

Will crowdfunding contribute to financial development in developing countries?

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Abstract

This paper assesses the claim that crowdfunding will provide an important contribution to financial development in developing countries. It does so by reviewing recent trends of the industry and against the background of modern banking theory. We find that crowdfunding is unlikely to have noticeable impact on financial development in developing countries. While recent advances in mature economies reflect banking sector weaknesses, for crowdfunding to become a sustainable and significant part of the financial sector it has to demonstrate its ability to address moral hazard and adverse selection problems in a more cost-efficient way than banks. This is unlikely to happen as banks have a competitive advantage in conducting lot size transformation compared to direct finance as they economize on monitoring costs by serving as delegated monitors. Several arguments suggest that despite a lower level of banking development in developing countries these advantages of banks compared to crowdfunding are even more pronounced in developing than in advanced economies.

JEL classification: G21, G24, O16

Key words: Crowdfunding, financial development, financial stability

1. Introduction¹

Crowdfunding has captured the imagination of finance professionals, academics and the public. Its rise in popularity can be linked to two factors. First, crowdfunding promises a “democratization” of fund raising by small and young entrepreneurs, broadening their choices beyond family and friends, angel investors, venture capitalists and banks (Harrison 2013). This promise is exciting given the decline in trust in traditional financial service providers, notably banks, after the global finance crisis.² Second, the negative impact of the global financial crisis on small and young business finance from traditional sources, such as bank lending (Bruton et al. 2015), has triggered a search for new financing mechanisms and options. At the same time, investors hunt for yield in the current low interest rate environment.

Against this background, it has been claimed that crowdfunding might offer the chance to bypass banks and other financial institutions as key providers of funds in developing and emerging countries (World Bank 2013). The claim is largely backed by the argument that in many developing countries financial sectors, notably banking sectors, are underdeveloped. Thus, entrepreneurs’ access to formal financial sector finance, i.e. banks, is – irrespective of the financial crisis – more limited than in mature economies, constituting a large funding gap. This offers a growth potential for crowdfunding that is substantially larger in developing than in mature economies. As a result, crowdfunding could represent a new instrument to successfully develop the financial sector in developing countries.

However, there are also critical voices on the sustainability of crowdfunding, raising questions about its usefulness as an instrument to foster financial development in developing

¹ This paper is based on a study prepared for the German Ministry for Economic Cooperation and Development (BMZ). The views expressed in this paper are the ones of the authors and do not in any way represent the views of the BMZ. We thank Fahad Malik for excellent research assistance.

² For example, in Germany bankers rank 27th out of 32 professions in a survey on trust in professions (GfK 2014).

countries. These voices focus on the high risks associated with funding businesses with little screening and monitoring efforts by the funders, and no collateral and little reputation of the recipients. Naively applied crowdfunding opens doors for moral hazard and adverse selection behavior among recipients potentially implying that many of the projects being funded “are going to flop” (Dorff 2014). Like subprime mortgage lending, initially hailed as “democratization of credit” (Greenspan 1997, Gramlich 2004), crowdfunding might end in crisis.³

This paper addresses the question whether crowdfunding represents an instrument that can make a significant contribution to financial development in developing countries. It starts out by reviewing the state of play of crowdfunding in mature and developing countries (section 2). Concretely, we provide an overview of size, structure and key characteristics of crowdfunding. Moreover, we have a detailed look at the most important crowdfunding initiative related to development finance, kiva.org. Section 3 reflects on the potential of crowdfunding for financial development in developing countries by reviewing the modern theory of banking. In doing so we focus on whether and how crowdfunding could develop a competitive advantage compared to banks in applying mechanisms that are used to mitigate moral hazard and adverse selection risks of finance. Section 4 concludes by combining the insights gained in sections 2 and 3 and argues that crowdfunding is unlikely to represent an instrument for financial development in developing countries as the industry face a less benign environment in developing compared to advanced economies in making use and enforcing mechanisms to mitigate asymmetric information problems. However, without these mechanisms in place crowdfunding will not develop.

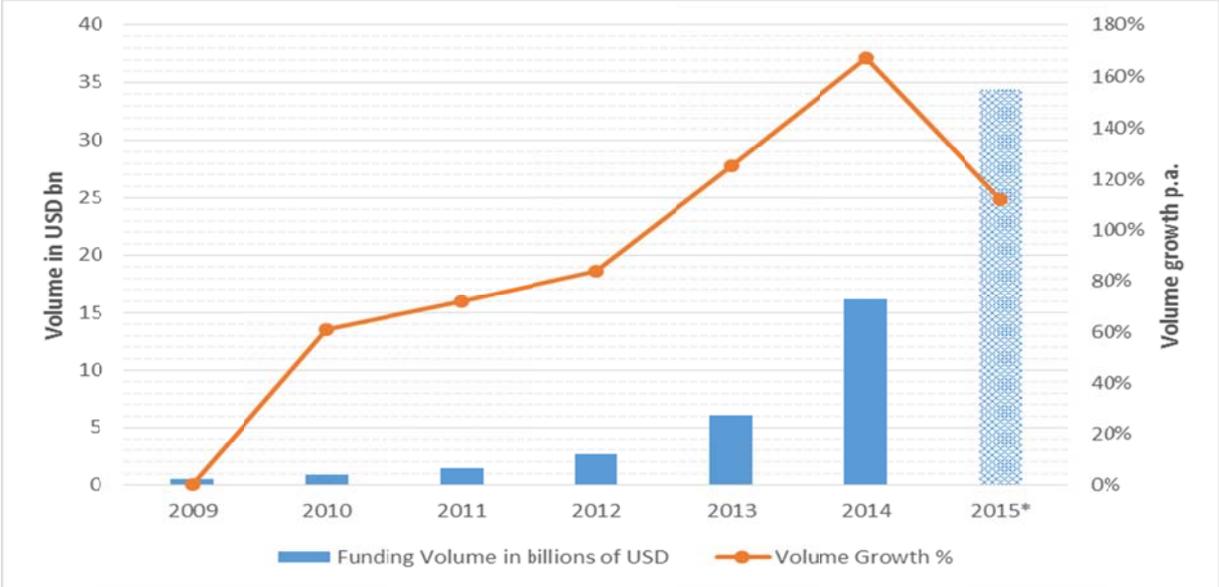
³ Klein (2015) draws a direct comparison between subprime lending and crowdfunding.

2. Size, structure and key characteristics of crowdfunding

2.1 Strong growth and small size: a snapshot of crowdfunding

Crowdfunding has seen spectacular growth in recent years. Growth rates of global funding volumes have increased from 72% in 2011 to 167% in 2014, leading to a rise in total funding volumes from about USD .85 bn in 2010 to USD 16.2 bn in 2014. Growth is expected to stay at elevated levels of 112% in 2015, mainly driven by growth in Asia, notably China, which would lead to a total funding volume of USD 34.4 bn (Chart 1). It is expected that the global crowdfunding market will reach a volume of USD 93 bn by 2025 (World Bank 2013).

Chart 1: Crowdfunding - total funding volumes and growth



Source: Massolution (2015), authors' compilation

Despite strong growth, crowdfunding accounts for an extremely small size of the overall financial sector.⁴ Moreover, it is an activity mainly conducted in mature economies. In 2014, close to 80% of the total volume was generated in North America and Europe.⁵ Of the

⁴ The gap between traditional finance and crowdfunding can be illustrated by comparing global crowdfunding volumes with the volume of total outstanding credit by US banks to the private non-financial sector. The latter amounted to USD 25.1 trillion at the end of the third quarter 2014 (<https://research.stlouisfed.org/fred2/series/-CRDQUSAPABIS>), which is more than 1,500 times larger than global crowdfunding volumes in 2014.

⁵ Kshetri (2015, 100) refers to a “US-centric phenomenon”.

remaining 20 percent, the bulk comes from Asia, notably China, largely due to rapid development in peer-to-peer (P2P) lending. By contrast, Latin America and Africa have barely participated in the rise of crowdfunding over recent years. Thus, claims according to which “crowdfunding is quickly becoming a global financing methodology” (Massolution 2015, 20) have to be substantially qualified.

Originally, donation- and reward-based transactions, i.e. transactions where funders do not invest predominantly for financial return reasons, represented the majority of crowdfunding transactions. However, in recent years, driven by developments in the US, the UK and China (Grant Thornton 2014) P2P lending has emerged as the by far most important crowdfunding activity on a global level (72% of a total of 34.4 bn in 2015, Massolution 2015). Fitch Ratings (2014) and PwC (2015) expect P2P lending volumes to rise to USD 114 bn and USD 150bn over the medium term, respectively.

Small-scale consumer lending, mainly to prime and near prime borrowers, is dominating P2P lending, often with the purpose of refinancing more traditional consumer debt, e.g. credit card debt (Bruett 2007, Fitch Ratings 2014). By contrast, business lending remains underdeveloped. For example, on Lending Club, one of the two major US P2P platforms business loans accounted for about 3.5% of total lending in the period mid-2007- 2012 (Mach et al. 2014). Moreover, funding of P2P loans is increasingly provided by non-crowd investors, notably institutional investors such as hedge funds or pension funds. There are estimates according to which the share of this investor group in total US P2P lending was approximately 80% in 2014 (Morse 2015). Thus, a substantial share of P2P lending in advanced economies does not represent lending by the crowd.

2.2 Key characteristics of crowdfunding

In its essence, crowdfunding involves uncollateralized lending with a high degree of lot size transformation, i.e. many small contributions – “the crowd” – finance one project, one household or one business (Herzenstein et al. 2011). Lot size transformation is a key function of finance (Bodie and Merton 1995), characterizing banks as well as markets. Thus crowdfunding represents a new form to perform the function of finance.

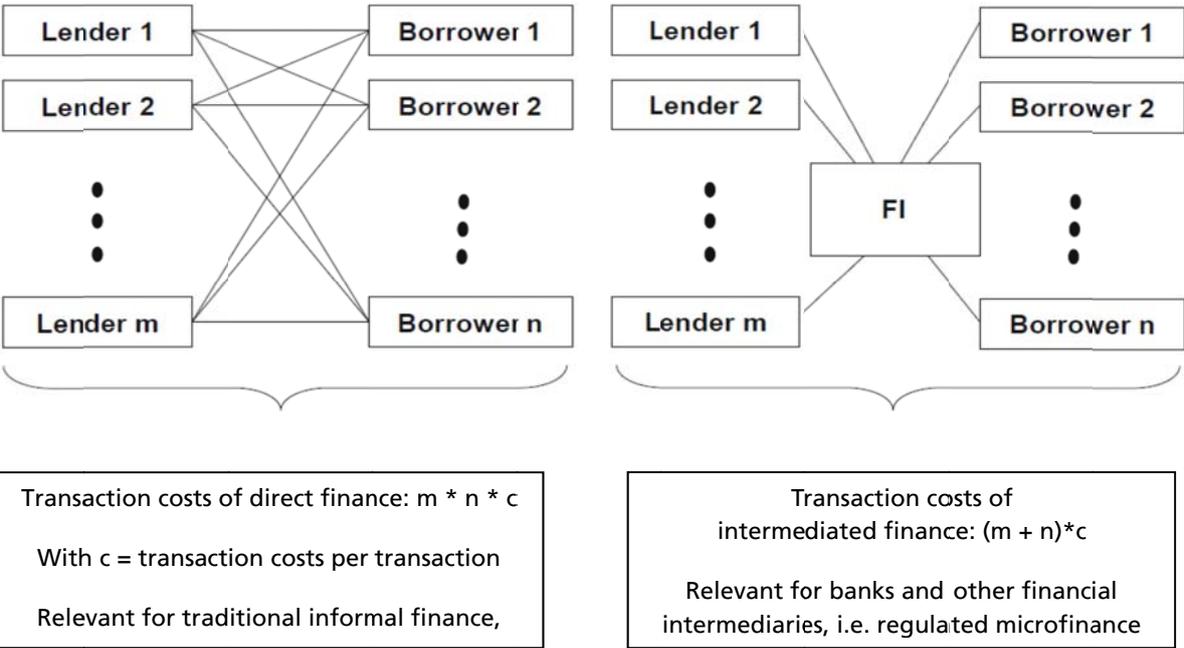
The peculiarity of crowdfunding with regard to lot size transformation is the open call to investors via the internet,⁶ distinguishing crowdfunding from traditional informal finance, where this call is transmitted to a small group of people, i.e. family and friends. Thus, crowdfunding via the internet significantly expands the geography of informal finance. Available evidence suggests that the average distance between funders and recipients can be as wide as 3,000 miles (Agrawal et al. 2013).

Crowdfunding differs from direct finance performed on organized markets, as the latter are highly regulated by laws and regulations aimed at providing transparency and investor protection. However, in order to generate trust in the crowdfunding mechanism, investors increasingly call for “greater limits on the amount entrepreneurs can raise, and lower thresholds for audited financial statements, more education, greater portal due diligence, and other protections to mitigate risks.” (Cumming and Johan 2013, 376). Moreover, in stark contrast to organized markets, crowdfunding platforms do not generate liquidity of the assets created, i.e. there is no maturity transformation. Investors are typically unable to sell their claims on the secondary market.

⁶ In the *Crowdfunding Industry Report* crowdfunding is defined as “any kind of capital formation where both funding needs and funding purposes are communicated broadly, via an open call, in a forum where the call can be evaluated by a large group of individuals, the crowd, generally taking place on the Internet.” (Massolution 2015, 34)

Low search and communication costs as well as the ability of funders to keep risk exposures low by funding in small increments have been key success factors of crowdfunding (Agrawal et al. 2013). Together they have reduced the transaction cost advantage of financial intermediaries for example banks. Their ability to economize on monitoring costs and to provide for a diversified loan portfolio that reduces the risk of depositors backing depositors are key arguments in explaining the existence and superiority of bank intermediated finance compared to direct finance on open markets (Diamond 1984). This view is illustrated in Chart 2, where transaction costs, here represented by monitoring costs c , of lending by m lenders to n borrowers are substantially higher for direct lending (left side of Chart 2) than for intermediated finance (right side of Chart 2), if funding of each borrower involves lot size transformation, i.e. contributions by m lenders. While direct lending has transactions costs in the amount of $m*n*c$, the transaction costs of intermediated lending amount to $(m+n)*c$ only. As a result, intermediated finance via banks has a clear competitive advantage compared to crowdfunding if c is reasonably large.

Chart 2: Transaction costs of direct versus indirect finance – the traditional view



Source: authors' compilation

Many borrowers turning to the crowd for funding are rejected. Success rates are in the range between low single digits to upward of 40% (Mach 2014, Massolution 2015). Much depends on early contributions, as funding propensity increases with accumulated capital indicating herding behavior by investors (Herzenstein et al. 2011, Lee and Lee 2012, Massolution 2015). This suggests that screening and monitoring costs are – given the loan amounts involved – too high for most lenders. To keep costs low they aim at free riding on other lenders which implies that crowdfunding is subject to the “known market failure in financial markets”, namely the “[e]xternality of monitoring, selection, and lending”, i.e. that someone is more willing to lend money to a project if he knows that a third party has already decided to lend money“ (Stiglitz et al. 1993). Thus, contributions by family and friends play a key role in the early stage of funding, as they send a quality signal to other investors allowing for a successful crowdfunding operation. Without this signal, the market fails “as everyone waits and nobody invests.” (Agrawal et al. 2013).⁷

Against this background, P2P platforms in mature economies have aimed at fostering participation by limiting credit, moral hazard and adverse selection risks which funders are exposed to. For example, platforms have started screening borrowers according to credit scores and admit only borrowers to the platform presenting reasonable credit risk. They also report defaulting borrowers to credit agencies and “hire a collection agency to collect the funds on behalf of the lender.” (Emekter et al. 2015, 83). Some platforms, like kiva.org (see below), make use of financial intermediaries in addressing moral hazard and adverse selection risks by delegating to them the role of screening and monitoring end-borrowers. As a result,

⁷ Recent research suggests that acquaintances, group membership and friendships built within crowdfunding platforms (and online media in general) may substitute for family and friends in providing early funding and hence enhance the chance of funding success (Lin et al. 2013, Colombo et al. 2015, Freedman and Jin 2014). However, online connections might also involve negative externalities: “when a borrower friend defaults, the likelihood that the borrower will default more than doubles.” (Morse 2015, 15)

the crowd funds intermediaries only. However, despite these efforts platforms do not become intermediaries but remain brokers, as they stop short of having “skin in the game” themselves.

The long-term sustainability of the P2P model is likely to depend on the success of these efforts as P2P platforms are subject to substantial reputation risk, also characterizing more traditional finance, such as banks or organized markets (Gorton and Mullineaux 1987, Calomiris and Gorton 1991, Gorton 2008).⁸ This risk could provide a major blow to individual platforms, as recently illustrated by the platform *Lending Club* (Rudegeair 2016). Platform reputation risk arises as investment decisions by lenders are at least partly based on trust in the platform’s efforts and ability to screen loan applicants with the goal of limiting lenders’ credit risk (Bruett 2007). Thus, individual failures of investments may lead investors to stop investing at the platform and – due to spillover and contagion effects – to invest in P2P lending at all (Fitch Ratings 2014). Platform reputation risks might become even more severe if crowdfunding became subject to a negative credit quality shock. Up to now the industry has benefitted from a benign lending environment characterized by low interest rates and a satisfactory growth performance, in particular in the US and the UK. As a result, non-performing loan ratios in P2P lending have developed in line with standard consumer finance loans (Demyanyk and Kolliner 2014). However, credit risks might rise substantially when loan quality is put to a test by a recession or a rise in interest rates (Fitch Ratings 2014).

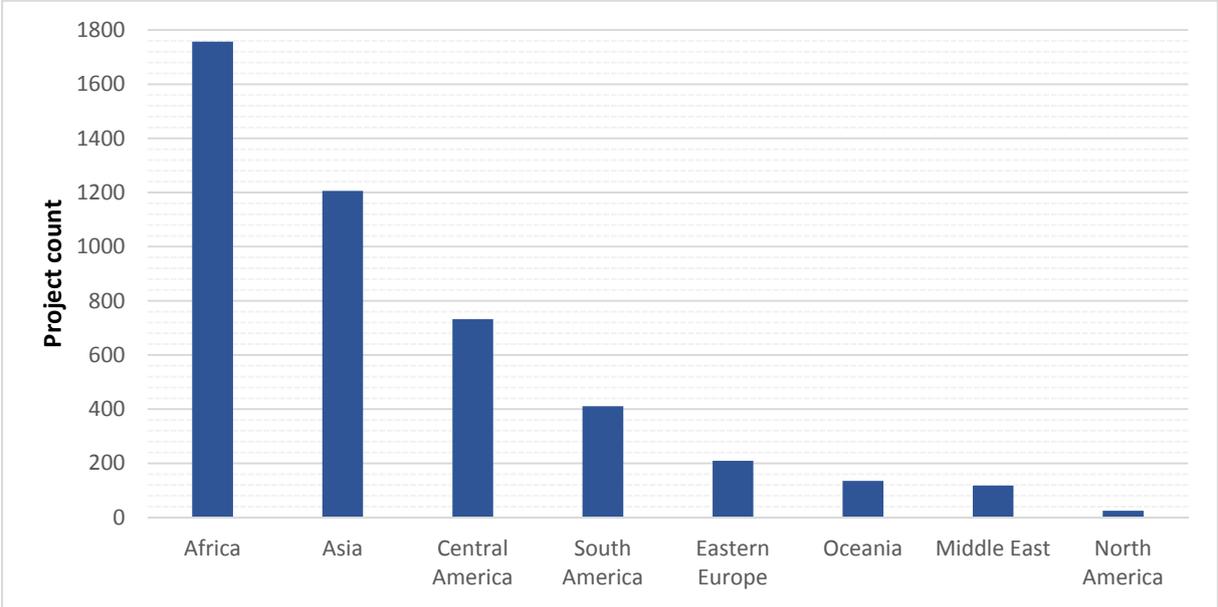
2.3 Crowdfunding loans originated in developing countries– kiva.org

Crowdfunding is underdeveloped in most developing countries. However, the platform Kiva.org is widely known as providing the crowd with the opportunity to fund loans to micro and small businesses in developing countries. Since its launch in 2005 Kiva claims to have

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funded 857,791 loans totaling USD 686,306,450 involving 1,586,771 borrowers (74% female borrowers) by 1,265,555 users of the Kiva community.⁹ However, as most loans are short-term loans, Kiva’s outstanding portfolio at year-end has been considerably smaller. According to its financial report the outstanding loan amount in 2013 (2012) was USD 44.4 million (35.3 million). For the sake of comparison: microfinance institutions (MFIs) reporting to Mix Market, an internet platform that focuses on providing consistent data on MFIs balance sheets and performance, had on average an outstanding loan portfolio of USD 81.1 million (USD 78.8 million) in 2013 (2012). Thus, the total outstanding funding provided via kiva.org amounted to about half of the loan portfolio managed by the average MFI among the more than 2000 institutions reporting to Mix Market. This indicates that crowdfunding is a niche market, even from a microfinance perspective.

Chart 3: Projects proposed at Kiva.org as of March 2015 - geographical distribution



Source: www.kiva.org, authors’ compilation

Chart 3 provides information on the geographical distribution of projects proposed on kiva.org as of March 2015. It shows that Africa and Asia account for the bulk of projects and

⁹ Data refer information available as of April 2015.

Latin America has a significant share. Thus, in contrast to the geographical distribution of crowdfunding in general, kiva.org has a clear developing countries focus.

Kiva users can browse among different profiles of candidates who are in need of a loan and choose who they would like to finance. They can also specifically search for potential borrowers by region or sector, with agriculture, retail trade and food being the sectors most commonly proposed for funding). Lenders provide funds at zero interest but in case of a loan default they lose their capital.¹⁰ Thus, kiva.org lending is soft loan lending and kiva lenders are “social investors” or “philanthropic citizens” (Ly and Mason 2012a, 2012b), influenced by the character as well as the narratives of projects and people to be funded.¹¹

A key characteristic of Kiva.org is its cooperation with about 300 field partners in more than 80 countries (Chart 4). Many Kiva partners are microfinance institutions (MFIs), of which 150 are reporting to Mix Market. This indicates that many MFIs cooperating with kiva.org are among the better and best managed MFIs worldwide (Krauss and Walter 2009) as Mix Market analysts review and cross-check information provided to them by the reporting MFIs. In addition, Kiva provides lenders with a risk rating of all partner institutions, ranging from one to five (highest rating) stars. In April 2015, 25 out of the 296 institutions had a rating at or above 4 stars, 150 institutions were unrated and 22 institutions were either inactive or paused.¹² Thus, kiva.org screens and monitors its partner institutions and the partner institutions screen and monitor the end-borrowers presented to the kiva lender on the platform. The costs of the latter activity are borne by the end-borrowers and translate into an average portfolio yield for kiva’s field partners of close to 35% (<http://blog.kiva.org/faqs/>-

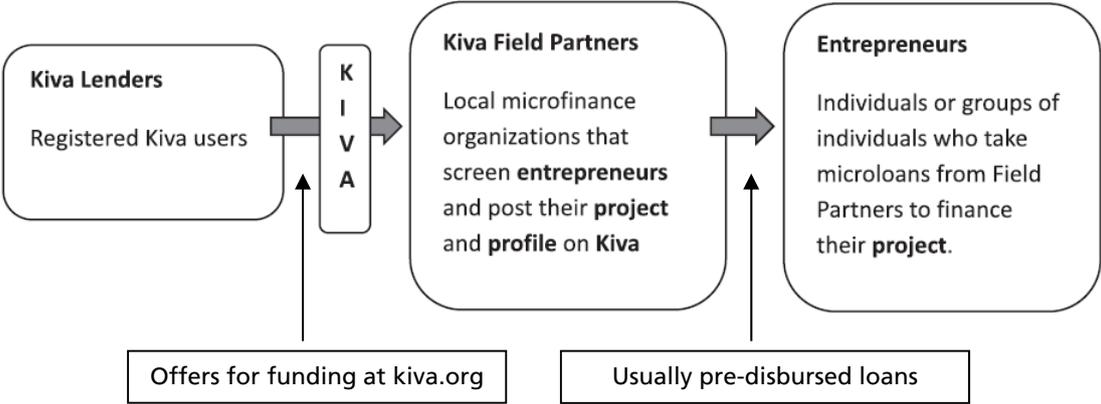
¹⁰ Kiva itself also does not charge any interest or fees and covers its own costs almost entirely through grants, loans and donations from its users, corporations and national institutions.

¹¹ Moss et al. (2015) find that entrepreneurial characteristics presented and conveyed by the borrower increase the likelihood of funding. By contrast, results by Allison et al (2015, 53) suggest that “lenders respond positively to narratives highlighting the venture as an opportunity to help others, and less positively when the narrative is framed as a business opportunity.”

¹² Ly and Mason (2012a, 645) find for their sample that the majority of projects (70.2%) posted by kiva partners originate from partners with a rating of four or five stars.

[interest-rates-qa](#)). After disbursing a loan to end-borrowers field partners create an account for them on Kiva to address the lenders. Individual lenders have to provide an amount of at least USD 25. Once the lender has found a project or entrepreneur she would like to finance she transfers the amount to Kiva via PayPal¹³. Kiva collects the amounts from different lenders for the specific project and as soon the Kiva community has crowdfunded the entire amount required by the borrower, the money is forwarded to the field partner effectively refinancing the pre-disbursed loans.¹⁴ Thus, as shown in Chart 4, kiva.org follows an originate-to-distribute model: field partners originate loans in developing countries and distribute them to lenders, mainly hosted in advanced economies, on the kiva.org platform

Chart 4: Crowdfunding via Kiva



Source: Ly and Mason (2012a, 644), authors’ compilation

The repayment rate is said to be 98.75%, suggesting that the financial intermediary solution to the asymmetric information problems involved in crowdfunding works.¹⁵ For example, while in general lenders prefer to lend to borrowers that are culturally and socially similar to

¹³ PayPal forgoes its fees for Kiva.org.
¹⁴ Kiva transfers money to its field partners only once a month to limit transaction costs.
¹⁵ Indeed, lenders – formally bearing the specific risk of the project they fund – seem to ignore idiosyncratic project risks relying on kiva’s and kiva partner’s screening and monitoring abilities (Ly and Mason 2012b): Moreover, as suggested by Roodman (2009), kiva partners might bail out borrowers with repayment difficulties in order to keep its risk rating high and thereby ensuring a continuous inflow of funds at a zero interest rate.

themselves (Galak et al. 2011), this effect is weakened when the respective borrowers are presented from kiva partners with high ratings (Burtch et al. 2014).

Overall, the success of kiva.org seems to be built on (1) the intermediary model with kiva.org screening and monitoring field partners and the field partners screening and monitoring end-borrowers, significantly reducing moral hazard and adverse selection risks, and (2) the target investor group, i.e. social investors ready to compromise on financial returns in favor of social or economic impact.

3. Financial development and crowdfunding

3.1 Financial development – a stylized view

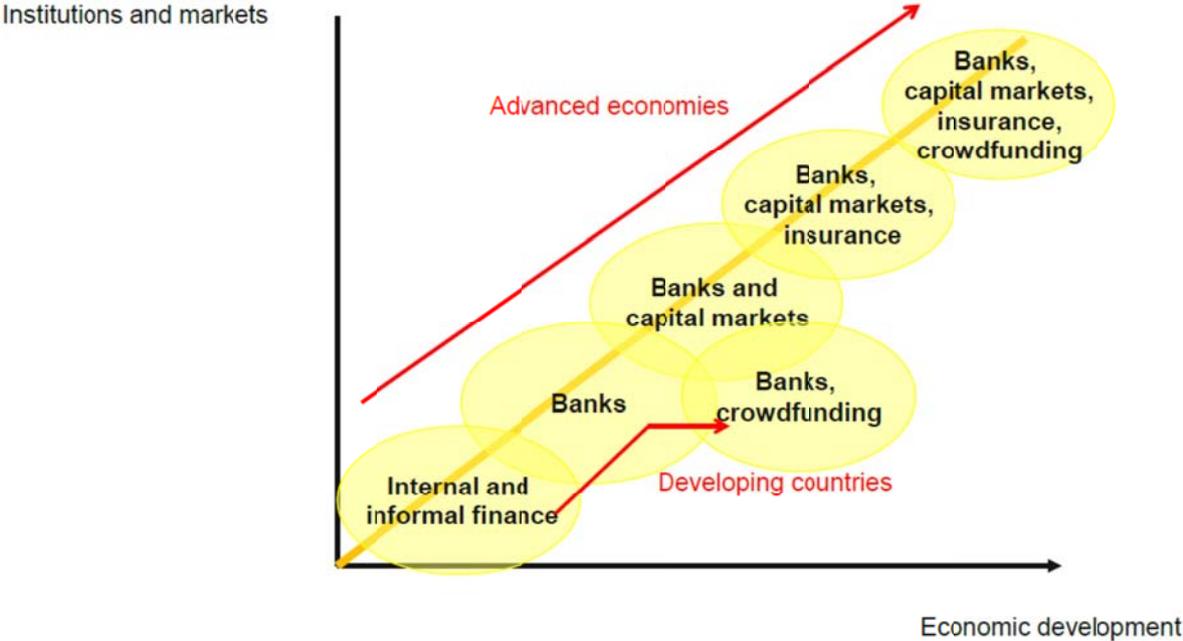
The stylized facts on financial development are well known (Čihák et al. 2012, Sahay et al. 2015) and can be summarized like this: First, financial development correlates with economic development. Second, with rising levels of economic development, the relative importance of capital markets (and insurance) compared to banks rises. These facts indicate a sequence of financial development (Chart 5) where banks represent the first step of formal financial sector development complementing informal finance and retained earning finance.¹⁶ Only after banks are established, capital markets emerge. The last step of the ladder is represented by the entry of insurance companies.

The rise of crowdfunding has been interpreted by some that the industry might represent the next step on the financial development ladder for advanced economies, complementing or even substituting for traditional sources of finance (Chart 5). This view is based on technological advances that reduce transaction costs of direct lending (Morse 2015) and on

¹⁶ Reviewing financial development as it historically emerged in today's mature economies also suggests that banking dominates the early stages of financial development (Lamoreaux 1986, Caprio and Vittas 1997). Capital markets gained significant size only after banking had been reasonably established. This includes countries where capital markets have played a more important role, i.e. countries with financial systems characterized as market-based, notably the United States and the United Kingdom (Sylla 1998).

the fact that bank-intermediated finance has been weakened by the global financial crisis (Mach et al. 2014).

Chart 5: Financial development – a stylized view



Source: Authors’ compilation based on views expressed in Terberger (2007)

A similar kind of reasoning is applied for developing and emerging market country. Concretely, it has been argued that crowdfunding might provide a kind of fast track to financial development possibly allowing these countries to “leapfrog” steps 3 and 4 of the ladder characterizing financial development in mature economies (World Bank 2013). Indeed, financial underdevelopment is seen as an argument for an even larger growth potential of crowdfunding in developing than in high income countries. As the former are characterized by “substantial reservoirs of entrepreneurial talent” without (proper) access to finance, a large funding gap exists which banks do not address. This gap could be filled by crowdfunding.

3.2 Crowdfunding versus Banks – A Modern Banking Theory Perspective

Crowdfunding is uncollateralized direct lending involving lot size transformation. It is inherently subject to a high degree of asymmetric information as most borrowers and lenders do not know each other. Thus, in order to provide a viable alternative to bank-intermediated finance it has to rely on cost-efficient monitoring efforts by investors and/or platforms or on signaling, for example via reputation built-up by borrowers and/or platforms as mechanisms to address moral hazard and adverse selection risks. Indeed, the review of key crowdfunding characteristics has provided a list of concrete activities by recipients and platforms to develop these mechanisms, stopping short of platforms themselves credibly signaling (by taking “skin in the game”) the quality of end-borrowers.

The rise of crowdfunding is a surprise as modern banking theory suggests that intermediated finance by banks is superior to direct finance by markets with regard to lot size transformation (Diamond 1984).¹⁷ Lot size transformation implies that many lenders have to monitor a single borrower in order to ensure that the borrower does not engage in moral hazard activities. Monitoring efforts are needed if borrowers are unable to use other mechanisms, notably signaling, to mitigate moral hazard risks.

Banks have a competitive advantage in conducting lot size transformation compared to direct finance as they economize on monitoring costs by serving as delegated monitors for the many lenders that are needed to fund one borrower (Chart 2). Moreover, banks do not have to be monitored by lenders, i.e. depositors, because banks can diversify credit risk by lending to many borrowers and not just one.¹⁸ Thus, banks can rely on their reputation and the associated costs of reputation loss in case of failure in mitigating asymmetric information problems vis-

¹⁷ The same holds for maturity transformation (Diamond and Dybvig 1983). As crowdfunding has been identified as providing a new form of lot size transformation, our focus is on the latter argument. However, as long as crowdfunding does not provide for maturity transformation services, it is unlikely that the industry will be able to supersede traditional banking.

¹⁸ In the model (Diamond (1984) assumptions are set in a way that the bank does not face any credit risk if it performs the delegated monitoring role.

à-vis their borrowers. As banks – in the model – will never have to bear these costs if they hold a diversified portfolio and monitor, these “delegation costs” are *de facto* zero.

From a financial development perspective these advantages have put banks in a driver seat in significantly expanding the funding options of borrowers that previously had to rely on family, friends and the informal financial sector at large. Moreover, it also explains why the professional informal financial sector is very expensive (Rutherford 2000) as monitoring costs are substantial. As only few borrowers have projects with a return higher than the interest rates charged, many potential borrowers either do not ask or do not get a loan. Thus, there is a huge funding gap as credit markets remain thin and underdeveloped. This suggests that economizing on monitoring costs, as done by banks, is decisive to get financial development started and to “democratize” credit. Banks provide firms with a new and cheaper alternative of funding than the informal financial sector, family and friends as they are able to address moral hazard and adverse selection risks in a more cost-efficient way.

Financial institution building (Krahn and Schmidt 1994), i.e. establishing banks and other financial institutions with the mission to fill the funding gap, in particular for micro and small businesses, has been the most important development policy tool to broaden credit markets and foster financial development. Microfinance and the establishment of microfinance institutions represent a major example of this policy approach (Helms 2006). It mimics the efforts by cooperatives and savings banks in mature economies in expanding access of formal sector finance to the population at large (Guinane, 2002, Schmidt et al. 2016)

However, the very success of banking carries the seed for the next stage of financial development, namely capital market development. By demonstrating their creditworthiness via banks, firms acquire reputation which they can use as a signaling mechanism when addressing the open capital market (Diamond 1991). Investors fund these firms without the involvement of a bank as reputation replaces costly monitoring efforts as the main instrument

to mitigate asymmetric information problems.¹⁹ As a result, firms with a built-up reputation experience a further democratization of credit, as they do no longer have to rely on either family and friends or on banks as a source of funds only.

Financial development can thus be interpreted as the development of cost-effective mechanisms in overcoming asymmetric information problems (Table 1). The sufficient condition for crowdfunding to establish itself as a viable alternative to bank-intermediated finance at a relevant scale is demonstrating its ability to address moral hazard and adverse selection risks and to do so in a cost-efficient way.

Table 1: Financial development and mechanisms for overcoming asymmetric information problems

Stage of financial development	Key mechanisms in mitigating asymmetric information problems	Costs (interest rates)	Size
Informal financial sector			
- Family and friends	Symmetric information, reputation	Low	Small
- Professional service providers (moneylenders, deposit collectors)	Screening, monitoring	High	Small
Banks	Monitoring (of final borrowers), reputation (via depositors)	Low	Large
Capital markets	Reputation	Low	Large (for those with built-up reputation), Non-existent (for borrowers without reputation)

Source: authors' compilation

¹⁹ By way of example: Households are ready to directly provide funds to Siemens, without knowing anything about Siemens, most importantly its current financial status. They only know that Siemens has served and repaid debt for more than 150 years, making Siemens a reputable borrower.

3.3 Banking and crowdfunding – model and reality

The rise of crowdfunding in advanced economies suggests that banks have not been performing their role as delegated monitor properly. The global financial crisis has demonstrated that banks can and do fail. Both factors suggest that diversification benefits are limited and monitoring of borrowers by banks is far from perfect. As a result the dominance of intermediated finance via banks compared to direct finance has been questioned. The rise of crowdfunding reflects these doubts about banks representing cost-efficient solutions in the organization of lot size transformation under asymmetric information. On the asset side some borrowers do not get access to loans as banks have become more risk-averse and monitoring technologies seem to be too costly when lending to certain borrower groups, i.e. small and young businesses businesses.²⁰ On the liability side, investors, after having seen that banks can fail and that outright defaults have only been prevented by interventions of governments and central banks, conclude that – under certain circumstances– direct lending might be the more cost-efficient investment approach. The low interest rate environment and related search for yield behavior by investors provides an additional impetus for experimenting with new forms of lending (Morse 2015, Massolution 2015).

However, doubts about the ability of banks to perform the delegated monitoring function in a way that it is perceived as being superior to direct finance, is only a necessary but not a sufficient condition for the emergence and medium to long-term sustainability of crowdfunding as a new form of direct finance. The sufficient condition for crowdfunding establishing itself as a viable alternative option to bank-intermediated finance with relevant scale is demonstrating its ability to address moral hazard and adverse selection risks and to do

²⁰ Blaseg and Koetter (2015) provide evidence suggesting that borrowers from banks that became distressed during the global financial crisis, were more likely to turn to crowdfunding than other borrowers.

so in a cost-efficient way (Morse 2015). There are indications - surveyed in section 2 – that this process is under way as the crowdfunding industry

- makes use of new and low-cost monitoring opportunities provided by the internet,
- allows borrowers to establish reputation in the credit market via traditional (family and friends) and new ways (social media connections and links),
- offers loan products, such as loans to creative industries or loans supporting social entrepreneurship, where the financial motive is of less relevance than in traditional finance,
- starts establishing platform reputation by limiting the pool of borrowers to (comparatively) high-quality borrowers via screening and by getting engaged in investor protection activities,
- is becoming increasingly subject to regulation and supervision that – as for banking – aims at addressing moral hazard and adverse selection risks.

In the course of this process, tendencies of re-intermediation emerge as the original crowdfunding model, i.e. a platform creating an open market where all borrowers freely meet and interact with all investors, is replaced by models of cooperation or even strategic partnerships between crowdfunding platforms and more traditional financial institutions (Fitch Ratings 2014). Kiva.org provides an example for this by relying on field partners, mainly microfinance institutions, in conducting its crowdfunding activities. Field partners are needed to mitigate asymmetric information problems that loom large in direct cross-border funding to unknown and opaque borrowers with no reputation.

4. Crowdfunding's potential for financial development in developing countries

Financial development indicators show that many developing countries have been unable to develop their banking sectors. This indicates that banks have often been unable to address moral hazard and adverse selection risks vis-à-vis their borrowers and vis-à-vis their depositors. Partly this reflects the legacy of colonial times where an endogenous development of local banking was severely hampered, also because the non-financial private sector lacked depth, wealth and reputation (Newlyn and Rowan 1955). However, it also reflects ill-conceived financial sector policies, such as the reliance on government-owned banks (La Porta et al. 2002), deliberate attempts of financial sector repression (McKinnon 1973), naïve liberalization efforts that ignored the need for mechanisms to address incentive problems related to asymmetric information (Diaz-Alejandro 1985) as well as weak property and creditor rights (de la Torre et al. 2011).

Overall this suggests that in many developing countries mechanisms to mitigate problems of asymmetric information in a cost efficient way have been made less use of. Financial underdevelopment and the lack of progress in climbing the ladder of financial development characterizing mature economies is an expression of this.²¹

This raises severe doubts about crowdfunding's potential as a means of financial sector development in developing countries. This holds in particular with regard to small and young business finance where information challenges are most acute. If underdevelopment of banking sectors in developing countries reflects a failure to address moral hazard and adverse selection problems, it is far from obvious why the crowdfunding industry were to be able to develop and make use of these mechanisms in a better and more decisive ways than banks. Indeed, there are several arguments suggesting that crowdfunding in developing countries will

²¹ Of course, as Akerlof (1970) has demonstrated with the „market for lemons“, i.e. the used car market, these challenges are not confined to financial transactions.

face similar difficulties as banks, and that these difficulties are more severe than in mature economies.

1. Most developing countries lack the kind of borrowers that have been tapping the crowd in mature economies over the last years. There are few prime and near prime consumers in need of refinancing their consumer debt and the business population is largely composed of firms and companies operating in the informal sector, i.e. opaque firms that are either unable or unwilling to provide information about their creditworthiness to the public. Thus, most businesses are unlikely to provide the kind of information about their activities and their creditworthiness, for example their credit rating, online. However, this is the kind of information crowdfunding platforms in mature economies intermediating significant funds between lenders and borrowers demand from their potential borrowers in order to generate loan supply.²² Finally, creative industries, a major recipient of crowdfunding in mature economies, play a marginal role in most developing countries (De Beukelaer 2014).
2. Investors (depositors) within developing countries are unlikely to make use of crowdfunding platforms as they face a lending environment which has a track record of being soft on creditor rights. In many countries a significant share of the population does not have a bank account also due to a lack of trust in banks (Demirgüç-Kunt et al. 2015). However, this does not imply that crowdfunding has a better chance to attract funding in developing countries because crowdfunding assets are – compared to bank deposits – illiquid and, also due to a lack of diversification, highly risky. Moreover, given the small scale of wealth of most “would be depositors” it is also unlikely that non-financial considerations will play an important role in raising funds for borrowers, at least for the vast majority of the population. Finally, institutional investors, such as

²² The microfinance industry, which emerged over the last forty years, can be interpreted as a concentrated effort to generate this information either via group lending among borrowers or via unconventional individual lending between borrowers and microfinance institution (Armendáriz and Morduch 2010).

hedge funds or pension funds, that have been increasingly dominating loan supply on mature economy P2P lending platforms, operate on a substantially smaller scale in emerging markets and developing countries.

3. Internet penetration is low in many developing countries. Thus, the most fundamental precondition from a “hardware” perspective is not given in many developing countries, providing another explanation why crowdfunding has basically been a mature economy event. However, internet penetration is a *conditio sine qua non* for online reputation to develop in the first place.

Overall, this suggests that the view that underdeveloped banking sectors provide a rich opportunity for crowdfunding to establish itself as an alternative investment option to intermediated finance is plausible on first glance only. Indeed, the lack of financial development in terms of traditional institutions, banking and capital markets, signals that the potential for crowdfunding in developing countries is lower rather than higher compared to advanced economies. Monitoring costs, given borrower characteristics referred to above, are likely to be higher in developing countries but – also given a lower level of internet penetration – more difficult to reduce by the crowd. Moreover, as investors have repeatedly made the experience that banks are unable or unwilling to address asymmetric information problems and to enforce contracts they are unlikely to invest on crowdfunding platforms where these problems are potentially more severe and where mechanisms that might address these problems are untested. Thus, we conclude that despite a lower level of banking development in developing countries crowdfunding is unlikely to establish itself as an instrument leapfrogging financial development in developing countries in the near future.

References

- Allison, T.H., Davis, B.C., Short, J.C., Webb, J.W., (2015). Crowdfunding in a Prosocial Microlending Environment: Examining the Role of Intrinsic Versus Extrinsic Cues. *Entrepreneurship Theory and Practice*, 39 (1), pp. 53-73. (DOI: 10.1111/etap.12108).
- Agrawal, A.K., Catalini, C., Goldfarb, A., (2013). Some Simple Economics of Crowdfunding. National Bureau of Economic Research, NBER Working Paper No. 19133.
- Akerlof, G.A., (1970). The Market for "Lemons": Qualitative Uncertainty and the Market Mechanism, *Quarterly Journal of Economics*, 84 (3): pp. 488 – 500.
- Armendáriz de Aghion, B., Morduch, J., (2010) *The Economics of Microfinance*. Massachusetts Institute of Technology.
- Blaseg, D. and M. Koetter (2015). Friend or foe? Crowdfunding versus credit when banks are stressed. Frankfurt School mimeo.
- Bodie, Z., Merton, R.C., (1995), A Conceptual Framework for Analyzing the Financial Environment, in: Crane, D. B. (ed.), *The global financial system: a functional perspective*, Boston, pp. 3 – 32.
- Bruett, T., (2007). Cows, Kiva, and Prosper.Com: How Disintermediation and the Internet are Changing Microfinance. *Community Development Investment Review*, 3 (2): pp. 44-50.
- Bruton, G., Khavul, S., Siegel, D., Wright, M., (2015). New Financial Alternatives in Seeding Entrepreneurship: Microfinance, Crowdfunding, and Peer-to-Peer Innovations. *Entrepreneurship Theory and Practice*, 39 (1), pp. 9-26. (DOI: 10.1111/etap.12143).
- Burtch, G., Ghose, A., Watal, S., (2014). Cultural Differences and Geography as Determinants of Online Prosocial Lending. *MIS Quarterly*, 38 (3): pp. 773-794.

Calomiris, C.W. and Gorton, G. (1991). The Origins of Banking Panics, In R.G. Hubbard (ed.). *Financial Markets and Financial Crises*, Chicago, pp. 109-173, The University of Chicago Press.

Caprio, G., D. Vittas (1997). Financial history: Lessons of the past for reformers of the present, in: Caprio, G. and D. Vittas (eds.), *Reforming financial systems: historical implications for policy*, Cambridge, New York and Melbourne, pp. 1-21.

Čihák, M., Demirgüç-Kunt, A., Feyen, E., Levine, R., (2012). *Benchmarking Financial Development Around the World*. Policy Research Working Paper 6175, World Bank, Washington, DC.

Colombo, M.G., Franzoni, C., Rossi-Lamastra, C., (2015). Internal Social Capital and the Attraction of Early Contributions in Crowdfunding. *Entrepreneurship Theory and Practice*, 39 (1): pp. 75-100.

Cumming, D., Johan, S., (2013). Demand-driven securities regulation: evidence from crowdfunding. *Venture Capital*, 15 (4): pp. 361-379.

De Beukelaer, C., (2014). Creative industries in “developing” countries: Questioning country classifications in the UNCTAD creative economy reports, *Cultural Trends*, 23 (4): pp. 232-251. (DOI: 10.1080/09548963.2014.912043).

De la Torre, A., Feyen, E., Ize, A., (2011). *Financial Development – Structure and Dynamics*. World Bank Policy Research Working Paper No. 5854, Washington DC.

Demyanyk, Y., Kolliner, D., (2014). Peer-to-Peer Lending is Poised to Grow, Federal Reserve Bank of Cleveland, <https://www.clevelandfed.org/en/Newsroom%20and%20Events/-Publications/Economic%20Trends/2014/Peer-to-Peer%20Lending%20is%20Poised%20to%20Grow.aspx>, accessed 26 April 2015.

Diamond D.W., Dybvig P.H., (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy*, 91(3): pp. 401–419.

Diamond, D.W., (1984). Financial Intermediation and Delegated Monitoring. *The Review of Economic Studies*, 51(3): pp. 393-414.

Diamond, D.W., (1991). Monitoring and Reputation: The Choice between Bank Loans and Directly Placed Debt, *Journal of Political Economy*, 99: pp. 689-721.

Diaz-Alejandro, C., (1985). Good-Bye Financial Repression, Hello Financial Crash, in: *Journal of Development Economics*, 19: pp. 1- 24.

Dorff, M.B., (2014). The Siren Call of Equity Crowdfunding. *Journal of Corporation Law*, 39 (3): pp. 493-524.

Emekter, R., Tu, Y., Jirasakuldech, B., Lu, M., (2015). Evaluating credit risk and loan performance in online Peer-to-Peer (P2P) lending. *Applied Economics*, 47 (1): pp. 54-70.

Fitch Ratings, (? Sheehy, B., Flanders, N.) (2014). Peer-to-Peer Lending. *Global Industry Overview, Special Report. Financial Institutions U.S.A.*

Freedman, S., Jin, G.Z., (2014). The Information Value of Online Social Networks: Lessons from Peer-to-Peer Lending. *National Bureau of Economic Research, NBER Working Paper No. 19820. (DOI: 10.3386/w19820).*

Galak, J., Small, D., Stephan, A.T., (2011). Microfinance Decision Making: A Field Study of Prosocial Lending. *Journal of Marketing Research*, XLVIII (Special Issue 2011): pp. 130-137.

GfK Verein, (2014). *Trust in Professions 2014.*

Gorton, G. and Mullineaux, D.J. (1987). The Joint Production of Confidence: Endogenous Regulation and Nineteenth Century Commercial-Bank Clearinghouses, *Journal of Money, Credit, and Banking*, 19 (4): pp. 457-468.

Gorton, G., (2008). The Panic of 2007. National Bureau of Economic Research, NBER Working Paper No. 14358. (DOI: 10.3386/w14358).

Gramlich, E.M., (2004). Subprime Mortgage Lending: Benefits, Costs, and Challenges, Remarks at the Financial Services Roundtable Annual Housing Policy Meeting, Chicago, Illinois, May 21, 2004.

Grant Thornton (2014). Alternative Lending: A Regulatory Approach to Peer-to-Peer Lending.

<http://www.grant-thornton.co.uk/Documents/financial-services/Alternative-Lending-regulatory-approach-to-Peer-to-Peer-lending.pdf>.

Greenbaum, S.I. and A.J. Thakor (2007) *Contemporary Financial Intermediation*, 2nd ed., April 2007, Butterworth Heinemann; Elsevier Science.

Greenspan, A., (1997). Consumer Credit and Financial Modernization, Remarks at the Economic Development Conference of the Greenlining Institute, San Francisco, California.

Guinane, T.W., (2002). Delegated Monitors, Large and Small: Germany's Banking System, 1800-1914, *Journal of Economic Literature*, 40 (1): pp. 73-124.

Harrison, R., (2013). Crowdfunding and the revitalisation of the early stage risk capital market: catalyst or chimera? *Venture Capital*, 15 (4): pp. 283-287.

Helms, B., (2006). Access for all, *Building Inclusive Financial Systems*, The World Bank, Washington DC.

Herzenstein, M., Dholakia, U.M., Andrews, R.L., (2011). Strategic Herding Behavior in Peer-to-Peer Loan Auctions. *Journal of Interactive Marketing*, 25: pp. 27-36.

Klein, M.C., (2015). What will P2P lending look like 5 years from now? *Financial Times*, 19th February.

Krahen, J.-P., R.H. Schmidt (1994). *Development Finance as Institution Building*, Westview Press, Boulder et. al.

Krauss, N., & Walter, I. (2009). Can microfinance reduce portfolio volatility? *Economic Development and Cultural Change*, 58 (1): pp. 85–110.

Kshetri, N., (2015). Success of Crowd-based Online Technology in Fundraising: An Institutional Perspective. *Journal of International Management*, 21 : pp. 100-116.

La Porta, R., Lopez-De-Silanes, F., Shleifer, A., (2002). Government Ownership of Banks, *Journal of Finance*, 57 (1): pp. 265 - 301.

Lamoreaux, N.R., (1986). Banks, Kinship and Economic Development: The New England Case, in: *Journal of Economic History*, XLVI (3): pp. 647-667.

Lee, E., Lee, B., (2012). Herding behavior in online P2P lending: An empirical investigation. *Electronic Commerce Research and Applications*, 11: pp. 495-503.

Lin, M., Prabhala, N.R., Viswanathan, S., (2013). Judging Borrowers by the Company They Keep: Friendship Networks and Information Asymmetry in Online Peer-to-Peer Lending. *Management Science*, 59 (1): pp. 17-35.

Ly, P., Mason, G., (2012a). Competition Between Microfinance NGOs: Evidence from Kiva. *World Development*, 40 (3): pp. 643-655. (DOI: 10.1016/j.worlddev.2011.09.009)

- Ly, P., Mason, G., (2012b). Individual Preferences Over Development Projects: Evidence from Microlending on Kiva. *Voluntas*, 23 (4): pp. 1036-1055. (DOI: 10.1007/s11266-011-9255)
- Mach, T.L., Carter, C.M., Slattery, C.R., (2014). Peer-to-peer lending to small businesses. Finance and Economics Discussion Series Division of Research & Statistics and Monetary Affairs, Federal Reserve Board.
- Madestam, A., (2014). Informal finance: A theory of moneylenders. *Journal of Development Economics*, 107: pp. 157-174.
- Massolution, (2012). 2012CF The Crowdfunding Industry Report.
- Massolution, (2015). 2015CF The Crowdfunding Industry Report.
- McKinnon, R.I. (1973), *Money and Capital in Economic Development*, Washington DC.
- Morse, A., (2015). Peer-to-Peer Crowdfunding: Information and the Potential for Disruption in Consumer Lending. National Bureau of Economics Research, NBER Working Paper No. 20899. (DOI: 10.3386/w20899).
- Moss, T.W., Neubaum, D.O., Meyskens, M., (2015). The Effect of Virtuous and Entrepreneurial Orientations on Microfinance Lending and Repayment: A Signaling Theory Perspective. *Entrepreneurship Theory and Practice*, 39 (1): pp. 27-52. (DOI: 10.1111/etap.12110).
- Newlyn, W.T., Rowan, D. C., (1955). *Money and Banking in British Colonial Africa*, Blackwell Publishing, pp. 72-153.

PWC, (2015). Peer pressure: How peer-to-peer lending platforms are transforming the consumer lending industry. http://www.pwc.com/en_US/us/consumer-finance/publications/assets/peer-to-peer-lending.pdf.

Roodman, D. (2009). Kiva Is Not Quite What It Seems, Center for Global Development, <http://www.cgdev.org/blog/kiva-not-quite-what-it-seems>, accessed 30 April 2015.

Rudegeair, P. (2016). LendingClub to Cut 12% of Its Workforce, as Loan Volumes Fall, Wall Street Journal Online, 28 June, <http://www.wsj.com/articles/lendingclub-to-cut-179-positions-as-loan-volumes-fall-1467111409>

Rutherford, S. (2000), *The Poor and Their Money*, Oxford, Oxford University Press.

Sahay, R., Cihak, M., N'Diaye, P., Barajas, A., Mitra, S., Kyobe, A., Mooi, Y.N., Yousefi R. (2015). Financial Inclusion: Can it Meet Multiple Macroeconomic Goals?, IMF Staff Discussion Note 15/17, Washington DC, <https://www.imf.org/external/pubs/ft/sdn/2015/-sdn1517.pdf>

Schmidt, R.H., Seibel, H.D. and Thomes, P., (2015). *From Microfinance to Inclusive Banking, Why Local Banking Works*, Wiley, forthcoming.

Stiglitz, J. E., Jaramillo-Vallejo, J., and Park Y.C. (1993). The Role of the State in Financial Markets. World Bank Research Observer, Annual Conference on Development Economics Supplement, pp. 19-52.

Sylla, R., (1998). U.S. Securities Markets and the Banking System, 1790-1840, Review – Federal Reserve Bank of St.Louis, pp. 83-98.

Terberger, E., (2007). Banken oder Kapitalmärkte: Welche Struktur des Finanzsystems ist geeignet für Entwicklungsländer? In: Hemmer, H.-R. (ed.), *Zur Wirksamkeitsdebatte in der Entwicklungszusammenarbeit (EZ)*, Tagungsband, 10. Entwicklungsökonomisches Seminar

vom 17.-20. Januar, http://verein-eff.de/resources/tagungsband_2007.pdf, accessed 27th April 2015.

World Bank (2013). Crowdfunding's Potential for the Developing World. infoDev, Finance and Private Sector Development Department. Washington DC.