



6 GUIDELINES TO **EMPOWER** FINANCIAL DECISION-MAKING IN THE CIRCULAR ECONOMY



Authors

Elisa Achterberg (Circle Economy & Sustainable Finance Lab)
Rens van Tilburg (Sustainable Finance Lab, University Utrecht)

Contributors

Aglaia Fischer (Circle Economy & Sustainable Finance Lab)
Friedemann Polzin (Sustainable Finance Lab, University Utrecht)
Helen Toxopeus (Impact Center Erasmus University Rotterdam)

Expert input and case study contributors

Andrew Shannon (partner Circularity Capital)
Anne-Marie Rakhorst (entrepreneur, founder Search, Duurzaamheid.nl)
Armand Ferreira (Director Sustainable Lending at ING Bank)
Celine Pessers (Category Manager Circular Economy at ABN AMRO Bank)
Daniël Povel (Director Business Banking at Triodos Bank)
Felix Zwart (Research, Public Policy and Regulatory Affairs at NVP)
Gawan Nap (Student Trainee LEAF Lab at Triodos Bank)
Gerald Naber (Vice President Sustainable Finance at ING Bank)
Jeroen van Muiswinkel (Business Developer Sustainability at Rabobank NL)
Joost Holleman (partner Prime Ventures)
Josée van den Wijngaart (Relationship Manager Triodos Bank)
Niels Dijkman (Manager Sustainability Corporate Banking at ABN AMRO Bank)
Pieterbas Kist (Head of Financial Sourcing at Philips Capital)
Richard Kooloos (Director Sustainable Banking at ABN AMRO Bank)
Richard Piechocki (Sustainable Business Strategist at Rabobank NL)
Ronald Koedam (Sales Manager at Mitsubishi Elevator Europe)
Simon Lee (co-founder of Osprey Equity Partners Limited)

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Editors

Katie Hans (Circle Economy)
Melanie Wijnands (Circle Economy)

Graphics & layout

Nicolas Raspail (Circle Economy)

Contact

For more information, please contact Elisa Achterberg (Circle Economy & Sustainable Finance Lab)
elisa@circle-economy.com

www.circle-economy.com
www.sustainablefinancelab.nl

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INTRODUCTION

In this paper we propose 6 guidelines that enable financiers to accelerate the transition towards a circular economy.

The circular economy is a way in which we make efficient use of the resources that we already have. Resources must remain functioning at their highest potential so that they are not consumed, but re-entered into a system that creates value again and again. This economy requires a different way of doing business and hence has different financial needs.

This system shift fundamentally changes the role of both the entrepreneur as well as the financier. In order to overcome this change, entrepreneurs and financiers need to find each other in the new circular economy. What can they expect from each other? How are circular businesses different from their linear competitors? What are specific financial bottlenecks as a result of this? How can financiers adjust their ways of operating so that they enable circular innovations?

This report aims to guide financiers towards their new role in a circular economy. It is the third white paper in a series that Sustainable Finance Lab (SFL) and Circle Economy (CE) have written for Nederland Circulair! about the financing of circular business.

The first white paper, Master Circular Business With the Value Hill (Achterberg, Hinfelaar, and Bocken 2016), gave a good understanding of what circular business models are. Whereas, the second white paper, Create a Financeable Circular Business in 10 Steps (Fischer and

Achterberg 2016), showed how entrepreneurs can do their part to attract investors by making their business model as appealing as possible for financiers, while staying true to their circular values.

This third report focuses on the lessons for financiers. How can they change their own operations to better align with circular entrepreneurs? How should they judge risks and opportunities of circular business models? What new dangers and securities do these bring? What roles can they play in this new economy?

The report starts with a description of the Dutch financial landscape and the country's wide array of financiers and their specific role in the economy. It then analyses the way the financial sector assesses requests for finance and the specific problems that circular entrepreneurs run into, especially those using a Product-as-a-Service (PSS) business model. Which complications and opportunities does this model bring to financiers? With these obstacles in mind, 6 guidelines are set out to help financiers thrive in a circular economy and we conclude with reflecting remarks.

THE DUTCH FINANCIAL LANDSCAPE

Whereas most innovation is internally financed by firms through retained earnings, young and fast-growing firms in particular are dependent on external finance. This financing can come in the form of either debt or equity finance. These forms of finance are distributed by different financial institutions so it is important for a firm to determine which form of financing fits best its needs. This

usually depends largely on which phase in the life cycle the firm is in.

In Figure 1 below, the accumulation of net cash flow is set off against the growth phase of the company. Typically, a firm's greatest financial needs emerge when they are seeking to overcome the so-called 'Valley of Death', which refers to the period between the initial capital

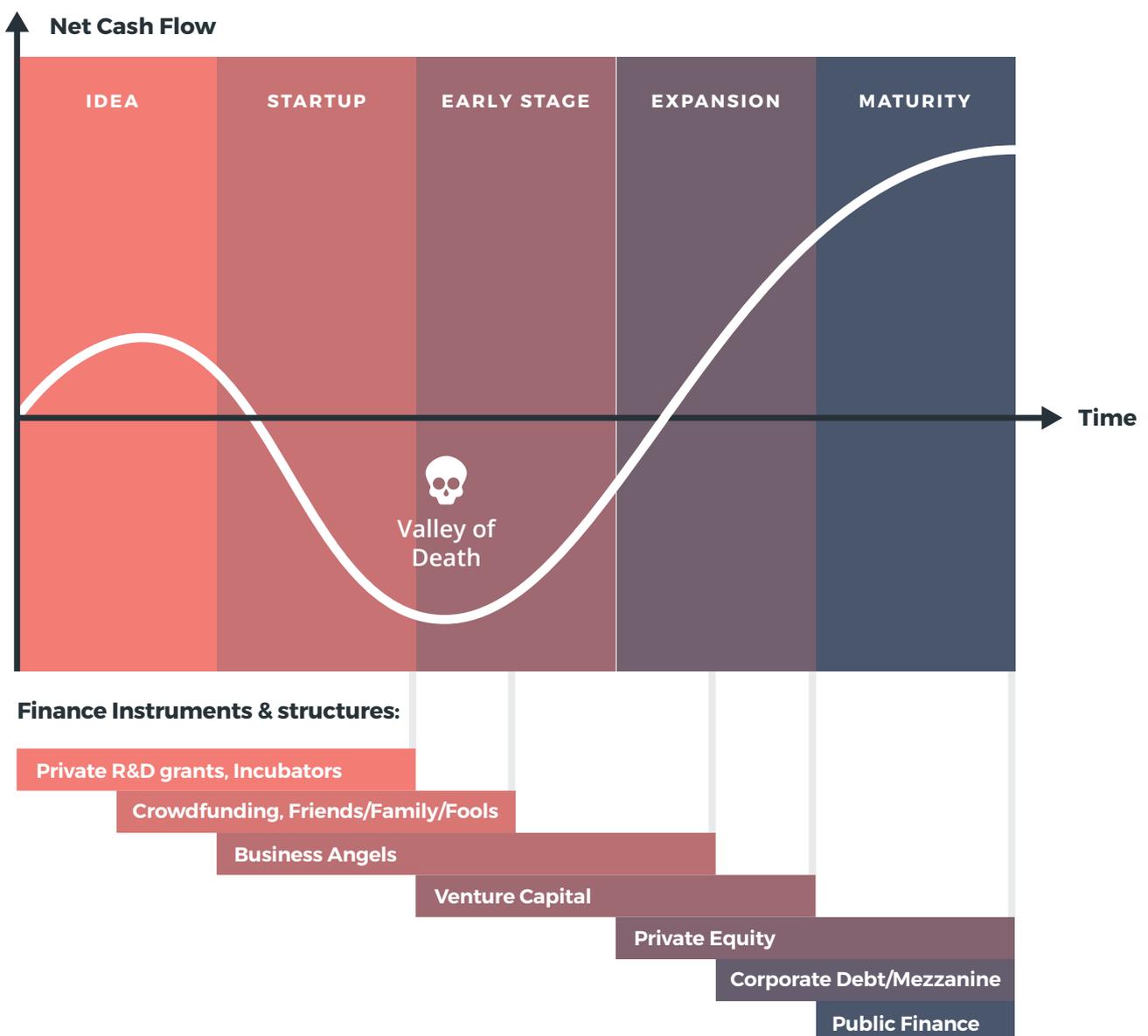


Figure 1. Financing The Valley of Death for circular businesses. Adapted from: Polzin (2016)

contribution that a start-up receives and the moment that it starts to generate profit. This period is reflected in the period of negative cash flow in Figure 1.

In general, most financing constraints are experienced in the early stages of a firm's existence due to high levels of uncertainty. First, there is technological risk (i.e. whether the product or idea will technically work). This is experienced in the idea and start-up phase. If the firm's technology is proven to be effective, the company then moves to the commercialisation stage in which mainly market risk plays a role (i.e. whether there will be sufficient market demand for the product or service). This risk occurs during the start-up, early-stage and the beginning of the expansion phases. Finally, execution risk is the last to be tackled,

which requires a firm to scale up and takes place during the expansion and maturity phase.

Seeing that these different phases accompany different risk profiles they therefore require different financial instruments and structures, which are summarized in Figure 1 (Hargadon 2010; Polzin 2016)

A bank-based financial system

For the Dutch business community bank finance is the most important source of external finance. Especially for SME's (companies with an annual revenue of up to € 50 million) bank finance accounts for 80% of their external sources of finance (De Nederlandsche Bank 2015).

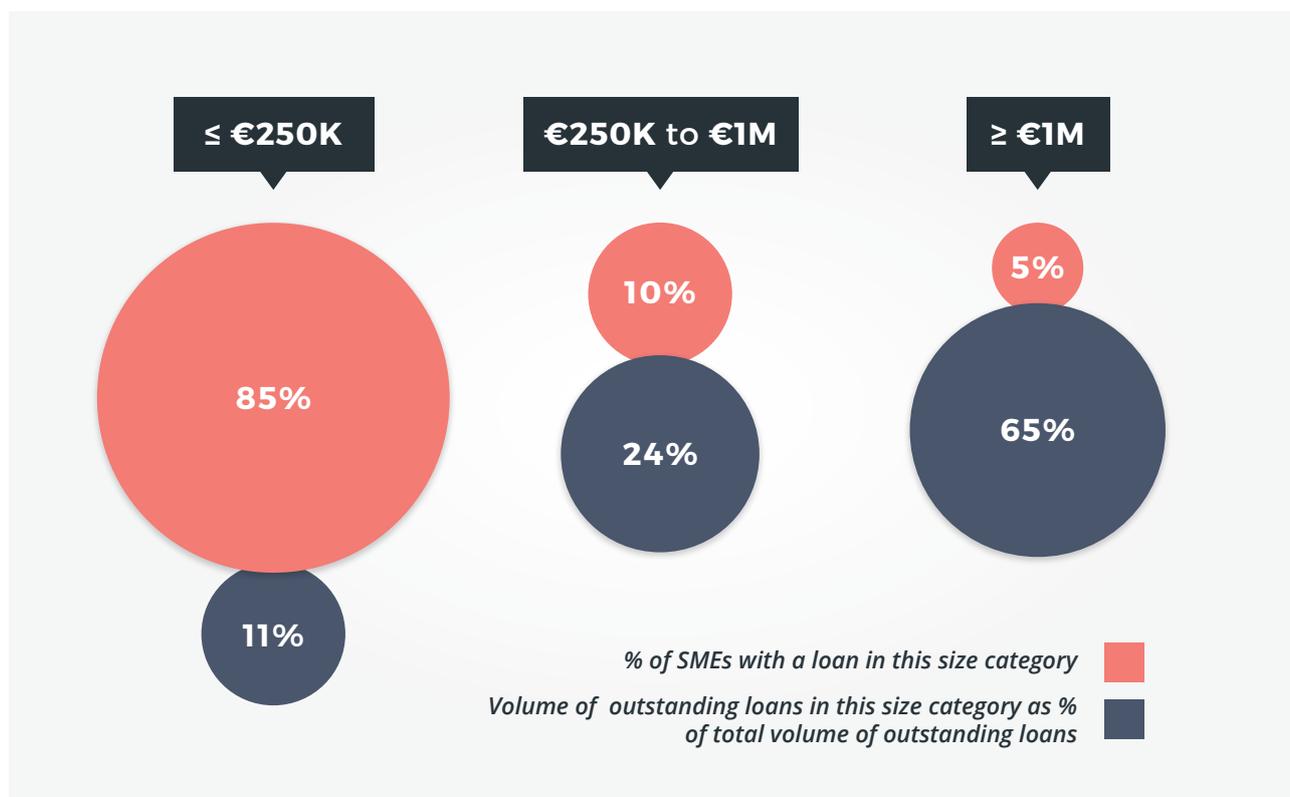


Figure 2. Division of number and volume of SME loans.
 Adapted from: Dutch Banking Association (2016)

Hence, the Dutch financial sector is heavily bank-oriented, with the size of the total balance sheet of the Dutch banking sector being around four times the value of gross domestic product (GDP).

In 2015, bank exposure to businesses in the Netherlands was around €290 billion of which 45% (i.e. € 130 billion) consisted of lending to SME's. Of this SME lending, around 11% (i.e. € 15 billion) goes to smaller loans up to €250,000. Although this seems a small portion of corporate bank lending this constitutes 85% of SME's with a bank loan (Dutch Banking Association 2016). This is illustrated in Figure 2.

Market-based financing

In comparison to European countries, however, the Netherlands also has relatively well-developed market-based finance market (i.e. venture capital, private equity, bonds and listed stocks), illustrated in Figure 3. Compared to

Germany, the Netherlands has a larger share of GDP in all sources of finance.

In the United States, however, relatively more companies are financed through market-based financing than in The Netherlands. Additionally, the share of bank credit provided to companies in the US as a percentage of GDP is only one fifth of that in The Netherlands (De Nederlandsche Bank 2015; Centraal Planbureau 2015).

Alternatives to bank finance

Despite of their need for more risk capital, only 7% of SMEs financing comes from alternatives to bank financing. In 2015 private equity and venture capital contribute €1.9 billion of external SME financing whereas leasing and factoring account for € 4 billion and € 3.6 billion respectively.

New forms of finance are emerging and changing the financial landscape.

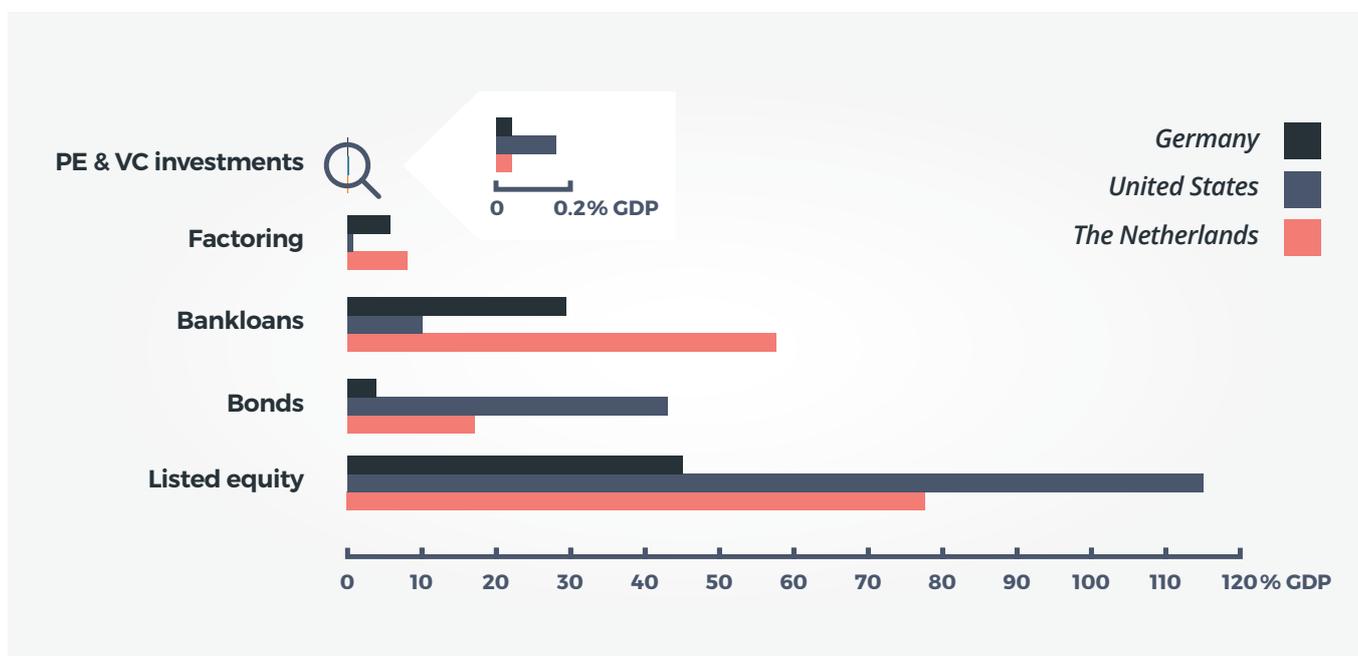


Figure 3. Volume different financing forms in The Netherlands, Germany and the United States in 2013 as % of GDP. Adapted from: Centraal Plan Bureau (2015).

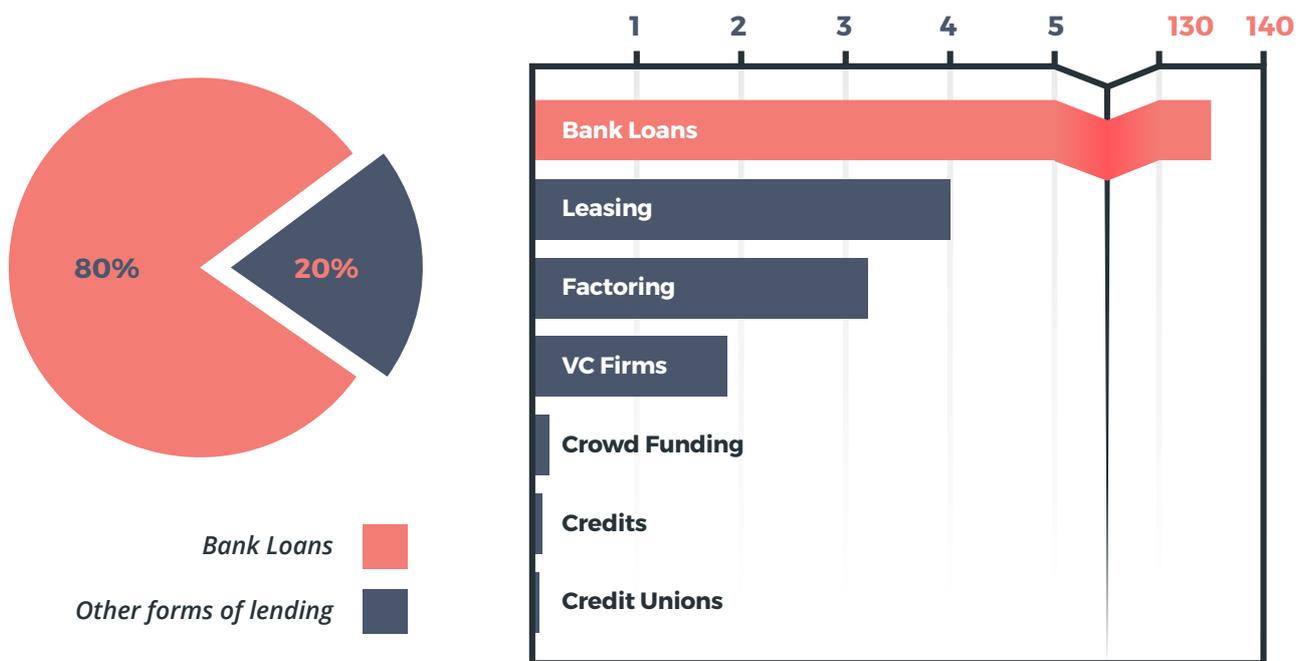


Figure 4. External financing for SMEs in billion euros.
Adapted from: Dutch Banking Association (2016)

Crowdfunding has helped to raise over € 150 million in the Netherlands and is doubling every year (Crowdfund Insider 2016). Qredits (a microfinancing initiative of banks), insurance companies and the government has issued loans totalling € 120 million. Credit unions have also lent out several million euros and are growing rapidly. Although their scale is limited (totalling only 0.5% of total SME financing), there is a growing interest in these new sources of finance (Dutch Banking Association 2016). Other developments are also starting to influence the financial system, including new forms of credit (e.g. peer-to-peer lending) and digital currencies (e.g. Bitcoin). An overview of external financing sources for SMEs is provided in Figure 4.

With all of these forms of financing to choose from various initiatives have emerged to point SME's to the forms

best suited for their needs and to make these more accessible. For example, the National Financing Indicator helps entrepreneurs better understand their financing options, the government guaranteed loan scheme (BMKB) provides banks with state guarantees (around €1.9 billion of SME financing is state guaranteed) and European guarantees for example by the European Investment Bank (EIB), have facilitated almost € 3 billion in SME loans via Dutch banks.

The remainder of this paper is directed towards SME financing as this is where the financial constraints for circular entrepreneurs are most severe. Larger companies that introduce circular products often have their own resources to invest and are better suited to attract external financing.

3. FINANCIAL DECISION-MAKING: COMPLICATIONS FOR FINANCING CIRCULAR BUSINESSES

Financial decision-making processes

Companies, especially start-ups and rapidly growing firms, are dependent on external financing so it is of major importance to understand how financiers perceive a firm’s business model and how they make decisions.

There are roughly four steps that financiers take in the funding process: screening, underwriting, structuring the terms of the financial contract and monitoring (Berger and Udell 2006; Phillip Private Equity 2016). Screening and underwriting takes place before the decision is made to fund the business. When the outcomes from screening and underwriting are considered satisfactory, financing terms are negotiated. If the terms are agreed upon, funding is provided, and the repayment behaviour is monitored. The greatest barriers for circular businesses is getting past the screening and underwriting phases, so

we will focus on these first two steps.

Three different sorts of securities can be used to secure financing in the screening and underwriting steps: information-based, relationship-based and asset-based securities. To select which one (or combination) is used depends on the type of company and the relationship between the company and the financier. The financing process and corresponding securities are illustrated in Figure 5.

Information-based financing is based on financial statements, credit scoring, market dynamics, growth potential of the company, the amount of funding required and the structure of such funding. Financial statements contain historical data, a company’s track record, future growth targets and cash flow projections. Credit scoring involves hard information about the counterparty’s financial situation.

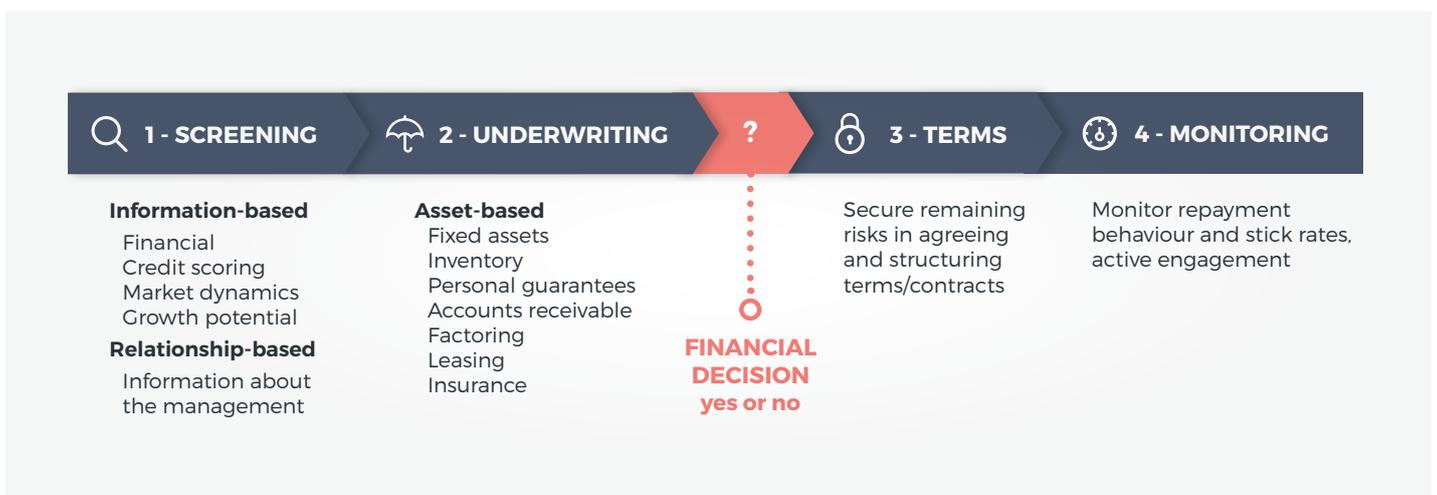


Figure 5. Four steps of the financial decision-making process (based on Berger and Udell 2006).

Relationship-based financing is based on hard (financial) and soft (e.g. skills, experience, network) information about the management of the firm. (Berger et al. 2005; Circularity Capital 2016). In relationship-based finance, financiers invest in gathering (often proprietary) customer-specific information and evaluate the profitability of their investments over time, across multiple products (Boot 2000).

Asset-based financing is secured with tangible assets, pledged as collateral. Assets can consist of fixed assets (assets that are not sold during the course of business, e.g. real estate), inventory (e.g. equipment and motor vehicles), personal guarantees of the entrepreneur, and/or accounts receivables (future cash flows). Factoring is based on accounts receivables whereas the borrower outsources its credit and collections activity to the financier. In case of leasing, accounts receivable play an important role, but the lending decision relies on the value of the physical assets, as the financier takes the assets onto its own balance sheet. Note that securing funding by underwriting is more common for debt financing (i.e. loans) than equity financing.

How circular businesses operate

Not only the potential environmental yields of the circular economy are great; so are the financial yields. The concept's restorative approach is estimated to save the US \$1 trillion per annum worldwide by 2025 (World Economic Forum, Ellen MacArthur Foundation, and McKinsey & Company 2014). In Europe alone, by using goods that are used and designed

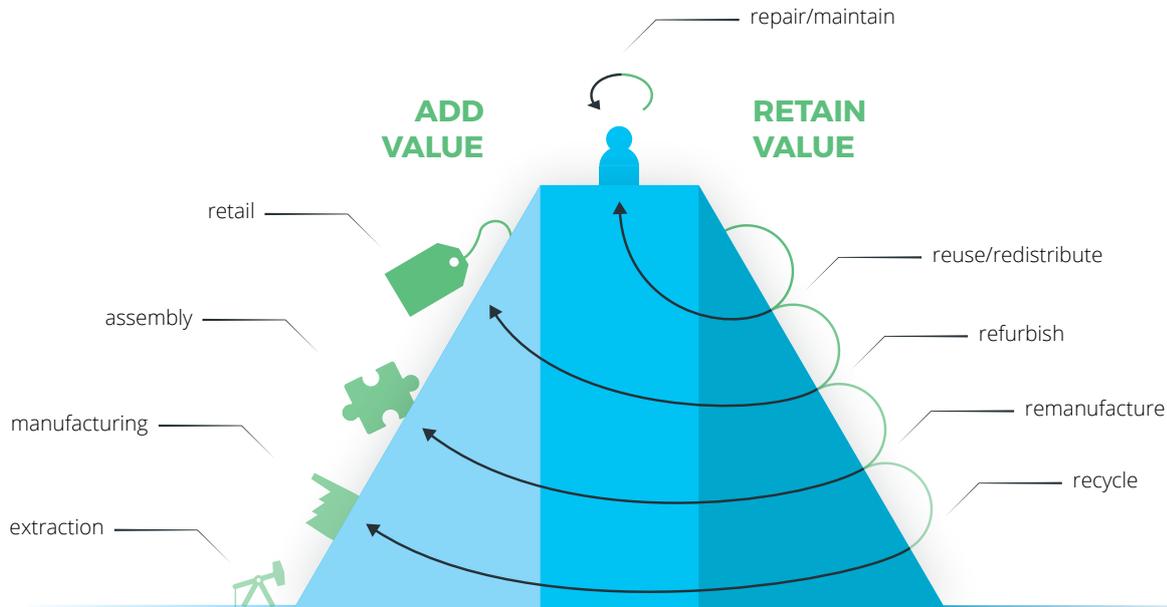
in accordance with circular principles offer the possibility for materials savings between US \$380 billion and US \$630 billion (Ellen MacArthur Foundation 2013).

To grasp these opportunities, businesses need to change the way they operate. Circular business models focus on either circular design (developing products and materials with the aim of retaining their value in the future), optimal use (supporting prolonged asset utilization and product productivity), value recovery (capturing value after the product has reached the end-of-life stage), network organisation (enabling and connecting circular businesses throughout the supply chain) or a combination of these categories (Achterberg, Hinfelaar, and Bocken 2016). These business strategies are summarised in Figure 6.

A considerable change in the circular economy is the shift from ownership to use. This results in the so-called Product-as-a-Service (or Product Service System, henceforth PSS) business models. These business models are a cornerstone in the development of circular business models because they provide an incentive to optimize the (long-time) use of a product, provide a vehicle with which to return the products after use and provide reasons to involve supply chain partners to stimulate circular design and use of renewable and reusable materials (Fischer and Achterberg 2016; Achterberg, Hinfelaar, and Bocken 2016).

PSS

PSS is 'a mix of tangible products and intangible services designed and combined so that they are jointly capable of fulfilling final customer needs' (Tukker and Tischner 2006).



CIRCULAR DESIGN	OPTIMAL USE	VALUE RECOVERY
<p>Design products and materials with the aim of long term value retention:</p> <p>Product Design, Circular Materials, Classic Long Life, Encourage Sufficiency</p>	<p>Support better usage and product productivity:</p> <p>Product as a Service, Life Extension, Sharing Platforms, Sell and buy back, Repair & Maintenance Service</p>	<p>Capture value after user life:</p> <p>2nd hand seller, Refurbisher, Recycler, Recaptured material supplier</p>
NETWORK ORGANISATION		
<p>Manage information, materials, money flows:</p> <p>Value management, Process design, Tracing facility, Recovery provider</p>		

Figure 6 Circular business models on the Value Hill (Achterberg, Hinfelaar, and Bocken 2016).

Barriers to financing circular business

The Dutch financial sector acknowledges the rationale and investment opportunities of circular businesses: higher resource and asset productivity, mitigation of input price volatility, increased quality of earnings and reduced climate risks amongst others (FinanCE working group 2016; ING 2015; Circle Economy 2016). Banks in the Netherlands have therefore expressed interest in supporting and financing the circular economy (ABN AMRO 2015; ING 2015; ING 2016; MVO Nederland 2016; Rabobank 2015).

Despite the interest of banks, finance is highlighted as a critical barrier in the transition towards a circular economy (FinanCE working group 2016; Fischer

and Achterberg 2016; Sonerud 2014; van Eijk 2015). Therefore, understanding how circular business models differ from traditional business models and what their barriers to financing are is highly relevant for financiers.

Although PSS business models are instrumental in translating circular products into attractive value propositions, they can be perceived as highly risky by financiers (Linder and Williander 2015; FinanCE working group 2016; ING 2015; ING 2016). This holds true specifically for SME's, but also for larger corporations that wish to attract external funding for transforming part of their business towards a circular model. Although larger companies have the advantages of having already established relationships with financiers (easing their ability to communicate the



Bundles

Bundles sells washing cycles instead of washing machines

Bundles provides its customers (B2C) a long-life (Miele) washing machine and charges them a monthly fee based on the number of washing cycles combined with a fixed amount for leasing the machine. By attaching a device to the washing machines Bundles is able to monitor their usage. Statistics gathered from

the machine are displayed on the Wash-App, which provides the customer with tips and insights to reduce the overall cost of doing laundry, including energy, water and detergent consumption. This way, not only the costs for the customer are reduced, but also the life of the machine is extended. This combination creates a financial incentive to use the washing machines in as many life cycles as possible.

Instead of a lump sum upfront incoming cash flows are spread out over time. The payback period of the washing machine is therefore around six to seven years. This makes default risk high for a financier. To mitigate this risk, the contract duration should be adjusted accordingly, to secure future cash flows, but such a long contract duration creates a lock-in effect for the customer and makes the contract more difficult to sell.



For banks, not only default risk increases, but also a liquidity mismatch arises due to the average duration of 3-5 years on the banking book, which is considerably shorter than the finance requirement of at least 6-7 years.

benefits of circular innovation) and the means to finance transformations internally, they still encounter similar financial challenges as SME's do (Fischer and Achterberg 2016; ABN Amro 2016).

From a financial perspective, PSS models have a different revenue structure. Although incoming cash flows are spread out over time (i.e. the product is no longer sold, but periodic fees are paid by the customer for using the product), initial investments are still needed upfront. This results in a longer payback period, which increases the risk of default from a financier's perspective and increases the demand for working capital, resulting in a decline in short-term margins. The trade-off between short-term margins and long-term stability of cash flows impacts the perceived creditworthiness and stability of the business seeking to adapt to a PSS model (FinanCE working group 2016).

The business model innovation in circular PSS business models lies in the underlying asset (product), which is generally less capital intensive than traditional PSS models (such as car lease or agricultural machines). Although these assets could theoretically qualify as collateral, they



What on earth would we do with 10.000 washing machines? Bundles could increase its financeability if it had a buy-back contract with its supplier, guaranteeing the machines' residual value

- Director Business Banking, Triodos Bank

have generally a low underlying value and are fairly illiquid as they not readily available to be sold off by the company. Moreover, the assets are costly to collect, especially in the case of a B2C business (think of having to pick up washing machines in 10.000 different homes). Underlying assets in circular PSS models are therefore less adequate as collateral.

In a PSS model, the service provider retains ownership of the product. Although this is optimal from a circular perspective (e.g. longevity incentive and easing value recovery after use of a product), it is not

Bundles

Difficulty of Bundles to obtain bank finance

Although Bundles successfully raised capital via crowdfunding (signalling a committed network and customers), banks were not willing to finance the company. Financial statements and credit scores were deemed insufficient due to the company's lack of history and experience. In addition, the washing machines were

not qualified as suitable collateral to secure a loan. However, since the founder has a good track record from past business transactions, relationship-based financing is an option. From a bankers' perspective, however, the contracts with customers, accounts receivable, did not fulfill the necessary criteria for Bundles to receive a loan (Toxopeus, Achterberg, and Polzin 2016).

optimal from a financial perspective as the balance sheet keeps growing with each additional customer. This creates a capital demand in order to finance the long-term ownership of these assets.

Another major change in a PSS model are customer relationships. These are generally shaped via contracts between both parties and leads to increased costs for managing receivables (invoices, credit checks, etc.) and the tracking and tracing of assets. Additionally, since customers and companies are used to owning products and do not yet value used products, there is a high market risk due to uncertain market demand for the products offered.

Another essential characteristic of a circular economy is the necessity of supply chain collaboration. Like all supply chains, a circular supply chain is as weak as the weakest link in the chain. Without collaboration with product designers, renewable and reusable material providers and other enabling parties, circularity cannot be achieved. Additionally, products and materials should be shared throughout the supply chain to assure shared responsibility, transparency and circularity, based on shared risks and returns.

From a (financial) risk perspective this level of collaboration means an increase in interdependence between companies: the success of the individual company depends on other actors in the chain. Risk exposure depends on the resilience of the network instead of that of a single company.

In summary, circular entrepreneurs encounter specific financial challenges, especially PSS models: changing revenue and ownership structures, growing balance sheets and heavy working capital requirements. However, the long-term strength and robustness of circular business models lay in different areas, which are not accounted for in current financial decision-making models. In general, the backbone of financial decision-making is based on (hard) financial, historic data in combination with tangible assets, with a small role for relationship-based banking. In order to finance circular businesses financial decision-making needs to be innovated by combining existing financing technologies with new ones. The remainder of this report presents six guidelines for financial decision makers to help them understand how they can change their operations and decision-making process in order to overcome the current barriers for financing circular (PSS) business models.

Bundles

Circularity of Bundles depends on manufacturer of washing machine

Bundles depends on their supply chain partners to optimize circularity. If used washing machines can be optimally re-used, re-sold or re-paired, circularity is ensured and high residual value is established. In the case of Bundles this means that the manufacturer of their washing machines needs to collaborate and optimize the design of their machines for re-use and long-life, and other activities such as repair and refurbishment need to be in place.

GUIDELINES FOR FINANCIAL DECISION-MAKERS

1 ASSESS DIFFERENT SECURITIES

Assessing circular business models requires a different way of looking at risk and security. Funding of circular business models, PSS models in particular, can be secured through stable, long-term, future cash flows from contracts, long-term relationships with clients and used assets that can be put up as collateral. This however, requires different risk models, the re-invention of depreciation schemes and evaluation methods to track underlying assets and estimate the future value of materials and resources.

2 EMPHASIZE RELATIONSHIP-BASED FINANCING

While a business' financial statements show its position with respect to financial and physical capital, it often does little to reveal intellectual and social capital. These "intangible" capitals, such as the value of the network of the company, are of great importance to circular businesses. To integrate these intangible capitals (i.e. soft information) into the decision-making process it is essential to establish a relationship with the client.

3 VALUE NATURAL CAPITAL GAINS

Circular businesses use less natural resources and material inputs than their linear competitors. This saves money and provides a clear financial advantage. However, there are numerous ways of using natural resources and not all of them are currently priced correctly. Therefore, this advantage for circular businesses is not completely illustrated in their financial statements, even though the unsustainable use of natural resources can pose a clear and real threat to the company's future financial strength. As circular business models mitigate this risk, financial institutions should take these natural capital impacts and dependencies into account to finance the transition towards a circular economy.

4 BECOME A KNOWLEDGE PARTNER

To be an accelerator of the circular economy and thus profit from the opportunities it provides, financiers need to increase their (technical) expertise of circular products and business models. This knowledge is essential to assess a product's level of circularity, life expectancy, material use and whether or not the product will be able to live up to the corresponding contract. By increasing their expertise, financiers can become strategic partners for circular businesses and improve their ability to finance them.

5 HAVE A LONG-TERM VISION

Despite the importance of long-term growth, timelines for financial decision-making are often limited to 2-3 years or less. Accomplishing short-term financial objectives can therefore come at the expense of long-term performance. Circular businesses typically have a long-term strategy, focussing on long lasting products and long-term relationships with their clients. To correctly value these circular companies, financiers should base their decision-making on long-term metrics, define long-term objectives and incentivize the entire investment chain to focus on these factors.

6 BECOME A FINANCIAL CHAIN DIRECTOR

Financiers play an important role as knowledge brokers for companies in need of finance. They can not only anticipate macro-economic developments in the market and specific sectors, but they are also able to oversee the financial landscape. Circular business models require multiple forms of capital, by collaborating with other financiers (e.g. through sharing information and co-funding circular projects) risks can be spread, durations can be matched and specific financial needs of these types of businesses can be met. Additionally, money flows within the supply chain can be regulated by offering supply chain finance services.

I 6 GUIDELINES IN DETAIL

1. ASSESS DIFFERENT SECURITIES

Circular business models are perceived as highly risky

Chapter 3 illustrated how circular business models, and specifically PSS models, are perceived as highly risky by financiers. Cash flows are delayed, balance sheets grow larger, ownership and accountability structures change and working capital requirements increase. However, these are real challenges for financiers, the perceived risk can be overwhelming due to a lack of information and traditional ways of risk modelling, which fail to capture the advantages and new securities that circular business models present (FinanCE working group 2016).

Let's take a different risk perspective

When examining the financial opportunities of circular PSS models, their perceived risk is in contrast to their potential, long-term stability. To begin with, cash flows are more stable and predictable compared to for sales models. This of course depends on and can be influenced by the customer contracts. Therefore, the volume and diversity of the customer portfolio is an important factor to consider when assessing the riskiness of the model.

Additionally, profit margins increase with a product's additional life cycles (second, third, ..., infinite cycles) as the products are eventually paid off, but are still delivering a service thus generating revenue. Although the management



We give our clients performance contracts, which leads to smarter design, more efficient maintenance efforts and extended lifespan of components. The savings we pass on to clients in cheaper average yearly fees.

- Ronald Koedam, Mitsubishi vertical movement

of receivables (e.g. invoices and credit checks) and the tracking and tracing of products and materials increases costs, it also provides opportunities to reduce maintenance costs. For example, through remote monitoring, the asset utilization and productivity can be optimised, while at the same time the lifetime of a product is extended.

Another positive effect of PSS models is the higher residual value of assets. In a maturing, circular economy, the retained value of assets can reduce investment costs and provide solid collateral for financing needs. Well-developed secondary markets for these high quality, used assets, components



It requires a different vision on security, for example next to the risks you get a stable cash flow in return.

- Sustainable Business Strategist at Rabobank

or materials will improve the amount of value that is retained from them. Risks and returns for circular PSS business models are summarized in Table 1.

Financiers need to focus on different securities

To capture returns, financial decision-makers have to focus on different securities. Instead of past returns and historical data, the value of circular businesses lies in stable, future cash flows. To secure these future cash flows, the underlying contracts (durations and opt-out clauses) need to be taken into account. But, be careful not to design out all the advantages and incentives that optimise circularity for

the sake of financing it. For example, if a client is bound to a 6 to 7-year contract without opt-out clauses, the service provider may lose its incentive to deliver optimal service (since the client cannot walk away). In other words, the contract should strike a balance between flexibility, circular incentives and (financial) robustness. This also requires thorough knowledge on circularity (see also guideline 4).

In PSS models, not only the contract is essential, but also the quality of the customer. Factors such as credibility and their ability to pay should be assessed.

IMPACT OF CIRCULAR PSS MODELS	RISK	RETURN
Cash flows	More dispersed cash flows result in a longer payback period which, increases the risk of default and working capital requirements.	Cash flows are more stable in the longer term due to higher profit margins from revenues that come out of additional life cycles after the product is paid off.
Costs	Increased costs to manage receivables (invoices, credit checks, etc.) and the tracking and tracing of assets.	Reduce maintenance costs and increase margins by using intelligent assets to optimizing use and value recovery.
Balance sheet	Increased capital demand in order to finance a growing balance sheet.	Positive, residual value of assets by collaborating with supply chain partners.
Underlying asset value	Illiquidity and costly collection of collateral.	Increase in asset utilization and productivity due to improved maintenance, circular product design and value recovery systems.

Table 1 Summary of risks and returns related to circular PSS models.



The asset is not the lightbulb, but the contract.

- Director Business Banking at Triodos Bank

New valuation methods for x-cycle products

An “asset-light”, circular firm is currently not very well suited for asset-based underwriting, although the value of its assets continues to increase due to increased residual value after the assets’ use phase. Emphasis on continuously cycled products in a circular economy require new valuation methods. These methods must be able to evaluate the market prices of products and evaluate the future (residual) value of products after their use phase. This requires knowledge about the potential reuse of used products in order

to correctly assess their residual value and how it can increase through more circular supply chains (see also guideline 4). This also requires re-invention of depreciation schemes and accounting methods to track these assets.

Additionally, instead of pledging underlying assets as collateral, underlying materials could serve as value on which to base financing decisions. This strategy requires methods to estimate the future value of materials and resources, based on their supply and demand while being circulated throughout the market. Financial institutions could provide such a “resource exchange” and facilitate resource trade, transactions and pricing.

An additional opportunity in this area is the use of technological improvements to develop smart assets and connect them to the internet. This provides a way for financiers to measure whether a product lives up to its contract requirements.

Bundles

Bundles is in need of flexible credit

Bundles has high financing costs due to, amongst other reasons, the inflexibility of credit. For every new customer, Bundles needs to make an additional investment of around €1.000. But, in most debt constructions, the entire amount is transferred as a lump sum upfront. That means that Bundles

is paying interest on an amount that will only start to generate revenue when it gains a new customer. A flexible credit construction that increases the loan for every new customer would reduce its financing costs considerably.



Hyper growth is not likely in circular PSS Models

Private equity and growth investors typically look for companies with quick growth potential. But, circular PSS models are generally service oriented and therefore labour intensive. This provides for a slower and more gradual growth path. However, the annual, hyper growth that private equity investors seek is not necessary for a business to be viable. Instead private equity funds should incentivize cash flows versus exit potential and long-term stable returns versus hyper growth.

Another possibility, in this realm, is the monitoring of the remaining financial risk on a specific asset. This way, a financier can compose its own diversified portfolio of products to be financed. Instead of financing a company, assets with corresponding customers (contracts) could be financed. An asset that is halfway through its payback period, for example, might attract more risk averse financiers. This solution requires new, flexible, micro-financial products.

2. EMPHASIZE RELATIONSHIP-BASED FINANCING

Current focus on hard (financial) data

While a business' balance sheet can clearly show its position with respect to financial and physical capital (the tangible resources that have been acquired), it often does little to reveal intellectual capital (knowledge and skills) and social capital (social network or access to capital stocks of others). These "intangible" forms of capital are of great importance for circular businesses.

In PSS models the quality of the client of the client is essential. Their quality is often solely based on hard, financial data or by valuating its collateral (Toxopeus and Blom 2016). However, the quality of the client also depends on intangible factors like the relationship between the management of the company and their customers and other intangible capitals of the management (e.g. its network and relationship with suppliers and other relevant stakeholders), which requires a relationship-based financing approach (Toxopeus and Blom 2016).



If there is one factor that would be most important to lend or not to lend, it is the quality of the entrepreneur or the combination of people who are running a business.

- Managing Director,
Triodos Bank

IIRC

The Integrated Reporting <IR> Framework includes six capitals

'Non-financial' reporting is an instrument that the private sector can use to contribute to the preservation of natural capital and other non-financial capitals. An integrated report communicates how a companies' strategy, governance, performance and prospects, in the context of its external environment, can lead to the creation of value in the short, medium and long term.

The International Integrated Reporting Council (IIRC) introduced the Integrated Reporting <IR> Framework in 2013. This framework is comprised of six capitals: financial, manufactured, intellectual, human, social and relationship and natural capital. It improves the information available to providers of financial capital and enables a more efficient and productive allocation of capital. Its focus on value creation, and the 'capitals' used by the business to create value over time, contributes towards a more financially stable global economy.



Strength of the entrepreneur

Consider the example of Bundles. If their business case would be evaluated on paper, one might question the circularity of the business in its current state. Value recovery (the returning and re-using of washing machines) is very immature and the design of the washing machines is far from being optimally designed for future re-use. But the strength of Bundles is the motivation and spirit of its founder that is determined to transition the washing machine industry to circularity.

Technological developments are more and more emphasizing hard information via online platforms that evaluate a funding request automatically without physically meeting the client. In unexpected circumstances this could lead to financial decisions that do not consider the broader context because of a lack of understanding and engagement with the client. Especially in the case of younger and smaller companies, hard, financial information is barely available, which makes it even more important to get to know the company through soft information.

Get to know the client

To be able to integrate soft information (i.e. difficult transferable data) into financial decision-making, it is essential for the financier to collect data on the broader implication of the funding request. This can be done through establishing a relationship with the client and understanding the implications not only from a financial perspective, but also from the perspective of the environment and the entrepreneur. What are the entrepreneurs' motivations? What is their life experience? How does the entrepreneur impact the broader context and how are future generations included? How are the

relationships with suppliers and other relevant stakeholders? These are all relevant questions to assess the credit-worthiness of the entrepreneur.

Build trust

Trust is at the core of the financing relationship between clients and financiers (Toxopeus and Blom 2016). Trust in the management and in the vision and mission of the entrepreneur is another form of security. Especially when hard information is lacking. Educating and helping financiers to develop such skills is necessary to build trusting relationships with their clients (see guideline 4). The increasing availability of data and technology, if correctly used, aids in maintaining such relationships, although these advances can never fully replace face to face relationships. Financier involvement in the community and sector in which the client is active, can positively influence long-term financial decision-making.

Increase transparency

Increase transparency (strive to become fully transparent) of the projects that are financed and the purpose for their financing. Societal values will then become core to the business and communicated to the public. This would also

FAIRPHONE

Fairphone: financed through relationship-based lending

The Fairphone 2 is a smartphone that is designed for long life and reparability and is the first modular phone on the market. Spare parts are provided in an online shop and include repair instructions for users to make their own repairs. Raw materials, used to make the phones, include conflict-free minerals from the Democratic Republic of Congo and are chosen specifically to support local economies there. Additionally, factory workers that manufacture the phones are paid fair wages and work under safe conditions.

Fairphone's value proposition combined with a large base of committed customers, more than 10.000 pre-sold phones, contributed to the positive credit decision made by a commercial bank to finance the company. Establishing a good relationship with the bank and gaining support from government guarantees also helped Fairphone to secure a bank loan. Information and asset-based lending would not have evaluated the company in a positive light, because the machines that manufacture the phones are not owned by Fairphone and therefore not eligible to be pledged as collateral. The smartphones themselves are sold and therefore cannot serve as collateral either. Additionally, financial-statement lending or credit scoring would have led to a negative decision since the company only existed for a few years at the time of its loan application (Toxopeus, Achterberg, and Polzin 2016).

increase the trust of the people, which is a basic need for a well-functioning financial system. Increased transparency also makes it possible for customers to choose the financiers that best reflect their preferences and creates opportunities to involve customers in investment decisions

Translate to quantitative measures?

Is it possible to translate the broader context (i.e. soft information) into hard

data? To some extent it is, for example measures for environmental or social impact factors could be CO2 emissions, the number of jobs or the number of tons of waste. Many initiatives work on models that integrate societal and environmental effects of a company's operations (e.g. True Price). On the other hand, it is challenging to quantify such complex effects and therefore purely hard, information-based financing falls short. The financier should therefore



A fully transparent bank

The mission of Triodos Bank is to use the money that is entrusted to them by savers and investors for positive social, environmental and cultural change. Triodos Bank combines profitability with a socially responsible mission and their website provides details of all of the projects that they have financed.

be willing to include soft information sources in their decision-making process.

Currently, financial decisions are mainly based on the performance of a single business. Intangible assets, such as the network of supply chain partners, are essential for a stable and robust circular business model. Robustness can be partly captured in contracts with customers and supply chain partners, but are also largely based on trust and good management.

Thinking along these lines, one could even consider treating a circular supply chain as a customer, as many small companies together constitute a larger entity.



As an account manager I often need to defend that despite the fact that the circular model looks more expensive, it is a better model
- Account Manager at Rabobank



Network Guarantees

At its founding around 1970, Triodos Foundation provided a service similar to what we now call crowdfunding. Every three months, the Triodos Journal was published providing an overview of innovative projects and small companies, such as bio-dynamic farmers or craftsmen, that were in need of funding but weren't able to attract traditional financing (due to their high risk). This journal was sent around to a group of well-to-do individuals and institutions that could provide a loan to one or more of the initiatives. Sometimes, interest was paid in kind (e.g. in food or products).

These activities were seen as banking activities and therefore required a banking license according to the Dutch Central Bank (DNB). Triodos insisted on securing loans based on personal guarantees instead of traditional lending technologies such as asset-based lending or financial statement lending. Although this was considered uncommon at that time, it led to the founding of the Triodos Bank in 1980.

Loans were secured by a network of individuals and institutions that guaranteed a small portion of the total loan. If a company or project was having difficulties to service its debt obligations, the circle of guarantors got together at so-called "borgen avonden" ("safeguarding evenings"). Since the guarantors believed in the projects they secured and did not want to lose their money, they had good incentives to come up with solutions. This resulted in a 0% default rate in their lending portfolio in the first six years of Triodos Bank (Bart Jan Krouwel, co-founder and first managing director of Triodos Bank, 2016).

For example, participants in a circular network can provide mutual guarantees for shared funds. Another possibility is that financing can be approved only under the condition of positive supply chain collaboration, thus incentivising the cooperation between companies and reducing the risk of the entire chain.

3. VALUE NATURAL CAPITAL GAINS

Circular businesses are not judged in a balanced way

Circular businesses are often start-up companies without track records and provide an innovative product or new business model, which are well-known, risk factors. However, an advantageous characteristic of circular businesses is that they are less exposed to 'linear risk' (i.e. they have little or no negative impact or dependency on the natural environment). This characteristic is currently not appreciated by most financial institutions. As a consequence, circular businesses do not get judged in a balanced way. This is not only problematic for the circular entrepreneur who finds it hard to finance their investments, but in the end will be a problem for the financial sector too. The financial sector will

experience this problem when they find themselves in the possession of a portfolio that contains many under-priced, 'linear risks' that materialize either due to the breakdown of ecosystems, depletion of resources or because of government policy (taxation, regulation) aimed at preserving natural capital.

The remainder of this guideline is largely based on previous work of the authors van Tilburg and Achterberg (2016). The six main ways in which natural capital management can be a material issue for financial institutions are (UNEP FI 2008; Natural Capital Declaration 2013; VBDO 2016):

- *Reputational risk:* Retail customers, business clients and funders may withdraw as a result of natural capital costs caused by financed companies that are deemed excessive.
- *Credit- and investment risk:* Losses of clients due to disrupted business operations caused by failing ecosystem services, the inaccessibility of crucial inputs (like virgin raw materials) or because these companies see customers and other funders withdraw for reputational reasons. Additionally,



Natural capital in the GRI-guidelines

The GRI has developed sustainability reporting guidelines (the G4 Guidelines, 2013) that offer reporting principles and standard disclosures and an implementation manual for the preparation of sustainability reports. The guidelines focus on materiality (i.e. impact, dependencies and risks) related to materials, energy, water, biodiversity, emissions, effluents and waste, products and services, compliance, transport, supply chain assessment and environmental grievance mechanisms. In addition to its reporting framework, GRI has produced specific guidance detailing approaches for reporting on ecosystem services.

C

The Carbon Bubble

Insurance companies have been especially aware of the physical risks that climate change poses to their business models. As the earth's temperature continues to rise the damage caused by hurricanes, floods and wildfires will increase. However, there is also a financial risk if the global community succeeds in limiting temperature increases to the 1.5-2-degree limit, as many financial assets derive their value from operations that are not compatible with the carbon budget. For instance, it is estimated that only 20-40% of all known fossil fuel reserves actually can be burned. This will reduce the value and creditworthiness of many companies and sovereigns (Carbon Tracker Initiative 2011). In this carbon bubble scenario equity owners will be particularly hard hit (i.e. pension funds, insurance companies), but also lenders (i.e. banks) will suffer because the percentage of non-performing loans will rise (Weyzig et al. 2014).

governments could stop giving permits and concessions or end existing ones.

- *Business opportunities:* Businesses can profit from the challenges of natural capital preservation by providing solutions. Financial institutions could also profit from new products inspired by the preservation of natural capital like the strongly growing green bond market and the market for responsible asset management.

- *Legal liability risk:* As national laws, banking regulations and reporting requirements become more demanding and increasingly seek to incorporate non-financial issues, this type of liability may extend to the financial institutions and professionals themselves. Thus, not pro-actively raising ESG issues presents "a very real risk" to be "sued for negligence" (UNEP FI 2009).



Natural capital related risks for palm oil producers

In February 2016 Chain Reaction Research (CRR), a collaborative effort of Aidenvironment, Profundo and Climate Advisers, analysed how different listed palm oil companies are exposed to risks related to natural capital impact and raw material dependencies. CRR predicted that the Round Table on Sustainable Palm Oil (RSPO) could suspend IOI Corporation from Malaysia due to the clearing of forests. When the RSPO soon thereafter did suspend IOI, the company started losing purchases from 20 major customers including Unilever, Nestlé and Kellogg's. IOI's share price fell 17.6% while Moody's reviewed and downgraded its debt (van Gelder 2016).



Robeco integrating ESG performance in equity valuation

Asset manager Robeco has integrated a valuation of a company's ESG performance in its valuation of equities. Since January 2014 its analysts are required to explicitly quantify the impact of the most material ESG issues in their analysis. 'Environmental management' and natural capital factors such as, 'climate strategy' and 'product stewardship' are especially material in the resource sectors (energy, materials, industrials and utilities). In 9% of 178 portfolio changes made, ESG was decisive and in 28% it played an important role. The average target price impact is 5% overall and in 10% of those equities a change was made on the basis of ESG-factors. Target price changes ranged from -23% to +71%. The very preliminary findings of the impact on the financial performance are also positive. The ESG-driven, portfolio decisions outperformed their relative sector indices on average by over 5% annualized (Schramade 2016)

- *Market and systemic risk:* Individual, financial institutions can adapt their portfolios according to the risks and opportunities they see however, not all natural capital risks can be 'hedged' in this way (CISL 2015).
- *Regulatory risk:* The pace of regulation introductions is likely to quicken and become stricter (e.g. the regulations to combat climate change - see box above on the 'carbon bubble' - and clean oceans or air), thus creating risks and opportunities.

Take a different perspective

Taking nature into account in the financial decision-making process is no longer an 'ethical', added bonus. Increasingly, the use of water and land and the emission of carbon gases is seen as a way to analyse the financial return of companies and financial institutions.

In recent years, strong evidence has been found to prove that investments that take environmental factors into account do not underperform financially. Actually, they may outperform

their competitors, primarily because they are less risky and offer new opportunities. Sustainability policies have become more and more common amongst financial institutions in Europe and to a lesser extent the United States and emerging markets.

In the early nineties the concept of natural capital gained wide recognition and started to be measured by private companies. This 'non-financial reporting' by companies has grown since then with standards being established by global



We need more technical knowledge. The strength of the contract depends on the usage and the technical lifetime of the products. Therefore, how do we get all that information about their technical strength?

**- Director Business Banking,
Triodos Bank**



Financiers are data driven, therefore creating a databank on risks and returns proving that CE strategies work is key. We want to provide this data to the finance community to trigger a catalytic effect of more capital to the CE.

**- Andrew Shannon, Partner
Circularity Capital**

institutions like the Global Reporting Initiative (GRI), the International Integrated Reporting Council (IIRC) and the Natural Capital Protocol.

The cost of environmental damage caused by 11 key industry sectors in 2010 was estimated to range from 41% (KPMG, 2012) to more than 50% (UNEP FI, 2011) of their pre-tax profits. In addition, a scoping study of 36 financial institutions (mostly banks that were selected from a pool of 100+ requests) by the Natural Capital Declaration found that (Natural Capital Declaration 2015) almost half of the institutions indicated that natural capital is very or extremely relevant to their core business strategy.

Balance linear risks, circular risks and corresponding returns

Increasingly financial institutions are trying to quantify environmental risks and opportunities. This enables them to differentiate between the companies that they finance based on estimated financial impact as well as natural capital impacts and dependencies. Circular

business models decouple revenues from resource use and production allowing them to serve a growing population while reducing their impact on the environment. Additionally, circular businesses provide stronger and more stable margins because they do not rely on virgin resources and are not easily effected by price volatility.

These advantages can be translated into the loan prices and the valuation of equities. Companies that perform well can then get financing under more favourable terms. While companies with higher linear risk will face higher capital costs and thus be incentivized to improve their performance.

If the risk is quantified it also becomes possible to see how the risk of the overall portfolio is developing and set targets for reducing environmental risk, at the financial institution level, within specific asset classes or divisions ('risk appetite') and for employees ('key performance indicators').

This integration of linear risks and opportunities requires modelling, which is mostly done on the basis of historical data. However, since this data is not widely available and the nature of the issue (i.e. natural capital themes) is facing an unprecedented transition, the alternative of estimating risk through scenario (stress) testing seems more appropriate.

4. BECOME A KNOWLEDGE PARTNER

The circular economy requires a different type of knowledge

The shift from ownership to use requires a different type of knowledge. To decide whether a product actually can fulfil all



Dutch aWEARness needs structure for investable, shared ownership

Dutch aWEARness provides 100% recyclable uniforms and corporate wear for businesses and organisations. Currently, Dutch aWEARness is chain director thus remains owner of the clothing. Dutch aWEARness also manages information, material and money flows within its circular network of suppliers and buyers. In order to increase the businesses circularity, a construction is needed that allows for the shared ownership of the garments throughout the circular network. In such a system an innovation at one point in the chain will benefit all chain partners, therefore creating leverage to share risks and benefits

contract requirements, financiers need to understand all technical aspects of a product, used materials and circularity. They also must develop the means to gather that knowledge. This knowledge in turn can then be used to guide clients in making themselves future-proof and to make smart investment decisions with lower risk.

Knowledge on circularity and education of employees

A first step for every financial institution is to educate their employees on the circular economy. What does circularity mean and how do financiers need to look at related risks and returns (see also guidelines 1, 2 and 3)? A starting point is provided by the Value Hill Framework, which provides language and a practical tool to understand circular business activities (Achterberg, Hinfelaar, and Bocken 2016). Account managers can be strategic partners for circular businesses if they operate on a longer time horizon and think in terms of optimal use strategies, value recovery and circular design. This also increases their ability to finance circular businesses. Additionally, learnings

should be shared internally to prevent several employees from inventing the same or competing strategies.

Client engagement

Since circular business models are quite new, companies are looking to financial institutions for advice. To meet their needs, financiers could organise round-tables, seminars and workshops for their clients. This way they can assist them in developing future-proof financeable business models. This can open doors for financiers to monitor KPI's and the financial performance of various circular strategies.

Financiers can help companies to build their business model so that there are (financial) incentives for all parties to take part. Circular businesses can only take off if everyone benefits from them financially, in terms of experience and sustainability. The financier can in turn share their insights into the market and macro-economic developments in the circular business' sector.



I can imagine banks playing a role in creating an online banking tool in which clients can be screened online before entering a contract, and where they can manage their contracts

- Director of Sustainable Banking at ABN AMRO Bank

Technical product knowledge and monitoring techniques

Financial institutions need to develop technical product knowledge to be able to make decisions regarding a product's level of circularity, life expectancy, materials and whether or not they are able to live up to the corresponding contract. This opens up new ways to monitor risk. Products that are only starting their first life cycle in a PSS construction bear more risks as there is little track record of product and maintenance behaviour. This might require more risk capital, whereas a portfolio of products with a low risk exposure is better suited for a risk averse investor. The technological possibilities of remotely monitoring the performance, use and maintenance of the assets open up dozens of possibilities.

Investment vehicles for collaborating entities

As mentioned before, for circular businesses to be “fully” circular, collaboration with supply chain partners is key. Therefore, incentives need to be aligned

in the supply chain to increase collaboration, trust and transparency. Structuring such collaboration formally could mean setting up a joint venture or cooperation. Within these existing legal structures, it would be possible to share ownership of products and materials while being supported by monitoring systems (i.e. making use of the internet of things) that generate information on product performance, use and logistic issues.

Existing legal structures should also be handled with care when applying circularity. A trade-off arises between the flexibility and the financeability of the network. Although a joint venture, for example, is a known and clear collaboration structure, it is very hard for new suppliers to enter the venture, as shares need to be re-calibrated and are not very flexible. On the other hand, if the legal structure of the network is too flexible, accountability of the various network partners is unclear, which makes the collaboration hard to finance. Additionally, ownership at the material level requires different incentive schemes than ownership at the company level. The material level requires inventing investment vehicles for collaborating within circular networks, incentivising optimal circular asset management and transparency.

Blockchain as a collaborative infrastructure

As part of the ‘fintech’ revolution, new digital currencies and other technological innovations are gaining attention in the financial sector. The best-known example of this is the bitcoin. Although often criticized for enabling illegal activities, being highly speculated and utilising enormous amounts of energy with bitcoin mining, it provides proof of the

potential for an alternative currency to be globally scalable. However, the real significance of the bitcoin lies in its underlying technology: the blockchain, which was dubbed the most important innovation of the last 200 years by the Economist (October 31st 2015).

For the circular economy, the blockchain provides multiple opportunities. First, the use of smart contracts (Ethereum 2016), in which software mimics the logic of a contract, but the enforcement and execution of the contract is done automatically, including payment mechanisms that assures everyone is compensated. Furthermore, blockchain enables the product that is being serviced to communicate directly to all parties regarding the need for maintenance, its use or defects it may have (i.e. the “internet of

things”). This creates immense opportunities for low cost and highly responsive management. Additionally, transparency and the coordination of circular business innovations, such as PSS business models and network organisations, depend on reduction transactions costs for their economic feasibility. The blockchain also has the ability to provide a framework for collective governance of a group. For example, a circular value network, where materials and products are shared in the complete circular supply network could benefit from this type of network (Tapscott and Tapscott 2016).

Note however, that there is a need for proper implementation of the blockchain to make sure that the negative effects, such as negative environmental impacts, are reduced or eliminated. For example, in the case of bitcoin, miners have an incentive to overinvest in their own computing capacity, leading to an inefficient excess of computing capacity. In order for such a system to be socially beneficial in the long run, an alternative method of transaction verifications needs to be developed and adopted (Barrdear and Kumhof 2016). This requires thorough research on blockchain implementation and potential alternative technologies.



To develop new ways to finance circular business models high investment costs (“learning costs”) needs to be investigated
- ABN AMRO Bank



Learning by doing: circular pavilion ABN AMRO Bank

ABN AMRO is building a circular pavilion to explore the possibilities of the circular economy. ABN AMRO is working closely with architects (Architekten CIE), contractors (BAM), advisors (Traject), Delft University of Technology and suppliers on this construction project based on circular principles. This circular pavilion is treated as a platform to experiment with circular production chains and new forms of sustainable finance. ABN AMRO has the ambition to stimulate and facilitate new partnerships by bringing parties together in one circular hotspot.



We prefer to experiment with financing circular businesses amongst our own existing clients who we already have a relationship with and for whom we finance other business as well. There it pays to make the investment.

- Director of Sustainable Banking, ABN AMRO Bank

Financial product for low-capital product B2C PSS models

Although lease companies have extensive experience in well-developed lease markets (e.g. car leasing), they do not possess insight into leasing lower value goods (e.g. washing machines or jeans) that have high transaction costs for individual assets, especially in a B2C market. Therefore, in order to finance PSS models, with low capital products, on B2C markets, new innovative financial products need to be developed, as well as secondary markets for these lower value products.

For example, an online tool could be developed to screen customers on creditworthiness. Before entering a PSS contract with a company, the customer can select the financial institution that handles their finances, which in turn can do a credit check. In addition to the check, the financial institution could also manage the contract, essentially factoring the contract.

Dare to learn by failure

With most circular investments you can't expect to get a return tomorrow. To accelerate the transition towards a circular economy time, money and brainstorming power needs to be invested. The need for financial product development creates the need for experimentation and pilot projects to test these newly developed circular financial structures. Only when sufficiently tested, will these products be able to be scaled up and help to accelerate the transition.

Create Risk Capital

To deal with unknown and unfamiliar risk, such as circular risk in new circular business models, but also systemic linear risk, funds could be created to serve as "innovation" capital. This money could be used to experiment with new instruments or new business models. This way financiers can be ready when the demand for such capital reaches the next level.

Experiment through sourcing and procurement

A logical first step to improve and extend the circular investment pool is to start experimenting with sourcing and procurement of circular office supplies, buildings, electronic equipment and other operational assets. This not only provides a sustainable working environment for employees, but can also serve as pilot projects to understand circular finance.

5. HAVE A LONG-TERM VISION

Time horizon mismatch between financiers and the economy

Despite the importance of long-term growth, timelines for financial decision-making are often based on short-term financial objectives at the expense of long-term performance. The adverse impact on society, due to high risk strategies that aim to produce high returns in the short-run, became clear in the financial crisis of 2008 (Aspen Institute 2009; Haldane and Davies 2011; Fink 2016).

Additionally, the Netherlands Scientific Council for Government Policy (WRR) recently concluded that the financial sector is an important factor reinforcing myopia in society (WRR 2016). A McKinsey Quarterly survey in 2013 found that 63 percent of board members and C-suite executives of companies are increasingly under pressure (from financial markets) to demonstrate short-term financial performance. This hinders their innovation, investments and growth. While 86 percent of the same respondents believed that taking a longer time perspective in business decisions, would positively affect corporate performance. For corporate leaders to have a more long-term perspective, the financial sector should lower its short-term financial expectations and support companies to create long-term value (Barton and Wiseman 2014).

Short-term pressures on companies often come from investors, such as institutional shareholders. This is paradoxical, given the liabilities of pension funds and insurance companies that stretch over generations.

(van Tilburg, Demmers, and Remmers 2016; Ambachtsheer and McLaughlin 2015; van Tilburg 2009):

- Regulation (e.g. overstressing the importance of liquidity);
- Social pressures from the sector (to stay in line with the benchmark and the general market expectations);
- Missing a clear long-term investment model with appropriate performance criteria;
- Perverse incentives throughout the subcontracting chain (i.e. selection of performers and methods of reward);
- The availability of real-time and easy to handle short-term financial data (i.e. availability bias).

Circular businesses typically have a long-term strategy, focussing on long lasting products and long-term relationships with their clients. The success of these types of businesses depend on a long-term relationship with their financiers. So whereas the short-termism of financiers is a more general problem for the economy, circular entrepreneurs are particularly affected.

Incentivize for the long-term

Financial institutions could instead base their decision-making on long-term metrics with a goal of pursuing long-term growth and sustainable earnings. In addition to this, financiers should shift the focus from quarterly earnings to a more future oriented outlook through compensation and performance incentives. This could be accompanied by educating employees on their fiduciary

responsibilities. For example, fund managers, if educated correctly could be rewarded for their long-term investing skills, performance-based payments after building up a long-term track record, or including offerings to lock up capital for a longer period of time.

Invest long-term

Large asset managers (or owners) should have the scale and time to focus on the long-term. They can do so by introducing asset management fees that are reduced if the investment mandate is extended, performance fees that are paid out after 5 years, a multi-annual oriented remuneration of employees, quarterly reporting instead of the current daily, weekly or monthly reporting and paying more attention to qualitative information (Dijkstra 2015; van Tilburg, Demmers, and Remmers 2016).

Short-term underperformance should be tolerated if it aids long-term value creation. This often comes down to allocating more capital to illiquid or “real”

asset classes – such as circular retail- and office buildings, (circular) private equity funds and direct investments in companies. Another important strategy is to engage with companies on their long-term strategies (see also guideline 2) and collaborate with other (co-)investors to redirect management’s strategies (see also guideline 6).

Long-term banking without interest rate

The willingness to invest in long-term projects depends on current and anticipated interest rates (next to intrinsic risk of the project and the cost of equity capital) as these factors are involved in the discounting of future cash flows (Lietaer et al. 2012). To increase the feasibility of long-term, financial relationships and opportunities, one could design innovative, interest-free debt products. Circular businesses can certainly benefit from these kinds of initiatives due to their long-term characteristics.



JAK Bank: interest-free credit

JAK Bank, a co-operative bank in Sweden has been providing interest-free loans since 1970. It has more than 38.000 members that pool their savings and lend to one another, interest-free. JAK Bank has 30 local branches across Sweden. Its key innovation is the use of a lending model that rejects compound interest in favour of a straight fee. Borrowers are required to save the same amount of money as their loan repayments (i.e. repaying twice as much through simultaneous savings) to replenish and grow the loans pool. Anything that exceeds the actual costs that the lender incurs by administrating the loan is considered interest and is therefore not charged. Loans in JAK Bank’s portfolio range from \$3,000 to \$1 million with a median loan amount of \$23,000. The percentage of bad debt is less than 0.5% (Conaty and Lewis 2010).

alt

If the bank says no, provide an alternative

In the UK the regulation states that banks need to offer any SME they decline to finance, the opportunity for the SME's details to be referred to a designated, online finance platform. These platforms will help match the SME with an alternative finance provider that could provide them with the finance they need to grow and expand (Experian 2016).

6. BECOME A FINANCIAL CHAIN DIRECTOR

Be a facilitator instead of a financier

It is often difficult for (small) circular businesses to attract the right capital. Circular business models require an integrated financial approach and a combination of existing and new financial products.

Financial institutions play an important role as knowledge brokers. They can not only anticipate macro-economic developments in the market and specific sectors, but they are also able to oversee the financial landscape. This provides opportunities to collaborate with other financiers to promote alternative financing forms and co-fund circular projects.

Banks are especially important in overcoming asymmetric information for enterprises (Boot 2000). However, since banks are more risk averse, something that has been increased due to new regulations (e.g. Basel III) that have been put in place after the financial crisis of 2008, circular businesses need additional forms of funding, such as crowdfunding, private equity, credit unions and microfinancing. Collaborating with alternative financiers, by sharing information and providing bundled financing options for circular projects, are a way to spread risks and serve specific,

financial needs of circular businesses allowing them to grow to eventually become eligible for bank financing.

Team up with long-term investors

As discussed, the investment horizon for pension funds is by nature, long-term since the goal is to provide the participants income when they retire. This type of investment requires long-term planning, although short-term adjustments might be needed to rebalance the investment portfolio. To capture the opportunities of circular businesses while at the same time being able to have a long-term horizon, it would be interesting to collaborate with long-term investors.

Institutional investors invest in large quantities but, by bundling investments in smaller companies in a (private equity) fund, they can fund smaller companies. Unfortunately, the investment mandates of pension funds or large asset managers often don't allow for investments in relatively small funds which excludes them from being able to invest in small (circular) businesses. Changing these mandates to allow for (or even stimulate) the investment in smaller funds would provide an investment vehicle for circular companies.

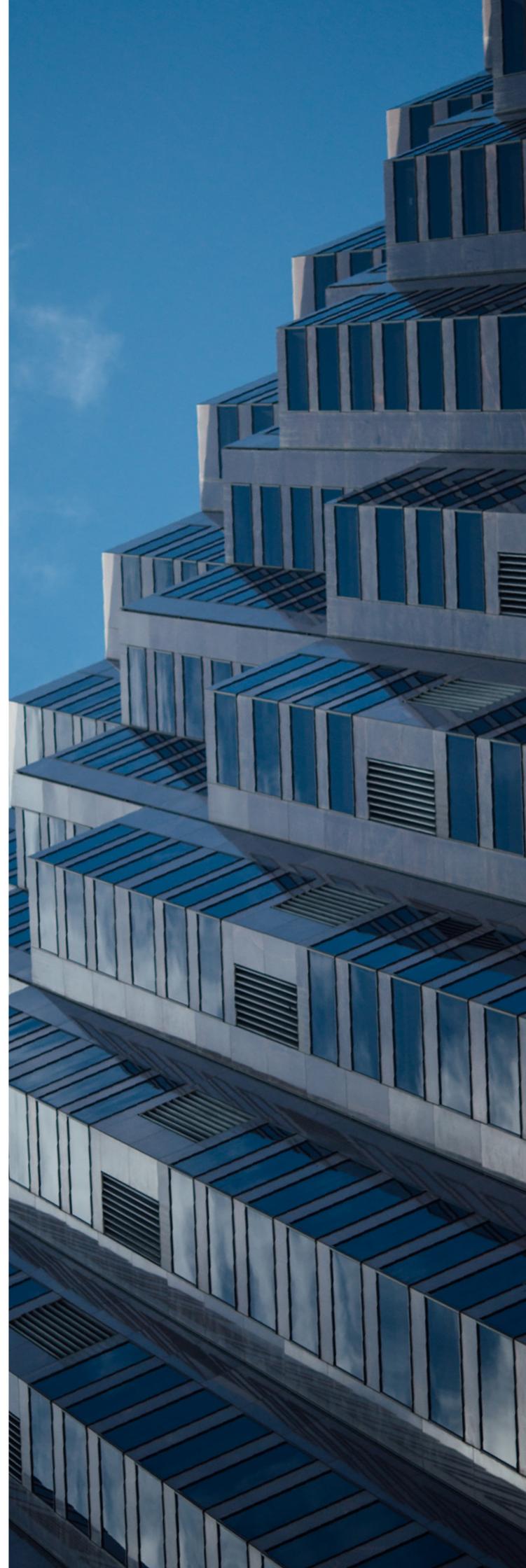
Not only stacking credit and equity of private parties, but also collaborating with the government and semi-public institutions such as the European Investment

Bank (EIB) provide circular businesses with financing solutions. For example, an impact loan or green bonds are ways to increase competitiveness of the pricing of a financial product through the backing of government bodies.

Direct financial flows within circular chains

Circular value chains are more complex, because it is cross-sectoral. The flows of goods are integrated and optimised, but the flows of information and finance are often fragmented. Financial institutions could direct these complex systems by connecting existing clients, for example multinationals with SME's, through supply chain finance (SCF) services. SCF is based on the principle that invoices sent by small suppliers and are officially approved by a large buyer create a sound basis for early payment or extra financing. This way smaller suppliers, such as cooperatives or farmers, get access to extra financing through the support of larger, more influential partners (Steeman 2014).

Mutual credit systems are similar to supply chain financing, but they take it one step further by using invoices as liquid payment instruments. An insured (agreed) invoice is entered into a clearing-network and can be used to pay suppliers, who in turn can use it to pay their suppliers and on and on, thus increasing liquidity throughout the supply chain network tremendously (Lietaer and STRO 2011). Not only does this reduce costs, but it also mitigates risks throughout the supply chain, adds to the stability of the chain, supports the growth of all businesses involved and increases loyalty to suppliers (Steeman 2014). Note however that direct (or even upfront) payment of invoices by (large) institutions would abolish the need for bridge financing.



REFLECTING REMARKS

The financial sector can be a powerful force for instituting a long-term focussed circular economy that benefits everyone. This does require a different view on risks and returns, the incorporation of intangible capitals (e.g. social and natural capital) into financial decision-making and a long-term vision. This report provides 6 guidelines to guide financiers towards their new role(s) in the circular economy.

One of the most challenging elements for the financial sector is to include new capitals into their decision-making process (e.g. social or natural impact measures). By shedding light on the financial decision-making process and engaging in dialogue with financiers, the ability to overcome information asymmetries, specific to circular business can be improved.

It is not only about start-up risk and uncertainty, but about a system shift, which is inevitable. The quicker financiers adapt, the more there is to gain from a societal, environmental and financial perspective.

The transaction costs of this transition are high, so no single player can make the shift alone. In addition to a shift in the perspective of businesses and financiers, there is also a need for policy and legislation. Stimulating direct financing into circular businesses, enabling investment, and developing new fiscal policies are all part of a powerful policy change needed in order to address financial barriers for circular businesses (Polzin 2016). Although not explicitly mentioned in this paper, it is of importance that

policies and mechanisms are introduced to reduce short-term pressures, promote long-term countercyclical performance and internalise external costs.

We are not there yet. Many questions need to be answered before the circular economy will be business as usual. How resilient are circular businesses in times of crisis? How can collaboration between entities (networks) be legally and financially structured? What effect will these entities have on a macro-economic level? How will alternative finance systems and financial technology (fintech) influence the development of such structures?

The next revolution is the circular revolution. Are you ready?

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