in

Financial institution	Value investments in selected mining companies (in mln €)	Share of total market capitalization selected mining companies	Value investments in selected recycling companies (in mln €)	Share of total market capitalization selected mining companies	Remarks
Delta Lloyd	50.7	0.03%	5.4	0.23%	mining companies than in recycling companies. 9 times more investments found in mining companies than in recycling companies.
Van Lanschot	14.4	0.01%	0.0	0.00%	Only investments found in mining companies.
SNS Reaal	10.2	0.01%	0.6	0.03%	17 times more investments found in mining companies than in recycling companies.
ABN Amro	4.1	0.00%	0.4	0.02%	10 times more investments found in mining companies than in recycling companies.
Achmea	2.5	0.00%	0.6	0.03%	4 times more investments found in mining companies than in recycling companies.
Rabobank	2.5	0.00%	0.0	0.00%	Only investments found in mining companies.
ASR	0.1	0.00%	0.9	0.04%	15 times more investments found in recycling companies than in mining companies.
ASN Bank	0.0	0.00%	0.0	0.00%	No investments found granted to mining companies or to recycling companies.
NIBC	0.0	0.00%	0.0	0.00%	No investments found granted to mining companies or to recycling companies.
Triodos Bank	0.0	0.00%	0.0	0.00%	No investments found granted to mining companies or to recycling companies.

4.2.2 Loans

Ten out of sixteen of the researched financial institutions grant loans to companies. Of these, the research found loans in the selected mining companies for three financial institutions. Except for Triodos Bank and ASN Bank this does not mean that the other banks do not grant loans to these companies at all, but not all loans could be found.

In the period July 2009 until July 2014, ING granted loans with a value of € 700 million, while Rabobank and ABN Amro follow at great length with € 144 million and € 108 million respectively. ING also granted loans to recycling companies for an amount of € 11 million. This means it granted 64 times more money to mining companies than to recycling companies. NIBC and Van Lanschot lend money to recycling companies only. With € 13.8 million, NIBC is the biggest lender to recycling companies of all researched financial institutions.

Table 29 presents an overview of the investments by the financial institutions.

Table 29 Overview loans in selected mining and recycling companies

Financial institution	Value loans in selected mining companies (in mln €)	Value loans in selected recycling companies (in mln €)	Remarks
ING	700.0	11.0	64 times more loans found granted to mining companies than to recycling companies.
Rabobank	144.0	0.0	Only loans found granted to mining companies.
ABN Amro	108.1	0.0	Only loans found granted to mining companies.
NIBC	0.0	13.8	No loans found granted to mining companies, according to own information some loans granted to recycling companies.
Van Lanschot	0.0	0.7	No loans found granted to mining companies, according to own information one loan granted to recycling company.
Aegon	0.0	0.0	No loans found granted to mining companies or to recycling companies.
ASN Bank	0.0	0.0	No loans found granted to mining companies or to recycling companies.
Delta Lloyd	0.0	0.0	No loans found granted to mining companies or to recycling companies.
SNS Reaal	0.0	0.0	No loans found granted to mining companies or to recycling companies.
Triodos Bank	0.0	0.0	No loans found granted to mining companies or to recycling companies.
Achmea	n.a.	n.a.	Financial institution does not grant loans to companies.
Allianz	n.a.	n.a.	Financial institution does not grant loans to companies.
APG	n.a.	n.a.	Financial institution does not grant loans to companies.
ASR	n.a.	n.a.	Financial institution does not grant loans to companies.
Generali	n.a.	n.a.	Financial institution does not grant loans to companies.
Legal & General	n.a.	n.a.	Financial institution does not grant loans to companies.

4.3 Other activities

This section summarizes the results of the analysis of other activities of the selected banks and insurers to stimulate recycling. Table 30 demonstrates that, except for ASR, none of the financial institutions received a score higher than 5 out of 10 points. Although many financial institutions claim that recycling and the concept of the circular economy are very important, this is not reflected in their activities. Even the highest scoring financial institutions did not answer more than 6 of 11 questions affirmative. It must be said, though, that sometimes questions were answered positive but that documentation to support the claim was not sufficient or lacking. These questions were not granted points.

Table 30 Scorecard ‘Other activities’

Financial institutions	# questions positive	Score other activities
Triodos Bank	9	8
ASN Bank	6	6
ASR Bank	6	6
Achmea	5	5
NIBC	5	5
SNS Reaal	5	5
Rabobank	4	4
ABN Amro	3	3
ING	2	2
Aegon	1	1
Allianz	1	1
APG	0	1
Delta Lloyd	0	1
Generali	0	1
Legal & General	0	1
Van Lanschot	0	1

The next three sections discuss different parts of the survey: company engagement (section 4.3.1), sector engagement (section 4.3.2) and commitment (section 4.3.3).

4.3.1 Company engagement

Six financial institutions, could prove that they engage with individual companies on the topic of recycling: Achmea, ASN Bank, ASR, NIBC, SNS Reaal, Triodos Bank. Achmea showed engagement on company level in the sectors metal, cement and electronics and this claim is backed by confidential engagement reports reviewed by Profundo. ASN Bank showed that it had contacted Alba about their recycling rate and percentage of waste buried in landfill. ASR showed a list of topics that was discussed with a company producing mattresses.

SNS Reaal presented a company profile and agenda of a meeting with a chemical company showing it engages on the topics resource efficiency and cradle-to-cradle programs. Triodos Bank engages with companies as part of their selection process and when it is invested in the companies. Its engagement report 2012 gives an example of such engagement. NIBC defined the recycling sector a focus sector and discusses sustainability related topics during meetings with the companies.

Aegon and SNS Reaal both claimed they engaged companies in the mining sector regarding the company environmental policy and resource efficiency but handed over insufficient proof. The same goes for Delta Lloyd that engaged with companies in other than the mining or recycling sector regarding resource efficiency.

Van Lanschot indicated that it does engage with mining companies but that it is focussed on the pressing topics in the mining sector, namely human right abuses, labour issues, security issues and environmental hazards. According to Van Lanschot recycling is an important, but not the most material, topic in this sector.

4.3.2 Sector engagement

Not one of the researched financial institutions manages a fund that is dedicated to recycling or circular economy in general. Only ASN Bank said to manage a thematic fund in which recycling is an important selection criterion, considering that 20% of the companies selected deal specifically with recycling.

During the research it became clear that especially insurers experience difficulties investing in many of the selected recycling companies, as these are often private companies and investment opportunities are limited to private equity funds. This asset class is often very small, which further reduces opportunities to invest in recycling companies. At the same time investors also acknowledge that the investments made in shares and bonds of recycling companies are most often not done deliberately in order to stimulate recycling. Similarly, this topic is not on the agenda with regard to private equity investments. One insurer has said that this research shows the relevance of it but that it still needs to overcome the difficulties mentioned earlier.

More than half of the researched financial institutions received points for communicating publicly about recycling. ABN Amro, ASN Bank, ASR, Delta Lloyd, Rabobank, SNS Reaal, Triodos Bank use their website, but also brochures, newsletters, quarterly or annual reports or presentations to share their vision on circular economy, resource efficiency and recycling. This is not always related to the companies they invest in. Delta Lloyd and ASR mainly communicate about their own operations, as their offices are being renovated.

Achmea, ASN Bank, ASR, NIBC and Triodos Bank organize and/or participate in events regarding recycling, like the:

- ASN Bank Wereldprijs (ASN Bank)
- Broodje B lunch meeting Circular Business (NIBC)
- Circular Building session of the Platform Duurzame Huisvesting (Platform Sustainable Housing, ASR)
- Hart-Hoofdag 2014 with Thomas Rau (Triodos Bank)
- Workshop at conference (Achmea)

Six financial institutions are member of organizations like:

- Circle Economy (ABN Amro, ING, Rabobank);

- Circular Economy 100 of the Ellen MacArthur Foundation (Rabobank);
- Circularity Center (Rabobank);
- Green Deal Community of Practice Bedrijven en Biodiversiteit (ASN Bank);
- Community of Practice on Circular Economy (SNS Reaal)
- Green Deal Circular Purchasing Initiative (ABN Amro, ASR, ING)

4.3.3 Commitments

All researched financial institutions agree that recycling, and the more broader concept of the circular economy, has become increasingly important. Half of them explicitly commit to improve their investments in companies enhancing recycling and resource efficiency. Their plans to realise this differ a lot, however.

Likewise, Aegon foresees that recycling becomes an important selection criterion for its investments. Also, Allianz is in the process of developing an ESG Engagement Framework, which will give guidance on the topics Allianz plans to engage with companies it invests in. Finally, SNS Reaal plans to study the feasibility of taking circular economy criteria in its investment decision process.

ASN Bank commits to increase its investments in companies that increasingly use recycling, especially by focusing on the waste sector. Similarly, NIBC has defined the recycling sector as an important subsector of the Industries & Manufacturing sector and plans to increase its investments in it. NIBC also has plans to train and involve senior management by organising a meeting about circular economy.

ASR and Triodos Bank both committed to increase investments in recycling companies and have planned specific activities for the coming year. ASR's commitment is in line with its policy to invest in *“businesses that make a sustainable contribution to society, for instance by processing or recycling their waste (...) and that – just as a.s.r. does – make a contribution to the circular economy.”* In order to do so it has planned an evaluation of its SRI criteria and the possibilities to include recycling. Triodos Bank committed to improve investing in and financing of companies that increasingly use recycled materials and/or recycle electronic goods, but remains *“critical on the ultimate goals to be achieved (responsible use of finite sources, prevention of pollution, saving energy) and on other sustainability aspects.”* Furthermore, it will study the relevancy of the platform Circle Economy, a Dutch a non-profit open platform, for financing products and integrating the concept in SRI criteria.

Achmea intends to join Circle Economy later in 2014, and will cooperate with a number of other organisations to transition business models of Rabobank clients.

Delta Lloyd gave a commitment to improve investments and claimed that it has planned activities to do so for the coming years, but did not present details to back these claims.

4.4 Conclusions

By financing companies, by investing in relevant companies and funds and by other activities that promote the recycling of metals, banks and insurance companies can support a closed metals loop. The recycling sector plays a crucial role in an economic development to create a society in which metals are used and reused efficiently. This study shows that the main Dutch bank and insurance groups have different approaches to support the development of the recycling sector.

Generally, financial institutions follow the market, spread their risks over all sectors or finance companies in sectors they have a lot of knowledge of. Very few make a deliberate choice to enable the recycling sector to develop into an urban mining sector, regularly supplying high quality raw materials to the manufacturing sector.

The major banks in the Netherlands seem to have a vision on the circular economy as they all take part in events or communicate on their website about it. Except for NIBC, their efforts are not reflected in their investments as they often invest in or finance companies in the mining sector more than in the recycling sector. ABN Amro, ING and especially Rabobank put a lot of effort in promoting the concept of circular economy by communicating about or participating in events on this topic. Unfortunately, they did not provide information about their investments in the recycling of electronics-related metals so that it is difficult to say how much they invest in such companies. NIBC on the other hand, focuses on the industrial sector in the Netherlands and Germany and invests in recycling companies, which it considers an interesting and profitable investment opportunity.

Interesting are the limited investments in the recycling sector by the banks ASN Bank and Triodos Bank. They hardly invest in metals recycling companies because many companies in the metals sector have sustainability issues, such as pollution or links to weapon production. However, they promote recycling when they contact clients and engage companies on the issue when they are active in sectors where metals' recycling is relevant.

In the insurance sector, Achmea, ASR and Delta Lloyd stand out. Although they invest broadly to spread risks, these insurers invest relatively more in recycling than the others. In absolute numbers APG, parent company of Loyalis, is the top investor in the recycling companies but this is not a surprise as APG is the biggest investment company in the Netherlands. Moreover, it has also huge investments in mining companies. ASR and SNS Reaal also show their involvement as they are active by engaging with companies or communicating about recycling.

On the other hand, the major insurance companies Aegon, Allianz, Generali, ING (NN Group) and Legal & General hardly undertake any effort to promote recycling, neither by their investment practices nor by engagement or communicating about it. These financial institutions invest severely in mining companies and seem to ignore recycling companies.

Promising is that eight of the sixteen financial institutions explicitly commit to improve their investments in companies enhancing recycling and resource efficiency and/or have specific plans to contribute to (electronics) recycling in other ways. Aegon foresees that recycling will play a bigger role in selecting companies, while Allianz plans to develop an engagement framework, including the topic recycling. Also SNS Reaal will study the feasibility of taking circular economy criteria in its investment decision process.

ASN Bank, ASR, NIBC and Triodos Bank commit to improve their investments in companies that increasingly use recycling. NIBC further commits to train senior management by organising a meeting about circular economy, Triodos Bank will study the relevancy of joining the platform Circle Economy for its financial products and SRI criteria, and ASR has planned an evaluation of its SRI criteria.

Finally, Achmea's intention is to join Circle Economy and to enhance cooperation with a number of other organisations to transition business models and to integrate the circular economy concept.

Table 31 Overview research results

Financial institution	Value shareholdings and bond holdings in selected companies (in mln €)		Value loans in selected companies (in mln €)		Score other activities
	Mining	Recycling	Mining	Recycling	
ABN Amro	4.1	0.4	108.1	0.0	3
Achmea	2.5	0.6	n.a.	n.a.	5
Aegon	211.0	1.3	0.0	0.0	1
Allianz	844.0	9.0	n.a.	n.a.	1
APG	459.9	10.7	n.a.	n.a.	1
ASN Bank	0.0	0.0	0.0	0.0	6
ASR	0.1	0.9	n.a.	n.a.	6
Delta Lloyd	50.7	5.4	0.0	0.0	1
Generali	63.0	2.2	n.a.	n.a.	1
ING	654.5	2.2	700.0	11.0	2
Legal & General	749.9	1.0	n.a.	n.a.	1
NIBC	0.0	0.0	0.0	13.8	5
Rabobank	2.5	0.0	144.0	0.0	4
SNS Reaal	10.2	0.6	0.0	0.0	5
Triodos Bank	0.0	0.0	0.0	0.0	8
Van Lanschot	14.4	0.0	0.0	0.7	1

4.5 Recommendations

Based on the results of this case study on investments by Dutch bank and insurance groups in mining and recycling companies and their activities to stimulate the transition to urban mining, and more specifically electronics recycling, the Dutch *Fair Bank and Insurance Guide* makes the following recommendations to the financial institutions that were examined:

1. Include the concept of circular economy and the transition to urban mining in the environmental, social and governance (ESG) screening policy of the insurance groups and the credit risk assessments of banks. This will enable investors and financiers to select those companies leading the way in efficient recycling and introducing new and innovative technologies, also in the design of products, to improve the output of the recycling process.
2. Address the concept of circular economy systematically in engagement with mining and recycling companies, as well as with other companies within the supply chain of electronics.
3. Address the debate on circular economy and resource efficiency, and more specifically, the transition to urban mining, when exercising their voting rights.
4. Promote the transition to a circular economy amongst clients and other entrepreneurs, by communicating about, organizing of, or participating in events regarding recycling and resource efficiency. If banks and investors can also show they invest in these sectors themselves, their arguments in support of the circular economy would gain strength.

5. Be a lot more transparent about investments and about engagement and voting processes, without disrespecting the duty of care they have towards clients. Report for example the number of companies with which there has been engagement and in which sectors and regions they operate. Disclose the percentage of investments that does not comply with the financial institution's policy and which steps will be taken to change this.
6. The Dutch Fair Bank and Insurance Guide calls on the bank and insurance groups who did not cooperate to the fullest extent possible with this research project, to take their clients and other stakeholders, such as many Dutch citizens, seriously. Clients and other stakeholders deserve to know what their money is used for and whether financial institutions pay sufficient attention to mining and recycling issues with regard to their investments.

Appendix 1 List of electronics metals mining companies

Company	Country	Estimated part relevant minerals	Main minerals	Market capitalization as of 23 September 2014 (€ million)	Website	Source	Parent company
Anglo American	United Kingdom	17%	Copper	23,609.16	www.angloamerican.com	Anglo American, "Annual Report 2012", Anglo American, March 2013.	Anglo American
Antofagasta Plc	Chili	92%	Copper	8,613.14	www.antofagasta.co.uk	Antofagasta Plc, "Annual Report 2012", Antofagasta Plc, April 2013.	Antofagasta Plc
Augusta Resource	Canada	95%	Copper	336.33	www.augustaresource.com	Augusta Resource, "Rosemont Copper - Overview", online: www.augustaresource.com/Rosemont-Copper/Overview/default.aspx, viewed in November 2013; Augusta Resource, "Annual Report 2012", Augusta Resource, March 2013.	Augusta Resource
Aurubis	Germany	80%	Copper	1,695.36	www.aurubis.com	Aurubis, "Annual Report 2011/2012", Aurubis, December 2012; European Electronics Recyclers Association, "Recyclers", online: www.eera-recyclers.com/recyclers, viewed in November 2013.	Aurubis
Avalon Rare Metals	Canada	40%	Indium, Lithium, Tin	36.71	www.avalonraremetals.com	Avalon Rare Metals, "Projects", online: www.avalonraremetals.com/projects, viewed in November 2013.	Avalon Rare Metals
Avino Silver & Gold Mines	Canada	95%	Indium, Copper	37.69	www.avino.com	Avino Silver & Gold Mines, "Projects", online: www.avino.com/s/projects.asp, viewed in November 2013.	Avino Silver & Gold Mines
Barrick Gold	Canada	18%	Copper	13,035.85	www.barrick.com	Barrick Gold, "Annual Report 2012", Barrick Gold, March 2013.	Barrick Gold
BHP Billiton	Australia/United Kingdom	6%	Copper	115,243.11	www.bhpbilliton.com	BHP Billiton, "Annual Report 2013", BHP Billiton, September 2013.	BHP Billiton
Capstone Mining	Canada	88%	Copper	593.90	www.capstonemining.com	Capstone Mining, "Annual Report 2012", Capstone Mining, March 2013.	Capstone Mining
China Gold	Canada/China	84%	Copper	794.05	www.chinagoldintl.com	China Gold International Resources, "Annual Report	China Gold

Company	Country	Estimated part relevant minerals	Main minerals	Market capitalization as of 23 September 2014 (€ million)	Website	Source	Parent company
International Resources						2012", China Gold International Resources, March 2013.	International Resources
Codelco	Chili	93%	Copper	-	www.codelco.com	Codelco, "Codelco at a glance Q1 2013", Codelco, May 2013.	Codelco
Copper Mountain Mining	Canada	83%	Copper	193.59	www.cumtn.com	Copper Mountain Mining, "Annual Report 2012", Copper Mountain Mining, June 2013.	Copper Mountain Mining
CuDECO	Australia	90%	Copper, Cobalt	251.11	www.cudeco.com.au	CuDECO, "Annual Report 2013", CuDECO, October 2013.	CuDECO
Eurasian Natural Resources Corporation (ENRC)	United Kingdom	10%	Cobalt, copper	3,173.33	www.enrc.com	ENRC, "Annual Report 2012", ENRC, April 2013.	Eurasian Natural Resources Corporation (ENRC)
First Quantum Minerals	Canada	89%	Copper	8,353.79	www.first-quantum.com	First Quantum Minerals, "Annual Report 2012", First Quantum Minerals, March 2013.	First Quantum Minerals
FMC	United States of America	10%	Lithium	5,845.33	www.fmc.com	FMC, "Annual Report 2012", FMC, March 2013.	FMC
Freeport-McMoRan Copper & Gold	United States of America	80%	Copper, Cobalt	25,033.08	www.fcx.com	Freeport-McMoRan Copper & Gold, "Annual Report 2012", Freeport-McMoRan Copper & Gold, February 2013.	Freeport-McMoRan Copper & Gold
Glencore Xstrata	Switzerland	27%	Copper, Cobalt	53,975.77	www.glencorexstrata.com	Glencore Xstrata, "Half-Yearly Report Six months ended 30 June 2013", Glencore Xstrata, August 2013.	Glencore Xstrata
Gold Fields	South-Africa	21%	Copper	2,297.57	www.goldfields.co.za	Gold Fields, "Annual Report 2012", Gold Fields, April 2013.	Gold Fields
Goldcorp	Canada	7%	Copper	14,221.89	www.goldcorp.com	Goldcorp, "Annual Report 2012", Goldcorp, March 2013.	Goldcorp
Grupo México	Mexico	66%	Copper	18,772.87	www.gmexico.com	Grupo Mexico, "Annual Report 2012", Grupo Mexico, August 2013.	Grupo México
HudBay Minerals	Canada	33%	Copper	1,515.37	www.hudbayminerals.com	Hudbay Minerals, "Annual Report 2012", Hudbay Minerals, April 2013.	HudBay Minerals

Company	Country	Estimated part relevant minerals	Main minerals	Market capitalization as of 23 September 2014 (€ million)	Website	Source	Parent company
Imperial Metals	Canada	64%	Copper	450.26	www.imperialmetals.com	Imperial Metals, "Annual Report 2012", Imperial Metals, March 2013.	Imperial Metals
Jiangxi Copper	China	86%	Copper	5,031.33	www.jxcc.com	Jiangxi Copper, "Annual Report 2012", Jiangxi Copper, April 2013.	Jiangxi Copper
JX Holdings	Japan	12%	Copper	8,609.60	www.hd.jx-group.co.jp	JX Holdings, "Annual Report 2013", JX Holdings, September 2013.	JX Holdings
Kazakhmys Plc	United Kingdom	55%	Copper	1,422.98	www.kazakhmys.com	Kazakhmys Plc, "Annual Report 2012", Kazakhmys Plc, April 2013.	Kazakhmys Plc
KGHM Polska Miedz	Poland	90%	Copper	5,650.83	www.kghm.pl	KGHM Polska Miedz, "Annual Report 2012", KGHM Polska Miedz, March 2013.	KGHM Polska Miedz
Lithium Americas	Canada	100%	Lithium	36.72	www.lithiumamericas.com	Lithium Americas, "Annual Report 2012", Lithium Americas, March 2013.	Lithium Americas
Lundin Mining	Canada	63%	Copper	2,188.06	www.lundinmining.com	Lundin Mining, "Annual Report 2012", Lundin Mining, February 2013.	Lundin Mining
Malaysian Smelting Corporation (MSC)	Malaysia	100%	Tin	72.61	www.msmelt.com	Malaysian Smelting Corporation, "Annual Report 2012", Malaysian Smelting Corporation, April 2013.	Malaysian Smelting Corporation (MSC)
Mandalay Resources	Australia	96%	Antimony	250.28	www.mandalayresources.com	Mandalay Resources, "Annual Report 2012", Mandalay Resources, April 2013.	Mandalay Resources
Minsur	Peru	100%	Tin	438.43	ww.minsur.com.pe	Minsur, "Home", online: ww.minsur.com.pe, viewed in November 2013	Minsur
Mitsubishi Materials	Japan	27%	Copper	3,218.51	www.mmc.co.jp/english	Mitsubishi Materials, "Annual Report 2013", Mitsubishi Materials, August 2013.	Mitsubishi Materials
Monto Minerals	Australia	90%	Tin, Indium	4.25	montominerals.com	Monto Minerals, "Home", online: montominerals.com, viewed in November 2013.	Monto Minerals
Nevsun Resources	Canada	66%	Copper	544.55	www.nevsun.com	Nevsun Resources, "Annual Report 2012", Nevsun Resources, March 2013.	Nevsun Resources

Company	Country	Estimated part relevant minerals	Main minerals	Market capitalization as of 23 September 2014 (€ million)	Website	Source	Parent company
Newcrest Mining	Australia	30%	Copper	4,952.21	www.newcrest.com.au	Newcrest Mining, "Annual Report 2013", Newcrest Mining, September 2013.	Newcrest Mining
Newmont Mining	United States of America	18%	Copper	8,571.16	www.newmont.com	Newmont Mining, "Annual Report 2012", Newmont Mining, February 2013.	Newmont Mining
NGEx Resources	Canada	66%	Copper	224.84	www.ngexresources.com	NGEx Resources, "Projects/Resources", online: www.ngexresources.com/s/Resources.asp, viewed in November 2013	NGEx Resources
Norilsk Nickel	Russia	60%	Cobalt, Copper, Ruthenium	21,114.19	www.nornik.ru	Norilsk Nickel, "Annual Report 2012", Norilsk Nickel, June 2013.	Norilsk Nickel
Orocobre	Australia/Argentina	13%	Lithium	239.76	www.orocobre.com.au	Orocobre, "Annual Report 2013", Orocobre, October 2013.	Orocobre
OZ Minerals	Australia	76%	Copper	813.34	www.ozminerals.com	OZ Minerals, "Annual Report 2012", OZ Minerals, March 2013.	OZ Minerals
PanAust	Australia	67%	Copper	831.54	www.panaust.com.au	PanAust, "Annual Report 2012", PanAust, March 2013.	PanAust
RB Energy (f.k.a. Canada Lithium)	Canada	100%	Lithium	30.39	www.canadalithium.com	Canada Lithium, "Annual Report 2012", Canada Lithium, March 2013.	Canada Lithium
Rio Tinto	Australia/United Kingdom	12%	Copper	57,369.43	www.riotinto.com	Rio Tinto, "Annual Report 2012", Rio Tinto, March 2013.	Rio Tinto
Sandfire Resources	Australia	88%	Copper	659.06	www.sandfire.com.au	Sandfire Resources, "Annual Report 2013", Sandfire Resources, October 2013.	Sandfire Resources
Sherritt International	Canada	5%	Cobalt	639.18	www.sherritt.com	Sherritt International, "Annual Report 2012", Sherritt International, April 2013.	Sherritt International
Sierra Metals (f.k.a. Dia Bras Exploration)	Canada	14%	Copper	179.62	www.sierrametals.com	Sierra Metals, "Annual Report 2012", Sierra Metals, April 2013.	Sierra Metals (voorheen Dia Bras Exploration)

Company	Country	Estimated part relevant minerals	Main minerals	Market capitalization as of 23 September 2014 (€ million)	Website	Source	Parent company
South American Silver	Canada	90%	Indium, Copper	17,833.05	www.soamsilver.com	South American Silver, "Resources Chart", online: www.soamsilver.com/reserves-and-resources-charts.asp , viewed in November 2013.	South American Silver
SQM (Sociedad Quimica y Minera De Chile)	Chile	5%	Lithium	5,076.90	www.sqm.com	SQM, "Sustainability Report 2012", SQM, July 2013.	SQM (Sociedad Quimica y Minera De Chile)
Taseko Mines	Canada	90%	Copper	253.53	www.tasekomines.com	Taseko Mines, "Annual Report 2012", Taseko Mines, February 2013.	Taseko Mines
Teck Resources	Canada	23%	Copper	8,263.70	www.teck.com	Teck Resources, "Annual Report 2012", Teck Resources, March 2013.	Teck Resources
Timah	Indonesia	85%	Tin	556.77	www.timah.com	Timah, "Annual Report 2012", Timah, March 2013.	Timah
TriMetals (f.k.a. Southern Copper)	Peru/Mexico/United States of America	77%	Copper	23.98	www.southernperu.com	Southern Copper, "Summary Operating Data", online: www.southernperu.com/ENG/intope/Pages/PGProdVolume.aspx , viewed in November 2013.	Southern Copper
Turquoise Hill Resources	Canada	79%	Copper	5,451.74	www.turquoisehill.com	Turquoise Hill Resources, "Annual Report 2012", Turquoise Hill Resources, March 2013; Turquoise Hill Resources, "Projects - Oyu Tolgoi (copper-gold), Mongolia", online: www.turquoisehill.com/s/oyu_tolgoi.asp?ReportID=379189 , viewed in November 2013.	Turquoise Hill Resources
Vale	Brazilia	4%	Cobalt, Copper	41,382.33	www.vale.com	Vale, "Annual Report 2012", Vale, February 2013.	Vale
Vedanta Resources	United Kingdom	10%	Copper	3,127.29	www.vedantaresources.com	Vedanta Resources, "Annual Report 2012", Vedanta Resources, June 2013.	Vedanta Resources
Xingye Copper	China	100%	Copper	43.24	www.xingyecopper.com	Xingye Copper, "Annual Report 2013", Xingye Copper, September 2013.	Xingye Copper
Yamana Gold	Canada	22%	Copper	4,196.27	www.yamana.com	Yamana Gold, "Annual Report 2012", Yamana Gold, April 2013.	Yamana Gold

Company	Country	Estimated part relevant minerals	Main minerals	Market capitalization as of 23 September 2014 (€ million)	Website	Source	Parent company
Yunnan Tin Group	China	97%	Tin	2,247.05	en.ytc.cn	Yunnan Tin Group, "About YTC", online: en.ytc.cn/About_YTC.htm, viewed in November 2013	Yunnan Tin Group
Zijin Mining	China	35%	Copper	5,567.59	www.zjky.cn	Zijin Mining, "Annual Report 2012", Zijin Mining, April 2013.	Zijin Mining

Appendix 2 List of electronics recycling companies

Company	Country	Estimated part of recycling activities	Market capitalization as of 23 September 2014 (€ million)	Website	Source
Alba Group	Germany	5%	5.32	www.alba.info	Alba Group, "Home", online: www.alba.info, viewed in November 2013.
Aurubis	Germany	20%	1,727.26	www.aurubis.com	Aurubis, "Annual Report 2011/2012", Aurubis, December 2012.
Bianatt	Greece	100%	n.a.	www.bianatt.gr	Bianatt, "Home", online: www.bianatt.gr, viewed in November 2013.
Boliden	Sweden	33%	3,278.85	www.boliden.com	Boliden, "Annual Report 2012", Boliden, March 2013.
Clozdloup	Belgium	100%	n.a.	www.clozdloup.com	Clozdloup, "Home", online: www.clozdloup.com, viewed in November 2013.
Coolrec	The Netherlands	100%	n.a.	www.coolrec.nl	Coolrec, "Home", online: www.coolrec.nl, viewed in November 2013.
Coved	France	5%	n.a.	www.saur.com	Groupe Saur, "Core Business - Waste Management", online: www.saur.com/en/index.php/index.php/core-business/waste-management#.UntnSuJE2Hc, viewed in November 2013.
De Groot Metals	The Netherlands	33%	n.a.	degrootmetals.com	De Groot Metals, "Home", online: degrootmetals.com, viewed in November 2013.
DELA GmbH Recycling	Germany	15%	n.a.	www.dela-recycling.com	DELA GmbH Recycling, "Home", online: www.dela-recycling.com, viewed in November 2013.
E.K.A.N. SA	Greece	100%	n.a.	www.ekanrecycling.gr	E.K.A.N. SA, "Home", online: www.ekanrecycling.gr, viewed in November 2013.
Elektro Recycling	Slovakia	100%	n.a.	www.elektrorecycling.sk	Elektro Recycling, "Home", online: www.elektrorecycling.sk, viewed in November 2013.
Europe Metals	The Netherlands	40%	n.a.	www.europe-metals.com	Europe Metals, "Home", online: www.europe-metals.com, viewed in November 2013.
Forest Metal Group	The Netherlands	20%	n.a.	www.forestmetalgroup.nl	Forest Metal Group, "Home", online: www.forestmetalgroup.nl, viewed in November 2013.
Galloo	Belgium	25%	n.a.	www.galloo.com	Galloo, "Home", online: www.galloo.com, viewed in November 2013.

Company	Country	Estimated part of recycling activities	Market capitalization as of 23 September 2014 (€ million)	Website	Source
Gebr. Bakker Metaal Recycling	The Netherlands	40%	n.a.	www.bakkermetaalrecycling.nl	Gebr. Bakker Metaal Recycling, "Home", online: www.bakkermetaalrecycling.nl, viewed in November 2013.
Gerrits Recycling	The Netherlands	15%	n.a.	www.gerritsrecycling.nl	Gerrits Recycling, "Home", online: www.gerritsrecycling.nl, viewed in November 2013.
GreenWEEE International	Romania	100%	n.a.	www.greenweee.ro	GreenWEEE International, "Home", online: www.greenweee.ro, viewed in November 2013.
Gremlin	Romania	33%	n.a.	www.gremlincom.ro	Gremlin, "Home", online: www.gremlincom.ro, viewed in November 2013.
Grupo Fundosa	Spain	3%	n.a.	www.grupofundosa.es	Grupo Fundosa, "Catalogo de Servicios", online: www.grupofundosa.es/es/catalogo-de-servicios, viewed in November 2013.
HKS Metals	The Netherlands	50%	n.a.	www.hksmetals.eu	HKS Metals, "Home", online: www.hksmetals.eu, viewed in November 2013.
Immark	Switzerland	100%	n.a.	www.immark.ch	Immark, "Home", online: www.immark.ch, viewed in November 2013.
Indumetal Recycling	Spain	100%	n.a.	www.indumetal.com	Indumetal Recycling, "Home", online: www.indumetal.com, viewed in November 2013.
Interecycling	Portugal	100%	n.a.	www.interecycling.com	Interecycling, "Home", online: www.interecycling.com, viewed in November 2013.
Jacomij Electronics Recycling	The Netherlands	100%	n.a.	electronics.jacomij.nl	Jacomij Electronics Recycling, "Home", online: electronics.jacomij.nl, viewed in November 2013.
Jacomij Groep	The Netherlands	66%	n.a.	www.jacomij.com	Jacomij Groep, "Home", online: www.jacomij.com, viewed in November 2013.
Jansen Recycling Group	The Netherlands	20%	n.a.	www.jansengroup.com	Jansen Recycling Group, "Home", online: www.jansengroup.com, viewed in November 2013.
KMK Metals Recycling	Ireland	50%	n.a.	www.kmk.ie	KMK Metals Recycling, "Home", online: www.kmk.ie, viewed in November 2013.
Kuusakoski	Finland	50%	n.a.	www.kuusakoski.com	Kuusakoski, "Home", online: www.kuusakoski.com, viewed in November 2013.

Company	Country	Estimated part of recycling activities	Market capitalization as of 23 September 2014 (€ million)	Website	Source
MBA Polymers	United States of America	25%	n.a.	www.mbapolymers.com	MBA Polymers, "Home", online: www.mbapolymers.com, viewed in November 2013.
Metallum Holding	Belgium	50%	n.a.	www.metallo.com	Metallum Holding, "Home", online: www.metallo.com, viewed in November 2013.
Müller-Guttenbrunn Group (MGG)	Austria	50%	n.a.	www.mgg-recycling.com	Müller-Guttenbrunn Group, "Home", online: www.mgg-recycling.com, viewed in November 2013.
Nadin	Bulgaria	25%	n.a.	www.nadin.bg	Nadin, "Home", online: www.nadin.bg, viewed in November 2013.
NOEX	Germany	100%	n.a.	www.noex.ag	NOEX, "Home", online: www.noex.ag, viewed in November 2013.
Overdie Groep	The Netherlands	33%	n.a.	overdie.nl	Overdie Groep, "Home", online: overdie.nl, viewed in November 2013.
Praktik Group	Czech	50%	n.a.	www.praktiksystem.cz	Praktik Group, "Home", online: www.praktiksystem.cz, viewed in November 2013.
Praxy	France	20%	n.a.	www.praxy.fr	Praxy, "Home", online: www.praxy.fr, viewed in November 2013.
Reciclalia	Spain	100%	n.a.	www.reciclalia.es	Reciclalia, "Home", online: www.reciclalia.es, viewed in November 2013.
Recydur	The Netherlands	100%	n.a.	www.recydur.nl	Recydur, "Home", online: www.recydur.nl, view in November 2013.
Relight	Italy	100%	n.a.	www.relightitalia.it	Relight, "Home", online: www.relightitalia.it, viewed in November 2013.
Remondis	Germany	2%	n.a.	www.remondis.com	Remondis, "Remondis in facts & figures - Facilities", online: www.remondis.com, viewed in November 2013.
Remondis Electrorecycling	Germany	100%	n.a.	www.remondis-electrorecycling.de	Remondis Electrorecycling, "Home", online: www.remondis-electrorecycling.de, viewed in November 2013.
Resteel International	The Netherlands	100%	n.a.	www.resteel.nl	Resteel International, "Home", online: www.resteel.nl, viewed in November 2013.
Reukema	The Netherlands	15%	n.a.	www.reukema.com	Reukema, "Home", online: www.reukema.com, viewed in November 2013.

Company	Country	Estimated part of recycling activities	Market capitalization as of 23 September 2014 (€ million)	Website	Source
Roba Metals	The Netherlands	33%	n.a.	www.robametals.com	Roba Metals, "Home", online: www.robametals.com, viewed in November 2013.
Sims Metal Management	Australia	20%	1,524.55	www.simsmm.com	Sims Metal Management, "Annual Report 2013", Sims Metal Management, October 2013.
Sims Recycling Solutions	United Kingdom	100%	n.a.	www.simsrecycling.com	Sims Recycling Solutions, "Home", online: www.simsrecycling.com, viewed in November 2013.
SITA	France	5%	n.a.	www.sita.fr / www.suez-environnement.com	Suez Environnement, "Reference Document 2012", Suez Environnement, April 2013.
Stena Metall Group	Sweden	10%	n.a.	corporate.stenametal.com	Stena Metall Group, "Our business", online: corporate.stenametal.com/Our-business, viewed in November 2013; Stena Metall Group, "Annual Report 2011-2012", Stena Metall Group, November 2012.
Stena Technoworld	Sweden	100%	n.a.	www.stenatechnoworld.com	Stena Technoworld, "Home", online: www.stenatechnoworld.com, viewed in November 2013.
Stockx Metal Trading	The Netherlands	25%	n.a.	www.stockx-metal.com	Stockx Metal Trading, "Home", online: www.stockx-metal.com, viewed in November 2013.
Stolk Recycling	The Netherlands	33%	n.a.	www.stolkhandelsbedrijf.nl	Stolk Recycling, "Home", online: www.stolkhandelsbedrijf.nl, viewed in November 2013.
Suez Environnement	France	2%	7,117.58	www.suez-environnement.com	Suez Environnement, "Reference Document 2013", Suez Environnement, April 2014.
TXO Systems	United Kingdom	100%	n.a.	www.txo-systems.com	TXO Systems, "Home", online: www.txo-systems.com, viewed in November 2013.
Umicore	Belgium	10%	4,308.60	www.umicore.com	Umicore, "Annual Report 2012", online: www.umicore.com/reporting/management-review/segment-review/recycling/economic-performance, viewed in November 2013.
Umicore Precious Metals Refining	Belgium	33%	n.a.	www.preciousmetals.umicore.com	Umicore Precious Metals Refining, "Home", online: www.preciousmetals.umicore.com, viewed in November 2013.
United Metals	The	33%	n.a.	www.united-metals.nl	United Metals, "Home", online: www.united-metals.nl, viewed in November 2013.

Company	Country	Estimated part of recycling activities	Market capitalization as of 23 September 2014 (€ million)	Website	Source
Van Dalen Metals Recycling & Trading	Netherlands	15%	n.a.	www.vandalenrecycling.com	Van Dalen Metals Recycling & Trading, "Home", online: www.vandalenrecycling.com, viewed in November 2013.
Van Gansewinkel Groep	The Netherlands	5%	n.a.	www.vangansewinkel.nl	Van Gansewinkel Groep, "Sustainability Report 2012", Van Gansewinkel Groep, April 2013.
Van Hout Groep	The Netherlands	25%	n.a.	www.hout-kabelrecycling.nl	Van Hout Groep, "Home", online: www.hout-kabelrecycling.nl, viewed in November 2013.
Van Leeuwen Recycling Groep	The Netherlands	15%	n.a.	www.vanleeuwengroep.com	Van Leeuwen Recycling Groep, "Home", online: www.vanleeuwengroep.com, viewed in November 2013.
Veolia Environmental Services	France	5%	n.a.	www.veolia-environmentalservices.com	Veolia Environmental Services, "2012 Key Figures", Veolia Environmental Services, May 2013.
Veolia Environnement SA	France	1%	7,748.52	www.veolia.com	Veolia Environnement, "Annual Report 2013", Veolia Environnement, April 2014.
Viol Recycling Groep	The Netherlands	5%	n.a.	www.viol.nl	Viol Recycling Groep, "Home", online: www.viol.nl, viewed in November 2013.
WKR	Germany	50%	n.a.	wkr-gmbh.de	WKR, "Über uns", online: wkr-gmbh.de/de/ueber-uns.html, viewed in November 2013.

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