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Impact Investing Through Crowdlending: Examining the Role of Intermediation and the Potential for Development Banks

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Zusammenfassung: Förderbanken sehen sich verändernden Marktbedingungen mit niedrigen Zinssätzen, schnellem technologischen Wandel und einem erhöhten Interesse an Impact-Investitionen gegenüber. Dieses Umfeld stellt traditionelle Prozesse und Geschäftsmodelle in Frage, birgt aber auch eine Chance, neue und nachhaltige Geschäftsmöglichkeiten zu entwickeln. Wir betrachten Beispiele für Impact Investment Crowdfunding-Plattformen in einem internationalen und nationalen Kontext und evaluieren ihre Organisationsstruktur insbesondere im Hinblick auf die mögliche Einbindung eines Intermediärs und eventuelle Interessenkonflikte. Unsere Analyse liefert sowohl eine wirtschaftliche Rechtfertigung für die Aktivitäten von Förder- und Entwicklungsbanken in diesem Bereich als auch neue Inputs für die Erweiterung ihres Geschäftsmodells, indem sie ein transparentes und vertrauenswürdige Anlageinstrument für Kleinanleger bereitstellen.

Summary: Development banks are facing changing market conditions with low interest rates, rapid technological change, and an increased interest in impact investment. This combination of factors challenges traditional processes and business models, but also provides a chance to develop new and sustained business opportunities. We examine examples of impact investment crowdfunding platforms in an international and domestic context. We evaluate their organisational structure, especially in connection with the potential integration of an intermediary and possible conflicts of interest. Our analysis provides both economic justification for activities of promotional and development banks in this area and new inputs for expanding their business model with a transparent and trustworthy financial lending instrument for small-scale retail investors.

→ JEL classification: G21, L3, L14

→ Keywords: Development banks, platform business models, crowdlending, impact investing, microfinance, intermediation

I Introduction

Even before the Covid-19 pandemic, promotional and development banks¹ faced a changing business environment. Similar to banks in the private sector, they are trying to find their way in an environment of changing market conditions and rapid technological advancement. Firstly, low interest rates enable private banks in the classic promotional sectors to offer loans at attractive rates, thus undercutting those of development banks. Secondly, technological innovation challenges traditional processes and business models. Blockchain technology and platform business models are two such examples, both of which change the parameters and present both challenges and opportunities for development banks. To continue creating added value, new approaches have been developed and further business opportunities must be sought. In this regard, a further trend may be considered, namely the growing perception of sustainability as investment rationale and the lack of uniform definitions and reliability that are stumbling blocks to fulfilling ESG (Environmental, Social, Governance) criteria (Deutsche Bundesbank 2019). The question is whether this increased interest in impact investment opportunities, also on the side of retail investors, can be acted upon.

Combining the classic financing of development projects with new technological options, we focus on the example of crowd-sourced impact investment approaches. Mainly set up by private actors, they have emerged in recent years due to the growing importance of platform business models and increasing trends to ‘democratise’ financial relations². We analyse the structural designs of different platforms and the role of an intermediary embedded in it. On this basis we explore if small, private investors can be given a trustworthy and transparent opportunity to undertake impact investments and to participate in the financing of development cooperation.

This paper is structured as follows: Section 2 deals with the determinants and trends challenging the traditional business model of development banks in more detail, whereas section 3 examines four examples of impact investment crowdfunding platforms in an international and domestic context. Section 4 evaluates their organisational structure and draws certain conclusions, especially in connection with the potential integration of an intermediary and possible conflicts of interest. On this basis, we outline the advantages of integrating a development bank into a crowdlending structure in section 5. Section 6 summarizes and concludes.

1 The terms promotional and development banks are used in different ways. While in the narrower sense, the term development bank refers to development cooperation in an international context and promotional bank to the activities of the domestic promotional business, the term ‘development bank’ in a broader sense is sometimes used for promotional banks as a whole. In this article we use both the terms in this broader sense.

2 “Crowdfunding, to its advocates, represents the use of the Internet to democratise both fund raising by businesses ... and investment by individuals ...” (Harrison 2013, p. 285).

2 **Environment and dynamics for promotional banks and development finance institutions**

2.1 Broad range of approaches in development finance and promotion

Promotional and development banks operate in a complex environment. It is therefore not surprising that the evaluation of the objectives and instruments of operation is in constant discourse. While there are numerous determinants and trends challenging the traditional business model of the development banks, we wish to focus our attention on three.

The first is the extensive array of approaches in development finance and promotion. Development cooperation spans a wide field and the evaluation of instruments that are used evolves over time (Nagel 2020). In the broad range of financing concepts, microfinance and blended finance are instruments that pursue different goals.

Within the framework of structural policy, microfinance aims to promote the economic development of micro-enterprises. Approaches to microfinance, i.e. for granting microloans in spite of relatively high transaction costs, information problems and lack of collateral, have existed for a very long time. Examples can be found in the creation of cooperative banks in Germany in the middle of the 19th century, as well as worldwide, where microloans have been granted, especially since the 1970s.³ The problem resolution mechanisms and characteristics include credit assessments by highly specialised intermediaries with in-depth market knowledge and peer monitoring to offset the lack of collateral.

Blended finance addresses the investors' side as it is a structuring approach to financing that aims to mobilize private capital in addition to public capital for the achievement of development policy goals.

Achieving the Sustainable Development Goals (SDGs) by 2030 as well as reaching climate protection targets require high investments that cannot be provided by the traditional public and private development finance institutions alone. The United Nations Sustainable Development Group UNSDG estimates the annual financing gap at USD 2.5 trillion (UNSDG 2018). In addition, developing countries have been especially affected by capital outflows due to Covid-19. The Institute of International Finance mentions that record high monthly capital outflows of USD 83.3 billion were observed in emerging markets in March 2020 (IIF 2020).

Efforts are therefore being made to mobilize additional private capital. Since many development projects involve higher risks relative to potential returns, financing in the context of blended finance concepts is structured in such a way that different types of capital providers can be involved while pursuing their respective objectives. While private investors receive a return that is in line with the market from a risk perspective, public investors such as development banks take social returns into account in addition to financial returns and are therefore willing to take on higher risks, in some cases through concessionary elements, compared to conditions based on purely financial risk/return ratios. Blended finance can thus be seen as a structuring approach for financing that is

3 A very well-known example is the Grameen Bank, founded 1983 in Bangladesh by Muhammad Yunus. The bank and Yunus were jointly awarded the Nobel Peace Prize in 2006.

designed to enable the mobilization of additional private capital to pursue development goals. The financing structures used range from funds and syndications to securitizations and public private partnerships. They combine different types of financing (equity, debt, mezzanine capital) with guarantees, insurance, grants, and technical assistance (OECD 2018). Since the intention is to mobilise large volumes and because of the risk profile remaining for private investors, blended finance approaches do not address retail investors. We will take up this aspect later.

2.2 Digitalisation creates opportunities for new business models and processes

Technological developments are changing the operating environment for banks and development banks in various ways, as new options are emerging for both processes and business models.⁴

Falling transaction and information costs change market structures and lead to increased disintermediation in different industries as well as in financial markets. As a result, platform business models are penetrating functional areas that were previously reserved for traditional intermediaries. In contrast to the classic pipeline business models, these new business models have the advantage that, at least from a microeconomic perspective, growth is not limited by investments in infrastructure and that positive network effects are generated. These advantages of so-called 'asset-light' business models can be particularly beneficial in developing and emerging countries. Since banks fulfil essential transformation functions that go beyond services provided by other industries, developments in the financial sector have not yet progressed as far as in other sectors. However, there is a growing importance of open banking ecosystems and crowdfunding solutions.

Following these recent trends, crowdfunding platforms have emerged that aim to directly provide impact investment opportunities and microfinance. As in traditional microfinance approaches, the focus is on granting small and micro-loans. Due to the small lot sizes, there is a need for a very efficient handling of transaction costs in order to make financing solutions feasible. But in contrast to the classic microfinancing models, the model case of crowdfunding is characterised by the fact that the platform only coordinates lenders and borrowers, but does not use an intermediary that fulfils additional functions. This characteristic is of great importance for the suitability of crowdfunding in various fields of application or for the question of how an advantageous concept can be set up in a range between a pure, decentralised platform design and the involvement of an intermediary; we will address this central question in section 4. Whether the platform itself can be regarded as an intermediary depends on the definition of the latter. Since we wish to compare the organisational structures of pure, decentralised platform structures with those in which an intermediary takes on additional functions such as monitoring and due diligence, we do not refer to pure platform structures as intermediaries.⁵

4 Lübcke (2019) identifies several cases of technological change forcing banks, both private and development, to adapt to new surroundings. For instance, intelligent communication such as bots and intelligent assistants such as robo advisors will transform how lenders interact with banks. The banking world is, of course, not immune from this development, with a number of multi-banking apps having recently been developed.

5 The functions and, subsequently, the definitions of financial intermediaries are evolving and are interpreted in different ways. For example, Diamond (1984) examines the superiority of financial intermediaries over direct encounters between borrowers and lenders on the capital market against the background of information asymmetries and the importance of incentive-compatible contract structures. He thus provides a *raison d'être* for financial intermediaries in the narrower sense; they are acting as market participants themselves, granting loans and accepting deposits. Allen and Santomero (1998) expand this definition by assigning financial intermediaries in the broader sense a function in the face of increasing importance, but also complexity, of market solutions. They support the direct interaction of market participants by facilitating risk transfer and reducing participation costs. Following this definition, platforms could also be regarded

There is a further difference with regard to the symmetry of granularity: While microfinance is characterised by a small-scale structure only on the borrower level, crowd lending as a platform solution is structured in a granular way both on the borrower and lender side.

An additional major development in recent years has been the Distributed Ledger Technology (DLT). A distributed ledger from a banking point of view is basically a record of claims to ownership of a certain asset that is known to all those participating. The blockchain technology is a type of DLT and is most famously used as the ledger of the Bitcoin system.⁶ It can, of course, be used in a multitude of other ways. Many use cases are currently being developed and evaluated, including applications in the financial sector such as the settlement of securities transactions or the issuance of promissory note loans. Some use cases could be of particular benefit for development banks. For instance, Somasundaram and Hasan (2018) propose a model for e-Government Procurement systems. In addition, as will be discussed in section 4, KfW has developed a software named TruBudget that uses DLT to enhance the levels of transparency and effectiveness in development projects (Kleffmann and Zakotnik 2019).

2.3 Implications of low interest rate environment and shift in societal values

In many cases, the traditional instruments with interest subsidies alone can no longer produce a sufficient promoting effect. As is well known, the low interest rate environment is having a negative impact on commercial banks' profitability. At the same time, promotional banks are also having to reposition themselves to take on this challenge. The current situation is enabling commercial banks to offer loans in the classic corporate or retail banking business at highly competitive rates, meaning that promotional banks are finding their traditional competitive advantage eroded. Partner banks are less and less inclined to include development banks in the processing of loans (Liehr et al. 2017), as they themselves can borrow at very low rates from the European Central Bank. With the German federal development bank KfW enjoying the backing of the German government, it can still re-finance at the lowest rates, in fact at negative rates at present. However, as long as we assume a zero-lower bound condition in the credit market vis-à-vis final borrowers, this advantage is less pronounced than in the past. Therefore, the low interest rate environment should push development banks to identify and develop new business fields (Liehr et al. 2017).⁷

The economic and financial crisis caused by Covid-19 is accentuating the situation. Low interest rates are expected to last even longer than previously thought, with just over half of US economists surveyed by Bloomberg in April 2020 expecting the federal funds target rate to remain between 0% and 0.25% until at least 2023 (Bloomberg 2020). The European Central Bank's survey of pro-

as intermediaries in a broader sense. A different definition is used by Bundesanstalt für Finanzdienstleistungsaufsicht (2018), where a distinction is made between different business models of crowdlending platforms with and without the involvement of an intermediary, which indirectly means that the platform itself is not considered an intermediary.

6 Blockchain and DLT are often used interchangeably, but it must be noted that whereas blockchain belong to the DLT sphere, not every DLT is a blockchain.

7 The need to realign the terms and conditions for promotional loans already arose in the middle of the 2000s, when the demand for development loans declined due to the trend towards risk-adjusted pricing in the commercial banking sector. This was not because of a low interest rate environment, but, amongst others, a result of technical progress – advance in the measurement of credit risk, in this case – and was accomplished by introducing a risk-appropriate interest rate system for promotional loans (Weiland 2008).

professional forecasters reached a similar conclusion, the median expectation being that the main refinancing operation rate will remain at 0 % until at least 2022 (European Central Bank 2020).

Another challenge and opportunity being faced by development banks is the increased importance of impact investing.⁸ From the perspective of investors, social impact investment is “the provision of finance to organisations addressing social needs with the explicit expectation of a measurable social, as well as financial, return.” (OECD 2019, p. 54)

The very low return on savings coupled with the rapid change in society towards a more sustainable lifestyle means (small- and large-scale) investors are taking a lot more interest in investments that fulfil sustainable criteria such as ESG. Whilst the success of sustainable investing is still a matter of debate (Friede et al. 2015; Winegarden 2019) and methods for measuring impact are still in their infancy (Bos 2018), there has been an increase in demand for such products. According to Statista (2020), the German online portal for statistics, the value of “responsible investments” in Germany, defined as investment processes whereby the investor or asset manager takes ESG guidelines into consideration, jumped from EUR 437 billion in 2014 to EUR 1.53 trillion in 2018, an increase of 250 %. “Sustainable investments”, which are actual financial products that correspond directly to ESG guidelines (as opposed to investment processes), rose from EUR 127 billion to EUR 219 billion in the same period, an increase of 72 %.⁹

Two studies recently analysed the retail sector and surveyed people living in Germany (Bundesverband deutscher Banken 2019, Röstel 2019). The findings show that while there is a general interest amongst the general public in sustainable investments, there is little actual investment in the retail sector. The main stumbling blocks appear to be the persistence of classic saving instruments, the expected low return of and the lack of knowledge about such sustainable investments, and the lack of trust in the current providers of such instruments.

Although a wide range of instruments such as funds, cooperative structures and crowdfunding models exist for impact investing, the German market is still in its infancy (Bundesinitiative Impact Investing 2020) and unfortunately there is a lack of transparent and consistent definition criteria to date, which leads to uncertainty, as mentioned above.¹⁰ At the same time, the focus on the investor side lies on institutional investors and family offices and less on retail investors.

As microfinance promotes the creation and growth of micro-enterprises and thus creates jobs, for example, microfinance constitutes a specific investment area of impact investing.

We now wish to combine the above-mentioned topics, in particular the intention to provide an impact investment opportunity for retail investors (in the form of microfinance) through a crowdfunding platform. In section 3 we look in more detail at some examples of crowdfunding platforms for impact investing.

⁸ In the literature, “impact investments” and “sustainable investments” are sometimes used to describe the same thing and are at other times treated separately. Please note that we use the two terms interchangeably in this paper.

⁹ In these figures, sustainable investments are part of total responsible investments.

¹⁰ Attempts are currently being made to develop a harmonized taxonomy; see EU Technical Expert Group on Sustainable Finance (2020).

3 **Impact investing through crowdlending platforms¹¹**

3.1 Crowdlending platforms with an international focus: Kiva and Zidisha

Kiva was founded in 2005 in San Francisco with the aim of providing financial access to the poor and disadvantaged in various countries, from the developing world all the way to the US itself. By way of crowdfunding, lenders can – from a sum of USD 25 upwards – finance loans of their own choice from generic categories such as “education”, “women”, or “shelter” or by narrowing down a search by applying filters such as gender, location, sector, or loan details. According to its own webpage, within the Kiva system there are, as of May 2020, loans worth USD 1.44 billion disbursed by 1.9 million lenders to 3.6 million borrowers in 77 countries. The repayment rate is 96.4%. According to Kiva’s annual reports, between 2010 and 2018, the amount of money lent has increased by 122 %, the number of loans by 91 % and the number of active lenders by 72 %. (Kiva 2012, Kiva 2019).

Zidisha, founded in 2009 in Sterling, Virginia, concentrates more narrowly on four African countries and Indonesia. Lenders can support projects in the field of education and other generic business needs in developing countries. Even if the later start of operations is taken into account, Zidisha, with a total volume of loans granted to date of USD 16.8 million, is significantly smaller than Kiva, which has granted loans of USD 1.44 billion since it was founded. (Zidisha 2020).

Besides the smaller size the main difference lies in the organizational structure. Whereas Kiva integrates intermediaries that fulfil certain functions, Zidisha was set up as a purely model case platform business structure:

“Zidisha is the first online microlending community that directly connects lenders and entrepreneurs – no matter the distance or disparity between them. We bypass expensive local banks and intermediaries that charge sky-high interest rates and offer a person-to-person platform that lets lenders and entrepreneurs communicate openly and instantly.” (Zidisha 2020)

Kiva works with several so-called field partners that are “lending agencies in the countries of the loan borrowers which actually disburse and administer the loans [and] act as intermediaries between lenders and borrowers” (Bollinger and Yao 2018, p. 252). Originally, these were limited to microfinance institutions, but they now include other entities such as schools or other non-profit organizations. All field partners ensure that a high degree of social impact is achieved with the capital raised. Amongst other activities, they ensure that appropriate due diligence is done on loans – the Kiva website talks loosely about examining “a variety of factors (past loan history, village or group reputation, loan purpose, etc.)”¹² – and that the loan is properly administered. In addition part or all of the local currency risk may be borne by the field partner.

Whereas the lenders themselves do not receive an interest rate, Kiva can charge field partners a fee in conjunction with the usage of its website and field partners themselves are allowed to charge

11 A synopsis of the different platforms mentioned in this article with further information can be found in the appendix.

12 www.kiva.org/about/due-diligence/risk.

interest rates on the partner loans to cover their administrative costs. To prevent an excessive interest rate being charged, Kiva demands transparency regarding interest payments.

The relationship between the lender and the borrower depends to a great extent on the integrity of the field partner. To reduce reputational risk, Kiva therefore performs due diligence on each field partner. This entails details about the usage of the loans, the structure and composition of the leadership, financial information, as well as actual visits from Kiva representatives to evaluate the field partner.

The lender risk from a partner loan is multi-dimensional; repayment depends on the borrower itself as well as the field partner repaying in full. This adds an additional layer of risk, which is another reason why due diligence of the field partners is so important. If a borrower cannot repay, a loan restructuring will be attempted; if this is not successful and the borrower defaults, the lender will face a corresponding loss. The fact that the field partners assess the creditworthiness of borrowers and receive the corresponding interest, but the risk of default is borne by the lenders, creates incentive problems.¹³

Another risk is that of the local currency depreciating against the US dollar, leading the field partner to pay back more in local currency when the loan is repaid than what was originally received. Potential currency losses are either borne fully by the field partner, borne up to a 10 % depreciation of the local currency with the lender bearing the rest, or borne fully by the lender.¹⁴

3.2 Crowdlending with a domestic or regional focus: GLS Crowd and L-Bank MikroCrowd

GLS Crowd is a crowdfunding platform of GLS Bank that has been active in impact investing since February 2017. Investors can lend between EUR 250 and EUR 25,000 to a social-ecological investment project of their choice. In comparison to Kiva, there are significantly fewer loans to choose from, investment projects are solely domestic ones and the total amount to be raised for each project is considerably higher. Thus, GLS Crowd provides impact investment opportunities but no microfinance. In addition, lenders receive a pre-determined interest rate on their funding and the loans are classified as subordinate.

As of May 2020, there are 24 projects listed on the GLS crowd website, 22 of which have been fully funded (of which two are so-called partner projects, with GLS Crowd providing the “online financing” and the rest coming from “offline financing”). A total of EUR 16.9 million has been raised, with each crowd investor lending an average of EUR 2,385 (data as of April 2019). The funded projects range from financing an energy storage system for houses to a refinancing of an existing photovoltaic plant portfolio; loan maturity is between 2 and 13 years (with the majority around the five year mark) and the interest rate paid is between 4 % and 7 %. The projects are selected according to the criteria of the GLS Bank. As a well-known name in the area of sustainable social-ecological funding, it is hoped that using these criteria for selection will instil trust and confidence in the crowdfunding investors.

13 Incentive problems resulting generally from the integration of an intermediary were analysed by Diamond (1984) and are dealt with in Section 4.2.

14 Note that several studies point out the similarity of Kiva's approach to Muhammad Yunus and the Grameen bank, such as Moodie (2013), Choo et al. (2014), Bryatt (2018).

Four of the 22 projects already funded are marked as “repayment in question”, equivalent to 13.4 % of total funds raised, of which three companies have declared insolvency and one is involved in insolvency proceedings.

When granting promotional loans, L-Bank in principle relies primarily on the house bank procedure in its role as refinancer and does not want to impair competition in the field of start-up loans with commercial banks. Since there was no demand from commercial banks for promotional loans below the € 17,000 threshold (despite a processing fee of € 1,000), L-Bank decided in 2017 to offer microloans up to € 10,000 directly and in combination with crowdfunding (L-Bank 2020b).

L-Bank microloans were thus granted in two variants: Firstly, in the case of promotional loans without crowd involvement, 20 % equity capital was required. A maximum of € 10,000 was made available as a loan for a maximum financing amount of € 12,500. The interest rate was approximately 5 %.

In the second variant, a combination of a promotional loan and a reward-based crowdfunding model was chosen. With reward-based crowdfunding, lenders are entitled to receive a product at a later date, so it represents a pre-financing of sales.¹⁵ That share is recognised as an equity substitute, must be at least 50 % of total financing volume and can be combined with a promotional loan of up to € 10,000. The volume of the crowdfunding, on the other hand, is unlimited and volumes of up to € 200,000 were observed, with a focus on the large thousands range. The interest rate in this variant, 2 %, was lower than in the first variant (L-Bank 2020a).

L-Bank therefore cooperated with startnext.com, the largest provider of reward-based crowdfunding in Germany, and used a so-called ‘partner page’. Amongst all startnext projects presented, L-Bank selected suitable projects, the initiators of which were contacted directly. In addition, there was the possibility of a direct application at L-Bank.

The selected start-ups were supported on the one hand by the granting of the microcredit and on the other hand by further assistance being provided, for example, in the development of the business plan and a social media marketing campaign via cooperation partners of L-Bank. The start-ups also benefited from the media channels of L-Bank.

The granting of microloans was discontinued in both programme variants on 9 May 2020.¹⁶ Overall, it had been expected that there would be greater interest in combining microloans and crowdfunding (L-Bank 2020b).

¹⁵ When financing start-ups, the problem is that it is difficult to assess the business plan and profitability in the future. Besides providing finance, an additional benefit of reward-based crowdfunding is that it can be used to test the market in the interest of investors and start-ups.

¹⁶ For the service function offered within crowdfunding, a change of provider to Start-up BW is taking place (L-Bank 2020b).

4 Evaluation of the different organisational structures of the platforms

4.1 Granularity on borrower and lender side

Comparing the average volume of financing provided through the described platforms, clear differences become apparent. As shown in the appendix, the average volumes per borrower (AVB) in developing and emerging countries are significantly lower than those of the German crowd-lending platforms considered. Within the developing and emerging countries, there is an obvious difference between Kiva (AVB 400 USD) and Zidisha (AVB 65 USD). With an average volume of 768,181 EUR (845,000 USD¹⁷), impact loans provided through the German GLS Crowd do not count as microfinance. Microloans provided by L-Bank – up to an amount of 10,000 EUR – have an average volume of 8,791 EUR (9,670 USD) (L-Bank 2020b). However, when calculating the AVB as a percentage of the nominal GDP per capita (in PPP USD) of the relevant borrowing market(s), the differences narrow; Zidisha is the lowest at 1.1 %, followed by Kiva (5.8 %), L-Bank (17.8 %) and GLS Crowd (1,552 %). Please see the appendix for more details.

There are also significant differences on the lender side. All platforms provide impact investment opportunities for retail investors, with average volumes per lender (AVL) of 43 USD at Zidisha, 70 EUR (77 USD) at L-Bank¹⁸, 758 USD at Kiva and 2,385 EUR (2,624 USD) at GLS Crowd.

4.2 Role of a potential intermediary and incentive effects

As an organisational model, platforms compete with classic structures in which an intermediary fulfils certain functions against the background of information asymmetries and incentive problems. In the model case, platforms merely take on coordination functions by bringing together both sides of the market.

If an evaluation of the advantages of a certain organizational structure is to be made, two aspects in particular must be taken into account: firstly, the framework of the financial markets, for example risk and distribution of information, and secondly, the nature of market participants on both sides, for example the professionalism of borrowers and lenders.

Particularly in markets that are characterized by a high degree of asymmetric information, a pure platform fulfils transformation functions only insufficiently. As already noted in footnote 5, both Diamond (1984) and Allen and Santomero (1998) show that the involvement of an intermediary acting as a delegated monitor or by facilitating participation can provide a more efficient way for borrowers and lenders to interact. Therefore, sole platforms are generally only used when individual investors do not have much capital at stake. In these cases, therefore, the focus is on ideological motivation rather than on risk transformation. If substantial financing volumes are to be mobilised, the involvement of an intermediary makes sense. This requires a careful analysis of the incentive effects. Bollinger and Yao (2018) look critically at the role of field partners, analysing the impact of intermediaries on the interest rate charged to the borrower. A key issue when examining financing structures such as Kiva is to analyse the incentives of all agents involved.

17 EUR amounts converted into USD as per 27.05.2020.

18 This amount refers to the reward-based crowdfunding share, not to the promotional microloan granted by L-Bank.

Whereas the actual lenders may be non-profit oriented, the field partners – those disbursing the loans – are often not. In general, when deciding on the interest rate on a loan, the lender will take into consideration that a default is more likely, the higher the interest rate charged. This tends to put downward pressure on the interest rate chosen. However, as the default risk is borne solely by the crowdfunding lenders and not by the field partner, a crucial element of keeping interest rates in check disappears. If they are profit-maximizing, they will have an incentive to charge a higher interest rate than if they were to bear part of or all the default risk.

The empirical work undertaken by the authors aligns with this theory. Taking a set of 360,575 Kiva loans from January 2009 and June 2012, they found that average interest rates were significantly higher than those of Zidisha, which lends money directly to the borrowers without using field partners (interest rates of Kiva at approximately 38 % versus interest rates of Zidisha at approximately 10 %). Of course, one would suspect intermediaries to charge a higher interest rate to cover their costs, but it is questionable whether such a difference reflects higher cost levels. The authors further demonstrate that the interest rates charged by Kiva fell significantly after Zidisha entered the same country or region; this shows that borrowers' ability to access different sources of capital limits an intermediary's ability to charge a high interest rate, which is again in line with an incentive-based analysis of the field partners' goals.

The authors point out that a model such as Zidisha, which provides a direct link between lender and borrower, is not without its shortcomings. Whilst the borrower may well enjoy a lower interest rate, there is still a necessity to connect the lenders to the borrowers. In Zidisha's model, this task is partly undertaken by volunteers or occurs by word of mouth in developing countries, both of which naturally limits the scope of lending. Instead, they propose a model whereby the field partners themselves pay back the lenders; this is the equivalent of lenders loaning the funds to the field partners, who then lend it on to the borrower. As the field partner would bear the risk of default, this would be taken into full consideration when deciding on the interest rate to charge; "the upward force on interest rates would be completely removed" (Bollinger and Yao 2018, p. 275).¹⁹

5 Development banks as an intermediary in impact investment structures

5.1 Providing expertise while minimizing conflicts of interest

Combining the trends in the operational environment of promotional and development banks outlined in section 2 with the assessments of the crowdlending platforms described above can provide both economic justification for the activities of promotional and development banks and inputs for their business models.

The importance of an intermediary and the need for incentive-compatible structures in crowdlending platforms suggest the involvement of a promotional bank as an intermediary. This constitutes an economic justification for the activities of promotional and development banks, especially in an international context.

19 This would of course lead to the field partner taking on most – if not all – of a traditional bank's functions.

The overview of four crowdlending platforms in the appendix shows that in practice, marketplace lending solutions rarely correspond to the ideal type of a purely decentralized platform solution that does not require any intermediaries. For instance, the banks behind GLS Crowd and MikroCrowd, GLS Bank and L-Bank respectively, themselves perform the intermediary roles of monitoring and selecting the individual financing projects. As shown above, Kiva works with field partners that perform similar duties.

Zidisha is the only platform analysed that attempts to directly connect lenders and borrowers. It uses volunteers to assist and monitor individual entrepreneurs in developing countries, but it is the borrower who uploads the required financing needs to the website and it is the lender who decides whether and how much to give. However, there are clear limitations to this business model, not least the limited scope of lending if the borrower must rely on a volunteer or by word of mouth to apply for a loan on the platform. Kiva, on the other hand, with a much larger loan volume (USD 1.44 billion as opposed to Zidisha's USD 16.8 million), integrates field partners into the structure, fulfilling information processing and monitoring functions. This seems reasonable since local credit markets in emerging markets have a much higher degree of information asymmetry relative to efficient financial markets such as regulated securities exchanges.

While it seems imperative to include intermediaries in any model of substantial impact investment platforms, recall from section 4 the difficulty of combining profit-maximizing agents such as local intermediaries with lenders interested mainly or partly in the impact and less in the remuneration of the investment. We have a clear conflict of interest between the two parties, leading to field partners charging excessively high interest rates as they bear none of the risk from default. While this could be solved by field partners bearing more (or even all) of the risk, as mentioned above, it is feasible that they may react by offering their services to whichever crowdfunding platform demands the lowest share of default risk. Such a "race to the bottom" would then put those platforms at a disadvantage that insist on intermediaries assuming a higher share of the default risk.

Based on the above, we are reluctant, without more research undertaken on the incentives and the outcomes, to propose that intermediaries bear more of the default risk. Rather, development banks such as KfW Development Bank or a development finance institution like DEG, a subsidiary of KfW, are in a unique position to exploit their expertise and experience in financing local development projects and working with local intermediaries. We envisage a similar platform model to Kiva, but with development banks taking advantage of their relationships with local intermediaries to select and monitor these in a more efficient manner. While there will clearly be inherent problems in the incentive structure when working with a profit-maximizing local intermediary, we believe that its core competence of lending to developing countries will allow KfW's development arm to better monitor and regulate the local intermediary's behaviour, helping to push down the interest rate charged to the borrower. In addition, if the platform were to prove successful and loan volumes were to be significant, the local intermediary may act less belligerently to the borrowers out of pure self-interest, wishing to maintain its good standing with KfW and the prospect of future fees.

5.2 Reducing uncertainty and providing impact investment opportunities for small private investors

Another strength which could be leveraged is the reputation of a promotional bank. As we saw in section 2, non-institutional investors are interested in impact investments, but there is a high degree of reticence. This is partly driven by the belief that the returns on such impact investments are low. Even though most non-institutional investors state that they would be willing to accept a lower return when impact investing, the majority still prioritize financial aspects of a loan ahead of ideological issues; “lower” does not necessarily mean “low”.

In addition, it is striking how little is known about sustainable investments. Whilst there are well-known and convenient ways for informed investors to invest in sustainable financial products, this is not the case for the less-informed saver. This is especially true if this saver wishes to invest only a small amount, e.g. EUR 50.

Finally, it is interesting to see how little trust there is in conventional providers of these assets. It is unclear whether this is due to a general aversion to private banks, a mistrust on whether the loan provided ends up in the hands of the borrowers, or whether potential investors are concerned they will not get their money back. However, in all cases, a well-founded and trustworthy reputation in the field of impact investing and an assurance that there is a rigorous and transparent approach to lending is of vital importance.

Based on the above, we believe this is where a development bank like KfW could step in. It is seen objectively and subjectively as fulfilling high standards in the area of sustainability. A study undertaken by the Institut für Management- und Wirtschaftsforschung (IMWF) in 2019 graded 652 sustainability reports from different German companies (IMWF 2019a). In the category “Credit institutions”, KfW finished fourth, although it must be noted that the savings banks (Sparkassen) and the cooperative banks (Volksbanken) were evaluated separately.

From a subjective point of view, another study by IMWF from 2019 examined the sustainability reputation of the 25,000 largest German corporations (IMWF 2019b). Based on 350 million German online sources from August 2018 to July 2019, KfW finished as one of only 11 banks to receive the reputation accolade “Excellent Sustainability”.

Another advantage that KfW has is brand recognition. Whereas 81.8 % of those surveyed by Deutsche Bundesbank had heard of the term “ethical bank” (Civey 2018) and there are several banks who are rated highly in objective sustainability and fairness rankings, e.g. GLS Bank, EthikBank, Triodos Bank, KD-Bank and Pax Bank²⁰, these are mostly unknown to the general public. KfW, on the other hand, ended up in eighth place on a list of Germany’s most well-known banks in one ranking of 2017 (Krautkrämer 2018).²¹

We see potential in a crowdfunding platform with a development bank as the figurehead and as a cornerstone investor. By putting up a certain percentage of its own funding for development

20 See, for example, Fair Finance Guide, www.fairfinanceguide.de.

21 Naturally, KfW is known in Germany less for its development finance activities than for its domestic development loans, but it still has a brand recognition that ethical banks lack.

projects, we believe that the development bank could leverage its good reputation to attract other lenders.

Whereas this aspect is already incorporated in many blended finance structures and contributes to mobilising capital by institutional private investors, we are particularly intrigued by the possibility of tailoring this platform to the general public and allowing small investments by retail investors. Deviating from and extending the L-Bank MikroCrowd model, crowdfunding would not be chosen independently by the crowd in addition to the microcredit, but in an integrated structure with the financing provided by the development bank and retail investors.²²

The interest in impact investing and the continued low interest rates in the foreseeable future could serve as a promising backdrop for a trustworthy crowdlending platform open to the whole population. Due to reduced risk profile, volumes could be higher than in non-intermediated crowdlending platforms and this would broaden the investment scope for small impact investors.

5.3 Use of new technologies

A key component of any impact investing lending platform is to mitigate the risk of a lack of transparency and the question of whether the money goes to where it is intended. A well-structured and transparent development project seems to be an important need for institutional clients as well as retail investors. As can be seen in Statista (2020), when asked for the reasons why sustainable fund managers refuse to invest in certain funds, violation of labour rights (a total amount of EUR 83 billion held back from the firm or country involved), corruption and bribery (EUR 78 billion withheld), violation of human rights (EUR 77 billion), and destruction of the environment (EUR 5 billion) were mentioned. For development banks, the employment of blockchain technology in this area looks promising. The current approach to ensuring that funds are not misused and that the required level of transparency is achieved is that “each donor institution has set up its own rules and procedures which have to be adhered to by partner countries if they want to receive funding.” (KfW Development Bank 2018, p.1). This has led to various problems such as lack of coordination and high transaction costs of partner systems, disjunct data systems between state agencies and private donors, lack of real-time data and unequal information levels (Kleffmann et al. 2019). Against this backdrop, KfW has implemented a digital platform known as Trusted Budget Expenditure Regime (TruBudget), which aims to tackle these issues. Based on a private blockchain system, every stakeholder (government agencies, auditor, etc.) can participate with specific rights according to their role. According to KfW Development Bank (2018), “[a]ll activities are documented in the system and are traceable at all stages” (p.2), with the aim being, amongst others, to lower transactions costs and ensure a higher level of transparency – and therefore efficiency – within projects.

We must note, however, that whilst looking encouraging at first glance, it remains to be seen whether this system would be applicable to the types of impact investing projects we envisage or to which degree it would have to be adapted. In credit relationships, for example, it must be ensured

22 In theory, this could also be done by the development banks accepting private deposits. Especially in the low-interest phase and with commercial banks partially demanding negative interest rates, this could be a lucrative investment opportunity for private small investors, which at the same time offers a degree of impact. Due to competition with the private banking sector, however, this solution would not be feasible.

that the use of block chain and smart contracts based on crypto-currencies does not induce currency-based counterparty default risks.²³

6 Summary

Development banks are facing changing market conditions with low interest rates and a rapid technological change. This combination of factors challenges traditional processes and business models but also provides a chance for development banks to develop new and sustained business opportunities.

Technological developments are changing the operating environment for banks and development banks in various ways, as new options are emerging for both processes and business models. Following these recent trends, crowdlending platforms have emerged and there are first promising use cases for the application of blockchain in the financial sector.

At the same time, because of low interest rates, there is an erosion of competitive advantages of development banks over commercial banks. In many cases, the traditional instruments with interest subsidies alone can no longer produce a sufficient promoting effect.

Another challenge and opportunity faced by development banks is the increased importance of impact investing. Although a wide range of instruments such as funds, cooperative structures and crowdfunding models exist for impact investing, the German market is still in its infancy and there is a lack of transparent and consistent definition criteria to date, which leads to uncertainty. At the same time, the focus on the investor side is on institutional investors and family offices and less on retail investors.

We combined the above-mentioned topics to explore the possibility of providing an impact investment opportunity for retail investors through a crowdlending platform. In section 3 we looked in more detail at some examples of crowdlending platforms for impact investing. Investments in developing and emerging countries, as well as those in a national context that are intended to have an impact by meeting environmental or social criteria, usually have a complex structure and are associated with a high degree of information asymmetry and potential moral hazard problems.

Looking at the project level, i. e. the borrower side, it becomes clear that in the case of pure platforms such as Zidisha or the crowdfunding part of the L-Bank MikroCrowd, only small amounts can consequently be made available by investors. The involvement of an intermediary tends to make larger amounts of financing possible, but – as can be seen in Kiva's approach – involves conflicts of interest.

On the project side, therefore, the involvement of a development bank as an (additional) intermediary makes sense both for microfinance approaches and for larger-volume projects. Our analysis therefore confirms the importance of the involvement of development banks in the financing of developmentally valuable, but complex project structures.

23 For further use cases for the integration of DLT in finance and crowdfunding projects see European Crowdfunding Network (2019).

This suggestion on the project side also has positive effects on the funding side: If intermediaries are involved, larger volumes can thus be mobilised on the investor side. When in addition – as in blended finance structures – an effective risk sharing between public and private investors is chosen on the investor side, the extent of mobilisation of private capital is enlarged further. However, classic blended finance structures attract large, institutional private investors. The idea is to make the private financing part more granular and open it up to small investors by installing a crowd solution on the investor side. The crowdfunding would take place in an integrated structure, with the financing being undertaken by a development bank and retail investors. It should also be examined to what extent technical solutions such as blockchain and smart contracts can be integrated into the structure.

Our presented concept serves two purposes: On the one hand, private investors are given a trustworthy and transparent opportunity to undertake impact investments. On the other hand, development banks can thereby increase the visibility of their work and can extend their current business model in a new and sustainable way.

We are well aware that the business opportunity we propose is not an immediate perfect fit for a development bank. There are many questions to consider and trade-offs to be analysed. We hope, however, to have provided thought-provoking ideas of an extension to the contemporary business model of a development bank.

Appendix

Overview of Lending Platforms²⁴

	Kiva	Zidisha	GLS Crowd	L-Bank (Mikro-Crowd)
Founded	2005, San Francisco	2009, Sterling, Virginia	2017, Bochum	2017, Karlsruhe
Type of financing	Lending	Lending	Lending	Donating and Lending
Total volume²⁵	1.44 bn USD	16.8 m USD	16.9 m EUR (18.6 m USD)	Donating: 372,038 EUR (409,242 USD) Lending: 290,100 EUR ²⁶ (319,110 USD)
Average volume per lender (AVL)	758 USD	43 USD	2,385 EUR (2,624 USD) (April 2019)	70 EUR (77 USD) (CrowdDonating)
Average volume per borrower (AVB)	400 USD	65 USD	768,181 EUR (845,000 USD)	8,791 EUR (9,670 USD) (Microloans)

24 Sources: www.kiva.org, www.zidisha.org, www.gls-crowd.de, www.mikrocrowd.de, www.startnext.com, Bollinger and Yao (2018), L-Bank (2020b).

25 All data as of May 5, 2020, unless otherwise specified.

26 All MikroCrowd data per 30.04.2020; Total Volume Donating without additional contest.

	Kiva	Zidisha	GLS Crowd	L-Bank (Mikro-Crowd)
AVB as % of nominal GDP per capita 2018 (PPP USD)²⁷	5.8 % ²⁸	1.1 % ²⁹	1,552 % ³⁰	17.8 % ³¹
Regional focus	77 countries in total (mainly Africa, Central and South America, Asia)	5 countries: Ghana, Nigeria, Zambia, Kenya, Indonesia	Domestic	Baden-Württemberg
Impact / ESG objectives	Women, education, sustainability, etc.	Education, generic business needs in developing countries, etc.	Mainly sustainability	Education, community, social business, etc.
Selection of projects to be financed	By investors from generic categories	By investors from generic categories	By investors from specific projects (Pre-selection by GLS according to specific criteria)	Crowdfunding by investors from generic categories; micro-loans decision by L-Bank
Degree of intermediation³²	Intermediated platform (field partners as intermediaries)	Platform without intermediary	Intermediated platform (GLS Bank as the intermediary)	Intermediated platform (L-Bank as the intermediary);
Function of the intermediary	Monitoring and information processing Payment services Reduction of transaction costs	n. a.	Monitoring and information processing Payment services Reduction of transaction costs	Monitoring and information processing Payment services Reduction of transaction costs Marketing support and consulting services
Remuneration / return for investors and service fees	No interest rate for investors Field partners pay a service fee to Kiva Field partners can charge interest on the partner loans Loan repayment can be withdrawn at maturity or "recycled" as a new loan	No interest rate for investors; borrowers pay a service fee of 10 % and a credit risk payment of 5 % to 25 % to cover defaults. Repayment instalment can either be withdrawn or "recycled" as a new loan	Lenders get interest directly from borrowers Loan repaid at maturity	No interest rate or loan repayment for investors, as it is a donation. Reward-based crowdfunding Interest rate paid for microloans by borrowers to L-Bank
Risk	Default risk is twofold (field partner borrower, and borne by the lender Currency risk: different ways of risk sharing between field partner and lender	Default risk is borne by the lender Currency risk is borne by the lender	Default risk is borne by the lender	CrowdDonating: Risk that the promised reward is not received Microloans: Default risk is borne by L-Bank
Incentive structures / potential conflicts of interest	Profit maximizing intermediaries have an incentive to increase interest rates because the default risk is transferred to lenders	No conflicts of interest, as the default risk is borne by the lender	No conflicts of interest, as the default risk is borne by the lender	No conflicts of interest in terms of the crowdfunding, as it is a donation

27 Nominal GDP per capita data taken from the World Bank online database.

28 GDP of lower middle income countries as defined by the World Bank.

29 GDP is unweighted average of Ghana, Nigeria, Zambia, Kenya, Indonesia.

30 GDP of Germany.

31 Ibid.

32 Platforms themselves are not considered as intermediaries in our analysis, see also footnote 5.

References

- Allen, Franklin and Anthony M. Santomero (1998): The theory of financial intermediation, *Journal of Banking & Finance*, 21, 1461–1485.
- Bloomberg (2020): Fed's Near-Zero Rates to Last into 2023, Economists Predict, <https://www.bloomberg.com/news/articles/2020-04-24/fed-s-near-zero-rates-to-last-into-2023-economists-predict> (accessed on May 4, 2020).
- Bollinger, Bryan and Song Yao (2018): Risk transfer versus cost reduction on two-sided microfinance platforms. *Quantitative Marketing and Economics*, 16, 251–287.
- Bos, Jeroen (2018): How Should Investors Measure the Societal Impact of Investing?, *CFA Institute Magazine*, 28 September 2018. <https://www.cfainstitute.org/en/research/cfa-magazine/2018/how-should-investors-measure-the-societal-impact-of-investing> (accessed on March 5, 2020).
- Bundesanstalt für Finanzdienstleistungsaufsicht (2018): Crowdfunding, https://www.bafin.de/DE/Aufsicht/FinTech/Crowdfunding/Crowdfunding/crowdfunding_node.html (accessed on June 25, 2020).
- Bundesinitiative Impact Investing (2020): Impact Investing. <https://bundesinitiative-impact-investing.de/impact-investing/> (accessed on May 22, 2020).
- Bundesverband deutscher Banken (2019): Nachhaltige Geldanlage: Wissen und Engagement der Deutschen, Juni 2019. https://bankenverband.de/media/files/2019_06_13_Charts_NGA-Umfrage_doGVWcJ.pdf (accessed on March 5, 2020).
- Byatt, Brett (2018): The case of Kiva and Grameen: Towards a Marxist feminist critique of 'smart economics'. *Capital & Class*, 42(3), 403–409.
- Choo, Jaegul, Changhyun Lee, Danie Lee, Hongyuan Zha and Haesun Park (2014), Understanding and promoting micro-finance activities in Kiva.org. *WSDM 2014 Proceedings of the 7th ACM International Conference on Web Search and Data Mining*, 583–592.
- Civey (2018): Wie beliebt sind Ethikbanken? <https://civey.com/pro/unsere-arbeit/trend/finanzen/wie-beliebt-sind-ethikbanken> (accessed on May 4, 2020).
- Deutsche Bundesbank (2019): The sustainable finance market: a stocktake. *Deutsche Bundesbank Monthly Report*, October 2019, 13–32.
- Diamond, Douglas W. (1984): Financial Intermediation and Delegated Monitoring, *The Review of Economic Studies*, 51(3), 393–414.
- European Central Bank (2020): The ECB Survey of Professional Forecasters Second quarter of 2020, May 2020.
- European Crowdfunding Network (2019): Exploring DLT and Blockchain for alternative finance: a collection of case studies, November 2019.
- EU Technical Expert Group on Sustainable Finance (2020): Taxonomy: Final report of the Technical Expert Group on Sustainable Finance, March 2020.
- Friede, Gunnar, Timo Busch and Alexander Bassen (2015): ESG and Financial Performance: Aggregated Evidence from More than 2000 Empirical Studies. *Journal of Sustainable Finance & Investment*, 5 (4), 210–233.
- Harrison, Richard (2013): Crowdfunding and the revitalisation of the early stage risk capital market: Catalyst or chimera?. *Venture Capital*, 15 (4), 283–287.
- IIF (2020): IIF Capital Flows Tracker – April 2020: The COVID-19 Cliff.
- IMWF (2019a): Deutschlands wertvollste Unternehmen. <http://www.deutschlandtest.de/de/wp-content/uploads/DT-2019-Wertvollste-Unternehmen.pdf> (accessed on March 5, 2020).
- IMWF (2019b): Exzellente Nachhaltigkeit. <https://www.faz.net/asv/exzellente-nachhaltigkeit/> (accessed on March 5, 2020).

- KfW Development Bank (2018): Project information Trusted Budget Expenditure (TruBudget). https://www.kfw-entwicklungsbank.de/PDF/Entwicklungsfinanzierung/Themen-NEU/Digitalisierung/2018_TruBudget.pdf (accessed on February 21, 2020).
- Kiva (2012): Annual Report 2011. <https://www.kiva.org/cms/kiva-annual-report-2011.pdf> (accessed on January 17, 2020).
- Kiva (2019): Annual Report 2018. <https://assets.brandfolder.com/pniefv-3nohzc-29nvzj/original/Kiva%20AR2018%20v4-2%20highres.pdf> (accessed on January 17, 2020).
- Kleffmann, Piet and Jure Zakotnik (2019): TruBudget Plattform, Projektinformation, KfW Entwicklungsbank. https://www.kfw-entwicklungsbank.de/PDF/Entwicklungsfinanzierung/Themen-NEU/Digitalisierung/2019_Projektinformation_TrueBudget.pdf (accessed on May 26, 2020).
- Kleffmann, Piet, Jure Zakotnik and Moritz Dillman (2019): TruBudget Trusted Budget Expenditure: A blockchain-based workflow tool for a transparent and collaborative project implementation. <https://europa.eu/capacity4dev/file/90000/download?token=lg2dQdUk> (accessed on February 21, 2020).
- Krautkrämer, Marcus (2018): mediaworx Ranking: Die bekanntesten Banken Deutschlands 2017 <https://hsfp.mediaworx.com/bekannteste-banken> (accessed on May 4, 2020).
- L-Bank (2020a): MikroCrowd: Merkblatt, <https://formulare.virtuelles-rathaus.de/servlet/de.formsolutions.FillServlet?sid=vf8TrCnn3Kd5z5m9AMMV2KR48gK3ZAdg&f=z.pdf> (accessed on May 26, 2020).
- L-Bank (2020b): Das Projekt L-Bank MikroCrowd, Interview with Martin Wagner, Corporate Communications and Strategy Officer, L-Bank, on 12. 05. 2020.
- Liehr, Hartmut, Christian Edmund Meder, Patrick Lukas and Florian Wimmersberger (2017): Förderbanken 2020: Digitale Transformation!, PricewaterhouseCoopers GmbH <https://www.pwc.de/de/finanzdienstleistungen/digital/studie-foerderbanken-2020.pdf> (accessed on January 23, 2020).
- Lübcke, Maria (2019): Die Zukunft der deutschen Förderinstitute, Trendanalyse 03/2019, 2bAHEAD. <https://www.zukunft.business/foresight/trendanalysen/analyse/die-zukunft-der-deutschen-foerderinstitute/> (accessed on February 18, 2020).
- Moodie, Megan (2013): Microfinance and the Gender of Risk: The Case of Kiva.org. *Signs Journal of Women in Culture and Society*, 38, 279–302.
- Nagel, Joachim (2020): Rolle von Entwicklungsbanken im Entwicklungs- und Schwellenländerkontext. DIW (Hrsg.): Vierteljahreshefte zur Wirtschaftsforschung 89 (3), 33–48.
- OECD (2018): Making Blended Finance Work for Sustainable Development Goals, OECD Publishing, Paris.
- OECD (2019): Social Impact Investment: The impact imperative for sustainable development, OECD Publishing, Paris.
- Röstel, Daniela (2019): Wie sicher ist nachhaltig?. *BaFin Journal* Juni 2019, 25–30.
- Somasundaram, Ramanathan and Quamrul Hasan (2018): Development of a Global e-Government Procurement Architecture using Blockchain Technology, Asian Development Bank Technical Assistance Consultant's Report, October 2018.
- Statista (2020): Rendite mit ruhigem Gewissen, Handelsblatt Grafik, February 7, 2020.
- UNSDG (2018): Unlocking SDG Financing: Findings from Early Adopters. <https://unsdg.un.org/resources/unlocking-sdg-financing-findings-early-adopters> (accessed on May 4, 2020).
- Weiland, Christiane (2008): Risikogerechte Konditionen im Förderkreditbereich in: F. Keuper und D. Puchta, (Eds.): *Strategisches Management in Förderbanken*, Wiesbaden, 179–196.

- Winegarden, Wayne (2019): Environmental, Social, and Governance (ESG) Investing: An Evaluation of the Evidence. Pacific Research Institute. https://www.pacificresearch.org/wp-content/uploads/2019/05/ESG_Funds_F_web.pdf (accessed on March 5, 2020).
- Zidisha (2020): Homepage: Frequently Asked Questions, <https://www.zidisha.org/faq>.